

Section 2

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POWERING THE 12 VOLT BATTERY SYSTEMS

DC ELECTRICAL SYSTEM

Your Carver 500 COCKPIT is equipped with a 12 volt DC (Direct Current) electrical system. This is a comprehensive system that is designed to meet your present and future 12 volt electrical needs.

Wire-runs and connections are placed and positioned to prevent abrasion and exposure to moisture, as well as to remain accessible for inspection, repairs and adding additional electrical components. Electrical wire used throughout your boat is plastic coated, color-coded wire. A guide to the color code system used by Carver can be found near the end of this section. Connections are made using crimped connector points.

Your boat's electrical system is virtually maintenance free, with only the batteries requiring periodic inspection and maintenance.

Battery Selector Switch

The Direct Current or DC electrical system is powered by two 12 volt 8-D batteries. The port battery is centered near the port wall in the port engine compartment. The starboard battery is centered near the starboard wall in the starboard engine compartment.

The power within these batteries is controlled by the battery selector switch which is located below the first step leading from the salon to the aft deck. The battery selector switch acts as a master disconnect when your boat is equipped with gasoline engines. The selector switch also lets your engines and 12 volt equipment draw power from either battery #1, battery #2, or both batteries together. Refer to the drawing at the end of this section for battery wiring information.

Battery Selector Switch Positions

NOTE: The following information refers only to boats equipped with gasoline engines. If your boat is equipped with diesel engines, the engines are wired directly to battery ON/OFF switches located in the Aft engine room bulkhead. With diesel propulsion, the battery selector switch should be used only to parallel both batteries together if the charge in either battery is too low to start your engines.

Note: With the battery selector switch in the "OFF" position, all 12 volt AC power to the boat is shut off except for the bilge pumps, voltmeters, battery charger leads, shower drain pumps and CO detector. The boat's bilge pumps and shower drain pumps are "hard wired" to the selector switch so they operate in the automatic mode even when the boat is unattended and the selector switch is in the "OFF" position.

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CAUTION

NEVER turn the battery selector switch to the "OFF" position while an engine or engines are running. Doing this will damage the alternator or engine wiring.

#1 Position #1 will use battery #1 to power both engines and all other 12 volt equipment. Battery #2 will be isolated and remain in reserve.

#2 Position #2 will use battery #2 to power both engines and all other 12 volt equipment. Battery #1 will be isolated and remain in reserve.

ALL With the selector switch in the "ALL" position, battery #1 and battery #2 are connected in parallel. Both batteries will be used by the engines and all other 12 volt equipment.

A TIP FROM CARVER = *Carver recommends using ONE BATTERY AT A TIME . The only time you should use the "ALL" position is when a single battery is not capable of starting your engines. After starting the engines in the "ALL" position, switch the selector to either the #1 or #2 position.*

Running the boat in the "ALL" position combines the output of both batteries and does not permit the engine alternator's voltage regulator to sense the charge level of an individual battery. This could lead to inadequate charging if one battery has been drained lower than the other. Alternating between position #1 and position #2 will increase the life of your batteries.

Voltmeters

Battery condition is indicated on your boat's voltmeter. Use the voltmeter in the following manner:

When Starting Your Engines



DANGER

Read, understand and follow the procedures described in Section 5 of this Owner's Guide before starting your boat's engines. Improper starting procedures may create hazardous situations.

POWERING THE 12 VOLT BATTERY SYSTEMS



TURN OFF all electronic communication and navigation equipment PRIOR TO starting the boat's engines. The large swing in the current supply during engine start-up can damage electronic equipment.

- 1) Activate the voltmeter salon and bridge voltmeter gauges by making sure the circuit breakers marked VOLTMETER are in the "ON" position. These breakers are located on the battery selector switch panel below the first step leading from the salon to the aft deck.
- 2) Two active voltmeter gauges are installed at the helm console and an additional gauge is installed on the 12 volt main breaker in the boat's salon. Look at the helm voltmeters to determine which battery has the LOWEST charge. Charge level is determined by the level of power as indicated in available voltage.

To determine a battery's charge using the voltmeter located on the 12 volt main breaker panel, toggle the voltmeter switch to battery #1 and battery #2. This switch is directly below the voltmeter gauge. If both banks are indicating the same level of voltage, use either the #1 or #2 battery selector switch position.

- 3) If your voltmeter shows that one battery has a lower level of charge than the other, switch the battery selector switch to the battery that has the HIGHEST available voltage.
- 4) Start one of the boat's engines. When it is idling smoothly, start the remaining engine. Start each engine independently. Never try to start both engines at once.

NOTE: Before starting the engines, read and understand the information supplied in the manufacturer's owner's guide supplied in your captain's kit.

- 5) After the engines are running, switch the selector switch to the battery bank that had the LOWEST voltage reading. This will allow the engine's alternator to recharge the low battery.

The voltmeter reads static voltage when the engines are off. When the engines are running, one battery will indicate a higher reading than the other. This is because the voltmeter reads alternator charging rate when the engines are running. The position of the battery selector switch determines which battery will be charged by the alternator.

12 Volt Equipment

While the engines are running, 12 volt equipment can be used with little concern for excess battery discharge. The power generated by the engine alternators is usually more than adequate to replace any power consumed by 12 volt equipment.

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HOWEVER, without an engine running, a battery will discharge as it powers 12 volt equipment. Operating 12 volt equipment without charging a battery will eventually completely discharge the battery. This is why we recommend using either battery bank #1 OR battery bank #2 . The condition of your batteries can be monitored by referencing the voltmeter.

Fully charged batteries that have not been charged or discharged for at least 2 hours should indicate between 12.3 to 12.6 volts. A reading below this level indicates a partly discharged battery.

Battery Charger

Your 500 COCKPIT is equipped with a 80 amp battery charger. The battery charger uses AC power to recharge the 12 volt batteries. The battery charger is installed below the battery selector switch near the center of the engine compartment's aft bulkhead.

Provide AC power to the battery charger by turning the AC breaker labeled BATTERY CHARGER to the "ON" position.

When activated the battery charger automatically monitors the charge of both batteries, regardless of the position of the battery selector switch. When the voltage in a battery drops below a predetermined level the charger automatically recharges the low battery.

With your boat connected to AC power (either through the shore power cord or by operating the onboard generator) and your battery charger operating, you can use 12 volt equipment (such as cabin lights) with little concern for discharging the boat's batteries.

The battery charger will charge the batteries even when the battery selector switch is in the "OFF" position. More information on using the battery charger can be found in the "**Shore 1**" portion of **Section 3**.

POWERING THE 12 VOLT BATTERY SYSTEMS

12 VOLT BREAKER PANELS

Twelve Volt (Direct Current) power is managed throughout your boat using three 12 volt panels. The first, the 12 volt "Main Circuit Breaker Panel," manages 12 volt electrical power to most of your boat's 12 volt systems and accessories. This "Main Breaker Panel" is located in the starboard area of the boat's salon below the entertainment center.

A second "Bridge Breaker Panel" manages the power flow to many of the navigational and safety equipment used during cruising. This breaker panel is located conveniently on the command bridge for easy access.

A third "Safety Breaker Panel" manages safety equipment such as bilge pumps and Carbon Monoxide detectors that are wired directly to the batteries. The "Safety Breaker Panel" is combined with the battery selector switch. You can find the "Safety Breaker Panel" below the salon stairs that lead to the aft deck.

These circuit breakers enable you to manually interrupt a circuit by switching the breaker on or off. They also protect the electrical system by automatically disconnecting the circuit from the power source in the case of a short or overload.



NEVER reset a breaker that has been automatically tripped without first correcting the problem. Failure to do this may create a dangerous situation.

12 volt Main Breaker Panel

The following breakers are installed on the 12 volt main breaker panel:

Main

This main breaker located in the upper left corner of the salon DC breaker panel controls the supply of electricity to the remaining DC breakers. To supply power to the other breakers, this main breaker must be "ON." To cut the power supply to the remaining breakers, turn the main breaker to the "OFF" position.

Aft strm Lts

This breaker controls the flow of electricity to the aft stateroom lights. Turn this breaker to the "ON" position before using the aft stateroom light.

Galley Lts

This breaker controls the flow of electricity to the galley lights. Turn this breaker to the "ON" position before using the galley lights.

Salon Lts

This breaker controls the flow of electricity to the salon lights. Turn this breaker to the "ON" position before using the salon lights.

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Fwd Strm Lts

This breaker controls the flow of electricity to the forward stateroom lights. Turn this breaker to the "ON" position before using the forward stateroom lights.

Mid Strm Lts

This breaker controls the flow of electricity to the mid stateroom lights. Turn this breaker to the "ON" position before using the mid stateroom lights.

Eng Rm Lts

This breaker controls the flow of electricity to the engine room lights. Turn this breaker to the "ON" position before using the engine room lights.

Water Monitor

This breaker controls the flow of electricity to the Water tank monitor. The water tank monitor indicates the water level within your water tank. Turn this breaker to the "ON" position to activate the water tank monitor.

Waste Monitor Fwd

This breaker controls the flow of electricity to the forward waste tank monitor located in the forward head compartment. This monitor indicates the level of waste within your forward waste tank. To activate the forward waste tank monitor, turn this breaker to the "ON" position.

Waste Pump

This breaker controls the flow of electricity to the waste pump. This 12 volt pump is used to empty the contents of the waste holding tanks on boats equipped with overboard discharge. To supply power to the pump, turn this breaker to the "ON" position.

Pressure Water Pump

This breaker controls the flow of electricity to the pressure water pump. Your boat's fresh water system is pressurized using this pressure pump. To activate you boat's pressure pump turn this breaker to the "ON" position. Once the breaker is on the pressure pump will operate automatically and on demand when the pressure within the water systems falls below a predetermined level. When the fresh water tanks are empty, switch and leave the this circuit breaker in the "OFF" position.

Washdown Pump

This breaker controls the flow of electricity to the optional raw water transom washdown. To activate the washdown pump, turn this breaker to the "ON" position. When you are finished, deactivate the pump by turning the breaker to the "OFF" position.

Refer Galley

This breaker controls the flow of electricity to the dual voltage refrigerator located in the galley. To operate the galley's dual voltage refrigerator using 12 volt battery power, this breaker must be turned "ON."

POWERING THE 12 VOLT BATTERY SYSTEMS

Refer Aft Deck

This breaker controls the flow of electricity to the dual voltage refrigerator located on the aft deck. To operate the aft deck dual voltage refrigerator using 12 volt battery power, this breaker must be turned "ON."

Salon Accessories

This breaker can be used to control power to any after market accessories installed by you or your dealer.

Electric Head Fwd (Vac-U-Flush System)

This breaker controls the flow of electricity to the forward electric head. Before using the forward head, turn the breaker to the "ON" position. Pressing the foot lever near the base of the unit activates the flushing mechanism to clear waste from the head. Additional information on using and maintaining the electric flush toilets is included in the OEM material's portfolio. For boats equipped with the Crown Electric Head, this breaker will be a spare.

Electric Head Aft (Vac-U-Flush System)

This breaker controls the flow of electricity to the aft electric head. Before using the aft head, turn the breaker to the "ON" position. Pressing the foot lever near the base of the unit activates the flushing mechanism to clear waste from the head. Additional information on using and maintaining the electric flush toilets is included in the OEM material's portfolio. For boats equipped with the Crown Electric Head, this breaker will be a spare.

Head Fan Fwd

An exhaust fan has been installed in the forward head compartment. This fan should be turned "ON" when the shower is being used and whenever an exchange of air is needed within the head compartment. To activate the fan in the forward head, turn this 12 volt circuit breaker to the "ON" position. A switch labeled FAN has been installed in the head compartment. Use this switch to turn the fan on when needed.

Head Fan Aft

An exhaust fan has also been installed in the aft head compartment. This fan should be turned "ON" when the shower is being used and whenever an exchange of air is needed within the head compartment. To activate the fan in the forward head, turn this 12 volt circuit breaker to the "ON" position. A switch labeled FAN has been installed in the head compartment. Use this switch to turn the fan on when needed.

Crown Head Fwd

On boats equipped with the crown electric head, turn this breaker to the "ON" position before using the forward head. A button labeled "FLUSH" is installed near each toilet. Push this button to clear the head of waste. Additional information on using and maintaining the electric flush toilets is included in the OEM material's portfolio. For boats equipped with the Vac-U-Flush head system, this breaker is a spare.

POWERING THE 12 VOLT BATTERY SYSTEMS

Crown Head Aft

On boats equipped with the crown electric head, turn this breaker to the "ON" position before using the aft head. A button labeled "FLUSH" is installed near each toilet. Push this button to clear the head of waste. Additional information on using and maintaining the electric flush toilets is included in the OEM material's portfolio. For boats equipped with the Vac-U-Flush head system, this breaker is a spare.

Intercom

This breaker controls the flow of electricity to the intercom system. To activate the intercom system, turn this breaker to the "ON" position.

Waste Monitor Aft

This breaker controls the flow of electricity to the waste tank monitor located aft head compartment. This monitor indicates the level of waste within your aft waste holding tank. To activate this monitor, turn this breaker to the "ON" position.

LP Gas

For boats equipped with an LP stove, this breaker must be turned on before attempting to use the stove. Without this breaker on, the stove will not function.

Electronic Engine Controls

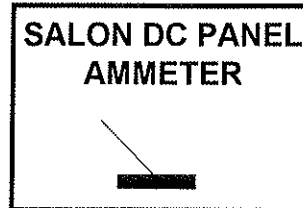
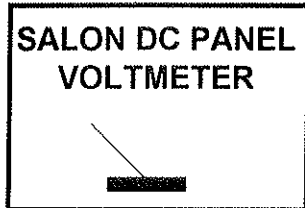
This breaker controls the flow of electricity to the engine throttle controls. To activate these controls, turn this breaker to the "ON" position.

Spare

The remaining breakers labeled "Spare" have been reserved as spares for any after market accessories you or your dealer install on the boat.

POWERING THE 12 VOLT BATTERY SYSTEMS

12 Volt Main Breaker Panel



<input type="radio"/>	MAIN 100 AMP
<input type="radio"/>	AFT STRM LIGHTS 25 AMP
<input type="radio"/>	GALLEY LTS 10 AMP
<input type="radio"/>	SALON LTS 20 AMP
<input type="radio"/>	FWD STRM/HD LTS 25 AMP
<input type="radio"/>	MID STRM LTS 10 AMP
<input type="radio"/>	ENG RM LTS 10 AMP
<input type="radio"/>	WATER MONITOR 2.5 AMP
<input type="radio"/>	WASTE TANK MON 2.5 AMP
<input type="radio"/>	WASTE TANK MON 2.5 AMP
<input type="radio"/>	WASTE PUMP 10 AMP
<input type="radio"/>	WATER PUMP 10 AMP
<input type="radio"/>	WASHDOWN PUMP 10 AMP
<input type="radio"/>	SPARE 15 AMP
<input type="radio"/>	SPARE 20 AMP

<input type="radio"/>	REFER 15 AMP
<input type="radio"/>	AFT DECK REFER 10 AMP
<input type="radio"/>	ELEC HEAD FWD 10 AMP
<input type="radio"/>	ELEC HEAD AFT 10 AMP
<input type="radio"/>	HEAD FAN FWD 5 AMP
<input type="radio"/>	HEAD FAN AFT 5 AMP
<input type="radio"/>	SPARE/CRWN HD FWD 50 AMP
<input type="radio"/>	SPARE/CRWN HD AFT 50 AMP
<input type="radio"/>	INTERCOM AFT 2.5 AMP
<input type="radio"/>	LP GAS 2.5 AMP
<input type="radio"/>	ELEC ENG CNTRL 20 AMP
<input type="radio"/>	SPARE 10 AMP
<input type="radio"/>	SPARE 7.5 AMP
<input type="radio"/>	SPARE 5 AMP
<input type="radio"/>	SPARE 10 AMP

POWERING THE 12 VOLT BATTERY SYSTEMS

12 volt Bridge Breaker Panel

Main

This main breaker located in the upper left corner of the Bridge DC breaker panel controls the supply of electricity to the remaining DC bridge breakers. To supply power to the other bridge breakers, this main breaker must be "ON." To cut the power supply to the remaining bridge breakers, turn this main breaker to the "OFF" position.

Spot Lt

This breaker regulates the flow of electricity to the spot light controls. To activate the spot light controls you must first turn this breaker to the "ON" position.

Ext Lts

This breaker regulates the flow of electricity to the exterior light controls. To activate the exterior light controls you must first turn this breaker to the "ON" position.

Panel Lts

This breaker regulates the flow of electricity to the instrument panel lights. To activate the panel lighting you must first turn this breaker to the "ON" position.

Nav Lts

This breaker regulates the flow of electricity to the navigational lights. To activate the navigational lights you must first turn this breaker to the "ON" position.

Syncro

This breaker regulates the flow of electricity to the engine synchronizer. To activate the engine synchronizer you must first turn this breaker to the "ON" position.

Fuel Tran pump

This breaker regulates the flow of electricity to the fuel transfer pump on boats equipped with diesel propulsion engines. To activate the fuel transfer pump you must first turn this breaker to the "ON" position.

Fwd Bilge Pump

This breaker regulates the flow of electricity to the forward bilge pump. To manually activate the forward bilge pump using the bridge controls, you must first turn this breaker to the "ON" position.

Mid Bilge Pump

This breaker regulates the flow of electricity to the mid bilge pump. To manually activate the mid bilge pump using the bridge controls, you must first turn this breaker to the "ON" position.

Aft Bilge Pump

This breaker regulates the flow of electricity to the aft bilge pump. To manually activate the aft bilge pump using the bridge controls, you must first turn this breaker to the "ON" position.

POWERING THE 12 VOLT BATTERY SYSTEMS

Note: Incorporated into each bilge pump is a float switch. The float switch "automatically" activates the appropriate bilge pump when bilge water rises above a predetermined level. Since your bilge pumps are "hard wired" to the battery selector switch, they will operate automatically via their float switch regardless of the position of the breakers on the 12 volt circuit breaker panel or battery selector switch. It's a good idea to periodically test each float switch by lifting the float. The pump should turn on when the float is lifted.

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 logs are located. The small amount of water that normally accumulates is usually not enough to activate the bilge pump's automatic float switch."*

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



CAUTION

DON'T FORGET TO TURN YOUR BILGE PUMPS OFF. Leaving a pump on for extended periods of time could cause excessive wear to the pump.

Bilge Blower Fwd

This breaker regulates the flow of electricity to the forward bilge blower. To operate the forward bilge blower, turn this breaker to the "ON" position. A switch labeled forward bilge blower has been installed at the helm station. Turning this helm switch to the "ON" position activates the forward bilge blower.



DANGER

ALWAYS use both bilge blowers before starting the boat's engines or the generator.

Bilge Blower Aft

This breaker regulates the flow of electricity to the aft bilge blower. To operate the aft bilge blower, turn this breaker to the "ON" position. A switch labeled aft bilge blower has been installed at the helm station. Turning this helm switch to the "ON" position activates the aft bilge blower.

Halon

This breaker regulates the flow of electricity to the Halon fire suppression system located in your boat's helm station. To activate the system this breaker must be turned to the "ON" position. The fire extinguisher will still function to extinguish fires if this breaker is "OFF."

Wiper Starboard

This breaker regulates the flow of electricity to the starboard wiper. To manually activate the starboard wiper using the bridge controls, you must first turn this breaker to the "ON" position.

POWERING THE 12 VOLT BATTERY SYSTEMS

Wiper Center

This breaker regulates the flow of electricity to the center wiper. To manually activate the center wiper using the bridge controls, you must first turn this breaker to the "ON" position.

Wiper Port

This breaker regulates the flow of electricity to the port wiper. To manually activate the port wiper using the bridge controls, you must first turn this breaker to the "ON" position.

Trim Tabs

This breaker regulates the flow of electricity to the trim tab controls. To manually activate the trim tabs using the bridge controls, you must first turn this breaker to the "ON" position.

Stereo

This breaker regulates the flow of electricity to the bridge stereo system. To manually activate the bridge stereo you must first turn this breaker to the "ON" position.

Helm Accessories

This breaker regulates the flow of electricity to any after market helm accessories you or your dealer have installed on the boat. To activate accessories wired to this breaker you must first turn the breaker to the "ON" position.

Horn

This breaker regulates the flow of electricity to the horn. To manually activate the horn using the bridge controls, you must first turn this breaker to the "ON" position.

Radar

This breaker regulates the flow of electricity to the radar equipment if installed on the boat. To activate the power to the radar equipment, you must first turn this breaker to the "ON" position.

VHF Radio

This breaker regulates the flow of electricity to the VHF radio if installed on the boat. To activate the power to the radio, you must first turn this breaker to the "ON" position.

GPS/Loran

This breaker regulates the flow of electricity to the GPS/Loran equipment if installed on the boat. To activate the power to the GPS/Loran equipment, you must first turn this breaker to the "ON" position.

Plotter

This breaker regulates the flow of electricity to the plotter if installed on the boat. To activate the power to the plotter, you must first turn this breaker to the "ON" position.

Depth Sounder

This breaker regulates the flow of electricity to the depth sounder if installed on the boat. To activate the power to the depth sounder, you must first turn this breaker to the "ON" position.

POWERING THE 12 VOLT BATTERY SYSTEMS

Auto Pilot

This breaker regulates the flow of electricity to the auto pilot equipment if installed on the boat. To activate the power to the auto pilot system, you must first turn this breaker to the "ON" position.

Spare

The remaining breaker labeled "Spare" has been reserved as a spare for any after market accessories you or your dealer install on the boat.

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12 volt Bridge Breaker Panel

<input type="radio"/> MAIN 100 AMP	<input type="radio"/> FWD BILGE PUMP 7.5 AMP	<input type="radio"/> WIPER STBD 7.5 AMP	<input type="radio"/> RADAR 10 AMP
<input type="radio"/> SPOTLIGHT 10 AMP	<input type="radio"/> MID BILGE PUMP 7.5 AMP	<input type="radio"/> WIPER CTR 7.5 AMP	<input type="radio"/> VHF RADIO 10 AMP
<input type="radio"/> EXTERIOR LTS 15 AMP	<input type="radio"/> AFT BILGE PUMP 7.5 AMP	<input type="radio"/> WIPER PORT 7.5 AMP	<input type="radio"/> GPS/LORAN 5 AMP
<input type="radio"/> PANEL LIGHTS 7.5 AMP	<input type="radio"/> BILGE BLOWER 7.5 AMP	<input type="radio"/> TRIM TABS 20 AMP AMP	<input type="radio"/> PLOTTER 5 AMP
<input type="radio"/> NAV LIGHTS 10 AMP	<input type="radio"/> BILGE BLOWER 7.5 AMP	<input type="radio"/> STEREO 10 AMP	<input type="radio"/> DEPTH SOUNDER 2.5 AMP
<input type="radio"/> SYNCHRONIZER 10 AMP	<input type="radio"/> BILGE BLOWER 7.5 AMP	<input type="radio"/> HELM ACCY 10 AMP	<input type="radio"/> AUTO PILOT 25 AMP
<input type="radio"/> FUEL TRANSFER 15 AMP	<input type="radio"/> HALON 2.5 AMP	<input type="radio"/> HORN 15 AMP	<input type="radio"/> SPARE 15 AMP

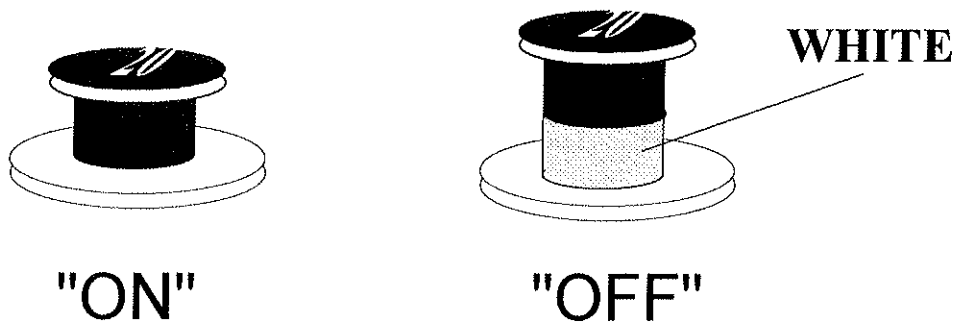
POWERING THE 12 VOLT BATTERY SYSTEMS

12 volt Safety Breaker Panel

Equipment routed through the Safety Breaker Panel remains active at all times unless the breakers are manually interrupted. The Safety Breaker Panel is directly wired to the batteries to keep the various pumps and safety equipment active regardless of the position of the battery selector switch. While the safety equipment wired through this safety breaker panel will operate at all times even when the battery selector switch is in the "OFF" position, it will not run should a breaker becomes interrupted. Therefore, it is important to frequently check that these breakers are working properly whenever using your boat.

Push-To-Reset-Breakers

The 12 volt DC breakers located on the ship's safety main breaker panel are push-to-reset breakers. This style of breaker has a push-pull knob for resetting and turning the breaker off. If a white band is exposed on the neck of the push-pull knob, the breaker has been tripped or is off. Push the knob on the breaker to reset. Pull the knob out exposing the white band to turn the breaker off. Refer to the following illustration for on and off positions.



CO Detector

Carver installs 4 carbon monoxide detectors on the 500 COCKPIT. CO detectors have been installed in each stateroom and an additional detector is in the boat's salon.

This safety equipment detects the presence of carbon monoxide (abbreviated as CO) within the cabin of your boat. Carbon monoxide is a colorless and odorless gas that is present in engine and generator exhaust fumes. Carbon monoxide is a very dangerous gas that is potentially lethal when inhaled.

Your CO detector will alert you to the presence of carbon monoxide in the cabin by emitting a loud, high pitched sound. When you hear this alarm, determine the cause and correct it immediately. There is a test button on each CO detector. Test each unit on a weekly basis. If you suspect that a CO detector is faulty, have your dealer repair or replace it immediately. More information concerning carbon monoxide is included in **Section 1** of your Owner's Guide.

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DANGER

ALWAYS activate the CO Detectors when the boat's engines and/or generator are running. Carbon monoxide is dangerous. Study Section 1 of your Owner's Guide for information on minimizing, detecting and controlling carbon monoxide accumulation.

Voltmeter

Voltmeter breakers have been installed on your safety main panel as a protective measure. This breaker controls the power flow to the salon and bridge voltmeter gauges. This breaker must be "ON" for the voltmeters to function.

Remote Lights

This breaker regulates the power to the remote control lighting. This breaker must remain in the "ON" position for the remote control lighting to function.

Shower Sump

The Shower Sump breakers regulate power to the shower drain pump. This pump is activated automatically by a float switch whenever water within the drain basin rises to a predetermined level. Since the air conditioner condensation also flows into the shower sump, it is important that this breaker remains in the "ON" position whenever using the shower or the air conditioning units.

Accessories Main

This breaker is installed to protect the salon and bridge 12 volt breaker panels from unexpected electrical overloads. This breaker must remain active at all time in the "ON" position for power to reach the bridge and salon 12 volt panels.

Auto Bilge Pump

The automatic bilge pump breakers regulate the flow of electricity to the three automatic bilge pumps. These pump are activated automatically by a float switch whenever water within the bilge area rises to a predetermined level. It is important that this breaker remains in the "ON" position whenever the boat is in the water.

Battery Charger

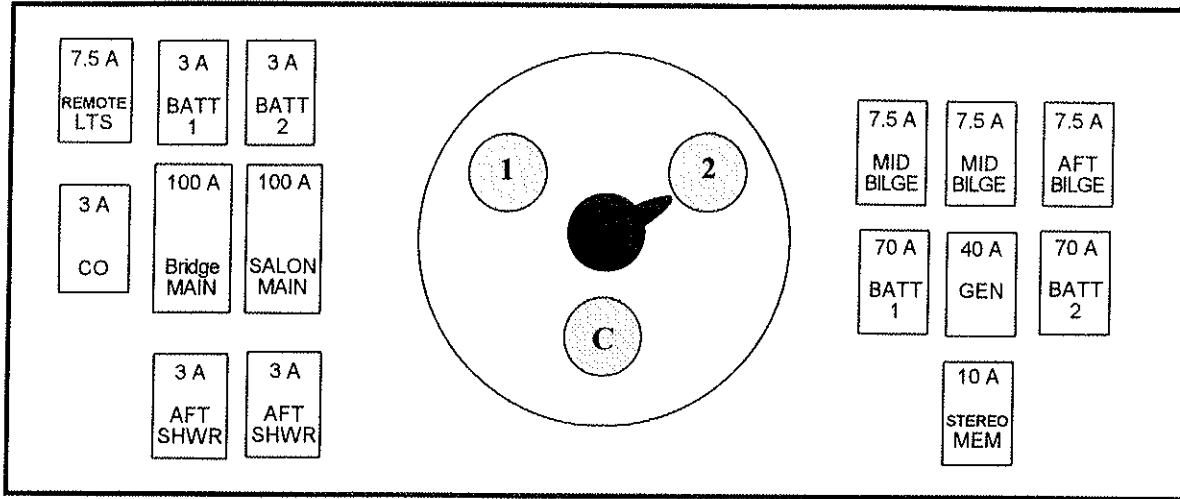
The battery charger breaker is installed as a safety feature to reduce the potential for electric shock or fire should a the live wire become damaged or cut. This breaker should be left in the "ON" position at all times. If the breaker is interrupted, determine the cause of the interruption before resetting the breaker.

Stereo Memory

When in the "ON" position, the stereo memory breaker keeps a constant supply of power to the 12 volt stereo's memory. Interrupting this breaker will erase the memory stored in you stereo system. Items such as the clock will need to be reset.

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12 volt Safety Breaker Panel



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12 VOLT WIRING SCHEMATIC

Not available at time of printing

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BATTERY INSTALLATION AND MAINTENANCE

Your boat's 12 volt DC electrical system is powered with two 1400 amp, 8-D, heavy-duty batteries.

While your boat's batteries are relatively maintenance free, there are a few things you can do to increase their effectiveness and life.



Your boat's batteries contain electrolyte which is an acid. Wear gloves and protective eye glasses when working on and around the batteries.

When servicing your boat's batteries avoid spilling electrolyte into the engine compartment or bilge. Also, avoid getting any salt water in or on the battery. Either of these conditions could create a poisonous gas that would be harmful if inhaled.

If you should spill electrolyte ventilate the area. Neutralize the acid in the electrolyte by pouring baking soda on the area of the spill. Neutralized electrolyte can then be cleaned up with a disposable rag or paper toweling.

Maintaining Your Boat's Batteries

- 1) Keep your batteries fully charged. Batteries that are kept full or near fully charged will last longer than batteries stored with a partial charge. Battery condition can be monitored using the voltmeter that is installed on the helm console.
- 2) Inspect your boat's batteries at least every 30 days.
- 3) Periodically clean the battery terminals and cable connections. **DISCONNECT THE BATTERIES BEFORE CLEANING.**

Remove any accumulation of dirt on the top of the battery case. Use a wire brush to clean the terminals. Coating the terminals with a terminal protecting product will help reduce corrosion that can form in these areas.

- 4) Check to make sure that the battery cables are securely attached to the terminal posts. Tighten the terminal wing nuts 1/4 turn beyond finger tight with a pliers.
- 5) Check the level of electrolyte in each cell of each battery. Correct level is just above the plates. If the fluid level is low, top off the cell with **DISTILLED** water. **DO NOT OVERFILL.**

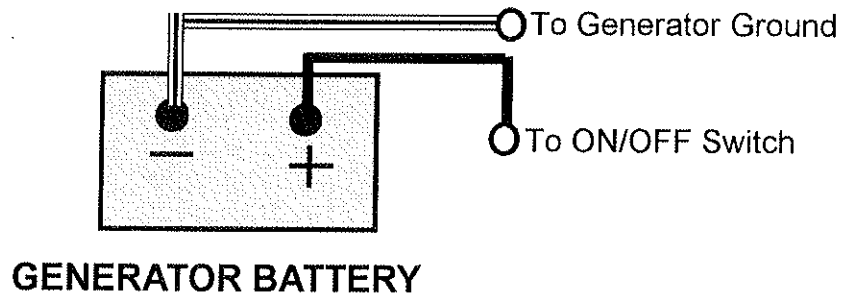
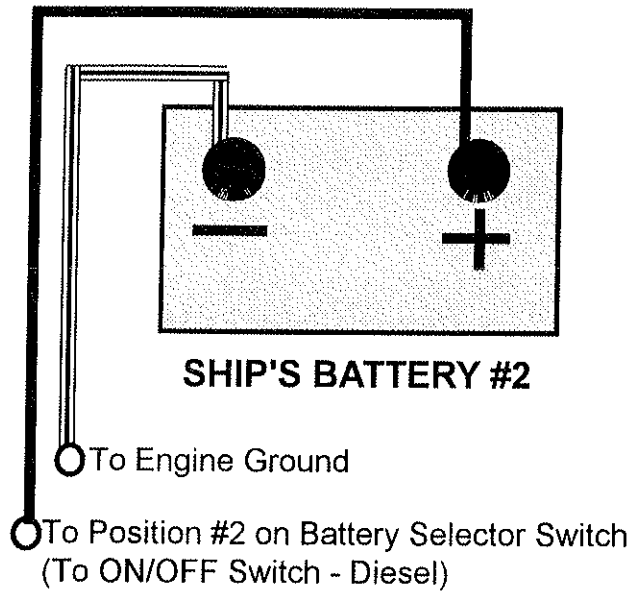
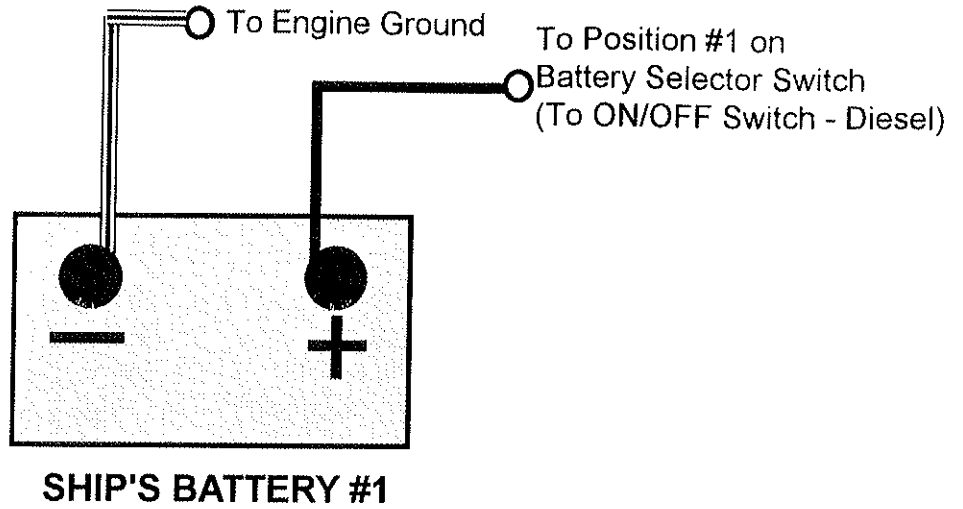
POWERING THE 12 VOLT BATTERY SYSTEMS

- 6) Remove the batteries from the boat during periods of extended storage. Store your batteries in a cool (above freezing temperature), dry area. All batteries will lose some charge during storage but the lower the temperature the less loss of charge. Avoid storing the batteries in a humid place. Humidity will lead to corrosion of the terminals.

Check the battery charge level every 3 months using a hydrometer or voltmeter. If the specific gravity of the battery is less than 1.225 or voltage less than 12.4 volts charge the battery. Avoid overcharging.

POWERING THE 12 VOLT BATTERY SYSTEMS

BATTERY WIRING (GAS ONLY)



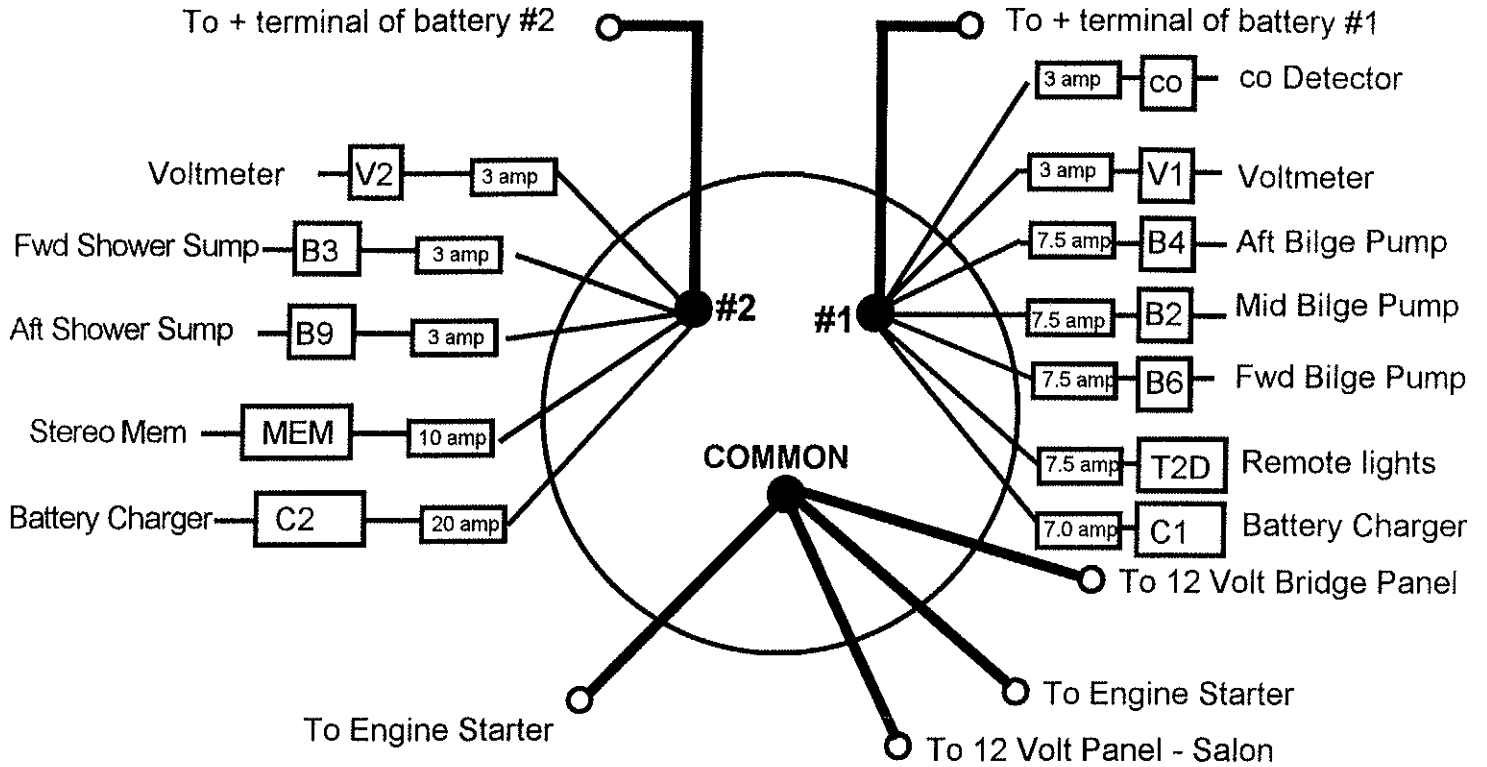
Negative / Black Battery Cable = 

Positive / Red Battery Cable = 

Note: Propulsion engines are connected together with a black ground cable. Generator is connected to a propulsion engine with a black ground cable.

POWERING THE 12 VOLT BATTERY SYSTEMS

BATTERY SELECTOR SWITCH WIRING (Gasoline Engines)



POWERING THE 12 VOLT BATTERY SYSTEMS

12 VOLT ELECTRICAL WIRE COLOR GUIDE

Not available at time of printing

POWERING THE 12 VOLT BATTERY SYSTEMS

POWERING THE 12 VOLT BATTERY SYSTEMS

TROUBLE SHOOTING 12 VOLT ELECTRICAL SYSTEM

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
12 volt equipment will not function.	Battery selector switch in the "OFF" position.	Turn the battery selector switch to position #1 or position #2.
	Main circuit breaker in the "OFF" position.	Turn on MAIN circuit breaker.
	Weak or dead battery bank.	Reposition battery selector switch and charge battery.
Individual 12 volt component will not operate.	Circuit breaker for that component in the "OFF" position.	Turn circuit breaker for that component on.
	Weak or dead battery bank.	Reposition battery selector switch.
	Loose or disconnected wire within the 12 volt system.	Repair system as needed.
Cabin lights do not come on OR are dim.	Circuit breaker marked CABIN in the "OFF" position.	Turn on CABIN circuit breaker.
	Weak or discharged battery bank.	Reposition battery selector switch and charge weak battery bank as needed.
	Light bulb burned out.	Replace light bulb.
Battery will not hold a charge.	Faulty or old battery.	Replace with new battery.
Engine is running and voltmeter does not indicate adequate voltage.	Engine alternator belt is loose.	Refer to engine manual for instructions on tightening belt.