

GRAND BANKS

HULL NO. 642

WE TAKE GREAT PLEASURE IN WELCOMING you to the ever growing fleet of GRAND BANKS diesel cruisers.

Since their introduction, these boats have made extensive cruises on inland waters and the far seas of the world and we are sure that your Grand Banks will give you many hours of pleasurable and reliable cruising.

Have a genuine interest in following the history of all our boats and we ask you to keep in touch with your dealer so that we may learn of the experiences that you have had with the boat and so that you, in turn, may receive the owners' Newsletter which gives news of interest concerning the boats and their owners.

AMERICAN MARINE (S) PTE. LTD.
26 JALAN TERUSAN
JURONG TOWN
SINGAPORE 22.

Notification of Purchase

An owner's warranty card is to be completed and mailed to American Marine (S) Pte. Ltd., 26 Jalan Terusan, Jurong Town, Singapore 22. A United States law provides that the manufacturer of a vessel must keep a record of the yachts and their owners.

Model GRAND BANKS 42 Hull No. 642

Boat Name

Owner

Address

Boat Location

Date of Delivery

Name of Dealership

MECHANICAL DETAILS

	Single Engine or Port Engine	Starboard Engine
Engine Type	CATERPILLAR 3208	CATERPILLAR 3208
Engine Serial No.	75V 3840	75V 3819
Gearbox	Twin Disc MG-506 2.96:1	Twin Disc MG-506 2.96:1
Gearbox Serial No.	3N 1512	3N 1514
Propeller-Pitch	Port : 26" Stbd : 26"	Diameter Port : 30" Stbd : 30" (3 Blades)

g hanna
4" 4"
(owner's copy for boat's records)

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General Specifications

LENGTH OVERALL	12.75 m	41' 10"
LENGTH WATERLINE	12.34 m	40' 6"
BEAM	4.15 m	13' 7"
DRAFT	1.27 m	4' 2"
DISPLACEMENT	15,422 kgs	34,000 lbs
FUEL CAPACITY	2460 litres	650 U.S. gals
FRESH WATER CAPACITY	929 litres	245 U.S. gals
STANDARD POWER	TWIN LEHMAN FORD 2715E, 6 CYLINDER 6.2 LITRE (380 CU. INCH), DIESELS RATED AT 120 HORSE- POWER @ 2500-RPM.	
OPTIONAL POWER	TWIN CATERPILLAR 3208, VEE-8 DIESELS 10.4 LITRE (636 CU. INCH) RATED AT 210 HORSEPOWER @ 2800 RPM	

2000 9.5 KW 2715E-2 2000 2715E-2

Old type serial 3. CC also model - L-2715E

Low motor 11,52

gear mg 506 62

Engine Operation

A detailed technical description of the engines is to be found in the engine manufacturer's instruction book provided with the boat.

Recommended operational procedures are listed below.

PRE-START CHECKS

Check the engine and transmission lube oil levels.

Check the coolant level.

Check for excessive water in the bilge.

The battery disconnect switches in the engine room should be left on at all times. These switches disconnect all batteries from the boat's electrical system and should never be turned off while engines are running.

STARTING THE ENGINE

Double-check the gearshift control lever to be sure the transmission is in neutral. Move throttle control to approximately $\frac{1}{4}$ throttle. The red battery selector switch on the electrical panel near the helm governs only the service electrical system and has nothing to do with the engines. Turn engine circuit breaker to "on" position. This will actuate the low oil pressure alarm buzzer. Press the starter switch and throttle back to idle as soon as the engine has started. The low oil pressure alarm will shut off as soon as oil pressure reaches a normal minimum. If the alarm has not shut off within ten seconds, turn the engine off and determine the cause of the low oil pressure situation. In twin-engined installations, start the second engine in the same sequence as the first.

Make a visual check of the boat by taking a turn around the deck. Look for lines that may foul the propeller when you are backing out, look for swimmers in the water, look at your fenders to be sure that the lines to which they are attached will not foul on any part of the dock, and take a look over the stern to be sure exhaust water is flowing from the exhaust outlet.

The prudent skipper will make a quick visual inspection of his engine room to see that loose equipment is stowed and will double-check the engines to see that all systems are operating properly.

ENGINE ROOM BLOWER

The circuit breaker for the engine room blower is adjacent to the ignition switches. With the proven safety of diesel operation the primary function of this piece of equipment is to control the engine room air temperature. In hot weather it is advisable to leave the blower running for a few minutes after stopping the engines to assist in removing the heat remaining in the engine.

UNDERWAY

Always allow an engine to warm up gradually. This will normally require approximately 15 minutes.

Do not exceed 1600 rpm until the water temperature has reached 180 degrees F. If the water temperature should exceed 212 degrees F the alarm system will sound. If this should happen, stop the engine at once and investigate the cause.

The oil pressure should not fall below 15 p.s.i.. If it should fall below this minimal level the alarm system will also sound and the engine should be shut down.

Maximum r.p.m. may vary depending upon the state of the bottom and of the condition of the propellers etc. A cruising speed of 200 r.p.m. below the maximum available, will ensure long engine life.

STOPPING THE ENGINE

If you are at cruising speed and decide to cut your engine for any reason, always ease the throttle to idle speed. Put the gearshift lever in neutral after you have throttled back all the way and allow the engine to idle for a minute before shutting down the engine.

Activate the stop device located on the instrument panel and allow the oil pressure alarm to sound before you turn off the engine circuit breaker. This is recommended as a check for the alarm system to ensure that it is operative.

Servicing

DAILY

The following items should be checked on each occasion that you take your boat on a cruise.

1. Check engine lube oil level.
2. Check coolant level.
3. Check for water in bilge. Pump bilge and locate source if excessive water is found.
4. Check battery water level.
5. Check transmission fluid level with engine off.
6. Drive belt tension need not be checked each time the engine is started, however, it should be checked often.
7. Drain water from water separator of primary fuel filters.
8. Service electrical generating plant as per Onan Operator's Manual.

SPECIAL 25 HOUR SERVICE

This service is to be performed by the dealer who commissioned your boat following your first 25 hours of operation.

1. Check instruments for proper operation.
2. Calibrate tachometer.
3. Torque heads, injectors and all external engine bolts.
4. Check valve clearance.
5. Check engine controls (stop device and throttle) to be sure they are not chafing.
6. Perform all items on 100 hour service.

100 HOUR SERVICE

This service is to be performed every 100 hours.

1. Check transmission gearshift cables to be sure they are not chafing; lubricate cable and fittings.
2. Check transmission for leaks; check transmission fluid level with engine off.
3. Change engine oil and oil filters; run engine and check for leaks.
4. Change all fuel filters. Bleed air from system after changing filters.
5. Clean air filter.
6. Check zinc in heat exchangers.
7. Inspect all seacocks and be sure they are not seized.
8. Check raw water strainer to be sure it is not clogged.
9. Check coolant level.
10. Inspect fuel, oil and water fittings for leaks. Make sure all hose clamps are tight.
11. Check battery terminals for corrosion.
12. Check battery water level.
13. Check drive belts. If replaced, check belts within the first 10-15 engine hours for stretch.
14. Check all electrical connections on engine for tightness.
15. See that steering is free and cables have proper tension. If cables are slack, they should be tightened by adjusting the eyebolts on the quadrant. They should not be overtightened or the steering will become stiff. Check sheave and shaft bearings for ample grease.
16. Service Onan generator per Onan Operator's Manual.
17. Check exhaust system for leaks.
18. Check drive shaft and rudder stuffing boxes for leaks. Water may drip slowly from the drive shaft stuffing box. However, if the water is coming through at a faster rate, the locking nut should be backed off and the packing nut tightened by hand until the water stops or is just

X

dripping slowly. The lock nut should then be retightened. **CAUTION:** Overtightening will cause damage to your propeller shaft. Check the condition of the hoses and clamps connecting the stuffing boxes to the logs. If "O" ring stuffing boxes are installed, lubricate the grease fitting on top of the stuffing box. If water drips at an excessive rate after lubrication, the "O" rings must be changed.

200 HOUR SERVICE

This service to be performed every 200 hours.

1. Change transmission fluid. Drain fluid through the large plug at the bottom, starboard side of the transmission. After draining, the removable oil screen inside the drain hole should be thoroughly cleaned before refilling the transmission to the full mark. Run the engine for a few minutes to pump the fluid through the cooler. Add sufficient oil to bring the level to the full mark again.
2. Check raw water pump for impeller wear.
3. Perform all items on 100 hour service list.
If your boat is operated less than 200 hours per year, perform all items on the 100 and 200 hours service list yearly.

TROUBLESHOOTING

PROBLEM	DIAGNOSIS	CORRECTION
Engine turns over but will not start	<ol style="list-style-type: none"> 1. Out of fuel 2. Dirty <u>fuel filters</u> 3. Stop mechanism stuck in stop position 	<ol style="list-style-type: none"> 1. Fill tanks and bleed system. 2. Change <u>filters</u> and bleed system. 3. Free as necessary.
Engine will not turn over	<ol style="list-style-type: none"> 1. Low battery charge or faulty connections 	<ol style="list-style-type: none"> 1. Check connections for corrosion and proper tightness.
Engine fires but will not run	<ol style="list-style-type: none"> 1. Fuel return line blocked or fuel return selector valve closed 	<ol style="list-style-type: none"> 1. Check and adjust as necessary.
Engine will not maintain cruising rpm	<ol style="list-style-type: none"> 1. Stop lever partially on 2. Dirty fuel filters 3. Air leak in fuel supply line 4. Blocked fuel shut-off valve; blocked fuel supply line to lift pump 5. Air intake filter clogged 6. Bent or fouled prop 	<ol style="list-style-type: none"> 1. Free as necessary. 2. Change filters. 3. Check all connections for leaks, including fuel pick-up valve. 4. Remove shut-off valves and inspect; remove hose and inspect; clean as necessary. 5. Inspect and clean as necessary. 6. Inspect and replace or clean as necessary.

Overheating

7. Fouled bottom

1. Low coolant level

2. Broken belt or incorrect belt tension on seawater pump drive

3. Intake hose to raw water pump collapsed. Sometimes rubber layers delaminate on the inside only, blocking the intake without any collapsing visible outside the hose.

4. Raw water intake system blocked at intake screen or strainer (if strainer is installed as an option due to local conditions)

5. Broken raw water pump impeller

6. Blocked heat exchanger or transmission oil cooler

7. Faulty thermostat

7. Clean.

1. Refill with fresh water and check for cause of low level.

2. Adjust or replace. (X)

3. Inspect hose inside and out. Replace or clean as necessary.

4. a. Loosen butterfly nuts on top of strainers if installed and allow lids to lift due to water pressure.

b. Close intake seacocks.

c. Remove lids and take out basket strainers.

d. If strainers are clean, open seacocks and check flow of water; if it appears restricted, the intake screen on outside of hull is blocked. Clean from outside of hull.

5. Remove back of pump and inspect; replace if necessary. Be sure all broken parts are removed. X

6. Remove end plates of heat exchanger and check for foreign matter.

7. Remove fresh water reservoir and lift out thermostat. Place thermostat in boiling water to be sure that it is opening. If not, replace with new thermostat. X

Fuel System

TANKS

Each tank has a deck fill, overboard vent, supply pick up tube and handhole clean out plate. Located at the top of each tank is a fuel shutoff valve. The port and starboard valves are accessible from the main saloon through hatches cut in the sole inside the port and starboard settees.

FUEL SUPPLY SYSTEM

On single engined boats fuel can be drawn from either tank by opening the fuel shut-off valve on the desired tank. On twin engined boats each engine is piped to run off its own set of tanks. A cross connection has been provided in the system with an isolation valve. This valve should normally be kept closed. It should only be opened to provide fuel for both engines from one tank or one engine from both tanks. When supplying fuel from one tank only, the opposite fuel tank valve must be closed.

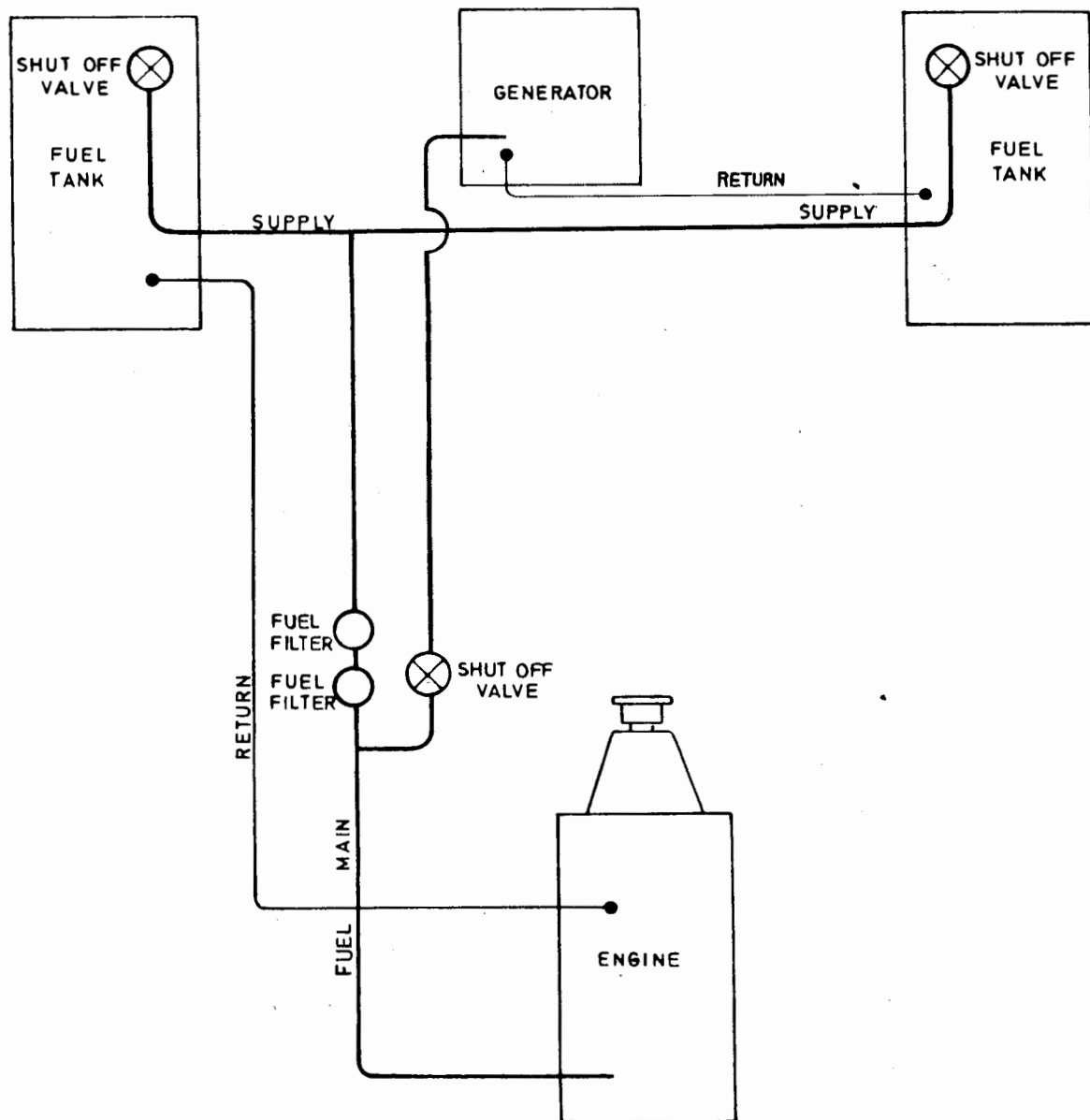
A mechanical fuel lift pump on the engine supplies fuel through a filter to the injection pump. This filter is the final filter and should be replaced every 100 hours. Two fuel filters purify the fuel before it reaches the engine mechanical fuel lift pump. One filter is a water separator while the second filters other impurities from the diesel fuel. X

If a diesel engine should run out of fuel, it is necessary to bleed the air from the fuel system before the engine can be restarted. Number 2 diesel fuel is recommended. Fuel level may be checked by sounding the tanks.

BLEEDING THE FUEL SYSTEM

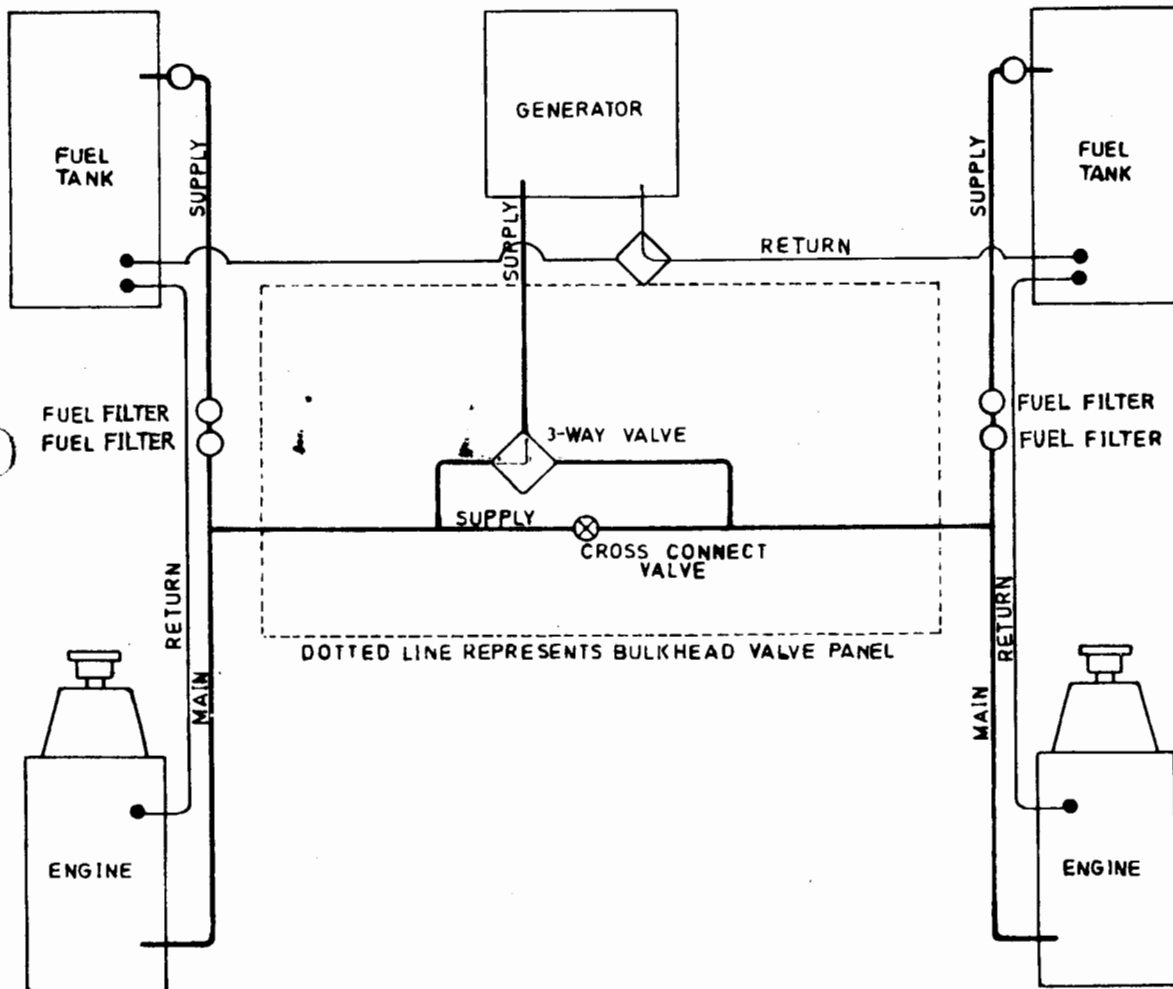
- 1) Close the fuel valve on any empty tank. Open the shut-off valve at the tank that is to be used.
- 2) Open bleed screw located at the top of the forward side of the final filter.
- 3) Work the lever on the fuel priming pump until bubble-free fuel runs from the bleed screw. If the handle feels as if it has no pressure during the pumping stroke, the engine has probably stopped with the fuel lift pump on top of its cam lobe. Briefly crank the engine with the starter motor to correct this situation.
- 4) If the Fram primary filters were completely drained after the engine ran out of fuel, considerable hand-priming time can be saved if the filters are filled with fuel using a cup and a funnel. If the batteries are well charged the fuel system can also be bled by following the above procedures and by turning the engine over with the starter.

Single Engine Fuel System



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7.2.1

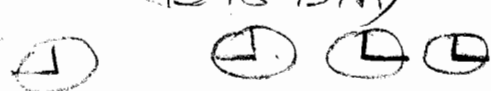
Twin Engine Fuel System



ORIGINAL



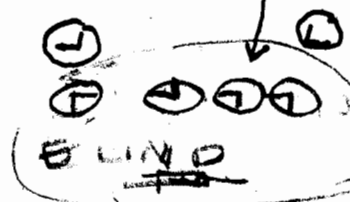
BIG BAY



FUEL PORT

11/8

TO RUN ON MAN



Propulsion System

SHAFT ALIGNMENT

To check the shaft alignment first remove the bolts from the shaft coupling at the transmission. Using a feeler gauge of about 0.003" thickness slide the coupling faces together by hand and, while supporting the weight of the shaft and coupling, check that the gap between the faces of the two halves of the coupling is the same all the way around. If it is not, move the engine by adjusting the engine mountings until proper alignment is obtained. X X

It is impossible to line up a bent shaft. If it is aligned in one position and then rotated through 180°, it will again show misalignment. The vibration caused by misaligned shafts will not physically damage the boat but if not corrected, will accelerate wear on the shaft bearings.

NOTE: Check shaft and engine alignment only when the boat is afloat.

SHAFT LOGS & STUFFING BOXES

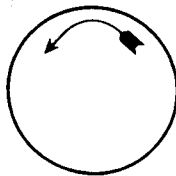
Attached to the shaft logs are the stuffing boxes. The attachment is made using a short length of flexible hose which allows a small amount of misalignment without excessive wearing of the stuffing box packing. The stuffing box is packed with braided flax packing which is held in place with the packing nut. If the stuffing box is leaking excessively, it should only be necessary to loosen the lock nut. Tighten the packing nut by hand and then retighten the lock nut. Do not tighten the packing nut excessively or the shaft may become scored. The stuffing box should drip slowly as the packing material is water lubricated.

REPACKING THE STUFFING BOX

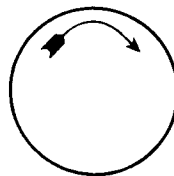
If the stuffing box still leaks after tightening down on the packing nut, the packing should be replaced. To repack, unscrew the packing nut and remove the old packing. New packing should be wound around the shaft in separate rings with enough rings installed to nearly fill the stuffing box packing nut. The ends of each ring should touch and the joints should be staggered with the ends, 180° from each other. The packing nut is then moved toward the stuffing box over the packing and screwed on the stuffing box gland. Tighten the packing nut sufficiently so that water is just slowly dripping from the gland then tighten the lock nut. X

PROPELLERS

Information on the propellers installed may be found in the general specifications. The port, or single engine, propeller is left-handed and the starboard is right-handed when viewed from aft of the stern.



PORT



STARBOARD

PROPELLER REMOVAL

- × × Prior to reinstalling a propeller, the taper on the shaft should be lightly coated with a suitable preparation to prevent "seizing" on the shaft. If the propeller is coated with STP oil additive, it will usually stay clean for up to 3 months, helping the boat to maintain its performance.

Care should be taken when installing a propeller, to ensure that it seats properly and is not keybound. To check this the propeller should first be slid up the taper without the key installed and the point on the shaft reached by the forward end of the propeller marked with a pen or pencil. The propeller should then be removed and reinstalled with the key in place. The propeller should reach the same position as previously marked. This procedure is important to prevent imbalance and vibration.

Steering System

The sprocket on the saloon wheel shaft is connected to the rudder quadrant by means of a chain and cable system. The fly bridge wheel shaft is connected to the saloon wheel shaft with a stainless steel cable. In the unlikely event of a steering failure at the flying bridge, the lower station steering should be checked before assuming that the failure affects the entire system.

An emergency tiller has been provided and, if required, it should be fitted through the deck-plate in the cockpit and onto the squared shaft of the starboard rudder stock. It may also be necessary to disconnect the steering cables at the quadrant.

The chain and cable used in the steering system is many times stronger than necessary; therefore, after the first 100 hours of operation it is likely no further adjustment will be necessary. However, periodic greasing, oiling and visual checking is necessary. If adjustments are made, be sure to keep cables and chains in equal tension. Failure to equalize tension causes excessive friction in the steering system.

Bilge and Sanitary System

SHOWER SUMP PUMPS

The pump for the aft shower is either installed in a small sump tank located below the parquet sole in the aft toilet room or in the drain pan below the teak shower grating.

The forward pump is installed in a small sump tank accessible through the hatch in the sole just forward of the engine room door in the forward cabin.

The main shower sump pump circuit breaker is on the D.C. panel with automatic float switches installed in each shower pan or sump tank. There is also a manual switch installed in each toilet room which may be used to cut off each automatic switch.

FORWARD TOILET COMPARTMENT

The toilet intake seacock is in between the engine stringers towards the forward end of the engine-room. The toilet discharge seacock is in the toilet compartment below the sole of the cabinet.

The basin drain discharges through the starboard topsides and has no seacock.

AFT TOILET COMPARTMENT

The toilet discharge seacock is below the hatch inside the cabinet next to the water closet. The toilet pick up is under the same cabinet.

The basin drain discharges through a seacock in the same location.

BILGE PUMP

The electric bilge pump is located beneath the engine room deck plates at the forward engine room bulkhead. Circuit breaker and manual/auto switch are on the DC panel. It discharges through the topsides above the waterline and has no seacock.

HOLDING TANK (OPTIONAL)

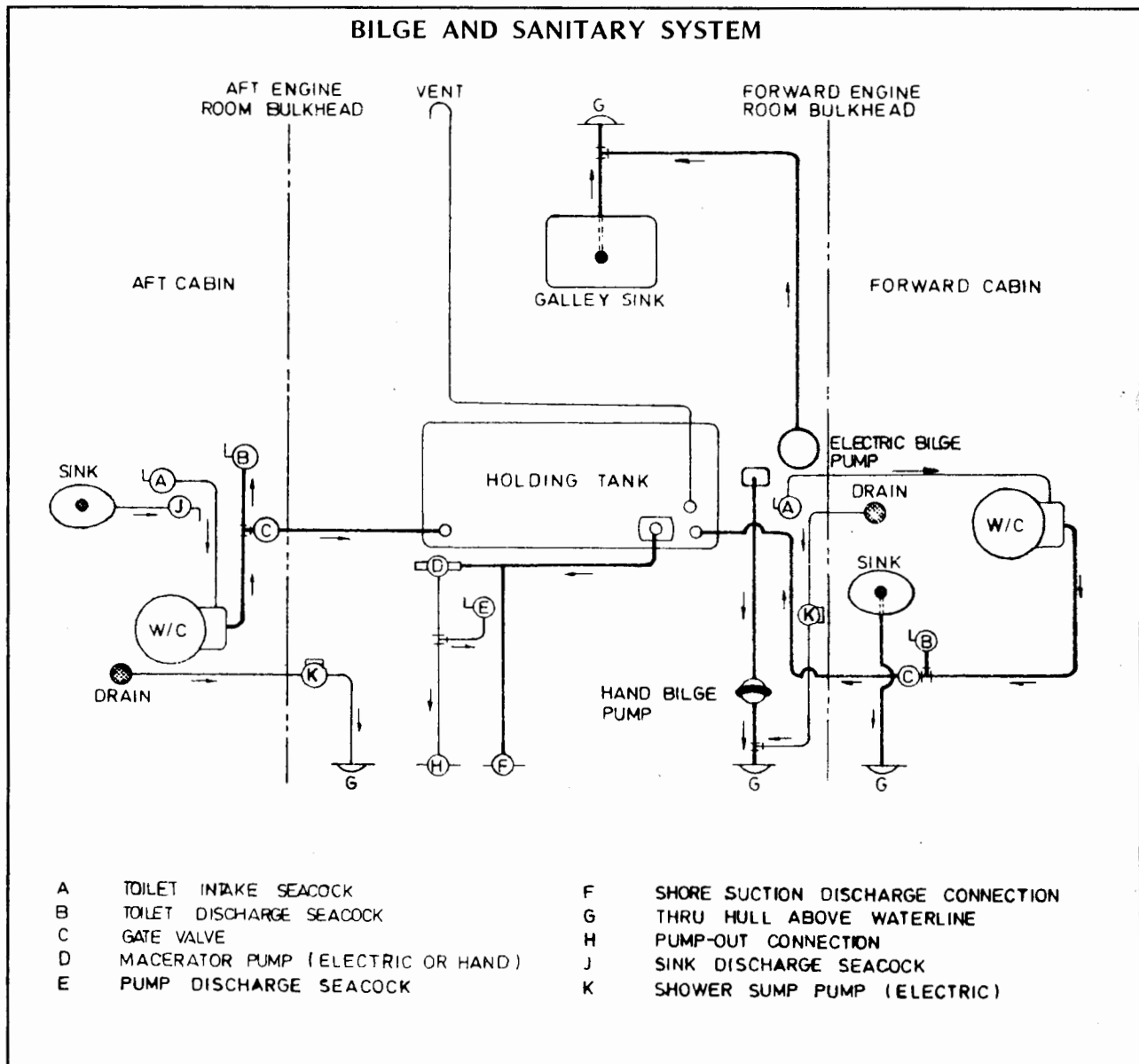
The holding tank is located in the engine room between the inboard longitudinal stringers. The tank receives waste from the forward and aft toilets. It discharges to shore on the starboard side by operation of the ship's macerator pumps or by shore vacuum facilities.

OPERATION OF WATER CLOSET (S)

1. Conventional use: (pumping water closet overboard)
Open B discharge seacock
Close C valve to tank
2. Holding tank use:
Seacock ... A toilet intake must always be open
Close B discharge seacock
Open C valve to tank

WASTE DISPOSAL FROM HOLDING TANK (S)

1. To shore facility: (using shore facility vacuum pump)
Close E pump discharge seacock
Open F cap and connect shore pump
2. To shore facility with ships pump: "D"
Close E pump discharge seacock
Open H cap and connect discharge hose and start pump
3. To overboard: (discharging overboard with ships pump "D")
Open E pump discharge seacock and pump



Electrical System

120/²⁴⁰VOLT AC ELECTRICAL SYSTEM

120/²⁴⁰VOLT AC SUPPLY

AC supply is provided either from the shore via the 50 amp shore connector on the port houseside or from the optional generator located in the engine room. When a generator is installed, the AC supply required is selected by the white and black rotary selector switch mounted horizontally on the starboard side of the console. Without the generator the AC panel governs input from a shore power source.

All AC power in the boat is 120 volt. When local shore supplies are 240 volt, a transformer can be installed to step the shore supply down to 120 volt. X

A light on the AC panel will come on whenever there is AC power at the panel whether it is provided from the shore or from the generator. The reverse polarity warning light comes on only if the shore power is incorrectly connected with polarity reversed. Should this happen, the supply line should be disconnected and reversed immediately. X

Before being connected to the single pole circuit breakers for distribution, the AC current is switched through a double-pole master circuit breaker. This circuit breaker must be on before the AC circuits can be operated. X

ICE MAKER

After draining, the ice maker needs priming with a cupful of water in the ice tray before it will function. X

GENERATOR (optional)

The starting and stopping control buttons for the generator are located on the AC panel. These buttons will not work unless the circuit breaker on the same section of the panel is "on".

A separate battery for starting the generator is located in the engine room and is connected through the generator disconnect switch mounted on the master switch and paralleling solenoid panel. DO NOT OPEN this switch while generator is operating.

Consult the generator owner's manual for generator service and operational instructions.

ELECTRIC WATER HEATER

The water heater operates on the AC supply either on shore power or generator. A ^{220V-10} 20 amp circuit breaker protects the circuit. Water heater temperature is adjustable at the thermostat located on the hot water heater.

WARNING: Make sure water is in the tank and the potable water pump is "on" prior to operating the hot water heater.

12 VOLT DC ELECTRICAL SYSTEM

Your boat's electrical system is 12 volt direct current with negative ground. ~~Two~~² 165 ampere hour (20 hour rate) batteries are located in the engine room as potential for the service system. A 140 ampere hour (20 hour rate) battery is installed with a generator.

MASTER BATTERY DISCONNECT SWITCHES

Battery disconnect switches are located on the forward engine room bulkhead. With the exception of the automatic bilge pumps, all DC electrical circuits will be dead including alternators and instruments when these switches are "off". The battery disconnect switches are "on" when the handles are in the vertical position.

NOTE: Do not turn switch to "off" position while the engines are running. Switching while engines are running may damage the alternator.

BATTERY PARALLELING

Both batteries are automatically paralleled when either starter button is operated. The paralleling solenoids are located on the back of the battery disconnect switch panel.

BATTERY SELECTOR SWITCH

This switch enables power for the service system to be drawn from either or both batteries. Power from this red battery selector switch is distributed to all DC circuits through circuit breakers. The "all" position on the red battery selector switch should only be used if the operator intends to draw power from both batteries at once or, in the case of twin equipped boats, if both batteries are to be charged when only one engine is running.

NOTE: Under normal circumstances, the battery selector switch does not affect battery charging as each engine automatically charges its own starting battery.

BATTERY CARE

To ensure long battery life, the battery should be checked at regular intervals to determine the state of charge. At this time it should be checked to ensure that the level of the electrolyte is above the battery plates. To determine the state of charge a hydrometer reading should be made of each cell. Hydrometer readings are an indication of the strength of the sulphuric acid in the battery. For example, a fully charged battery will have a specific gravity of approximately 1.280 (a weight of 1.28 times that of pure water) at 70° F - 21° C. The specific gravity readings for typical various states of charge are given in Table 1. Hydrometer readings should be made prior to adding distilled water, as the addition of distilled water will temporarily cause inaccurate specific gravity readings.

TABLE 1

State Of Charge:

The best indication of state of charge or discharge is the specific gravity of the acid in the cell. Typical values are given below.

HYDROMETER READING AT TEMPERATURE

CONDITION OF CELL	10° C 50° F	16° C 60° F	21° C 70° F	27° C 80° F	32° C 90° F	38° C 100° F	43° C 110° F
Fully Charged	1 · 288	1 · 284	1 · 280	1 · 276	1 · 272	1 · 268	1 · 264
Half Discharged	1 · 208	1 · 204	1 · 200	1 · 196	1 · 192	1 · 188	1 · 184
Fully Discharged	1 · 118	1 · 114	1 · 110	1 · 106	1 · 102	1 · 098	1 · 094

ENGINE CIRCUIT AND ALARMS

The instruments, alarms and instrument panel lights are connected to the engine circuit. If the engine breaker switch is turned off while the engine is operating, the engine will continue to run, but the alarms or instruments, will not operate.

BILGE PUMP

The bilge pump circuit is the only circuit connected to the live side of the battery service selector switch. Therefore, with this switch "off", the bilge pumps will operate automatically provided that the bilge pump circuit breaker and the battery disconnect switches are "on" and that the bilge pump function switches are set to "auto". The pump can also be started at any time by setting the function switch to "manual".

It is recommended that when leaving your boat the battery disconnect switch (in the engine room) be left in the "on" position, with bilge pump breaker "on" and pump switched to "auto" and the red battery service selector switch in the "off" position. In this configuration there is no DC power being supplied to any circuit in the boat except the bilge pump.

NOTE: When any additional DC electrical equipment is installed in your boat, be sure that it is wired into the panel only on the output side of the battery selector switch, and a circuit breaker is used.

FRESH WATER PRESSURE SYSTEM

The pressure system is self-priming and is set for a 10 to 25 psi operating range. A heat sensing switching automatically shuts off the pump to prevent damage when running with a dry fresh water tank. The face of the pump has a push-button reset switch.

A pressure tank is incorporated into the system to eliminate constant cycling.

A pressure gauge is mounted on the face of the tank and an integral pressurized rubber bladder prevents the tank from becoming water logged. The system is rated at 19 litres (5 U.S. gallons) per minute.

SHOWER DRAIN PUMP

A push/pull switch at each shower location is used to control the pump, but the circuit breaker on the DC panel must also be on.

The pump should be switched on only as necessary. Allowing it to run dry for long periods may damage it.

CABIN LIGHTS

Cabin lights are controlled through circuit breakers on the panel and have individual switches on each light.

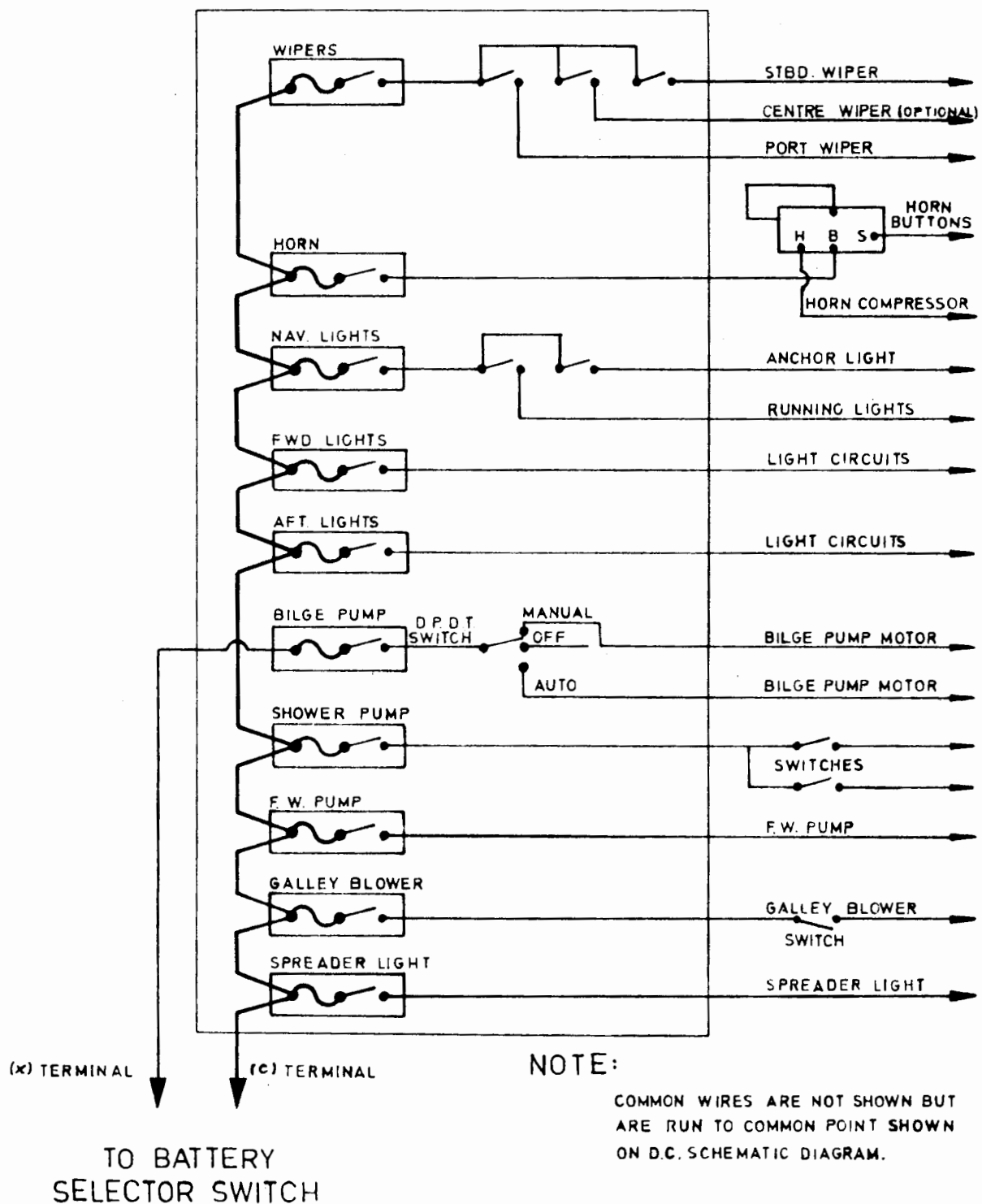
WINDSHIELD WIPERS

To operate, turn breaker to "on" position and pull out appropriate push/pull switch located on the panel near the breakers.

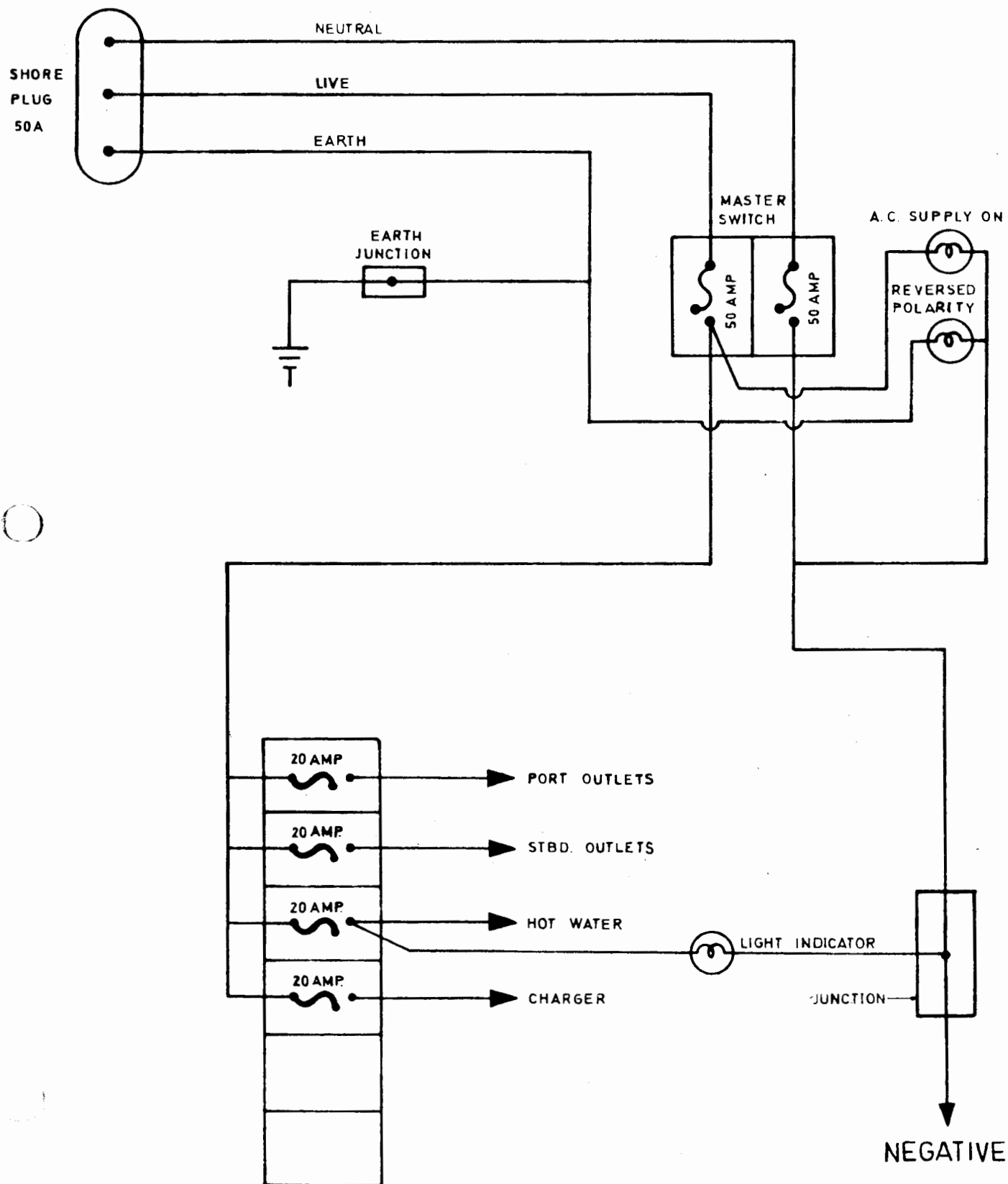
ALARM

The alarm buzzers are set off by low lubricating oil pressure or by high cooling water temperature. The buzzers are located behind the fly bridge console.

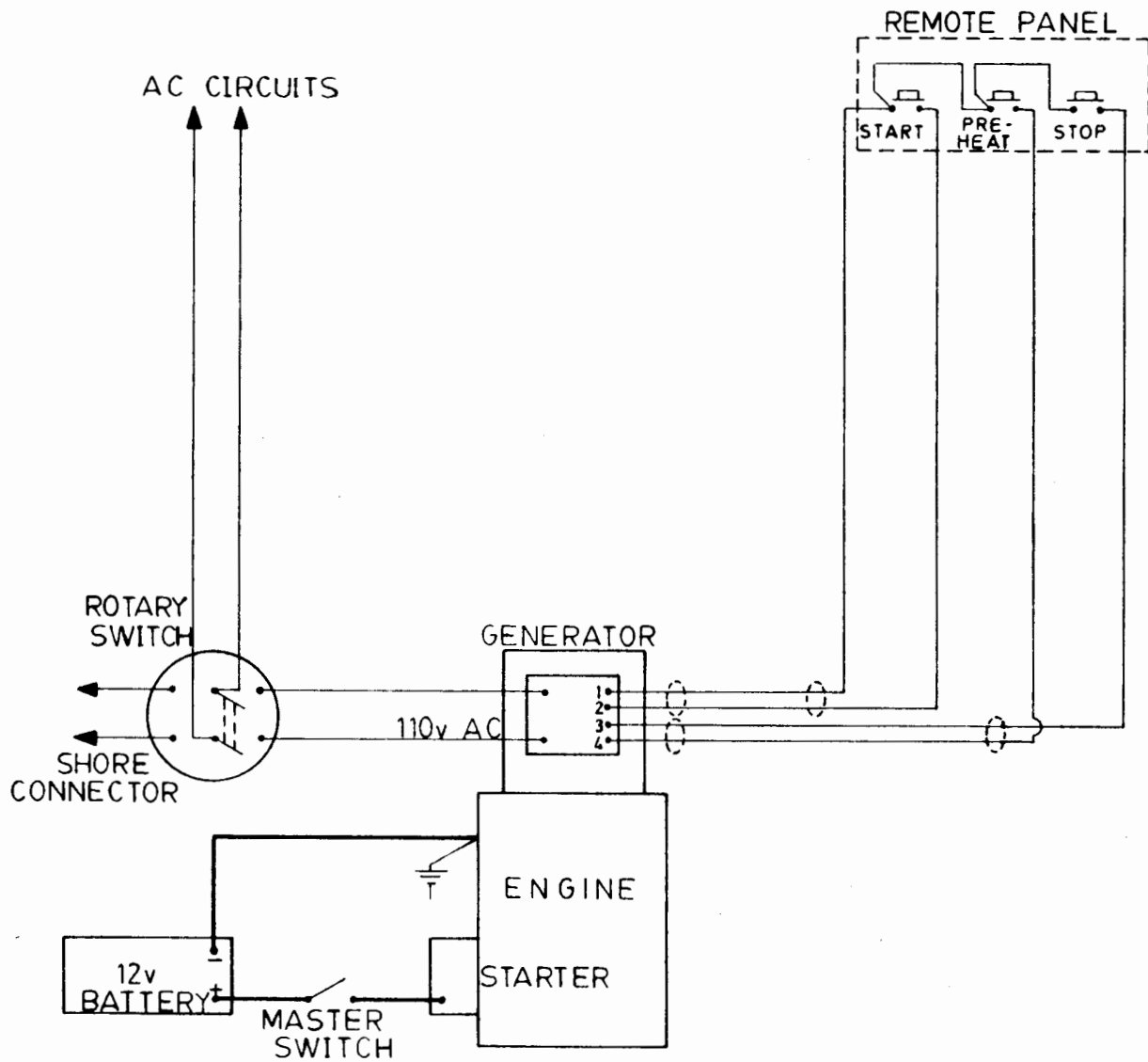
GB 36 & 42 SERVICE SYSTEM



A.C. SCHEMATIC



Generator Schematic



CABLE MARKER CODE NUMBERS

These code numbers apply to wiring systems installed in boats with Hull Numbers starting with GB32-560, GB36-495, GB42-489.

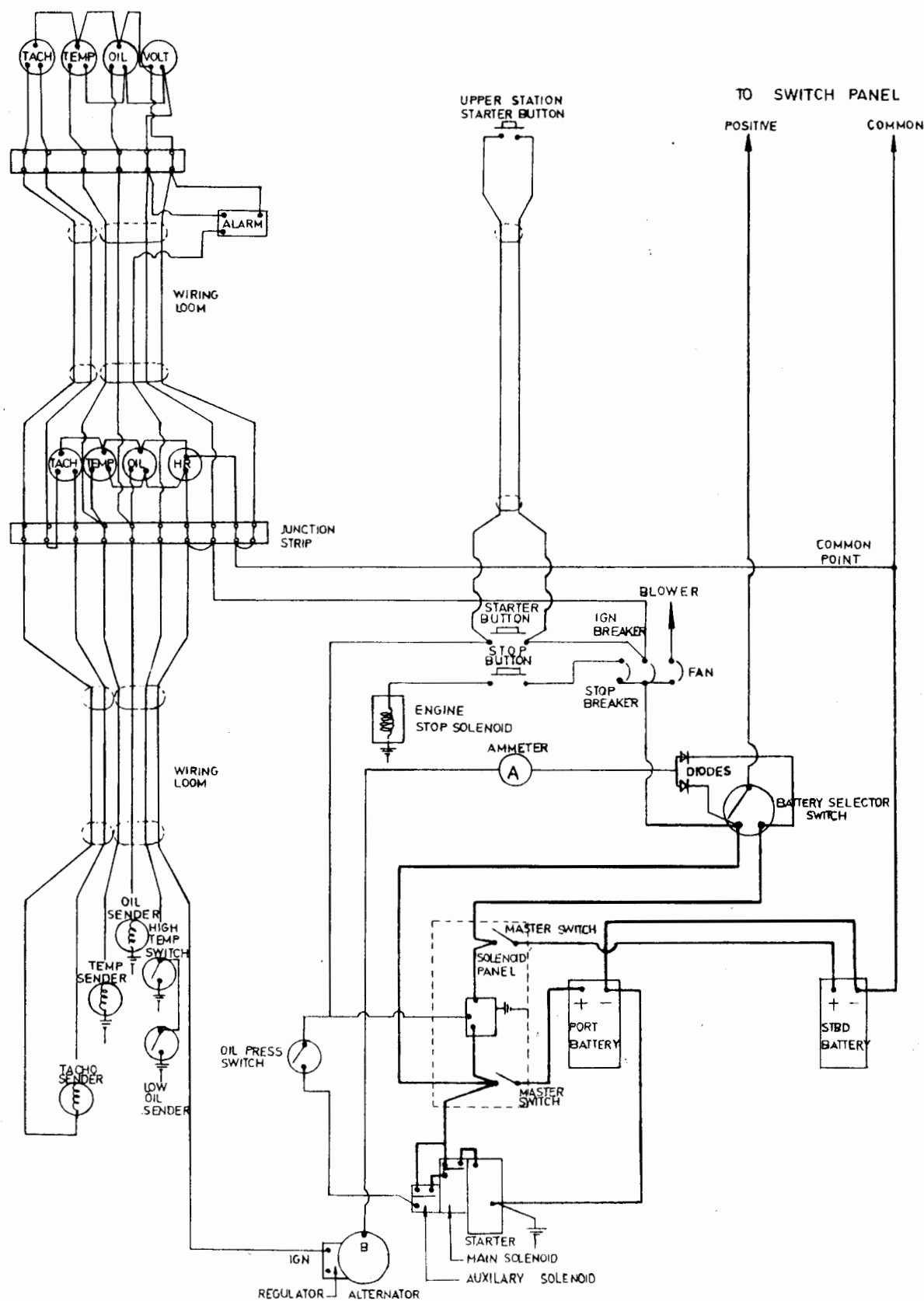
D.C. CIRCUITS

<u>Code Number</u>	<u>Circuit</u>	<u>Code Number</u>	<u>Circuit</u>
0	D.C. NEGATIVE	25	WINDLASS
1	PORT STARTING OR SINGLE ENGINE STARTING	26	D.C. OUTLET
1001	PORT ALTERNATOR OR SINGLE ENGINE ALTERNATOR	27	GENERATOR START
2	STBD STARTING	28	GENERATOR HEAT
2002	STBD ALTERNATOR	29	GENERATOR STOP
3	PORT WIPER	<u>OPTIONAL</u>	
4	CENTRE WIPER	41	HOLDING TANK
5	STBD WIPER	42	RADIO
6	HORN MOTOR BREAKER	43	RADAR
7	HORN MOTOR	44	DEPTH SOUNDER
8	HORN BUTTON	45	AUTO PILOT
9	RUNNING LIGHTS	46	SALT WATER PUMP
10	ANCHOR LIGHT	47	ELECTRIC HEAD
11	FWD LIGHTS	48	D.C. REFRIGERATOR
12	AFT LIGHTS		
13	BILGE PUMP		
14	BILGE PUMP SWITCH		
15	DRAIN PUMP MOTOR		
16	DRAIN PUMP SWITCH		
17	F.W. PUMP		
18			
19	SPREADER LIGHT		
20	BLOWER		
21	BLOWER SWITCH		
22	CHARGER POS. 1		
23	CHARGER POS. 2		
24	CHARGER POS. 3		

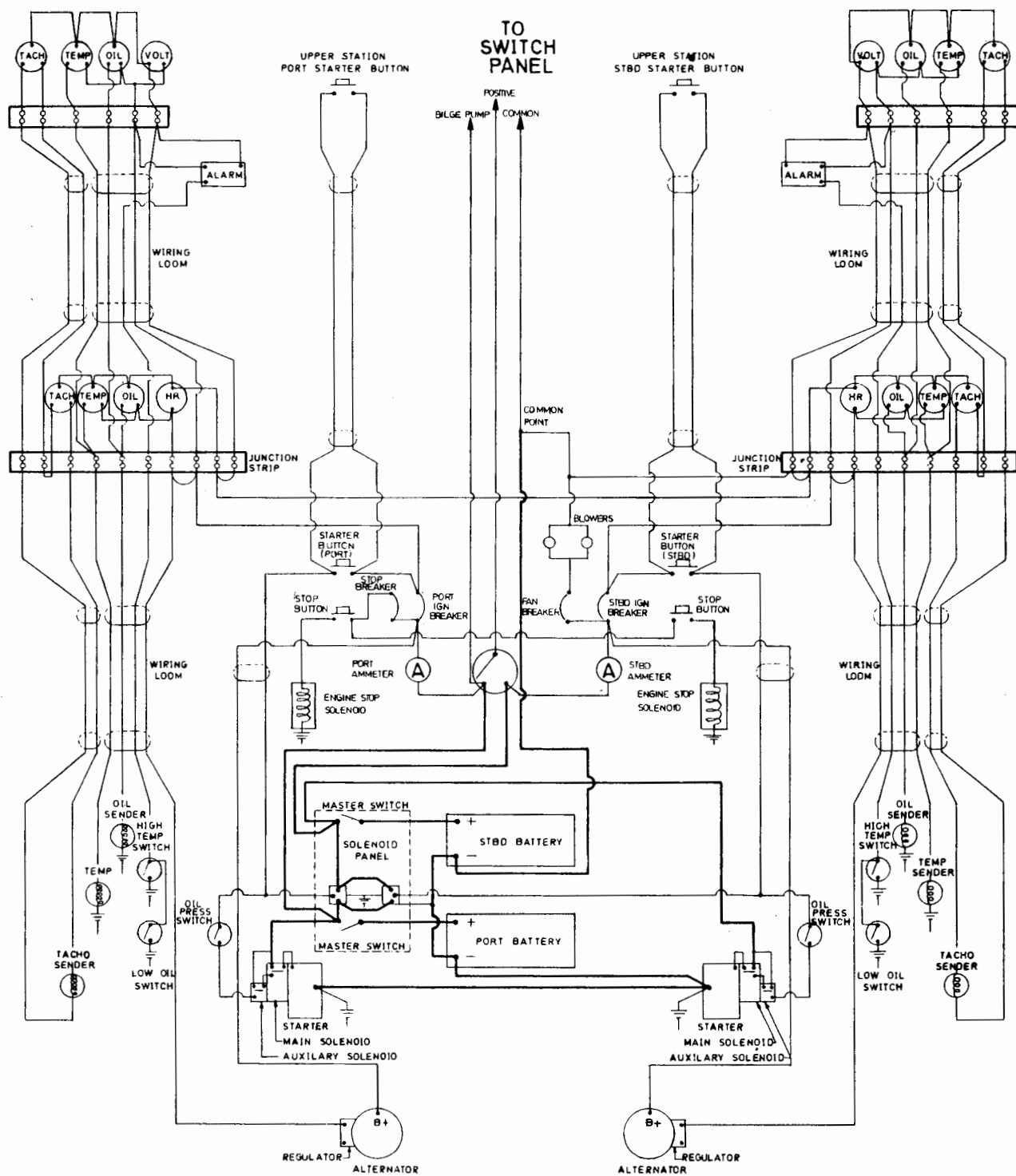
A.C. CIRCUITS

<u>Code Number</u>	<u>Circuit</u>	<u>CB</u>	<u>Code Number</u>	<u>Circuit</u>
01	A.C. NEUTRAL			
02	A.C. EARTH			
30	ONAN			
31	SHORE			
32	PORT OUTLET	9		
33	STBD OUTLET	8		
34 34L2	HOT WATER	1/2		
35 35L2	CHARGER	3/4		
<u>OPTIONAL</u>				
36	FRIDGE			
37	FREEZER MICROWAVE	7		
38	ICE MAKER			
39 39L2	OVEN	5/6		
40	AIRCONDITIONER N/A			
41	EXTERNAL OUTLET	10		

Single Engine DC Schematic



Twin Engine D C Schematic



INSTRUCTION SHEET

SHORE POWER CABLE SET

USE

1. Turn off the boat's shore connection switch before connecting or disconnecting shore power cable.
2. Connect shore power cable at the boat first.
3. If polarity warning indicator is activated, immediately disconnect cable and have the fault corrected by qualified electrician.
4. Disconnect shore power cable at shore outlet/receptacle first.

STORAGE

Your MARINCO shore power cable set is intended for use outdoors. To prolong the life of the set, store indoors when not in use.

MAINTENANCE

(Always disconnect from power source before performing maintenance).

General:

The metallic parts of your MARINCO cable set are made to resist corrosion. In salt water environment, life of the product can be increased by periodically wiping the exposed parts with fresh water, drying and spraying with a moisture repellent.

A soiled cable can be cleaned with grease cutting household detergent. A periodic application of vinyl protector will help both ends and cable maintain their original appearance.

In case of Salt Water Immersion:

Rinse plug end and/or connector end thoroughly in fresh water, shake or blow out excess water and allow to dry. Spray with a moisture repellent before re-use.

REPAIR

If either plug or connector end requires replacement (component or molded type), it can be replaced with the following MARINCO devices:

<u>CABLE RATING</u>	<u>PLUG</u>	<u>COVER</u>	<u>CONNECTOR</u>	<u>COVER</u>
30A-125V 2 pole, 3 wire	305CRP	102	305CRC	103R
50A-125V 2 pole, 3 wire	6361CR	7717	6360CR	7715CR
50A-125/250V 3 pole, 4 wire	6365CR	7717	6364CR	7715CR

MARINCO recommends that this Instruction Sheet be made a part of your Boat Service Manual.

Fresh Water System

WATER TANK

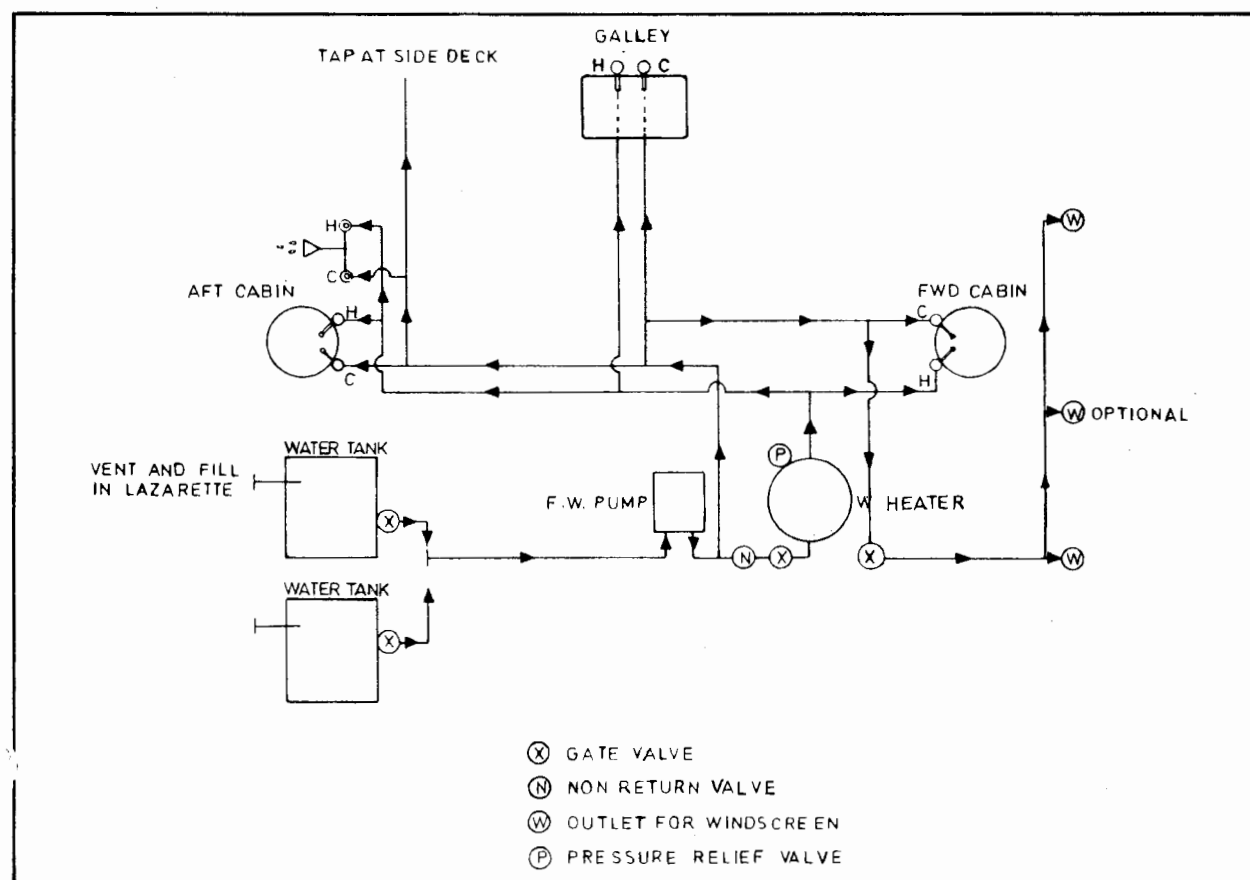
TYPE	2 stainless steel
LOCATION	lazarette
FILL	In lazarette
SUPPLY VALVE	at tanks in lazarette

WATER PRESSURE PUMP

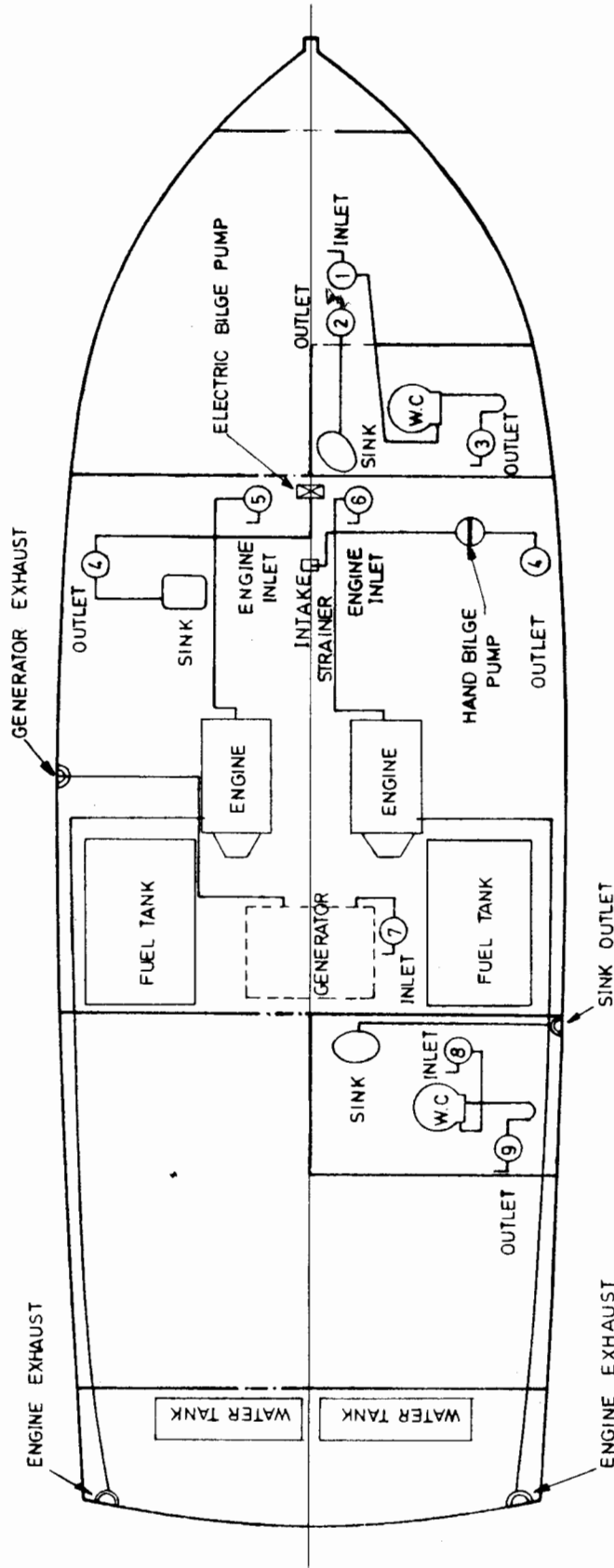
TYPE	self-priming with pressure tank
LOCATION	engine room near hot water heater
ACCESS	through main saloon engine hatch

WATER HEATER

CAPACITY	12 8 45 U.S. galls (30 litres)
LOCATION	outboard of port engine in engine room
ACCESS	Through main saloon engine hatch
OPERATION	120 or 240 volt electrical element from A.C. panel or engine heat. (NOTE: The engine will not supply enough heat while idling to fully heat the water)



Thru-Hull Location



- | | | | | | |
|-----------|--------------------------|---|---------------------|---|--|
| W/C-IND 1 | UNDER FWD CABIN SOLE | 1 | MOTOR ROOM VED BULK | 6 | FORWARD OF ENGINE |
| W/C-IND 2 | UNDER FWD CABIN SOLE | 2 | W/C IN ENGINE ROOM | 7 | IN ENGINE ROOM NEAR STBD SIDE OF FUEL TANK |
| W/C-IND 3 | UNDER CABINET OUTBOARD | 3 | W/C IN ENGINE ROOM | 8 | UNDER SINK-COUNTER SOLE BOARD DORIC 1 W/C ROOM |
| 4 | IN ENGINE ROOM STBD SIDE | 4 | W/C-IND 5 | 5 | INSIDE OUTBOARD CABINET UNDER JACK |
| 5 | FORWARD OF ENGINE | | | | |

○ THRU HULL FITTING

○ SEACOCK

AMERICAN MARINE AUTOMATIC BATTERY CHARGER

The American Marine Battery Charger is a solid-state charger utilizing Silicone Diodes in a Full-Wave Bridge rectifier circuit. The charger provides convenient automatic "taper charging" during normal use, yet provides the ability to compensate for unusually low or high input voltage. The input selector switch also allows the owner to charge his boat batteries at a high rate, if necessary.

The charger has built-in isolation diodes which allow up to three separate banks of batteries to be charged independently, each receiving a charging current proportional to its state of discharge.

RATINGS: Or 220 VAC
INPUT: 100-130 VAC, 60 Hz, 10 Amperes maximum
OUTPUT: 40 Amperes (maximum) into 12 volt batteries

OPERATING CONTROLS:

The front panel of the charger provides indications to determine the proper operation of the charger.

1. **INDICATOR LAMP:** illuminates to indicate the unit is energized.
2. **OUTPUT AMMETER:** indicates the total current being supplied to the batteries.
3. **OUTPUT CIRCUIT BREAKER:** prevents a short circuit in the battery circuits from damaging the rectifier diodes.
4. **VOLTAGE COMPENSATION SWITCH:** allows manual selection of the input transformer tap to allow for unusually low or high input voltage.

INSTALLATION:

The Battery Charger should be securely mounted in a location close to, but not directly over, the battery banks. It should be mounted with the front panel vertical to allow proper convection cooling of the rectifier assembly.

Cables with a conductor size of #8 or larger should be connected from the Battery Charger to the battery banks. The AC input cable should be a 3-wire type with 14 gauge conductors.

CAUTION: Do not attempt to install or remove charger when shore power is connected "HOT".

Do not attempt to connect or disconnect battery loads while charger is "ON". Turn Voltage Compensation Switch to "OFF" before attempting to connect or disconnect battery leads.

OPERATION:

For a nominal input voltage of 115 volts, the Voltage Compensation Switch should be placed in the number "2" position. This will allow the batteries to charge at a safe rate even if they are nearly depleted; yet at full charge they will receive only a small trickle-charge.

When the input line voltage is abnormally high (125-130 volts), the Voltage Compensation Switch should be placed in the number "1" position. Conversely, when the input voltage is lower than normal, the switch should be set to a higher number.

In the event it is necessary to quickly charge the batteries, the Voltage Compensation Switch allows you to increase the rate of charge by selecting a higher switch position. Care should be used to assure that the batteries are not overcharged. Overcharging generates heat and decomposes the battery water into its primary elements—hydrogen and oxygen, potentially explosive gases.

BATTERY CARE:

To assure long battery life, the battery should be checked at regular intervals to determine the state of charge. At this time it should be checked to assure that the level of the electrolyte is above the battery plates. To determine the state of charge a hydrometer reading should be made of each cell. Hydrometer readings are an indication of the strength of the sulfuric acid in the battery.

A fully charged battery will have a specific gravity of approximately 1.280 (a weight of 1.280 times that of pure water). The specific gravity readings for various states of charge are given in Table 1. Hydrometer readings should be made prior to adding distilled water, as the addition of distilled water will temporarily cause inaccurate specific gravity readings.

SPECIFIC GRAVITY	PERCENTAGE OF CHARGE
1.280	100%
1.250	75%
1.180	50%
1.130	25%
1.080	0%

TABLE 1. SPECIFIC GRAVITY/PERCENTAGE OF CHARGE

Figures 1 thru 3 show the rate of charge at the various Voltage Compensation Switch positions for a single battery at input voltages from 100 to 130 volts; for a fully charged battery (Figure 1), a half charged battery (Figure 2), and a depleted battery (Figure 3).

Installations with two or three battery banks which are severely depleted will charge at a considerably higher rate, as each battery will attempt to charge at the single battery rate.

Under these conditions, the 50 amp circuit breaker may open. When this happens, turn the Voltage Compensation Switch to the next lower position and close the circuit breaker. (If breaker opens again, keep selecting lower switch positions until breaker remains closed.)

Figure 4 is the schematic diagram of the Battery Charger.

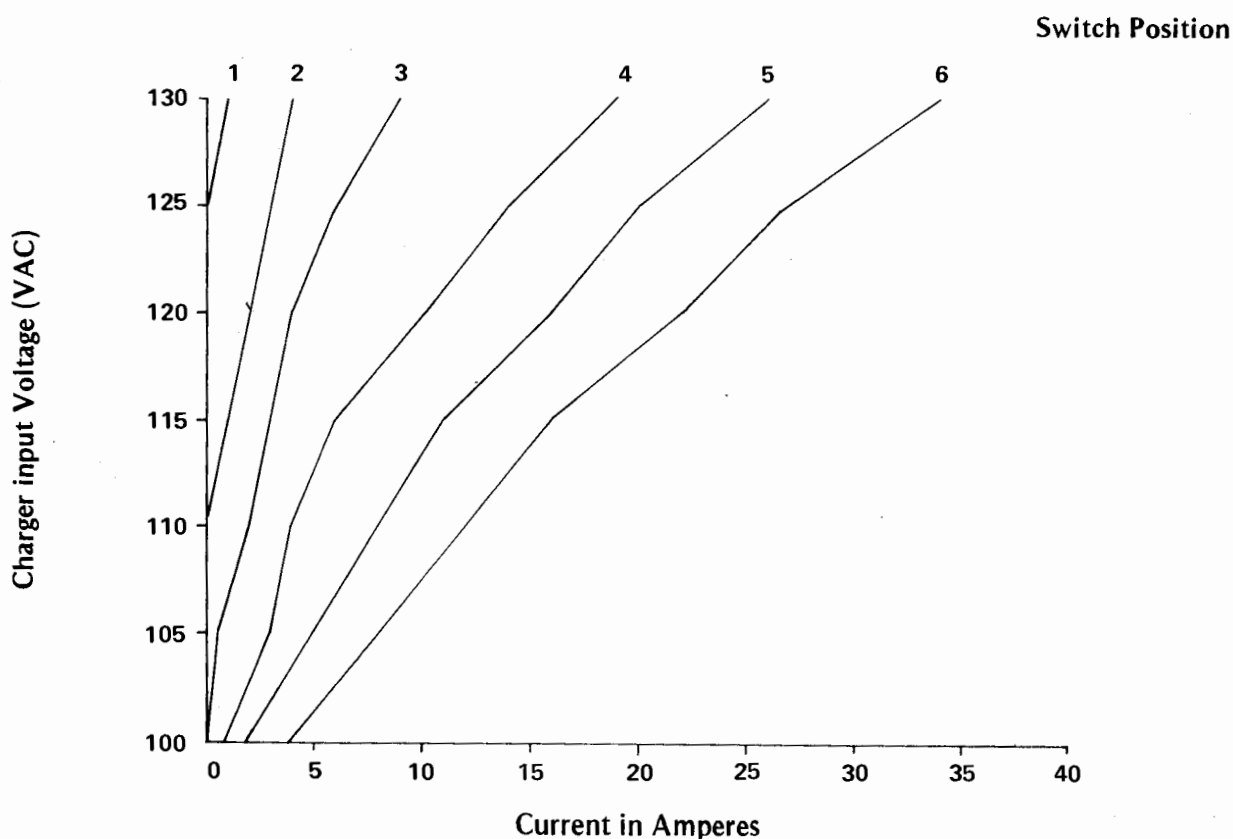


FIG. 1 CURRENT INTO A FULLY CHARGED BATTERY

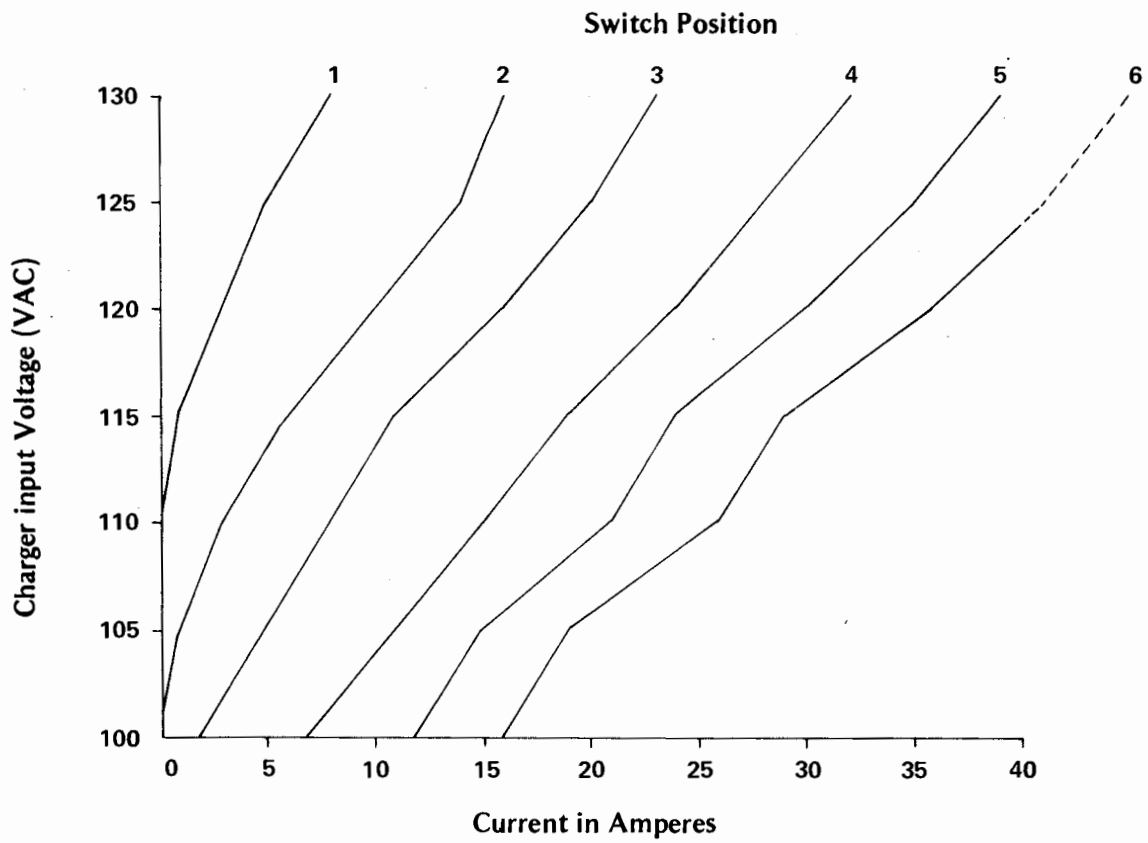


FIG. 2 CURRENT INTO A 1/2 CHARGED BATTERY

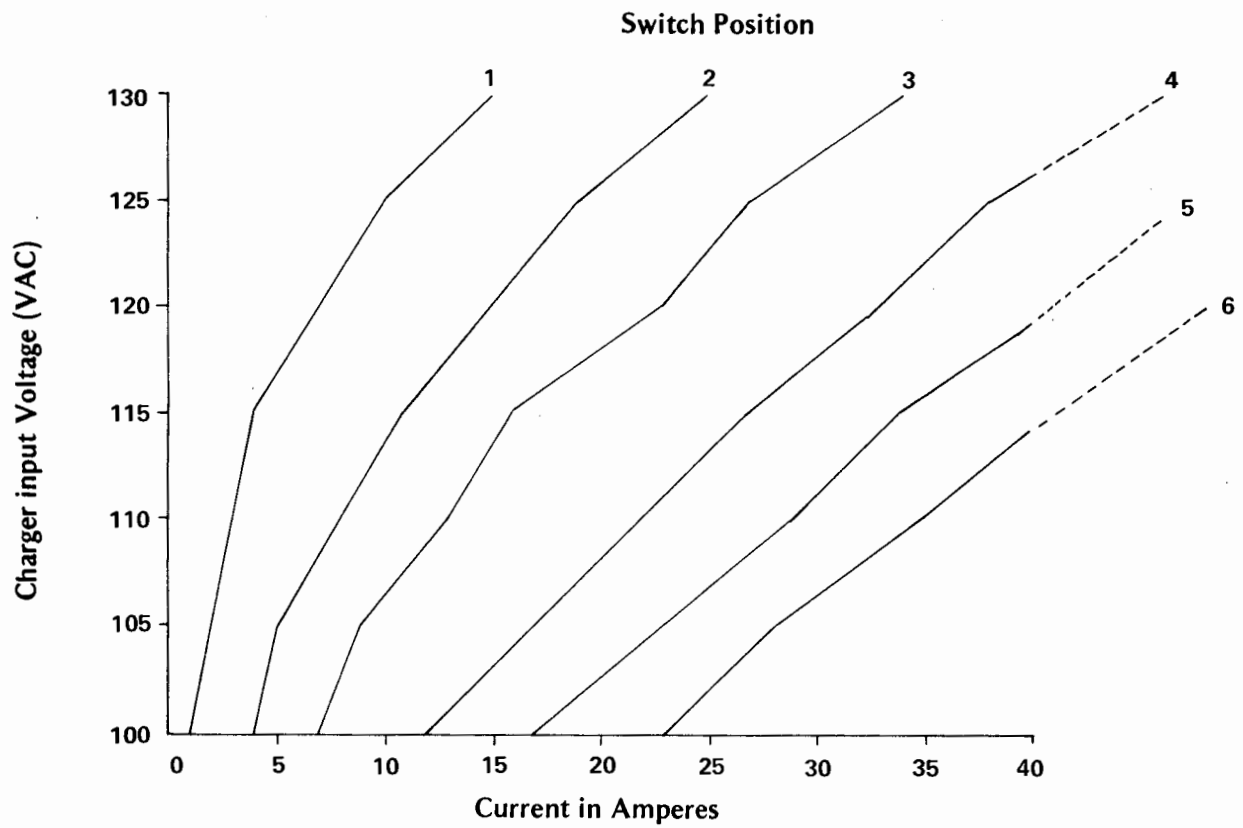


FIG. 3 CURRENT INTO A DEPLETED BATTERY

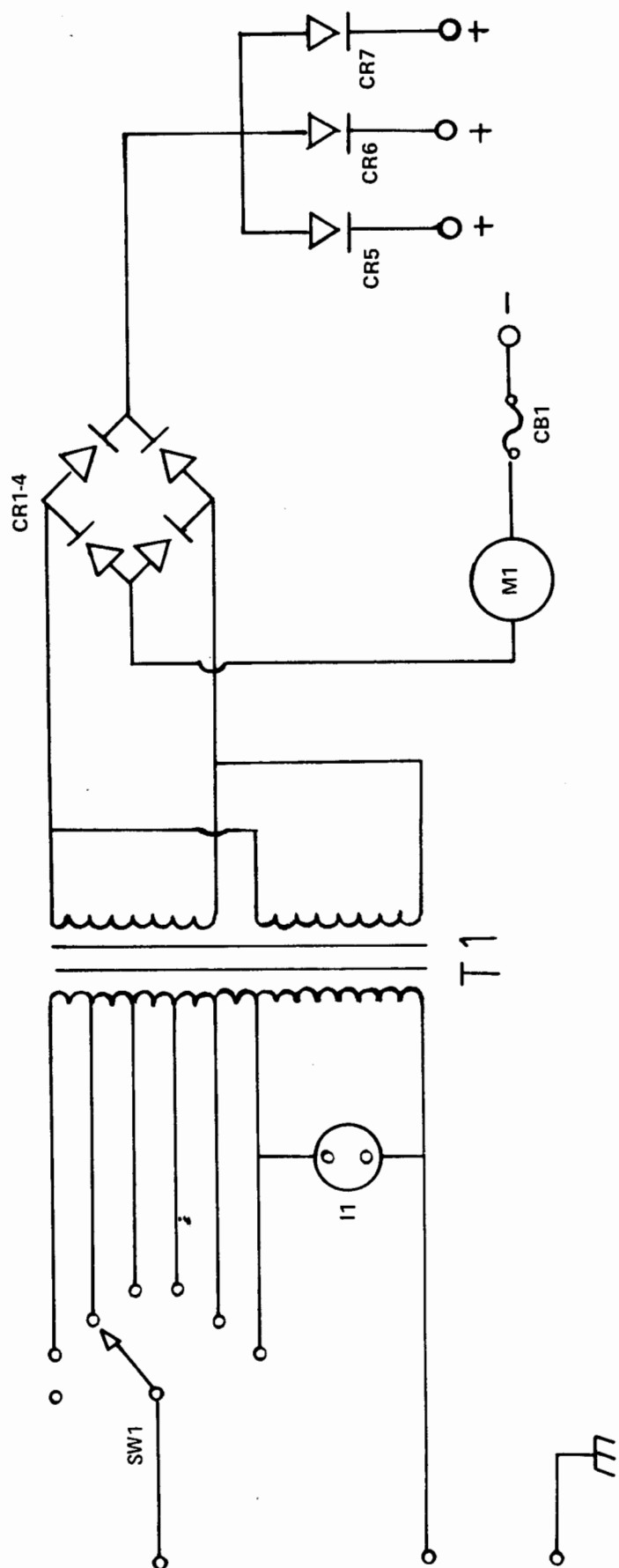


FIG. 4 AMERICAN MARINE BATTERY CHARGER

Instrumentation

TACHOMETER

This instrument indicates the engine speed in revolutions per minute. Cruising rpm varies with conditions. (For information on proper operating rpm, refer to the section on operating the engine, page 9).

AMMETER

This instrument shows the charge rate of the alternators. It is located at lower steering station only.

NOTE: When batteries are fully charged the charging rate drops back to between 3 and 5 amps.

OIL PRESSURE

The oil pressure gauges, located at the lower and upper steering stations, read in pounds per square inch. The normal pressure when cruising at 1800 rpm is approximately 40 psi. When the engine is idling at 700 - 850 rpm the pressure will drop to 20 psi. If the pressure should drop below 15 psi, stop engine and check for cause even if the alarm does not sound.

WATER TEMPERATURE

The temperature gauges for the fresh water cooling system are located at the lower and upper steering stations. The normal operating water temperature should be 180° - 190° F. An engine should be allowed to warm up gradually and should not be run at full cruising rpm until normal operating temperature has been reached. Recommended is 10 minutes at 1000 rpm, 15 minutes at 1500 rpm.

HOURLY METER

This instrument, located at the lower steering station, registers engine operating hours.

ALARM SYSTEM

The alarm buzzer, located at the upper steering station, sounds when the water temperature approaches 212° F or when the oil pressure drops below 15 psi. The oil pressure switch is the sensor which causes the alarm to sound when an engine starting circuit breaker is switched "on" but the engine is not running.

If the alarm sounds when an engine is running, the engine should be stopped at once and the cause investigated.

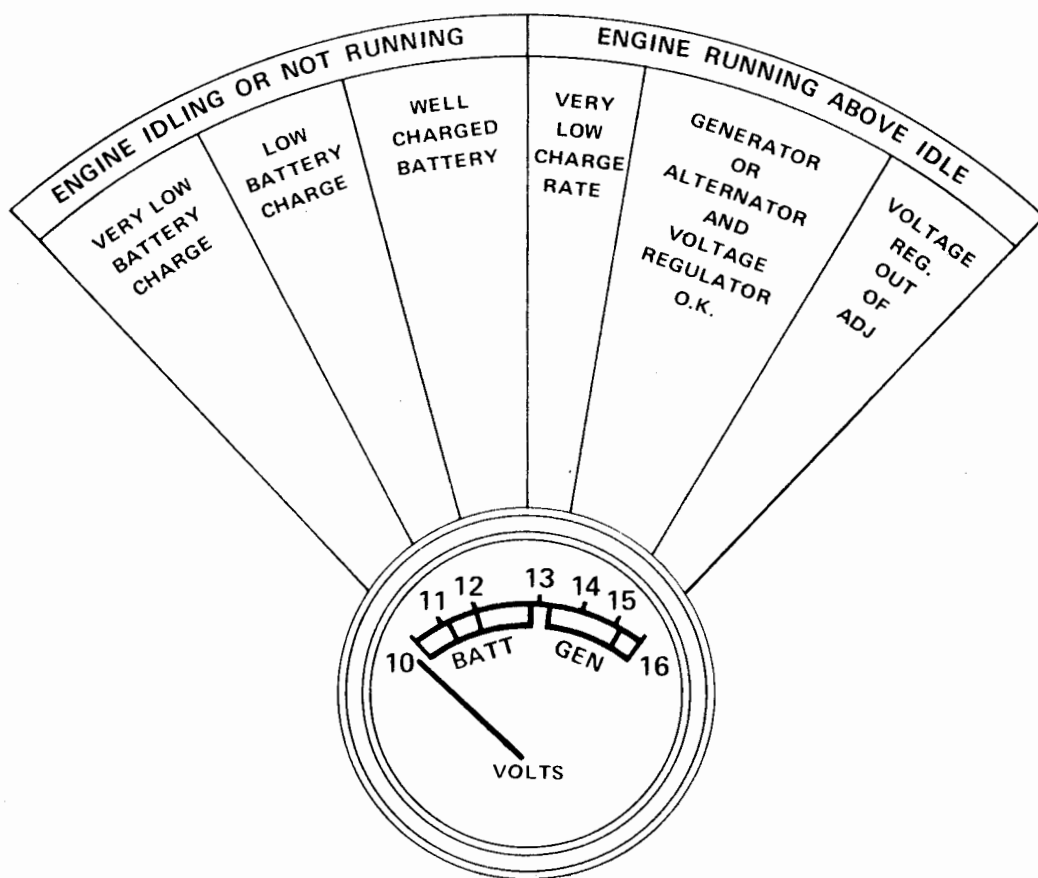
NOTE: The alarms will not operate if the engine circuit breaker is switched "off". The engine circuit breaker should always remain "on" when the engine is running.

VOLTMETER

This instrument, located at the upper steering station, shows the condition of the battery, also shows the level of regulated voltage being produced by the alternator while the engine is running. A reading of between 12 and 13 indicates the battery is well charged. If reading is at the extremes of 10 or 16, check cause.

Actual battery voltage is read before or after operating the engine. A constant reading in red segments on face dial indicates a need for a complete check of either battery or generating system.

The voltage regulator is compensated to permit the generating system (alternator) to produce more charging voltage during cold weather. Therefore, the voltmeter will show higher readings during cold weather than it will in warm weather.



Voltmeter

Service and Maintenance

HAUL OUTS

Haul outs are required depending upon frequency of boat use and local conditions. When the boat is on the ways to be painted, ensure that the supports are moved so that all areas of the hull and the areas under the keel are covered with paint.

Make sure also that the basket strainers covering the intake through-hull fittings are removed, cleaned and painted with bottom paint inside and out. All through-hull fittings should be cleaned out.

Because the boat is of fibreglass construction, borers will not damage the hull; however, even the smallest amount of marine growth will have a very significant effect on the boat's speed and fuel consumption.

While the boat is out of the water, examine the following items:

1. Check for wear in the cutless bearings
2. Check the operation of all seacocks. If found to be stiff, remove the cone for cleaning and coat with petroleum jelly before replacing
3. Examine propellers and propeller keys and nuts for tightness and condition
4. Check general condition of all underwater fittings

After the boat has been refloated, be sure to check the circulation of the engine raw water cooling system by ensuring that water is flowing from the exhausts when the engines are started. If the raw water pump impellers have seen heavy service they are prone to failure during the dry out period of a haul out.

EXTERIOR MAINTENANCE

Do not allow salt water to stand on wood, metal or fibreglass for long periods of time. We recommend that you wash down your boat with fresh water before leaving her. A good coat of wax will protect the fibreglass from salt water and sun, and will make the wash down operation easier.

To restore the gloss of gel coat surface, a light buffing may be necessary after long exposure to sun and salt. For hand buffing use a slightly abrasive rubbing compound such as Dupont No. 7. Use Mirror-Glaze No. 1, or similar product, for power buffing. After buffing, the surface should be waxed.

The gel coat surface is resistant to stains. Household detergent will remove most stains that may occur. Crayon, lipstick or shoe polish can be removed with rubbing alcohol. Weak solutions of acids or alkalines such as hydrochloric acid or ammonia may reach a penetrating stain. The solutions may, however, discolor the gel coat and buffing may be required. If gloss is not restored with buffing, the area will need to have a new gel coat applied.

Hardware is preserved from salt action by protective polishes.

Varnished teak will require light sanding and new varnish periodically depending upon climate and frequency of use. Scratches and nicks in the varnish should be touched up with a spot of varnish as soon as they are discovered.

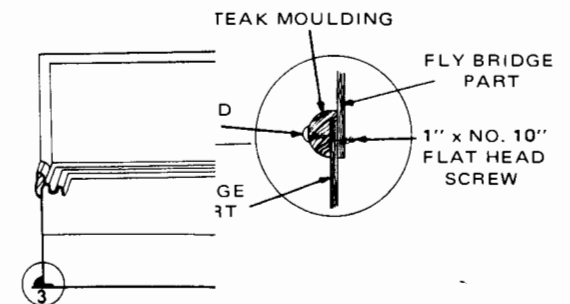
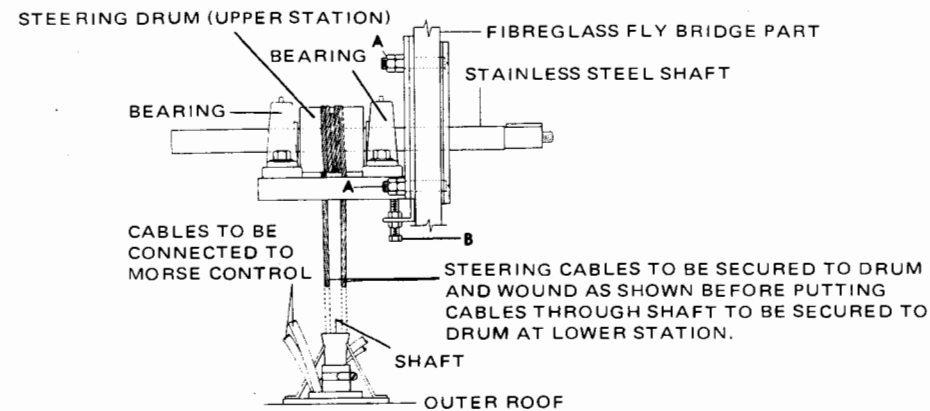
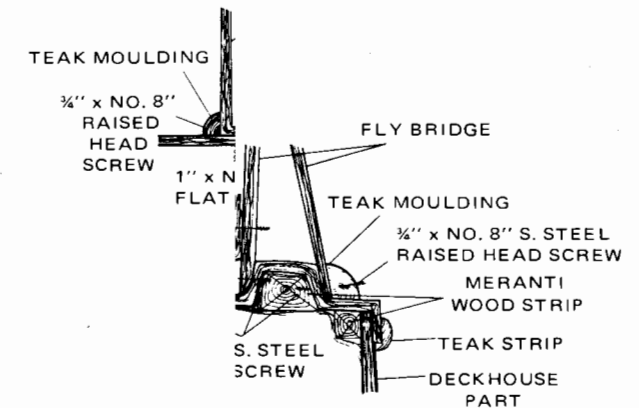
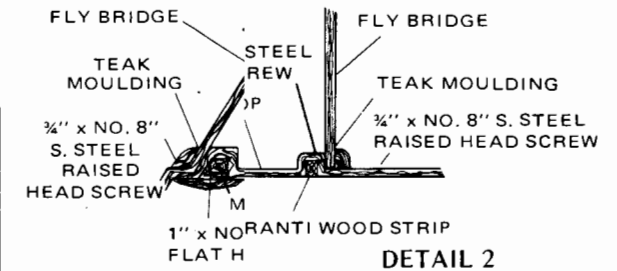
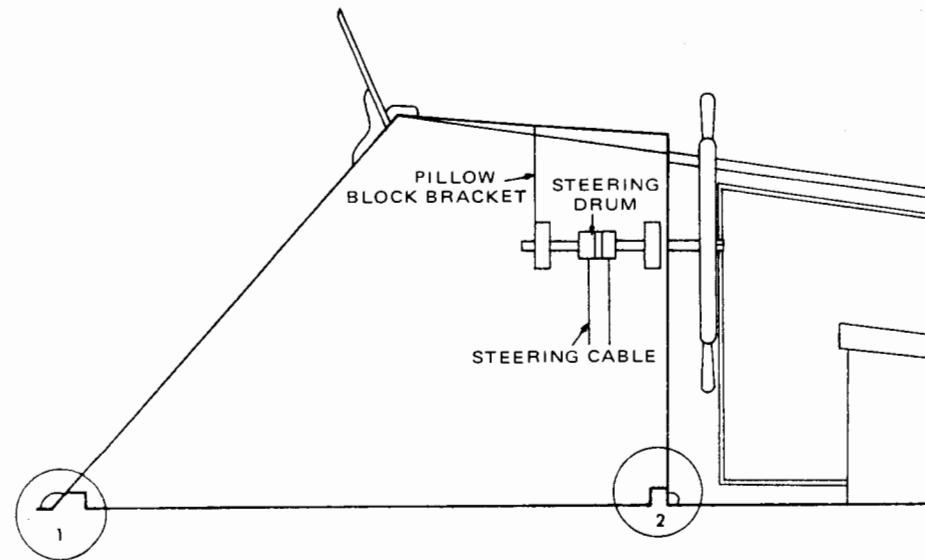
Seat cushions should never be stored wet. Use a mild soap or bleach solution for cleaning. Rinse with fresh water after cleaning.

INTERIOR MAINTENANCE

Wash mildewed areas with mild bleach solution. Drawers may need lubrication with wax if moisture causes swelling, and doors may need adjusting from time to time.

Keep the bilge dry and clean. Check all fire extinguishers yearly for proper charge.

Flying Bridge Ren



Conclusion

We wish to take this opportunity to again welcome you aboard as a Grand Banks owner and to thank you for reading this manual through from cover to cover. We are sure that this information will assist you in having many days of enjoyable troublefree boating.

We know that pride of ownership and the enhancement of an investment are also important for happy boating. We, therefore, strongly recommend that, in addition to the specific items of maintenance listed in this manual, a watch be kept on the general condition of the boat and its equipment.

Even a minor defect, if allowed to go unchecked, could eventually lead to a major and costly repair. If there are any uncertainties regarding service or repairs, your dealer will be happy to answer any questions regarding maintenance, service or repairs, or to supply instructions on any other equipment installed on the boat.

AMERICAN MARINE (S) PTE. LTD.

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