
Introduction

Congratulations on becoming the owner of a Grand Banks and a member of our fleet. This manual and those covering the equipment should be read carefully before operating your Grand Banks.

The owner Registration form should be completed and either left with your dealer or mailed (air mail please) to our offices in Singapore. This form also serves as your warranty card and adds your name to our mailing list for the AMERICAN MARINE NEWS. The NEWS is published three times each year and contains stories and information of interest to Grand Banks owners.

From all of us at American Marine, welcome aboard.

AMERICAN MARINE (S) PTE LTD
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General Specifications

GRAND BANKS 36

Hull Number 790

LOA	36' 10"	11.23 m
LWL	35' 2"	10.72 m
Beam	12' 8"	3.86 m
Draft	4' 0"	1.22 m
Displacement	26,000 lbs	11,797 kg
Water capacity	146 US Gals	552.6 litres
Fuel capacity	400 US Gals	1,514.0 litres
Height from DML to top of mast	22' 4"	6.81 m
Height from DML to top of bridge windshield	13' 1"	3.99 m
Height from DML to top of bridge without windshield	12' 1½"	3.70 m
Height from cradle to Housetop	13' 1½"	4.00 m
AC Voltage	110 Volt	
DC Voltage	12 Volt	

Equipment List

EQUIPMENT		MANUFACTURER SPEC. OR MODEL	SERIAL OR PART NUMBER
ENGINE	PORT	LEHMAN FORD 2725E	5809023 CJH
	STBD	LEHMAN FORD 2725E	6285008 CJH
TRANSMISSION	PORT	BORG WARNER 10-14-000-005	1149
	STBD	BORG WARNER 10-14-000-006	1228
	RATIO	2.47 : 1	
PROPELLER	PORT	STONE MARINE	SP 17943
	STBD	STONE MARINE	SP 17942
	DIMENSION	DIA 26" X PITCH 21" X 3 BLADE	
SHAFT		AQUAMET 22 STAINLESS STEEL	
LENGTH AND DIAMETER		176" X 1½"	
SHAFT BEARING		CUTLESS RUBBER 6" X 1½" I.D.	
GLAND PACKING		5/16" FLAX PACK	
ENGINE FUEL FILTER		RACOR INDUSTRIES, INC.	
		MODEL : 500 FG	
ENGINE FILTER ELEMENT		RACOR INDUSTRIES, INC.	
		MODEL : 2010 SM	
ENGINE BATTERY	PORT	EXIDE 25 PLATE 180 AH	AM 6028
	STBD	EXIDE 25 PLATE 180 AH	AM 6061
BATTERY CHARGER		SENTRY G140-3NL	M86E007
FRESH WATER HEATER		RARITAN ENGRG. COMPANY	
		MODEL : R12	CL 5784197
FRESH WATER PUMP		ITT JABSCO PRODUCTS	
		MODEL : PAR 36900-1000	
ACCUMULATOR TANK		ITT JABSCO PRODUCTS	
		MODEL : PAR 18810-0000	
ELECTRIC BILGE PUMP		RULE INDUSTRIES, INC.	
	FWD ENGINE ROOM	MODEL : 2000 GPH	
SHOWER DRAIN PUMP		RULE INDUSTRIES, INC.	
	FWD HEAD	MODEL : RULE 450 GPH	
	AFT HEAD	MODEL : RULE 450 GPH	
TOILET	FWD HEAD	GROCO "K"	
	AFT HEAD	GROCO "K"	
HAND BILGE PUMP		PAR 33965-0000	
WIPER MOTOR		AFI 3400-859100-125	
WIPER BLADE		BOSCH BD 721011-15	
HORN		FIAMM S.P.A.	
		MODEL : MT-NA	

Equipment List

EQUIPMENT	MANUFACTURER SPEC. OR MODEL	SERIAL OR PART NUMBER
EXTERIOR PAINT	Z-SPAR A-628 HI-HIDE	
	WHITE UNDERCOAT	
	Z-SPAR 100 GLOSS WHITE	
	MARINE ENAMEL	
PARQUET FINISH	SADOLIN PAINTS LTD	
	SADOLIN	
BOOT STRIPE PAINT	KOPPERS COMPANY, INC	
	Z-SPAR LP-76	
	ENDEAVOR BLUE	
INTERIOR PAINT	Z-SPAR 11950	
	GRAND BANKS BEIGE	
EXTERIOR VARNISH	Z-SPAR 1015	
	CAPTAIN'S VARNISH	
INTERIOR FINISH	EPIGLASS TEAKWOOD OIL	
	TIMBER FINISH	
HULL UNDERCOAT	EPIGLASS EPIGUARD 199	
	PIGMENT EPOXY PRIMER SURFACE	
ANTI-FOULING	EPIGLASS VCF	
	CORAL BLUE	

Warranty

LIMITED WARRANTY

American Marine warrants that the products covered by this purchase order contract are free from defects in materials and workmanship under normal use and service. This warranty applies only to those portion of the products specifically manufactured by American Marine and specifically excludes all other equipment and accessories, including without limitation thereto, engines, navigational equipment, toilets and pumps. To the extent that manufacturers of any such equipment or accessories provide guarantees or warranties with respect thereto, American Marine will use reasonable efforts to pass on such warranties or guarantees to whatever extent possible. American Marine shall, however, assume no responsibility for the warranty or guarantee. The obligation of American Marine hereunder is hereby limited to the repair or replacement, at American Marine's option, or such defective product within eighteen (18) months from the date of shipment of such product to the dealer, or one (1) year from the date of sale to the customer of the dealer, which ever occurs first, unless extended in writing by American Marine. This warranty is in lieu of all other warranties of any kind, whether express, implied or statutory there is NO WARRANTY, REPRESENTATION OR CONDITION, EXPRESS OR IMPLIED, OF THE MERCHANTABILITY OF SUCH PRODUCTS OR OF THE FITNESS OF SUCH PRODUCT FOR A PARTICULAR PURPOSE, and there are no warranties which extend beyond the description on face hereof, and no other warranties shall be implied by law or otherwise. In no event shall American Marine be liable for, or for indemnification of Dealer for, any claim asserted against Dealer or for any other or further damages whatsoever, whether direct or indirect, and including consequential damages or loss of profits. No employee or agent of American Marine, Dealer or any other person has authority to waive, modify or vary the terms or provisions of this paragraph.

This warranty shall not apply to :

- (a) The cost of removal or reinstallation of a part, disassembly or reassembly of the unit of which it is a component.
- (b) Paints, varnishes, gelcoats, fabrics, window glass, mirrors and chromium plated finishes because of the varying effects resulting from different climatic and used conditions.
- (c) Speeds, because they are estimated and not guaranteed.
- (d) Parts which have been altered in a manner which has impaired the original characteristics.
- (e) Owners subsequent to the first owner.

American Marine shall not be liable under any circumstances for direct or indirect, incidental or consequential damages caused by defects in the products, optional equipment or parts of workmanship or any delay in the repair or replacement thereof.

WARRANTY PROCEDURE

Warranty work is arranged or performed by the dealer and is then reimbursed by American Marine. In order to avoid misunderstandings a procedure has been established and it is essential that it be followed by the dealer and by you when submitting warranty claims.

Warranty Procedure:

1. The warranty card must be completed and mailed to American Marine immediately upon delivery of the boat to the customer. This card is used to enter the boat in the warranty register and also to enter the customer's name on the mailing list for the American Marine News.
2. No claim for more than an amount equivalent to approximately US\$100 will be accepted unless written authority is received by the dealer from American Marine or specifically identified representations prior to the work being started.
3. No warranty claim will be accepted if received by American Marine more than 60 days after the work has been completed.
4. Warranty Claims are to be signed and dated by the General Manager of the dealership or the owner.
5. Warranty is to be claimed on the format set out by American Marine and supplied to each dealer. This format includes the following information:-
 - a) Claim number (sequential)
 - b) Date
 - c) Model, hull number
 - d) Arrival date. Date delivered to owner
 - e) Owner's name, address, telephone number
 - f) Location of boat at time work performed
 - g) Full description of each problem with photos and sketches, if necessary.
 - h) Full description of each solution
 - i) Full supporting invoices, time sheets, materials lists and labor hours including labor rate.
 - j) Number of hours on each engine.
6. American Marine will consider the total job and approve the claim on the basis of its own estimates of reasonable time to complete the work as if work was done at American Marine facilities
7. American Marine realizes that there may be a periodic special warranty situation and would certainly consider it accordingly.

SECTION

A

Operating Instructions

TWIN SCREW

This section covers recommended operating procedures. A more detailed technical description of the engine can be found in the engine manufacturer's manual.

PRE START-CHECKS

1. Engine and transmission lube oil levels.
2. Engine coolant levels. Refill if necessary, leaving free space in the header tank for expansion.
3. Inspect bilge for excessive water.
4. Visually inspect engines for signs of loose or insecure cables, fittings and hoses.
5. The main battery switches must be on. These switches disconnect the batteries from the boat's electrical system and **SHOULD NEVER BE TURNED OFF WHILE THE ENGINE IS RUNNING**. These switches should be on at all times when the boat is in the water.

STARTING THE ENGINES

It is not necessary for the Battery Selector Switch to be on in order to start the engines. This switch should not be in the ALL position except under the following circumstances :

- A. At the time of engine starting when a battery is too weak to start the engine to which it is connected.
Be sure to turn switch to position 1 or 2 after both engines are running.
- B. When both batteries are to be charged with just one engine running.

No attempt should be made to start the engines simultaneously. The following procedures should be followed for each engine in turn.

1. Double check the gear shift control level to make sure that transmission is in neutral.
2. Move the throttle control to approximately 1/4 throttle.
3. Switch on the engine circuit breaker. This will activate the engine alarm system
4. Press the starter button. When the engine starts, throttle back to idle speed. The alarm will stop when the oil pressure reaches a safe level. If the alarm fails to shut off within ten seconds, stop the engine and determine the cause.

COLD STARTING

In cold weather additional steps may have to be taken. These vary according to the make and model of the engine. Full details can be found in the engine manufacturer's manual.

AFTER THE ENGINES HAVE STARTED

1. Switch on the engine-room blowers, marked VENT on the DC panel.
2. Check the engine exhaust outlets to make sure water is flowing.
3. Check around the boat, dock and surrounding water to be sure there are no loose lines in the water and it is safe to get underway.
4. Check the engine room to ensure that there are no oil or water leaks and that all loose equipment is securely stowed.

WHILE UNDERWAY

1. Under normal conditions, do not exceed 1600 rpm until the water temperature has reached 180°F (82°C). If the water temperature exceeds 212°F (100°C) the water temperature alarm will sound. If this occurs, stop the engine immediately and determine the cause.
2. If the oil pressure falls below 15 psi, the minimum safe level, the oil pressure alarm will sound. If this occurs, stop the engine immediately and determine the cause.
3. If the transmission overheats, the alarm system will sound. If this occurs, stop the engine immediately and determine the cause.
4. Maximum rpm can vary due to the condition of the bottom of the boat or the propeller. A cruising speed of at least 200 rpm below the maximum will ensure longer engine life.
5. Make it a habit to make periodic checks of the engine room while underway.
6. Always throttle back to a slow idle before engaging forward or reverse gear.

STOPPING THE ENGINES

1. Throttle back to idle speed, shift to neutral, and when possible allow the engines to idle for a few minutes to disperse the residual heat.
2. For each engine in turn, activate the stop device located on the console and allow the alarm system to come on before turning off the engine circuit breaker.
3. It is advisable to let the engine room blowers run for about 10 minutes after stopping the engines to help cool down the engine room.
4. Return to the Battery Selector Switch to 1, 2 or OFF position.

INSTRUMENTATION

AMMETER

D.C. Ammeter located at the upper and lower stations. Shows the rate of charge going into the batteries from engine alternate.

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

A.C. Ammeter located at the lower station. Shows the current carried by the A.C. loads.

VOLTMETER

A.C. Voltmeter located at the lower station. Shows the level of regulated voltage being produced by the generator when it is running and the dockside shore supply of AC power.

OIL PRESSURE GAUGE

Located at the upper and lower stations. Consult the specifications section of the engine manufacturers manual for normal pressure readings at different speeds. If pressure drops below 15 psi, stop the engine and check for cause even if the alarm does not sound.

WATER TEMPERATURE GAUGE

Located at the upper and lower stations. Consult the specifications section of the engine manufacturers manual for normal operating range. When possible always warm up an engine gradually.

HOURLY METER

Located at lower station. Registers engine operating hours.

TACHOMETER

Located at the upper and lower stations. Registers the revolutions per minutes of the engine. Consult the engine manufacturers specifications for full load RPM. It is calibrated at 2,000 rpm. Please use an optical tachometer or stroboscope if you need to re-calibrate.

ALARM SYSTEM

Located at the upper and lower stations. The beepers or buzzers are audible from almost anywhere on the boat. The system monitors the lube-oil pressure, fresh water temperature of each engine and also the oil temperature of each transmission. Oil pressure below 15 psi, water temperature above 212°F (100°C), or overheating of the transmission will cause the alarm to sound.

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

Trouble-shooting

PROBLEM	DIAGNOSIS	CORRECTIVE ACTION
Engine turns over but will not start	<ol style="list-style-type: none"> 1) Out of fuel. 2) Dirty fuel filters. 3) Stop mechanism stuck in stop position. 	<ol style="list-style-type: none"> 1) Fill tanks and bleed system. 2) Change filters and bleed system. 3) Free as necessary.
Engine will not run	<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 filter. 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. 7) Fouled bottom. 	<ol style="list-style-type: none"> 1) Free as necessary. 2) Change filters. 3) Check all connections for leaks. 4) remove shut-off valves and inspect; remove hose and inspect; clean as necessary. 5) Inspect and clean as necessary. 6) Insepct and replace or clean as necessary. 7) Clean.
Overheating	<ol style="list-style-type: none"> 1) Low coolant level. 2) Broken belt or incorrect belt tension on sea-water 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. 	<ol style="list-style-type: none"> 1) Refill with fresh water and check for cause of flow level. 2) Adjust or replace. 3) Inspect hose inside and out. Replace or clean as necessary. 4) A. Loosen butterfly nuts on top of strainer and allow lid to lift due to water pressure. B. Close intake seacocks. C. Remove lid and take out basket strainer. D. If stainer is clean, open seacock and check flow of water; if it appears restricted, the intake screen on outside of hull is blocked. clean from outside of hull.

5. Broken raw water pump

6. Blocked heat exchanger
or transmission oil
cooler.

7. Faulty thermostat

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

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.

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Dear New Lehman Diesel Owner,

Lehman Power Corporation is pleased to announce the beginning of a "New Engine Start-Up Program" which may be available in your area.

This program is administered by our Distributor and Dealer network. Please contact your nearest distributor for details.

LEHMAN POWER CORPORATION

LEHMAN
MARINE DIESELS
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SECTION

B

Fuel Systems

FUEL

Number 2 Diesel fuel is recommended. Whenever possible, check fuel for purity before filling tanks.

TANKS

Each tank has a deck fill, overboard vent, hand-hole clean-out plate and sight gauge. Located at the base of each tank is fuel shut-off valve. Construction is of mild steel and every tank is fully baffled.

FUEL SUPPLY SYSTEM (MANIFOLD)

On single or twin engines, fuel can be drawn from any tank by opening the fuel shut-off valves.

If there should be a problem with the fuel in one tank, the valve on the affected tank should be closed. This will allow one or both engines to run off the other tank.

FUEL RETURN SYSTEM (MANIFOLD)

In general the fuel pump on a diesel engine supplies more fuel than is actually required for combustion. The excess is returned to the fuel tanks by the fuel return system.

On single engine boats, you can return the excess fuel to either tank by means of the 3-way selector valve.

The excess fuel in a twin engine boat is returned to the fuel return manifold. From this manifold the fuel can be returned to any one of the tanks by opening the shut-off valves. These valves are located at the manifold or at the top of the fuel tanks. Please make sure that at least one of the valves is open before starting the engine.

BLEEDING THE FUEL SYSTEM

If an engine runs out of fuel or loses its prime, it is necessary to bleed the air from the fuel system before the engine can be restarted. The following procedure is recommended.

1. Ensure that the shut-off valves on all empty tanks are closed. Open the shut-off valve on the tank that is to be used.
2. Open the bleed screws on the top of any filters which have been installed in the fuel lines ahead of the fuel lift pump.

3. The fuel will enter the filters under gravity and will drive the air out of the top. When bubble-free fuel begins to run out of the bleed screw, close the screws.
4. Loosen the bleed screws on the top of the engine filter and also on the fuel injection pump.
5. Work the lever on the fuel-lift pump until bubble-free fuel runs from the bleed screws. These should then be tightened and the engine started.

NOTE

If the engine happens to have stopped with the fuel pump on top of the lobe of its cam, it will be found that the pump cannot be operated by hand. In this situation the engine should be cranked 1/4 turn.

Step 5 can also be accomplished by turning the engine over on the starter until it starts to run. The bleed screws should then be closed at that time.

The exact location of the bleed points in the engine can be found in the manual supplied by the engine manufacturer.

Electrical Systems

D.C. SUPPLY

The basic service and starting circuits are 12 volt D.C. with negative ground. Details of the electric circuits can be found on the Schematic enclosed with this manual.

BATTERIES

At the heart of your boat's electrical system are the 12 volt batteries. To ensure long battery life, each battery should be checked at regular intervals to determine the state of charge. At the same time, the level of the electrolyte should be checked to make sure it 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, the electrolyte in 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 various states of charge are given in the chart below.

TEMPERATURE		SPECIFIC GRAVITY		
C°	F°	Fully Discharged	Half Charged	Fully Charged
10	50	1.118	1.208	1.288
16	60	1.114	1.204	1.284
21	70	1.110	1.200	1.280
27	80	1.106	1.196	1.276
32	90	1.102	1.192	1.272
38	100	1.098	1.188	1.268
43	110	1.094	1.180	1.264

TWIN SCREW

BATTERY SELECTOR SWITCH

The battery selector switch on the DC panel enables power for the service system to be drawn from either or both batteries. Power from the switch is distributed to all DC circuits through circuit breakers.

It is not necessary for the Battery Selector Switch to be on in order to start the engines. The switch should not be in the ALL position except under the following circumstances :

- 1) At the time of engine starting when a battery is too weak to start the engine to which it is connected.
Be sure to turn switch to position 1 or 2 after both engines are running.
- 2) When both batteries are to be charged with just one engine running.

After tying up or anchoring for the evening, the selector switch should be placed in the 1 or 2 position. This will prevent both batteries from being drained if a 12 volt piece of equipment is inadvertently left on. When on an extended cruise or when living on board without shore power, a good system is to set the switch in the 1 position on odd-numbered days and in the 2 position on even-numbered days when the engine is not in use.

When leaving the boat the selector switch should be turned to the OFF position. This will isolate all circuits from the batteries except for the electric bilge pump which is the only item on the service panel not connected through the Battery Selector Switch. With this switch off, the pump will operate automatically provided that the bilge pump circuit breaker and the emergency disconnect switches are on and that the bilge pump function switch is set to "auto". It is recommended that these switches normally be left in these positions. The pump can, however, be started at any time by setting the function switch to "manual".

The battery selector switch does not affect the use of the battery charger. The charger automatically charges all batteries when supplied with AC power.

BONDING SYSTEM

All thru-hull fittings at or below the waterline (seacox, propellers, shafts, rudder, etc) are interconnected on the inside of hull with a copper strip. This strip is connected to the engine frame and negative battery terminals to a sacrificial zinc anode plate at transom.

Its purpose is to help guard against shock hazard and minimizing the effect of corrosion which is caused by electrical stray currents produced by dissimilar metal being submerged in an electrolyte (salt-water). Do not paint the zinc plate and replace if major deterioration is evident.

As an added safety precaution, the fuel fills, fuel tanks, flybridge rails, mast and windlass are also grounded through this system.

A.C. SUPPLY

The AC supply is provided either from the shore via the shore connector or from a generator. The selector switch mounted on the AC panel near the lower helm allows you to choose your supply source if a generator is installed on your boat.

A light on the AC panel lights up when power is being supplied to the boat. There is also a press button switch testing reverse polarity warning light on the AC panel. Should reverse polarity be present, immediately disconnect and reverse the leads in the supply line.

To operate the AC system after power is being supplied, switch on the master circuit breaker on the AC panel and then the appropriate equipment breaker. Before disconnecting the shore power, switch off the main breaker.

GENERATOR (OPTIONAL)

Before using the generator, check the oil and water levels and make a visual check of the fittings and hoses. The generator "START" and "STOP" buttons are located on the AC panel. The generator circuit breaker must be switched on before the unit can be started. To start the generator, first depress the button marked HEATER for about 15 seconds. This will aid in starting, especially in cooler weather. Next push the start button.

After the unit has started, allow it to warm up for a few minutes before switching on the electrical load. This is also a good time to make a visual check and listen for any unusual sounds.

A separate battery is provided for starting the generator. This battery is charged by a charging circuit built into the generator. It is also connected to the battery charger so that it may be kept fully charged when the boat is connected to the shore supply.

See the generator owners manual for further information.

A.C. WIRE NUMBERING CODE

<u>NO.</u>	<u>DESCRIPTION</u>	<u>NO.</u>	<u>DESCRIPTION</u>
1.	GNAN	20.	DEHUMIDIFIER
2.	SHORE	21.	STAGE-TYPE LIGHTING OR THEATRICAL LIGHTING
3.	(OUTLETS PORT OUTLET)	22.	A.C. LIGHTS
4.	STBD OUTLETS	23.	A.C. SPREADER LIGHT
5.	HOT WATER	24.	WATER MAKER
6.	CHARGER	25.	TYPE WRITER
7.	COOKER	26.	A.C. ENGINE ROOM OUTLET
8.	FRIDGE	27.	DAVIT
9.	FREEZER	28.	T.V.
10.	ICE MAKER	29.	S.S.B.
11.	AIR CON	30.	HEATER
12.	AIR CON PUMP	31.	FLYBRIDGE FREEZER
13.	MICROWAVE	32.	VACUUM CLEANER
14.	A.C. ENGINE ROOM LIGHTS	33.	DISPOSAL
15.	WASHER	34.	WEATHER FAX
16.	DRYER	35.	INTERCOM
17.	AIR COMPRESSOR	36.	STEREO
18.	TRASH COMPACTOR	27.	FLYBRIDGE OUTLET
19.	DECK WASH PUMP OR SEA WATER PUMP		

*A/C. Negative and Ground Wires

Numberings are the same as the live wire except the colour.

Example : Live (+) #3 (Brown colour)
Neutral (-) #3 (Blue colour)
Grounding #3 (Green colour)

D.C. WIRE NUMBERING CODE

<u>NO.</u>	<u>DESCRIPTION</u>	<u>NO.</u>	<u>DESCRIPTION</u>
1.	STARTING (SINGLE ENGINE) PORT STARTING	36.	S.S.B. RADIO
2.	STBD STARTING	37.	RUDDER INDICATOR
3.	ALTERNATOR (SINGLE ENGINE) PORT ALTERNATOR	38.	INTERCOM
4.	STBD ALTERNATOR	39.	TAS WIRELESS TELEPHONE
5.	VENT (ENGINE BLOWER)	40.	FLYBRIDGE D.C. SUPPLY
6.	STOP SOL. (SINGLE ENGINE) PORT STOP SOL.	41.	DAVIT (HOIST DINGHY)
7.	STBD STOP SOL.	42.	A.D.F.
8.	WIPER/WINDSCREEN WASH	43.	HAILER
9.	HORN	44.	SATELLITE NAVIGATOR
10.	NAVIGATION LIGHTS	45.	D.C. OUTLET
11.	ANCHOR LIGHT	46.	GAS CONTROL
12.	FWD CABIN LIGHTS (GB 32)	47.	FIRE EXTINGUISHER
A12.	AFT CABIN LIGHTS	48.	COMPASS
13.	SALOON LIGHTS	49.	FAN
14.	BILGE PUMP	50.	SYNCHRONIZER
15.	DRAIN PUMP	51.	GEN VENT
16.	FRESH WATER PUMP	52.	SEA GUARD
17.	SPREADER LIGHT	53.	ELECTRONICS
18.	GALLEY VENT	54.	FISH FINDER
19.	ENGINE ROOM LIGHTS	55.	INTERFACE
20.	WINDLASS	56.	TRIM TAB
21.	BATTERY CHARGER	57.	WINDSPEED
22.	STEREO SUPPLY OR STEREO	58.	OIL CHANGE PUMP
23.	ELECTRIC HEAD	59.	WEATHER FAX
24.	WASTE TREATMENT SYSTEM (TOILET TANK, LECTRA-SAN, GALLEY MAID)	60.	INSTRUMENT LIGHTS
25.	RADIO VHF	61.	HALON
26.	RADAR	62.	CIGARETTE LIGHT
27.	AUTO PILOT	63.	BAIT TANK PUMP
28.	DEPTH SOUNDER, RECORDER	64.	STEP LIGHTS
29.	SPEEDOMETER (SUM LOG)	65.	LAZARETTE LIGHTS
30.	SEA WATER PUMP OR DECK WASH PUMP	66.	ICE-MAKER
31.	GEN STARTING SYSTEM	67.	TDX SYSTEM
32.	D.C. FRIDGE	68.	HEATER
33.	HEAD VENT	69.	SEA TEMP
34.	SPOT LIGHT	70.	FMV DISPLAY
35.	LORAN (SATELLITE NAVIGATOR)	71.	INSTRUMENT
		72.	HULL LIGHTS
		73.	WATER-MAKER
		74.	PYROMETER

* D.C. Ground Wires - numbers are the same as the Pos. (+) wire except the colour e.g. #1 (red), #1 (black).

Mechanical Systems

STEERING

Each Grand Banks has a mechanical steering system. The sprocket on the wheel at the lower station is connected to the rudder quadrant by chain and cable. The drum on the bridge wheel is connected to the sprocket at the lower station by a stainless steel cable. If, for some reason, there is a loss of steering on the flybridge, the lower station should be checked before assuming the failure affects the whole system.

Periodic checking, greasing and oiling of the steering system is recommended. An emergency tiller is provided. If needed, it should be fitted through the deck plate near the lazarette hatches and onto the squared shaft of the starboard rudder stock. It may also be necessary to disconnect the steering cables at the quadrant.

POWER TRANSMISSION SYSTEM

PROPELLER SHAFT ALIGNMENT

Check only with boat afloat. Slide the coupling faces together so that the two halves of the register are engaged and the flanges are almost touching. Select a feeler gauge thickness that will just slide between the flanges and check that the gap is the same all the way around. If not, move the engine by adjusting the mountings until proper alignment is obtained. 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 shaft will not physically damage the boat but will accelerate wear on the shaft bearings.

PROPELLERS

The propellers installed as original equipment on each Grand banks are designed to give all round performance. Technical information on your propellers can be found in the specifications section of this manual. On single screw boats, the propeller is usually left handed (please refer to equipment list), which means it rotates counter-clockwise when viewed from aft. On twin screw boats, the port propeller is left handed and the starboard propeller is right handed (rotates clockwise when viewed from aft).

PROPELLER INSTALLATION

Before installing a propeller, the taper on the shaft should be lightly coated with a suitable preparation to prevent the propeller from "seizing" onto the shaft. The propeller can also be coated with a silicone solution to help it stay clean.

It is important when installing a propeller to make sure it is not "keybound". To check this, slide the propeller up the taper without the key installed and mark the shaft at the forward of the propeller boss. Repeat the procedure with the key in place. The boss should reach the mark made previously. This procedure will help to reduce imbalance and vibration. Be sure the nut is locked tight and the split pin is in position.

SHAFT LOGS AND STUFFING BOXES

Attached to each shaft log is a stuffing box. The attachment is made using a short length of flexible hose which allows the engine to move slightly on its mounts 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 re-tighten the lock nuts. **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. The packing nut should then be screws onto the threaded portion of the stuffing box and tightened sufficiently so that water is just slowly dripping from the gland. The lock nut should then be tightened using the spanner.

BEARING RENEWAL

The shaft log at the forward end of the shaft tube is the same for both single and twin screw boats. To remove the bearing from the shaft log proceed as follows :

- 1) Take off the shaft stuffing box and rubber hose.
- 2) Unscrew the set-screw in the fibreglass shaft tube.
- 3) Pull the bearing out forward with a bearing puller.

To remove the stern bearing in a single screw boat, undo the set-screws in the casting or fibreglass tube and withdraw the bearing aft. On some boats it will be necessary to remove the fibreglass fairing by cutting through the thin laminate which attaches it to either side of the keel.

To remove the bearing from a strut, undo the set-screws in the strut casting and withdraw the bearing aft.

Details of the shaft assembly can be found in the drawing included with this manual.

CAUTION NOTE

SINGLE SCREW

WHEN TOWING IS REQUIRED, THE PROPELLER SHAFT SHOULD BE CLAMPED BY A WRENCH OR SIMILAR TOOL TO PREVENT THE SHAFT FROM ROTATING. THIS IS NECESSARY TO PREVENT THE STUFFING BOX FROM OVERHEATING DUE TO NO FLOW OF WATER FROM THE ENGINE RAW WATER PUMP WHICH IS CONNECTED TO THE STUFFING BOX BY WAY OF A WATER COOLING HOSE.

ALWAYS KEEP AN EYE OF THE SHAFT/STUFFING BOX WHEN BOAT IS BEING TOWED.

TWIN SCREW

AS ABOVE METHOD IF BOTH ENGINES CANNOT BE STARTED OR WHEN BOAT IS BEING TOWED. IF EITHER ONE ENGINE IS OPERATIVE, ONE NEED TO CLAMP THE FAILED ENGINE ONLY.

Plumbing Systems

BILGE AND SANITARY

BILGE PUMP

The electric bilge pump is located under the engine room sole. It is an automatic pump which can be controlled manually through the use of the switch on the main breaker panel. A hand operated bilge pump is also provided.

SHOWER DRAIN PUMP

A shower drain pump is located in a drainage well in each shower. There is a circuit breaker on the main panel and an on-off switch in the head. Both must be in the "ON" position. The pump is activated by a float switch. Water must be present for it to operate.

HEADS

Always be sure to pump the head completely clear especially when leaving your boat. Do not dispose of matches, cigarettes or other debris in the head. Some heads are fitted with a waste treatment system. More information and detailed instructions on both the head and treatment cycle can be found in the relevant manufacturers manual.

HOLDING TANK

Holding tanks are necessary in some parts of the world to comply with laws concerning the disposal of waste. Boats with holding tanks are provided with a macerator pump to facilitate the pumping of waste to a shoreside waste system. Please refer to the diagram enclosed with this manual for details of this system.

FRESH WATER SYSTEM

WATER TANKS (FIBREGLASS TYPE)

The location of the water tanks are shown on the diagram included with the manual. Each tank is fully baffled and has a shut-off valve.

FRESH WATER PUMP

The fresh water pump location is shown on the enclosed diagram. Technical information on the pump can be found in the Equipment List.

WATER HEATER

Water is heated either by waste heat from the engine's cooling system or by an electric element connected to the A.C. electric system. A pressure relief valve protects the heater from excessive pressure build-up. The engine will not generate enough heat when idling to produce really hot water.

SERVICE BULLETIN

ITT JABSCO

International Telephone and Telegraph Corporation
1485 Dale Way, Costa Mesa, California 92626
Telephone: (714) 545-8251

7/21/82

CHECK PULSATION DAMPENER WHEN REPLACING PRESSURE SWITCH ON PAR DEMAND WATER PUMPS

Whenever replacing a pressure switch on PAR diaphragm demand water pumps, the pulsation dampener inside the base should be checked for collapse or deterioration.

Making sure that the pulsation dampener is firm and resilient to properly absorb system pulsations will minimize pump cycling and provide improved switch performance and life.

Acting much like an automobile shock absorber, the pulsation dampener is subject to deterioration by the pressure exerted against it. Factors affecting pulsation dampener life include: frequency of pump use; failure to turn off pump circuit and bleed system pressure when not used for extended periods thereby leaving dampener under full compression; inadequate sealing of discharge port check valve allowing dampener to see constant compression from city water entry; loose base screws(s) allowing air to escape from under the dampener, resulting in premature collapse.

Usually, the deterioration is gradual and any change in noise level or performance goes virtually unnoticed until a system failure occurs.



JABSCO



PAR



PAR



JABSCO



RAY-LINE

SECTION

C

Service And Maintenance

EXTERIOR

ANTIFOULING

Under average conditions painting the bottom should be done twice a year. This time-period can vary depending on the amount of boat use and local water conditions. Make sure all areas are covered. HEAVY SANDING OR SAND BLASTING OF THE BOTTOM OF THE BOAT IS NOT RECOMMENDED. DAMAGE TO THE GELCOAT COULD RESULT. Also remove, clean and paint the basket strainers covering the thru-hull fittings. The thru-hulls should also be cleaned out. When the boat is hauled for painting, also examine the following items:

1. Check for wear in the cutlass bearings.
2. Check for operation of all seacocks. If stiff, remove the cone for cleaning and coat with petroleum jelly before replacing.
3. Check propeller and propeller key on each shaft for tightness and condition. Also inspect the lock nut and split pin.
4. Check condition of all underwater fittings. After the boat has been relaunched, be sure to check the circulation of the engine raw water cooling system. If the raw water pump impellers have seen heavy service they are prone to failure during the dry out period when the boat is out of the water.

TOPSIDES, DECKHOUSE AND EXTERIOR FIBREGLASS

All exterior fibreglass on a Grand Banks is gelcoated. A good cleaning and waxing at regular intervals will keep the fibreglass parts looking new for a long period of time. Rinsing off all salt following each use is recommended whenever possible. After long exposure to sun or salt or to remove a stain, VERY LIGHT buffing may be necessary to restore the gloss of the gel-coat surface. Always wax the area after buffing.

HARDWARE

Hardware can be preserved from the elements by protective polishes. Always rinse with fresh water after each cruise whenever possible.

VARNISHED TEAK

Varnished teak will require periodic light sanding and new varnish depending on climatic conditions and frequency of exposure to the elements. Scratches and nicks in the varnish should be touched up as soon as they are discovered. Whenever possible rinse with fresh water after each cruise.

TEAK DECKING

We recommend not applying oil or surface coatings to decking as many of these materials, in concert with salt water and weather exposure, are capable of damaging seam compounds. The natural non-skid qualities of wood are also often affected by coatings, as well. Wood cleaners approved by your dealer are highly advised in lieu of coatings.

Please do not use deck cleaning compounds that contains oxalic and/or phosphoric acid.

FLYBRIDGE SEAT CUSHIONS

Flybridge seat cushions should never be stored wet. A mild soap or bleach solution is good for cleaning. Always rinse with fresh water after cleaning.

INTERIOR

Use only mild cleaners. Drawers may need lubrication and doors may need adjusting from time to time. See the Equipment List for information on interior paint and finishes.

DANISH BRASS CABIN LAMP

As a sailor you know how aggressive seawater is to all gear on your boat, especially to brass. To resist oxidation the brass is treated with a special lacquer - but if you want to have beautiful lamps for years, you must follow these rules :

- 1) Do not polish the lacquer.
- 2) Keep seawater away from lamps.
- 3) Wash lamps at intervals - using a soft cloth and fresh water. Polish very, very lightly with a soft cloth in order not to scratch the lacquer.
- 4) Never use spirits or thinner.

If nevertheless, you should be so unfortunate as to have your lamps tarnished by seawater, the lacquer may be removed from the tarnished area by the use of thinner. It is important that this should be done while the attacks are still in the form of brown spots or discolourations, as these can be polished away easily, you then have to use polish here in the future.

SALOON DOOR "LEGGE" LOCK

A little bit of maintenance will help to make your Legge lock last a long way.

- 1) Lubricate the keyhole and plunger slot in the thumb turn assembly regularly with WD40 or light machine oil or similar product at least every 6 months.
- 2) Grease all moving parts e.g. door handle, spring and circlip.
- 3) Wipe and remove salt and dirt from exterior parts.

If you need to replace the locking cylinder, please contact American Marine (S) Pte. Ltd.

SERVICE LOG

It is recommended that each owner keep service log of maintenance work done on his boat. It can be an important part of an upkeep program and could be valuable should you ever want to sell your Grand Banks.

MECHANICAL

The following items should be examined before each day's cruising.

- 1) Engine lube oil level.
- 2) Engine coolant level.
- 3) Primary fuel filters
- 4) Battery fluid level
- 5) Transmission fluid level
- 6) Bilge for excessive water
- 7) Generator oil and coolant levels

1. TO REMOVE CYLINDER FROM LOCK CASE

Unscrew the cylinder retaining screw.
Remove the key from the cylinder.
Depress the small plunger in the slot underneath the thumbturn, turn the thumbturn till the two gears can be seen in line with the opening in the lock case, remove the cylinder from the thumbturn side.

2. Fit the lock to the mortice with clear holes for the one piece cylinder and spindle.

3. TO ASSEMBLE CYLINDER TO LOCK CASE

Remove key from cylinder.
Depress plunger as above and turn the thumbturn till the gears are in line.
With the dead bolt in the unlocked position, insert the cylinder through the lock, holding the thumbturn end, to suit the hand of door.
Replace cylinder retaining screw.

IMPORTANT

Turn thumbturn towards fore-end, until plunger shoots out and gear is engaged.
If turned in the opposite direction this limiting plunger will not allow correct engagement of the gears, and lock will not work. To correct this depress the plunger and turn gear in the correct direction.

PLEASE NOTE :-

With double cylinder and indicator cylinders it will also be necessary to align the gears before the cylinder can be removed from the lock case or replaced.



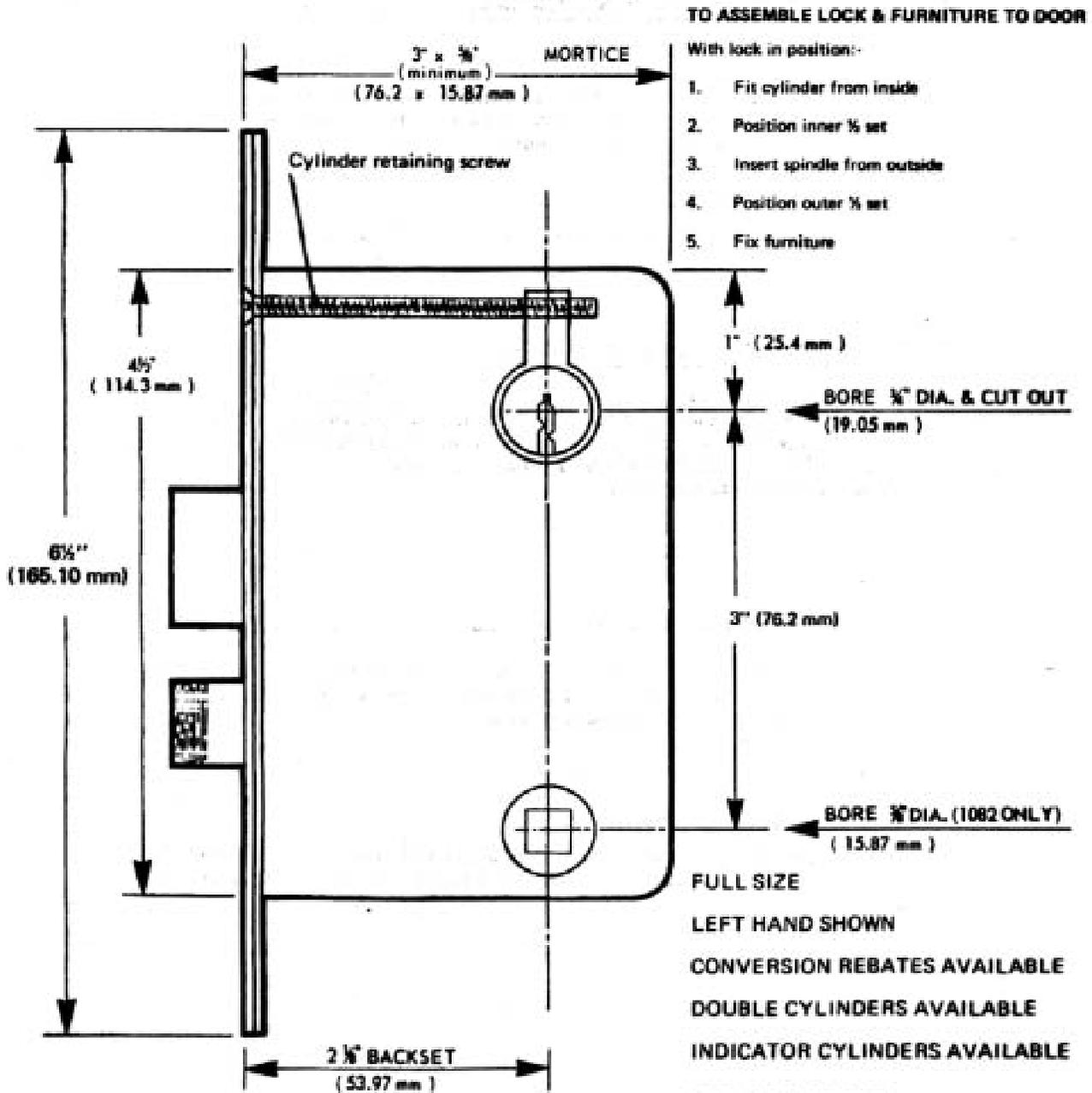
LEGGE

FITTING INSTRUCTIONS FOR LEGGE CYLINDER LOCKS

No. 1082 CYLINDER MORTICE LOCK (Illustrated)

No. 182 CYLINDER MORTICE DEAD LOCK

No. 189 CYLINDER MORTICE SLIDING DOOR LOCK



PREVENTIVE MAINTENANCE

The following schedule is suggested. Service intervals are intended to serve as guidelines.

ITEM		1ST 25 HOURS	EVERY 100 HOURS	EVERY 250 HOURS
1.	Check instruments for proper operation	*	*	*
2.	Torque heads, injectors, all external engine bolts	*	*	*
3.	Check adjustment of transmission controls	*	*	*
4.	Change engine and generator oil	*	*	*
5.	Check control and steering cables	*	*	*
6.	Check transmission for leaks	*	*	*
7.	Change engine oil and filters, check for leaks	*	*	*
8.	Change all fuel filters and air filters	*	*	*
9.	Check zinc in heat exchanger	*	*	*
10.	Inspect all seacocks for free operation	*	*	*
11.	Check raw water strainers	*	*	*
12.	Check drive belts	*	*	*
13.	Check all engine electrical connections for tightness	*	*	*
14.	Inspect exhaust system for leaks	*	*	*
15.	Check stuffing boxes for leaks	*	*	*
16.	Check all fire extinguishers for proper charge			*
17.	Change transmission fluid: clean screen inside drain			*
18.	Check raw water pump impeller			*

NOTE: See engine owners manual for additional service tips and an engine trouble-shooting guide.

**EPIGLASS EPIGUARD 199 UNDERCOAT WITH
EPIGLASS CORAL BLUE ANTIFOULING**

Surface Preparation

- 1) Thoroughly degrease with Interlux 202
- 2) Roughen gel coat with 100 to 200 grade sand paper. Avoid deep scratches on surfaces.
- 3) Remove residual dust with dry cloth or feather duster.
- 4) Wipe dull surface immediately using dry absorbent lint-free rags moistened with Epiglass Epoxy thinner/cleaning fluid.

Precaution : Replace rags regularly to ensure no surface contamination

Epiglass Epiguard 199

- 1) Stir Epiguard Part A and Part B separately.
- 2) Mix Part A and Part B together and thinner (not more than 10%) to ease painting.
- 3) Paint on first coat of Epiguard 199.
- 4) Allow an interval of minimum 4 hours and maximum 18 hours prior to application of 2nd coat of Epiguard 199.

Epiglass VCF Coral Blue Antifouling

- 1) Stir VCF antifouling thoroughly.
- 2) After 2nd coat of Epiguard 199, an interval of minimum 4 hours and maximum 18 hours must be allowed prior to application on VCF antifouling.
- 3) Await a minimum of 8 hours before launching.

NOTE :

If any of the maximum time is exceeded, the following has to be done :-

- 1) Light sand Epiguard 199 undercoat.
- 2) Remove residual dust with dry cloth or feather duster.
- 3) Wipe sanded surface immediately with dry lint-free rags moistened with Epiglass thinner/cleaning fluid.
- 4) Apply next coat of paint (undercoat or antifouling).

Cleaning

Wash all equipment with Epiglass Epoxy thinner/cleaning fluid.

ANTIFOULING CHANGEOVER CHART

The following chart has been prepared to assist in the procedures that should be carried out in preparing and recoating when changing from one antifouling to another.

CHANGING TO ► FROM ▼	Barrier	E Type	Hi Speed Copper	Longlife	Pacific	DRP
Epiglass						
Barrier	D	D	D	D	D	D
E Type Racing	S	D	D	D	D	S
Hi Speed Copper	S	D	D	D	D	S
Longlife Cruising	S	D	D	D	D	S
Pacific	R	S	S	S	D	R
DRP	D	D	D	D	D	D
British Paints						
77	S	S	S	D	D	S
99	S	D	D	D	D	S
88	S	S	S	D	D	S
Permapoxy	S	D	D	D	D	S
International						
Singapore	R	S	S	S	D	R
Endurance	S	D	D	D	D	S
TBT	S	D	D	D	D	S
Extra Hard	D	D	D	D	D	D
Micron 25	D	D	D	D	D	D
Tropex	R	S	S	S	D	R
PGH						
Jet Black	R	S	S	S	D	R
LIAY						
161P	R	S	S	S	D	R
Copper X	S	S	S	S	D	S
Unknown						
Antifouling	R	S	S	S	S	R

D = DIRECT application after thorough fresh water wet sanding.

S = Epiglass Antifouling **SEALER** should be applied after thorough fresh water wet sanding, followed by application of new type of antifouling.

R = Epiglass Antifouling Sealer should be applied after total **REMOVAL** of existing antifouling, and recoated with new type of antifouling.

IMPORTANT: ALWAYS REFER TO THE EPIGLASS BOAT OWNERS MANUAL FOR FULL SURFACE PREPARATION DETAILS.

HEALING INDUSTRIES LTD.

RIBS DIVISION

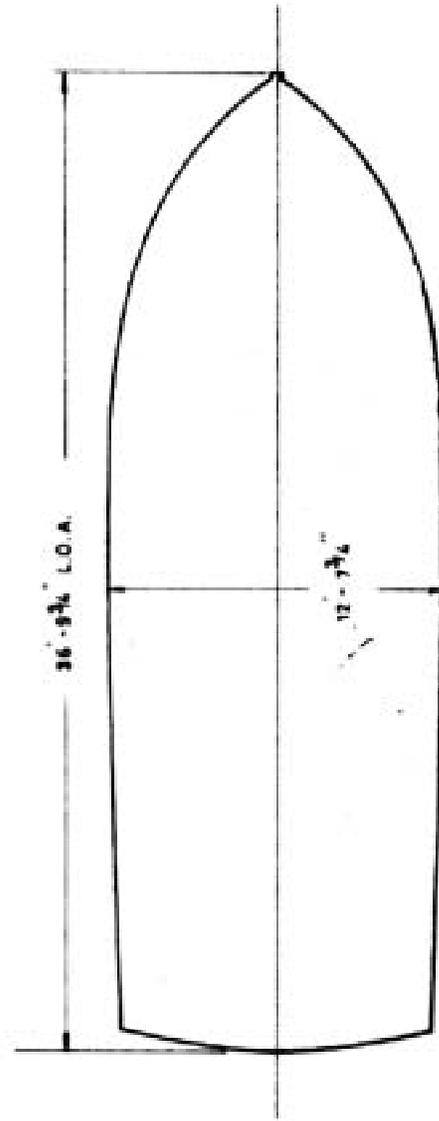
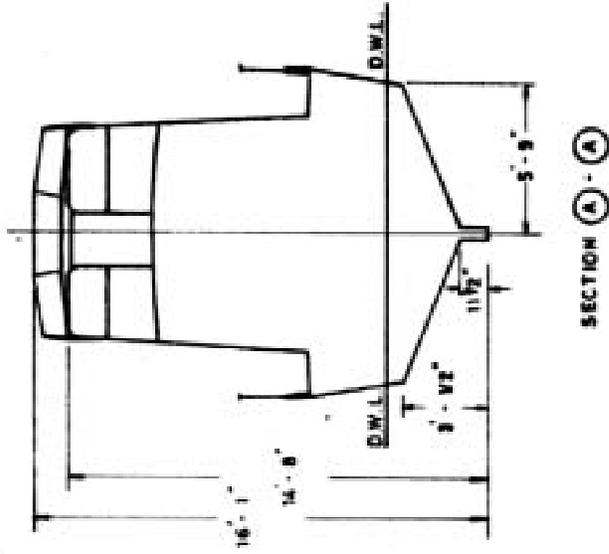
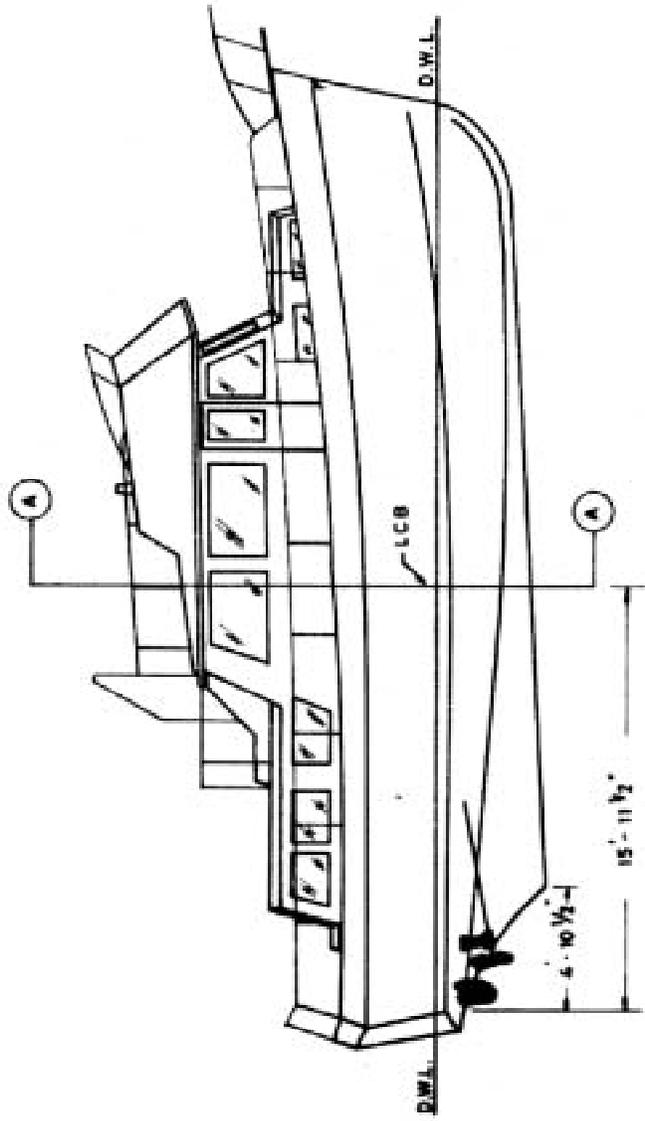
HEAD OFFICE, AVONDALE, AUCKLAND, NEW ZEALAND.
AUCKLAND • WELLINGTON • CHRISTCHURCH • DUNEDIN.

AUSTRALIA: HEALING INDUSTRIES PTY LTD.
SYDNEY • BRISBANE • MELBOURNE • PERTH.

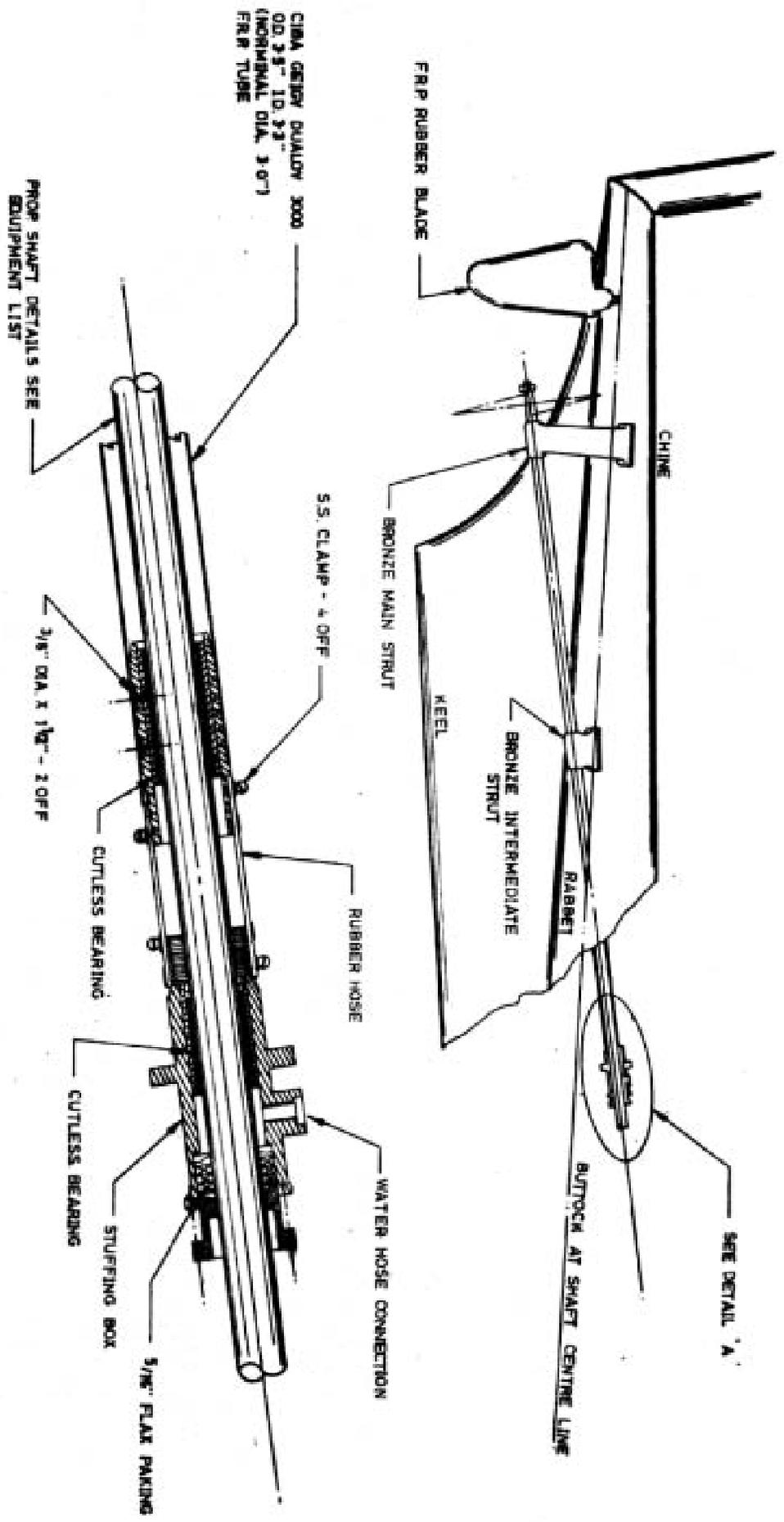
SINGAPORE: EPIGLASS(S) PTY LTD.

SECTION

D



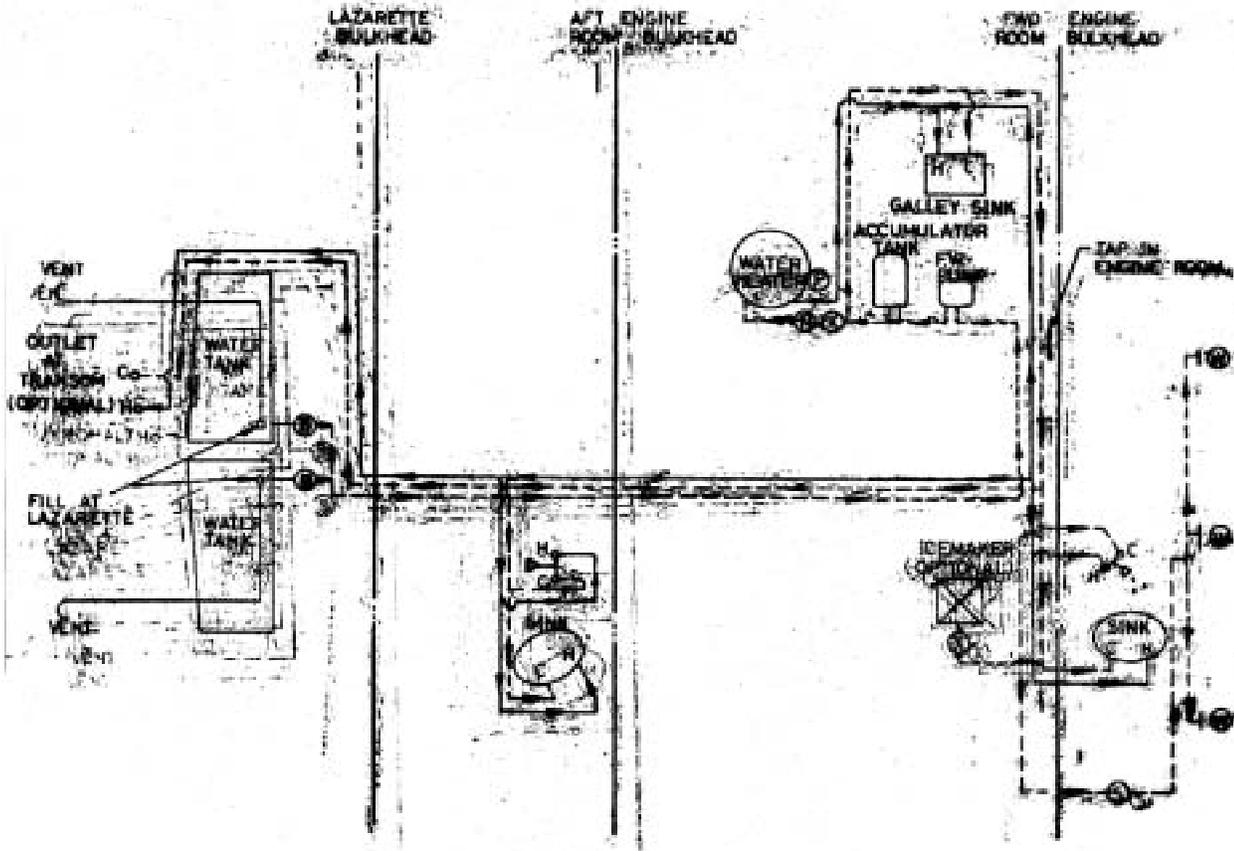
**MODIFY GB 86
GRAVING PLAN**



TWIN ENGINE
SHAFT & SHAFT LOG TUBE INSTALLATION

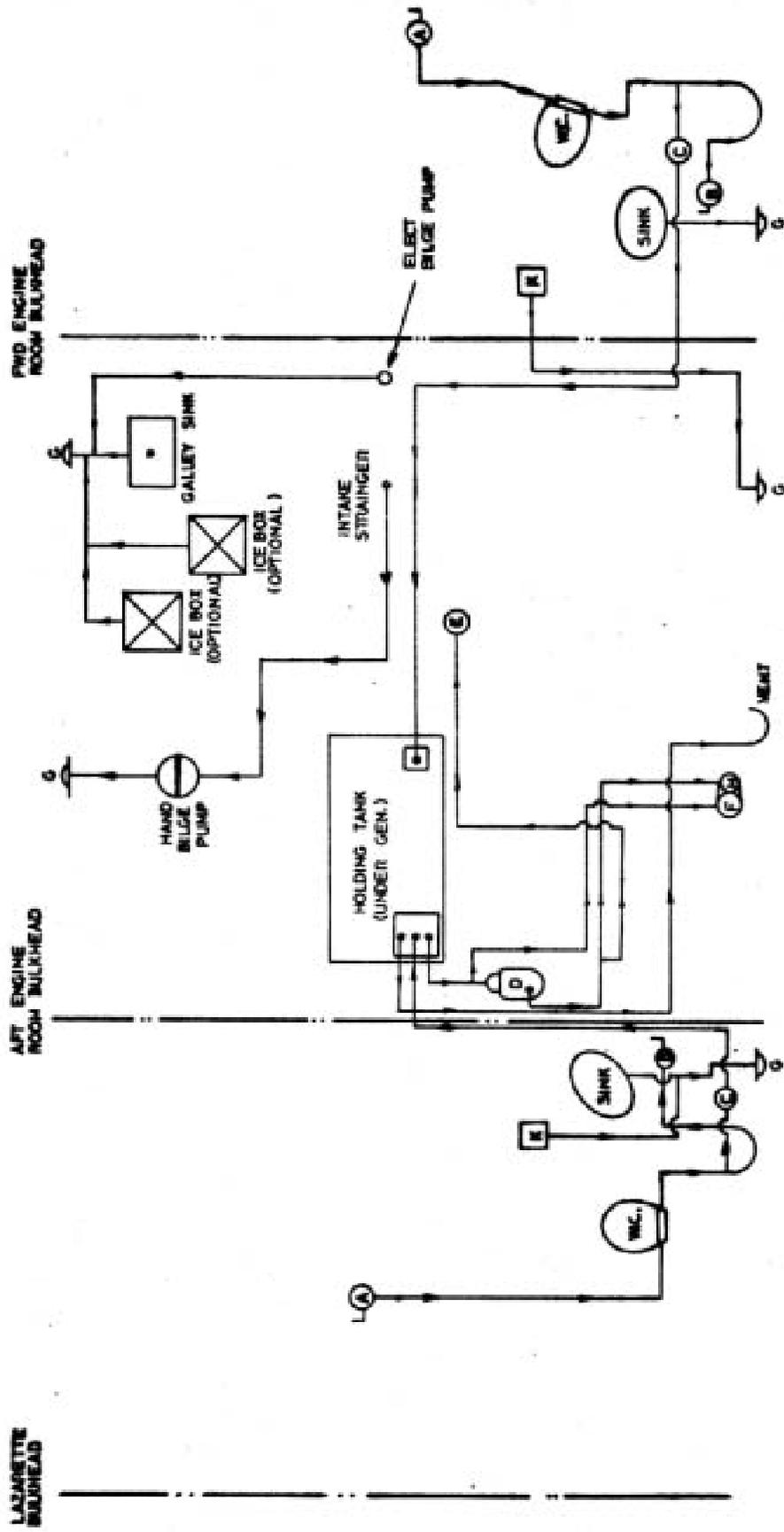
DRG. NO. D.337

GB 36 FRESH WATER LAYOUT



- BALL VALVE
- GATE VALVE
- ⊗ NON RETURN VALVE
- ⊙ OUTLET FOR WINDSCREEN
- ⊕ PRESSURE RELIEF VALVE
- ⊖ SOLID VALVE
- COLD WATER
- WARM WATER

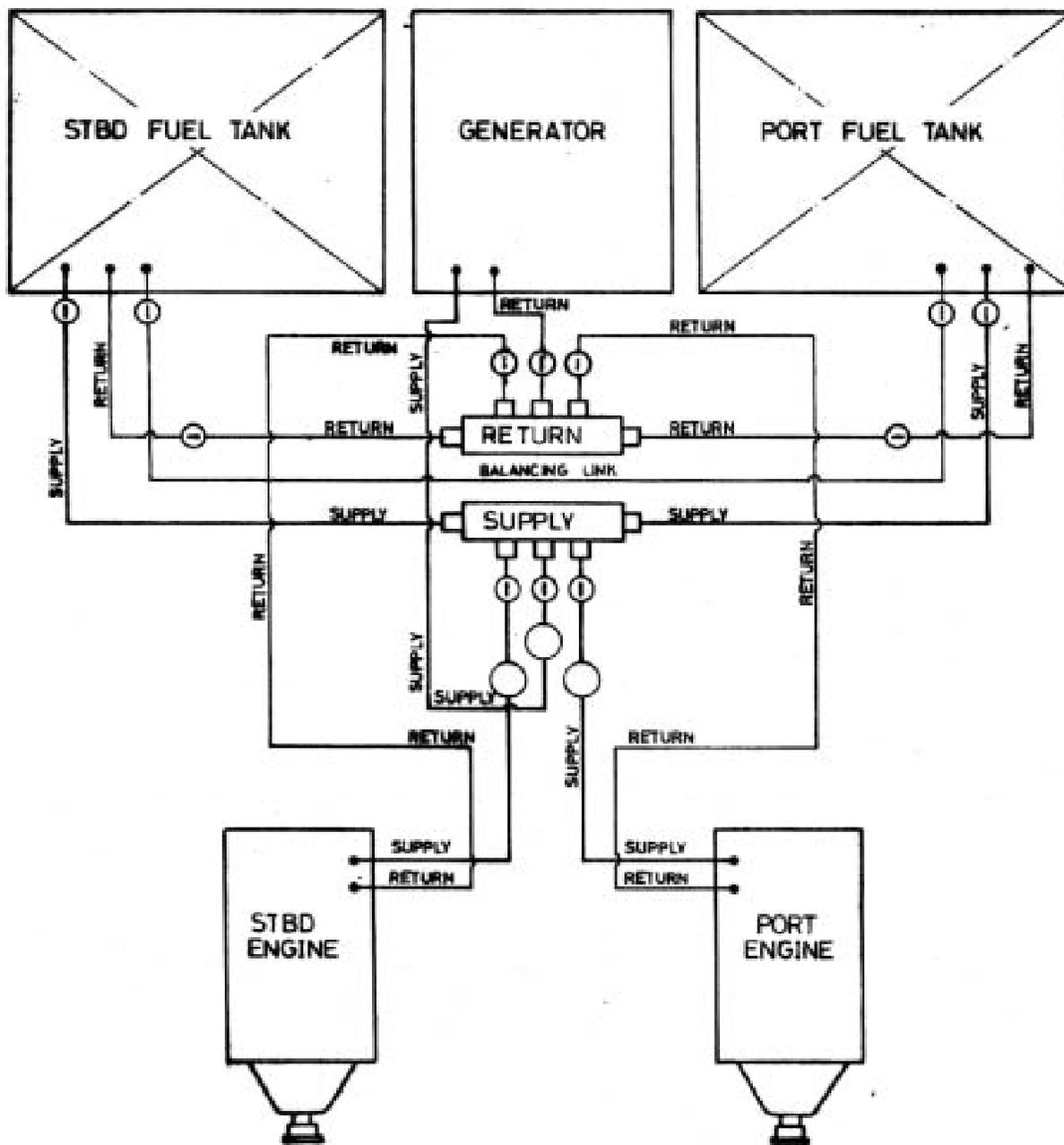
BILGE & SANITARY LAYOUT



- A TOILET INTAKE SEACOCK
- B TOILET DISCHARGE SEACOCK
- C GATE VALVE
- D MAGGOTATOR PUMP
- E PUMP DISCHARGE SEACOCK

- F SHORE SUCTION DISCHARGE CONNECTION
- G THRU HULL ABOVE WATERLINE
- H PUMP OUT DISCHARGE
- K ELECTRIC SHOWER PUMP

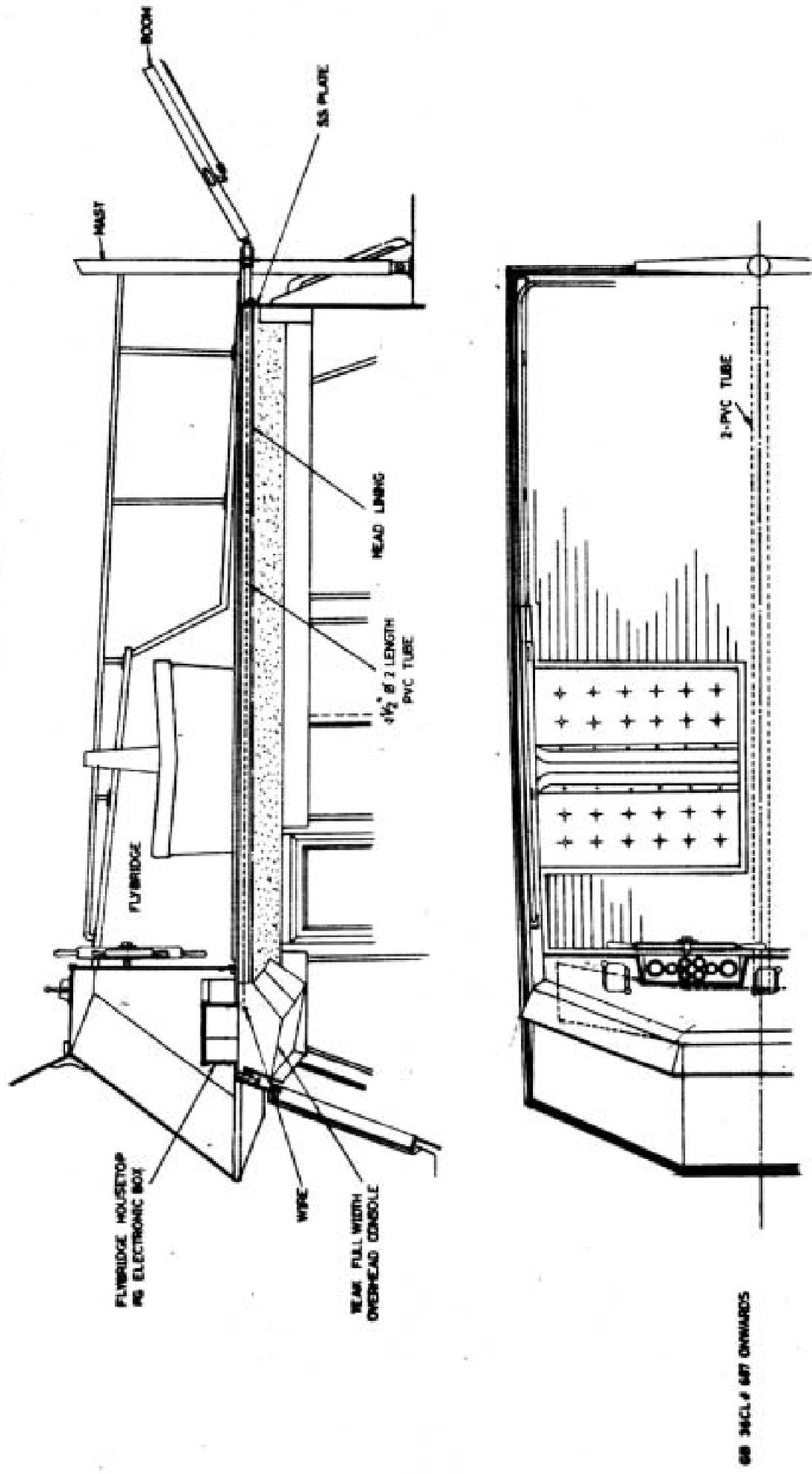
TWIN ENGINE FUEL LAYOUT



LEGEND



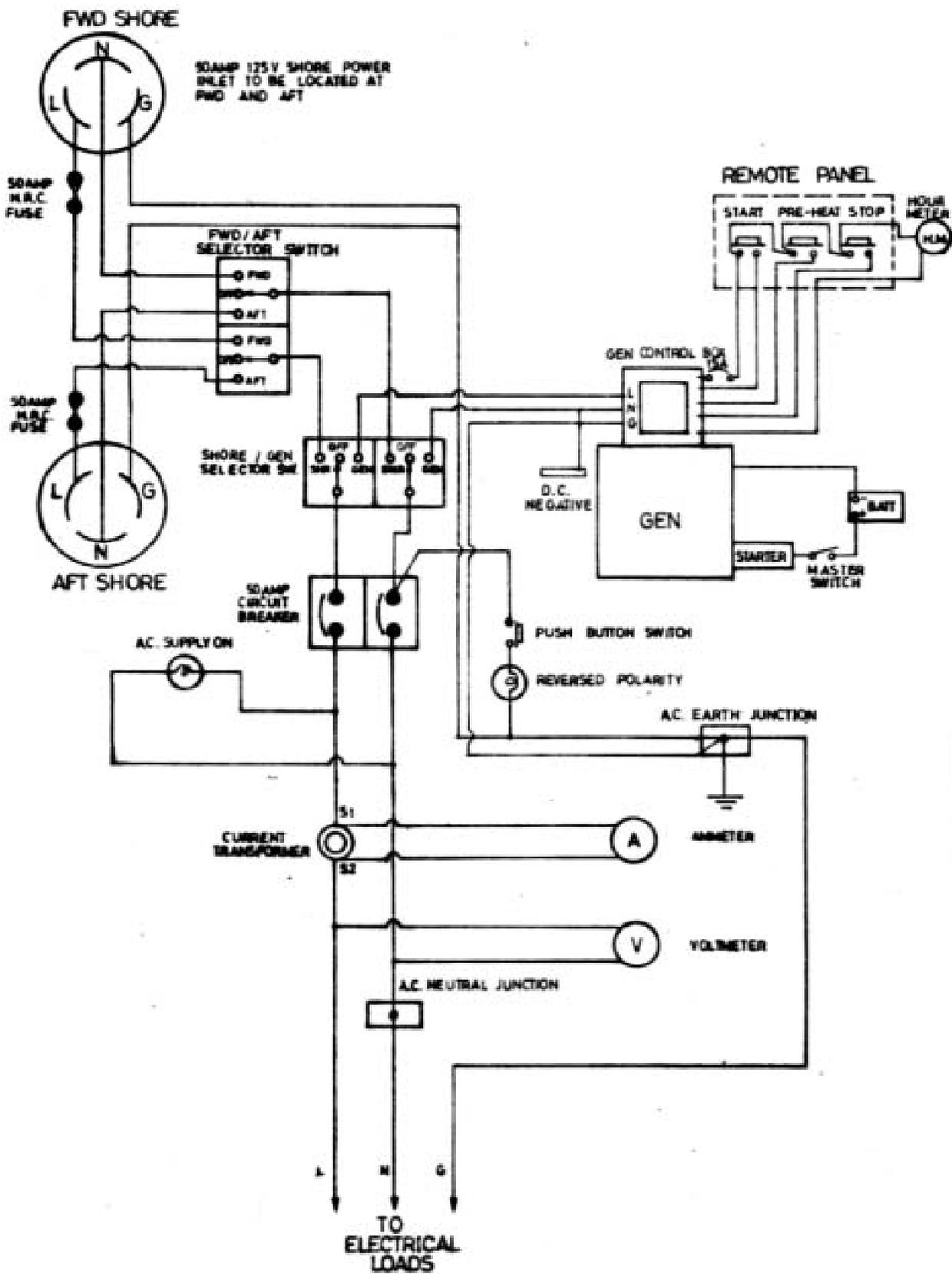
GB 36 CL HOUSETOP WIRING CONDUIT.



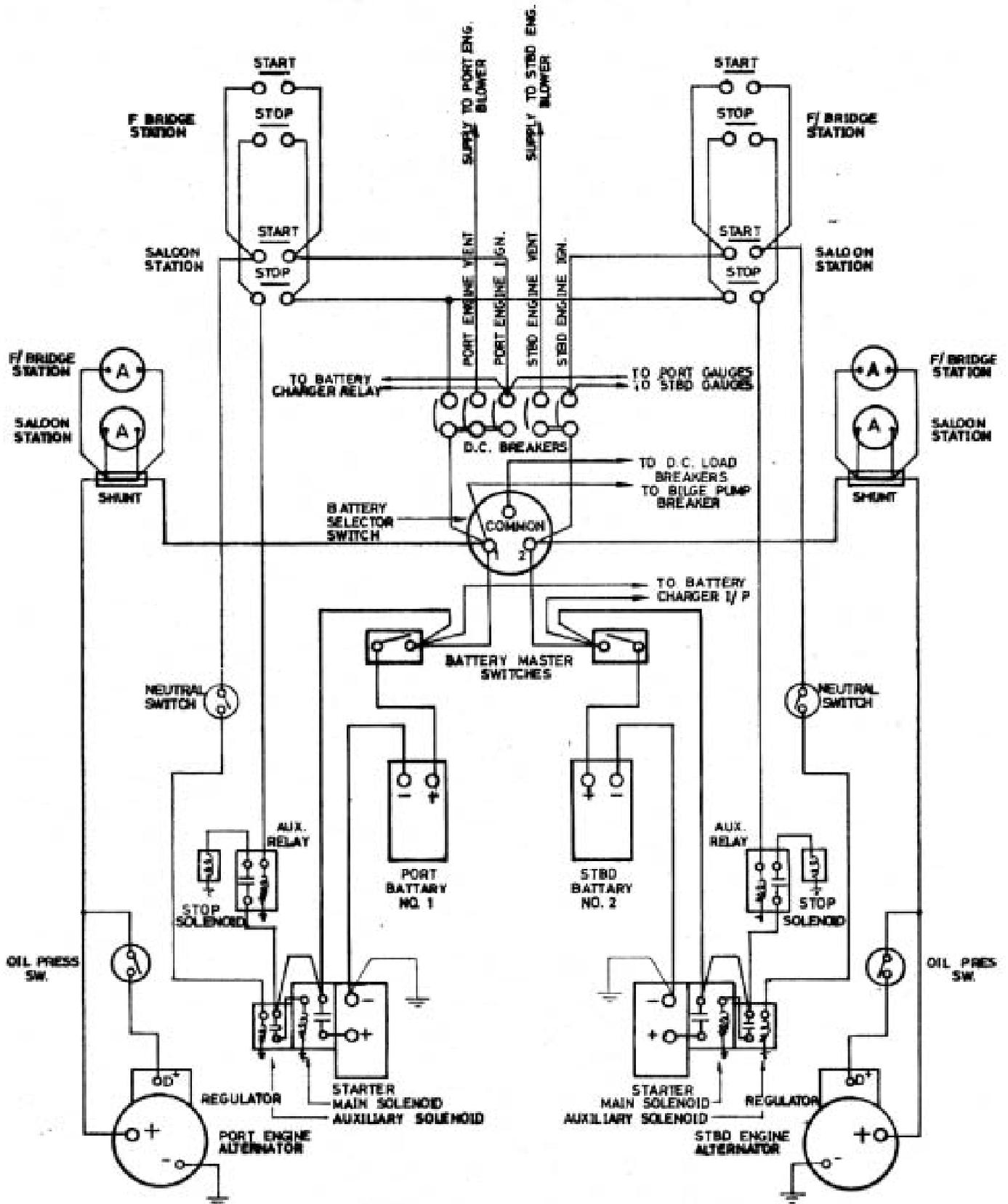
GB 36CL.4 607 ONWARDS

DRG. NO. C 452

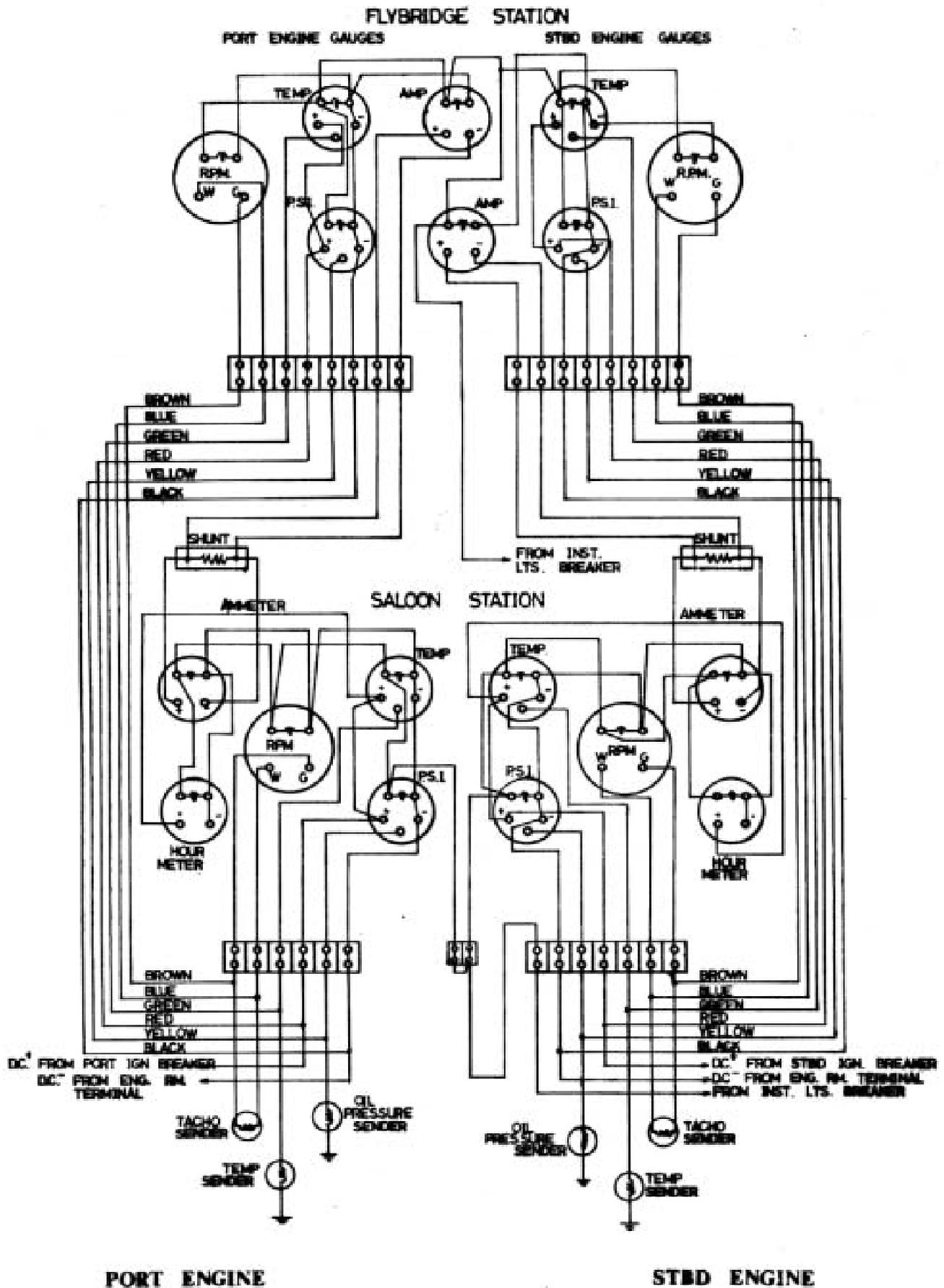
AC SUPPLY SCHEMATIC GENERATOR & SHORE FOR 110V/220V



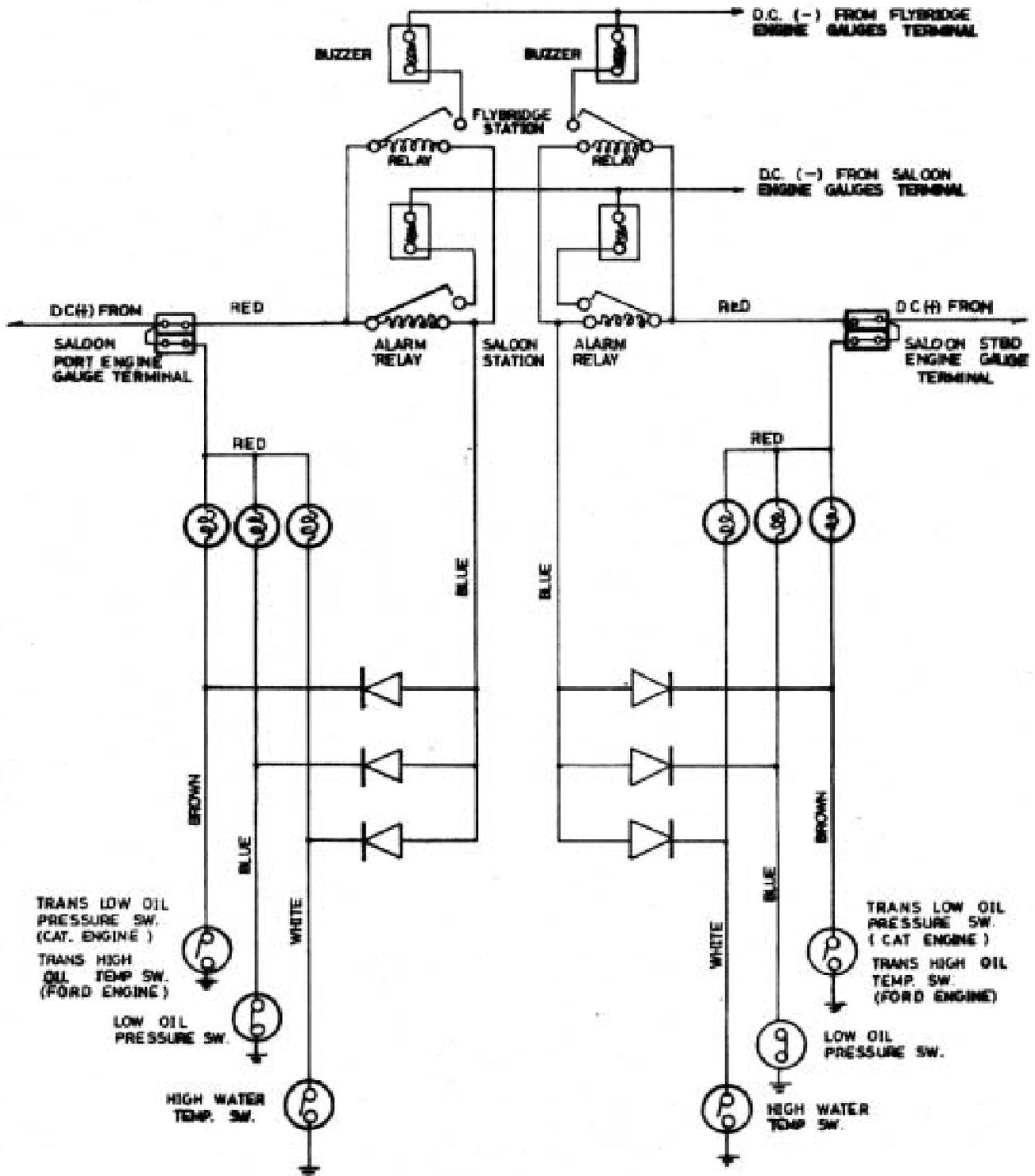
D.C. SCHEMATIC FOR TWIN ENGINE



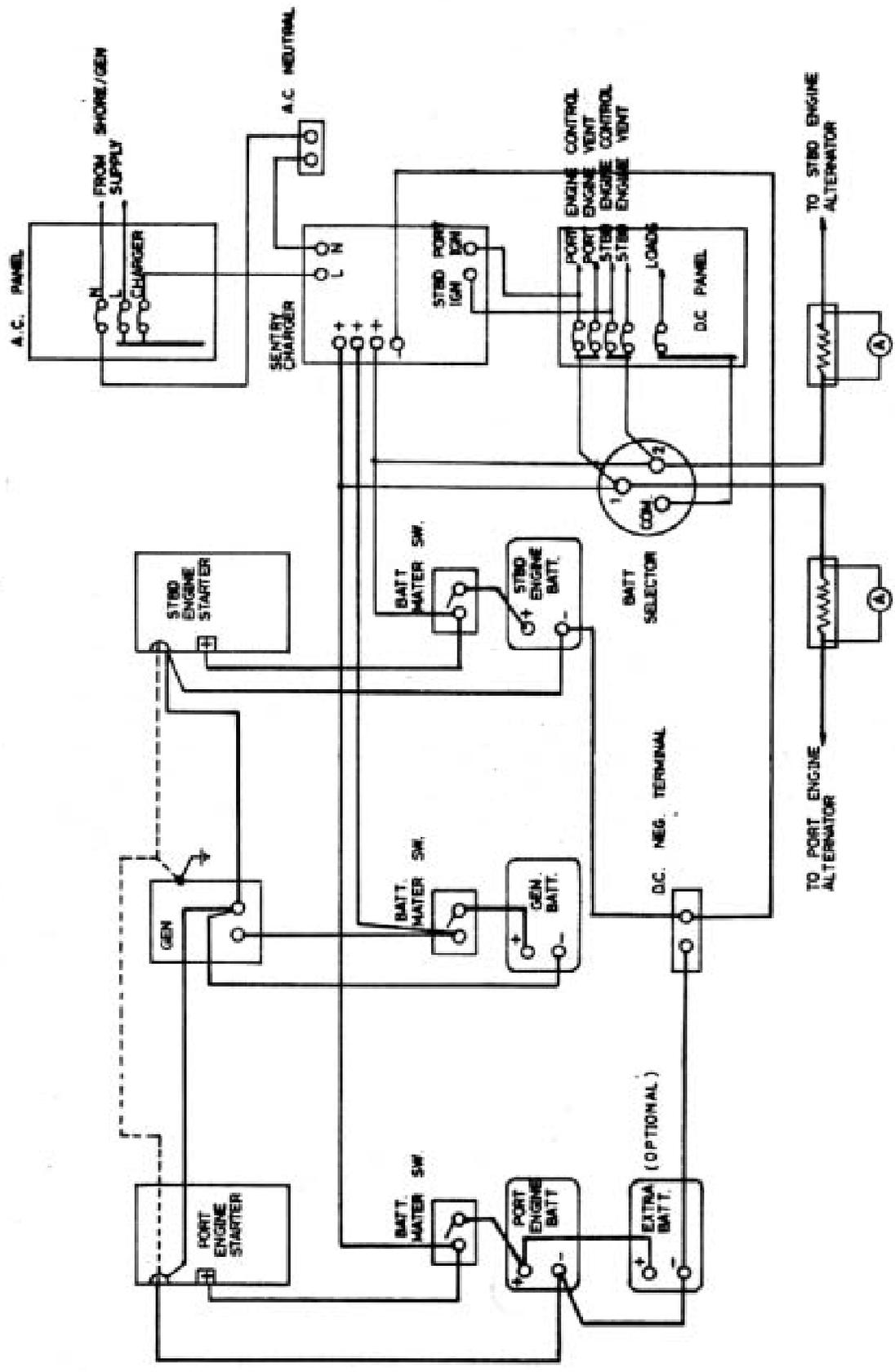
ENGINE INSTRUMENTS WIRING DIAGRAM FOR TWIN ENGINE



ENGINE ALARM WIRING DIAGRAM FOR TWIN ENGINE



BATTERY WIRING & CHARGING CIRCUIT WITH TWIN ENGINE & GENERATOR (SINGLE SENTRY CHARGER)



WINDLASS WIRING DIAGRAM

TIGRES & CONDOR WINDLASS
U.S. REPRESENTATIVES

East Coast :

Imtra
151 Mystic Avenue
Medford, MASS 02155

West Coast :

South Pacific Associates Ltd
3827 Stone Way North
Seattle, WA 98103

