CAL 25

Owner's Manual

CAL BOATS
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C O N T E N T S

BANGOR PUNTA MARINE
848 AIRPORT ROAD
FALL RIVER, MA 02722
(617) 678-5291

BANGOR PUNTA MARINE

C O N G R A T U L A T I O N S

In choosing your new yacht from the Cal line, you have selected one of the best values in today's sailboat market. The design and construction of this yacht reflect over twenty years of experience and knowledge gained in the building of over 10,000 boats.

In the early 1940's, William Lapworth designed "Dasher" and the "L-36," the forerunners of today's light displacement boats. Continuing in the traditional standards of high quality and fine workmanship, Bangor Punta Marine has commissioned over twenty models of his design.

The use of aluminum, stainless steel, teak wood, and fiberglass all combine to produce a yacht that has much lower maintenance requirements than those in the past. However, it is vital that the necessary maintenance procedures be performed faithfully.

This manual is designed to familiarize you with your boat. The location and function of each system onboard will be outlined to help make any adjustments or maintenance procedures more easily undertaken.

Bangor Punta Marine reserves the right to change specifications without notice, and this manual may not reflect all such changes. Since we are always striving to improve our product, modifications

and improvements are constantly in process and, therefore, it is possible that your boat may contain features different from those enumerated in this manual. It is impractical to revise this manual for each such modification. It is our policy to make improvements whenever it is appropriate without waiting for corresponding updates in our manual.

Full information on optional equipment may not be contained herein. Contact the option manufacturer or your Cal boat dealer for more information.

Please read and understand this manual and all others included with your boat, before operating any of the boat's systems. In addition to information contained in this manual, there are certain federal, state, and local regulations pertaining to safe and legal operation of pleasure craft that you should familiarize yourself with. Local governmental agencies and boating groups can help you become aware of these regulations.

Thank you for the confidence you have shown in Cal by selecting one of our products.

Have Fun, and Good Sailing!

BANGOR PUNTA MARINE

CAL BOATS

8/80

CAL 25

STANDARD BOAT DIMENSIONS

HULL DIMENSIONS

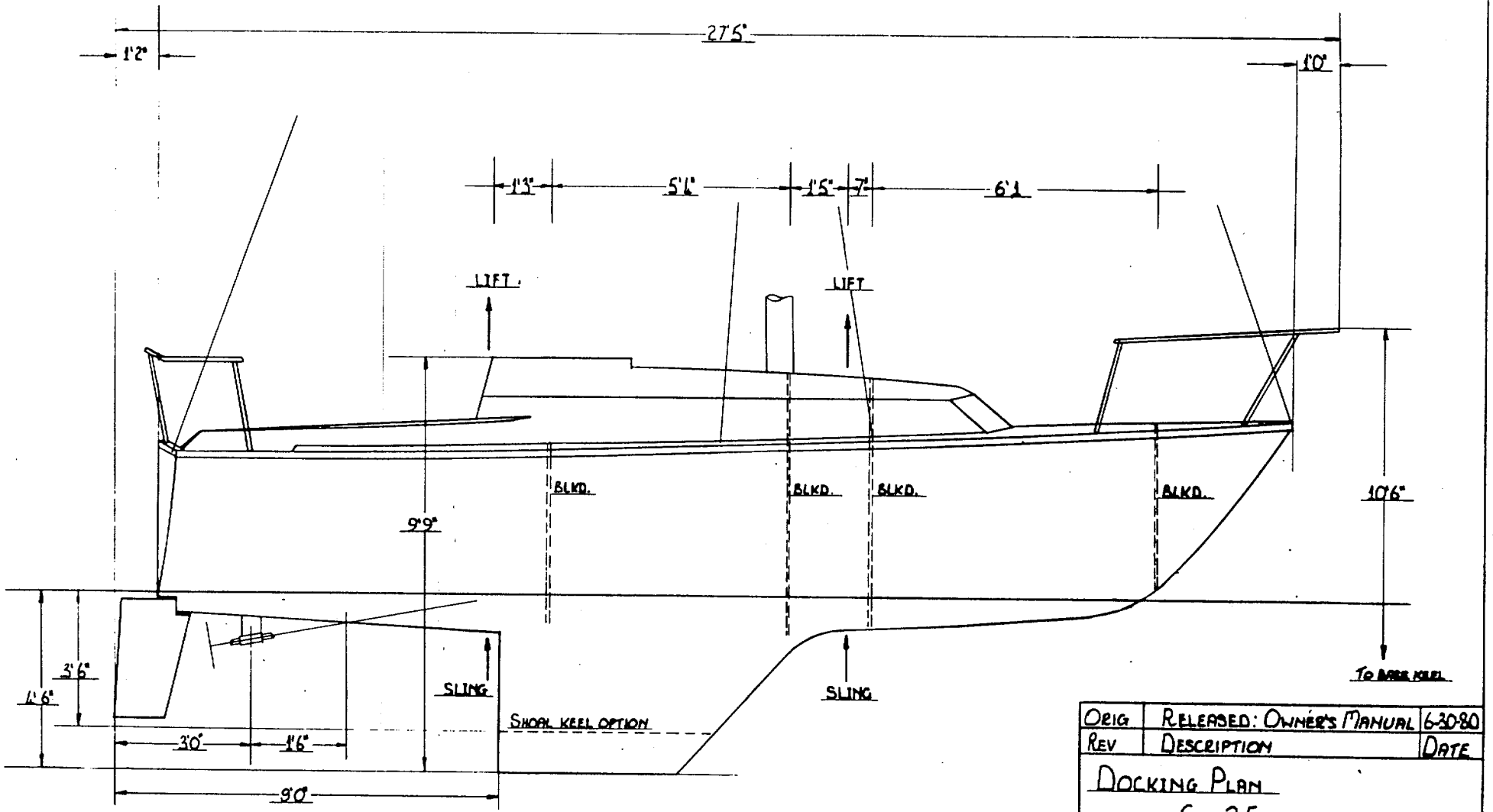
o LOA	25'3"	7.69 Meters
o LWL	22'0"	6.71 Meters
o Beam	9'0"	2.74 Meters
o Draft	4'6" or	1.37 Meters or
	3'6"	1.07 Meters
o Displacement	4500 Lbs.	2041 Kilograms
o Ballast	2000 Lbs.	907 Kilograms

RIG DIMENSIONS

o I	33'0"	10.06 Meters
o J	11'0"	3.35 Meters
o P	28'0"	8.53 Meters
o E	9'6"	2.89 Meters
o 100% Foretriangle	181.5 Sq. Ft.	16.86 Sq. Meters
o Mainsail Area	133.0 Sq. Ft.	12.36 Sq. Meters
o Total	314.5 Sq. Ft.	29.22 Sq. Meters
o Mast Height Above Water	36'4"	11.1 Meters

MISCELLANEOUS

o Berths	5	5
o Fresh Water Capacity	21 Gallons	80 Liters
o Ice Box Capacity	4.5 Cubic Ft.	127.5 Liters
o Fuel Capacity (Option)	12.5 Gallons	47.5 Liters
o Engine	Diesel - Universal 11HP, 2 cylinder (Opt.)	
	Gasoline - OMC Saildrive 15HP (Opt.)	



MAX BEAM : 9' 1"

ORIG	RELEASED: OWNER'S MANUAL	6-30-80
REV	DESCRIPTION	DATE

DOCKING PLAN

CAL 25

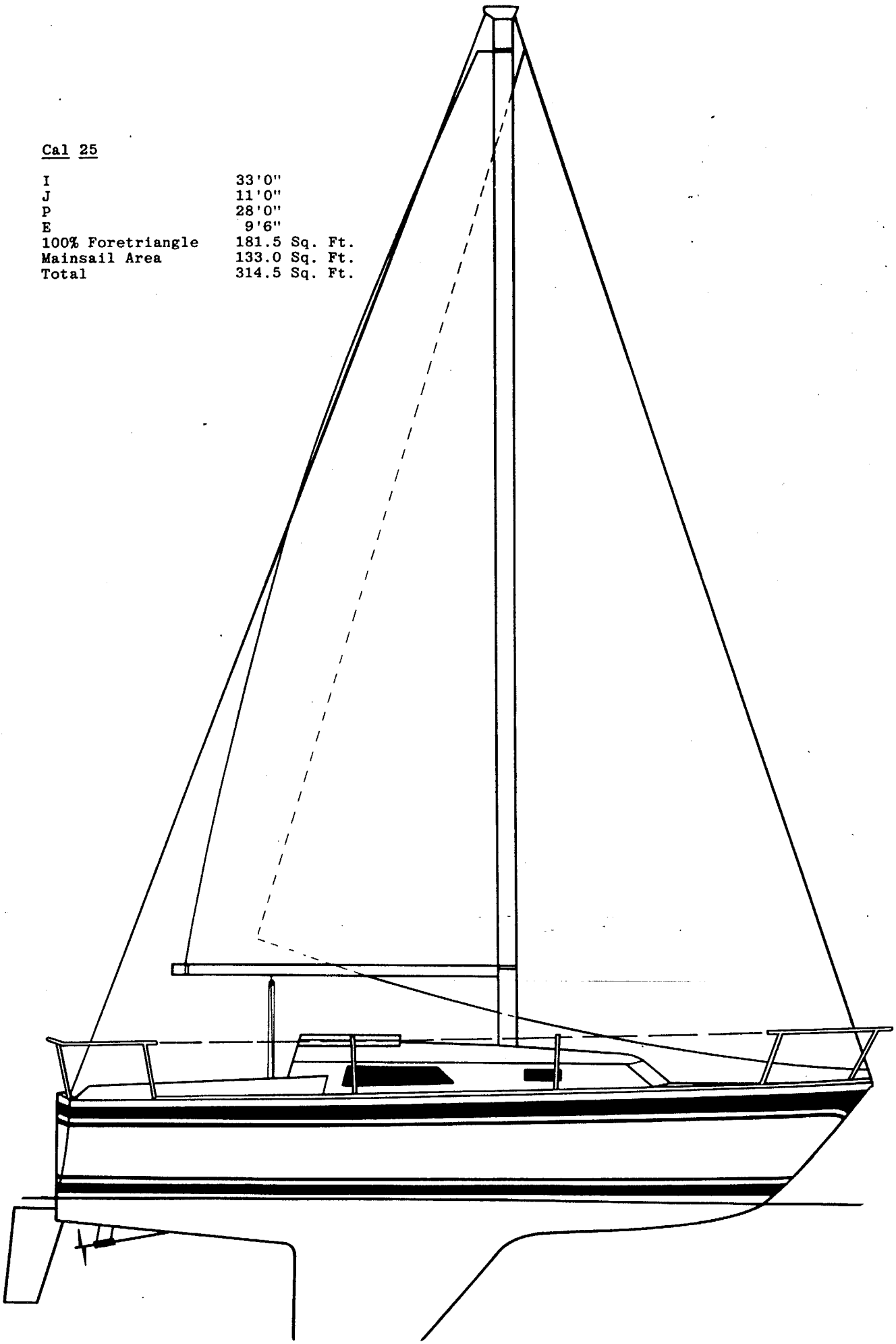
DRAWN: ROBIN BRADSHAW

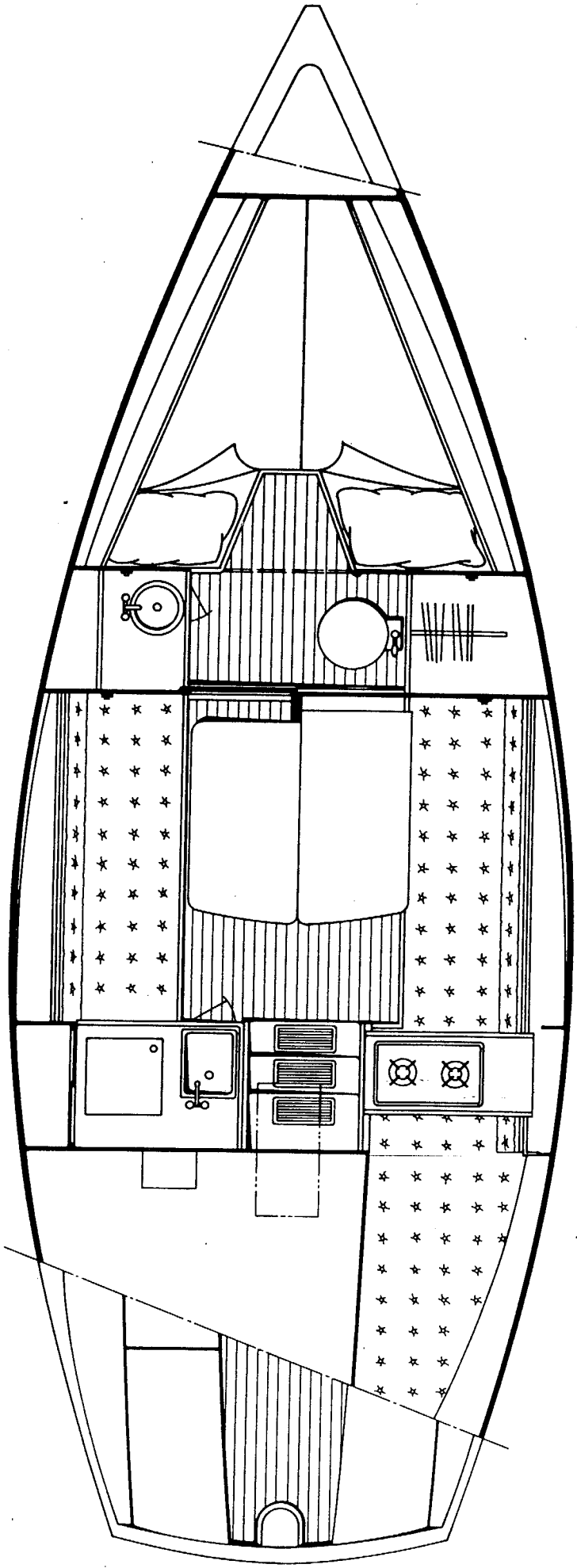
BANGOR PUNTA MARINE

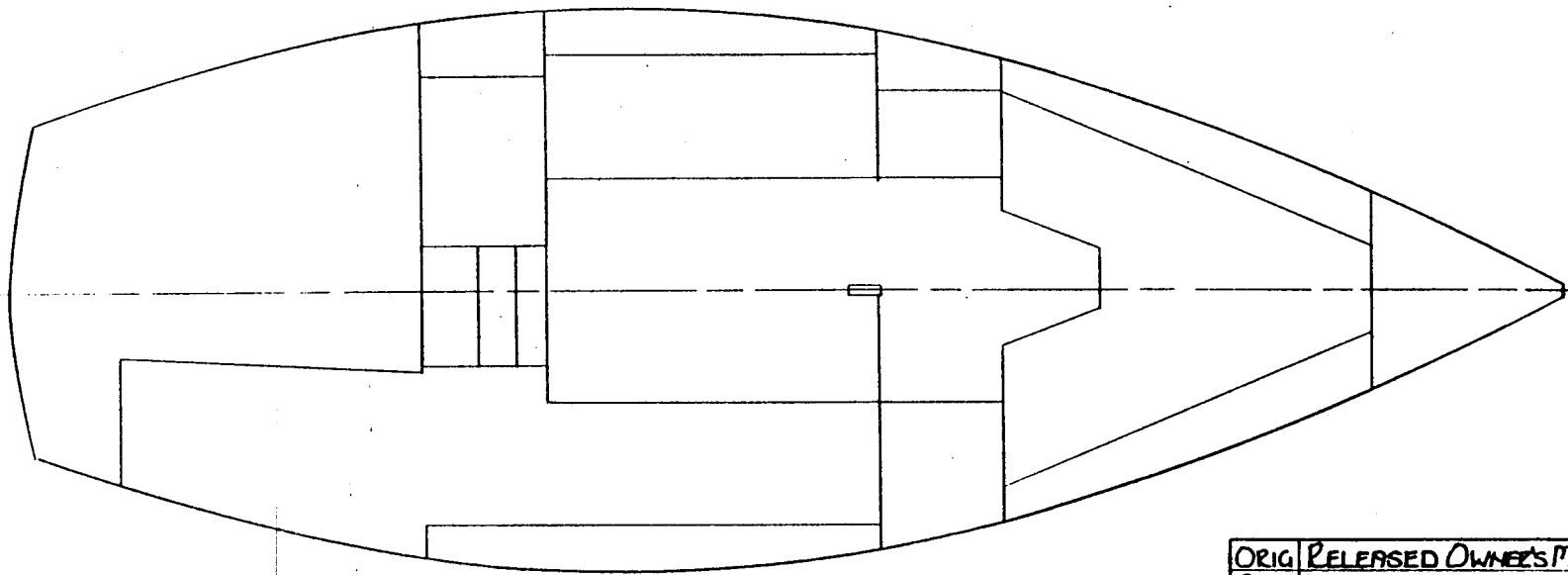
DRWG NO A0298

Cal 25

I	33'0"
J	11'0"
P	28'0"
E	9'6"
100% Foretriangle	181.5 Sq. Ft.
Mainsail Area	133.0 Sq. Ft.
Total	314.5 Sq. Ft.







ORIG	RELEASED OWNER'S MANUAL	7-1-80
REV	DESCRIPTION	DATE

INTERIOR PLAN BLANK

CAL 2-25

BAHCOR PUHTA MARINE

DRWG NO. A0301

COMMISSIONING

Your Cal Yacht dealer will supervise the commissioning and testing of your new boat. His knowledge and experience will insure that all systems and components will function properly when the boat is delivered to you.

We have included some guidelines and instructions in this section to aid you and your dealer.

PRE-LAUNCH CHECK LIST

1. All seacocks operational, closed, and tightened. _____

2. Accessory thru-hulls installed and tightened. _____

3. Diesel: Propeller in place; 2 nuts and cotter pin installed. _____

4. Zinc anodes installed on shaft. _____

5. Batteries secure, filled, and charged. _____

6. Rigging installed on spar; cotter pins spread and taped. _____

7. Masthead sheaves free to rotate; lubricated. _____

8. Mast lights working. _____

9. All required safety equipment on board. _____

NOTE: THIS IS A BASIC PRE-LAUNCH CHECK LIST.

POST-LAUNCH CHECK LIST

1. All seacocks open and water tight. _____
2. Shaft aligned to .003" tolerance. _____
3. Engine shaft packing nut tightened. (See Stuffing Box under Engine Operation Instructions.) _____
4. Engine oil levels checked. (Refer to Engine Manual.) _____
5. Fuel tank filled and system checked for leaks. _____
6. Engine operates and passes water thru exhaust. _____
7. Engine controls operate correctly and checked for tight nuts, bolts, and spread cotter pins. _____
8. Mast stepped and mast collar installed. (Collar on Cal 35 and Cal 39 only.) _____
9. Mast bolted to mast collar ears.* _____
10. Turnbuckles attached; cotter pins spread and taped. _____
11. Boom and running rigging installed. _____
12. Water tank filled. (See Note 2 - Water Heater.) _____
13. Faucets work and lines checked for leaks. _____
14. Stove fuel tank filled; system checked for leaks. (Refer to Propane Stove Instructions, if applicable.) _____
15. Electrical equipment operational. (See Note 1 for Shore-Power System.) _____
16. Steering gear operational. _____
17. Rudder shaft greased. _____
18. Bilge pump operational. _____
19. Toilets operational; hoses secure. _____
20. Deck hardware checked for leaks. _____
21. Warranties and manuals delivered to owner. _____

* = (After first light-air sail. See Instructions.)

COMMISSIONING NOTES

Note No. 1

If your Cal Yacht is supplied with a 110V AC shore-power system, it will have a control panel with a main breaker (30 amp) and separate (15 amp) breaker switches for the outlets and water heater. In addition, there are both audible (buzzer) and visual (yellow light on panel) reverse-polarity indicators. With all switches off, attach the power cable to the power inlet on the boat. Next, connect the power cable to the dockside outlet. WARNING: IF THE POLARITY INDICATORS LIGHT AND/OR SOUND, DISCONNECT THE CORD IMMEDIATELY. THIS INDICATES A REVERSE POLARITY SITUATION WHICH IS DANGEROUS. SEVERE INJURY OR DEATH MAY RESULT. DIAGNOSE AND CORRECT THE PROBLEM BEFORE PROCEEDING.

It is recommended that any appliances used on board be wired with three-wire grounded plug.

Note No. 2

If your Cal Yacht is equipped with a water heater, it will be installed to operate off both the engine cooling system and the 110V AC electric system. Before switching the 110V system on, be sure the water-heater tank is filled. Open the valve in the inlet water line, and be sure the check valve is installed with the arrow pointed toward the water heater. Operate the pressure-water system until you get a steady stream through the hot-water faucets.

WARNING: FAILURE TO FILL THE WATER HEATER BEFORE SWITCHING ON THE 110V CIRCUIT WILL RESULT IN DAMAGE TO THE HEATING ELEMENT.

STEPPING AND TUNING THE MAST

Before stepping the mast, be sure all running and standing rigging is properly installed, cotter pins are spread, and halyard sheaves are free to rotate. The upper shroud is run through the groove in the outboard end of the spreader; on either side of the groove is a hole. Through these holes run a stainless wire. Wrap it around the stay several times in such a manner as to prevent the shroud from jumping out of groove. After the shroud is wired in place, tape over all the wire to protect the sails, and to prevent the wire from unraveling. Check the spar lights to be sure they are operational. Open all turnbuckles to their full extension.

Cal 35 and Cal 39: Refer to Separate Sheet for Mast-Collar Instructions.

Step the spar through the deck and table (if applicable), and then onto the mast step. Be careful not to pinch the mast wires during the stepping. (Cal 35 and Cal 39 - The mast step was set at the factory to provide an aft rake. If you wish to adjust this, loosen the mast-step bolts and slide the step fore or aft.)

Attach all the shrouds, tighten the headstay, backstay, and upper shrouds to a taut condition. For now, leave the lower shrouds slack. Adjust the headstay and backstay to achieve a straight spar, when sighting up the trailing edge. Next, with the boat level athwartships, tighten the upper shrouds to get the mast straight. Finally, tighten the lowers no more than hand tight.

RIGGING DIMENSIONS

The following table shows the critical dimensions and materials used for the standing and running rigging on your Cal yacht. In the event you should need to replace any of the rigging, you can order the materials through your Cal dealer. If this is not convenient, this table will allow you or a local rigger to obtain the proper materials.

The standing rigging measurements are the overall length of the stay, from the center of the hole in the upper terminal to the end of the swaged stud. If using a different turnbuckle than supplied by Bangor Punta Marine, be sure to allow for possible length difference. We would strongly recommend actually measuring any standing rigging before replacing, to assure 100% accuracy.

All running rigging should be checked periodically for chafe or damage and replaced, when necessary. If excessive wear is noted on running rigging, check all blocks and sheaves to be sure they are free to rotate and are properly aligned.

All standing rigging should be inspected for cracks in the swages, proper installation of cotter pins, and wear on clevis pins. Replace any damaged or suspect rigging.

As you may have noticed on some sailboats the swaged ends of the shrouds will ooze rust, and in severe cases, the swage will split. One way to prevent this problem is to heat up the swaged section and place a bar of beeswax against the 1 x 19 stainless steel wire. As it melts, the beeswax will run into the swaged section, sealing it from the elements.

STEPPING AND TUNING THE MAST - Continued

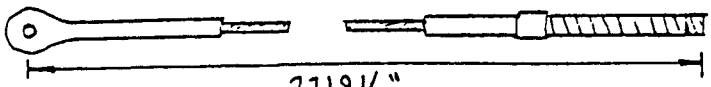
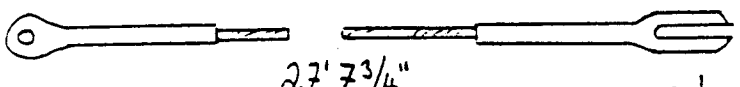
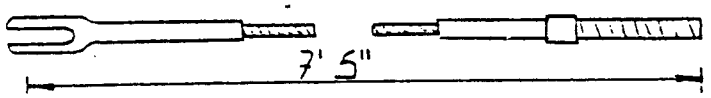
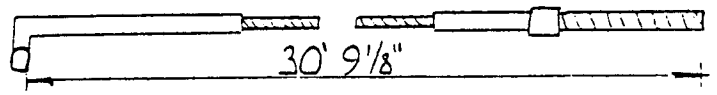
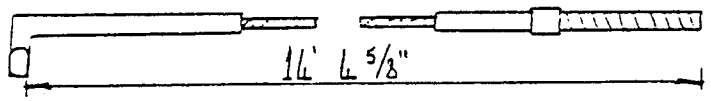
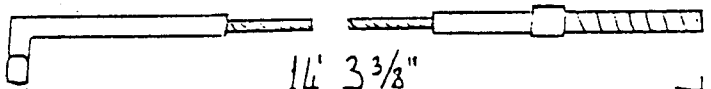
Final tuning must be accomplished while sailing. In a light breeze (6 - 8 knots) adjust the shrouds to achieve a straight spar on either tack. In heavier winds, any curvature should be gradual and constant from the deck to the mast head. After the initial sail, go below, and drill through the spar and install the bolt that passes through the mast collar ears and spar (Cal 35 and Cal 39). This serves to hold the deck from flexing and should not be installed until the boat has been sailed and the rig tuned, to assure proper location of the hole.

The rig will need adjustment after a few sails to compensate for the stretch in the wire. Be sure to install cotter pins in all turnbuckles and clevis pins, and tape over them to prevent injury to crew or damage to sails.

Fine tuning for the best performance will depend upon your local conditions and your sails. Consult your dealer or local sail-maker for their suggestions.

WARNING: WHEN HAULING, LAUNCHING, AND SAILING NEAR LOW OVERHEAD WIRES, CARE MUST BE TAKEN THAT THE MAST NOT COME IN CONTACT WITH SUCH WIRES. CONTACT COULD CAUSE THE MAST TO CONDUCT ELECTRICITY AND CAUSE INJURY OR DEATH.

CAL 2-25 **WIRE RIGGING** CAL 2-25

OPT	TURNBUCKLE DESCRIPTION WIRE × BODY × PIN SIZE (IN 32 NDS OF AN INCH)	NO. PER BOAT	DESCRIPTION
	MAR. EYE 3/16 × 3/8 PIN — 3/16 1×19 SS — MERR STUD 6-12-12  33' 8 1/2"	1	HEADSTAY PT # 77139
	MAR. EYE 3/16 × 3/8 PIN — 3/16 1×19 SS — MAR. FORK 3/16 × 5/16 PIN  27' 7 3/4"	1	BACKSTAY PT # 77140
	MAR FORK 5/32 × 1/4 PIN — 5/32 1×19 SS — MERR STUD 5-10-10  7' 5"	2	BACKSTAY BRIDLE PT # 77141
	BALL TERM 3/16" — 3/16 1×19 SS — MERR STUD 6-12-12  30' 9 1/8"	2	UPPER PT # 77142
	BALL TERM 5/32" — 5/32 1×19 SS — MERR STUD 5-10-10  16' 4 5/8"	2	FWD LOWER PT # 77143
	BALL TERM 5/32" — 5/32 1×19 SS — MERR STUD 5-10-10  16' 3 3/8"	2	AFT LOWER PT # 77144

REV	DESCRIPTION	DATE
ORIG	RELEASED: DRWG # A0120 C252 WIRE RIGGING SCHEDULE	11-20-79

Cal 25

Running Rigging

Item	Length	Diameter	Material	Fitting
Main Sheet	45'	7/16"	Yacht Braid	
Jib Sheet	37'6"	7/16"	Yacht Braid	
Main Halyard				
Rope	39'6"	3/8"	Yacht Braid	
Wire	31'5"	1/8"	7 x 19 SS Cable	Halyard Shackle
Jib Halyard				
Rope	39'6"	3/8"	Yacht Braid	
Wire	36'3"	1/8"	7 x 19 SS Cable	Snap Shackle
Reef Line	20'	5/16"	Yacht Braid	
Outhaul	14'	1/4"	Yacht Braid	Eye Splice One End
Boom Topping Lift				
Mast	28'6"	1/4"	Pre-stretch Yacht Braid	Eye Splice Upper End - Bullet Block on Lower End
Boom	8'	1/4"	Yacht Braid	Eye Splice One E

NOTE: Main and Jib Halyards are wire to rope spliced.
Dimensions given are before splicing.
Splice length is 1'8".

BOAT STORAGE

Whenever a boat is pulled from the water, for work or storage, care must be taken to provide adequate and proper support of the hull. This is especially true of fin-keel sailboats.

It is not recommended that the weight of the boat be rested solely on the keel. Because of the small area of the keel bottom, the localized loads on the hull in the area of the keel would be severe, and could result in permanent damage to the shape or structure of the boat.

If poppets are used for support, they should be located so that the pads are under bulkheads, berth fronts or pan stringers, so that the load is dispersed (See Docking Plan). Failure to properly position the poppets could result in hull depression. Be sure to use an adequate number of supports, and locate them to prevent the boat from tipping fore or aft. A storage cradle designed for this boat is available through your Cal dealer.

When hauling any boat with a propeller shaft, be sure to disconnect the coupling before lifting the boat. This will prevent bending of the shaft as the boat changes shape when lifted.

Do not careen a fin-keel sailboat. The hull, keel, and rudder should survive any accidental groundings. However, care must be taken to keep the boat as balanced and upright as possible to prevent excessive loads.

WARNING: WHEN HAULING, LAUNCHING, AND SAILING NEAR LOW OVERHEAD WIRES, CARE MUST BE TAKEN THAT THE MAST NOT COME IN CONTACT WITH SUCH WIRES. CONTACT COULD CAUSE THE MAST TO CONDUCT ELECTRICITY AND CAUSE INJURY OR DEATH.

ENGINE OPERATING INSTRUCTIONS

The engine installed in your yacht has already been run and all systems tested before leaving the Cal plant.

We are not going to get into a great amount of detail in this area, for we believe the manual supplied by the engine manufacturer adequately covers the subject.

Study your engine owner's manual and get to know your engine. The knowledge could be of great assistance to you. Also, some manufacturers have clinics aimed at the customer; contact them for details.

It is advisable that you follow the engine manufacturer's procedures and recommendations on run-in and maintenance.

On yachts with propeller shafts, please use the following procedure:

Alignment of Engine to Shaft

The engine must be properly and exactly aligned with the propeller shaft. No matter what material is used to build a boat, it will be found to be somewhat flexible, and when launched, the boat hull will change its shape to a greater extent than is usually realized. It is, therefore, very important to check the engine alignment at frequent intervals and to correct any errors when they appear.

Mis-alignment between the engine and the propeller shaft is the source of troubles which are often blamed on other causes. It will create excessive bearing wear, rapid shaft wear, or leakage of transmission oil through the rear seal. A bent propeller shaft will have exactly the same effect, and it is, therefore, necessary that the propeller shaft itself be perfectly straight.

ENGINE OPERATING INSTRUCTIONS - Continued

The engine alignment should be re-checked after the boat has been in service for one to three weeks and, if necessary, the alignment remade. It will usually be found that the engine is no longer in alignment. This is not because the work was improperly done at first, but because the boat has taken some time to take its final shape. It may even be necessary to re-align at a further period.

The coupling should always be opened up and the bolts removed, whenever the boat is hauled out or moved from the land to the water and during storage in a cradle. The flexibility of the boat often puts a very severe strain on the shaft or the coupling or both when it is being moved.

During the alignment procedure, check the set screws which hold the propeller half coupling to the shaft. These must be tight, in contact with the shaft, and safety wired.

Stuffing Box

The stuffing box provides a seal for the propeller shaft at the inner end of the shaft log. It is connected to the shaft log with heavy wall hose, double clamped at each end. This flex hose allows the stuffing box to maintain alignment with the prop shaft without creating excessive wear of the packing, due to mis-alignment or vibration. The packing used is wax impregnated 3/16" x 3/16" square flax.

When the shaft is turning, it is normal to have a slight leakage at the seal, about one drop per 30 seconds. This acts as a coolant, as well as a lubricant, to protect the seal and shaft surface. Should excessive leakage be apparent, release the lock nut and tighten the packing nut slightly and re-tighten the lock

The engine should be moved around on the bed and supported on the screw mounts until the two halves of the couplings can be brought together without using force and so that the flanges meet evenly all around.

Never attempt a final alignment with the boat on land. The boat should be in the water and have had an opportunity to assume its final water form. It is best to do the alignment with the fuel and water tank about half full and all the usual equipment on board and after the main mast has been stepped and final rigging has been accomplished.

Take plenty of time in making this alignment, and do not be satisfied with anything less than perfect results.

The alignment is correct when the shaft can be slipped backward and forward into the counterbore very easily and when a feeler gauge indicates that the flanges come exactly together at all points. The two halves of the coupling should be parallel within 0.003 inches.

In making the final check for alignment, the engine half coupling should be held in one position and the alignment with the propeller coupling checked in each of four positions, rotated 90^{o} between each position. This test will also check whether the propeller half coupling is in exact alignment on its shaft. Then, keeping the propeller coupling in one position, the alignment should be checked, rotating the engine coupling as described above.

FLOODING OF ENGINE WITH WATER

Your Cal Yacht is supplied with a water-lift (wave suppressor) type of muffler that under normal conditions, when the engine is not running, provides wave suppression and water storage to help keep water from flooding the engine.

NOTE: There is a direct path from the overboard exhaust port via the water-lift muffler to the engine and from the water pump to the muffler. Accidental conditions (sea) and operator error (prolonged starting attempts) can thus cause an excessive volume of water to fill the muffler and flood the engine.

UNDER SUCH ACCIDENTAL SEA AND/OR MISUSE CONDITIONS, ENGINE FLOODING MAY BE UNAVOIDABLE.

Sea Flooding:

Your Cal exhaust system is designed and installed to the highest standards, and, as stated above, could still flood under certain heavy sea conditions. The only added safety precaution you could add would be to install a rubber flap to the overboard exhaust port. This would dramatically slow the surge effect of waves hitting the port.

Operator Error:

This is a nagging source of water-in-the-engine and occurs when an operator repeatedly attempts to start an engine; i.e., he "grinds" the starter - not 2 or 3 times - but continually.

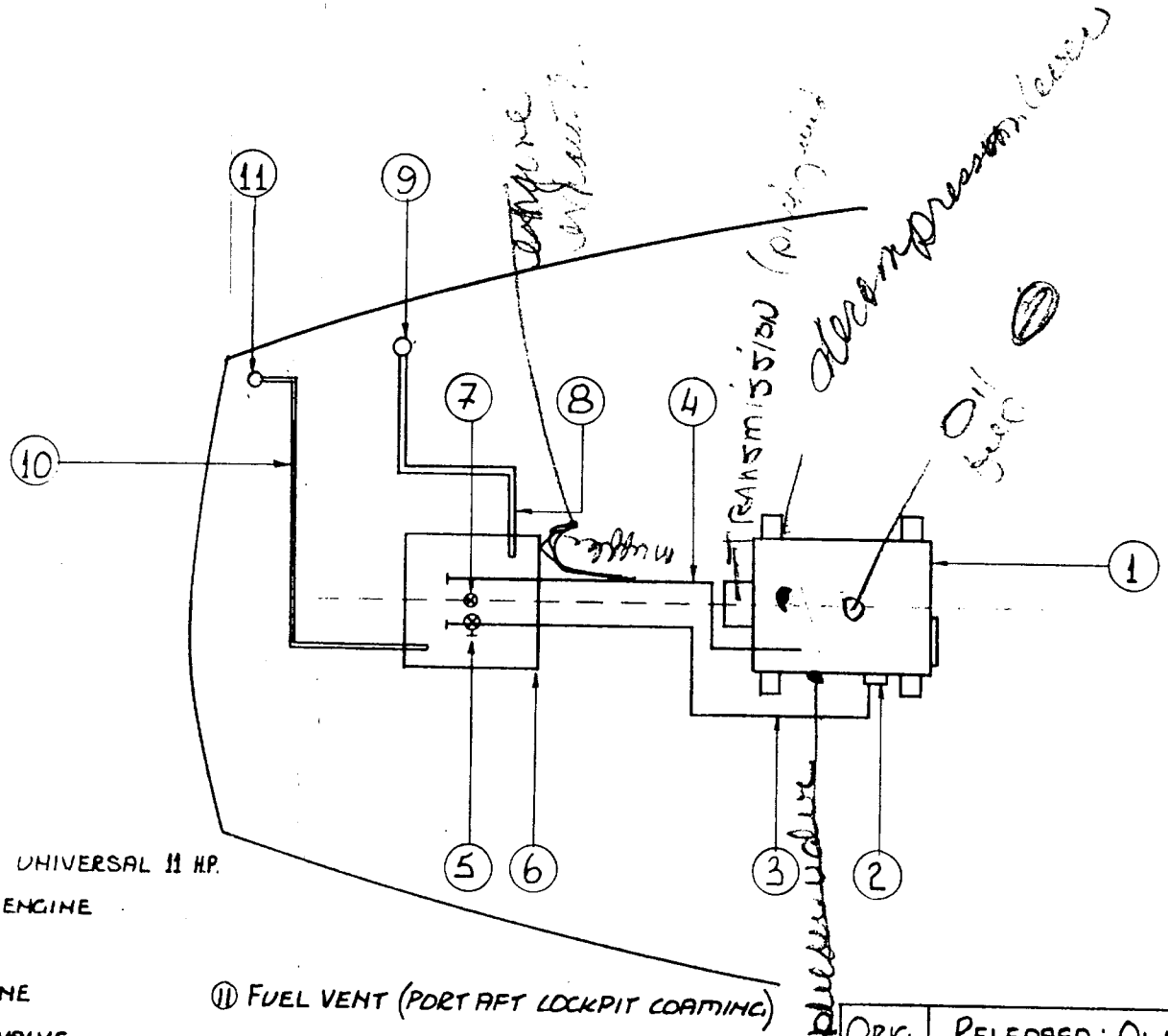
The amount of cranking time varies from engine to engine, factors being the amount of each piston's displacement, the water pump's capacity, and whether the battery is cranking a full R.P.M.

nut. Re-start engine and check again with shaft turning.

When it becomes necessary to replace the packing (boat should be hauled), loosen the lock nut, back off the packing gland nut, and slide it forward on the shaft. Remove all the old packing and replace it with three rings of new packing. Stagger the ends of each ring so as not to provide a path for water to leak through. Do not wind one continuous strip spirally around prop shaft to make a seal.

Slide the packing gland back and tighten enough to create a heavy drag on the shaft. This will seat and form the packing.

Back off the packing nut until the shaft feels free and re-set the lock nut. Re-check for proper leakage when boat is returned to the water. Be sure the lock nut is secure, as operating the boat in reverse could cause the packing gland to screw off the stuffing box, allowing water into the boat.



① ENGINE DIESEL UNIVERSAL 11 H.P.
② FUEL PUMP ON ENGINE
③ FUEL LINE
④ FUEL RETURN LINE
⑤ FUEL SHUT OFF VALVE
⑥ FUEL TANK 12.5 GALS
⑦ FUEL LEVEL SENDER
⑧ FUEL FILL LINE
⑨ FUEL FILL PLATE (PORT COCKPIT COAMING SIDE)
⑩ FUEL TANK VENT LINE
⑪ FUEL VENT (PORT AFT COCKPIT COAMING)

ORIG	RELEASED: OWNER'S MANUAL	7-3-80
REV	DESCRIPTION	DATE

FUEL SYSTEM OPTIONAL
CAL 2-25 (UNIVERSAL S&11. 11 H.P.)

BANGOR PUNTA MARINE

DRWG NO.

FUELING PROCEDURE

When preparing to fuel your boat, the following procedures should be followed to assure safety:

A. Properly secure the boat to the dock.

B. Turn off the engine, stove, heater, radio, lights, etc.

C. Turn battery switch to OFF.

D. Close all hatches, ports, etc., to prevent entry of fumes.

E. Maintain continuous contact between the nozzle and deck plate to prevent a static charge.

F. Fill tank to a maximum 95% of capacity to allow for expansion.

G. Clean any spills after replacing and tightening fuel-fill cap.

H. Before operating the engine or turning battery switch to ON, open all hatches and check for fuel leaks. On gasoline engine, check for fumes and run the blower for 5 minutes before starting the engine.

Always be sure the fuel-fill cap is tight, to prevent water and dirt from getting into the fuel tank. Periodically check the fuel filter and water separator. Those should be drained and cleaned, as needed. The filter elements should be replaced annually.

ELECTRICAL

Master AC and DC Control Panels. The master electrical control panels are located on the aft bulkhead, behind the companionway stairs. The AC master panel includes circuits for a battery charger, the water heater, and the port and starboard electrical outlets. The DC master and accessory panels handle all other electrical systems.

Circuit Breakers. Accessory loads may be selected as desired by turning on the master-control panel circuit breakers. The circuit breakers will automatically open the circuit by switching themselves to "OFF" in the event of an overload on a particular circuit. Always investigate the cause of the overload and correct any deficiencies before re-positioning the circuit breaker to "ON".

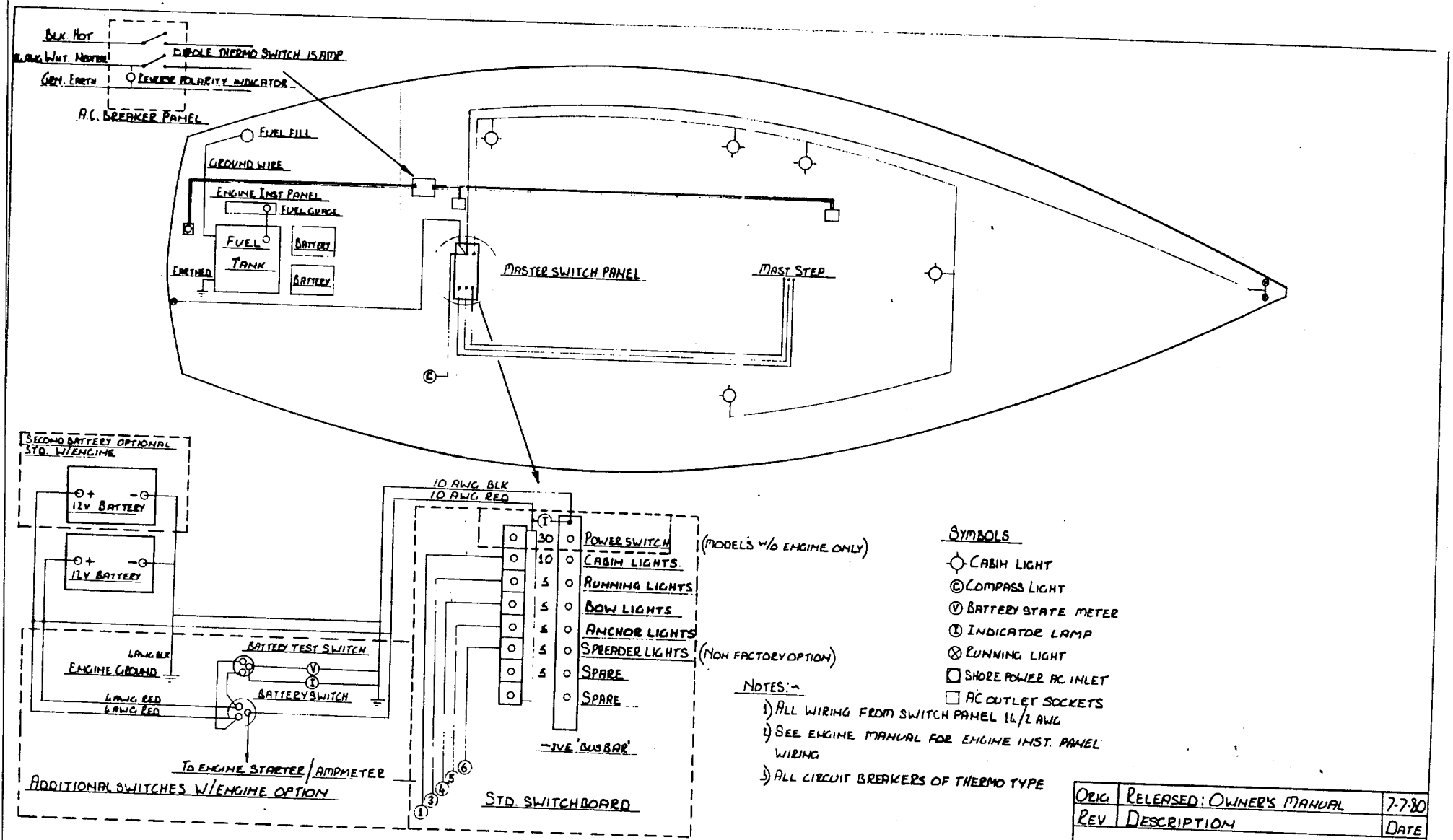
ALL WIRES, CONNECTIONS, AND TERMINALS SHOULD BE INSPECTED REGULARLY FOR LOOSE CONNECTIONS WHICH MAY CAUSE ELECTRICAL SPARKS, HIGH RESISTANCE, OR FIRES. THIS IS ESPECIALLY IMPORTANT FOR ENGINE ACCESSORY WIRING.

Battery Selector Switch

Before leaving your boat, always turn the master-battery switch to the "OFF" position to prevent power drainage. DO THIS ONLY AFTER YOU HAVE SHUT DOWN THE ENGINE, for you may burn out the alternator diodes.

CAUTION!

You may switch from one battery to another for charging, but DO NOT pass through the "OFF" position while the engine is running. This may burn out the alternator diodes. Keep the engine RPM as low as possible, when switching batteries.



SYMBOLS

- CABIN LIGHT
- © COMPASS LIGHT
- Ⓥ BATTERY STATE METER
- ① INDICATOR LAMP
- ⊗ RUNNING LIGHT
- SHORE POWER AC INLET
- AC OUTLET SOCKETS

NOTES:-

1) ALL WIRING FROM SWITCH PANEL 14/2 AWG
2) SEE ENGINE MANUAL FOR ENGINE INST. PANEL WIRING
3) ALL CIRCUIT BREAKERS OF THERMO TYPE

ORIG	RELEASED: OWNER'S MANUAL	7-7-80
REV	DESCRIPTION	DATE

ELECTRICAL SCHEMATIC
CAL 2-25
DRAWN: ROBIN BRADSHAW

BANCOR PUNTA MARINE

DWG NO. 325

LIGHTNING GROUND

The spars and standing rigging on all Cal Yachts are grounded, in compliance with the American Boat and Yacht Council Project E-4, to attempt to minimize damage resulting from lightning and provide a measure of safety for personnel.

Each chainplate, the mast step, and all thru-hulls are attached by means of a #8 AWG solid copper wire to the engine and/or strut. In the event lightning strikes the spar, the system is designed to carry the charge by the wire to ground.

WARNING: IN AN ELECTRICAL STORM, DO NOT TOUCH THE MAST, BOOM, OR ANY STANDING RIGGING. THESE ARE ALL ELECTRICAL CONDUCTORS, WHICH WILL CARRY HIGH VOLTAGE AND CAUSE SEVERE SHOCK, INJURY, OR DEATH. IN THE EVENT OF AN ELECTRICAL STORM, THE FOLLOWING PRECAUTIONS ARE RECOMMENDED:

1. As much as possible, stay below with the hatches closed.
2. Avoid contact with any items making contact with the electrical system and with any other metallic parts of the boat.
3. Stay out of the water.
4. If the boat is struck by lightning, compasses and electrical equipment should be checked to determine that no damage or change in calibration has occurred.

NOTE: WHILE THE GROUNDING SYSTEM SPECIFIED IN THE AMERICAN BOAT AND YACHT COUNCIL PROJECT E-4 IS THE MOST WIDELY USED LIGHTNING PROTECTION SYSTEM KNOWN TO US, WE URGE YOU TO AVOID EXPOSING YOURSELF TO LIGHTNING, SINCE NO SYSTEM WILL PROVIDE COMPLETE PROTECTION TO BOAT OR OCCUPANTS IN ALL CIRCUMSTANCES.

Shore-Power System. The shore-power system accepts 110V AC through a three-prong male connection located in the cockpit. There are two current carrying conductors, positive and negative, as well as a grounded non-current carrying conductor. WARNING: NEVER USE AN ADAPTER THAT ELIMINATES THE GROUNDING CONDUCTOR. SEVERE SHOCK, INJURY, OR DEATH MAY RESULT.

A master-circuit breaker is provided for the shore-power system. To activate shore power, throw the circuit-breaker switch after the shore-power line is connected to dock power.

In addition, there are both audible (buzzer) and visual (yellow light on panel) reverse polarity indicators. With all switches off, attach the power cable to the inlet. Next, attach the power cable to the dockside outlet. WARNING: IF THE POLARITY INDICATOR LIGHTS AND/OR SOUNDS, DISCONNECT THE CORD IMMEDIATELY! THIS INDICATES A REVERSE POLARITY SITUATION, WHICH IS DANGEROUS. SEVERE SHOCK, INJURY, OR DEATH MAY RESULT. DIAGNOSE AND CORRECT THE PROBLEM BEFORE PROCEEDING.

If the polarity is correct, switch on the breaker for the outlets and/or hot-water tank as desired. Be sure the hot-water tank is full before turning on the circuit, or you will damage the heating element (see plumbing and commissioning sections).

It is recommended that all appliances or lights be wired with three-prong grounded plugs.

NAVIGATION LIGHTS

Navigation lights must be in accordance with the rules and regulations of the waters in which you intend to cruise.

In general, navigation lights are to be used from sunset to sunrise in all weather conditions. It is good practice to use the lights any time visibility is reduced by inclement weather.

Your Cal Yacht is equipped with the following navigation lights:

A) Red and green 10 point side lights mounted near the bow.

B) White 12 point stern light.

C) White 20 point bow light mounted on the mast.

D) White 32 point masthead light mounted on top of the spar.

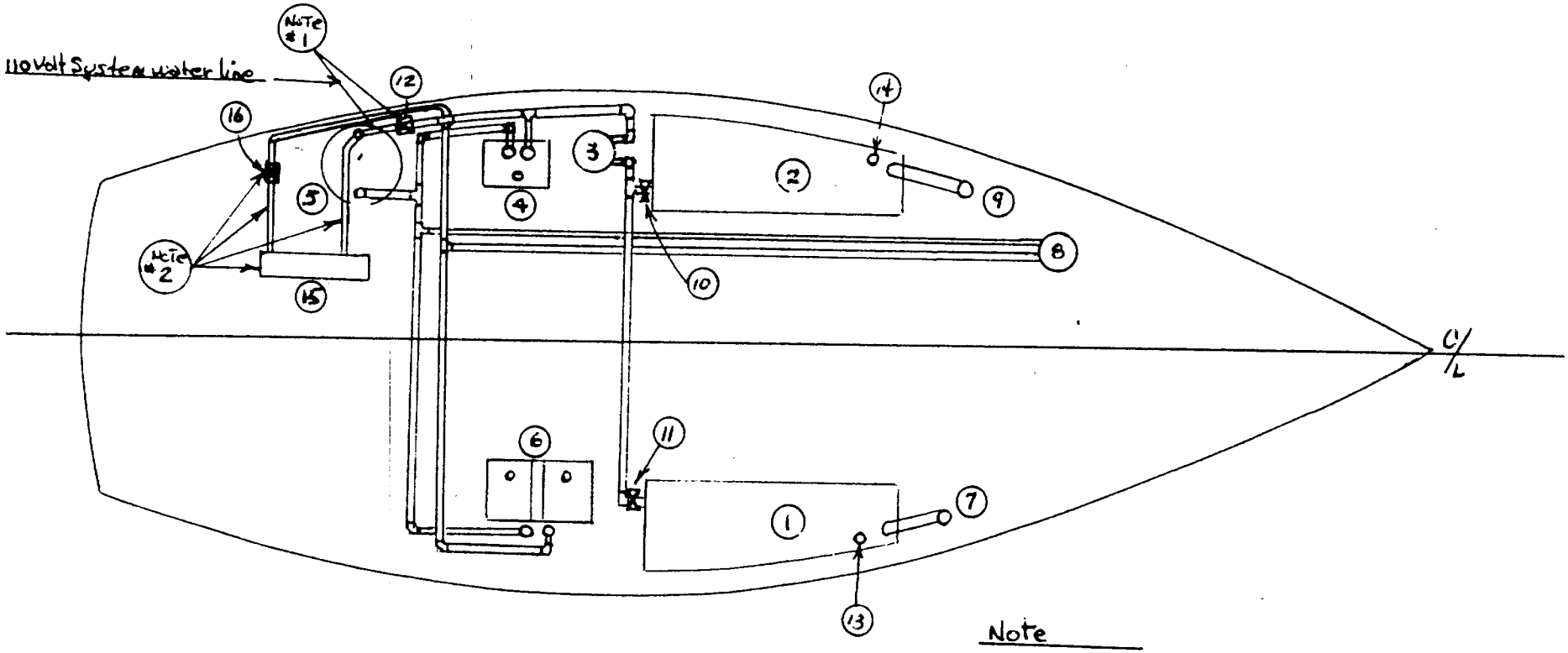
A & B are wired to the "running lights" switch on the DC panel.

C is wired to the "bow light" switch.

D is wired to the "masthead light" switch.

We recommend:

1. Underway by sail, the running lights (side lights and stern light) be on.
2. Underway by power, the running lights and bow light be on.
3. At anchor, the masthead light be on.



1	#1 water Tank	9	#2 water fill
2	#2 water Tank	10	Shut off Valve
3	Pressure Pump	11	Shut off Valve
4	Head Sink	12	Check Valve one way
5	water Heater	13	Vent
6	Galley Sink	14	Vent
7	water fill	15	Engine Heat exchanger
8	Shower Mixer	16	Check Valve one way

Note

1. #12 Check Valve on hot water System with 110 Volt water heater boats with our engine only. Boats may Also have only one Tank
2. Boats with Engine have water from Pressure Pump through engine heat exchanger to hot water heater #12 is moved To #16 Position And water Supply is routed through heat exchanger Illuminating 110 Volt system water line. 110 System Then recieves its water supply Through heat exchanger line

(This Drawing is not for System Location)

orig	Released Owners manual	Date
Rev	Description	11/15/80

Typical Pressure water System CAL Boats

CAL - 39-6 25, 35-2 27, 31 9.2

Drawn By Ed. Edgar R+D

Bangor Punta marine

DWG #

Sht 1 of 4

COOKING STOVES

PROPANE STOVES

The propane stove in your Cal yacht has been pressure tested at every joint with a special fluid at the plant prior to shipping, but we recommend that you have it checked by your own dealer after it has been launched, as boats go through some fairly heavy jars during overland travel. Details on the operation of the propane stove will be found in the manufacturer's instruction manual, which should be carefully reviewed.

To Operate:

1. Be sure the burner valves are in the OFF position.
2. Be sure the electric safety switch over the stove is in the OFF position.
3. Turn the valve on at tank.
4. Move the electric safety switch into the ON position.
   a. This switch controls a Solenoid mounted between the propane tanks. In the OFF position there is no pressure anywhere inside the boat. Please refer to Marinetics Corp., Document #609.
5. Turn on the burner valve you desire and light. If the system is new, or the tanks have just been replaced, there could be a quantity of air in the supply line. WARNING: YOU MAY GO THROUGH MORE THAN ONE MATCH, BUT DO NOT LEAVE BURNER VALVE ON WHILE GETTING ANOTHER MATCH LIT. THE GAS COULD BE COMING OUT WHILE YOU'RE GETTING THE NEXT MATCH LIT. THIS COULD CAUSE AN EXPLOSION.

When cooking has been completed, turn off the electric safety switch; and after the burner goes out, close the burner valve. This will indicate that the electric safety valve is working and will also remove pressure from the feed line inside the boat. For added safety, the manual shut-off valve at the tanks may be closed when boat is left unattended, or overnight.

The entire system should be checked out at least once a year. Pay particular attention to corroded or cracked fittings and supply lines.

ALCOHOL STOVES

Please refer to manufacturer's manual. They cover the operation of these stoves in detail.

WARNING:

1. THE FLAME DURING AN ALCOHOL FIRE IS QUITE OFTEN INVISIBLE.

2. DO NOT MOUNT THE FIRE EXTINGUISHER NEAR THE STOVE. DURING A FIRE, YOU MAY NOT BE ABLE TO GET TO IT.

3. WATER IS ONE OF THE BEST EXTINGUISHERS FOR ALCOHOL FIRES.

Plumbing
Heads - Cal 25 Only

Cal has passed along the manuals which cover the operation and maintenance of the toilets installed in your yacht. You should read these and familiarize yourself and crew with their details.

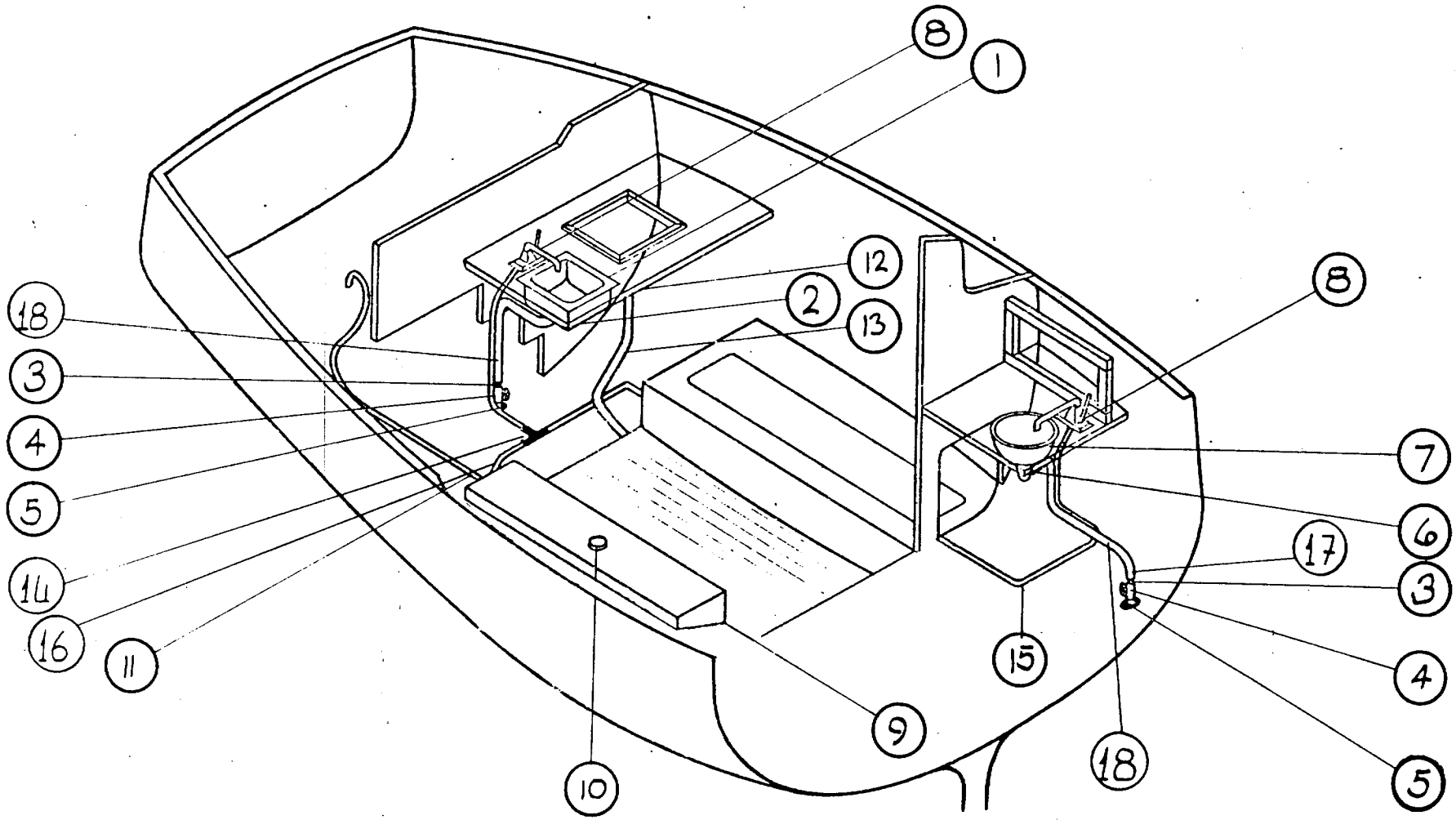
The standard head is a self-contained chemical toilet with a dock-side pump-out connection. Refer to the manual provided with the head for operation and maintenance instructions.

The optional deck and overboard discharge head has two thru-hulls and one deck discharge line. The marine toilet is connected to a collapsible holding tank. To operate the head, open the inlet thru-hull and pump the head per the manufacturer's instructions. The head will discharge to the holding tank.

To empty the holding tank, you have two choices. For dockside discharge, turn the Y-valve, located at the tank, to open the dock-side discharge line. Insert a pump through the deck plate and pump the tank. To discharge overboard, turn the Y-valve to open the overboard line, open the thru-hull seacock and pump the disphragm pump located in the discharge line. When you have discharged the tank, close the seacock. FEDERAL AND STATE LAWS AND USCG REGULATIONS SHOULD BE CONSULTED REGARDING THE DISCHARGE OF HEADS IN CONTROLLED WATERS.

It is recommended that a chemical additive be pumped into the holding tank to help prevent odor permeation of the tank and head plumbing.

Refer to the manufacturer's instructions for operation and maintenance instructions for the toilet.



JENSEN MARINE PRODUCTION MANUAL	MAKE - CAL	MODEL - 25
DESCRIPTION: PLUMBING SCHEMATIC CAL 2-25 PAGE 1 OF 2	DRWN BY: JEFF D	REV.
	APRVD BY:	REV. RELEASED OWNER'S MANUAL 7-9-80
		DRWG NO 327 SHT 1
	DATE: 7/8	PART NO.

JM FORM 0031 5/77

1	SINK, GALLEY VOLKATH	81207
2	DRAIN, BASKET JAMECO 2½"	40315
3	ADAPTOR BRS ¾P x 1H	40628
4	VALVE BALL PLAS ¾	42021
5	THRU-HULL BRS FLR ¾	42158
6	ADAPTER, SINK BASKET PL.	40620
7	SINK, 9" RND. SS POLAR 11-1	81212
8	PUMP, HAND KOCKET (WHITE)	80179
9	WATER TANK, 21 GAL.	80114
10	PLUG, WATERTHNK 1½" PL.	42710
11	ADAPTOR PLAS ⅜P x ⅜H	42827
12	THRU-HULL ½" PLASTIC (FOR ICE BOX)	42166
13	HOSE, CLEAR VINYL ½" (FOR DRAINAGE)	40013
14	TEE, ⅜" HOSE PVC	42560
15	HOSE, CLEAR VINYL ⅜" (FOR WATER)	40004
16	ADAPTOR ½P x ⅜H PLAS	42653
17	ELBOW ST. BRS ¾ 90°	42533
18	HOSE. RUBBER 1" (SK DRAINAGE)	40062

JENSEN MARINE PRODUCTION MANUAL

DESCRIPTION:

PLUMBING LEDGEND CAL 2-25

PAGE 2 OF 2

MAKE - CHL.

DRWN BY: JEFF D

APRVD BY:

DATE: 7/8

MODEL - 25

REV.

REV.

DRWG NO. 327 SHT 2

PART NO.

JM FORM 0031 5/77

Plumbing

Cal 25 and 9.2

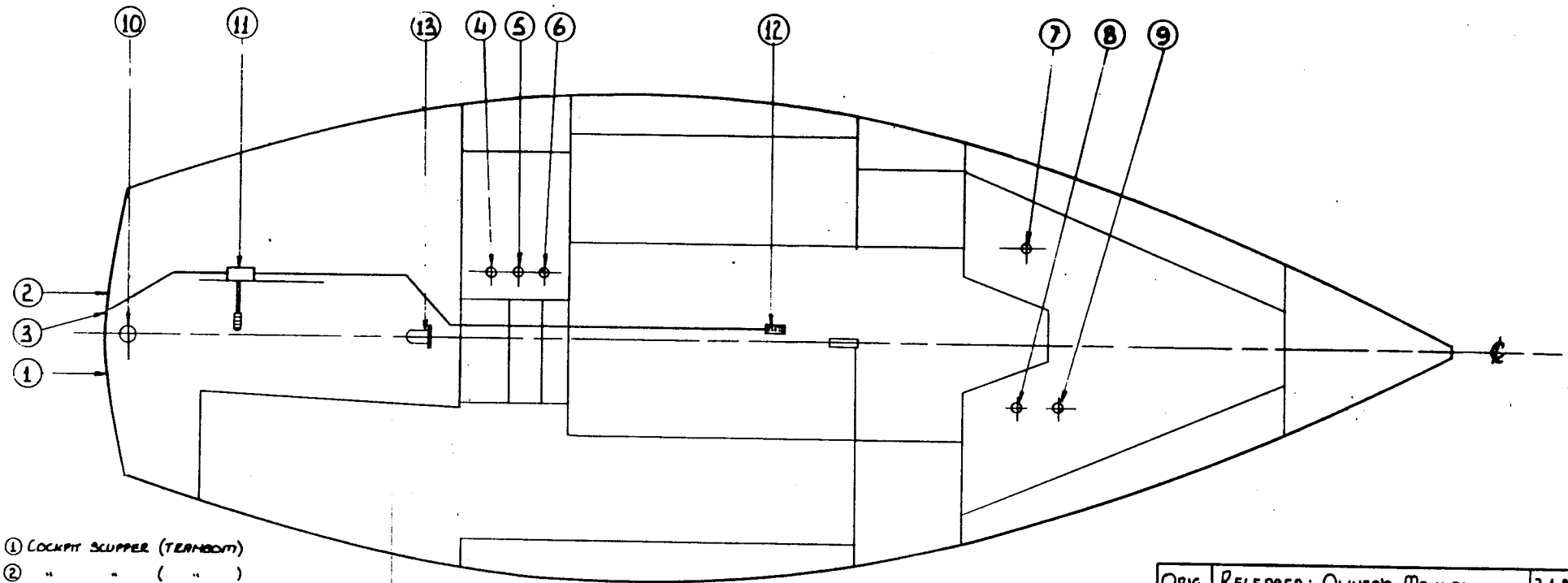
Fresh-Water System

A plastic fresh-water tank, located under the starboard settee, is filled through an inlet on the top of the tank. Do not fill the tank to more than 90% capacity, to allow for expansion. The tank may be cleaned by flushing with a vinegar and water solution (1 pint vinegar to 5 gallons of water). Manual faucets are located in the head and vanity.

The galley and vanity sinks drain through separate thru-hulls, equipped with seacocks. Whenever the boat is left for prolonged periods, be sure to close the seacocks. (See thru-hull diagram for location of all thru-hulls.)

Bilge Pump

A manual-bilge pump is located in the cockpit. The pick-up line runs to the keel sump, and the discharge line is connected to a thru-hull in the transom. To operate the pump, insert the handle provided and pump in an up and down motion.



① COCKPIT SCUPPER (TRANSOM)
② " " (")
③ BILGE PUMP (")
④ GALLEY SINK
⑤ SALT WATER PUMP (OPTIONAL)
⑥ ENGINE COOLANT INTAKE (OPTIONAL)
⑦ VANITY SINK
⑧ HEAD OUTLET (OPTIONAL)
⑨ HEAD INTAKE (OPTIONAL)
⑩ RUDDER STOCK TUBE
⑪ BILGE PUMP COCKPIT
⑫ BILGE PUMP UPTAKE
⑬ PROP SHAFT STUFFING BOX (OPTIONAL)

ORIG	RELEASED: OWNER'S MANUAL	7-1-80
REV	DESCRIPTION	DATE

THROUGH HULL LOCATIONS

CAL 25

DRAWN: ROBIN BRADSHAW

BANGOR PUNTA MARINE

DWG NO A0302.

PERIODIC MAINTENANCE

The following list of items and their accompanying numbers is in no way intended to be all that should be done to your yacht. This is only a suggested general list and is not intended to override the individual manufacturers' manual. It also is not arranged in any special order. The numbers are in numerical order and not in priority order. Some numbers and their meanings may also seem redundant, but we feel it is better to be redundant than lax.

ALWAYS FOLLOW THE OWNER'S MANUAL THAT COMES WITH THE ENGINES, HEADS, ETC.

PERIODIC MAINTENANCE

	End of First Week	Monthly	Winterizing	Remarks
Deck Fittings	5		1,4,5	
Rudder Blade		1	1	
Rudder Post	6	1,6	1,4,5,6	
Propeller Shaft	1	1	1,4	
Stuffing Box	1,2,5	1,2	1,4	
Zinc Anode		1	1	Replace at least once a year
Propeller		1	1,4,5	
Bilges			4,7	
Cockpit Drain Hoses	2	2,5	2,4,5,7,8	7,8- Some cockpit hoses have low points that hold water
Sea Cocks	1,2,3	2	1,4,6	
Pumps	1	1,2,5	1,4,5,7,8	
Water Tanks	2	2	1,4,7	
Piping, Fresh Water	2	2	1,4,7	
Lighting			1,3,4	3=WD-40 or CRC
Battery	1	1,4	1,4,8	4=Clean with baking soda & water solution
Water Filter		1,2,4	1,4,7	
Fuel Filter	1,5	1,5	1,4,5	4=Outside Only
Air Filter	1	1,5	1,5	
Exhaust System	1,2,5	1,2,5	1,4,5,7	
Engine Mounts	1,5	1,5	1,3,5	
Steering Cable	1,3,5,6	1,3,5,6	1,3,4,5,6	

PERIODIC MAINTENANCE (Cont'd.)

	End of First Week	Monthly	Winterizing	Remarks
Mast, Boom	1,3	1,3,4,5	1,3,4,5,6	
Standing Rigging	1,5	1,4	1,3,4,5,6	
Running Rigging	1	1,3,4	1,3,4,5,6	
Winches	1,5	1,3,4,5	1,3,4,5	
Engine Alignment	1,2	1,4,5	1,4,5	Disconnect coupling before hauling
Hose Clamps	5	1,5	1,3,4,5	Do not overtighten
C/B models only-Centerboard & Hoist	2	1,2,4,5	1,3,4,5,6	
Chainplates	1,2,5	1,2,4,5	1,2,4,5	Rebed at least twice a year
Tiller Strap if applicable	1,3,5	1,3,4,5	1,3,4,5	
Bilges	Check daily---more often if the boat is leaking			
Stoves, Alcohol, Propane	1,5		1,4.5	Check supply hoses for deterioration every Spring. If hose cracking is evident, replace.

1. Check condition 2. Check watertightness 3. Lubricate
4. Clean with fresh water 5. Check tightness 6. Grease
7. Drain and/or anti-freeze 8. Disconnect

BASIC RULES FOR BATTERY CARE AND MAINTENANCE

1) Check liquid level in all cells once every week or two. Add water as required. Bring liquid level to 3/8 inch above top of separators. It is much better to add water in small amounts frequently, than to put too much in and flood out the electrolyte, thus causing damage to adjacent wiring and equipment, plus loss of acid.

   Generally, the local drinking water in the United States is safe for use in batteries; but to be sure, check with your battery supplier.

   Add water only. Add no battery dopes, special liquid, or powders. These are harmful or useless.

2) Before adding water, take a hydrometer reading of one cell. (Don't use same cell each time; change around). If above 1.225 Specific Gravity, battery is sufficiently charged. If below 1.225 Specific Gravity, remove battery for bench charge. If level is too low to read, add water and take hydrometer reading the next day.

3) After adding water, examine hold-downs. Make certain battery is secure. Hold-downs should make a snug fit, but not necessarily the tightest fit, or the container may be forced out of shape.

   Examine cables and terminals for tightness, corrosion, and wear. Corrosion occurs from the spilled electrolyte getting on metal, other than lead. Lead does not corrode. To remove corrosion, scrape or brush it off. Then immerse the part in

3) an alkaline solution, such as baking soda, in the proportions of one pound soda to a gallon of water. One can tell when all the electrolyte is neutralized by observing when the bubbling stops. Wash with water, dry, and apply a prepared grease available from battery dealers.

4) Examine battery for broken or cracked covers, case, and cracks in sealing compound. If any of the above defects are present, remove battery at once and have repaired. Acid loss from any of the above defects will shorten battery life. Acid escaping through cracked covers or sealing compound will cause corrosion of terminals, cables, carrier, and adjacent parts.

5) Batteries should be re-charged, if hydrometer reading is below 1.225.

6) DO NOT LEAVE A BATTERY ON CHARGE FOR MORE THAN 48 HOURS. STOP CHARGE when two hydrometer readings recorded two hours apart show no increase, or when terminal voltage readings recorded two hours apart show no increase.

   If there is no rise in voltage or specific gravity in a period of two hours, further charging is USELESS and MAY DAMAGE BATTERY BEYOND REPAIR. Have your supplier check battery for possible acid adjustment or repair.

7) On this bench re-charge, the specific gravity is expected to read certain values before considered serviceable for continued use. The hydrometer reading should be above 1.260.

BASIC RULES FOR BATTERY CARE AND MAINTENANCE - Continued

7) The full charge gravity when new was 1.270 - 1.290. If battery does not register as above, have your battery supplier inspect it. He may be able to adjust acid or make repairs.

8) In cold weather, do not fill cells with water and let stand without running motor long enough to allow water to mix with acid, as freezing might occur.

9) Spare batteries should be re-charged at least every 4 or 5 weeks, in order that the Specific Gravity may be maintained at 1.240 or above.

10) Use a battery with sufficient ability to carry the connected load.

11) Wash dirt and corrosion off top of battery to eliminate inter-cell discharge.

12) Neutralize corrosion in battery box by washing with solution of baking soda as recommended in No. 3; rinse with water.

13) The amount of water which is needed by the different cells will be a clue to other problems. For example, if each week the water, which was put in the previous week has been used, it is reasonable to expect that too much charging current has passed through the battery; hence, the voltage regulator should be checked.

BASIC RULES FOR BATTERY CARE AND MAINTENANCE - Continued

All cells in the battery should take the same amount of water. If one cell should take more than the others and does this each week, it would be expected that the container is leaking. Whether the leakage is through the bottom of the container, or from the sides of the container, can be determined by examination.

repairman to provide a good cosmetic repair.

Gelcoated surfaces can be painted. However, to assure a good finish which will last, careful preparation and application is necessary. This should be done by professionals.

Teak

The interior and exterior woodwork on your Cal is primarily teak. This unique wood will not rot, and requires minimum maintenance. All the teak was treated at the factory with a high-grade teak oil.

On the interior, you should apply a new coat of oil at the beginning of each season. Use a good grade teak oil, which is available through your dealer or local marine hardware store. This will maintain the rich brown color of the wood.

The exterior teak, if left untreated, will turn a light gray, which some yachtsmen prefer. However, as the teak weathers, the grain raises, and there is a tendancy for the wood to check and/or split. Periodic cleaning with a teak cleaner will remove the gray color with a minimum of labor. A good coat of teak oil will help prevent the checking and splitting.

Teak may be varnished, which will produce a beautiful finish, and provide good protection. A varnished interior would normally last two seasons. However, on exterior teak, a new coat should be applied every four months. Before applying varnish, be sure the surface is dry, sand thoroughly, and wipe with acetone to

FINISHES

Gelcoat

The gelcoats used on all exterior and interior surfaces of your Cal Yacht are the highest quality materials available for marine use. These gelcoats have the best possible color retention, gloss and resistance to weathering. However, even the best gelcoats need some maintenance to preserve their finish.

- Whenever feasible, the deck and topsides should be rinsed with fresh water.
- Wash the gelcoat surfaces with a mild detergent or car wash solution. Use a sponge or towel on smooth areas, and a soft brush on non-skid surfaces. Be careful not to use abrasive cleaners or solutions containing chlorine.
- At least once a year, apply a good coat of high quality wax to all smooth surfaces. Buff down with a clean towel.

If the surface becomes dull, it can often be returned to a high gloss by hand buffing with an automotive buffing compound of a very fine grade. If a power buffer is used, extreme care must be exercised to prevent burning through the gelcoat surface. This is particularly true of corners and edges. Always apply a coat of wax after compounding.

Small scratches or abrasions which do not go through the gelcoat can be removed by wet sanding with 320 grit paper, followed by wet sanding with 600 grit, compounding and waxing. For deep scratches or holes, you should rely on your dealer or local gelcoat

FINISHES (Cont'd.)

Spars and Hardware

The spars on your Cal Yacht are painted with tough and durable urethane paints that withstand the harsh effects of the elements. They should be washed with fresh water whenever possible, and thoroughly rinsed before being stored. All moving parts, such as sheaves, should be lubricated during the season.

In the event you should scratch or mar the surface, a touch-up kit is available through your Cal dealer.

The hardware and rigging are stainless steel, chrome plated brass or coated aluminum. These should be rinsed with fresh water periodically. Should you experience surface staining, which looks like rust on the stainless hardware, it can be removed with metal polish and either a rag or bronze wool. Each month a light coat of lubricant should be applied to turnbuckles, blocks and the screw or spring retaining pins on the blocks and slides to assure ease of operation and prevent sticking.