

TABLE OF CONTENTS

1. INTRODUCTION	1
2. ANTIFOULING SYSTEM	2
3.1. WARRANTY/REGISTRATION PROCEDURES	3
3.1.1. WARRANTY PROCEDURE	4
3.1.2. REGISTRATION PROCEDURE	4
3.1.3. WARRANTY TRANSFER	4
3.2. HULL IDENTIFICATION NUMBERS	5
4. DEALER'S RESPONSIBILITIES	5
5. OWNER'S/OPERATOR'S RESPONSIBILITIES	6
5.1. STATE REGISTRATION OR FEDERAL DOCUMENTATION	6
5.2. SAFETY AND MAINTENANCE	6
5.3. MANDATORY COAST GUARD SAFETY EQUIPMENT	6
5.4. RECOMMENDED SAFETY EQUIPMENT	7
5.5. SAFETY COURSES	7
5.6. ANCHORING	8
5.7. ADDITIONAL SAFETY EQUIPMENT	8
5.8. MEDICAL KIT	8
5.9. TOOL KIT	9
5.10. SPARE PARTS	9
6. SAFE OPERATION AND WARNING LABELS	10
6.1. FUEL WARNING LABEL	10
6.2. SHORE-POWER LABEL	10
6.3. PROPANE LABELS	11
6.4. SWIM LADDER WARNING LABEL	13
6.5. HIGH VOLTAGE WARNING LABEL	13
6.6. TRANSOM DOOR WARNING LABEL	14
6.7. STANDARD BATTERY SWITCH LABEL	14
6.8. OPTIONAL BATTERY SWITCH LABEL	14
6.9. SLING LOCATION ARROWS LABEL	15
7. FEDERAL/STATE REGULATIONS	16

7.1. DISCHARGE OF OIL	16
7.2. SOLID WASTE DISPOSAL	17
7.3. MARINE SANITATION	17
8. ACCIDENT REPORTING	18
9. RENDERING ASSISTANCE	19
10. COMMISSIONING	20
10.1. COMMISSIONING PROCEDURES	20
10.2. * PRE-LAUNCH CHECKS	20
10.2.1. HULL INSPECTION	20
10.2.2. MACHINERY INSPECTION	20
10.2.3. BEFORE STEPPING MAST	21
10.2.4. EQUIPMENT ON BOARD	21
10.3. * POST-LAUNCH CHECKS	22
10.3.1. HULL INSPECTION	22
10.3.2. ELECTRICAL INSPECTION	22
10.3.3. MACHINERY INSPECTION	22
10.3.4. RIGGING AND SAILS	23
10.3.5. FRESH WATER SYSTEM	23
10.3.6. HEAD SYSTEM	24
10.3.7. GALLEY	24
10.3.8. BILGE	24
11. MAINTENANCE OF YOUR BOAT	25
11.1. ANTI FOULING	25
11.2. GEL COAT	25
11.3. MINOR GEL COAT REPAIRS	26
11.4. THE DECK AND DECK FITTINGS	26
11.5. THE RUDDER	27
11.6. INTERIOR WOOD	27
11.7. ELECTRICAL SYSTEMS	27
11.7.1. BATTERY MAINTENANCE	28
11.8. WATER SYSTEM	28
11.9. MARINE HEAD	29
11.10. ENGINE	29
11.11. SAILS	30
12. WINTERIZING PROCEDURES	31
12.1. HAULING	31

12.2. BOTTOM	31
12.3. CUTLASS BEARING	31
12.4. ZINC	31
12.5. FRESHWATER SYSTEM	32
12.6. HEAD	32
12.7. ENGINE	32
12.8. FUEL SYSTEM	33
12.9. BATTERIES	33
12.10. SEACOCKS	33
12.11. BILGE	33
12.12. ICEBOX	34
12.13. STOVE	34
12.14. INTERIOR	34
12.15. COVERING THE BOAT	34
12.16. SAILS	34
12.17. MAST	35
 13. OCEANIS 321 SYSTEMS	 36
 13.1. DECK HARDWARE	 36
13.2. DIESEL ENGINE	37
13.2.1. GENERAL DESCRIPTION	37
13.2.2. ENGINE INSTALLATION	37
13.2.3 PERKINS ENGINE PANEL	38
13.2.4 YANMAR ENGINE PANEL	39
13.2.5. CUTLASS BEARING	40
13.2.6. STUFFING BOX	40
13.2.7. DIESEL OPERATION	40
13.2.8. BEFORE STARTING THE ENGINE	40
13.2.9. STARTING THE ENGINE	41
13.2.10. STOPPING THE ENGINE	41
13.3. FUELING	43
13.3.1. BEFORE FUELING	43
13.3.2. FUELING	43
13.3.3. AFTER FUELING	43
13.3.4. FUEL SANITATION	44
13.3.5. BACTERIAL CONTAMINATION	44
13.3.6. FUEL ADDITIVES	44
13.3.7. FUEL SYSTEM HULLS #1 TO #64	45
13.3.8. FUEL SYSTEM HULLS #65 AND UP	46
13.4. STEERING SYSTEM	47
13.4.1. WHEEL STEERING	47
13.4.2. WHEEL STEERING INSTALLATION	47
13.4.3. WHEEL STEERING OPERATION	49
13.4.4. EMERGENCY TILLER	49
13.5. FRESH WATER SYSTEM	50
13.5.1. GENERAL DESCRIPTION	50
13.5.2. OPERATION.	50
13.5.3. FRESH WATER DRAWINGS	51

13.6. INTAKE & DISCHARGE THRUHULLS	59
13.6.1. GENERAL DESCRIPTION	59
13.6.2. SAFETY - MAINTENANCE	59
13.6.3. THRU HULL DRAWING	59
13.7. MARINE TOILET & HOLDING TANK	60
13.7.1. GENERAL DESCRIPTION	60
13.7.2. HEAD OPERATING PROCEDURE	61
13.7.3. HOLDING TANK PUMP OUT PROCEDURE	61
13.8. BILGE PUMPS	62
13.8.1. MANUAL BILGE PUMP	62
13.8.2. ELECTRIC BILGE PUMP	63
13.9. SELF- DRAINING COCKPIT	65
13.10. KEEL SYSTEM	66
13.10.1. KEEL SYSTEM SHOAL LEAD	66
13.11. PROPANE COOKING SYSTEM	67
13.11.1. PROPANE SYSTEM DESCRIPTION	67
13.11.2. PROPANE SYSTEM	68
13.11.3. OPERATION	69
13.12. 12V SYSTEM	70
13.12.1. 12V DISTRIBUTION PANEL	70
13.12.2. PANEL WIRING SCHEMATIC	70
13.12.3. WAGO DRAWING	71
13.12.4. LIGHTING LAYOUT	73
13.12.5. DECK ELECTRIC CIRCUIT	74
13.12.6. BATTERIES	75
13.12.7. 12V CHARGING SYSTEM	75
13.12.8. REFRIGERATION	78
13.12.9. WINDLASS OPERATION	79
13.13. 110V SHORE POWER SYSTEM	80
13.13.1. 110V LAYOUT	80
13.13.2. 110 VOLT SYSTEM	81
13.13.3. OPTIONAL 2ND BATTERY WIRING	83
13.13.4. CONDUIT ROUTING IN THE HULL LINER	84
13.13.5. OPTION CONDUIT ROUTING IN THE HULL LINER	85
13.13.6. SPEED AND DEPTH TRANSDUCER LOCATION	86
13.14. DECK HATCHES AND PORTS	87
13.14.1 DECK HATCH AND PORT SYSTEM	87
13.15. RIGGING	88
13.15.1. GENERAL DESCRIPTION	88
13.15.2. MEASUREMENTS	89
13.15.3. TUNING	90
13.15.4. ROLLER FURLING MAST DECK LAYOUT	91
13.15.5. ROLLER FURLING MAST DRAWING	92
13.15.6. ROLLER FURLING MAST	93
13.15.7. BOOM KIT FOR ROLLER FURLING MAST	95
13.15.8. STACK PACK INSTALLATION	96
13.15.9. CLASSIC MAST DECK LAYOUT	97
13.15.10. CLASSIC MAST	98
13.15.11. BOOM KIT FOR CLASSIC MAST	99
13.15.12. SOLID VANG	100

13.15.13. STANDING RIGGING DRAWINGS	101
13.15.14. STANDING RIGGING SPECIFICATIONS	106
13.15.15. RUNNING RIGGING SPECIFICATIONS	108
13.15.16. LIFELINE SPECIFICATIONS	111
13.16. SAILS	112
13.16.1. ROLLER FURLING MAINSAIL	112
13.16.2. CLASSIC MAINSAIL	113
13.16.3. ROLLER FURLING GENOA	116

APPENDIX I. THRU HULL VALVE LOCATIONS

1.

INTRODUCTION

Many parts and systems installed on your boat are supplied by other manufacturers and each carries a specific warranty and may require specific care. This manual supplements the literature supplied with the various equipment and we will refer to manufacture's literature throughout this booklet. We recommend referring to original manufacturer's literature whenever possible.

This manual is broken down into several sections to help explain your boat, your warranty, responsibilities as an owner, and maintenance of your new Beneteau. The systems and procedures described in this manual were correct to the best of our knowledge at the time of printing and may be changed at any time or may have been changed on your boat. While we have tried to describe the major points of your boat within this book, we cannot cover every detail. Please call your dealer or feel free to call us if any question should arise.

If you are a seasoned sailor much of the manual may be old news but if this is your first boat, we hope this will prove useful.

Should you need to contact Beneteau please use the following addresses and numbers, be sure to include your Model and Hull Number with any correspondence.

Beneteau Customer Service
(Warranty, Parts & Service Depts.)
Highway 76W
Marion, SC 29571
Tel (843)-423-6459
Fax (843)-423-5516

Beneteau USA Inc.
(Sales & Marketing)
24 North Market Street, Suite 201
Charleston, SC 29401
Tel (843)-805-5000
Fax (843)-805-5010

We would like to sincerely thank you for choosing a Beneteau and we wish you good sailing.



2.

ANTI-FOULING

The primary function of your Beneteau is to maximize your boating pleasure. Your new Beneteau was made to last through weather and time. From the very beginning, great care has been taken in building your boat. Her molds have been designed and built to resist any deformation of her lines and meticulously maintained to guarantee a superior finish. This is very important because the mold is the cocoon from which your boat emerges.

Between the gel coat layer and the fiberglass laminate, Beneteau applied a nearly impervious Vinylester layer that will virtually eliminate the phenomenon of osmotic blistering in the fiberglass hull. This system is a development of the BWS (Beneteau Watershield System) which was designed and patented by our research laboratories and was first introduced in 1988 in our European operations. The addition of this product assures that the mechanical properties of your hull remain solid and its life span greatly improved.

All materials used in the construction of your Beneteau are of the highest quality. Sampling of materials and operational standards are constantly monitored so that the structural design matches the engineered standard.

Beneteau USA takes great care in the manufacturing of fiberglass parts, as well as in the control of raw materials and their applications. This coupled with the mastery of building techniques, allows Beneteau USA to offer you the most favorable warranties in the marine industry.

Methodology for anti-fouling application when new:

1. Clean and degrease hull thoroughly using a denatured ethyl alcohol
2. Sand hull using sandpaper with a minimum grit of #400. (i.e., 400, 600, or 800)
3. Rinse with fresh water. **DO NOT USE DETERGENTS. DO NOT PRESSURE WASH.**
4. Apply anti-fouling to manufacturer's directions.

NOTE: It cannot be emphasized enough that thorough dewaxing must occur. Furthermore, if the gel coat is abraded with coarse sandpaper, the water imperviousness will be destroyed.

3.

LIMITED WARRANTY

Beneteau USA Inc. ("Beneteau USA") warrants to the original purchaser or any subsequent buyer during the time of this Limited Warranty (the "Owner"), that the boat, excluding parts or accessories not manufactured by Beneteau USA or Chantiers Beneteau, S.A., will be free from defects in material and workmanship for a period of ONE year from the date of the delivery to the original purchaser.

In addition, Beneteau USA warrants to the Owner, except for the prototypes and boats from the California series, that the hull and deck structure of the boat will be free from defects in material and workmanship for a period of FIVE years from the earliest of the following events: delivery of the boat to the original purchaser, first date of utilization, last day of the boat model year.

Beneteau USA's obligation under this warranty shall be limited to the repairing or replacing (or causing to be repaired or replaced), at Beneteau USA's option, the part or parts which are recognized defective by it in material or workmanship within the applicable warranty period to the exclusion of all other remedies. This Warranty shall apply only provided that the Owner presents the boat's Certificate of Origin and gives the selling dealer written notice of any claimed defect within 15 days after such defect is first discovered and satisfactory proof thereof. Warranty repairs do not result in a renewal or extension of the original Warranty for the boat or a part thereof. Transportation charges and duties shall be borne by the Owner.

This Warranty does not extend to: (1) any losses due to misuse, accident, disaster, abuse, neglect, normal wear and tear or improper maintenance; (2) boats or any part thereof which have been repaired or altered without Beneteau USA's prior written approval; (3) accessories or parts not supplied by Beneteau USA or Chantiers Beneteau, S.A., or, parts or accessories installed during the process of manufacturing that were not manufactured by Beneteau USA or Chantiers Beneteau, S.A., for which the Warranty will be the one provided by the supplier of the part or accessory; (4) damages resulting from any modification made to the boat; (5) boats for rental, lease, or charter; (6) splits, discoloration, or cracks in the gel-coat (hull, rudder, and deck); (7) disorders in the hull, or deck such as, without limitation, blisterings, which are caused by use of improper maintenance products or by improper sanding of the gel-coat; (8) anti fouling, varnishes, paints, acrylon, naugahyde, fabrics, headliners, chrome, anodized coatings, keel coatings, sails, cushions, or running rigging, as these items are subject to deterioration caused by climate, erosion, normal use conditions, or wear and tear; (9) reasonable and necessary maintenance, including, but not limited to, periodic re-bedding of chain plates, stanchion bases, windows and/or window frames, and winches; (10) damages or deterioration due to the non-observance of maintenance recommendations as described in the owner's manual or non-compliance with the normal rules of boat maintenance; (11) failure to take reasonable measures necessary to protect the boat; (12) any damage or deterioration to the boat resulting from participation in a competitive sporting event.

In addition, if (1) any structural damage to the boat is suffered as a result of any cause other than a defect in material or workmanship (whether or not such damage requires or results in any repairs to the hull or deck), or (2) any repairs or alterations to the boat of any nature whatsoever are made at a shipyard not approved in writing by Beneteau USA, then the five-year hull/deck Warranty set forth above will immediately thereupon terminate and be of no further force or effect.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER LIABILITIES ON BENETEAU USA'S PART AND BENETEAU USA NEITHER ASSUMES, NOR AUTHORIZES ANY PERSON, INCLUDING THE DEALER, TO ASSUME FOR IT, ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF BENETEAU USA'S BOATS.

Beneteau shall in no event be liable to the Owner or any other person or entity for damages of any kind, including but not limited to direct, indirect, special or consequential damages, arising from the sale or in connection with the use or inability to use the boat for any purpose whatsoever, irrespective of whether the claims or actions for such damages are based upon contract, tort, negligence, strict liability, warranty, or otherwise.

For the purpose of compliance with the Federal Boat Safety Act of 1971 and all notification procedures set forth therein, Beneteau USA requests that you complete the information requested below concerning your current address, which shall be returned to Beneteau USA by your Dealer.

Beneteau USA reserves the right, at any time, to make changes in design or additions to or improvements in the boats without liability or obligation to incorporate such change, addition, or improvement in any boat manufactured prior thereto.

This Warranty gives you specific legal rights. You may also have other rights which vary from state to state.

I hereby acknowledge that Beneteau USA Inc. Limited Warranty was attached to Dealer's purchase order in its entirety at the time that I purchased my boat from said Dealer; that I have read such Limited Warranty in its entirety; and that I have a copy of such Limited Warranty, as attached to Dealer's purchase order, for future reference.

Purchaser _____	Boat Model _____
Mailing Address of Purchaser _____	Hull # _____
City State Zip _____	Dealer _____
(Area Code) _____	Date _____
Telephone Number _____	

3.1. WARRANTY/REGISTRATION PROCEDURES

3.1.1. Warranty Procedure

All Beneteau boats carry a one year limited warranty, as well as an extended hull and deck structural warranty (see warranty form for details). As the first owner of your new Beneteau, your warranty only becomes valid upon receipt, by Beneteau, of the completed and signed warranty form. It is important that you were presented with this document at the time of your contract with your dealer and that both you and your dealer have signed this form. Your warranty will then take effect upon final delivery to you of your new Beneteau.

3.1.2. Registration Procedure

As a new Beneteau owner you will automatically become a member of Club Beneteau. Club Beneteau will entitle you to many added benefits and advantages as well as providing you with a valuable line of communication with Beneteau.

Upon receipt of your completed and signed warranty form we will forward a new owners package directly to you.

Subsequent owners of Beneteaus are invited to become a member of Club Beneteau as well. We will automatically enroll these boat owners upon receipt of their warranty transfer cards.

In the regulations event that you change your address, please fill out and mail in the change of address card at the back of the manual (to the address below) so that you will not miss any of Club Beneteau's opportunities.

If you have any questions concerning this procedure please feel free to contact Beneteau Customer Service at (843)-423-6459.

3.1.3. Warranty Transfer

Your new Beneteau has a transferable, limited hull warranty and deck warranty. In the event of selling your Beneteau, the new owner must be registered with Beneteau within 30 days of the date of sale for the warranty to be transferred.

Please fill in the appropriate warranty registration card at the back of this owner's manual and mail it to:

Beneteau USA Inc.
24 North Market Street
Suite 201

Charleston, SC 29401

3.2. HULL IDENTIFICATION NUMBERS

The hull identification or "BEY" number is a unique number given to your Beneteau alone. This number begins with "BEY" which has been assigned to Beneteau by the USCG followed by an alpha-numeric code which details the model, serial no., month of construction, year of construction and model year.

Please clearly identify your boat using your model and "BEY" number during any correspondence with Beneteau.

Your boat identification number appears in two places:

On the aft starboard side, stamped into the hull, approximately 3 inches below the toerail, is your hull identification number.

The manufacturer's plate is located in the aft section of the cockpit. This plate gives boat model and identification number.

4. DEALER'S RESPONSIBILITIES

Your Beneteau Dealer is part of a worldwide distribution network, with dealers in 28 countries. As a Beneteau Dealer, he has certain obligations to you as our customer and to Beneteau as our representative. A Dealer's responsibility does not end with the sale of your boat. Your Dealer is responsible for the following:

- Deliver your new Beneteau to you complete as ordered in your purchase agreement.
- Preparation of your boat for commissioning by their personnel, another yard or by providing you with the correct commissioning procedures.
- Checking of all systems on the boat for fit, proper function and to familiarize you with the usage of each system.
- Sea trial of your new Beneteau with you as a final verification that all systems are in good order.
- Provideing customer support and parts after you take delivery and any warranty service under the terms of the limited warranty. All warranty questions, claims or processing should be directed through your dealer.

5. OWNER'S/OPERATOR'S RESPONSIBILITIES

5.1. STATE REGISTRATION OR FEDERAL DOCUMENTATION

For State Registration please consult your Dealer or the State Marine Police, who can provide the correct governmental department handling registration in your state.

5.2. SAFETY AND MAINTENANCE

For maximum enjoyment of your Beneteau, due respect should be given to proper safety and maintenance procedures.

Be sure that your boat is operated according to the U.S. Coast Guard Regulations as outlined in the "Federal Requirements For Recreational Boats". Please familiarize yourself with all operating requirements.

Prepare yourself for any situation before going out on the water. Follow the instructions provided in the sections of this owner's manual, the individual supplier instruction manuals, and all applicable U.S. Coast Guard and other regulations. If you are not an experienced sailor, you should complete an accredited sailing course.

Before leaving the dock, be sure that all your equipment is in working order, that you are aware of the weather conditions, and someone ashore is familiar with your destination or sailing activities.

5.3. MANDATORY COAST GUARD SAFETY EQUIPMENT

Many safety items are required for compliance with the U.S. Coast Guard regulations. Note that these regulations are subject to change. It is the owner's responsibility to be aware of current regulations as outlined in the "Federal Requirements for Recreational Boats". For your convenience a copy is included with your yacht's documentation, and additional copies may be obtained by calling the U.S. Coast Guard Boating Safety Hotline at (800) 368-5647.

Good safety equipment should be a priority of every sailor for the protection and comfort of passengers. Passengers aboard should be made familiar with the safety equipment and operation of the boat in the event of an emergency.

Depending on the length, passenger capacity, and operating conditions, your boat must be equipped according to the current U.S.C.G. requirements. Be sure that you operate your boat with the necessary number of life preservers, fire extinguishers, signaling devices, distress signals, navigation lights as referred to in the "Federal Requirements for Recreational Boats."

5.4. RECOMMENDED SAFETY EQUIPMENT

Preparation is the key to safety on the water.

Your new Beneteau has been fitted with the following equipment:

- Compass - be sure that it is properly calibrated to give the correct magnetic reading.
- A large capacity bilge pump.

We recommend that you fully outfit your Beneteau with safety equipment that can be obtained through your dealer or marine supply outlets. These items should include but not be limited to:

- Up to date nautical charts covering your intended cruising area.
- Boat hook.
- Large waterproof flashlight with spare batteries.
- Fenders.
- Docking lines - a good rule of thumb to follow dictates that your bow, stern, and spring line be equal to the length of the boat.
- Life jackets, anchor, anchor chain and line, throwing line, flares, soft wooden plugs for thru-hulls, life ring, fire extinguisher, and foghorn.
- Electronics - Depth Sounder, Log Speedometer, and VHF Radio.

5.5. SAFETY COURSES

It is recommended that owners and operators gain knowledge and experience in boat safety skills such as;

- (a) Navigation
- (b) Seamanship and boat handling
- (c) Rules of the road, international and inland waterway
- (d) Weather prediction
- (e) Safety at sea
- (f) Survival in bad weather
- (g) Respect for others on the water
- (h) First aid
- (i) Radio communication
- (j) Distress signals
- (k) Pollution controls

To find out where one can attend these courses in your area, please call your dealer or "The Boaters Educational Course Line" at (800) 336-2628.

5.6. ANCHORING

Various sea and bottom conditions require different anchoring systems. Your dealer can help in choosing rode size and length, anchor chains, and working and storm anchors most appropriate for your boat and location.

In general, a minimum of two anchors should be carried at all times and enough anchor rode and chain necessary for the depth of water to be navigated during storm conditions.

Certain anchors are useful for a variety of bottom conditions. Study the charts of the area to be navigated for information concerning bottom conditions and water depth.

The greatest hazard with a sound permanent mooring is the chafe, which can occur to the rode at the bow chocks. This is the single most common site of failure. Care is advised in the selection and protection of the rode pennant with appropriate chafing gear. Careful and regular inspection of moored boats on a regular basis is necessary to ensure the boat's safety.

5.7. ADDITIONAL SAFETY EQUIPMENT

A number of additional safety items are worthy of your consideration. These range from safety harnesses to emergency beacons, life rafts, and survival suits. Their use depends upon the intended use of the yacht. We suggest you investigate the necessity of these items through discussion with your dealer or local chandler.

5.8. MEDICAL KIT

Every yacht should carry a first aid manual, and a medical kit tailored to the specific needs of the owner. Any ship's store should carry a standard type medical kit. Items in the kit should include but not be limited to the following:

- Aspirin
- Motion sickness pills
- Adhesive strips and tape
- Ammonia inhalants
- Antiseptic wipes
- Antiseptic germicide ointment
- Gauze bandages
- Zinc oxide ointment
- Sunscreen first aid/burn cream
- Insect/bee sting relief ointment/spray
- Sterile pads
- Cold packs for sprains
- Ace bandages & splints
- Scissors & tweezers

5.9. TOOL KIT

A basic kit should consist of:

- Wrenches - adjustable, Metric and SAE open end, box, socket
- Hammers - large and small
- Knife - with marlinespike
- Screwdrivers - large and small, standard and Phillips
- Pliers - regular, cutting and needle nose, vise grips
- Wire cutter - capable of cutting standing rigging
- Hacksaw - with spare blades

5.10. SPARE PARTS

A basic kit should consist of the following:

- Standing and Running Rigging: Turnbuckles, monel seizing wire, clevis and cotter pins, blocks, extra line, rigging tape, duct tape.
- Fasteners: Assortment of stainless steel screws, nuts, bolts, and washers
- Hose clamps.
- Electrical: Electrical tape, wire, crimps on lugs, spare navigation light bulbs.
- Lubricating supplies: WD-40 and silicone grease.
- Engine: Check engine manual for spare parts, engine oil and transmission fluid recommendations.
- Sails: Sail repair kit and sail slides.

6.

LABELS

SAFE OPERATION AND WARNING

Ensure that the boat operator is not under the influence of drugs and/or alcohol.

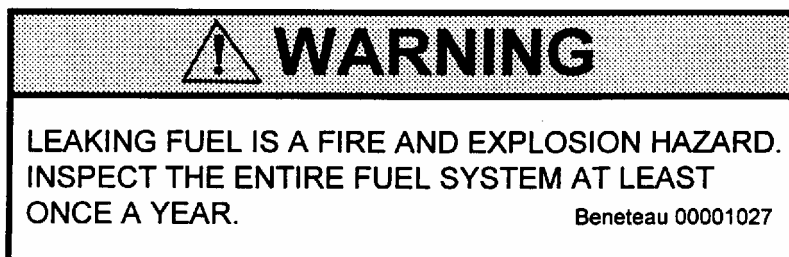
Do not venture out in weather or sea conditions beyond the skill or experience of the operator.

There are "Warning" and "Caution" statements affixed to your Beneteau. These are detailed below with location:

6.1. FUEL WARNING LABEL

- Affixed to the fuel tank.

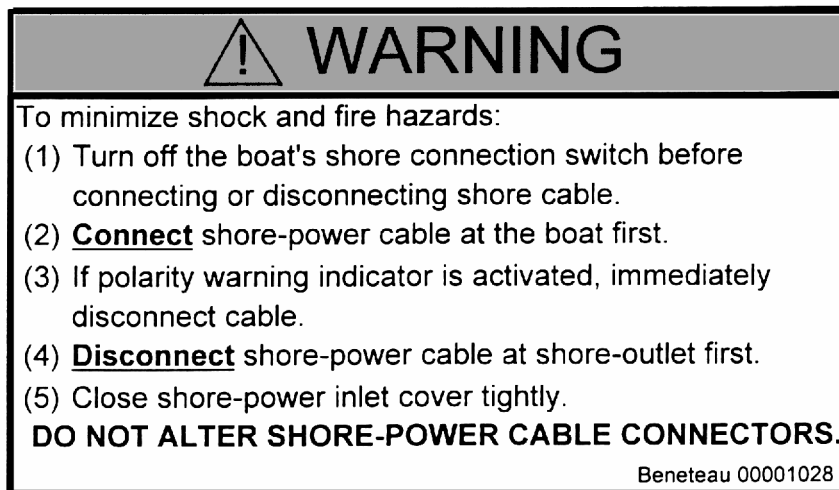
Beneteau Part #00001027



6.2. SHORE-POWER LABEL

- At the 110V distribution panel.

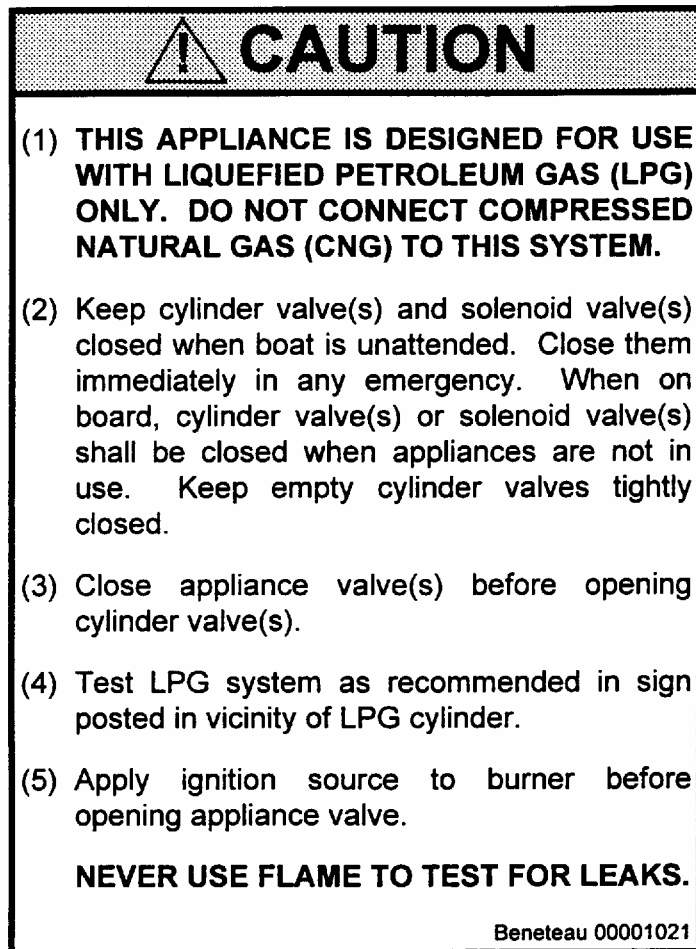
Beneteau Part #00001028



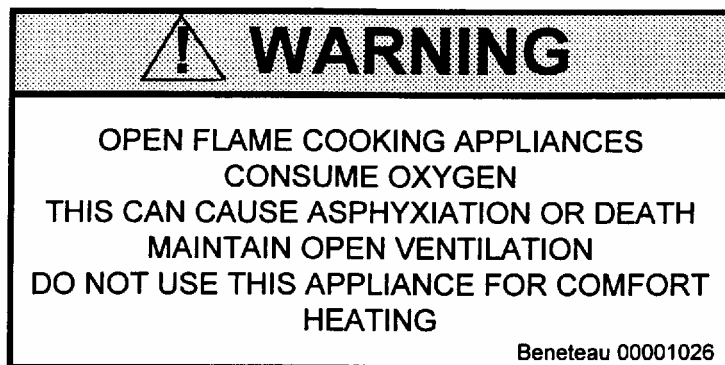
6.3. PROPANE LABELS

- At the propane stove affixed to the bulkhead in the galley

Beneteau Part #00001021

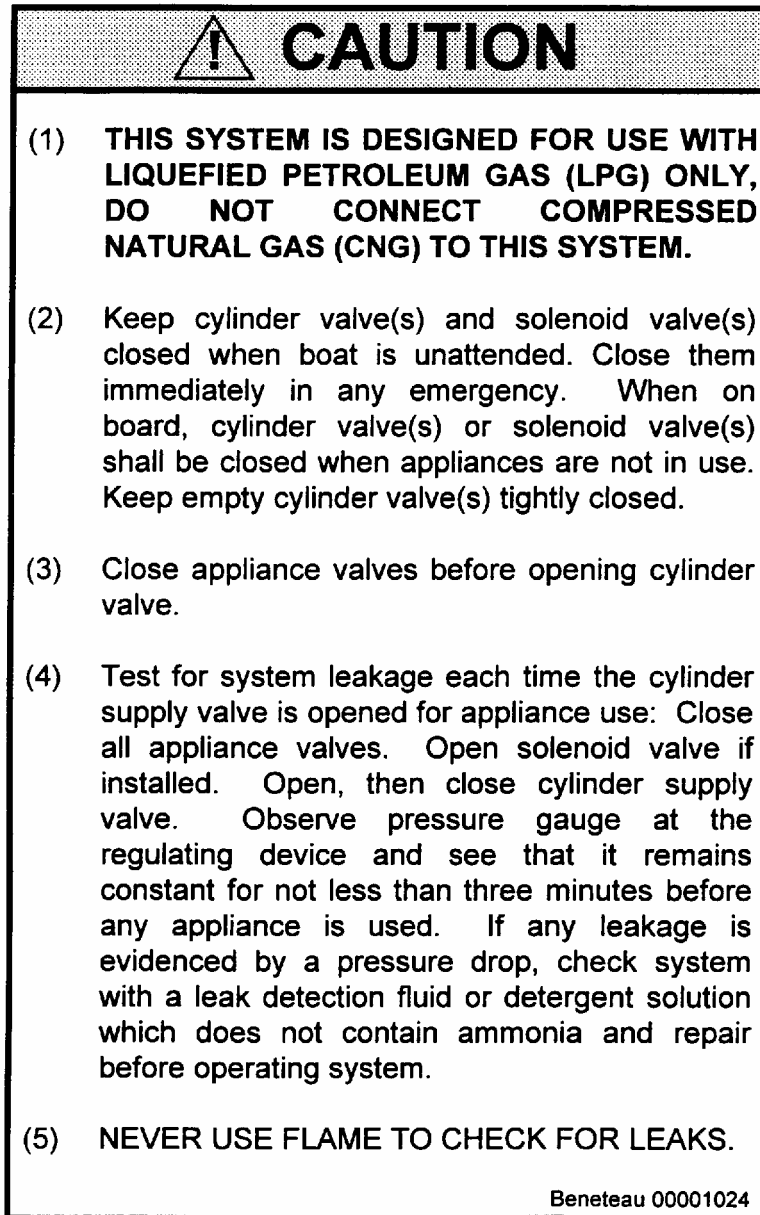


Beneteau Part #00001026



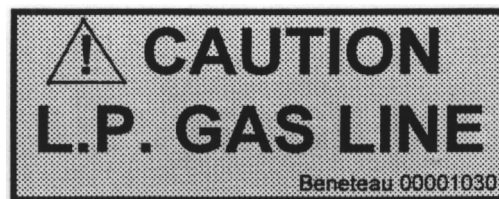
- In the propane locker affixed under the propane locker lid

Beneteau Part #00001024



- On or next to the LP Gas Line

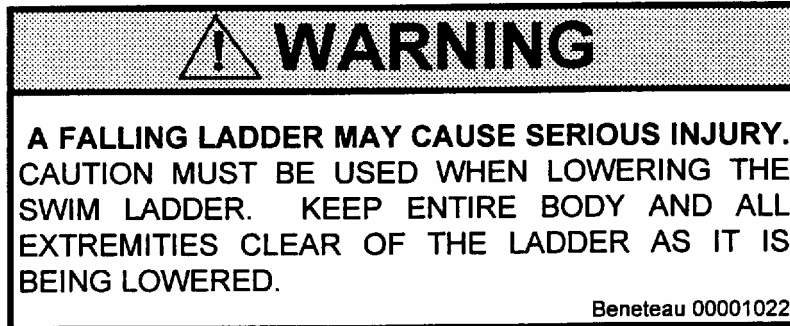
Beneteau Part #00001030



6.4. SWIM LADDER WARNING LABEL

- Located on the transom

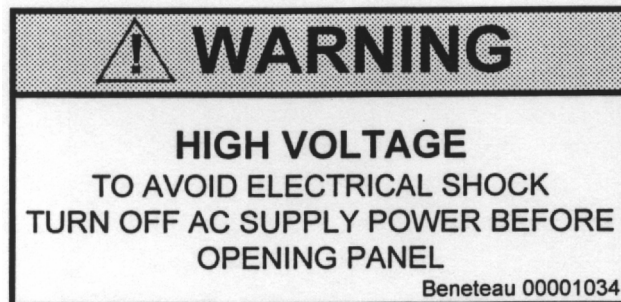
Beneteau Part # 00001022



6.5. HIGH VOLTAGE WARNING LABEL

- Located beside the 110v electric panel.

Beneteau Part #00001034



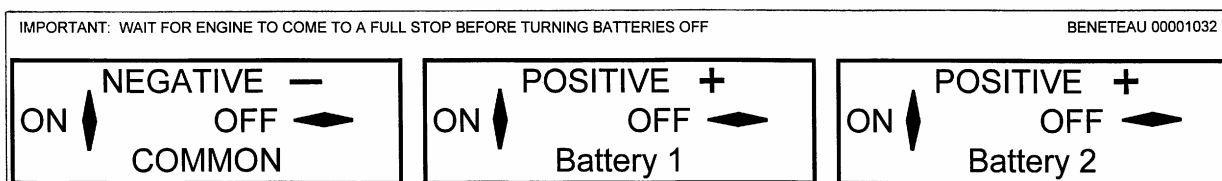
6.6. TRANSOM DOOR WARNING LABEL

- Located on or next to the helmsman's seat.
Beneteau Part #00001031



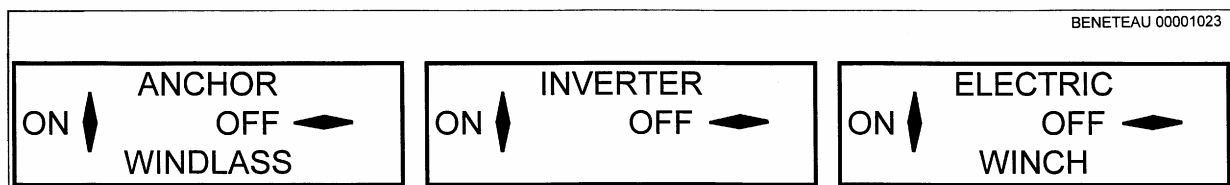
6.7. STANDARD BATTERY SWITCH LABEL

- Located at the standard battery switches.
Beneteau Part #00001032



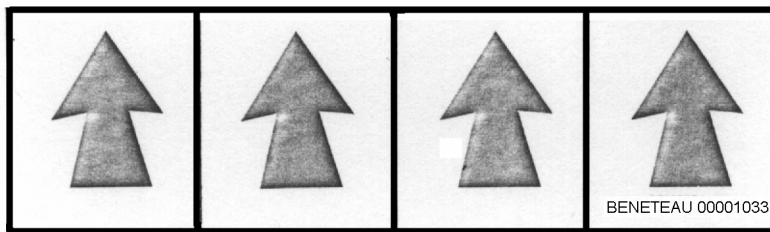
6.8. OPTIONAL BATTERY SWITCH LABEL

- Located at the optional battery switches
Beneteau Part #00001023



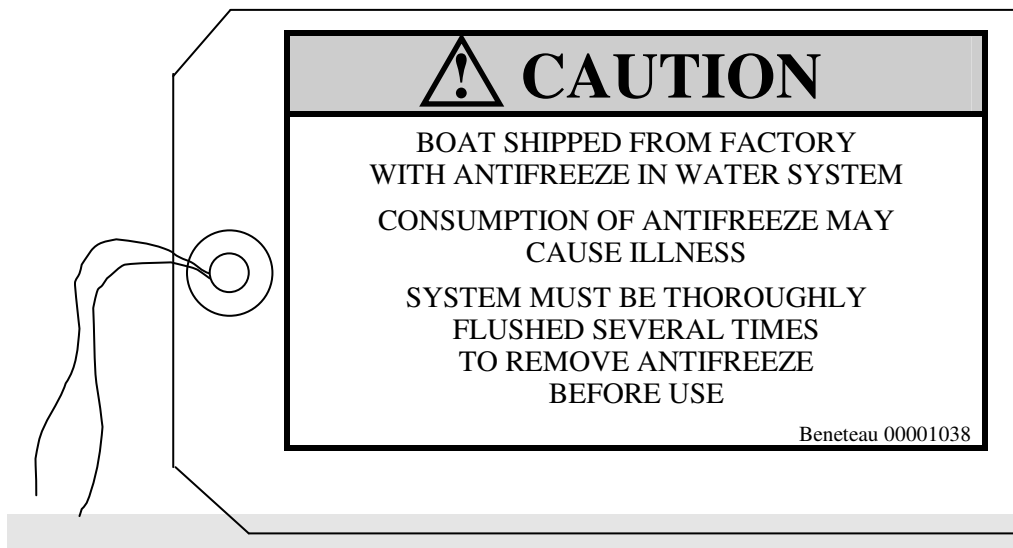
6.9. SLING LOCATION ARROWS LABEL

- Located at or near the hull to deck joint
Beneteau Part #00001033



6.10. ANTI FREEZE CAUTION TAG

- Tied to the breaker for the water
Beneteau Part #00001038



7.

FEDERAL/STATE REGULATIONS

7.1. DISCHARGE OF OIL

- Located: under the sail locker lid.

Beneteau Part #00001007

DISCHARGE OF OIL PROHIBITED

The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of \$5,000.

BENETEAU

0000 1007

7.2. SOLID WASTE DISPOSAL

- Located under the sail locker lid.

Beneteau Part #00001025

It is illegal for any vessel to dump plastic trash **anywhere** in the ocean or navigable waters of the United States. Annex V of the MARPOL TREATY is an International

Law for a cleaner, safer marine environment. Violation of these requirements may result in civil penalty up to \$25,000, fine and imprisonment.

3 Miles from Shore

U.S. Lakes, Rivers, Bays and Sounds
ILLEGAL TO DUMP
Plastic & Garbage, Paper, Rags, Glass, Food, Metal, Crockery, Dunnage



3-12 Miles from Shore

ILLEGAL TO DUMP
Plastic, Dunnage, lining & packing materials that float, also if not ground to less than one inch; Paper, Rags, Glass, Crockery, Metal, Food



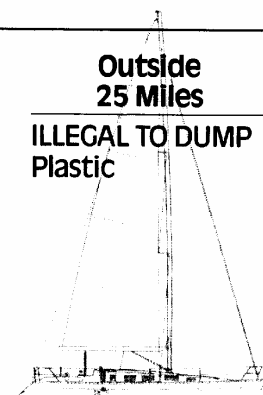
12-25 Miles from Shore

ILLEGAL TO DUMP
Plastic, Dunnage, lining & packing materials that float



Outside 25 Miles

ILLEGAL TO DUMP
Plastic



State and local regulations may further restrict the disposal of garbage.

BENETEAU
00001025

7.3. MARINE SANITATION

Your Beneteau is equipped with an USCG approved marine head and holding tank.

By law you must use a holding tank in all U.S. waters, Check with local authorities for regional laws governing your area before selecting the overboard discharge option.

8.**ACCIDENT REPORTING**

Knowledge of accident reporting requirements. Please refer to the following list for a copy of the U.S. Coast Guard Boating Accident form. For further information on where to obtain more forms, please call the U.S. Coast Guard Boating Safety Hotline at (800) 368-5647

NATIONAL VESSEL DOCUMENTATION CENTER
2039 STONEWALL JACKSON DR.
FALLING WATERS, WV 25419
TOLL FREE: 1-800-799-8362
PHONE: (304) 271-2400
FAX: (304) 271-2405
CREDIT CARD FAX: (304) 271-2415

9.

RENDERING ASSISTANCE

United States Code, Title 46:

"The owner or operator of a vessel is required by law to render assistance to any individual or vessel in distress, so long as his vessel is not endangered in the process."

10. COMMISSIONING

10.1. COMMISSIONING PROCEDURES

The first commissioning of a yacht is essentially the start of its life, and the importance of proper commissioning procedures at this time cannot be overstated. The commissioning procedure must be performed by Beneteau dealer personnel or those authorized by them. The owner also needs to concern himself with items such as safety equipment, which is considered to be his responsibility. See the Owner's Operator's Responsibilities section for details.

Complete lists of the pre-launch and post-launch checks employed during commissioning are provided in this section for those owners interested in understanding the decommissioning procedure, as well as for future use in any recommissionings that may be required after periods of wet or dry storage. The lists assume performance professionals and do not attempt to provide step-by-step instructions. Details of your yacht's systems are available in section 13 of this manual and other manufacturers' instructions that are provided with the yacht.

The factory installed equipment, and items of responsibility that require attention by owner during commissioning are included in the list with the items marked with an asterisk (*), the owner installed equipment that require attention during commissioning are marked with a double asterisk ().**

10.2. * PRE-LAUNCH CHECKS

10.2.1. Hull Inspection

- Check topsides, decks, and all interior spaces for cleanliness and proper finish. Make certain that all foreign matter has been removed from the bilge areas, and check the following specific items:
- All thru-hull valves lubricated and closed, all hose clamps on all thru-hulls, shaft seals, bilge pumps, etc are tight.
- Propeller nut, retaining washer, and zinc properly installed and tightened.
- Shaft zinc installed if applicable.
- Steering gear and rudder operational and all bolts tight.
- Cutlass bearing in place and secured.
- Anti-fouling bottom paint applied.

10.2.2. Machinery Inspection

- Make an overall inspection of the machinery spaces. Ensure that they are free of loose material that might interfere with machinery operation, and then check the following items:
- Engine oil, transmission fluid, and coolant levels satisfactory.
- All electrical switches OFF.
- Batteries fully charged, tied down, connected; electrolyte at proper level.
- Installation of all equipment completed.
- All fuel and propane valves CLOSED.
- Adequate amount of fuel in tank.
- Check to be sure that the shaft coupler is attached to the transmission.
- Check filters: Bilge, shower-sump, fresh water, and engine raw water.

10.2.3. Before Stepping Mast

WARNING! MOVE YOUR BOAT TO A POSITION THAT IS CLEAR OF OVERHEAD WIRES OR OBSTRUCTIONS. ELECTROCUTION MAY RESULT FROM CONTACT WITH ANY OVERHEAD WIRES!!

- * Check the following items:
- Shrouds, stays, spreaders, installed and properly secured to mast.
- Check standing rigging for kinks or defects.
- Masthead lights, spreader lights, and mast-mounted instrument units operational.
- VHF antenna installed. (If applicable)
- All chafe points on mast properly taped.
- If the mast is keel stepped: check that the mast has been choked correctly and that the mast boot has been installed and sealed.

10.2.4. Equipment On Board

Check the following items:

- * Winch handles, emergency tiller, and bilge pump handles.
- ** Anchor and ground tackle.
- ** Dock lines and fenders.
- ** Safety equipment:
 1. Life preservers
 2. Throwable horseshoe or ring buoy
 3. Horn
 4. Emergency signals such as flares

5. Fire extinguishers

- ** Medical kit
- ** Spare parts and tool kit

10.3. * POST-LAUNCH CHECKS

10.3.1. Hull Inspection

- Make an overall inspection of the hull interior. Check bilge areas for evidence of major leaks near thru-hulls, and then make the following specific checks:
- Open all thru-hull seacocks. Check each valve and associated hoses, couplings, etc.
- Bleed the propshaft seal: The seal is water-cooled and must be vented. This is done by compressing the lip seal while pressing toward the propeller shaft. When water leaks out the seal has been air vented
- After the boat is rigged check and align the prop shaft.

10.3.2. Electrical Inspection

Make the following checks:

1. Check the 12-volt supply at the electrical panel with the battery switch in the #1, #2, and ALL positions.
2. Make an operational check of all DC circuits connected to the electrical panel.
3. Connect the shore power cable (follow shore power operation instructions in section 13), check the polarity indicator, close the main breaker, and make an operational check of the following items if installed:
 - Battery Charger
 - 110 volt outlets
 - Be sure the heater has fresh water in the tank and check the hot water heater
 - Inverter (if installed)
 - Other AC equipment

10.3.3. Machinery Inspection

The engine manufacturers authorized dealership or a marine diesel mechanic should complete the initial engine startup and check.

**THE ENGINE MUST BE ALIGNED WITH THE FACE OF THE
SHAFT COUPLING TO PREVENT EXCESSIVE WEAR AND
VIBRATION OF THE DRIVE TRAIN**

The alignment must be checked again after the boat has been rigged and tuned. A marine mechanic should complete engine alignment. The basic procedure is to:

1. Loosen the transmission to shaft coupling bolts enough to slide a feeler gauge between the coupling plates.
2. Measure the gap all around the coupling to ensure the gap is constant.
3. If the gap varies, raise or lower the corners of the engine at the engine mounts until a constant gap is achieved.
4. Re tighten the coupling bolts
 - Secure the yacht to a pier or dock with bow, stern, and spring lines and operate the engine at low speeds in neutral, forward, and reverse. Check:
 - Throttle and shift controls
 - Engine operation
 - Alternator output
 - Water temperature (See engine owner's manual for operating temperature range).
 - Oil pressure (See engine manual).
 - Check the fuel system for leakage.
 - Re-check the propshaft seal for proper adjustment. Adjust if necessary. (See propshaft seal manufactures instructions)
 - Install and check the operation of the emergency tiller.

10.3.4. Rigging and Sails

Check the following after mast is in place:

1. All standing rigging complete and in place, dockside tuning completed. (See section 13).
2. Mast boot installation completed.
3. All cotter pins in place and taped.
4. Running rigging in place.
5. Sails hoisted to check fit.

10.3.5. Fresh Water System

Check the following:

1. Water tanks full, no leaks at tank, fittings or vent hoses.
2. Pressure water system operational.
3. All faucets operational
4. Sinks and drains operational.
5. Hot water system operational.
6. All showers operational.

10.3.6. Head System

Check the following:

1. Head, holding tank, or other Marine Sanitation Devices operational.
2. Head intake and discharge hoses for leaks, Y-valve and discharge plumbing.

10.3.7. Galley

Check the following:

1. Check all propane pipes & hose fittings for leaks before lighting the stove.

DO NOT TEST FOR LEAKS WITH AN OPEN FLAME, WIPE EACH JOINT WITH A SOAPY SOLUTION AND LOOK FOR BUBBLES

2. Galley stove operational.
3. Galley sink drains correctly.
4. Ice box drains correctly.
5. Check all water hoses, valves, connectors and thru-hulls for leaks.

10.3.8. Bilge

Check the electric and manual bilge pump for operation.

Check the electric bilge pump filter frequently for debris, the filter will fill rapidly during the initial period of sailing your new boat.

Check the shower sump pumps and filters.

11.

MAINTENANCE OF YOUR BOAT

Your boat represents a sizable capital investment that needs special and regular care. Safeguarding your investment and looking after your own safety should persuade you of the importance of careful and regular upkeep of your boat. The maintenance suggestions in the following sections will help you with the basics. Always refer to the original manufacturer's manual for specific guidelines on individual components.

NOTE: It is important to clean the bottom of your boat at least two or three times a year.

General Hull Maintenance

- **DO NOT SAND THE HULL WITH COARSE SANDPAPER.**
- **DO NOT USE SOLVENTS TO CLEAN HULL.**
- **DO NOT WASH WITH PRESSURE MACHINE USING WATER WARMER THAN 70 DEGREES F. (21 degrees C.).**
- **DO NOT USE PRESSURE EXCESS OF 2175 LBS/SQ. FT. (150 BAR.) WHEN USING A HIGH PRESSURE SPRAY WASH.**
- **DO NOT HOLD NOZZLE CLOSER THAN 4 INCHES (10 CM) TO SURFACE OF HULL.**
- **DO NOT MACHINE SAND.**

We believe the above points to be pertinent for all FRP boats.

11.1. GEL COAT

The gel-coat is vulnerable to any dents and scratches it may get during maneuvering in harbor and on a mooring. The best way to avoid them is to undertake maneuvering calmly, after thinking out all the relevant factors (such as speed, current, wind, and the layout of the harbor). Always have one of the crew ready to put out a fender at the right place. When bringing in the anchor chain, back off or swing the boat round so as not to rub the chain against the hull. Hold the anchor well clear as you bring it aboard so that it does not scrape the stem: lay it on deck and lash it down at once, if only temporarily.

Never use dirty fenders.

Hose off the hull and deck as often as possible, with fresh water.

Before hosing down, remember to check that the hatch covers are not in the ventilating position; and it is wise not to take on diesel oil or fresh water supplies while you are hosing off the hull.

After a few years, the gel coat may be repolished, either with a lambs wool buffer and polish, or by hand using a polish or similar product. Your yard will also be able to supply you with special cleaning products for getting rid of stubborn stains.

11.2. MINOR GEL COAT REPAIRS

To fill in a scratch or small dent, order a **Beneteau Gel coat Repair Kit** with instructions for use, from your dealer or obtain a small quantity of gel coat and catalyst.

Clean the affected area and rub it down with wet-and-dry sandpaper, then dry it off thoroughly (use a hair-dryer if necessary). Mix the components of the gel coat, and fill the scratch using a spatula avoiding any excess; cover with a sheet of cellophane. Once hardened remove cellophane and rub down with very fine wet/dry sandpaper (grade 600 or 800), and finish off by polishing the new surface.

11.3. THE DECK AND DECK FITTINGS

Using a gentle liquid detergent, scrub all nonskid areas to keep them free of dirt.

Light-alloy sections (tracks, etc.) can be cleaned in the same manner.

The tiny spots of oxidation pitting that may appear on stainless steel parts are nothing to worry about. Polishing will remove them.

From time to time, lubricate pulley blocks and sheaves, turnbuckles, tracks and travelers with light grease or a water-repellent lubricant such as WD 40 or Triflow.

After a certain time at sea, your winches will need cleaning inside. They must be cleaned out completely once a year. Follow the manufacturer's instructions carefully.

When dismantling deck fittings, have a bowl close at hand for putting the parts in, and circle the area with a rolled dishcloth, or the like, so that any screws or springs you drop do not roll overboard. Use the lubricant recommended by the manufacturer before reassembling.

Warning! Incorrect reassembly can cause accidents. Note the order in which parts are dismantled, which will make it easier to put them together again later.

Acrylic plastic hatch covers and portholes should be rinsed off with fresh water and rubbed over with a soft cloth soaked in liquid paraffin.

11.4. THE RUDDER

Once a year, check steering gear. If necessary renew any parts (bushings, glands, etc.) that are worn. Lubricate the steering chain and cable and or gears.

Never lubricate nylon, ertalon or teflon bushings, with either oil or grease, use only WD 40.

If you have wheel steering, maintenance should be in accordance with the manufacturer's recommendations.

Make regular checks on all the clamps, the condition of the quadrant, the cables or push rods, guide sheaves and the chain in the column to the wheel.

Make regular checks of the steering end stops to ensure they are adequately stopping the rotation of the rudder, this is important for direct drive push rod systems. Over rotation of the rudder could cause a steering lock up.

11.5. INTERIOR WOOD

The internal woodwork used in most of our boats yacht's is varnished. This should be regularly rinsed off with fresh water and a little liquid detergent, then polished with a chamois leather.

Should the woodwork become damaged, gently rub it down with very fine sandpaper and touch it with several coats of the varnish. Your dealer will be able to order Beneteau varnish. When this is dry, rub it down with a very fine wet-and-dry sandpaper (grade 800 or 1000) and finish off with polish (or a silicone spray) or wax.

11.6. ELECTRICAL SYSTEMS

It is essential for an electrical system to have a battery in sound condition to function properly. The following are some of the things to maintain a battery in the best condition.

- Keep the battery clean and the terminal posts well greased.
- Keep the battery electrolyte checked regularly
- Keep the battery fully charged.

If you have to leave your boat unused for more than a month it is best to leave your batteries with your yard so that they can be kept charged. Keep a suitable charger onboard so you can recharge your batteries at dockside without having to turn on the engine.

If you have an inboard engine, check the condition and tension of the alternator drive belt. From time to time, spray a little WD 40 or something similar on all the connections to the control panel, terminal boxes and lamp sockets. Make sure that cable grommets are watertight; smear them with Vaseline so that they do not dry out and deteriorate.

11.6.1. Battery Maintenance

Make sure that the level of the electrolyte is always at least 1/2" above the top of the plates. This level can change suddenly, due to evaporation in an overheated bilge.

WARNING! THE ELECTROLYTE IN A BATTERY IS A SOLUTION OF SULFURIC ACID. IF ANY SHOULD ENTER THE EYES, RINSE IMMEDIATELY WITH LARGE AMOUNTS OF FRESH WATER, AND SEEK MEDICAL ATTENTION. ELECTROLYTE SPILLED ON SKIN SHOULD BE RINSED WELL WITH FRESH WATER. EVEN SMALL AMOUNTS OF ELECTROLYTE SPILLED ON CLOTHING WILL DESTROY THE CLOTHING.

If the level is low, fill the battery with distilled water and nothing else. The level of acidity (i.e. the relative density of the electrolyte) should also be checked from time to time.

CAUTION! USE ONLY PURE DISTILLED WATER TO REPLENISH ELECTROLYTE LEVELS. THE WATER FROM MANY CITY

WATER SUPPLY SYSTEMS IS UNSATISFACTORY FOR BATTERY USE.

Keep battery connections clean and tight. A cup full of strong baking soda solution and a toothbrush will clean corrosion from the terminals and neutralize any spilled acid (do not allow any of the solution to enter the battery cells). A coating of petroleum jelly or silicone grease on the battery terminals will inhibit corrosion.

11.7. WATER SYSTEM

Check all joints regularly for leaks. Keep the tank(s) filled. If, however, you have to leave the boat unattended for several months, disconnect the water lines, purge them, and rinse them thoroughly with vinegar and water so that they do not form foul-smelling deposits.

Important: If the electric pump continues running when all the taps are closed, switch off the power supply at once and check the water system to find and overcome the leak that is causing this.

Check the thru-hulls, seacocks, connectors and hose clamps regularly. Make sure the seacocks turn freely.

11.8. MARINE HEAD

Maintenance consists of regularly pumping the system out with fresh water and leaving the holding tank empty whenever possible.

Check the thru-hulls, seacocks, connectors and hose clamps regularly. Make sure the seacocks turn freely.

11.9. ENGINE

Whether maintenance of the power system is to be performed by the owner or delegated to a mechanic, it is the owner who must first initiate any action that is to take place. He must either perform the maintenance or decide to call someone to do the job. A working knowledge of the power system is essential in the first case, and preventive maintenance desirable in the second. The engine manual is, of course, the prime source for engine information and should be consulted, preferably before the fact. The following paragraphs are included as a supplement to cover any required maintenance procedures that are not a part of the engine manual.

We have already stressed the points that are of importance for an engine to keep working properly. It might be added that the engine compartment should be kept scrupulously clean; check for any unusual oil or fuel leaks. Inspect all the electrical connections frequently.

Drain the bowl of the fuel/water separator at regular intervals to lessen the chance of water damage to your engine's fuel system. Keep fuel tanks filled.

Inspect the engine mounts and coupling for loose bolts regularly.

Check the alternator belt for the correct tension, keep a spare belt on hand.

Check all hoses and fuel lines for leaks regularly.

NOTE: Always have a spare set of sacrificial anodes on board, and regularly check those that are already fitted for deterioration; they should be replaced when their size has been reduced by half. The time this takes will vary with the waters in which the boat is used. Water temperature, salinity, the presence of neighboring boats, the nature of the bottom and the materials in the dock will all affect the life of your boat's anodes.

Order your spare anodes thru your dealer or from Beneteau Customer Service.

CALIFORNIA Proposition 65 Warning Diesel engine exhaust and some of its constituents are cancer, birth known to the State of California to cause defects, and other reproductive harm.
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11.10. SAILS

Check the sails regularly, as the slightest wear in the stitching or at a reinforced part can very quickly have dramatic consequences. Keep a small sail repair kit on board and a book showing how to carry out minor work yourself until you can get the job done by a professional sail maker.

Keep a special eye on points where the sails can chafe on the rigging or fittings - turnbuckles, lifelines, shrouds, spreaders, etc.

Salt water and sunshine take their toll on sails. Whenever possible, rinse the sails in fresh water and leave them stretched out (preferably on a lawn) to dry. Never dry a sail by hoisting it and letting it flog in the wind; this will very quickly cause the sail to deteriorate. Never fold and store a sail damp.

12.

WINTERIZING PROCEDURES

The end of the season is a good time for a complete inspection of all of the boat's systems. It is easy to take shortcuts when decommissioning your boat but proper lay-up procedures will ensure trouble free recommissioning in the spring.

The following sections are oriented towards hauling your boat for winter storage in a cold climate, but they are also a good guideline as a lay-up procedure for your Beneteau in any climate.

An improperly winterized boat will lead to costly repairs and extensive delays, we recommend winterization by a competent yard or your Beneteau Dealer. The owner must ensure that the boat is correctly winterized.

12.1.

HAULING

Your Beneteau should be hauled for inspection and maintenance at least once a year; the frequency of haul-outs may vary due to your local conditions and marine growth. A good boatyard is seasoned in hauling and maneuvering boats on land, you may verify this by checking to see that the weight of the hull is resting firmly on the bottom of the keel and that even contact exists along the bottom of keel. Jack stands, or cradle uprights, are meant to balance the boat and not to support its weight.

12.2.

BOTTOM

Clean the yacht's bottom of any growth as soon as the boat is hauled. It is generally preferred to wait until spring to paint the bottom. Use the following guidelines when using a pressure washer:

MAXIMUM WATER TEMPERATURE TO BE 70° F. (21° C.)

MAXIMUM PRESSURE TO BE 2175 LBS./SQ. FT (150) BARS AT NO CLOSER THAN 4"

12.3.

CUTLASS BEARING

The shaft strut contains a rubber type cutlass bearing. At haul out, be sure the bearing slots are clear and apply silicone lubricant or castor oil to the bearing to preserve its suppleness. Replace the cutlass bearing if excessive wear is evident. Be sure to realign the engine if the bearing is replaced. Bleed the propshaft seal after relaunching

12.4.

ZINC

Replace the sacrificial zinc before relaunching the boat.

12.5. FRESHWATER SYSTEM

This system is best winterized with one of the non-toxic antifreezes available for use in boat and recreational freshwater systems. It is an easy method, which replaces fresh water with a non-toxic antifreeze mixture.

Caution! Be sure to use correct non-toxic antifreeze.

1. Allow the hot heater water to cool, and open the pressure release valve on top. Disconnect the hot and cold water hoses and allow the tank to drain either in a bucket or into the bilge. Connect and clamp the hot and cold water hoses together using a short length of 1/2" pipe in order to bypass the heater.
2. Mix the appropriate amounts of antifreeze and water, as directed on the label, to deliver the degree of protection desired. Put 1-1/2 to 2 gallons of the solution into each water tank.
3. Open both tank selector valves on the manifold.
4. Turn on the pump and open all fixtures until antifreeze runs through. Be sure to open the hot water selector valve in order to supply antifreeze to the hot water hoses and through the bypass loop.
5. At this point, the freshwater system should be completely protected by antifreeze against freezing to a degree indicated by the strength of the solution placed into the supply tanks.
6. New boats delivered have their freshwater systems filled with antifreeze as described above, and are protected to -30 degrees F.

12.6. HEAD

Several days before completing haul-out procedures, fresh water should be allowed to stand in the head unit to dissolve any salt accumulation in the hoses and pump. Remove all water from the head. Special lubricants for the pump's internal mechanism are available. Check with your marine hardware dealer for a recommended brand. Never put oil, gas, kerosene, or alcohol in the head or they will ruin the internal valve.

Completely pump out all waste from the holding tank and pour in a cleansing, deodorizing solution. If possible, allow this to sit in the tank overnight, then completely pump out and drain the entire system. If antifreeze is used in the system, check in the manufacturer's literature for the recommended type.

12.7. ENGINE

Winterization by a marine mechanic is highly recommended to ensure that your engine is properly protected.

Consult the Engine Owner's Manual for your specific engine's guidelines for winterizing. Follow the instructions carefully to ensure the engine is adequately protected.

The general procedure is to replace raw seawater with an antifreeze solution mixed to protect the engine in your local area and to check the heat exchanger side to ensure that it contains an adequate antifreeze solution as well.

1. Prior to hauling the boat, run the engine to achieve normal operating temperatures in order to open the thermostat.
2. Close the raw water intake thru hull and remove the hose from the valve hose barb.
3. Insert the intake hose in a bucket of antifreeze solution and run the engine briefly until all raw water is flushed thru the exhaust system and only the antifreeze solution is expelled from the exhaust.
4. Be sure the thru hull valve is opened after the boat is hauled.

12.8. FUEL SYSTEM

Consult your engine manual to clean any engine mounted fuel filters.

Drain any water from the bottom of the fuel/water separator.

The fuel tank should be kept full for winter storage with about 5% expansion room left at the top. Empty fuel tanks encourage the formation of condensation.

12.9. BATTERIES

Clean battery terminals and cable ends thoroughly of any corrosion with a baking soda and water solution, and apply a light protective layer of petroleum jelly.

Batteries should be fully charged before storage, and the fluid level maintained. Store batteries in a warm, dry place. Do not store batteries directly on a stone or cement floor.

12.10. SEACOCKS

Open and drain all seacocks after boat is hauled. Open all seacocks for winter storage.

12.11. BILGE

Completely pump out bilge of any water and clean out any debris present. Bilge pumps should be pumped dry and hoses disconnected, to ensure that no water is left in the system.

12.12. ICEBOX

Remove any remaining food from the icebox and wash down thoroughly with warm water and detergent solution.

Odors can be removed with a baking soda and water solution, and an open box of baking soda left in the icebox will continue to remove odors throughout storage.

Completely pump out any water from the bottom of the icebox and make sure pump is completely dry of any water.

Leave icebox lid open during storage to allow ventilation.

12.13. STOVE

Depressurize the gas system and close all valves. Clean stove thoroughly. Remove fuel tanks and clean to remove any salt accumulation from their surface. Wipe down stove and tanks with a rag while applying a light layer of WD-40 or other lightweight, protective oil.

12.14. INTERIOR

Remove as much loose gear from the boat as possible and store in a clean dry place.

If cushions are left on board be sure they are dry and propped on edge to encourage ventilation.

Rinse and dry all floorboards and store them on their edge to encourage ventilation.

Leave all lockers clean and open for ventilation.

12.15. COVERING THE BOAT

Cover the boat adequately during storage to prevent excessive weathering.

BE SURE THE COVER DOES NOT CHAFE BOAT.

Ventilation between the winter cover and the boat is required to avoid build up of humidity.

CAUTION! DO NOT USE BLACK POLYETHYLENE AND DO NOT SHRINK-WRAP THE BOAT BY TAPING TO THE HULL. ALWAYS ASSURE GOOD VENTILATION.

12.16. SAILS

Remove the sails, clean following the sail makers recommendations and store in a clean dry space.

12.17. MAST

The aluminum mast requires a minimum of care and maintenance. At the end of each season it should be washed with a mild detergent and water solution, followed by a complete rinsing with fresh water. Tie off all halyards and lifts, and inspect the mast completely for scratches, cracks or stress marks. Apply paint or a clear lacquer to any scratches found to prevent corrosion. Consult your dealer or a marine rigger if any cracking or stressing of the aluminum tube is found.

Check all hardware on mast carefully for signs of corrosion, and check the tightness of the fastenings. Masthead sheaves should show no signs of wear and should move freely. Lubricate if necessary.

12. SUPPLIER INFORMATION LIST

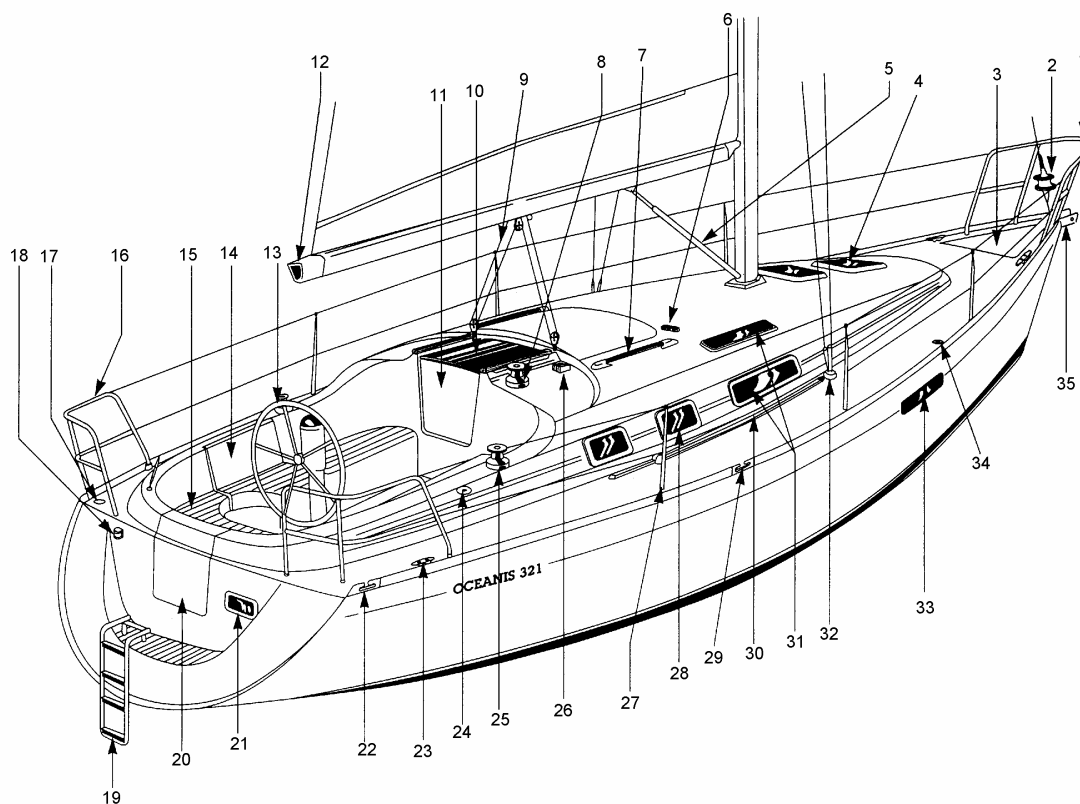
The following page lists our key suppliers in the United States. If you need information from a supplier not listed you may contact Beneteau's Customer Service Department in Marion, South Carolina at 1-843-423-6459.

Company Name	Contact Name	Product Name	Address	City	State	Postal Code	Phone Number	Fax Number	E-Mail Address
Adler/Barbour		Refrigeration	PO Box 925	Clinton	CT	06413-	(860) 664-4906	(860) 664-4907	www.kenyonmarine
Aqua Signal		Lights	1680 E. Fabyan Parkway	Batavia	IL	60540-	(603) 232-6425	(603) 232-9481	
Atwood		Water Heaters	4750 Hiawatha Dr	Rockford	IL	61103-1298	(815) 877-5700	(815) 877-7469	
Bass Products		Electrical Panels	50 Grove Street	Salem	MA	01970-	(508) 744-7003	(508) 744-4844	
Chesapeake Canvas	Donna	Cushions	922 Klaking Road	Annapolis	MD	21403-	(410) 263-8300	(410) 267-0174	
Doyle Sails	Andy Watts	Sails	Six Crossroads	St. Philips, Barbados	WI		(246) 423-4600	(246) 423-4499	doyle@caribnet.net
Exide Batteries	Detrich Epps	Exide/Fulman Batteries	201 Corporation Park Blvd	Columbia	SC	29233-	(803) 786-7050	(803) 735-3170	www.exideworld.com
Facnor SA	see JSI	Facnor Furling Units	Parc d Activites, B.P. 222	50550 SAINT-VAAST-LA-HOUGUE	FRANCE		011-33-2-33-88-50-22	011-33-2-33-88-50-22	
Force 10		Stoves	23080 Hamilton Road	Richmond,	VA		(800) 663-8515	(604) 522-9608	www.force10.com
Harken		Harken Blocks	1251 East Wisconsin Ave.	Pewaukee	WI	53072-	(414) 691-3320	(414) 691-3008	www.paw.com/sail/harken
Isomat/Sparcraft	Jim Kulibert	Isomast Spars	1031 Amble Drive	Charlotte	NC	28206-	(704) 596-9449	(704) 597-7503	Sparcraft.com
ITT Jabasco		Toilets, Pumps	1485 Dale Way	Costa Mesa	CA	92626-	(714) 545-8251	(714) 957-0609	www.jabasco.com
JSI		Cushions	3000 Gandy Blvd.	St. Petersburg	FL	33702-	(813) 577-3220	(813) 576-1306	www.jsisail.com
Lewmar - CA	Bob Davison	Lewmar Hardware	2439 West Coast Highway #201A	Newport Beach	CA	92663-	(714) 650-3366	(714) 650-7877	
Lewmar - FL	Neil Harvey	Lewmar Hardware	9203- 130 Ave North	Largo	FL	33773-	(813) 588-2580	(813) 581-6300	
Marine Development		Battery Charger, Air Condition	P.O. Box 15299	Richmond	VA	23227-	(804) 746-1313	(804) 746-7248	
Morse Control		Shifter Cables	21 Clinton St.	Hudson	OH	44236-	(216) 653-7702	(216) 563-7799	
Neil Pryde Sails	Tim Yourieff	Sails	50 Broad Street	Millford	CT	06460-	(203) 874-6984	(203) 877-7014	www.paw.com/sail/neilpryde
Perkins Hot Line		Perkins Engines					(888) 737-5364		
Perko		Lights	P.O. Box 6400 D	Miami	FL	33164-	(305) 621-7525	(305) 620-9978	
Profurl	Mark Reuther	Profurl	401 N.E. 8th Street	Ft Lauderdale	FL	33304-	(800) 272-9511	(305) 763-8790	104200.666@Compuserve.Com
PYI		Whitlock Steering, Max Prop, PSS Shaft Seal	PO Box 536	Edmonds	WA	98020-	(206) 670-8915	(206) 670-8918	75032.1023@Compuserve.Com
Racor		Fuel Filter	P.O. Box 3208	Modesto	CA	95353-	(209) 521-7860	(209) 521-3278	
Raytheon Marine	Talbot Pratt	Autohelm	46 River Road	Hudson	NH	03051-	(603) 881-5200	(603) 881-4756	www.raymarine.com
Scandvik		Sinks	980 36th Ct, SW	vero Beach	FL	32961-	(800) 535-6009	(407) 567-9113	
Seaward Products*		Hot Water Heaters	P.O. Box 566	La Puente	CA	91745-	(301) 699-7997		
Seco South	John Edwards	Running Rigging, Standing Rigging, Lifelines	2050 34th Way	Largo	FL	33771-	(813) 536-1924	(813) 539-6314	
Shurflow		Pumps	12650 Westminster Ave.	Santa Ana	CA	92706-2100	(800) 854-3218	(714) 554-4721	www.shurflow.com
Simpson Lawrence		Frigoboat Refrigeration, Plastimo, Windlasses	6208-28th street East	Bradenton	FL	34203-4123	(800) 946-3521	(813) 746-7166	slusa.com
Southcoast Marine		Stainless Steel Rails & Fitting	12550 47th Way North	Clearwater	FL	34622-	(813) 573-4821		
Spectrum Color		Custom Match Gel Coat	1410 37th Street N.W. Suite F	Auburn	WA	98001-	(206) 735-1830	(206) 735-3745	www.spectrumcolor.com
Todd Enterprises		Water and Fuel Tanks	530 Wellington Ave.	Cranston	RI	02910-	(401) 467-2750	(401) 467-2650	
Tops-N-Quality*		Stainless Steel Rails	P.O. Box 148	Marysville	MD	48040-	(313) 364-7150	(313) 364-7925	
Trace Engineering		Trace Inverters	5916 195th NE	Arlington	WA	98223-	(360) 435-8826	(305) 435-2229	www.traceengineering.com
Vetus	Leo VanHemert	Water Muffler, Anti-Siphon Valve	PO Box 8712	Baltimore	MD	21240-	(410) 712-0740	(410) 712-0985	Vetus@AOL.COM
Volvo		Volvo Engines (Dealer Locator Number)					(800) 522-1959		
Welborn Marine	Max Hazelwood	Goiot Parts	1170 N.E. Cleveland Street	Clearwater	FL	34615-4836	(813) 445-9647	(813) 446-8800	MAXONE@AOL.COM
Yanmar		Yanmar Engine	2365 Route 22	Union	NJ	07083-	(908) 964-0700	(908) 964-5032	engcity@eclipse.net

13. OCEANIS 321 SYSTEMS

13.1. DECK HARDWARE

- | | | |
|-------------------------------------|-------------------------------|---------------------------|
| 1. Bow Pulpit With Navigation Light | 13. Steering Wheel | 25. Genoa Sheet Winch |
| 2. Genoa Furling Drum | 14. Sail Locker Hatch | 26. Double Stoppers |
| 3. Anchor Locker | 15. Gas Locker Hatch | 27. Stanchion |
| 4. Opening Hatch | 16. Stern Rail | 28. Opening Porthole |
| 5. Solid Vang | 17. Deck Fill Fuel | 29. Spring Line Fairlead |
| 6. Deck Organizer | 18. Stern Light | 30. Genoa Track |
| 7. Roof Handrail | 19. Swim Ladder | 31. Deck Porthole |
| 8. Maneuvering Winch | 20. Removable Helm Seat | 32. Shroud Chainplate |
| 9. Mainsheet Adjuster | 21. Swim Platform Porthole | 33. Hull Porthole |
| 10. Sliding Hatch | 22. Roller Fairlead | 34. Deck Fill Fresh Water |
| 11. Wood Entrance Door With Vent | 23. Mooring Cleat | 35. Stemhead Fitting |
| 12. Boom | 24. Genoa Sheet Turning Block | |



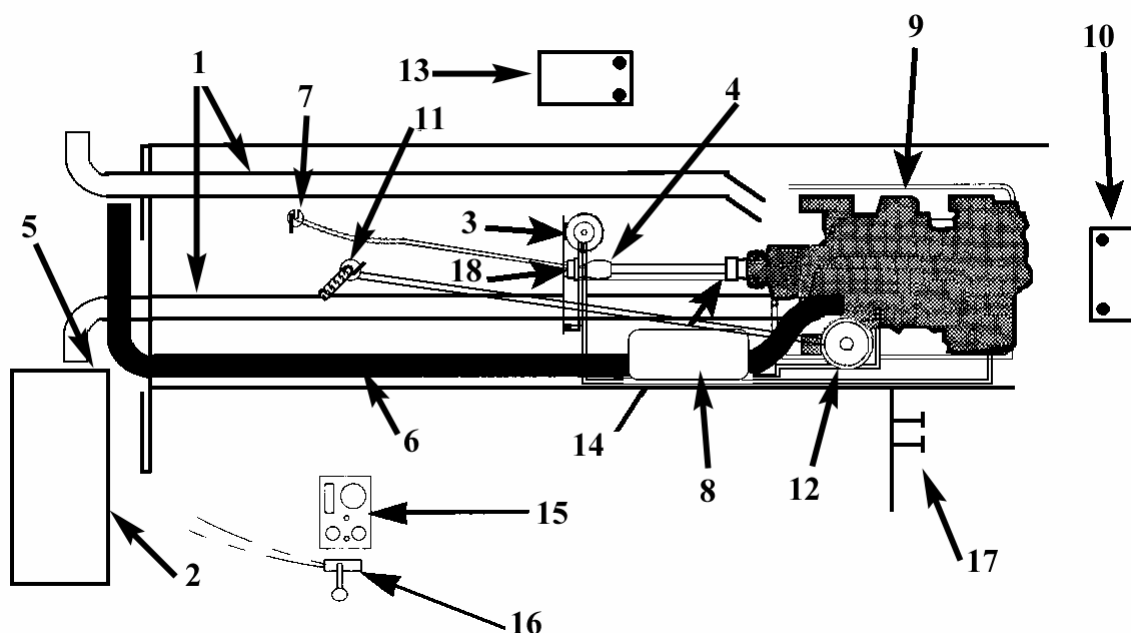
13.2. DIESEL ENGINE

13.2.1. General Description

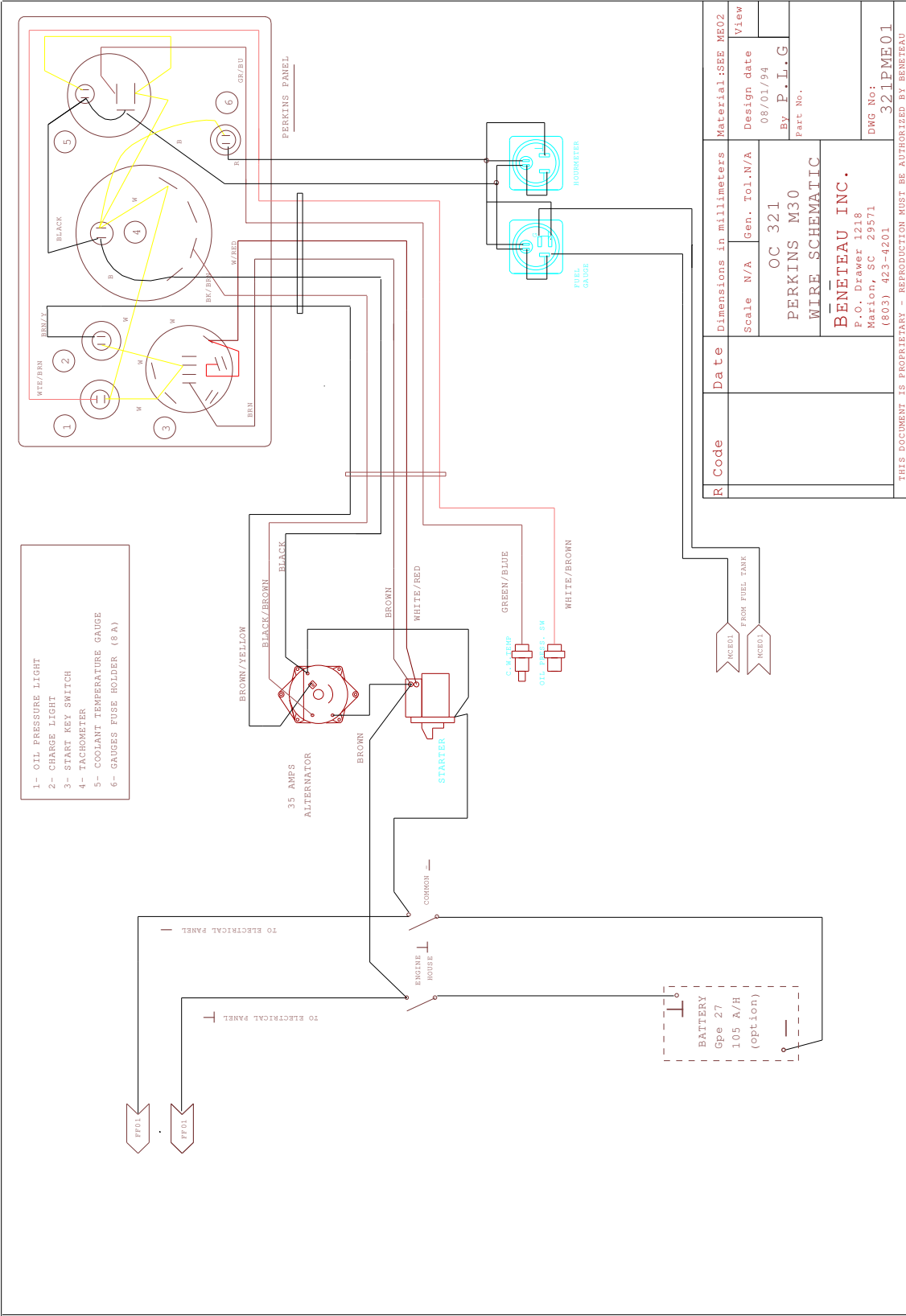
The power system installed on your Beneteau is a diesel engine. Detailed descriptions of the features of this engine, along with complete operating and maintenance procedures, are provided in the engine manual supplied with your boat.

13.2.2. Engine Installation

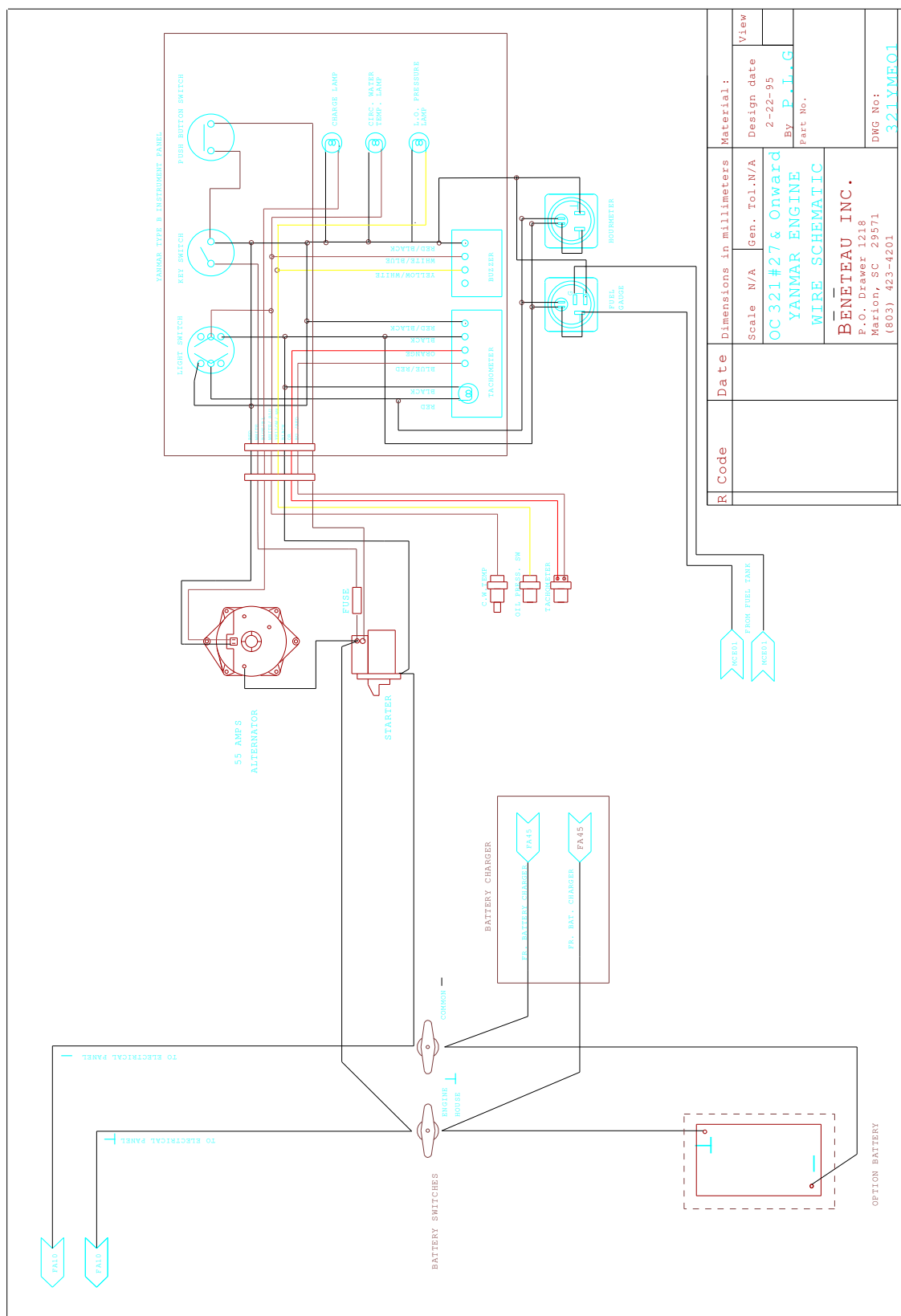
- | | | | |
|---|------------------------|----|----------------------------|
| 1 | Engine Room Vent Hoses | 10 | Engine Battery |
| 2 | Fuel Tank | 11 | Raw Water Intake Thru Hull |
| 3 | Fuel Filter | 12 | Raw Water Filter |
| 4 | Stuffing Box | 13 | House Battery |
| 5 | Fuel Shut Off Valve | 14 | Shaft & Coupler |
| 6 | Exhaust Hose | 15 | Engine Panel |
| 7 | Stuffing Box | 16 | Throttle & Shift Lever |
| 8 | Water Muffler | 17 | Battery Switches |
| 9 | Engine | 18 | Stern Tube |



13.2.3 Perkins Engine Panel

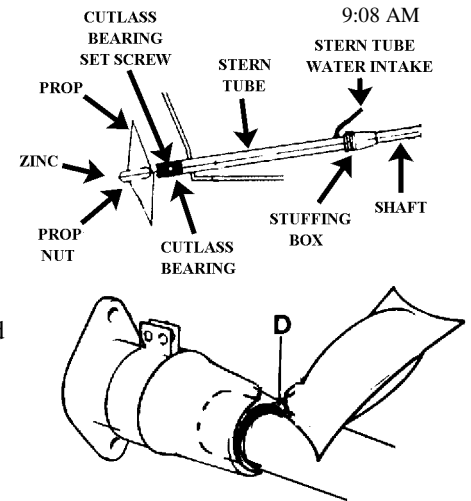


13.2.4 Yanmar Engine Panel



13.2.5. Cutlass Bearing

The cutlass bearing is a water lubricated rubber bearing that the prop shaft rotates in. It is critical for the shaft be perfectly aligned through the bearing and mated to the engine coupler to prevent premature wearing of the cutlass bearing.



13.2.6. Stuffing Box

The stuffing box is a rubber seal around the prop shaft which allows the shaft to exit the hull and keep water out. Water is forced into the stuffing box via a thru hull and vent tube for lubrication. Once a year or every 200 engine hours grease the seal at "D" according to the manufacturers directions.

13.2.7. Diesel Operation

Operation of the diesel engine includes preparation for starting, running, stopping, and securing the power system after use. The following paragraphs are a general guide, with complete procedures being more thoroughly covered in the engine manual.

13.2.7.1. Additional Controls

In addition to the control panel, the following controls are associated with engine operation.

1. Battery Switch - Although a part of the electrical system, this switch must be energized in the ON position to provide power to the engine starter motor.

DO NOT OPERATE BATTERY SWITCHES WHEN THE MOTOR IS RUNNING!

2. Throttle and gear shift controls are located at the helm station.
3. Engine Stop Handle or Solenoid switch.

13.2.8. Before Starting the Engine

1. Open the raw water intake thru hull valve.
2. Check to be sure the fuel shut-off valve is open.
3. Check the coolant level if the engine is fitted with a closed heat exchanger cooling system.
4. Check the oil in the sump and gearbox (this should be repeated after a few hours running).
5. Check the tension of the alternator drive belt.
6. Move the lever to neutral, and open the throttle a little (the mechanism will differ depending on the control box fitted).
7. Turn on the black negative battery handle and the red handle engine battery switch.

13.2.9. Starting the Engine

Insert the ignition key and turn it to "ON" (and then to the intermediate preheat position if your boat's engine has this system). A warning alarm will sound as you start up - the engine manual explains the meaning of this alarm and its operation.

Press the starter button or turn the key, as appropriate, and release the button or key, as soon as the engine is running

CHECK THE ENGINE EXHAUST FOR COOLING WATER DISCHARGE, IMMEDIATELY STOP THE ENGINE AND CHECK THE RAW WATER SYSTEM. IF NO COOLING WATER IS DISCHARGED FROM THE EXHAUST.

Let the engine run for a moment, and then bring the throttle lever back to the idle position. After you engage the clutch, increase the engine speed very gradually (it should take at least five minutes to reach cruising speed), because a diesel engine will warm up only when it is under load.

Do not operate the starter for more than 10 seconds at a time. If the engine does not start, wait at least 30

seconds before trying again.

Once engine has started, check that the warning lights for oil and coolant pressure have gone out, and that the batteries are charging properly.

Check that the coolant water is circulating correctly, water should be either venting through the exhaust or passing through the heat-exchanger return circuit, depending on the cooling system fitted.

CAUTION! NEVER OPERATE THE BATTERY CIRCUIT SWITCH OR THE IGNITION KEY WHEN THE ENGINE IS RUNNING. THE RESULTING CURRENT SURGE WILL DAMAGE THE ALTERNATOR DIODES.

Engage the clutch firmly but not harshly. Do not rev the engine hard. When shifting from forward to reverse, or vice versa, the lever should be held in the neutral position for a moment before proceeding. Shifting should be performed with RPM reduced to idle. Keep a regular watch to make sure that the coolant water is circulating properly.

13.2.10. Stopping the Engine

To stop the engine:

1. Place throttle/transmission lever in the idle/neutral position.
2. Let engine idle for one (1) minute to allow it to cool down.
3. Engage the engine kill button until the engine stops.
4. Turn the key to the "OFF" position.

CAUTION! DO NOT SWITCH BATTERY SELECTOR UNTIL THE ENGINE HAS COME TO A COMPLETE STOP! THIS WILL PREVENT ALTERNATOR DIODE DAMAGE.

CAUTION! IF YOU CLOSE THE FUEL AND SEA WATER VALVES AFTER STOPPING THE ENGINE, BE SURE TO RE-OPEN THEM BEFORE RESTARTING. FAILURE TO DO SO COULD CAUSE ENGINE TO OVER-HEAT AND CAUSE DAMAGE TO THE PUMP IMPELLER OR CAUSE FUEL LINES TO BECOME AIR LOCKED.

13.3. FUELING

While employment of a diesel engine results in a greatly reduced fire hazard when compared to gasoline, it should be remembered that diesel fuel is flammable, and that the employment of good fueling practices are necessary. The following steps are provided as guidelines.

13.3.1. Before Fueling

1. Extinguish all smoking materials and check the fueling area for other sources of spark or flame. Remove if found.
2. Shut off the engine, and the electrical generator if water one is aboard.
3. De-energize all electrical equipment.
4. Close all hatches and ports.
5. Ensure that a fire extinguisher is readily available.
6. Ensure that the proper (diesel, not gasoline) hose is about to be used.

WARNING! DO NOT FUEL DURING AN ELECTRICAL STORM. BESIDES THE OBVIOUS HAZARD OF LIGHTNING, THE POSSIBILITY OF STATIC DISCHARGE IS GREATLY INCREASED AT THE TIME.

13.3.2. Fueling

The diesel tank is filled thru a deck filler located on the STBD. side of the swim platform (green cap deck filler). The tank is filled for the first time with the cock closed to calibrate the fuel gauge. During filling, put a funnel with a filter in the deck filler hole, and watch the fuel overflow outlet. Useful tip: to avoid staining teak on the deck with diesel oil, wash the deck with water beforehand, this will stop the oil from penetrating the wood. While filling, note how much fuel corresponds to the markings on the gauge (remembering that a small amount of fuel not consumed during the factory engine tests may remain in the tanks);

Gauge markings: 1/4 1/2 3/4 F

Note: (number of gallons per mark) X X X X

Always sail with your tanks as full as possible, both to avoid any contamination of the diesel oil with water (due to condensation in the tank), and to prevent the injector pump running dry and needing repriming.

13.3.3. After Fueling

Replace cover, clean up any spilled fuel. If any rags, etc. were used for this purpose, dispose of them ashore. Check below decks for presence of fumes or fuel leakage. plate Check bilge, engine space, and main cabin.

WARNING! IF FUMES OR EVIDENCE OF LEAKAGE IS FOUND, DETERMINE THE CAUSE, CORRECT IT, AND CLEAN UP ANY SPILLAGE BEFORE PROCEEDING.

Open all hatches and ports to ventilate the boat.

Switch on battery.

The engine should be started only when it is certain that no potentially hazardous condition exists.

13.3.4. Fuel Sanitation

The fact that a diesel engine does not require an ignition system can, and usually does, result in an engine that is far superior to a gasoline engine with regard to dependability. Whether this is actually the case depends greatly on cleanliness of the fuel that is supplied to the engine since the close tolerances required by the engine's fuel delivery system make it extremely intolerant of any form of dirt or water contamination. The engine is supplied with filters that prevent contaminants from reaching the engine where they could cause damage, but a clogged filter, although providing this protection, can also stop an engine. Keeping the filters free of dirt and water is an obvious answer to this problem, and the cleaning schedules set forth in the

engine manual will in most cases keep filters clean enough to prevent stoppage.

13.3.5. Bacterial Contamination

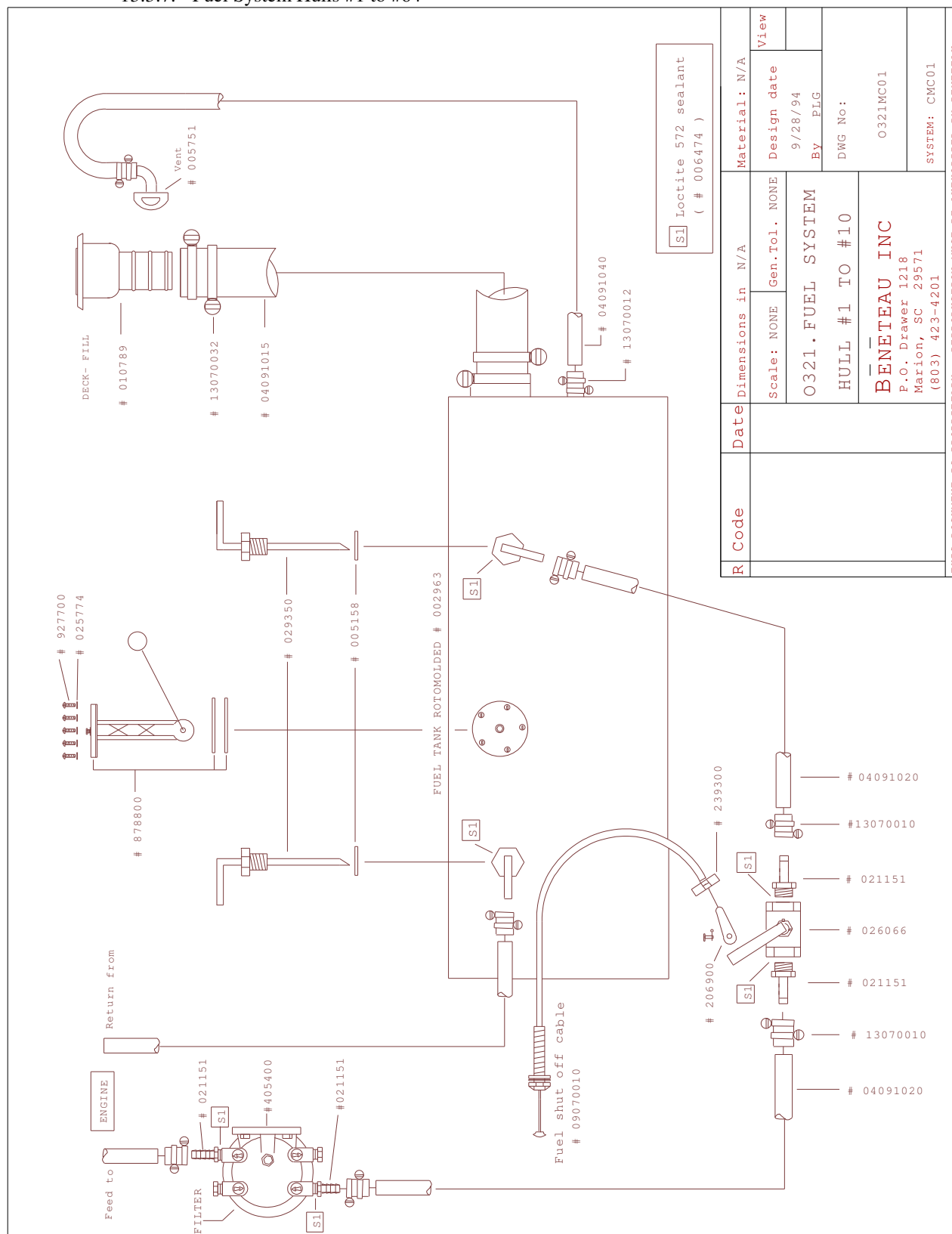
A factor that can cause additional problems is bacterial contamination of the diesel fuel. The bacteria involved need both water and fuel to exist, and if present, will thrive in a fuel tank. As they multiply, they form a filter-choking brown slime. Often their presence will not be known until rough weather churns up the fuel tank causing clogged filters at a most inopportune time.

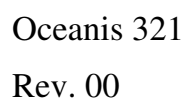
Keeping water out of the fuel will, of course, prevent the problem entirely, and while every effort should be made towards this, such as obtaining fuel from reputable dealers, it must be remembered that a certain amount of due to normal condensation in the tank is to be expected.

13.3.6. Fuel Additives

Fuel additives or conditioners provide means of combating this problem. These additives break the water down to a molecular level, dispersing it throughout the fuel and allowing it to pass harmlessly through the fuel system. Various brands of this product are available at marine supply stores. As with all products of this nature, the directions on the container should be carefully followed.

13.3.7. Fuel System Hulls #1 to #64





13.4. STEERING SYSTEM

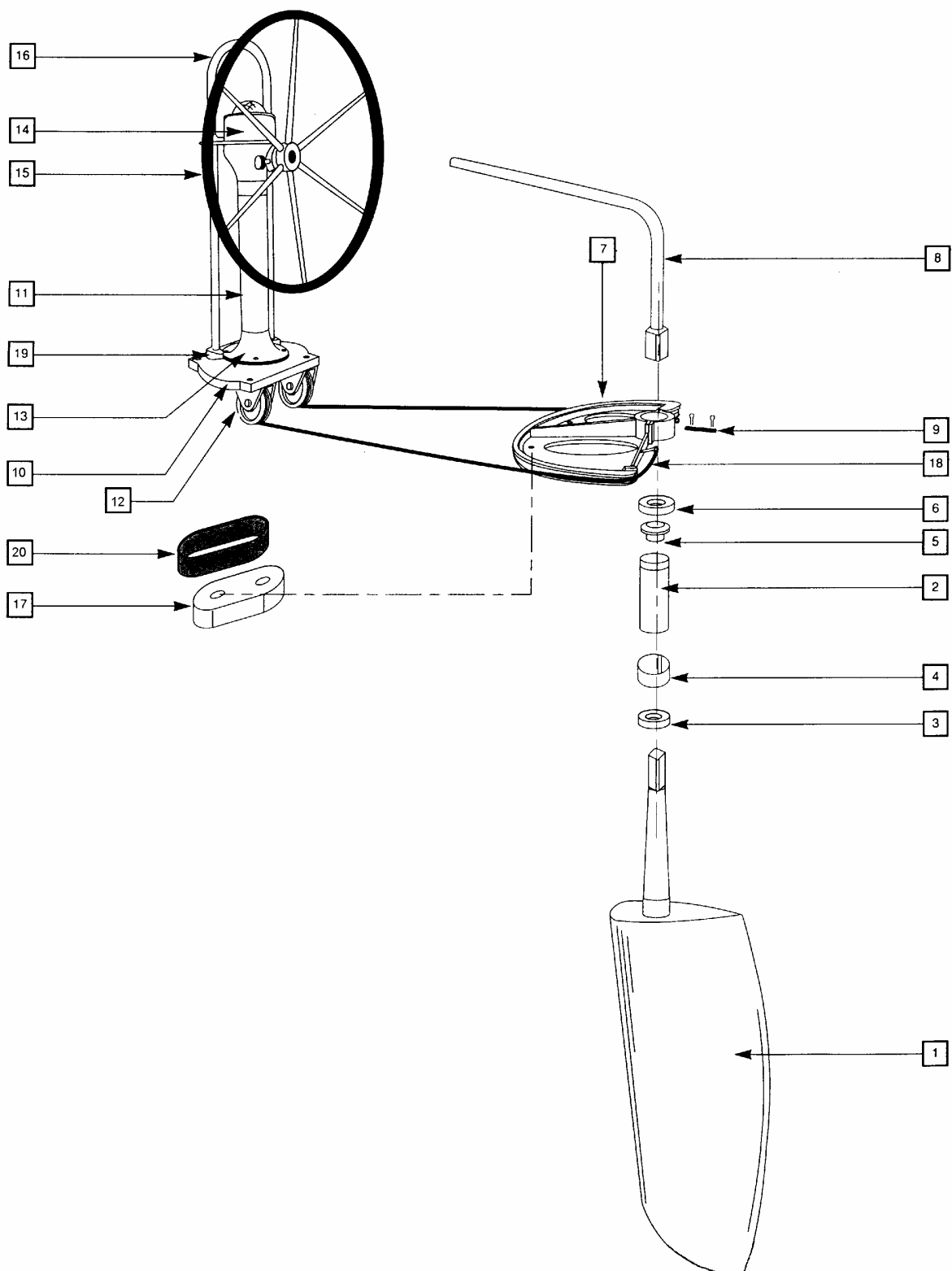
Wheel steering has become increasingly popular over the years in lieu of a tiller. Reasons for this preference include more cockpit space, and ease of steering over a long cruise.

13.4.1. Wheel Steering

Wheel steering remotely turns the rudder on your boat using a quadrant bolted to the rudder post and connected to the wheel through a chain and cable system. A stop assembly allows approximately 90 degrees of travel, and prevents rudder over-travel which could damage the cable and chain assembly. The type of pedestal steering system installed is a Whitlock 400.

13.4.2. Wheel steering installation

1. Rudder
2. G.R.P. Epoxy Pipe
3. Equilibrium ring
4. SS Ring PYD
5. Nylon Shoulder Bearing
6. SS Washer
7. Bored Quadrant
8. Emergency Tiller
9. Pin D12x150 + 2 Split Pins
10. Steering Wheel Support
11. Pedestal Steering + Brake
12. Pedestal Sheave Plate
13. Steering Gear Chain
14. Compass Support Plate
15. Steering Wheel
16. Compass Protection Guard
17. Quadrant Stop
19. Steering Cable
19. Compass Protection Rail Base + Bolts
20. Rubber Sleeve



13.4.3. Wheel Steering Operation

Wheel steering requires use in order to obtain familiarity with it. A feel for your boat will develop and a sensitivity to conditions will increase your control.

NOTE: When backing under auxiliary power in reverse gear, it is necessary to maintain a hold on the steering wheel the entire time. The rudder and steering wheel have a tendency to rotate with force if left unattended while backing. This is due to the normally large area aft of the rudder post becoming the forward area, thus creating an imbalance.

The rudder stop system is designed to produce a positive stop to prevent over-turning the mechanisms of the steering system. It is not designed to absorb the potentially tremendous load of a rudder turning freely while backing. INSPECT the rudder stops on a regular basis to ensure they limit rudder travel to the correct amount, failure to limit rudder play may result in steering failure!

CAUTION! ALLOWING THE RUDDER AND WHEEL TO SPIN OUT OF CONTROL WHEN BACKING MAY CAUSE SERIOUS DAMAGE TO THE STEERING SYSTEM, POSSIBLY RESULTING IN A DANGEROUS LOSS OF STEERING CONTROL.

When leaving the boat at a mooring or slip, make sure the wheel brake is properly tightened. Do not allow the system to free wheel as excessive wear or damage may result.

13.4.4. Emergency Tiller

As a safety precaution on your Beneteau, an emergency tiller has been provided as a backup to the wheel steering system. Remove the deck plate with a winch handle and slip emergency tiller into top of rudder post.

NOTE: PRACTICE USING THE EMERGENCY TILLER AND BE SURE ALL CREW MEMBERS KNOW THE LOCATION AND OPERATION OF THE EMERGENCY TILLER.

13.5. FRESH WATER SYSTEM

13.5.1. General Description

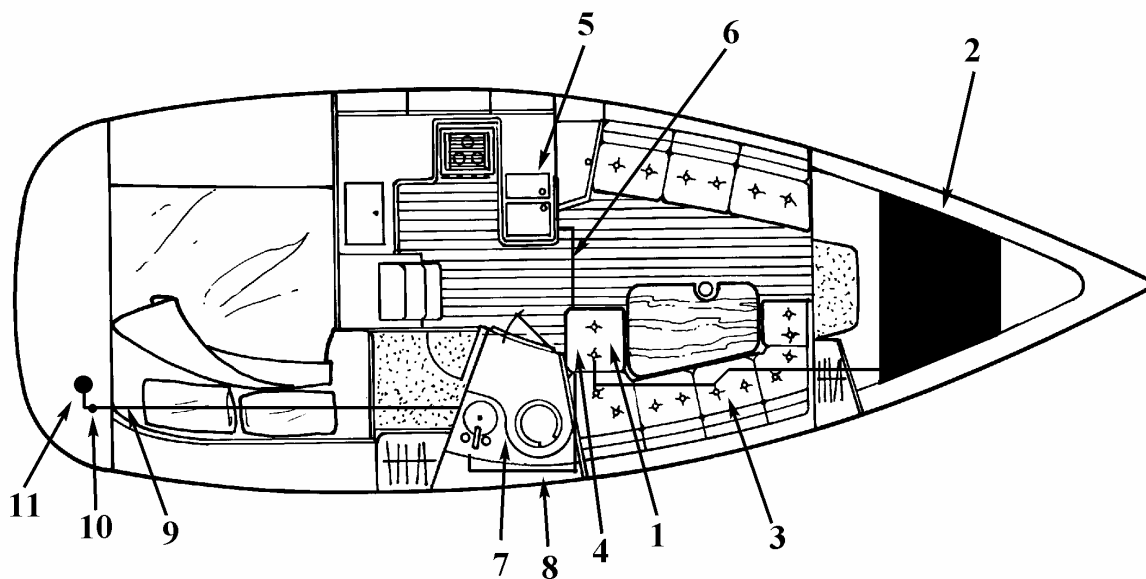
The fresh water system supplies the galley sink, head wash-basins, head showers and the transom shower. The water is drawn from the tanks via an electric pump and distributed to the hot and cold water systems thru tank selector switches and a manifold. Take care not to run an electric pump with an empty tank, as this will ruin it beyond repair.

13.5.2. Operation.

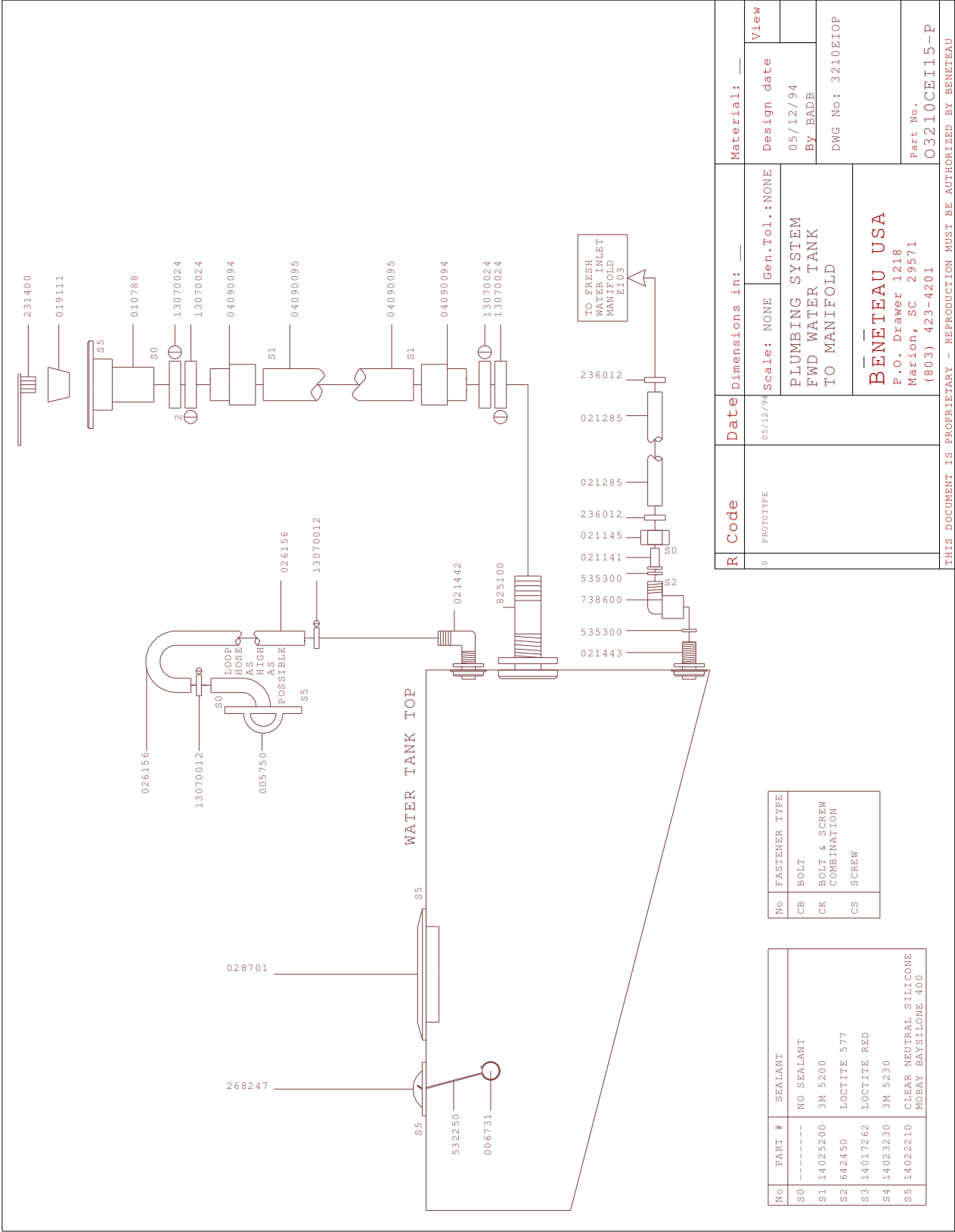
1. Fill the water tanks.
 2. Select the tank for use at the valves on the manifold.
 3. Turn on the fresh water pump at the panel.
 4. Open all taps and bleed off any trapped air in the lines until the water runs clear with no sputtering.
 5. Close all taps and the pump will turn off when it reaches operating pressure. If the pump continues to cycle check all fittings for leaks.
- Never top up with water and diesel at the same time if the filling points are close to each other, to avoid the risk of contaminating one liquid with the other.
 - Similarly, avoid risk of contamination by never handling a product that might cause pollution close to the deck fill while taking on water.
 - If unused for a long time, the tanks and pipes need to be flushed with a solution of acetic acid (solution of vinegar and water).
 - The sink and wash-basins are drained through their own through-hull valves; these should be kept closed when the fresh water system is not in use.

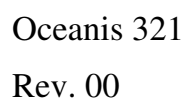
13.5.3.Fresh Water Drawings

- | | |
|---|--|
| 1. Pump House (Under Stbd Midship Settee) | 7. Head Sink & Shower |
| 2. Fwd Water Tank | 8. Head Supply Lines |
| 3. Fwd Water Tank Supply Line | 9. Transom Shower Supply Line (option) |
| 4. Hot Water Heater | 10. Transom Shower Valve (option) |
| 5. Galley Sink | 11. Transom Shower (option) |
| 6. Galley Sink Supply Lines | |

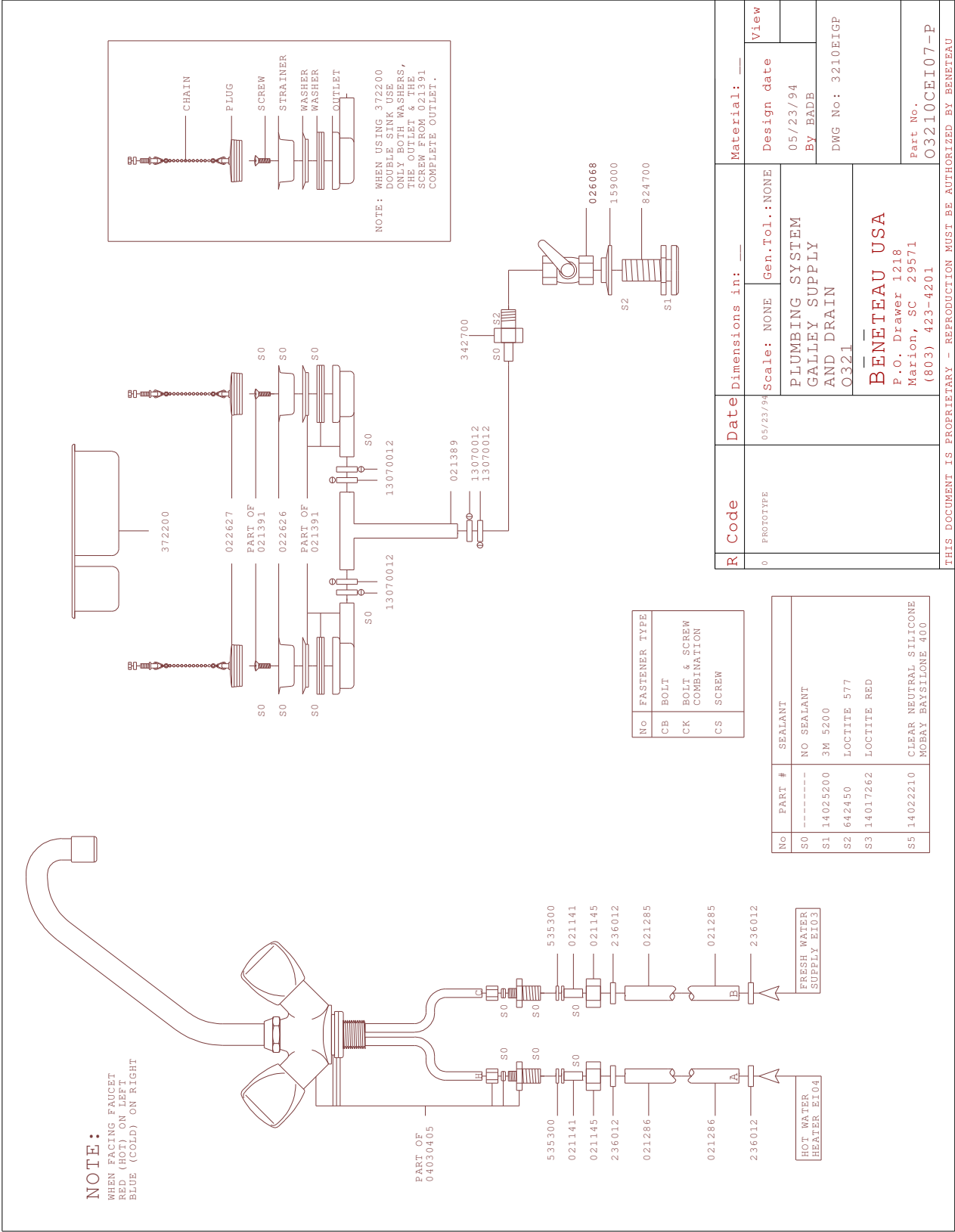


13.5.3.1. Water Tank Pickup

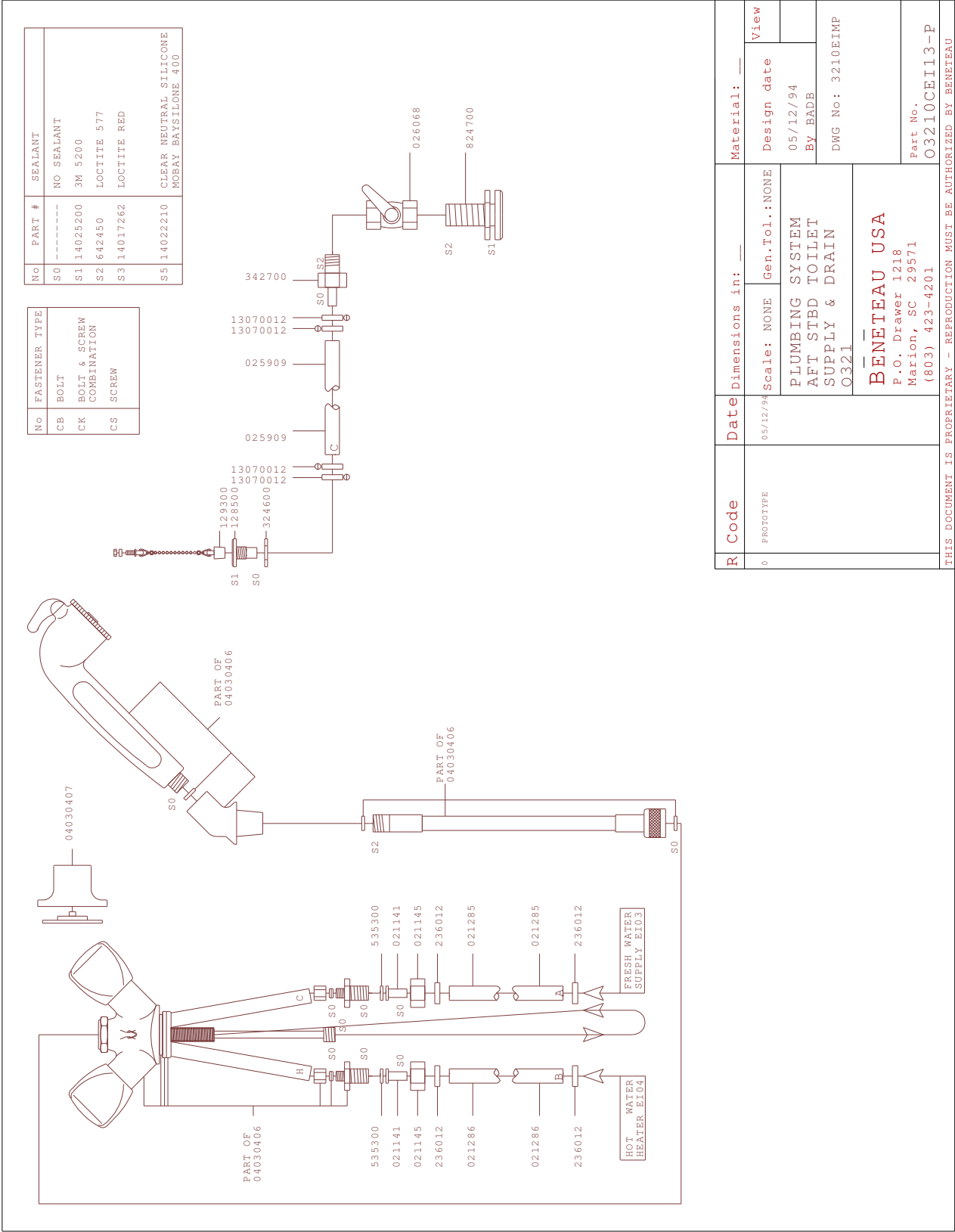




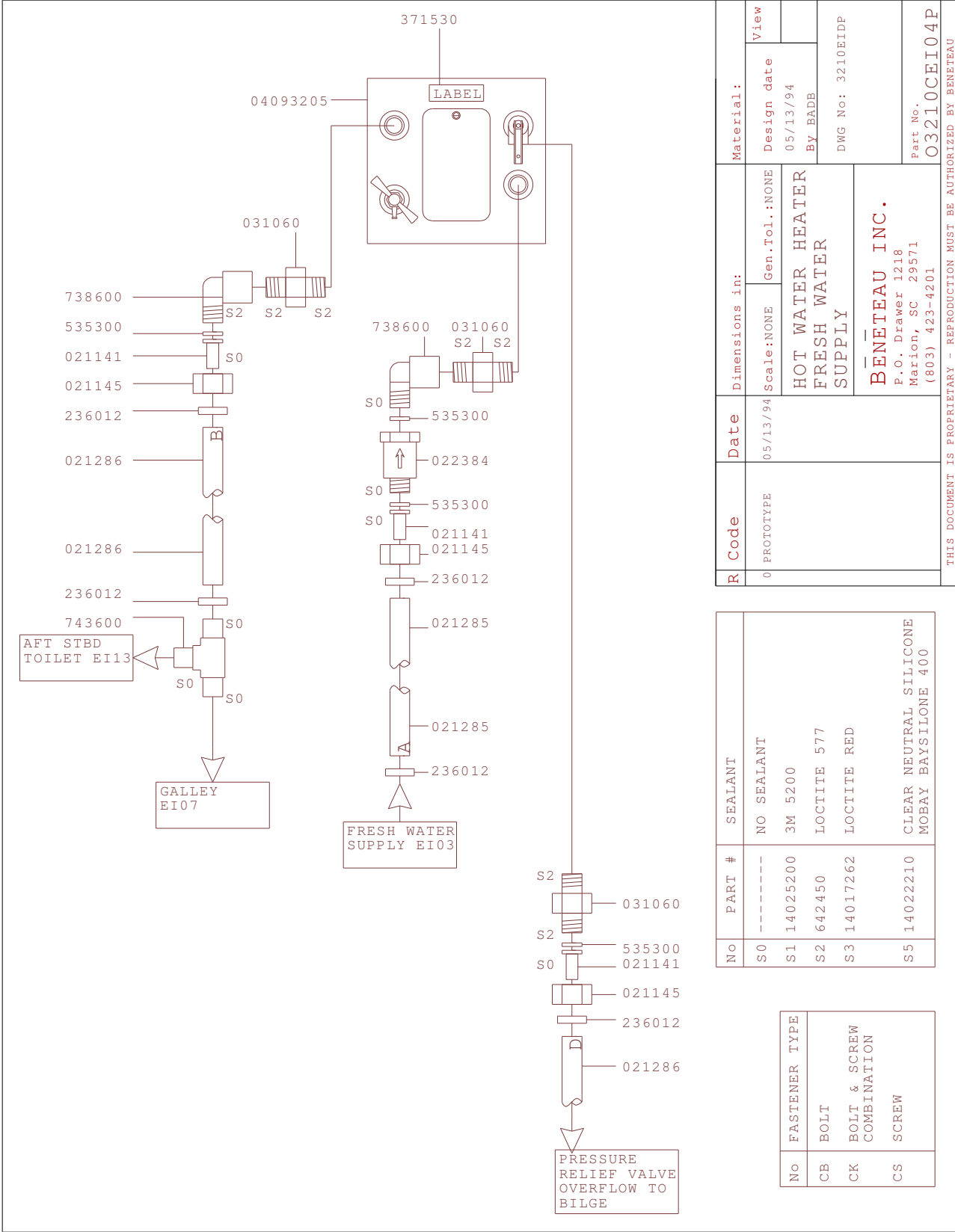
13.5.3.3. Galley Supply & Drain



13.5.3.4. Aft Stbd Toilet Supply & Drain

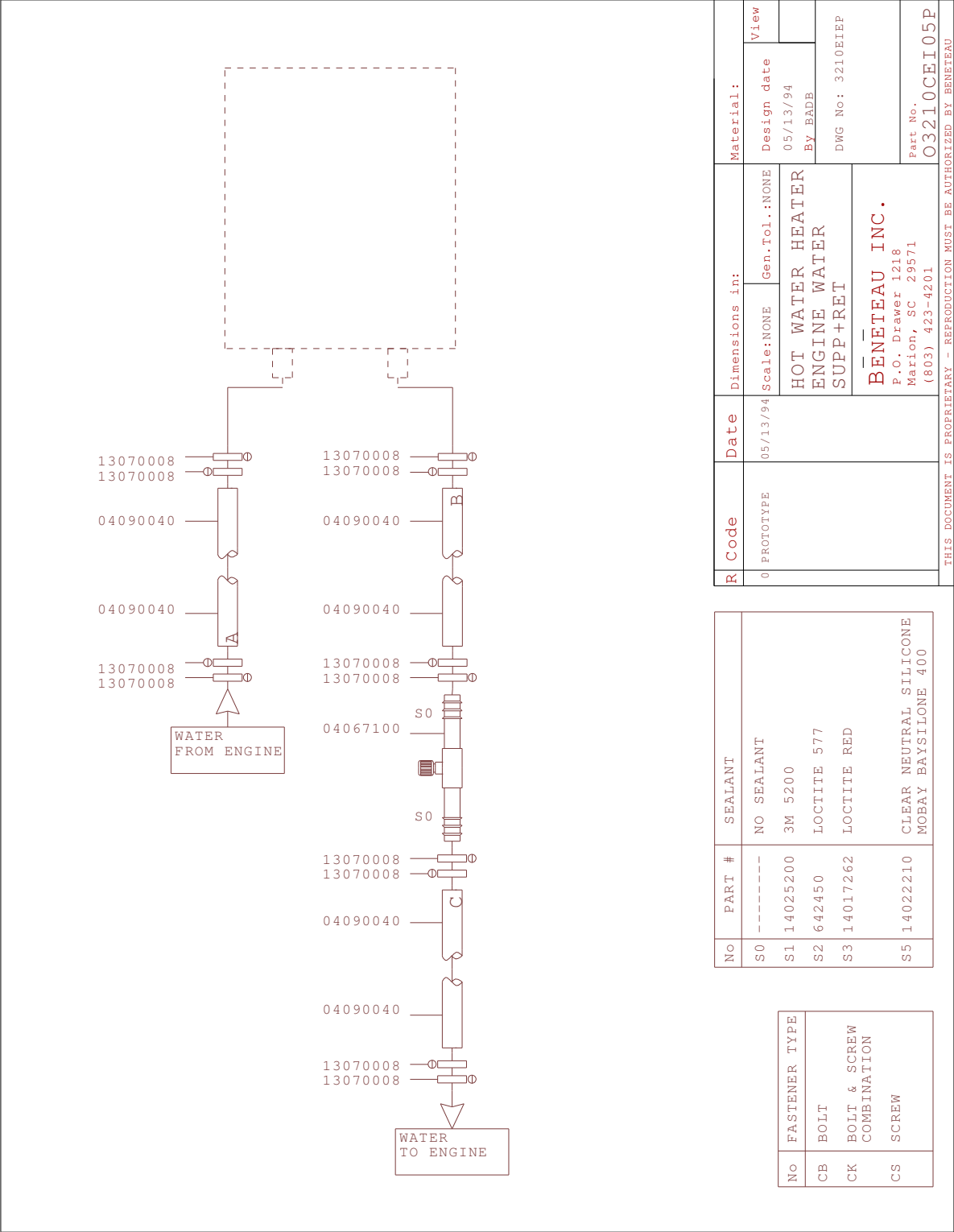


13.5.3.5. Hot Water Heater Fresh Water Supply



13.5.3.6. Hot Water Heater Engine Water Supply & Return

The hot water heater is an Atwood model EHM6 six gallon unit.





13.6. INTAKE & DISCHARGE THRUHULLS

13.6.1. General Description

This is used for draining the bilge, shower sumps, icebox and supplying and flushing out the heads. All these supply and flushing points have 1/4-turn valves, which must be opened only during use. The quarter-turn valve is open when the lever is in line with the pipe, and closed when it is at right angles.

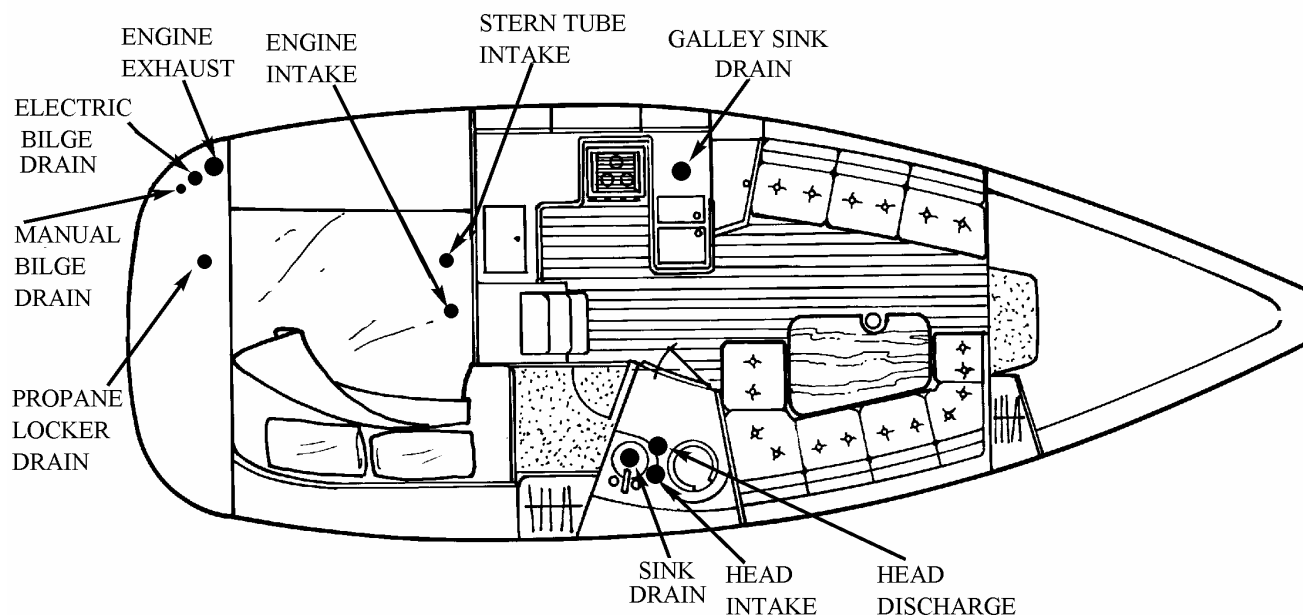
13.6.2. Safety - Maintenance

Take special care to see that these valves are well-maintained, have a good seal and work smoothly. Have a wooden tapered plug, of correct diameter at hand, so that they can be plugged on the outside if, for instance, a seized valve has to be dismantled, or lubricated.

After hot water has been run through a pipe for the first time, check the tightness of all the clamps.

NOTE: These recommendations also apply to the cooling system of the inboard engine, if your boat has one.

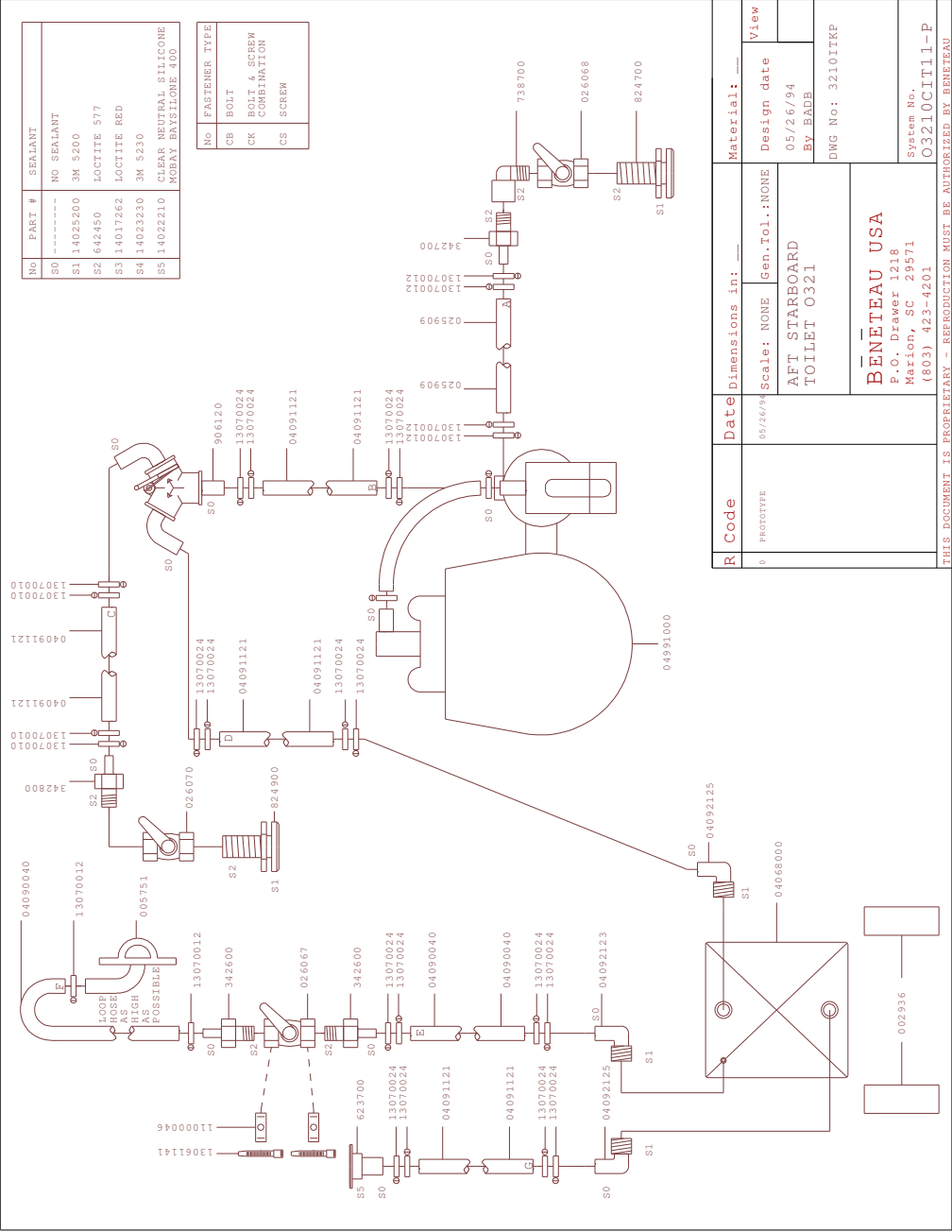
13.6.3. Thru Hull Drawing



13.7. MARINE TOILET & HOLDING TANK

13.7.1. General Description

The marine sanitary system consists of a marine toilet (head), (ITT- Jabsco Compact Toilet 29090-0000), a holding tank and a series of thru hull intakes, discharges and valves to control the intake of water into the head to flush the bowl either into the holding tank or overboard.



13.7.2. Head Operating Procedure

The marine heads on your Beneteau are installed below the water line, all valves must be closed after use and the selection lever on the head must be returned to the dry bowl position. Failure to do so could result on the bowl overflowing and flooding the boat with water.

1. Read the instructions for use supplied by the head manufacturer and the precautions marked on the pump.
2. Before use, make sure that the water supply thru-hull valve is open, the holding tank vent line valve is open and the Y-valve is selected for discharge into the holding tank.

NOTE: BY LAW YOU MUST USE A HOLDING TANK IN ALL US WATERS.

3. Check with local authorities for regional laws governing your area before selecting the overboard discharge option. If you choose overboard discharge option, be sure the discharge thru-hull valve is open before using the head. Select the overboard discharge position on the Y-valve by turning the lever in the opposite direction of the overboard discharge hose.
4. Select "Flush Bowl" with the selection lever on top of the pump body and pump the handle until the bowl is flushed clean. Return the selection lever to "Dry Bowl" and pump the handle until the bowl is dry. The holding tanks capacity is approx. 12 gallons, limiting pump strokes will maximize its use.
5. **CLOSE THE VALVES AFTER USE.**

13.7.3. Holding Tank Pump Out Procedure

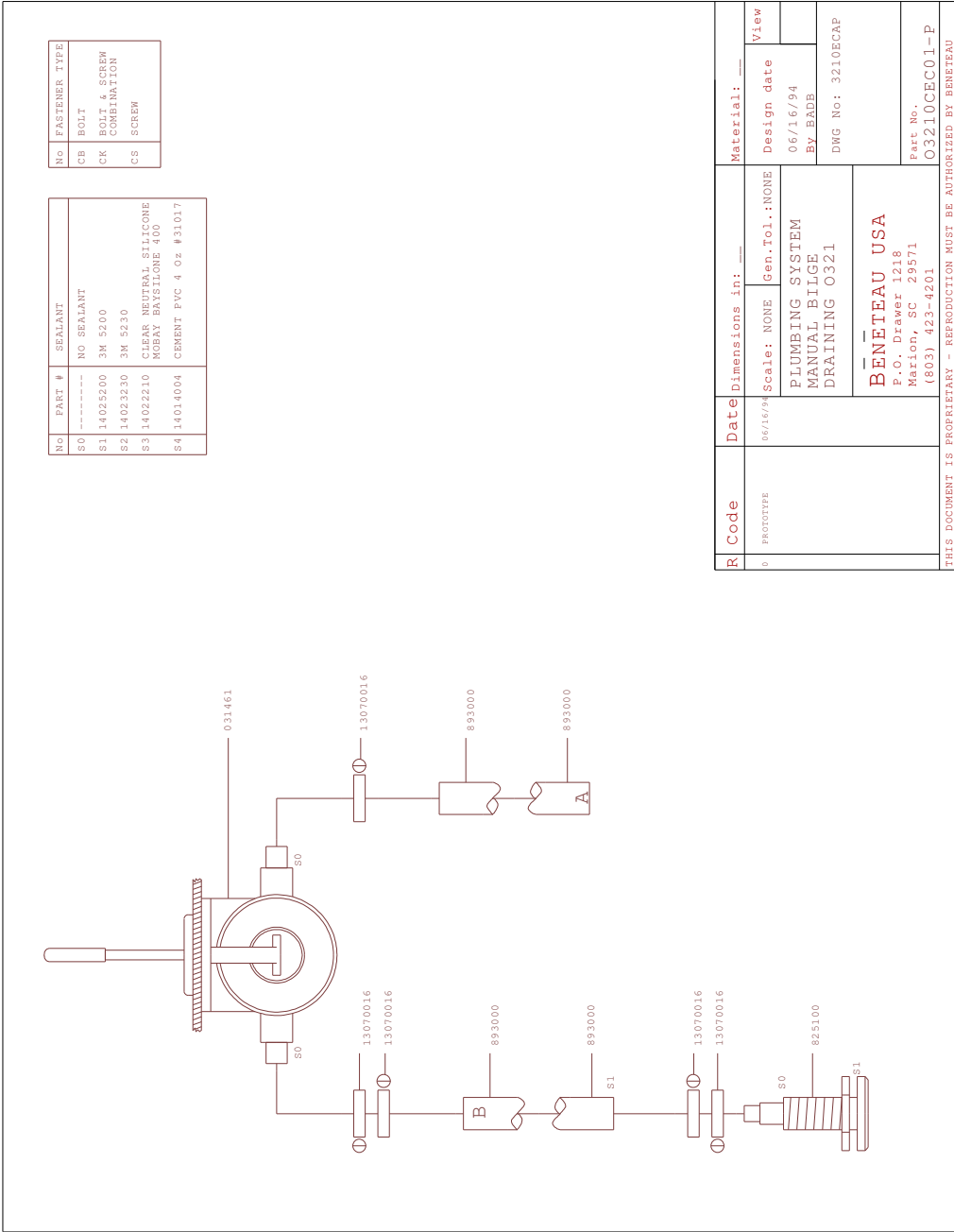
The holding tanks are pumped out thru deck plates located on the starboard transom and in the forward anchor locker. Consult your dealer or your marina for the closest pump out facility in your area.

1. Be sure the holding tank vent line valve is open.
2. Open the deck plate with a winch handle and insert the pump out hose into the deck fill,
3. Follow the pump out stations operating procedure to pump all of the effluent from the tank.
4. Flush the tank by pumping water thru the head into the tank or by inserting a hose into the deck fitting to add fresh water and then pump the tank again.
5. Close the deck fitting.

13.8. BILGE PUMPS

13.8.1. Manual Bilge Pump

The manual bilge pump is located on the starboard side of transom walkthru. To operate the pump open the transom gate, insert the pump handle into the socket and pump vigorously. The intake of the hand-pump is at the bottom of the bilge sump, and discharges through the side of the hull on the starboard aft corner.

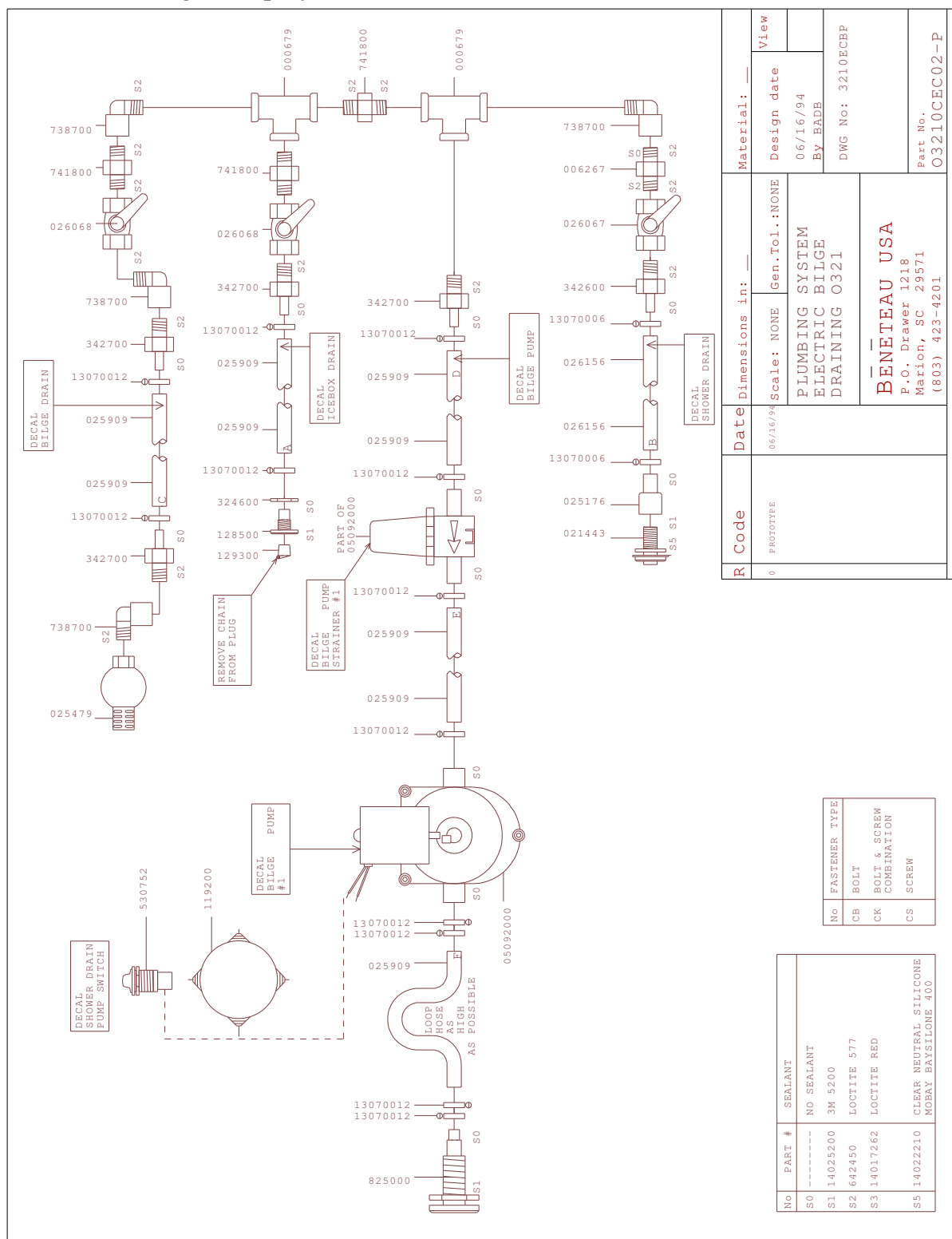


13.8.2.Electric Bilge Pump

The electric bilge pump drains both the bilge pump and the galley ice box. The pump, Y-Valve and filter are located in the pump house under the starboard middle settee in the main saloon. To drain the bilge or icebox select the correct position with the valve and turn on the pump. The pump is controlled from a switch on the main 12V panel. Be sure to clean the filter between the pump and sump carefully, at regular intervals. To clean the filter unscrew the body and wash out the filter screen.

WARNING! BE CAREFUL NOT TO WASH THE O-RING SEAL OUT OF THE FILTER.

13.8.2.1. Electric Bilge Pump System



13.9. SELF- DRAINING COCKPIT

The cockpit is drained thru 2 tubes located at the outboard aft corners of the cockpit. Make sure that these drain holes are not blocked.

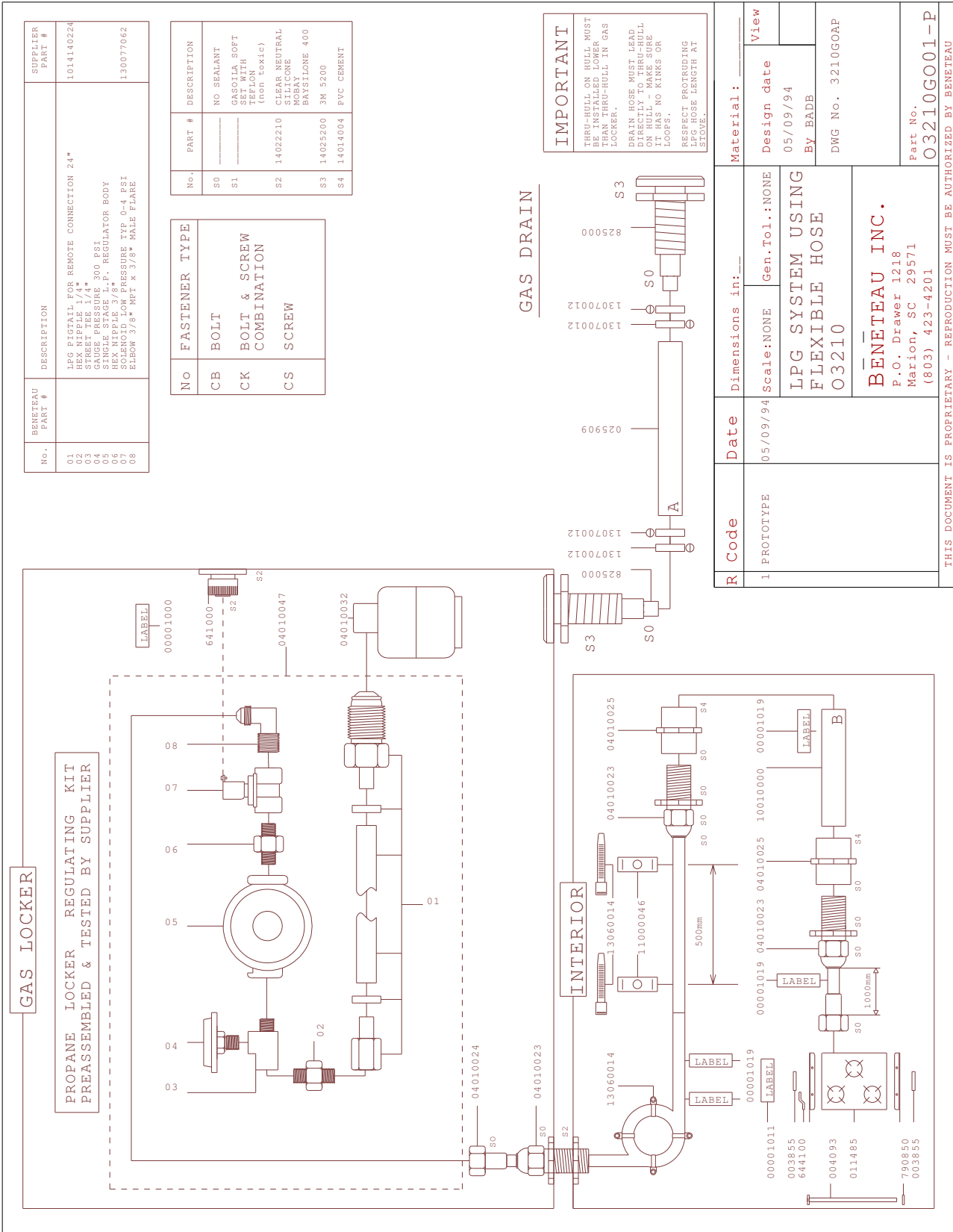
When using the cockpit as a "workshop" plug drain holes with large cork bungs to avoid the loss of any nuts or bolts which you may accidentally drop.

13.11. PROPANE COOKING SYSTEM

13.11.1. Propane System Description

Your Beneteau is equipped with a propane combination stove and oven. This unit is located in the galley and is gimbaled for your safety and comfort in a seaway. The stove is supplied by a storage bottle located in a self draining locker in the cockpit. The pressurized gas is fed thru a regulator at the bottle which reduces the pressure and feeds the propane gas to a 12V solenoid valve. The solenoid is a remotely controlled valve which turns the flow of gas on and off from a switch located at the 12V distribution panel. A pressure gauge is located before the regulator to check the gas system.

13.11.2. Propane System



13.11.3. Operation

WARNING! ALWAYS LEAVE BOTH THE SOLENOID VALVE AND THE VALVE ON THE GAS BOTTLE CLOSED WHEN THE STOVE IS NOT BEING USED.

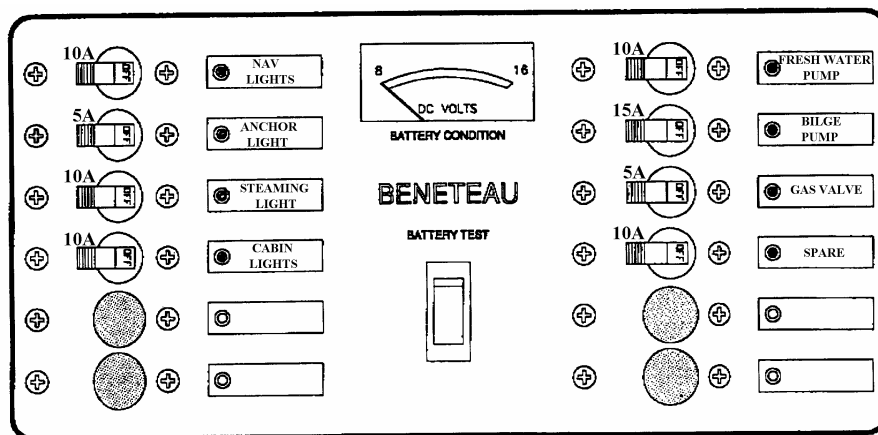
1. Read and follow the instructions printed on the propane warning labels located at the appliance and under the lid of the gas storage locker.
2. Be sure all burner and oven knobs are in the off position before attempting to operate the galley stove.
3. Activate the main 12V system and be sure the solenoid switch is in the off position.
4. Open the supply valves and test the system for leaks following the instructions on the locker warning label.
5. Light the appliance in accordance with the stove manufactures procedures. Generally each burner is lit by turning the burner control knob to the lighting position and then pushing the knob in. A safety thermocouple will keep the valve open as long as the burner remains lit. If the flame goes out it will stop the gas flow to the burner.

Note: If the odor of gas is detected at any, time turn off all electrical and mechanical systems, extinguish any open flames and immediately check for a propane leak. Propane is a heavy gas and may settle in the bilge which represents an explosion and fire hazard.

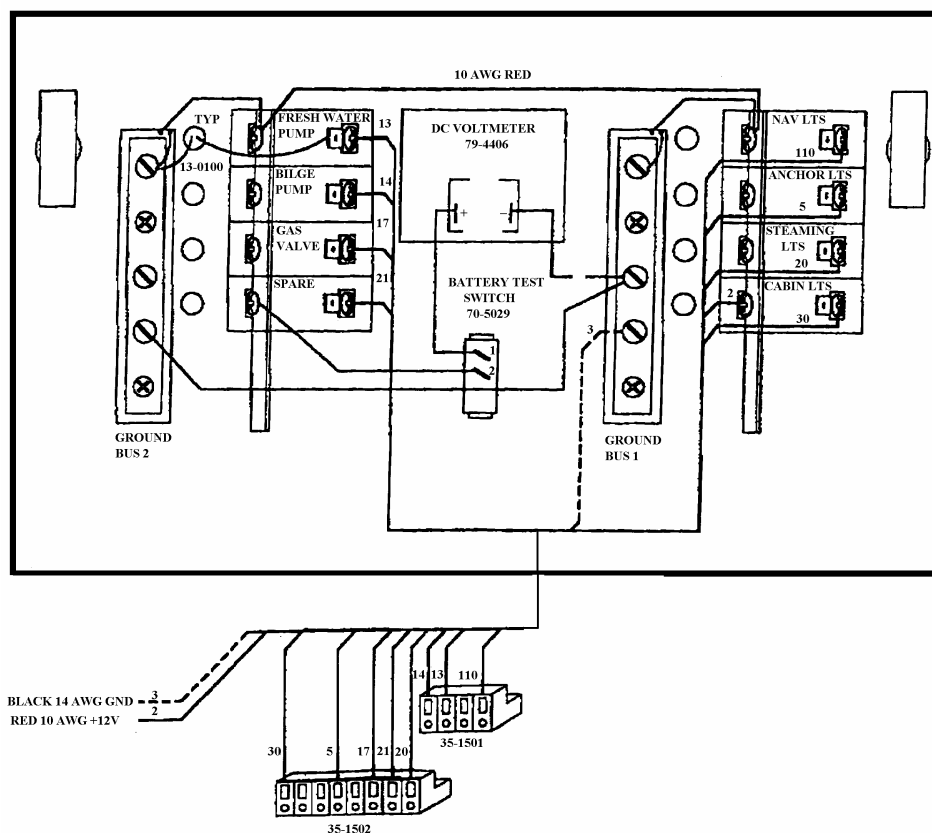
13.12. 12V SYSTEM

13.12.1. 12V Distribution Panel

The 12V power from your batteries is distributed throughout your boat via a distribution panel. This panel separates the current into separate circuits. Each circuit is protected by an individual breaker switch which allows you to turn the individual circuits on or off as needed at the panel. Each breaker switch has an individual amperage rating which it is designed to trip at in case it is overloaded.

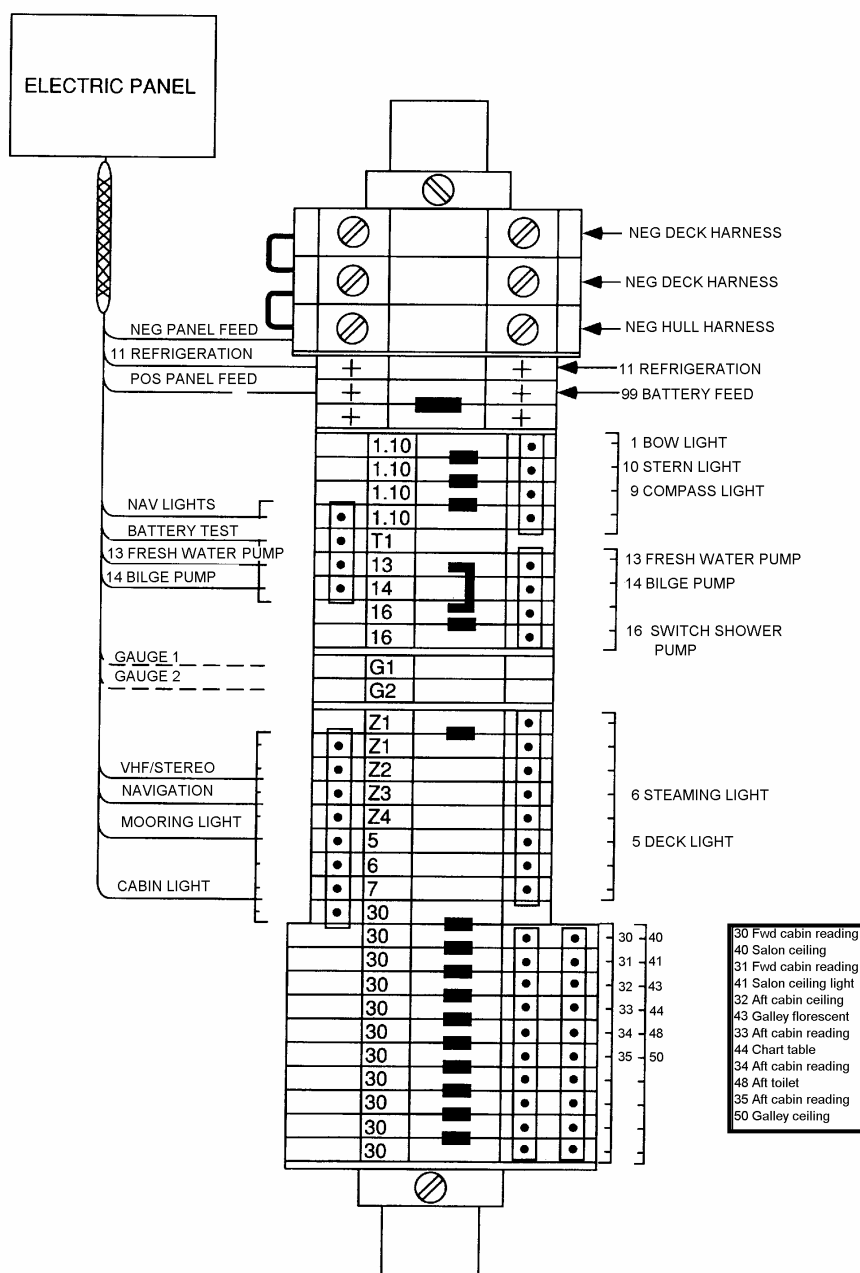


13.12.2. Panel Wiring Schematic



13.12.3. Wago Drawing

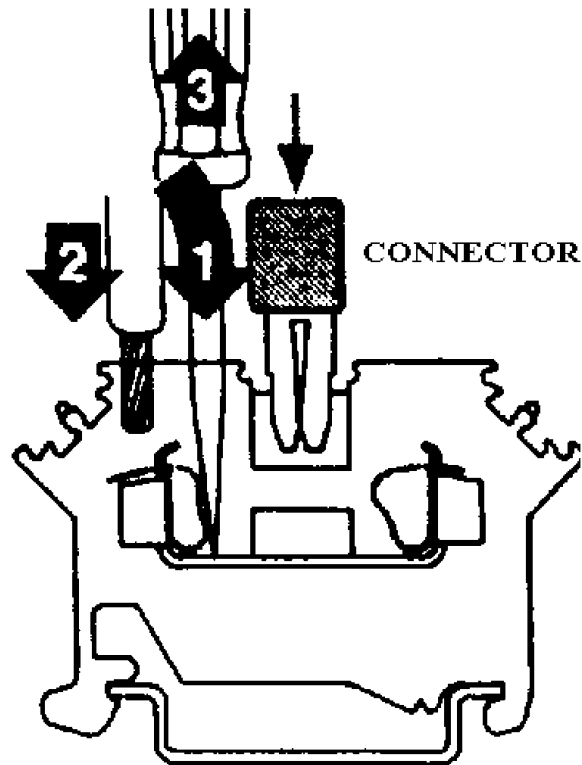
The panel is wired to the boat thru a "Wago" wiring block strip. The boat's wiring harness and the panel are connected together at the wiring block strip using a series of plugs from each that snap onto opposite sides of the wiring block strip. Each of the boats positive 12V circuits connect to it's circuit breaker in the panel this way, ie: Wire #7 "Deck Light' connects across the wiring block to circuit breaker #7 on the panel. The negative side of the circuits lead to a common ground.



Each strip on the wago wiring block is an individual block mounted side by side on a frame to form the wiring block strip. These individual blocks can be connected to the blocks on either side of it to create a larger circuit as in the saloon lights. Wires are inserted into the block by:

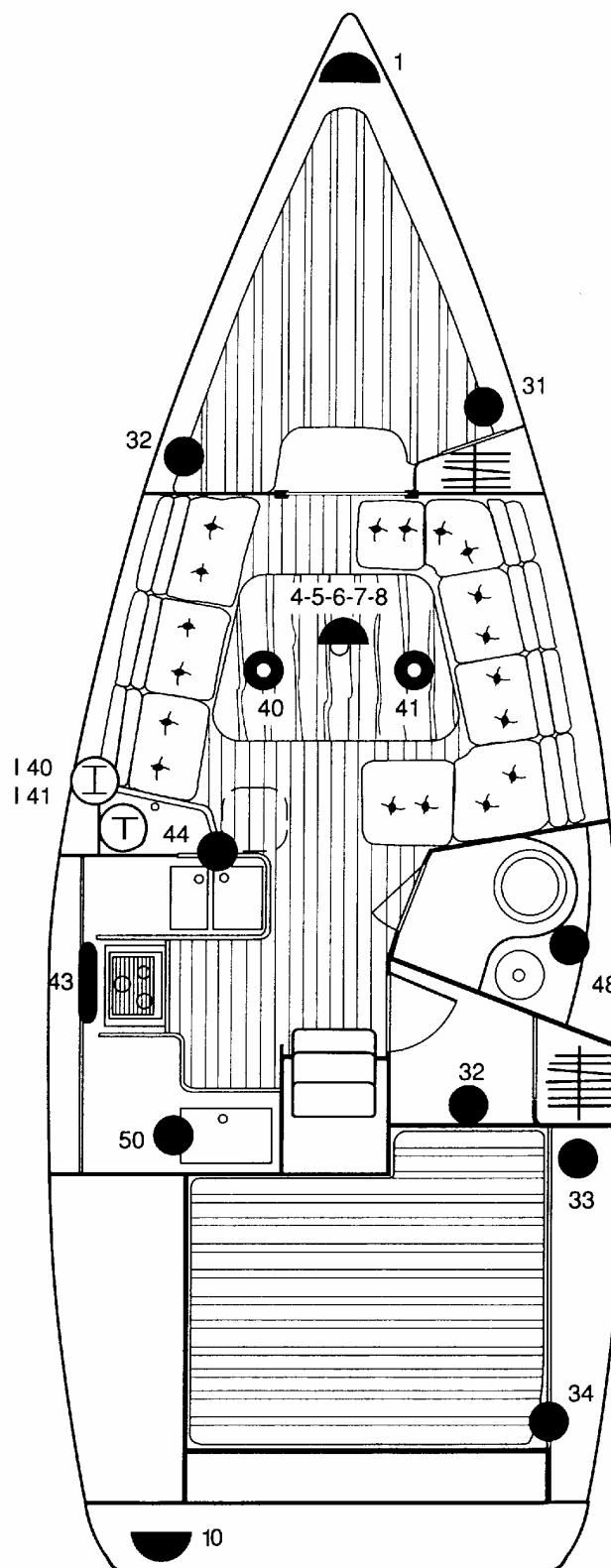
1. Inserting a small screwdriver into the inside hole and pressing down.
2. Insert the wire.
3. Remove the screwdriver

Remove wires by inserting the screwdriver and pulling out the wire.

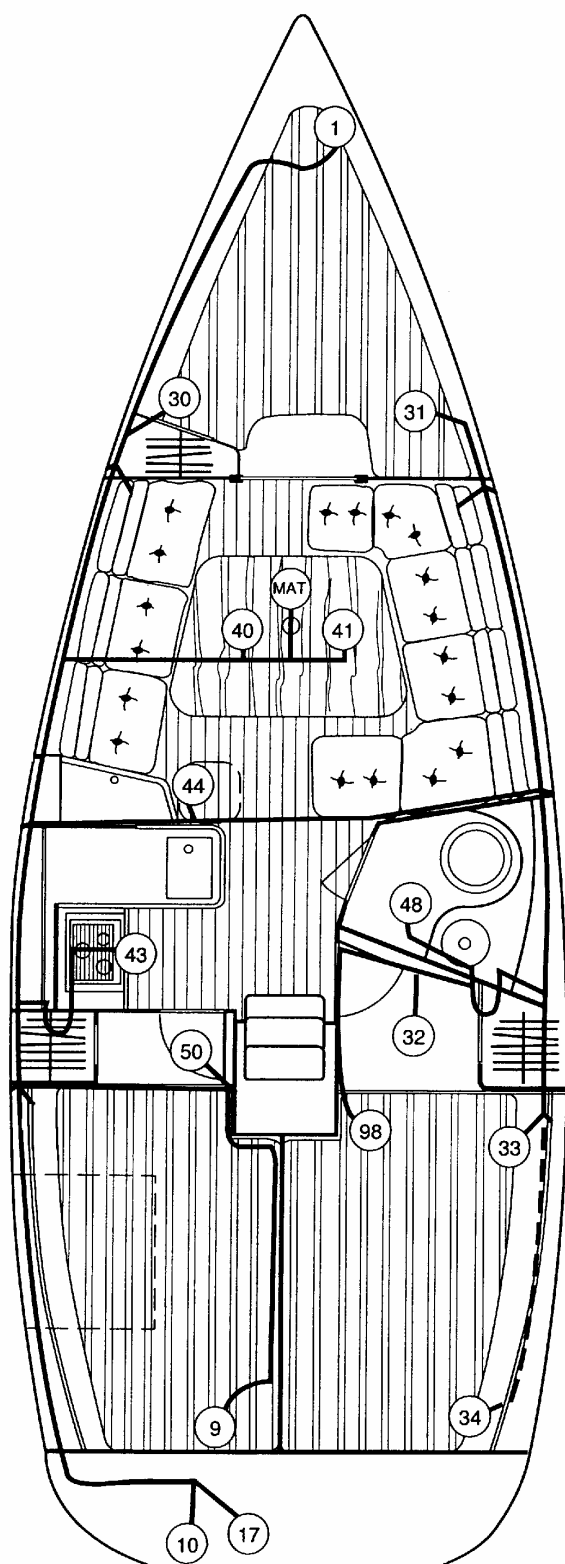


13.12.4. Lighting Layout

- ⓧ *Electric panel 8 functions*
- Ⓜ *Switch*
- *Built in halogen light with switch*
- ◉ *Built in halogen light*
- ▷ *Navigation lights*
- ▬ *Fluo ceiling light*



13.12.5. Deck Electric Circuit



WIRE NUMBERS

- 1 Bow Light
- 9 Compass Light
- 10 Stern Light
- 17 Gas Solenoid
- 30 Port Fwd Cabin Reading Light
- 31 Stbd Fwd Cabin Reading Light
- 32 Stbd Aft Cabin Ceiling Light
- 33 Stbd Aft Cabin Reading Light
- 34 Stbd Aft Cabin Reading Light
- 40 Port Salon Ceiling Light
- 41 Stbd Salon Ceiling Light
- 43 Galley Fluorescent Light
- 44 Chart Table Light
- 48 Aft Stbd Toilet Light
- 50 Galley Ceiling Light
- 98 Repeater Feed

13.12.6. Batteries

The amount of charge the battery is receiving can be checked on the voltmeter, which is graduated in either volts. This should be done when the battery is cold and has not been recharged or used for several hours beforehand. A reading of less than 11.5 V means that recharging is necessary.

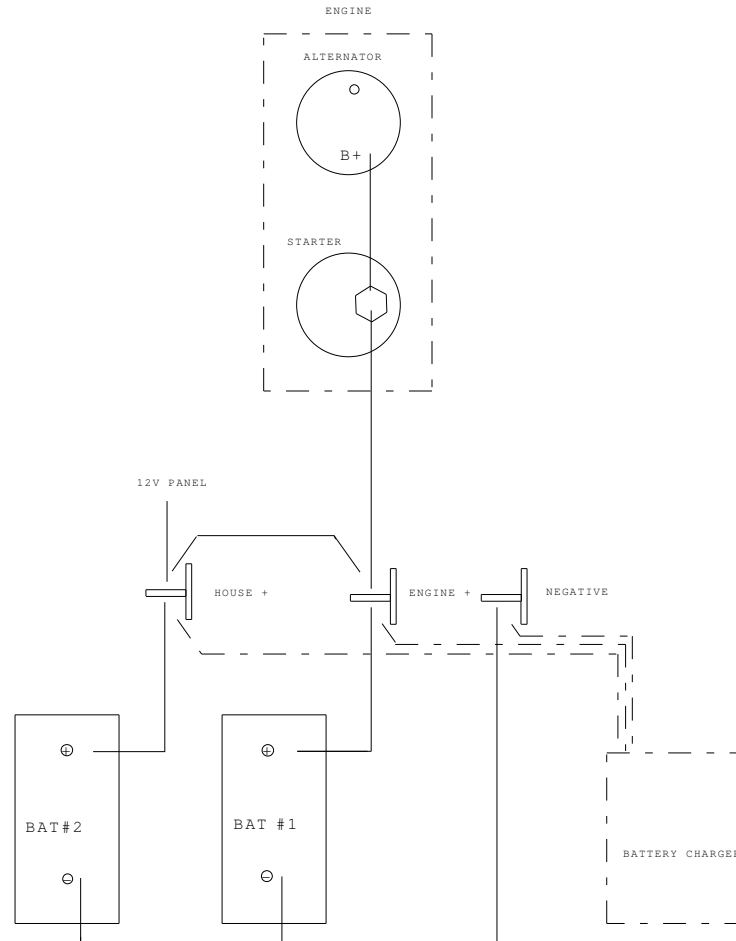
WARNING! NEVER OPERATE ISOLATING SWITCHES WHILE THE ENGINE IS RUNNING - DOING SO COULD DAMAGE THE ALTERNATOR DIODES AND REGULATOR BEYOND REPAIR.

13.12.7. 12V Charging System

The batteries must be recharged by one of the following systems:

13.12.7.1. Alternator

A belt drive alternator is mounted to the engine which produces 12V as needed by the batteries when the engine is running. The output of the alternator is wired to the battery switches.



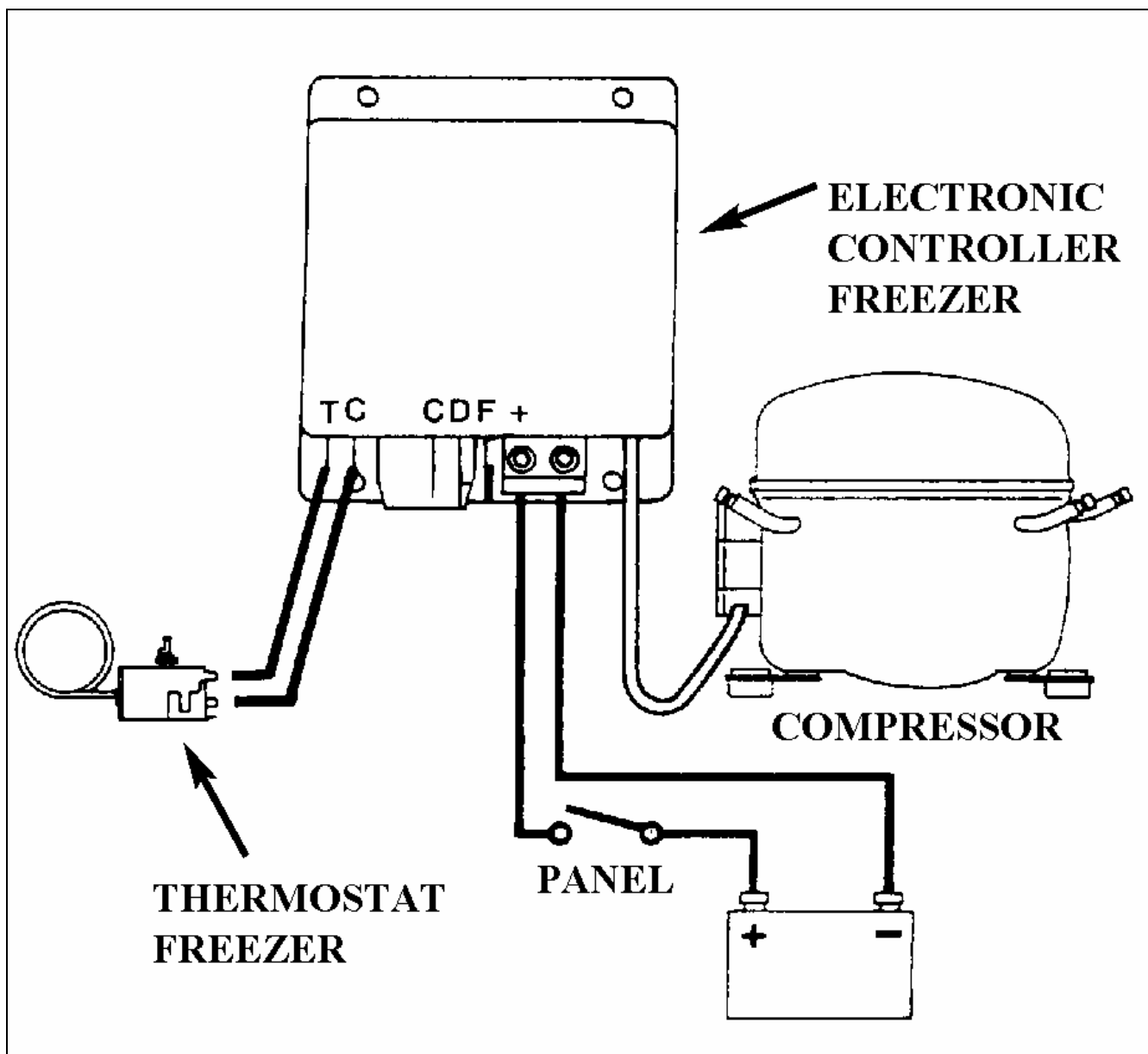
13.12.7.2. Battery Charger

A marine battery charger is wired into the 110V shore power system. This charger converts the AC dock power to 12V DC and feeds it to the batteries.

WARNING! DO NOT OPERATE THE CHARGER WHEN THE ENGINE IS RUNNING.

The battery charger is completely automatic, refer to the charger's manual for complete details. To charge the batteries using the charger: plug in the shore power cord and turn the charger breaker on at the 110V shore power panel.

13.12.8. Refrigeration



13.12.9. Windlass Operation

The windlass is used to raise and lower your ground tackle (anchors, chains and rodes), refer to the windlass owners manuals for proper operation. As a general guide please observe the following procedures. Control the speed of the chain running over the gypsy as the anchor is being released.

CAUTION! ALLOWING THE CHAIN TO RELEASE FREELY MAY CAUSE THE CHAIN TO JUMP FROM THE GYPSY DAMAGING THE WINDLASS, THE BOAT OR CAUSE PERSONAL INJURY.

Set the anchor by engaging the engine in reverse briefly. Do not set the anchor by pulling in with the windlass.

Always make the anchor rode fast on a cleat when the anchor is set. Do not rely on the windlass brake to hold the boat.

WARNING! THE MOTION OF THE BOAT AT ANCHOR CAN CAUSE LOADS ON THE ANCHOR RODE THAT MAY DAMAGE THE WINDLASS.

Always motor the boat up to the anchor as you take in on the rode.

WARNING! NEVER PULL THE BOAT UP TO THE ANCHOR WITH THE WINDLASS.

WARNING! NEVER BREAK THE ANCHOR OUT USING THE WINDLASS, CLEAT THE RODE OFF AND USE THE ENGINE TO BREAK OUT THE ANCHOR.

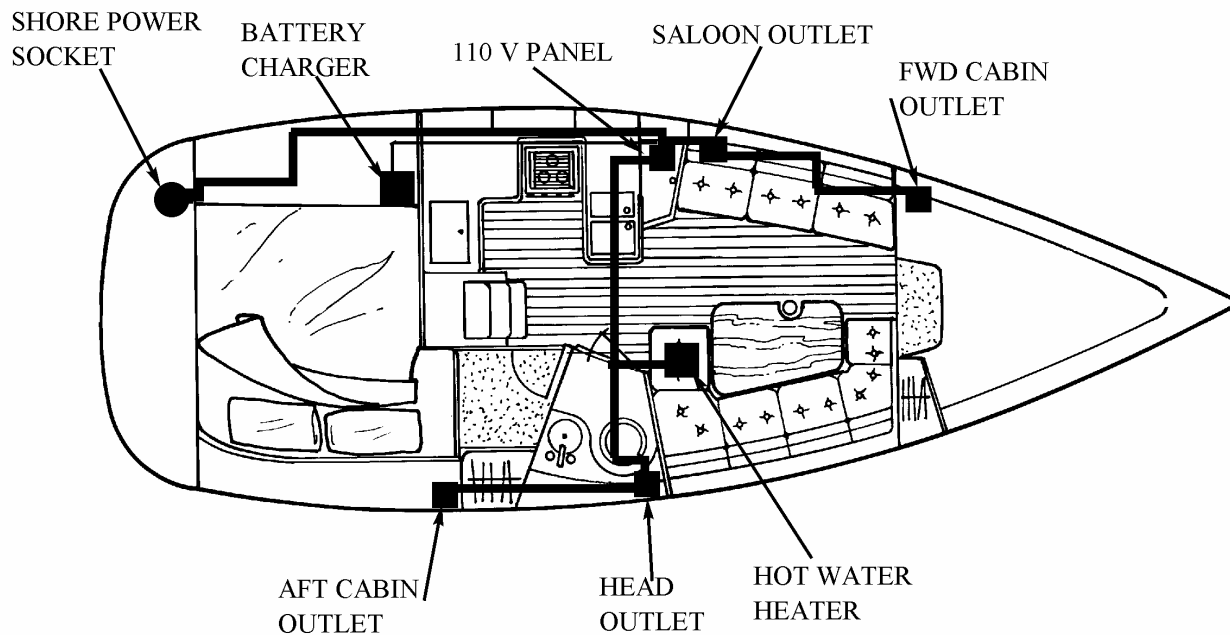
13.13. 110V SHORE POWER SYSTEM

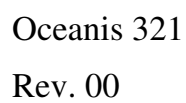
The shore power system consists of a marine power cord adapter plug mounted on the transom of the boat which is connected to a 110V panel that distributes the 110V AC current to the outlets and appliances on your boat. The shore power system is rated for a maximum of 30AMPS, care must be taken to not overload the system.

WARNING! DO NOT WIRE OPTIONAL AIR CONDITIONERS TO THE SHORE POWER SYSTEM, INSTALL A SEPARATE SERVICE AND PANEL.

The 110V panel consists of breaker switches which protect and turn the individual circuits on and off. The charger, hot water heater and the 110V outlet circuit are on separate breakers.

13.13.1. 110V Layout



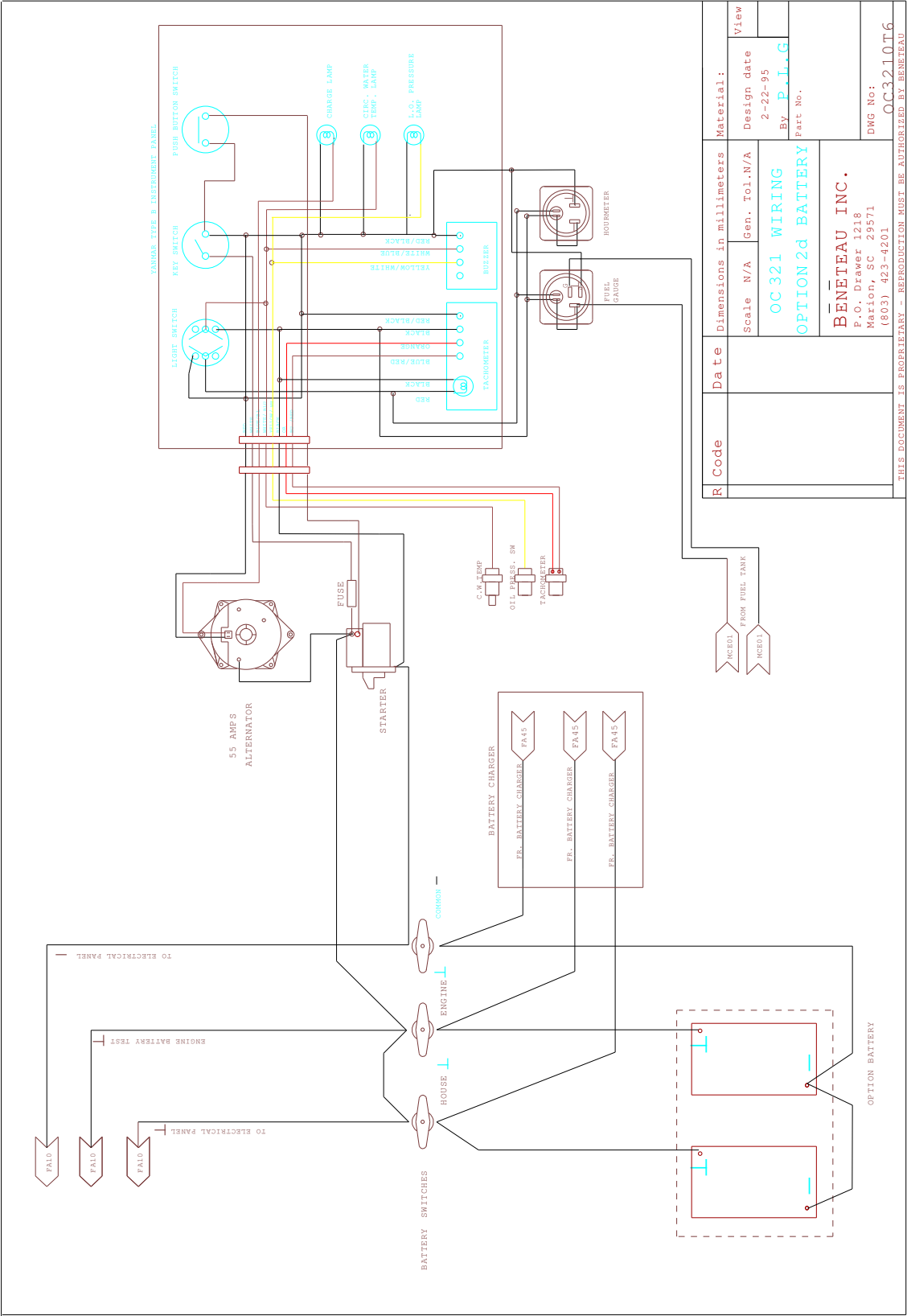


13.13.2.1. Operation

1. Shut down the diesel engine.
2. Switch all 110V breakers off.
3. Switch the dock outlet breaker off.
4. Plug the shore power cord into the boat and dock outlet.
5. Switch the dock breaker on.
6. Switch the panel breakers on as needed.

WARNING! DO NOT OPERATE THE 110V WATER HEATER DRY.

13.13.3. Optional 2nd Battery Wiring

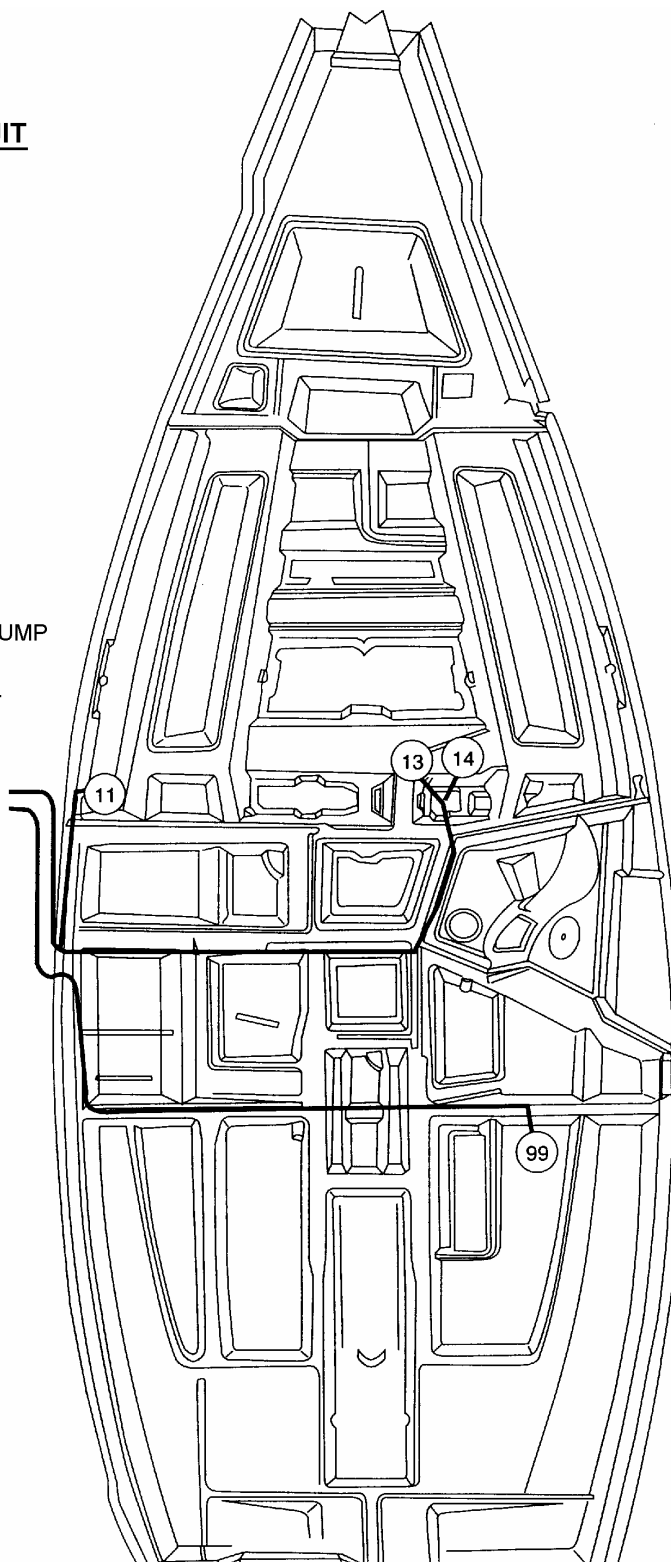


13.13.4. Conduit Routing In The Hull Liner

ELECTRIC CIRCUIT

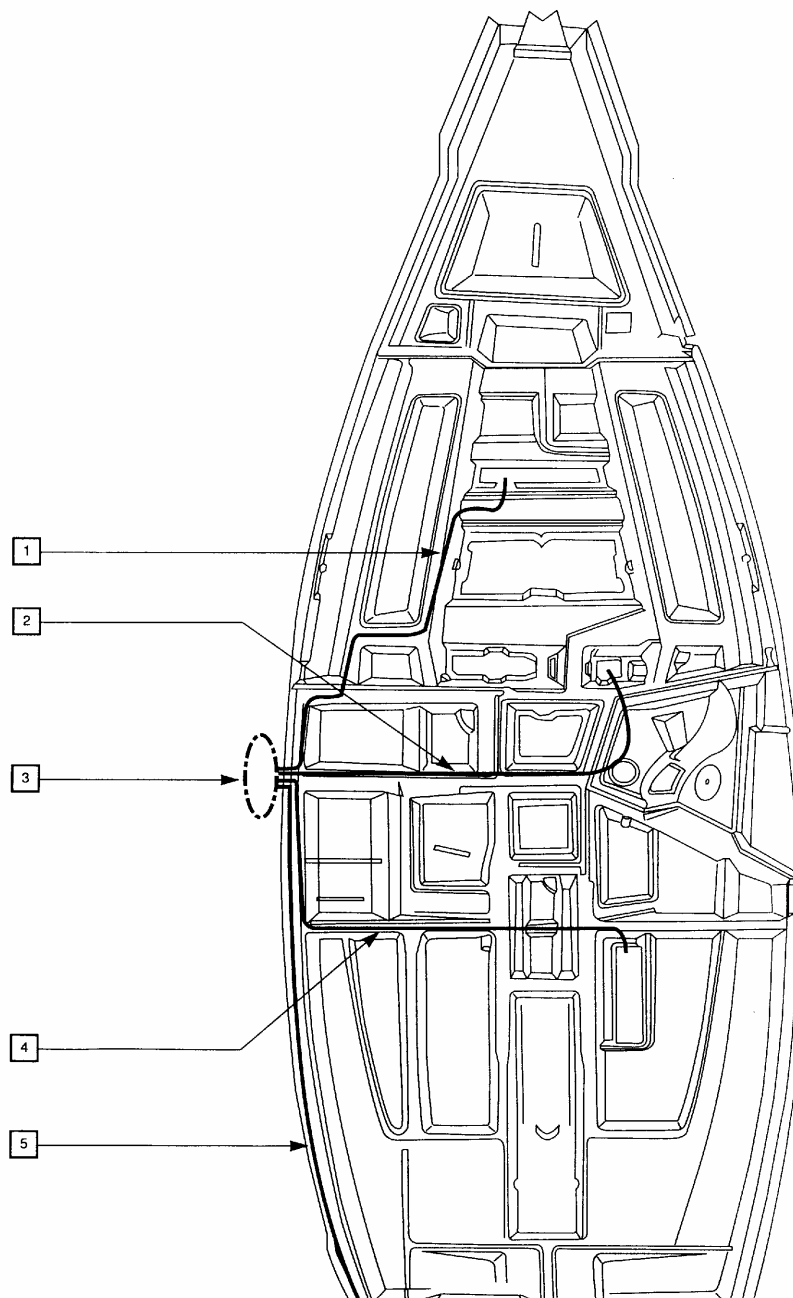
- 11 REFRIGERATOR
- 13 FRESH WATER PUMP
- 14 BILGE PUMP
- 99 ELECTRIC PANEL

WIRING

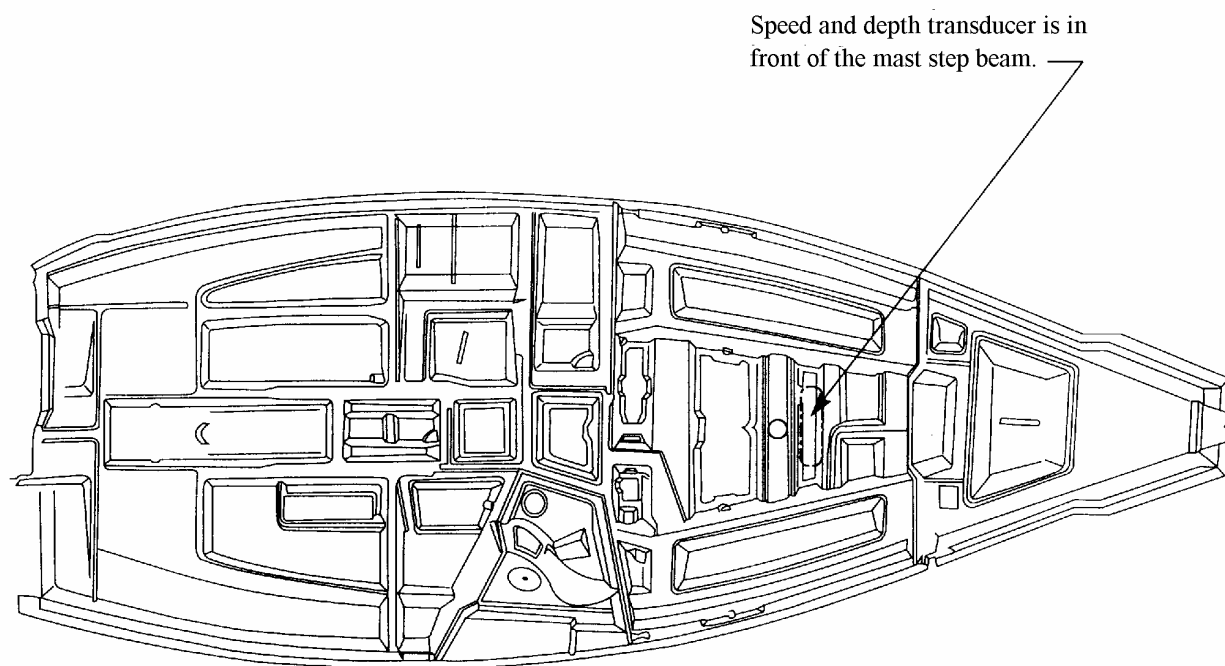


13.13.5. Option Conduit Routing In The Hull Liner

- 1 Depth sounder to electric panel
- 2 Water Heater to electric panel
- 3 Electric panel (access behind the stove)
- 4 Engine room to electric panel
- 5 Transom to electric panel

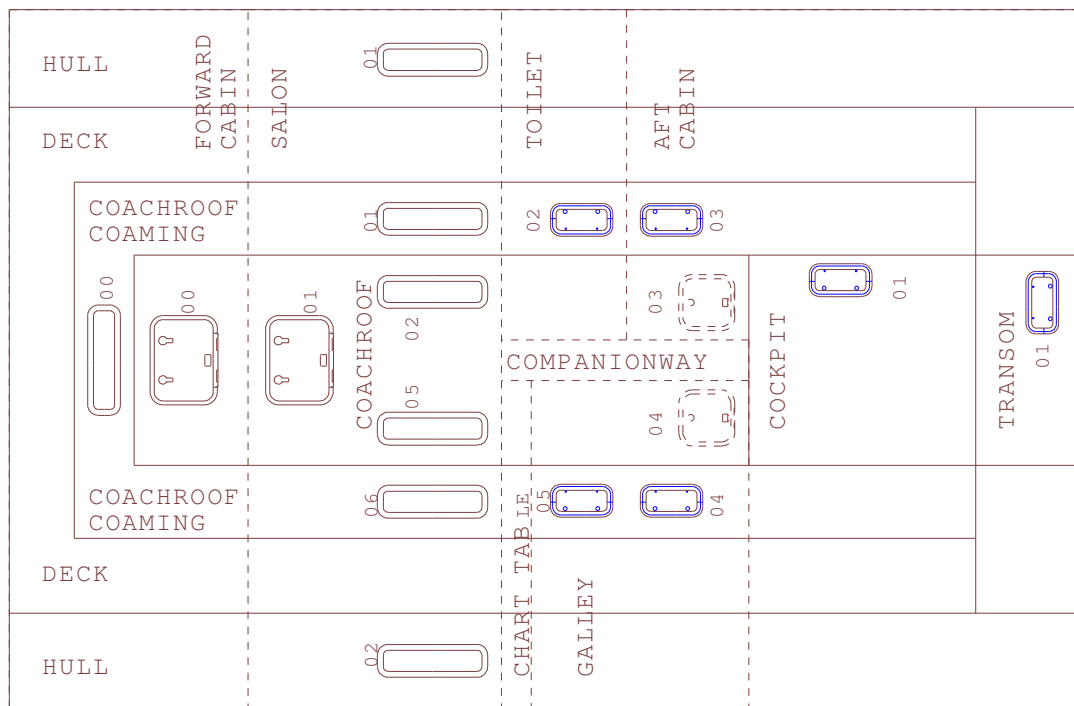


13.13.6. Speed and Depth Transducer Location



REF NO	HATCH OR PORT	TRIM	SCREEN	BLIND OR CURTAIN
HULL 01, 02	FIXED PORT 032565	ALU 027406	NONE	NONE
COACHROOF COACHING 00	FIXED PORT 026183	GELCOAT FINISH	NONE	CURTAIN
03, 04, 05	OPENING PORT 03012508	PLASTIC 03012423	INCLUDED	CURTAIN
02	OPENING PORT 03012508	PLASTIC 03012423	INCLUDED	NONE
01, 06	FIXED PORT 032565	GELCOAT FINISH	NONE	CURTAIN
OPTIONAL 01, 06	OPENING PORT 03012509	PLASTIC 03012425	INCLUDED	CURTAIN
COACHROOF 00, 01	OPENING HATCH 03012020	GRP OF DECKLINER	03012630 & 03012700 OPTIONAL	BLIND 006099
02, 05	FIXED PORT 026183	GRP OF DECKLINER	NONE	CURTAIN
OPTIONAL 03	OPENING HATCH 03012025	PLASTIC 03012417	03012610 WITH OPTION	CURTAIN
OPTIONAL 04	OPENING HATCH 03012025	PLASTIC 03012417	03012610 WITH OPTION	NONE
COCKPIT 01	OPENING PORT 03012508	PLASTIC 03012423	INCLUDED	CURTAIN
TRANSOM 01	OPENING PORT 03012508	PLASTIC 03012423	INCLUDED	CURTAIN

R Code	Date	Dimensions in Millimeters		Material: N/A	
		Scale: NONE	Gen.Tol. NONE		Design date
		DECK HATCHES AND PORTS 0321			05/10/94
					By: BADB
0 PROTOTYPE	05/10/94			DWG No: 3210VR00	
		BENÉTEAU INC P.O. Drawer 1218 Marion, SC 29571 (803) 423-4201		Part No. 03210CVR00	

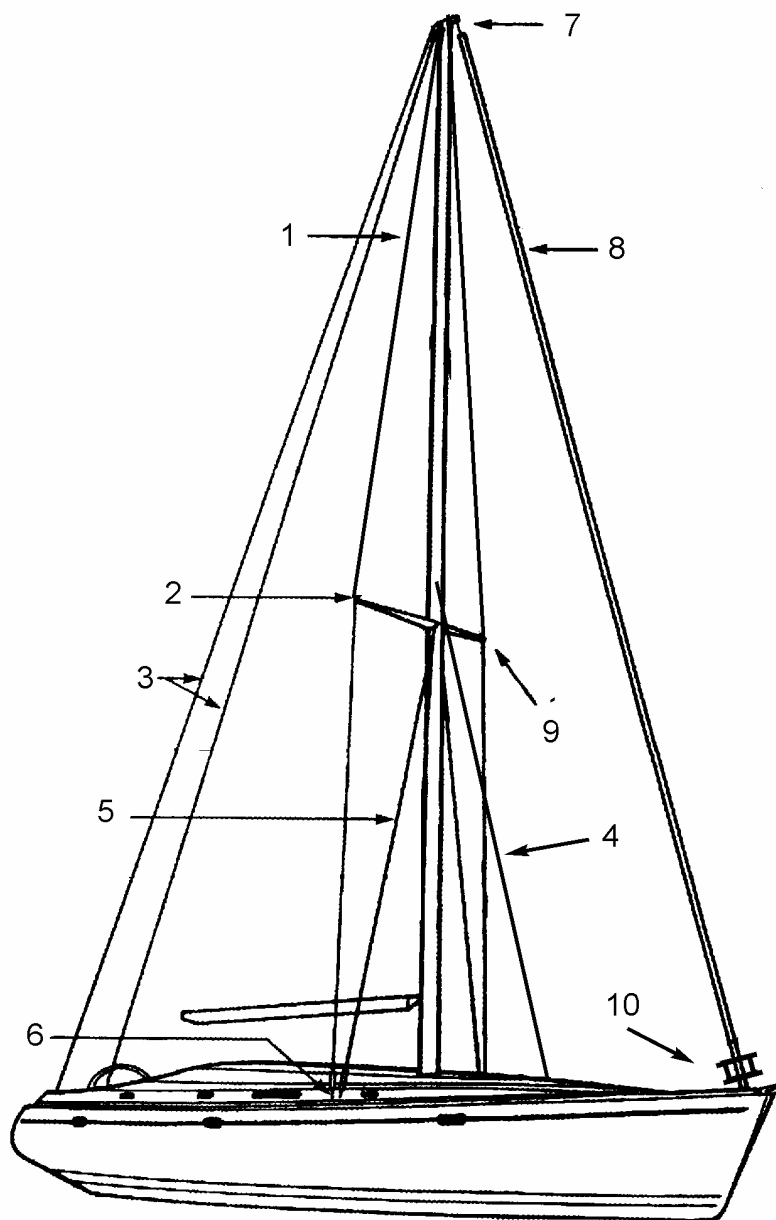


13.15. RIGGING

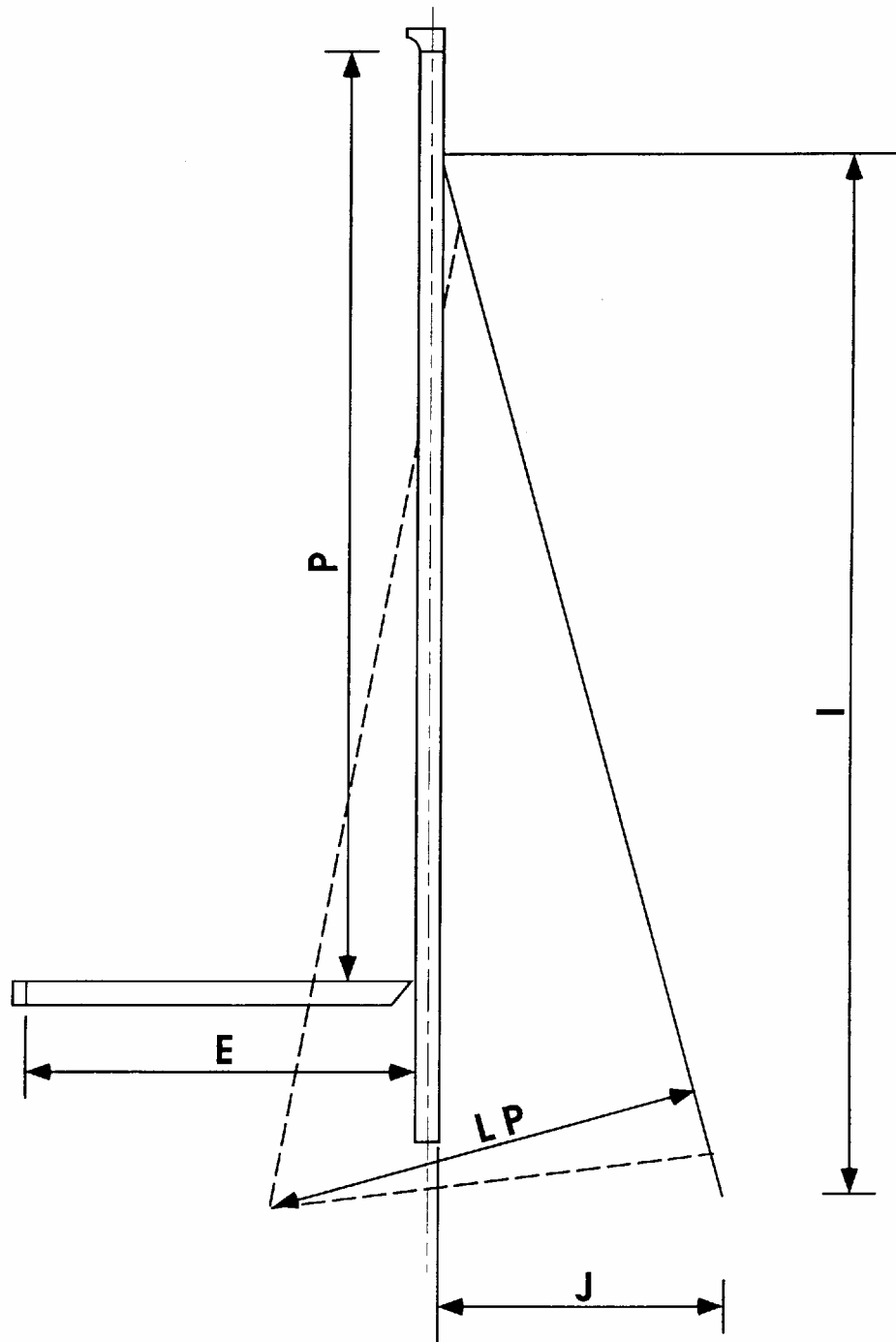
13.15.1. General Description

The rig consists a mast and boom held up and tensioned by the standing rigging. The standing rigging on your Oceanis is discontinuous. This arrangement saves weight aloft by eliminating extra shrouds. The sails are attached to the mast, boom and genoa furler. The sails are shaped and controlled by the running rigging.

1. Cap Shroud (V1D2)
2. Spreader Tip
3. Backstays
4. Babystay
5. Aft Lowers Shroud (D1)
6. Chainplate & Turnbuckles
7. Masthead
8. Forestay
9. Spreaders
10. Roller Furling Drum Above Deck



13.15.2. Measurements

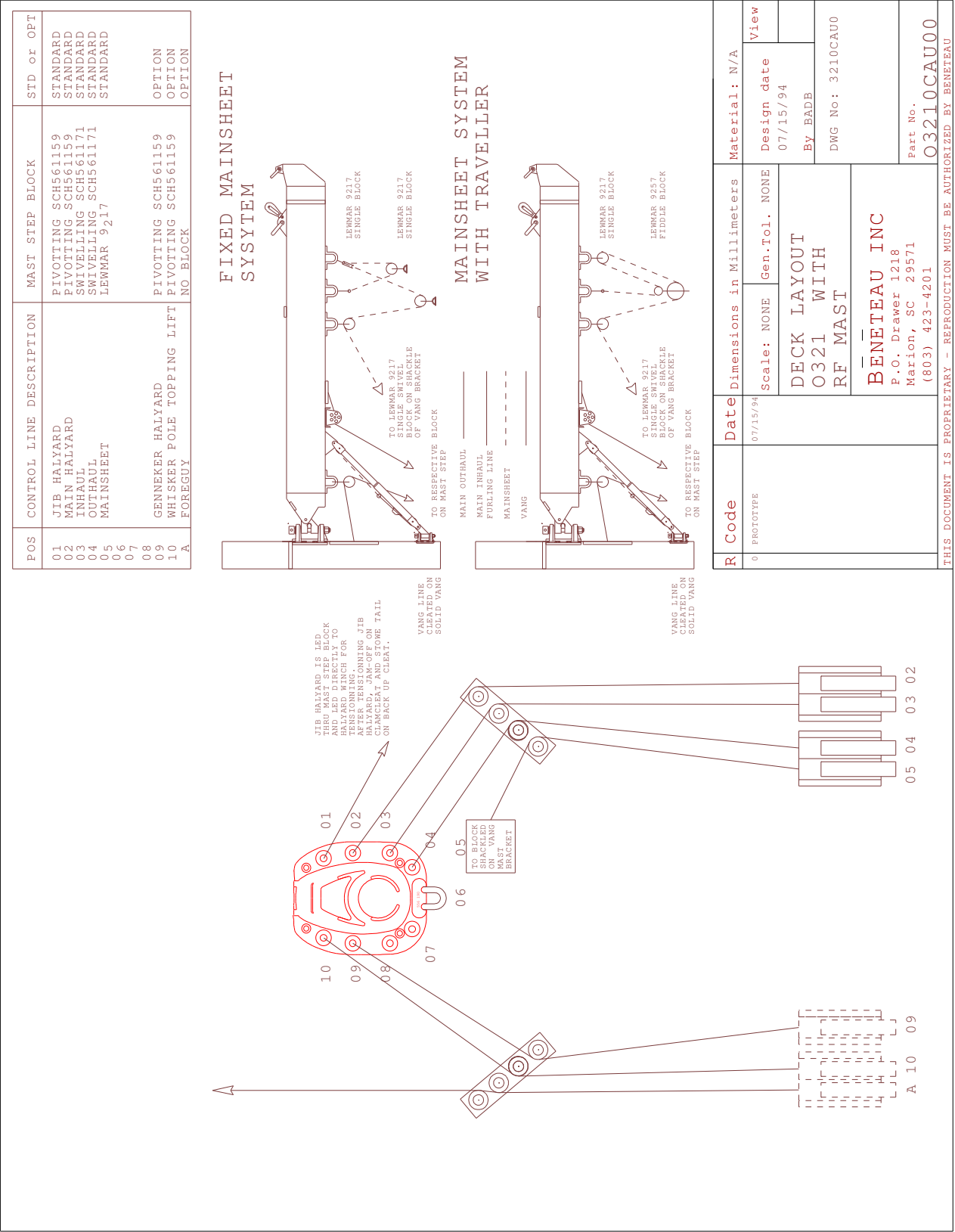


13.15.3. Tuning

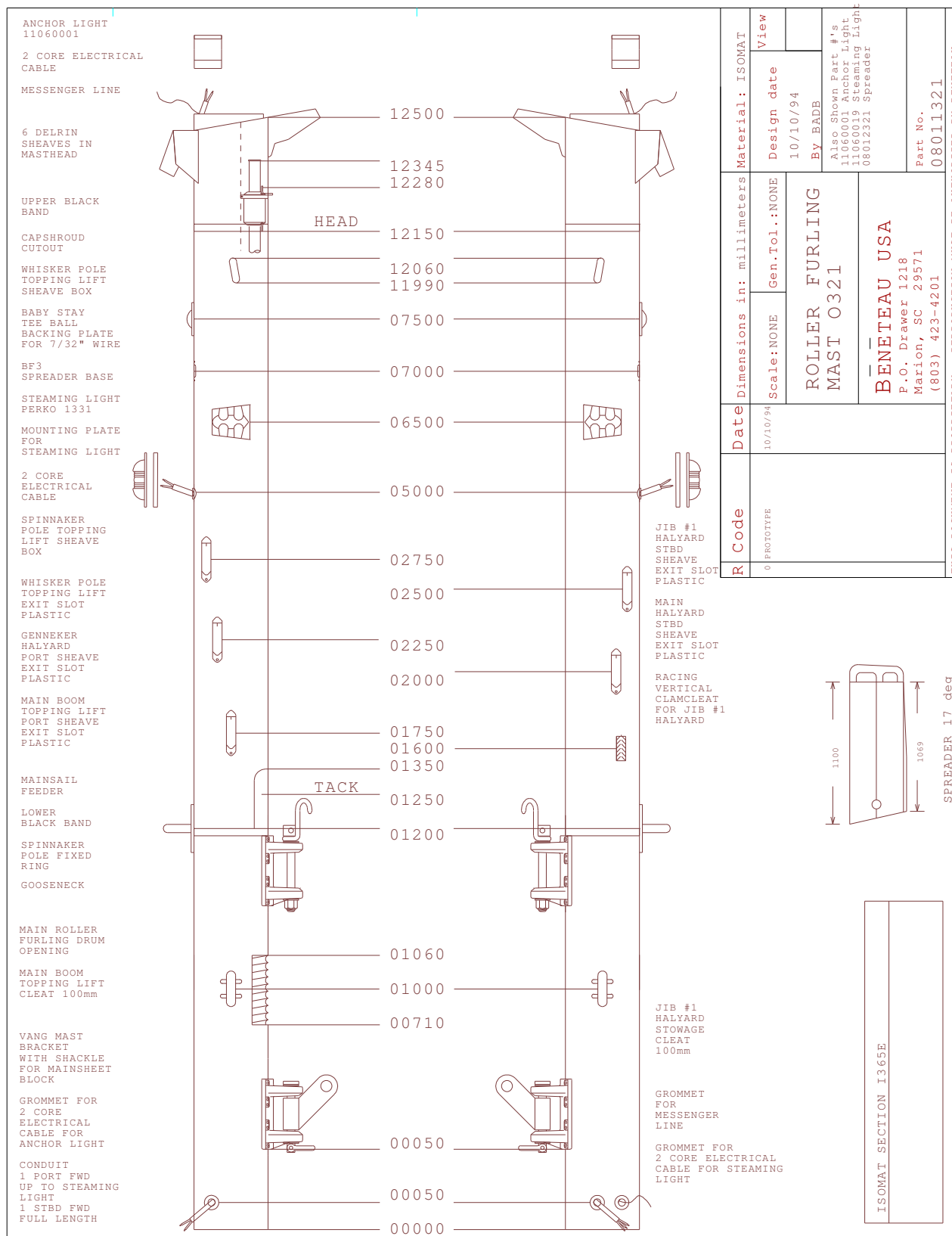
To achieve the best performance from your boat the mast and rigging needs to be tuned correctly, the initial tuning of your boat should be completed by your Beneteau Dealer. The tuning of your Beneteau takes a little bit of time and care, but if the mast is correctly setup initially it will require very little adjustment in the future. (some stretch will occur with new wire and the rig may need adjustment to compensate for this initial stretch).

1. Keep all turnbuckle threads clean and free of grit. Always apply copper paste or never seize to the turnbuckle threads before screwing on the turnbuckle bodies.
2. Attach the V2/D3's and D2's to the lower spreader tip turnbuckles.
3. Set the V2/D3's to the length specified in the rigging specs on page 57.
4. Leave the D2's slack.
5. Step the mast and attach the genoa furler first. The headstay is a fixed length, this sets up the mast rake automatically.
6. Attach and finger tighten the V1's and backstays, attach the fore and aft D1's leaving these turnbuckles loose.
7. Center the mast in the boat by tightening the V1's alternately until the masthead is centered athwart ships. (Attach a tape measure to the main halyard and measure to opposite points on the toerail to check the position)
8. Commence tightening the V1's with equal turns on each side until they become tight. (Be sure the D2's do not come under any tension during this process.)
9. When the V1's are tight start tensioning the aft D1's equally keeping the mast in column until they are tight. (Looking up the aft side of the mast, the mainsail track should be straight up and down. Equalize the tension on the D1's to keep the track straight)
10. Tension the forward D1's equally, again check the mast to maintain it in column.
11. Now go up the mast and tighten the D2's. These do not have to be very tight. They only hold the mast straight while sailing and do **NOT** require a lot of tension.
12. Tighten the backstays, if you have a furling mast do not induce any bend in the mast by over tightening the backstays.
13. Pin all turnbuckles and tape around the turnbuckle body with rigging tape only where the pins go through.
14. The mast should remain straight while sailing on either tack.
15. Do not worry if the leeward shrouds are slightly slack under sail . For most sailing it is quite acceptable.

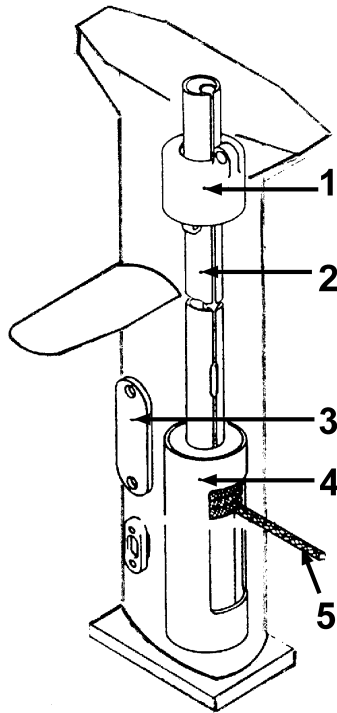
13.15.4. Roller Furling Mast Deck Layout



13.15.5. Roller Furling Mast Drawing



13.15.6. Roller Furling Mast



1. Main Swivel Hoist Car
2. Furling Tubes
3. Access Plate
4. Main Sail Furling Drum
5. Main Sail Furling Line

of

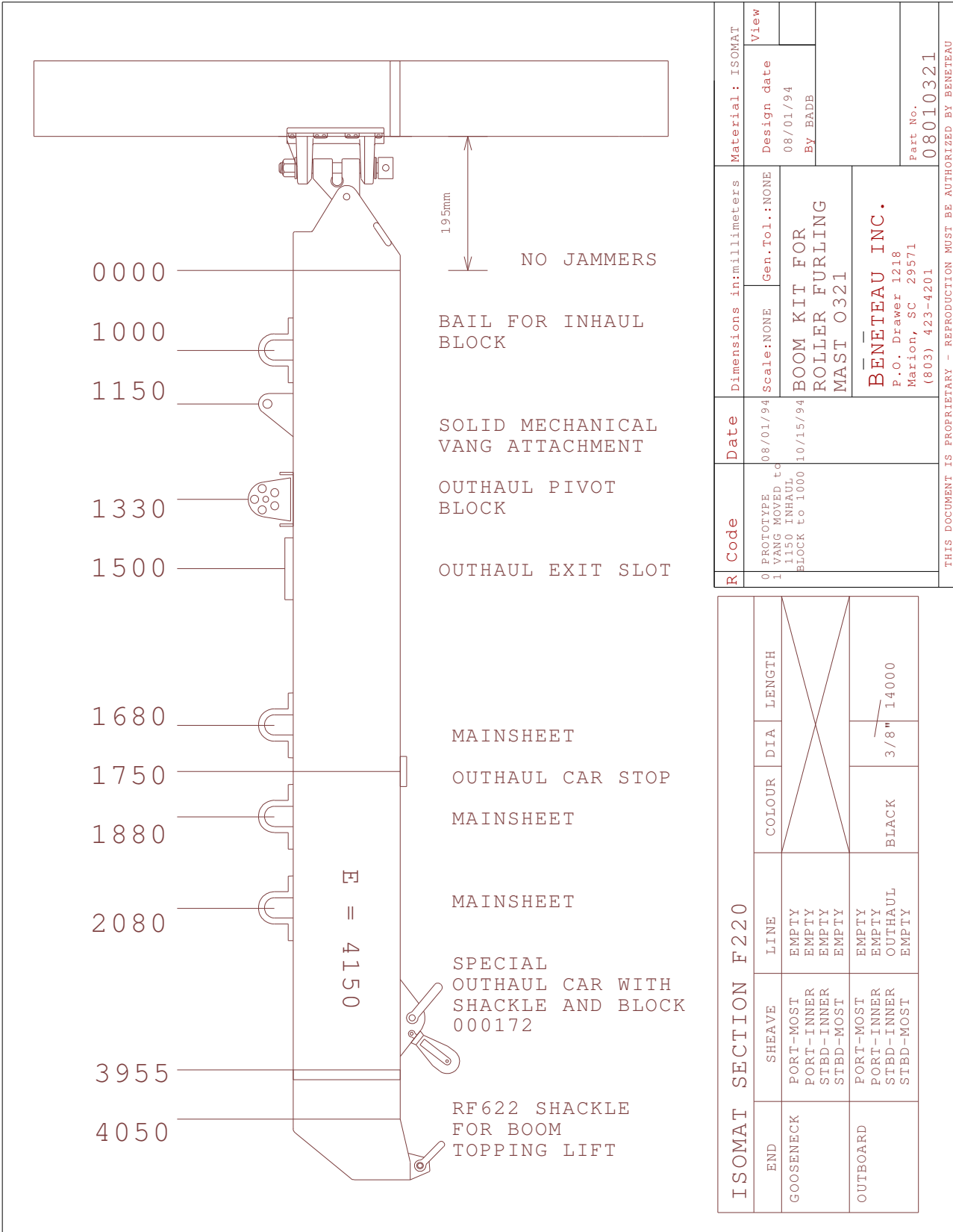
MAINSAIL INSTALLATION

1. The main should be installed in as little wind as possible.
2. Be sure the furling drum line is completely wound with line before installing the mainsail. (Wind the drum by hand to wrap more line onto the drum.)
3. Lower the main swivel hoist car to the gooseneck with the main halyard.
4. Attach the mainsail headboard to the shackle on the bottom of the swivel car.
5. Hoist the mainsail slowly, feeding the luff tape into the extrusion luff groove.
6. Attach the mainsail tack to the lower swivel shackle and tension the luff with a winch.
7. Run the out haul line thru the block on the clew of the main and back to the out haul car.
8. The main is now ready to be furled.
9. When sail is out, there should be no less than 2 wraps and no more than 4 wraps.

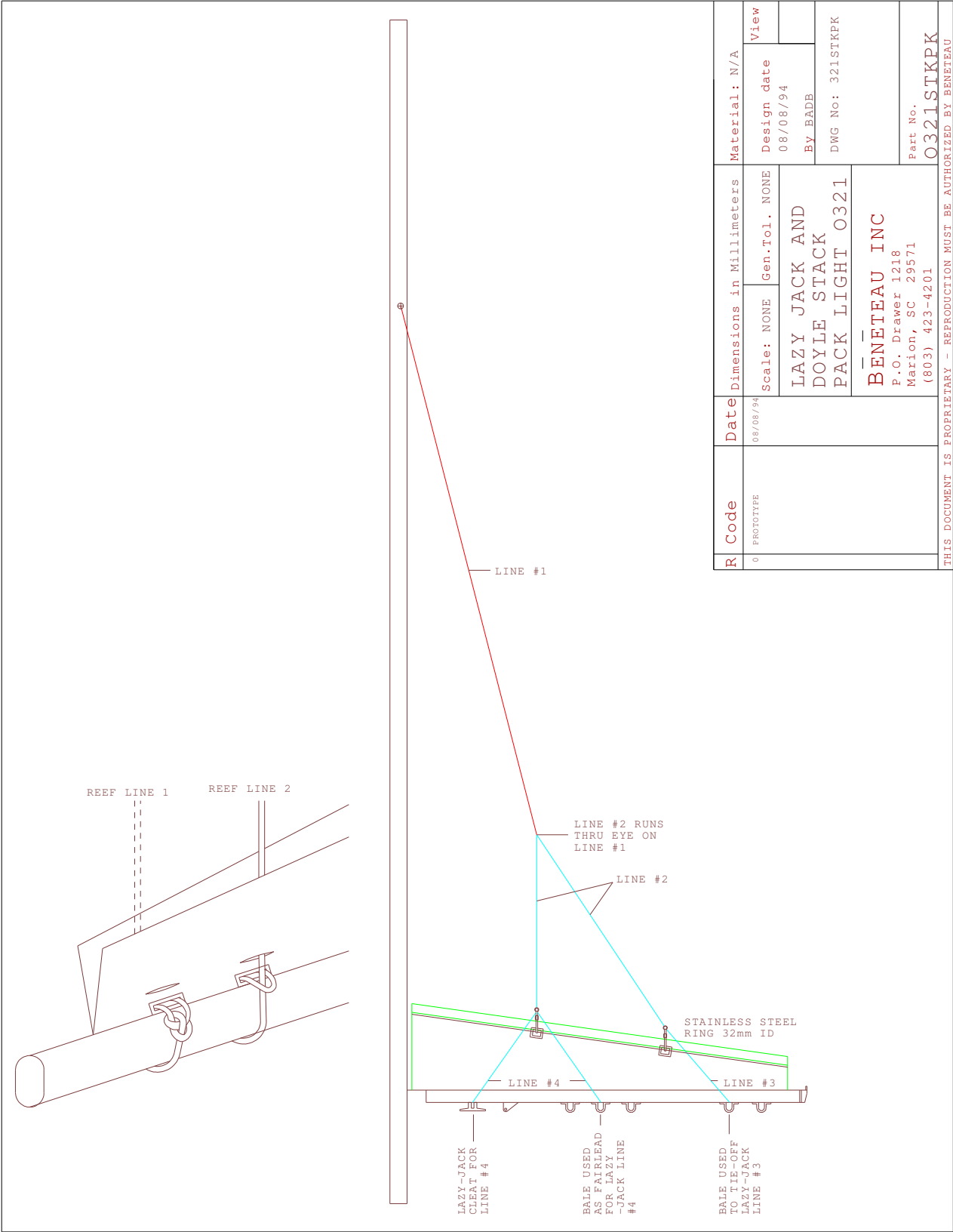
FURLING MAST OPERATION

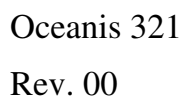
1. Two lines control the mainsail furling operation: The furling line controls the rotation of the furling tubes and the out haul line controls the tension on the sail.
2. **NOTE: IT IS IMPORTANT TO REMEMBER THAT THE FURLING LINE CONTROLS THE SAIL AREA AND THE OUT HAUL LINE CONTROLS THE SAIL SHAPE!**
3. Always furl and unfurl the main with the boat head up to wind.
4. The main is unfurled by easing out the furling line while taking up on the mainsail out-haul.
5. The main is furled by taking in on the main inhaul line, it is important to feed the out haul line as you furl the main.
6. **NOTE: NEVER TAKE IN ONE LINE WITHOUT KEEPING A LITTLE TENSION ON THE OPPOSITE LINE!**
7. The main may be reefed by turning the boat into the wind and furling the main up to the marked reef points on the sail.

13.15.7. Boom Kit For Roller Furling Mast

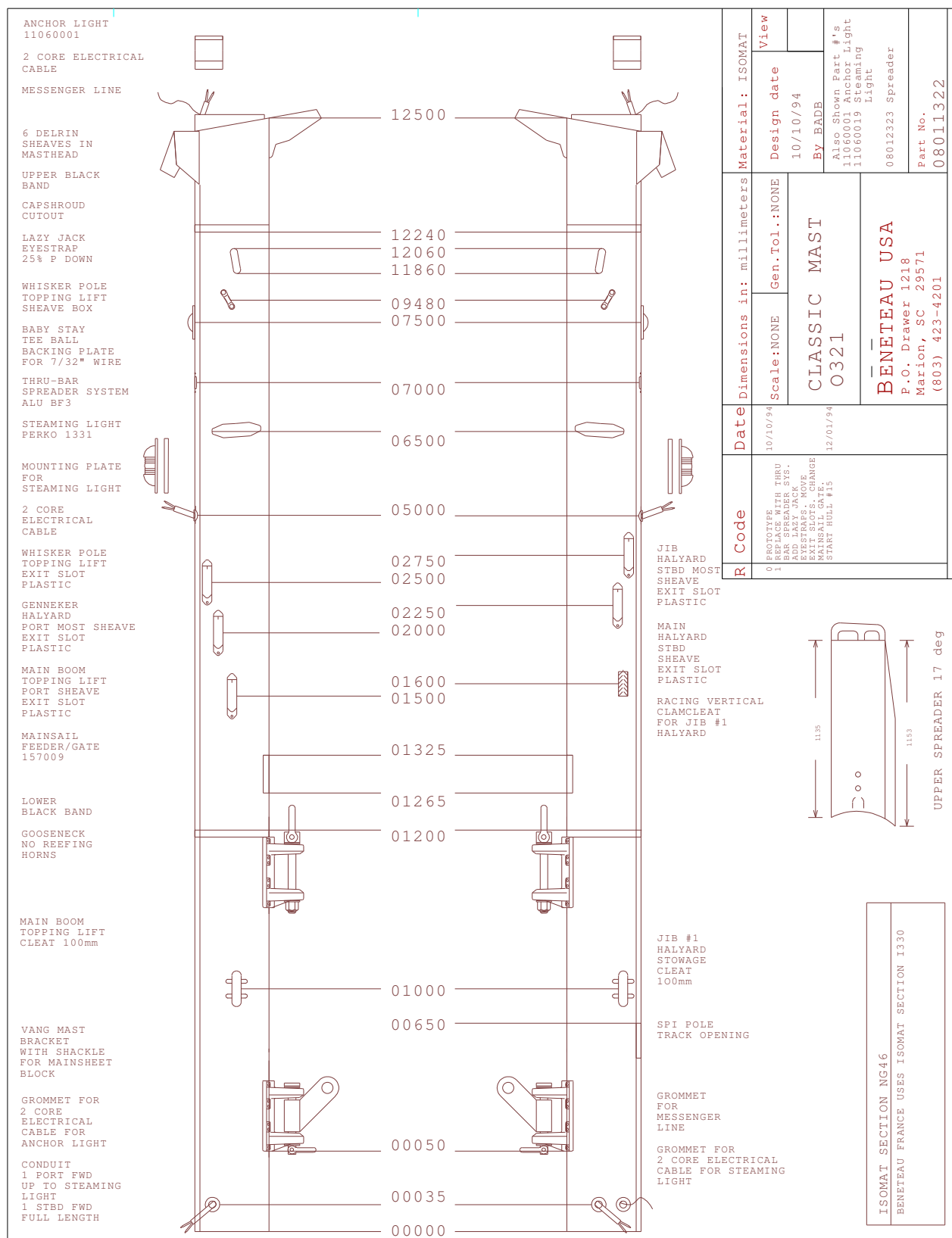


13.15.8. Stack Pack Installation

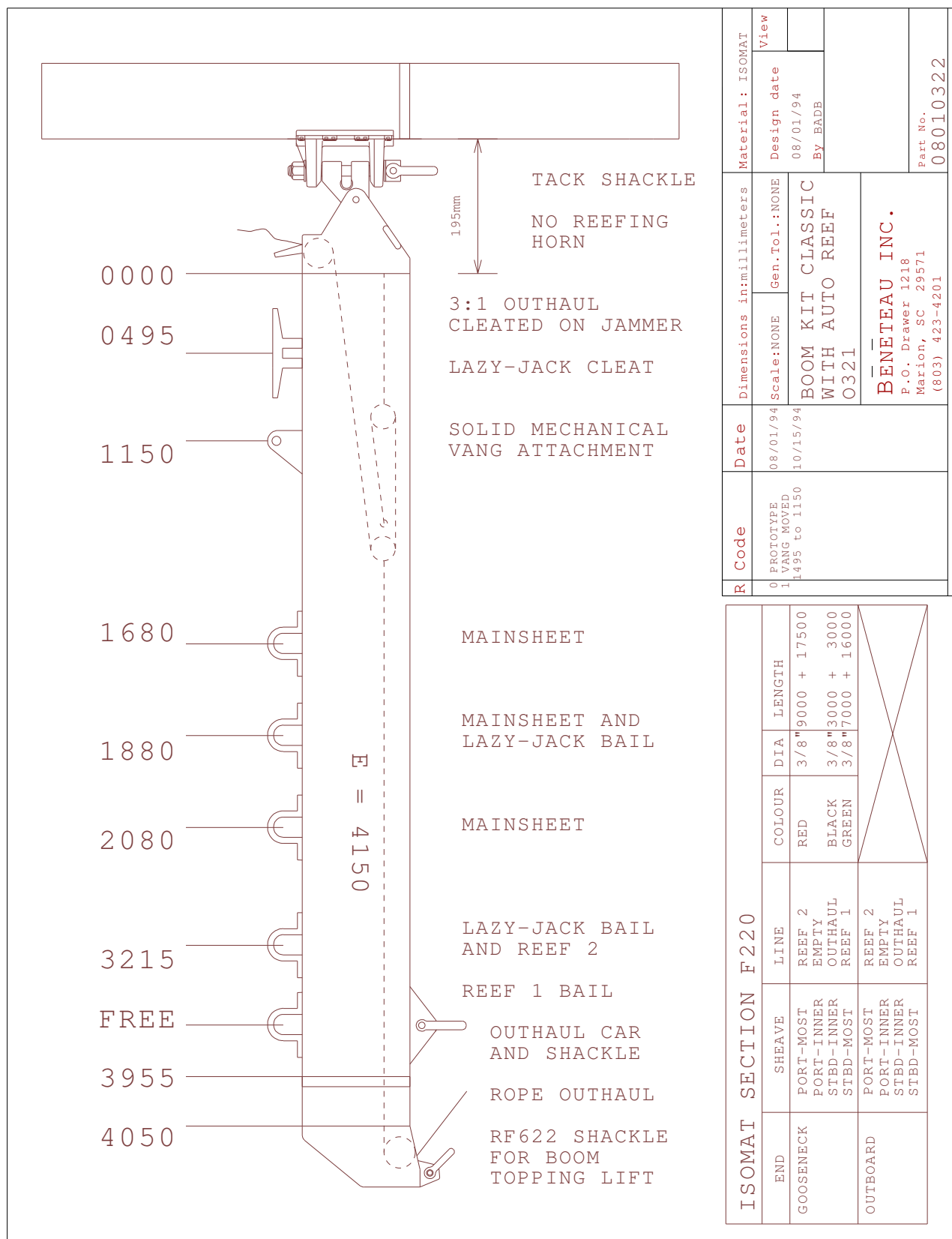




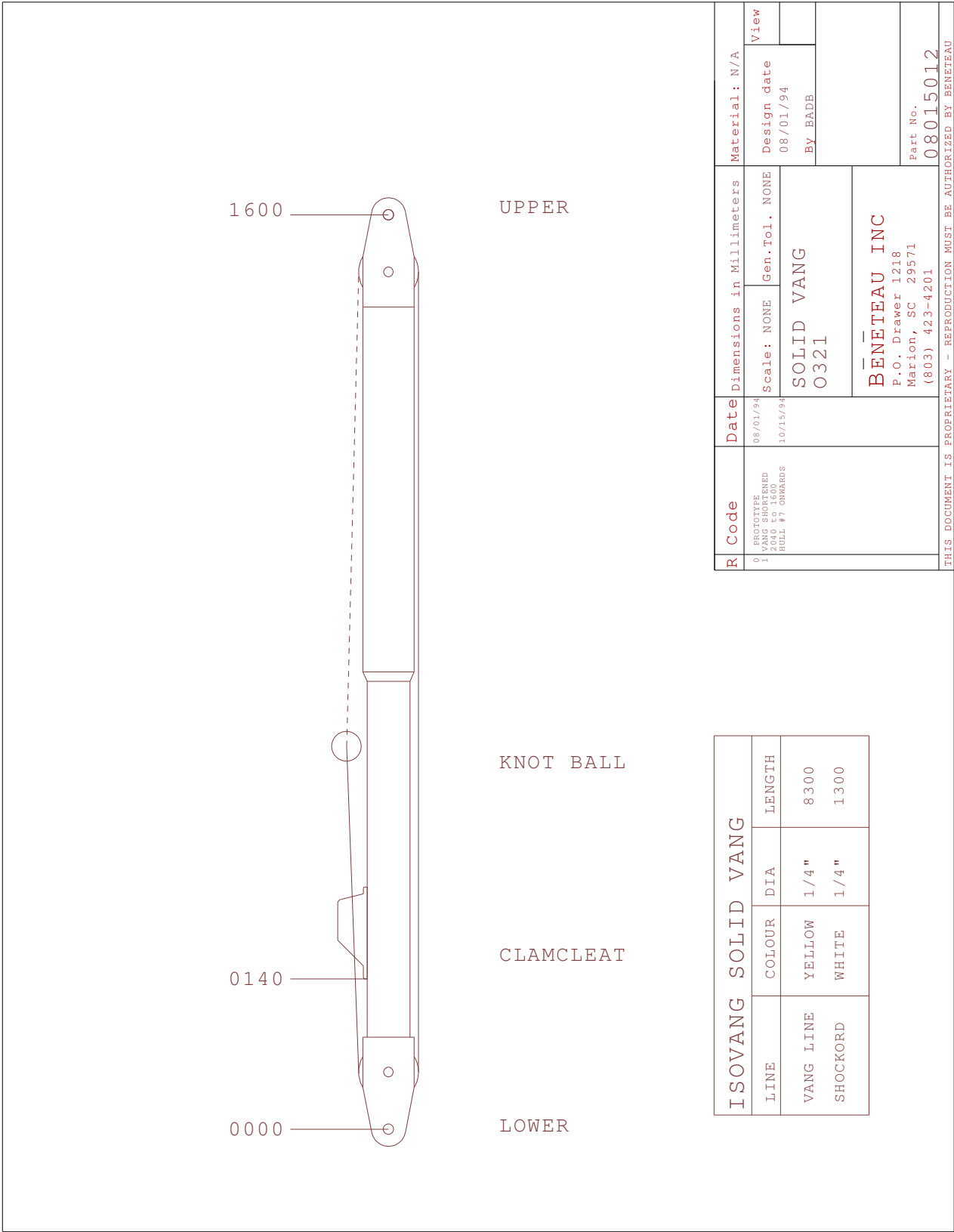
13.15.10. Classic Mast



13.15.11. Boom Kit For Classic Mast

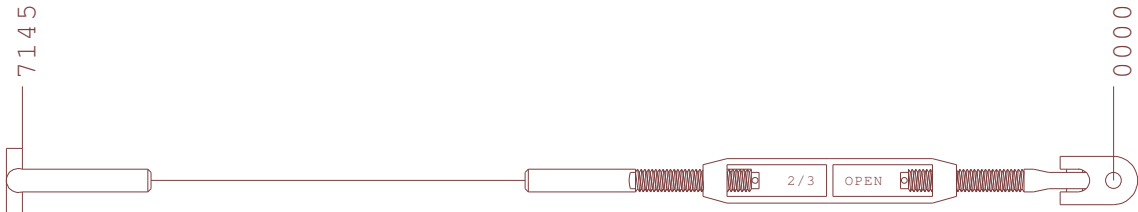


13.15.12. Solid Vang



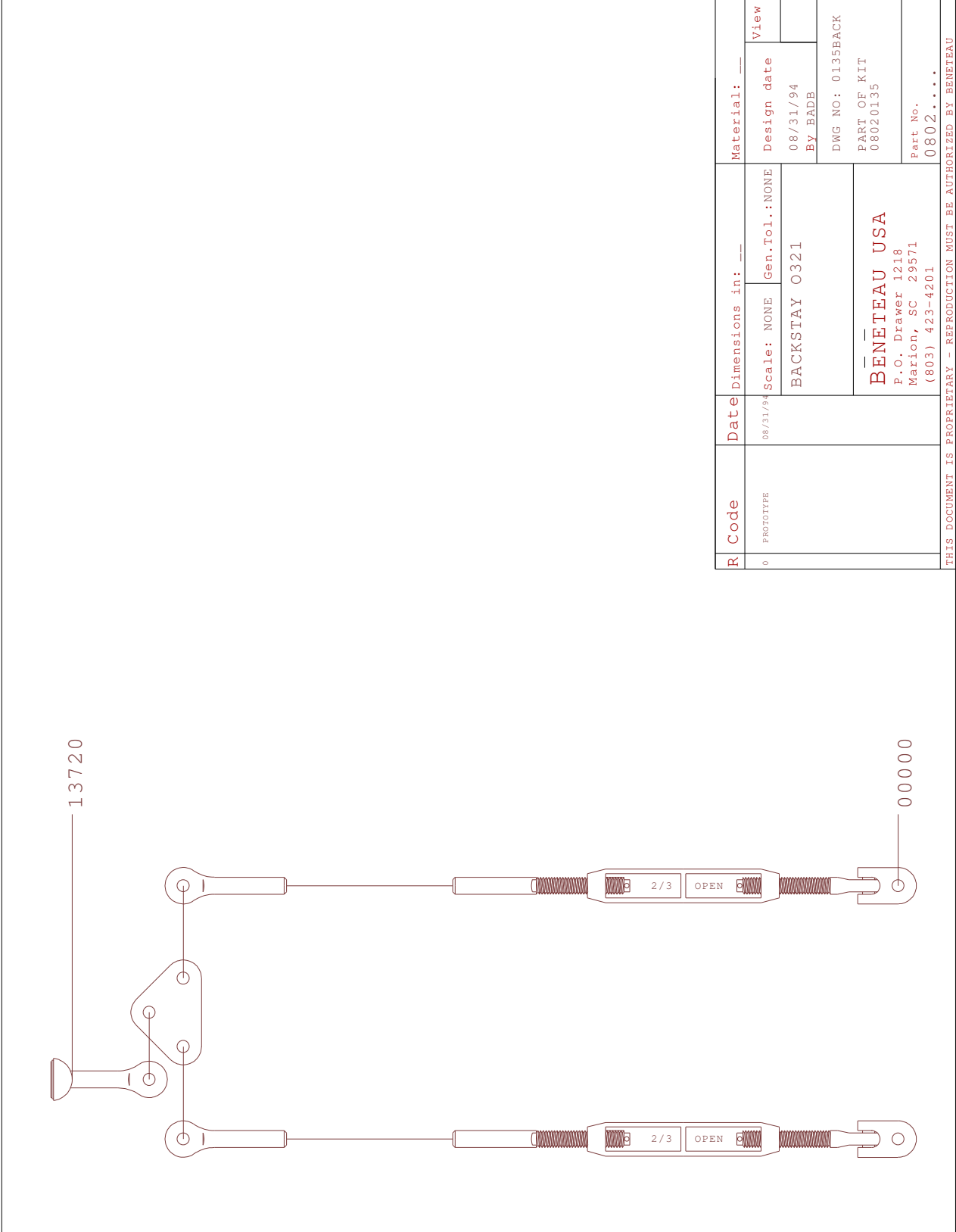
13.15.13.Standing Rigging Drawings

Babystay



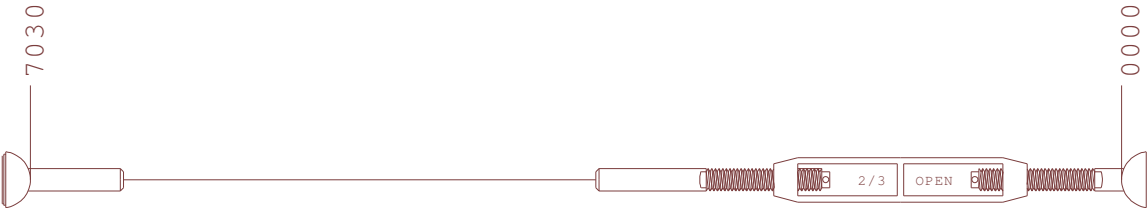
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		BABYSTAY O321		By	BADB	
				DWG NO: 0135BABY		
				PART OF KIT		
				08020135		
				Part No.		
				0802.....		
THIS DOCUMENT IS PROPRIETARY — REPRODUCTION MUST BE AUTHORIZED BY BENETEAU						

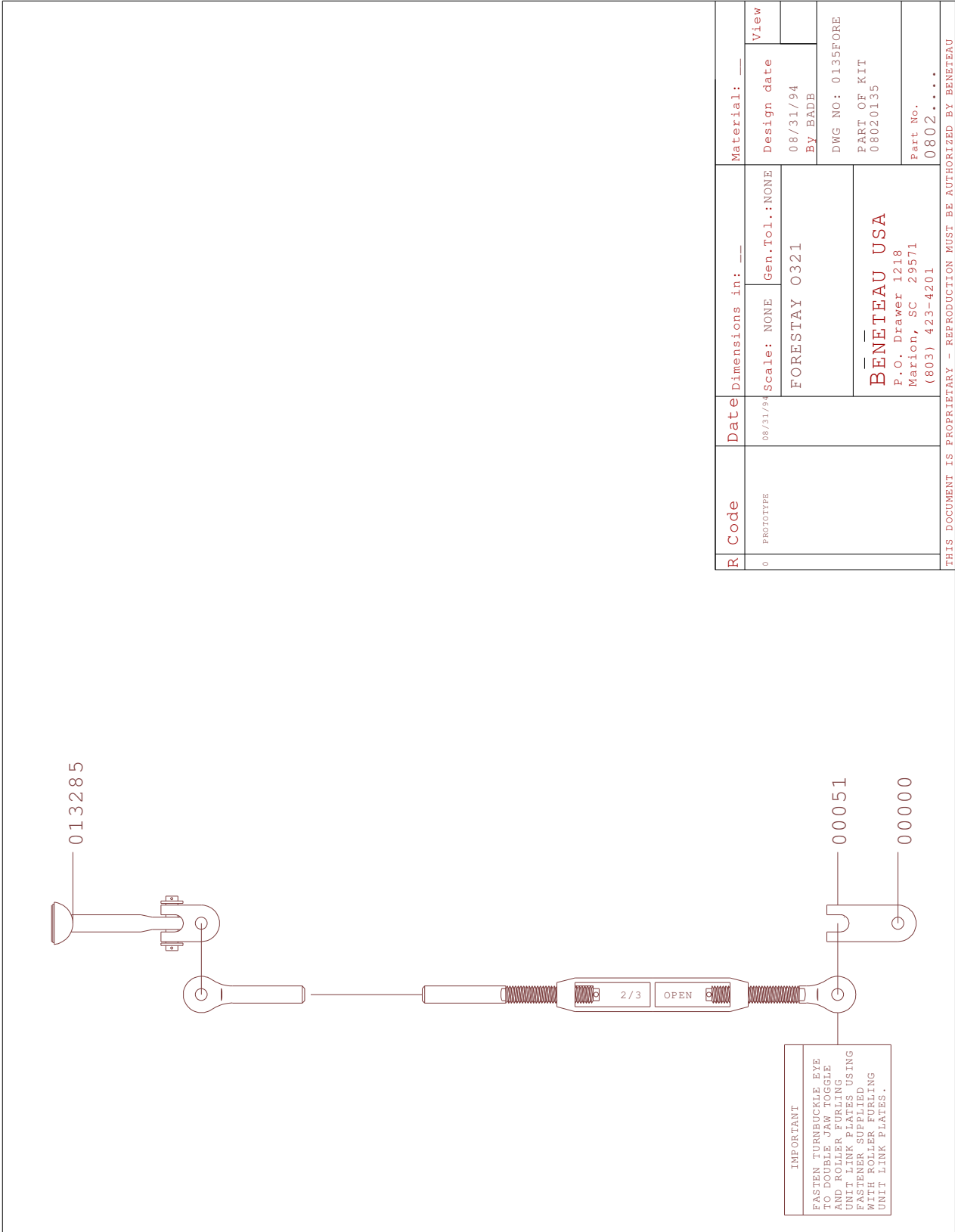
Backstay



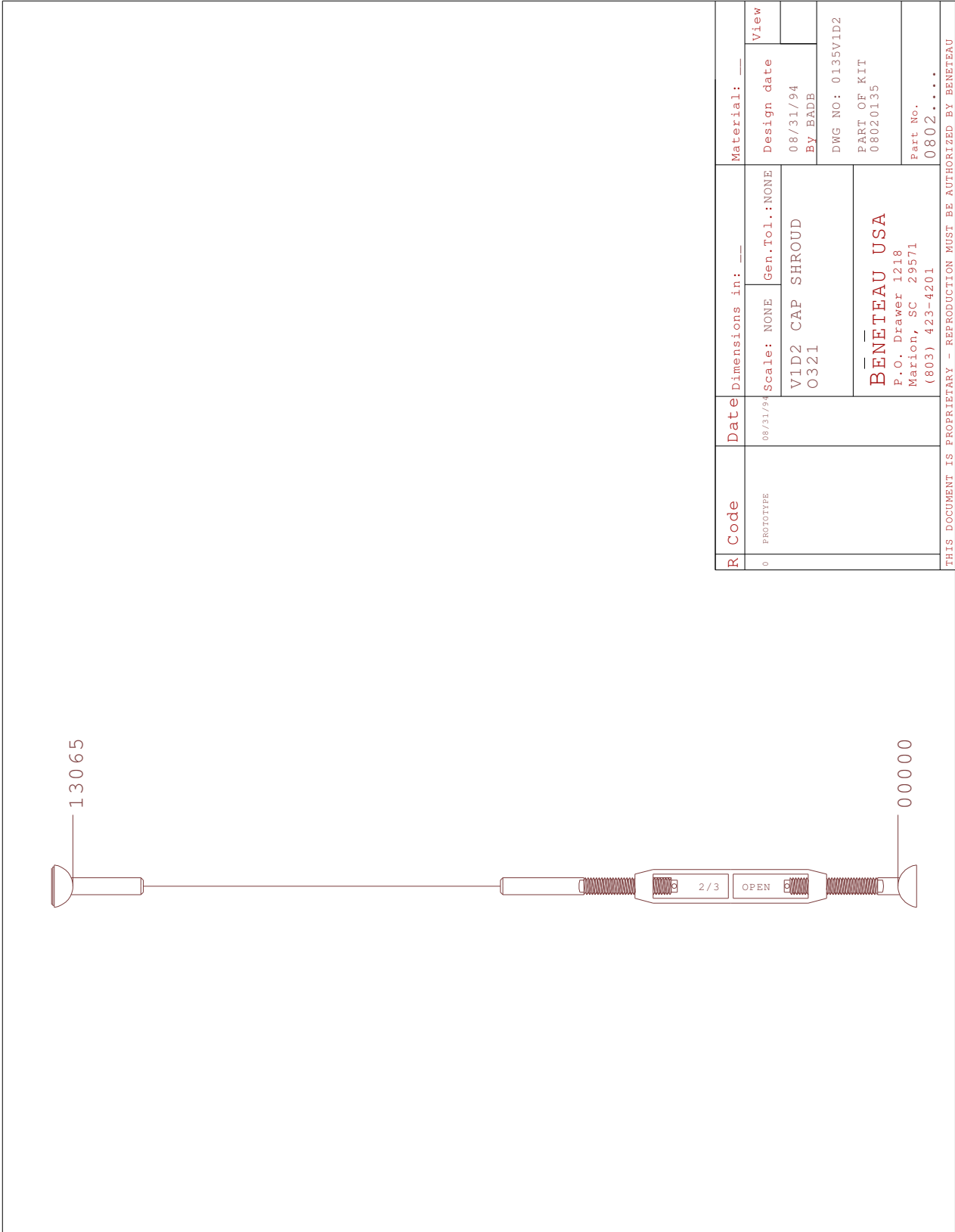
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			BY BADB			
			DWG NO: 0135BACK			
			PART OF KIT			
			08020135			
					Part No.	
					0802.....	
THIS DOCUMENT IS PROPRIETARY - REPRODUCTION MUST BE AUTHORIZED BY BENETEAU						

D1 Lower Shroud

		R Code	Date 08/31/94	Dimensions in: _____		Material: _____	View
				Scale: NONE	Gen.Tol.: NONE		
		0 PROTOTYPE			D1 LOWER SHROUD O321		Design date 08/31/94 By BADB
					DWG NO: 0135D1 PART OF KIT 08020135		
				BENETEAU USA P.O. Drawer 1218 Marion, SC 29571 (803) 423-4201		Part No. 0802.....	
THIS DOCUMENT IS PROPRIETARY - REPRODUCTION MUST BE AUTHORIZED BY BENETEAU							



V1 D2 Cap Shroud



R Code	Date	Dimensions in: ____		Material: ____	
0 PROTOTYPE	08/31/94	Scale: NONE	Gen.Tol.: NONE	Design date	View
		V1D2 CAP SHROUD		08/31/94	
		O321		By BADB	
				DWG NO: 0135V1D2	
				PART OF KIT	
				08020135	
				Part No.	
				0802.....	
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13.15.14.Standing Rigging Specifications

BENETEAU OCEANIS 321 STANDING RIGGING SPECIFICATIONS

8/31/94
7:16 PM

PART No.	STAY or SHROUD	LENGTH mm	FEET	IN	DIA	QTY	TERMINAL 1	TERMINAL 2	OTHER NOTES	TYPE	SUPPLIER
Rev.01 PART OF KIT 08020135	FORESTAY	13285	43	7 0 / 16	9/32"	1	NG1 STEM BALL EYE WITH D26 CUP WASHER SBENG116 + JAW AND JAW TOGGLE J2001616 + MARINE EYE SWAGE ME09 WITH 1/2" HOLE 1 1/8" WIDE	1/2" STUD SWAGE AND EYE TURNBUCKLE SWS0916 + TBO16 + TME16 WITH JAW AND JAW TOGGLE J2001616 2" LONG WITH 1/2" HOLE 1 1/8" WIDE	MEASURED STEMBALL TO PIN OF JAW AND JAW TOGGLE	S/S 1x19	Seco South OK FOR PROD
Rev.01 PART OF KIT 08020135	BABYSTAY	7145	23	5 5 / 16	7/32"	1	T BALL TBA07	3/8" STUD SWAGE AND TOGGLE FORK TURNBUCKLE TB071212	MEASURED T BALL TO PIN OF TURNBUCKLE TOGGLE	S/S 1x19	Seco South OK FOR PROD
Rev.01 PART OF KIT 08020135	BACKSTAYS	13720	45	0 1 / 8	7/32"	2	NG1 STEM BALL EYE WITH D26 CUP WASHER SBENG116 + DOUBLE DELTA PLATE SP161414 + MARINE EYES ME0714	3/8" STUD SWAGE AND TOGGLE FORK TURNBUCKLE TB071212	MEASURED FROM STEMBALL OF STEMBALL EYE TO PIN OF TURNBUCKLE TOGGLE	S/S 1x19	Seco South OK FOR PROD

BENETEAU OCEANIS 321 STANDING RIGGING SPECIFICATIONS

8/31/94
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PART No.	STAY or SHROUD	LENGTH mm	FEET	IN	DIA	QTY	TERMINAL 1	TERMINAL 2	OTHER NOTES	TYPE	SUPPLIER
Rev.01 PART OF KIT 08020135	VID2 SHROUD CAP	13065	42	10 3 / 8	9/32"	2	NG1 STEM BALL SB09 AND CUP WASHER BC07	1/2" STUD SWAGE SWS0916 AND TURNBUCKLE BODY TBBO16	MEASURED FROM STEM BALL SWAGE TO THREADED STEM BALL ON CHAIN PLATE	S/S 1x19	Seco South OK FOR PROD
Rev.01 PART OF KIT 08020135	D1 AFT LOWER	7030	23	0 3 / 4	9/32"	2	NG1 STEM BALL SB09 AND CUP WASHER BC07	1/2" STUD SWAGE SWS0916 AND TURNBUCKLE BODY TBBO16	MEASURED FROM STEM BALL SWAGE TO THREADED STEM BALL ON CHAIN PLATE	S/S 1x19	Seco South OK FOR PROD
08040500 Rev.00	1/2" D28 THREADED STEM BALL					4				S/S	Seco South

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13.15.15. Running Rigging Specifications

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BENETEAU OCEANIS 321 RUNNING RIGGING SPECIFICATIONS

PART No.	USAGE	MAKE & TYPE	COL	QTY	SUPPLIER	TERMINAL 1	TERMINAL 2	DIA	LENGTH mm	FEET	IN
08030944 Rev.00	Genneker Halyard	Samson XLS Extra	Red	1	Seco South OK FOR PROD	Soft Eye Snapshackle NF15000S	Whipping and Loop	3/8"	32000	104	11 13 / 16
08031066 Rev.00	Genneker Tack Strop	Samson LS	Red	1	Seco South OK FOR PROD	Soft Eye Snapshackle NF11000S	Whipping	3/8"	7000	22	11 9 / 16
08030961 Rev.00	Genneker Sheet	Samson XLS Extra	Red	1	Seco South OK FOR PROD	Soft Eye Snapshackle NF12000S	Whipping	3/8"	22500	73	9 13 / 16
08030949 Rev.00	Whisker Pole Topping Lift	Samson XLS Extra	Blue	1	Seco South OK FOR PROD	Soft Eye Snapshackle NF11000S	Whipping and Loop	5/16"	21000	68	10 3 / 4
08030962 Rev.00	Foreguy	Samson XLS 900	Red	1	Seco South OK FOR PROD	Soft Eye Snapshackle NF11000S	Whipping	3/8"	13500	44	3 1 / 2
08030963 Rev.00	Jib Halyard #1	Samson XLS Extra	Black	1	Seco South OK FOR PROD	Soft Eye D Shackle Captive Pin 6mm 20mm Wide	Whipping and Loop	3/8"	30500	100	0 3 / 4
08031067 Rev.00	Jib Sheet	Samson LS	Black	2	Seco South OK FOR PROD	Whipping	Whipping	7/16"	16900	55	5 3 / 8
Rev.00	Genoa Roller Furling Line		Blue	1	Isomat Facnor	Burnt	Burnt	5/16"	24000	78	8 7 / 8
08030964 Rev.00	Main Halyard	Samson XLS Extra	Grey	1	Seco South OK FOR PROD	Soft Eye D Shackle Captive Pin 8mm	Whipping and Loop	3/8"	30000	98	5 1 / 16
08031068 Rev.00	Mainsheet	Samson LS	Grey	1	Seco South OK FOR PROD	Soft Eye with 6mm D Shackle	Whipping and Loop	7/16"	18500	60	8 5 / 16
08030624 Rev.00	Main Boom Topping Lift	Samson LS	White	1	Seco South OK FOR PROD	Soft Eye Bar Shackle Captive Pin 6mm	Whipping and Loop	1/4"	25250	82	10 1 / 16
Rev.00	Solid Vang #1 Line		Yellow	1	Isomat	Burnt	Knot Ball Soft Eye	1/4"	8300	27	2 3 / 4

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BENETEAU OCEANIS 321 RUNNING RIGGING SPECIFICATIONS

PART No.	USAGE	MAKE & TYPE	COL	QTY	SUPPLIER	TERMINAL 1	TERMINAL 2	DIA	LENGTH mm	FEET	IN
Rev.00	Solid Vang Shockord		White	1	Isomat	Burnt	Soft Eye Looped thru Soft Eye of Line	1/4"	1300	4	3 3 / 16
08030815 Rev.02	Mainsheet Traveller Control Line	Samson LS	Blue	2	Seco South OK FOR PROD	Soft Eye	Whipping	5/16"	3658	12	0 0 / 16
Rev.02 Part of kit 08030634 Rev.02	Lazy Jack #1 Line - Hull #15 onwards	Samson LS	White	2	Seco South OK FOR PROD	Burnt End	Soft Eye - mark black line 5765mm from soft eye	1/4"	6765	22	2 5 / 16
Rev.00 Part of kit 08030634 Rev.02	Lazy Jack #2 Line	Samson LS	White	2	Seco South OK FOR PROD	Tight Soft Eye onto 32mm ID SS Ring	Tight Soft Eye onto 32mm ID SS Ring - pass thru soft eye of line #1 prior to attaching ring	3/16"	4250	13	11 5 / 16
Rev.00 Part of kit 08030634 Rev.02	Lazy Jack #3 Line	Samson LS	White	2	Seco South OK FOR PROD	Tight Soft Eye onto one of the 32mm ID SS Rings of Line #2	Burnt - mark black line 1020mm from Tight Soft Eye	3/16"	1220	4	0 0 / 16
Rev.00 Part of kit 08030634 Rev.02	Lazy Jack #4 Line	Samson LS	White	1	Seco South OK FOR PROD	Burnt	Burnt	3/16"	8000	26	2 15 / 16
Rev.00 RF Mast	Inhaul Furling Line	Marlow	Blue	1	Isomat	Burnt	Burnt	5/16"	11000	36	1 1 / 16
Rev.00 Outhaul RF Mast	Outhaul	Yale Portland Braid	White	1	Isomat	Burnt	Burnt	5/16"	15000	49	2 9 / 16

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BENETEAU OCEANIS 321 RUNNING RIGGING SPECIFICATIONS

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PART No.	USAGE	MAKE & TYPE	COL	QTY	SUPPLIER	TERMINAL 1	TERMINAL 2	DIA	LENGTH mm	FEET	IN
Rev.00	Outhaul Line #1 Classic Mast	Yale Portland Braid	White	1	Isomat	Burnt	Burnt	3/8"	3300	10	9 15 / 16
Rev.00	Outhaul Line #2 Classic Mast	Yale Portland Braid	White	1	Isomat	Burnt	Burnt	3/8"	4200	13	9 3 / 8
Rev.00	Outhaul Wire Pennant Classic Mast	MacWhyte	SS	1	Isomat	Hard Eye with Thimble	Hard Eye with Thimble	5/32" 7x19	360	1	2 3 / 16
Rev.00	Auto Reef Tack Line Reef 1	Yale Portland Braid	Green	1	Isomat	Burnt	Burnt	3/8"	16000	52	5 15 / 16
Rev.00	Auto Reef Clew Line Reef 1	Yale Portland Braid	Green	1	Isomat	Burnt	Burnt	3/8"	7000	22	11 9 / 16
Rev.00	Auto Reef Tack Line Reef 2	Yale Portland Braid	Red	1	Isomat	Burnt	Burnt	3/8"	17500	57	4 15 / 16
Rev.00	Auto Reef Clew Line Reef 2	Yale Portland Braid	Red	1	Isomat	Burnt	Burnt	3/8"	9000	29	6 5 / 16

13.15.16. Lifeline Specifications

BENETEAU OCEANIS 321 LIFELINE SPECIFICATIONS

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PART No.	LIFELINE	LENGTH mm	FEET	IN	DIA	QTY	TERMINAL 1	TERMINAL 2	OTHER TERMINAL NOT MEASURED	TYPE	SUPPLIER
Rev.00 PART OF KIT 03054014	FORWARD LIFELINE UPPER	5875	19	3 5 / 16	3/16" x 5/16"	2	ADJUSTER W/SHEAVE	M8 STUD SWAGE WITH NUT	NOTE: MEASURED 2/3 OPEN POSITION ON STUD SWAGE TO BEARING POINT ON SHEAVE OF ADJUSTER	S/S 7x7 PVC	Seco South OK FOR PROD
Rev.00 PART OF KIT 03054014	FORWARD LIFELINE LOWER	5570	18	3 5 / 16	3/16" x 5/16"	2	ADJUSTER W/SHEAVE	M8 STUD SWAGE WITH NUT	NOTE: MEASURED 2/3 OPEN POSITION ON STUD SWAGE TO BEARING POINT ON SHEAVE OF ADJUSTER	S/S 7x7 PVC	Seco South OK FOR PROD
Rev.00 PART OF KIT 03054014	SIDE GATE UPPER	1682	5	6 1 / 4	3/16" x 5/16"	2	PELICAN HOOK ABI1554	JAW TOGGLE 1/4" PIN CSJ25304		S/S 7x7 PVC	Seco South OK FOR PROD
Rev.00 PART OF KIT 03054014	SIDE GATE LOWER	1495	4	10 7 / 8	3/16" x 5/16"	2	PELICAN HOOK ABI1554	JAW TOGGLE 1/4" PIN CSJ25304		S/S 7x7 PVC	Seco South OK FOR PROD
Rev.00 PART OF KIT 03054014	STERN GATE UPPER	2300	7	6 9 / 16	3/16" x 5/16"	1	PELICAN HOOK ABI1554	JAW TOGGLE 1/4" PIN CSJ25304		S/S 7x7 PVC	Seco South OK FOR PROD

13.16. SAILS

13.16.1. Roller Furling Mainsail

BOAT MODEL: **OCEANIS 321** SAIL TYPE: roller furling mainsail

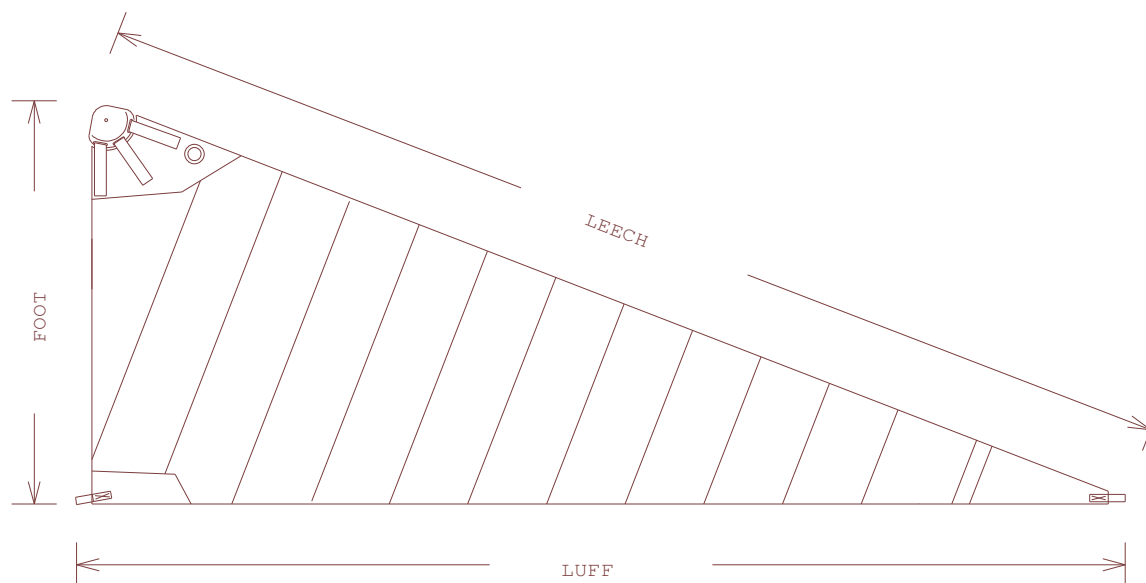
P = 10950mm **E =** 4150mm SAIL AREA 21.7m²

LUFF min tension 10833mm LUFF max tension (P) 10950mm

LEECH min tension 11278mm

FOOT min tension 4090mm FOOT max tension (E) 4150mm

ITEM TO DETAIL	ITEM QUANTITY, SIZE, TYPE, MAKE and PART NUMBER
SAILCLOTH	245 g/m ²
HEAD	25mm webbing loop
TACK	25mm webbing loop
CLEW	webbed-on clew block Seasure 04-87
CLEW - safety ring	Inox pressed ring #211
LUFF - bolt rope	#7 luff tape (7/32")
LEECH - line cleat	aluminium clamcleat CL241
UV COVER	UV clew patch 245g/m ² both sides
INSIGNIA	none
TELL TALES	2 telltales on leech
DRAFT STRIPE	none



13.16.2. Classic Mainsail

BOAT MODEL: **OCEANIS 321** SAIL TYPE: loose footed, fully battened mainsail
supplied with Stackpak Light
stowage system

P = 11040mm **E** = 4150mm SAIL AREA 24.0m²

LUFF min tension 10973mm LUFF max tension (P) 11040mm

LEECH min 11607mm

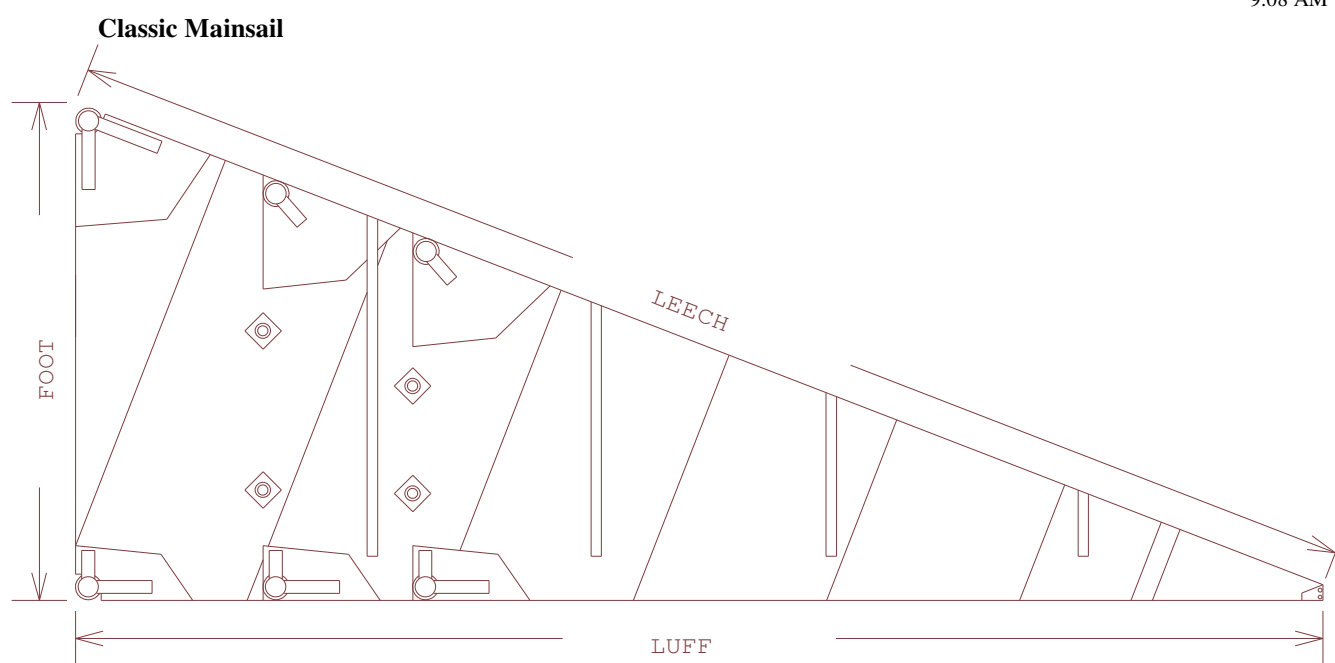
tensionwazzu

FOOT min tension 4090mm FOOT max tension (E) 4150mm

BATTEN	TYPE and width or diameter	LENGTH
UPPER	1" flat soft	838mm
UPPER MIDDLE	1" flat soft	1753mm
LOWER MIDDLE	1" flat stiff	2515mm
LOWER	1" flat stiff	3277mm

HEIGHT REEF 1 from tack 1524mm HEIGHT REEF 2 from tack 3200mm

ITEM TO DETAIL	ITEM QUANTITY, SIZE, TYPE, MAKE and PART NUMBER
SAILCLOTH	345 g/m ²
HEAD	aluminium headboard 5 1/4" x 1/8" Aquabatten B812
TACK	1 1/4" x 1/4" ss round ring webbed-on, cutback = , cut up =
TACK - reef 1	1 1/4" x 1/4" ss round ring webbed-on, cutback = 150mm, cut up =
TACK - reef 2	1 1/4" x 1/4" ss round ring webbed-on, cutback = 150mm, cut up =
CUNNINGHAM	none
CLEW	1 1/2" x 5/16" ss round ring webbed-on
CLEW - reef 1	Inox pressed ring #212, single webbing strap
CLEW - reef 2	Inox pressed ring #212, single webbing strap
LUFF - slides	1 bronze flat slide Aquabatten B006 webbed to headboard. All other luff slides are 3/4" (#6) plastic flat slides Aquabatten A006M pop-shackled to luff with Aquabatten A024 pop-shackles
LEECH - line cleat	aluminium Clamcleat CL241
INSIGNIA	none
TELLTALES	2 telltales on leech at top 2 battens
DRAFT STRIPE	none



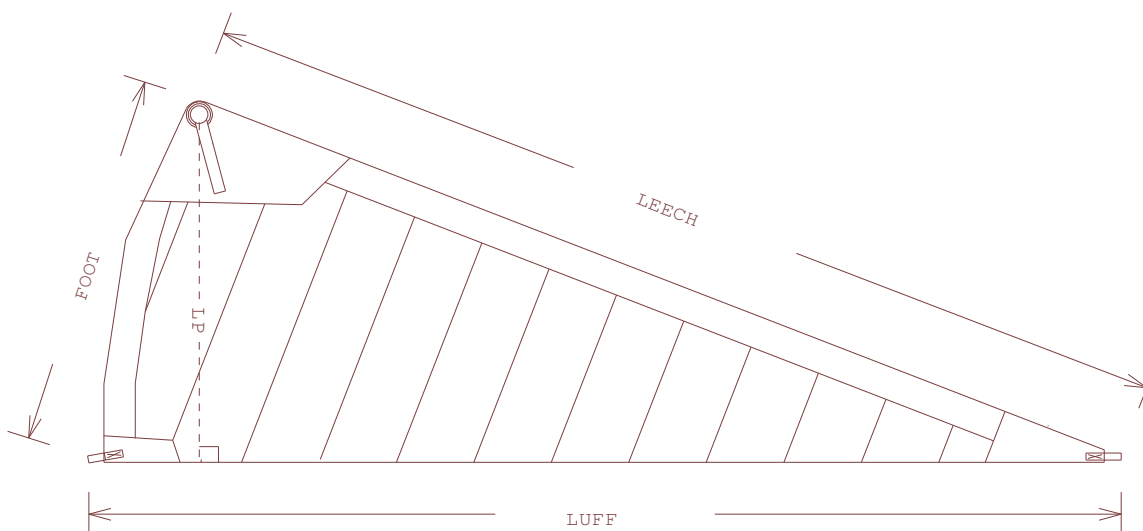
13.16.3. Roller Furling Genoa

BOAT MODEL: **OCEANIS 321** SAIL TYPE: roller furling genoa

I = 12800mm J = 3760mm SAIL AREA 34.1m² LP = 5828mm % SIZE 155

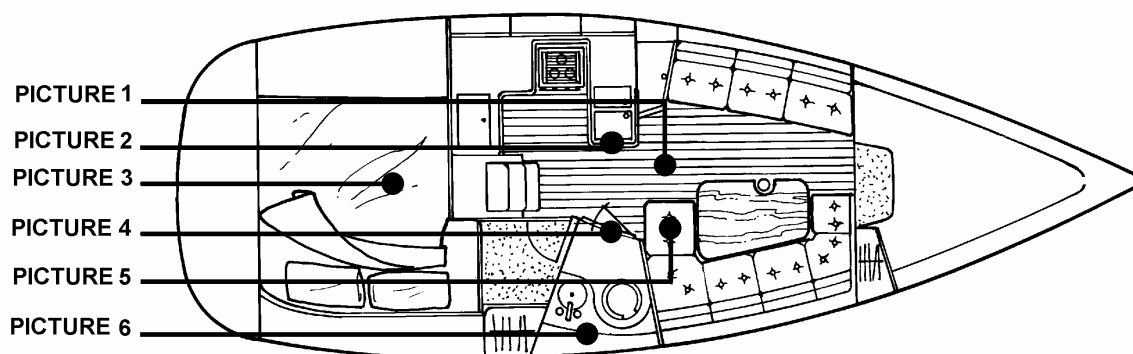
LUFF min tension 12217mm LUFF max tension 12390mm
LEECH min tension 11811mm
FOOT min tension 6096mm

ITEM TO DETAIL	ITEM QUANTITY, SIZE, TYPE, MAKE and PART NUMBER
SAILCLOTH	245 g/m ²
HEAD	25mm webbing loop
TACK	25mm webbing loop
CLEW	Inox pressed ring #213, single webbing strap
LUFF - bolt rope	#6 luff tape (3/16")
LEECH - line cleat	aluminium Clamcleat CL241
UV COVER	UV leech and foot 170g/m ² starboard side only
FOOT - line cleat	2 grommets for lashing - #3 grommets
INSIGNIA	none
TELLTALES	telltales at 25%, 50% and 75% of luff height
DRAFT STRIPE	none

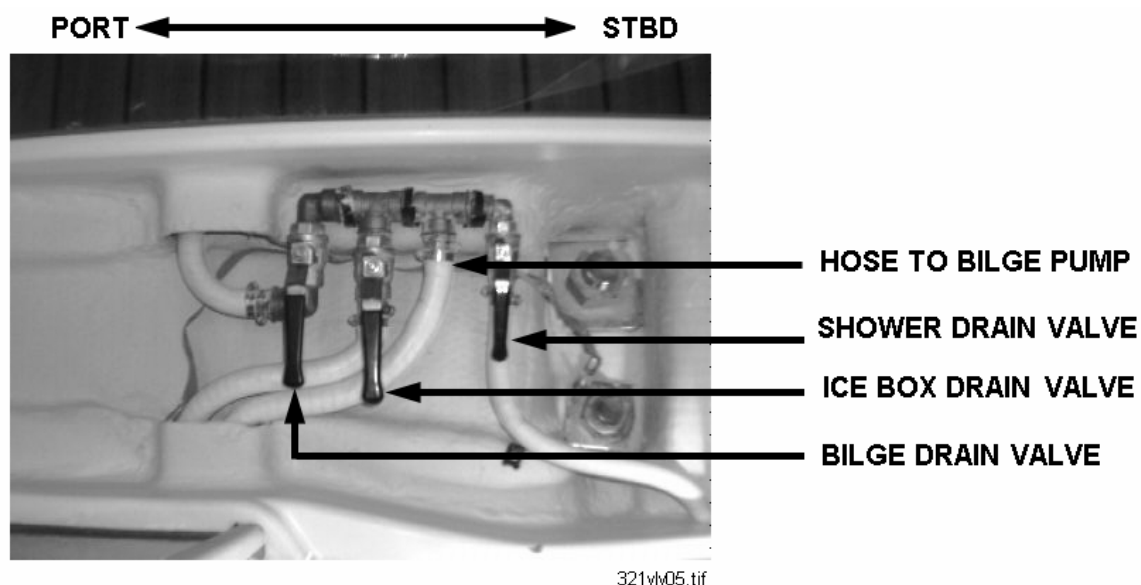


APPENDIX

THRU HULL VALVE LOCATIONS



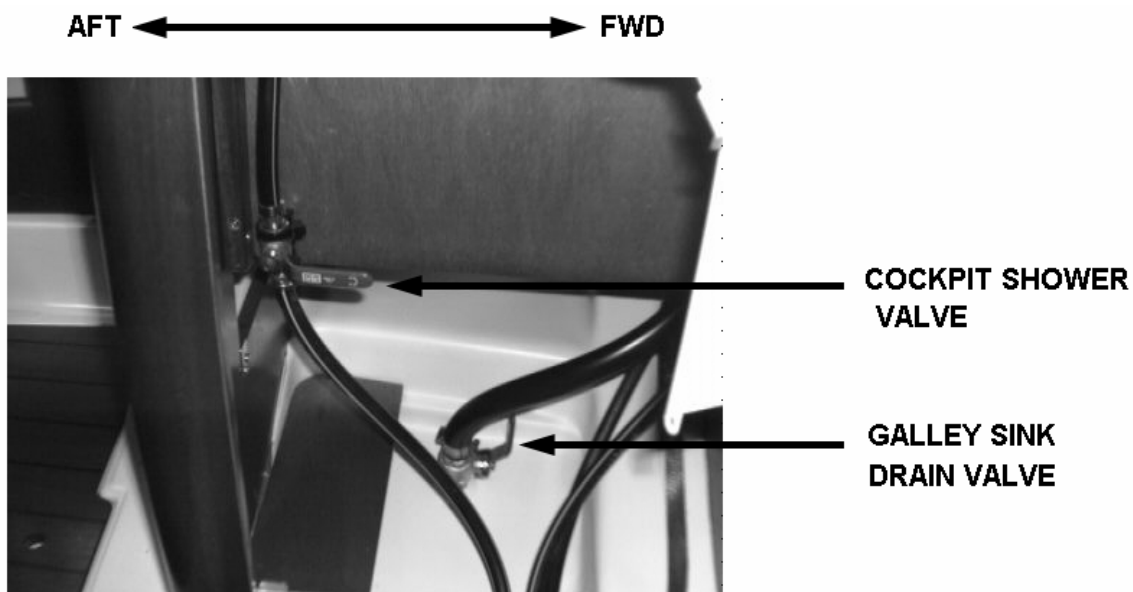
NOTE: THRU HULL VALVES SHOULD BE CLOSED WHEN NOT IN USE!



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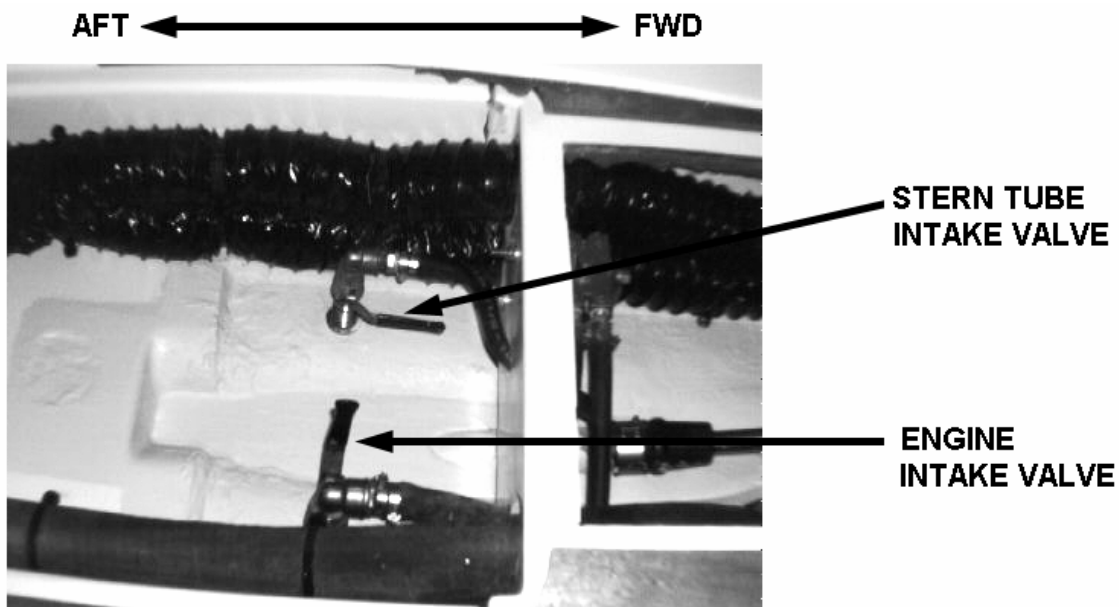
PICTURE 1
MID SALON

NOTE: ONLY ONE OF THESE VALVES SHOULD BE OPEN DURING NORMAL PUMP OPERATION.



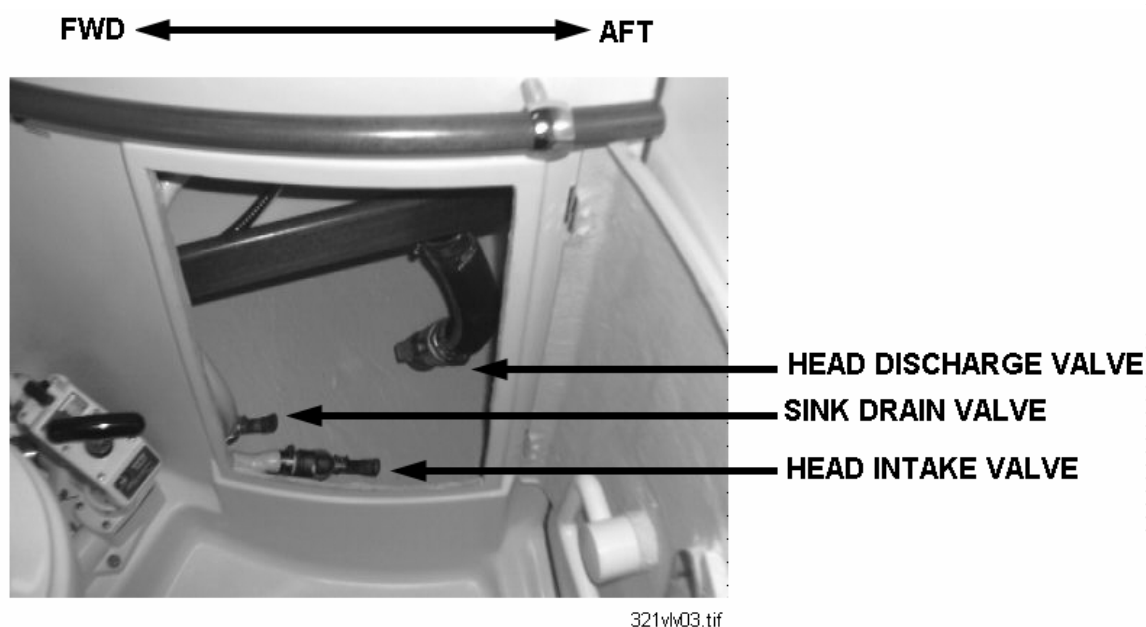
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PICTURE 2
UNDER GALLEY SINK

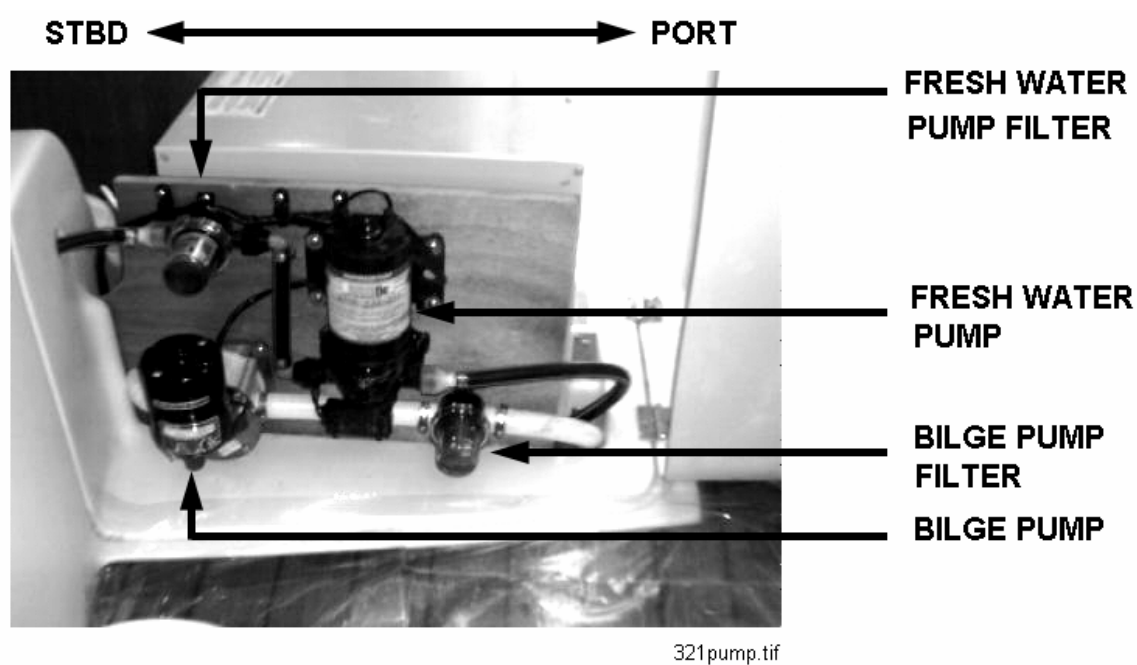


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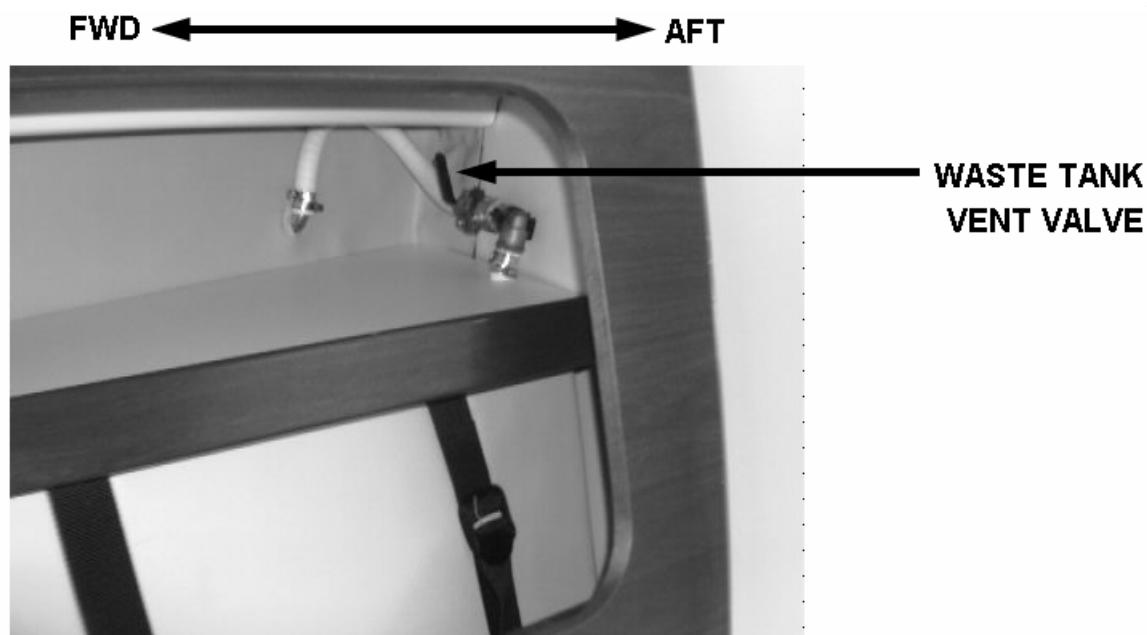
PICTURE 3
UNDER AFT STBD BUNK



PICTURE 4
UNDER STBD HEAD SINK



PICTURE 5
UNDER AFT SALON SETTEE



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PICTURE 6
STBD HEAD CABINET ABOVE SINK