WELCOME TO THE HUNTER MARINE FAMILY!

IMPORTANT

At the time of delivery, your dealer should have requested your signature on the WARRANTY REGISTRATION FORM and PRE-DELIVERY SERVICE RECORD. This space in your Owner's Manual is provided for your copies of these documents. These forms, when returned to Hunter by the dealer, will:

- ACTIVATE YOUR WARRANTY COVERAGE
- Involve you in our Customer Satisfaction Program, leading to an exchange of Hunter coffee mugs for your opinions on your new Hunter and
- Place you on our distribution for the KNOTLINE ---- our quarterly owner publication.

This space also provides a convenient location to maintain other important service records for your new Hunter.

HUNTER 29.5 OWNER'S MANUAL

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HUNTER MARINE'S OWNER AND FOUNDER
WARREN R. LUHRS
BRIEF HISTORY

Born in 1944 in East Orange, New Jersey, Warren R. Luhrs' ancestry goes back to his Great-grandfather, Henry, who helped pioneer railroading and clipper ships in America, and to his great-uncle, John, who helped build the famous St. Petersburg-to-Moscow railroad for Czar Alexander II.

Henry Luhrs owned shares in twenty-two different ocean-going vessels - barks, brigs and schooners - and was principal owner of the bark, "Sophia R. Luhrs", named after his wife. He was also a partner with Albert Sprout, who managed a shipyard in Melbridge, Maine, where the "Sophia R. Luhrs" was built.

The Luhrs' family sea tradition was carried on during the Great Depression by Warren Luhrs' father, Henry, who worked at a small boat manufacturer in Morgan, New Jersey, and later started his own company. When war broke out in Europe, the Coast Guard asked Henry Luhrs to repair their boats and install ice sheathing on their bows.

After World War II, Henry built 27-foot fishing boats and in 1948 began to construct custom-built pleasure craft. He then turned to skiffs and in 1952 incorporated as Henry Luhrs Sea Skiffs. He constructed lap strake sea skiffs using assembly-line techniques. Henry personally "shook down" his prototypes with family trips up the Hudson River to Lake Champlain.

The sea skiff is a class of boat which has been very popular, owing to its seaworthiness. It features a sharp bow, which reduces pounding in surf or choppy seas, and a hull whose forward section is rounded below the water line to increase stability in rough water or a following sea. Such skiffs can either be smooth-sided or of lapstrake construction.

Henry Luhrs' basic philosophy was to emulate the late Henry Ford in building an inexpensive boat for the average man, thus enabling him to enjoy the luxury of boating. He was both designer and engineer, creating innovative and progressive new models. He designed the change in the line of the bow from straight to curved at a time when all boats were being built with the straight square effect. It is believed he was also the first designer-builder to popularize a small boat with a fly-bridge.

In 1960, Luhrs acquired the Ulrichsen Boat Company, Marlboro, New Jersey. It was here, to, that the Luhrs' Alura Fiberglass Division was located. In 1965, Henry sold his company to Bangor Arrostook Railroad, which was to become the recreational conglomerate, Bangor-Punta. It was also during this period that Silverton of Tom's River, New Jersey was purchased by John and Warren Luhrs.

Today, Warren R. Luhrs and his brother John, own Hunter Marine Corporation, Silverton Marine Corporation, Mainship Motor Yachts and Luhrs Fishing Boats with its Alura Division. Hunter Marine produces sailboats while the other companies produce powerboats.

Welcome To
THE HUNTER MARINE FAMILY

Congratulations on your new sailing yacht manufactured by Hunter Marine. We have engineered and constructed your boat to be as fine a yacht as any afloat. In order to get the best performance and most enjoyment from your boat you should be familiar with its various elements and functions. Please take the time to study this manual and its recommendations for trouble-free sailing pleasure.

We stand behind the quality of your boat with a warranty which you should also review. ***To insure your warranty is valid, please fill out the attached card and send it to us within ten (10) days of the purchase date.*** Section 15 of the Federal Boat Safety Act requires first owners to be registered. The warranty data should also be recorded in the space below for your own reference.

You also need to fill out and mail the warranty cards on your diesel auxiliary, battery, stove, head, electric water pump and other accessories. These are enclosed in the manufacturers' manuals which are included in your owner's pouch.

OWNER INFORMATION CARD

HULL IDENTIFICATION NUMBER IS ON THE STARBOARD AFT SIDE OF THE HULL OR TRANSOM
THIS NUMBER MUST BE GIVEN IN ALL NECESSARY COMMUNICATIONS.

HULL NO. _____ DATE DELIVERED TO OWNER _____

YACHT NAME _____

OWNER NAME _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

HOME PORT _____

MODEL _____ SIZE _____ HULL#/SAIL # _____

ENGINE MODEL _____ SERIAL NO. _____ PROPELLER SIZE _____

DEALER _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

DEALER SIGNATURE _____

OWNER SIGNATURE _____

A copy of Chapman's ***Piloting, Seamanship and Small Boat Handling*** is provided with your Hunter Marine boat as part of the standard equipment. Any questions regarding the meaning of terminology used in this manual may be referenced in your Chapman's.

PRE-DEPARTURE CHECKLIST

- ☐ Check bilge for excess water.
- ☐ **Check weather conditions and tides.**
- ☐ Check food supply.
- ☐ Foul weather gear.
- ☐ Linen, sleeping bags.
- ☐ Fuel.
- ☐ Water.
- ☐ Sunscreens and sunglasses.
- ☐ Tools.
- ☐ Docking and anchor gear.
- ☐ Check radio operations.
- ☐ Navigation charts and instruments.
- ☐ **Float plans to a friend or Coast Guard.** *(See next page.)*
- ☐ Fuel for stove.
- ☐ Cooking and eating utensils.
- ☐ Check battery water level.
- ☐ Oil level, tight V-belts.
- ☐ Check for loose electrical connections in engine room.
- ☐ Secure tools or any loose equipment in engine room so as not to get fouled in engine.
- ☐ AC systems off; electrical cord stowed.
- ☐ Doors and drawers secured.
- ☐ Check steering lock to lock.
- ☐ Check mast for rigging irregularities and tightness.
- ☐ Halyards and sheets are clear and ready to run.
- ☐ No lines or other obstructions near the propeller or bow.
- ☐ Anchor ready to run.
- ☐ Check lifelines for tightness.
- ☐ Turn on fuel and water lines.
- ☐ Stow all loose gear.
- ☐ Open engine cooling water intake thru-hull valve.

FLOAT PLAN

1. Name of person reporting and telephone number:

2. Description of boat:

NAME _____ TYPE _____

MAKE _____ LENGTH _____ REGISTRATION # _____

HULL COLOR _____ STRIPE COLOR _____ DECK COLOR _____

OTHER DISTINGUISHING MARKS _____

3. Persons aboard: _____ NUMBER

NAME _____ AGE _____ PHONE # _____

ADDRESS _____

NAME _____ AGE _____ PHONE# _____

ADDRESS _____

NAME _____ AGE _____ PHONE # _____

ADDRESS _____

4. Engine: _____ TYPE _____ H.P. _____ FUEL CAPACITY

5. Safety equipment: ☐ PFDs ☐ Flares ☐ Mirror ☐ Flashlight ☐ Food ☐ Water ☐ EPIRB ☐ Raft/Dinghy

6. Radio: _____ TYPE _____ FREQUENCIES

7. Trip expectations:

_____ DEPARTING AT (APPROX. TIME) _____ ON (DATE) _____ FROM (LOCATION)

_____ GOING TO (LOCATION) _____ RETURNING (DATE) _____ IN NO EVENT LATER THAN (TIME & DATE)

8. Automobile: _____ LICENSE # _____ STATE

_____ MAKE _____ COLOR _____ PARKED AT

9. If not returned by _____, call the Coast Guard or:

_____

at: _____

CLOSING UP YOUR BOAT AFTER SAILING

When leaving your Hunter, Legend, Passage or Vision at the dock for more than a short time, it is a good idea to review the following check list to make sure everything is in order. This will help protect the various parts of your boat and add considerably to their attractiveness and usable life.

- ☐ Fold and bag headsails and stow below.
- ☐ Furl mainsail and cover, or remove and also bag.
- ☐ Remove and stow all portable deck hardware such as snatch blocks, winch handles, etc.
- ☐ Secure the boom to the topping lift and set it firmly amidships with the mainsheet purchase. (It is also a good idea to rig a line from the steering wheel or tiller to a convenient cleat to keep the rudder from swinging back and forth with the motion of the water.)
- ☐ Attach the shackle ends of all halyards to convenient fittings and take up slack.
- ☐ Cleat and coil halyard tails and permanent sheets, hanging them off the deck to promote drying.
- ☐ Coil and stow all other lines.
- ☐ Cover the winches and steering pedestal when leaving the boat for several days or more.
- ☐ Close all fuel lines and gate valves.
- ☐ Turn off the electrical system.
- ☐ Pump the bilge.
- ☐ Check air vents, secure ports and hatches, and swab the deck, particularly if you have operated on saltwater.
- ☐ Make a final check of mooring lines, chafing gear, fenders, etc.

FOR SAFE BOATING

BE PREPARED

Take a safe boating course from the Coast Guard. You can call 800-336-BOAT for information on courses in your area.

Carry all safety equipment required by federal and state law. Federal requirements are discussed in "Federal Requirements for Recreational Boats" which can be acquired from U.S. Coast Guard Office of Boating, Public, and Consumer Affairs, Washington, D.C. 20593. State requirements will come from your local State Boating Administration. The Coast Guard also recommends a first-aid kit, a pump or bailer, a transistor or weather radio, extra fuel, a paddle, anchor and line, and extra drinking water; also, if not a requirement, flares.

Get a Coast Guard Auxiliary Courtesy Examination. This is a free, confidential safety inspection. Call your local Coast Guard Auxiliary for details.

Be familiar with the use of distress signals and PFDs.

AVOID FIRES

Handle fuels carefully.

Read labels on any stove fuels.

Read the engine owner's manual for proper fuel-system maintenance and inspect your engine's fuel system periodically.

Heed fire extinguisher regulations and keep them in good condition.

While refueling:

a. Fill the portable tanks on the dock.
b. Tie the boat securely.
c. Extinguish cigarettes and all flames on the boat. Turn off all engines and electrical equipment.
d. Keep the hose nozzle in contact with the fuel can or fill.
e. Wipe up all fuel spillage.
f. Ventilate the engine and fuel compartment.
g. Check boat for fumes.

BEFORE GETTING UNDERWAY

Leave a float plan. (See example under Float Plan)
Perform pre-departure check list. (See Pre-departure Check List)
Check the weather: do not venture out if the weather is threatening.

WHILE UNDERWAY

PFDs should be worn by children and non-swimmers **at all times.** ***Everyone should wear them if conditions become hazardous.***

Do not operate a boat if intoxicated, fatigued or stressed. These human factors cause 50 percent of all boating accidents.

Keep a good lookout. This is especially true of sailboats. Keep a watch to leeward under the headsail. Keep away from swimmers, divers and skiers.

Obey state and federal laws. Know your local laws and "rules of the road."

Respect bad weather: try to get to shore if the weather turns bad. Carry a radio with a NOAA "weather band" on FM 162.40-162.55MHZ.

IF TROUBLE OCCURS

Radio for help. Use the emergency VHF, channel (i.e., 156.8MHZ).

Put on PFDs immediately.

Stay with the boat. In cold water, huddle together to prevent hypothermia.

FLOAT PLAN

Make copies of the Float Plan page and use before each trip. Fill it out and leave it with a reliable person who will notify the Coast Guard or other rescue organizations if you fail to return on time. **Do not forget to cancel the float plan upon your return.**

GENERAL HANDLING & OPERATION

Diesel Engine

An engine owner's manual is supplied with your boat and should be read thoroughly. The manual contains technical specifications, running instructions and maintenance schedule on lubricants and fluids. For long engine life, follow routine maintenance schedules.

You should check engine oil, transmission fluid and coolant levels. Water, rust, scale and dirt will cause serious damage to the injectors on diesel engines. You should check your filters frequently and change when necessary.

If you start your engine, run it a minimum of 15 minutes to bring it up to operating temperature. This insures that any condensation is evaporated. Your engine should "run-out" at 3/4 throttle at least once a month to clean out carbon buildup and moisture.

Starting:

1. Visually check engine compartment to see that the throttle linkage, shifting controls, electrical connections and fuel lines are properly secured.
2. *Before each start* check oil in engine and transmission.
3. Insure that engine shut-off cable is properly secured and operating.
4. Place the shift lever in the neutral position.
5. Move the throttle or "fuel" lever forward to approximately the half-speed position.
6. Insert the starter key and turn to the "on" position.
7. Press the starter button and hold until engine starts, then release. The buzzer and/or light should then go off.
8. Back the throttle off to an idle position (700 to 800 rpm); allow cold engine to warm up a minimum of five minutes.
9. Check that the lube oil pressure warning light and the charge lamp go off. If any of the warning lamps do not go off above 1,000 rpm, the engine is malfunctioning and should be stopped immediately. Consult your nearest engine dealer.

NOTE: To stop engine at any time, pull "engine stop" lever all the way out. Before stopping, however, it is a good idea to idle the engine in neutral for about five minutes, then race it in the full-throttle position for a moment, then return to idle and stop engine.

CAUTION: Do not turn safety main switch to "off" while engine is running. This can seriously damage the alternator.

Motoring:

If your boat is equipped with 110V shore power, remember to unplug it upon departure. When engine is warm, move the shift lever to forward and reverse to insure that it engages properly. To increase RPM's push throttle lever forward and pull back to decrease RPM's.

Motoring Continued:

CAUTION: Your rigging will conduct electricity. **Always check for overhead high tension wires before proceeding.** Once clear, you may increase your speed in a reasonable and safe manner as desired.

IMPORTANT: Do not shift from forward to reverse or back without first lowering engine rpm to idle. When sailing, it is best to start the engine before the sails are lowered. This way, it is still possible to maneuver if the engine should not start.

Electrical System

Your Hunter is fitted with an electrical system designed for both AC and DC. While in port, you can operate any tool, appliance or other device designed to function on regular house current (120V) simply by plugging your dockside power cord into a convenient outlet on shore and turning your AC main breaker on.

CAUTION: Do not allow your dockside power cord to come in contact with the water. Never operate any AC power tool or other electrical equipment while you or the device are in contact with the water.

When leaving port, disconnect the dockside power cord and turn the main DC breaker on. This allows you to use the ship's lights and other equipment designed to operate on direct current. Keep in mind that your DC power source is a 12-volt battery and, just as with your automobile, it must be charged regularly by operating the engine. Unless a state of charge is maintained, there may not be enough power to operate the starter motor. Dangerous situations can result if the engine cannot be started when needed.

Make a regular visual check of batteries to insure proper water level and inspect terminals for signs of corrosion. If your boat sits for long periods without use, it is often a good idea to remove the batteries and attach them to a trickle charger to keep them fully charged and ready to use.

Water System

The water heater operates either on 120 volts AC or when the engine is running. To obtain hot water from the engine, it must run a minimum of one-half hour.

CAUTION: Do not turn the water heater on until you are sure the tank is filled with water. To do so will destroy the heating element, which is not covered by the warranty.

Pressure water pumps are the demand type. Once the circuit breaker switch is on, opening the faucet will produce water flow.

NOTE: Intermittent operation of the freshwater pump while all faucets are closed usually indicates a leak somewhere in the lines. Trace the lines to locate the leak and repair.

Please refer to your manual under Heads & Galley systems for more specific information.

GENERAL HANDLING & OPERATION

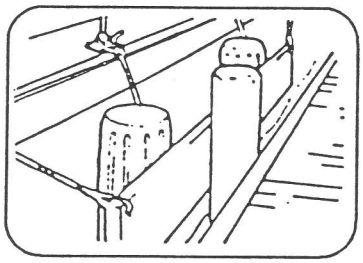
Pumps:

All pumps should be checked frequently to insure proper operation. *This is an especially important regular maintenance item since functioning of a pump could save your vessel from serious damage at some future time.*

Inspect all hoses for chafing and dry rot. See that hose clamps are tight. Check that the pump impeller area is clean and free of obstructions. Inspect electrical wiring for corrosion. Make sure float switch moves freely and is making an electrical connection.

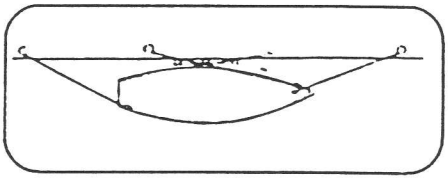
Docking:

Docking your boat should be handled carefully to avoid potential damage. Under normal wind and water conditions, the following considerations should be made:



1. Whenever possible, your approach should be made against the prevailing wind and current to assist in stopping the boat. Where these conditions are contrary, the strongest should be used to determine approach.

2. Approaching the dock-dock lines and fenders should be at ready, loose gear stowed and decks cleared. Determine the direction of wind and current, and, once you decide which side of the boat will be against the dock, rig dock lines and fenders on the appropriate side. One dock line should be attached to the bow cleat, another to the stern cleat opposite the side that will lie against the dock. *NOTE*: If the boat is to lie against a piling, rig a fender board across two or more fenders



3. Tying up-attach bow and stern lines to dock, hauling boat in with fenders against dock. Rig crossing spring lines to limit motion forward and aft. Be sure to allow some slack in all lines to compensate for tidal activity if present. Never use bow rail, stern rail or stanchions to secure vessel, even for brief periods. For other types of moorings, or for abnormal wind or water conditions, consult your *Chapmans's* or other approved boating guide.

Anchoring:

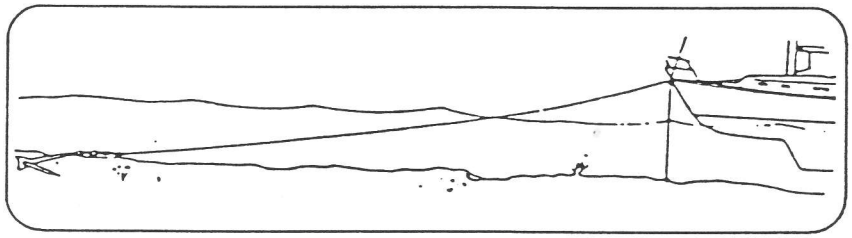
Your Hunter comes with an on-deck anchor well and a burying-type anchor as standard equipment. The anchor is selected to suit the size and weight of your boat under normal anchoring conditions, and provides its best holding characteristic in muddy or sandy bottoms.

When anchoring, pay particular attention to the scope of your anchor rode (i.e., the relationship between the depth of the water and the length of the rode). A good rule of thumb is to allow a scope of about 7:1 (a rode seven times as long as the vertical distance from the bow to the bottom). A helpful aid is to mark the rode every 20 feet or so with knots or other types of indicators. Before dropping anchor, make sure the bitter end is secured to the cleat in the anchor well.

Also, be sure to consider wind direction, currents, mean low tide depths and other local conditions when anchoring, as well as the positions of any boats already anchored nearby.

CAUTION: Anchoring in unusual water and/or weather conditions will require additional precautions, Consult your *Chapman's* or other approved guide for suggestions.

To weigh anchor, motor or sail (under main only) slowly forward. When at a point directly above the anchor, a quick tug should free it from the bottom. Take care not to damage the topsides when hauling the anchor aboard. It is good practice to thoroughly clean the anchor prior to placing it in the anchor well.



INSTRUCTIONS FOR PREPARATION FOR BOTTOM PAINTING

WARNING!

Do not use any sanding, sandblasting or other abrasive preparation of the bottom as this will void your hull blistering warranty. More information on the warranty is available in this owner's manual.

BOTTOM PAINTING

Choose a bottom paint system that suits the environment in your area.

Follow the procedure recommended by the manufacturer of the paint, while making sure not to void the Hunter Hull Blistering Warranty. The procedure for preparing for and painting the bottom varies between paint manufacturers, but should always include dewaxing, etching and sometimes priming of the surface.

EPOXY BARRIER COAT

Sanding of the gelcoat bottom surface will be permitted should a customer wish to have an epoxy barrier coat applied to the hull, (example Interlux Interprotect 1000, 2000, West System or VC Tar). This will not void the Five Year Blister Warranty.

Hunter Marine refers to epoxy barrier coatings as mentioned above, not epoxy primer paints.

If an epoxy barrier coat is applied to a Hunter vessel, it must be registered with the Warranty Department prior to application of the product. If the dealer applies bottom paint only, sanding will not be allowed and the no sanding system must be used.

MARINCO SHORE POWER CABLE SET

INSTRUCTION SHEET

WARNING - To minimize shock hazard, connect and disconnect cable as follows:

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

DO NOT ALTER SHORE-POWER CABLE CONNECTORS.

STORAGE

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

MAINTENANCE

WARNING - To prevent electrocution, always disconnect from power source before performing maintenance.

General:

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

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

In case of Salt Water Immersion:

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

REPAIR

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

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

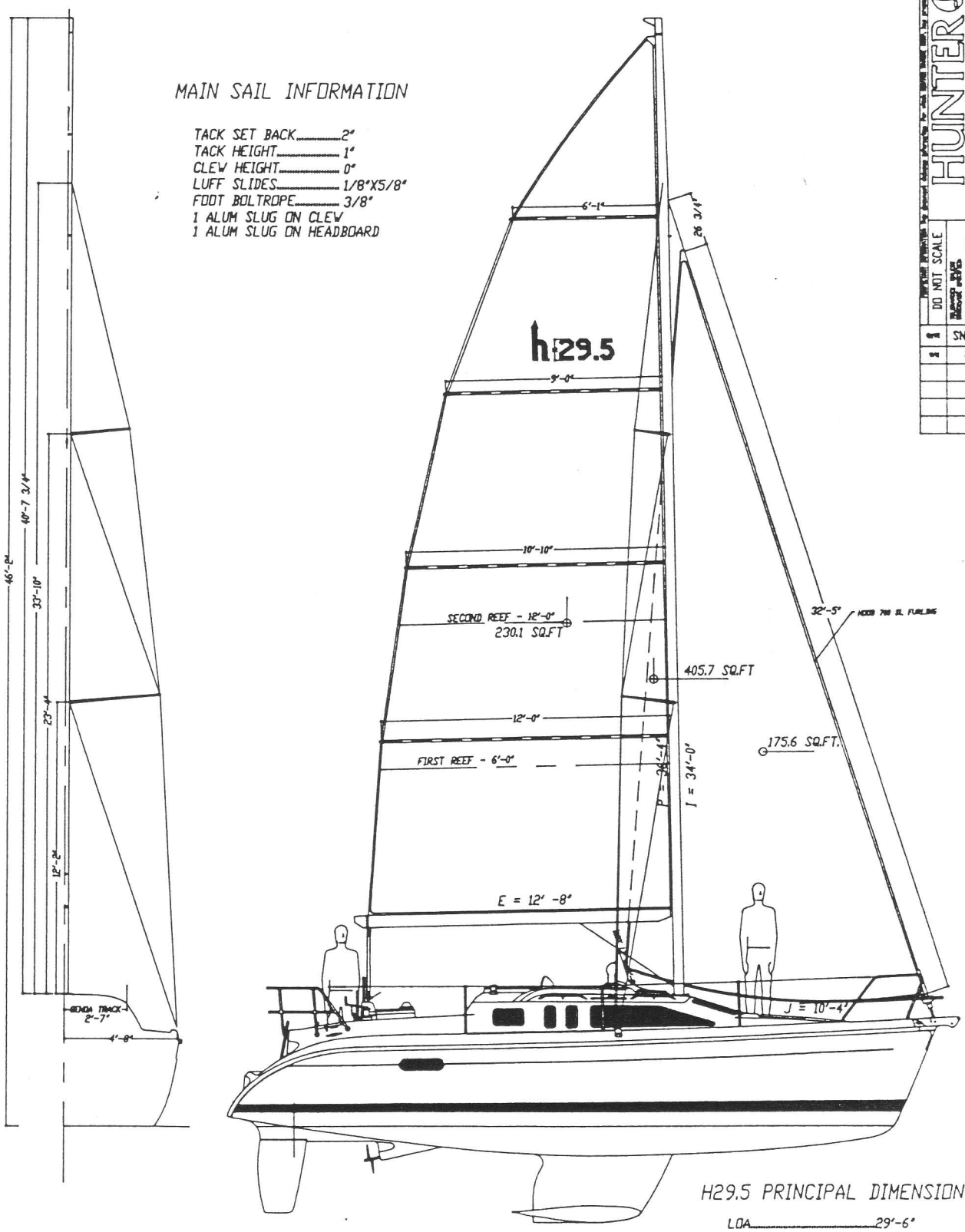
HUNTER 29.5 SAILPLAN

By sweeping the shrouds and spreaders aft on the Hunter 29.5 we are able to support the spar in all conditions without the need for a conventional backstay. This means we are free to maximize the mainsail roach size in order to increase sail area in a location which is far more easily controlled than adding the same or less area to the overlap of the jib.

The comparisons between these two methods of adding sail area are shown in Dwg H29-A-2614. By utilizing a shorter overlap jib we are able to sheet inside the shrouds for a very efficient 11 degree sheeting angle which allows the 29.5 to consistently tack through 60 degrees upwind.

Therefore, with the 29.5 we have created a sailplan with not only greater area than a conventional rig with a 150% LP jib, but also one which is more efficient due to the higher aspect ratio jib and tighter sheeting angles. This rig configuration is also easier to handle, with upwind tacks often being completed without the need for a winch handle.

With the majority of the sail area in the main, sudden gusts can be easily handled by "dumping" the mainsheet which is always at hand to the helmsperson. Therefore, we discourage the addition of large LP jibs to the 29.5 as being inefficient and harder to handle.



DO NOT SCALE

REVISIONS

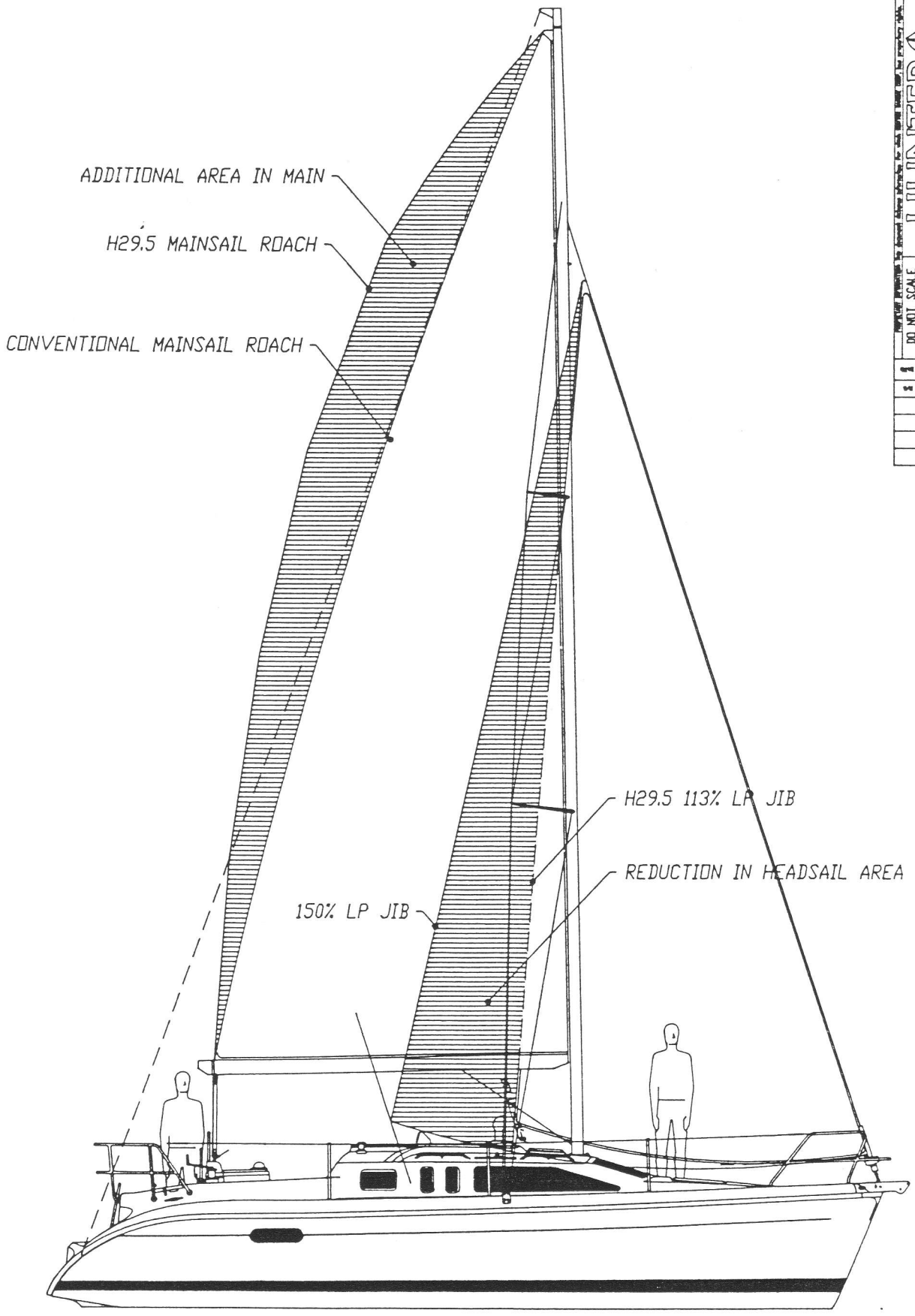
HUNTER

H29.5 SAILPLAN

DRAWN BY	RLH
DATE	1/20/94
SCALE	NONE
PLOT SCALE	.0200=1
DRAWING PART NO.	N/A
DRAWING NO.	H29A2610

H29.5 PRINCIPAL DIMENSIONS

LOA	29'-6"
LWL	25'-3"
B.MAX	10'-6"
B.WL	8'-1"
DRAFT	4'-0"
DISPLACEMENT	7000 LBS
BALLAST	2400 LBS
HEIGHT ABOVE LWL	46'-2"



HUNTER

H29.5 SAILPLAN COMPARISON

DO NOT SCALE

REVISIONS

AREA IN ROACH IS LARGER THAN AREA OF INCREASED LP

TUNING THE H29.5 FRACTIONAL RIG

THE HUNTER 29.5 FRACTIONAL RIG

The Hunter 29.5 rig utilizes swept back spreaders and shrouds to support the mast fore and aft as well as transversely. This tripod support system eliminates the need for a conventional backstay allowing the aft component of the shrouds to support the forestay loading directly. Therefore, forestay tension and forestay sag are directly controlled by upper shroud tension. For that reason it is very important that the upper shrouds are a tight as possible. It is also important in this rig configuration that the mast be tuned with a substantial amount of "pre-bend" for maximum rig stability. The following tuning instructions are designed to achieve those goals.

BEFORE STEPPING THE MAST

Install the spreaders on to their appropriate spreader bars, being careful to note which spreaders are labeled "starboard". The spreaders are custom fit to each spreader bar and are designed to fit snug against the mast wall. To ease the installation, and align the holes, it may be necessary to squeeze the mast together ever so slightly at the spreader base with a large wood clamp or a large, well padded, metal "C" clamp. Install the rigging to the spar and through the appropriate spreader tip, making sure that the tips are tight enough to still allow the rigging to slide through if pressure is applied. The intermediate shroud should be installed in the lower spreader tip before the upper shroud. This will allow the shrouds to slide through the spreader tip without bending the spreader as the rigging is tensioned on the boat. Remove all clevis and cotter pins from the turnbuckles and place the corresponding pins close by the appropriate chainplate and forestay fitting. Open all turnbuckles to the maximum, making sure that there is still enough thread gripping that the turnbuckles don't come apart. Install the Windex instrument, VHF antenna and masthead light and any additional wind instruments on the masthead. The Windex mounts on an aluminum bar extending aft to allow it to clear the VHF antenna. If not already attached to the mast head, this bar may be in the "loose gear" kit. Also make sure that the interior cover plate inside the boat on the overhead liner at the top of the mast compression post is removed to allow access to the mast wiring. It is always wise to pad and tape the tips of the spreaders to prevent them from chafing the mainsail when the main is eased. The spar should be hoisted from a location just below the upper spreaders. If not already done, run the halyards in the spar using the messenger lines installed. Install the reefing lines, outhaul & mainsheet in the boom.

TUNING THE 29.5 FRACTIONAL RIG (CONT)

STEPPING THE MAST

During stepping make sure that the electrical wiring for the VHF and mast lights is pulled through the hole in the deck on top of the mast step for connection below deck. After stepping your mast, attach the lower shrouds to the forward of the three holes in each chainplate, the intermediate shrouds to the middle holes and the upper shrouds to the aft holes. The turnbuckles should be installed with the cotter pins located inboard. With the turnbuckles still eased all the way, attach the forestay to the stem head casting using the two link plates and 5/8" diameter pin supplied for that purpose. A jib halyard run forward to the "U" bolt in the anchor locker may have to be used to achieve enough slack to connect the forestay. Tension the shrouds to remove most of the slack, making sure that the port and starboard turnbuckles for each shroud pair (uppers, intermediates & lowers) are tensioned uniformly. When all the standing rigging is attached and the slack removed unrig the lifting hoist. Run the halyards from their exits in the spar through the appropriate block on the mast step, through the deflector blocks and aft through the rope clutches, as outlined on the Running Rigging Drawing. Rig the Boom to the mast and attach the mainsheet & vang.

PLUMBING THE MAST & SETTING THE RAKE

To center the mast athwartships, start with only slight tension on the upper and lower shrouds. Check that the mast is centered in the boat by measuring from the masthead to the chainplates with a steel tape measure hoisted completely up the main halyard. Adjust the upper shrouds, easing one and tightening the other, until the measurements port and starboard are exactly the same. If a steel tape isn't available, the main halyard can also be used for this purpose being careful that equal tensions are applied each side. Once the mast is plumb athwartships, check the amount of rake or aft angle on the mast by hanging a weight from the shackle on the main halyard and adjusting the halyard position so the weight hangs just above the boom. On a calm day, with nobody on the boat, this weight should hang 12 to 16 inches aft of the mast. Adjust the main shrouds uniformly, easing or tightening the same number of turns each side, and the forestay to achieve the proper amount of rake.

TUNING THE 29.5 FRACTIONAL RIG (CONT)

INITIAL TUNING

TIGHTEN THE UPPER SHROUDS

With the mast plumb athwartships and the proper amount of rake achieved, tension both uppers shrouds equally, counting turnbuckle revolutions as you go. Tighten uppers until you have approximately six inches (one mast chord) of "prebend" fore and aft in the mast. This pre-bend is created because the swept spreaders will push the middle part of the mast forward as you increase tension of the uppers. The amount of pre-bend can be measured by stretching the main halyard along the back edge of the spar and sighting the mount of bend in comparison to the straight line of the halyard. If more than 6" of prebend occurs tension the lowers and intermediates enough to limit prebend to that amount.

TIGHTEN THE INTERMEDIATE SHROUDS

Tighten the intermediate shrouds evenly, making sure the mast remains straight athwartship. This is done by sighting up the luff groove and looking for any side-to-side bend. If a bend or bow to one side exists, ease the intermediate on the side of the bend and tension the intermediate on the hollow side of the bend until the mast is straight transversely. The Intermediate Shrouds, at this stage, should be almost as tight as the uppers. Tightening the intermediates will remove some of the prebend, but at least 4" of prebend should be allowed to remain.

TIGHTEN THE LOWER SHROUDS

In the same manner as the intermediates were tightened, tighten and adjust the lower shrouds until the mast is straight amidships and has 4" of uniform prebend fore and aft.

TIGHTEN THE FORE STAY

Lift the furling drum and tension the forestay turnbuckle until it is 1/3 to 1/2 closed.

FINAL TUNING

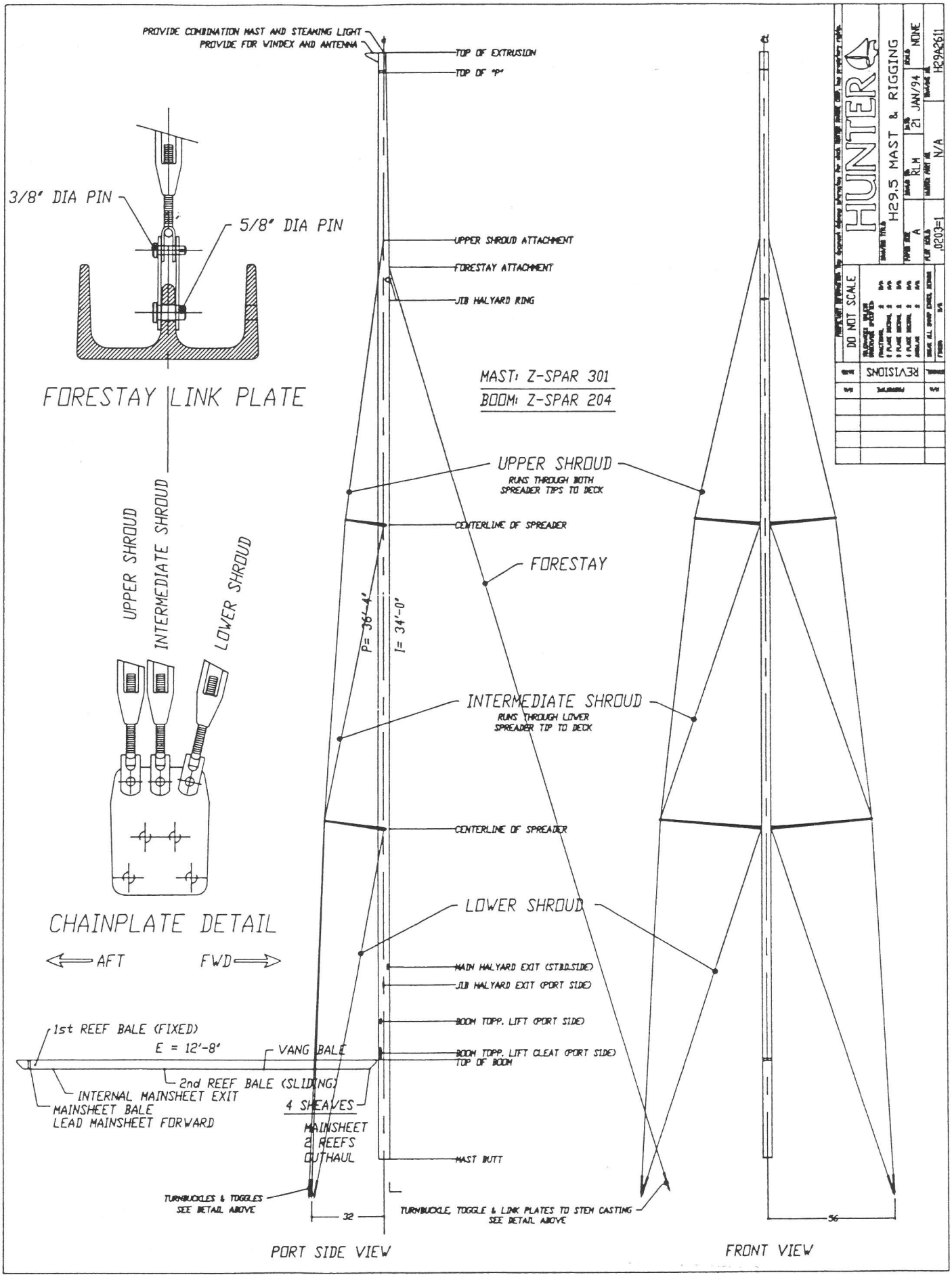
After the rigging is adjusted as above and the mast is straight amidships and has the necessary 4" of pre-bend, continue tensioning the upper shroud turnbuckles uniformly each side (counting & matching the same number of half turns) with a wrench and a screw driver until no more tension can be applied without exceptional effort. Do not use any artificial means, such as pipe extensions on the wrench and screw driver, to achieve additional tension. Lift the furling drum again and tension the forestay an additional four to six turns.

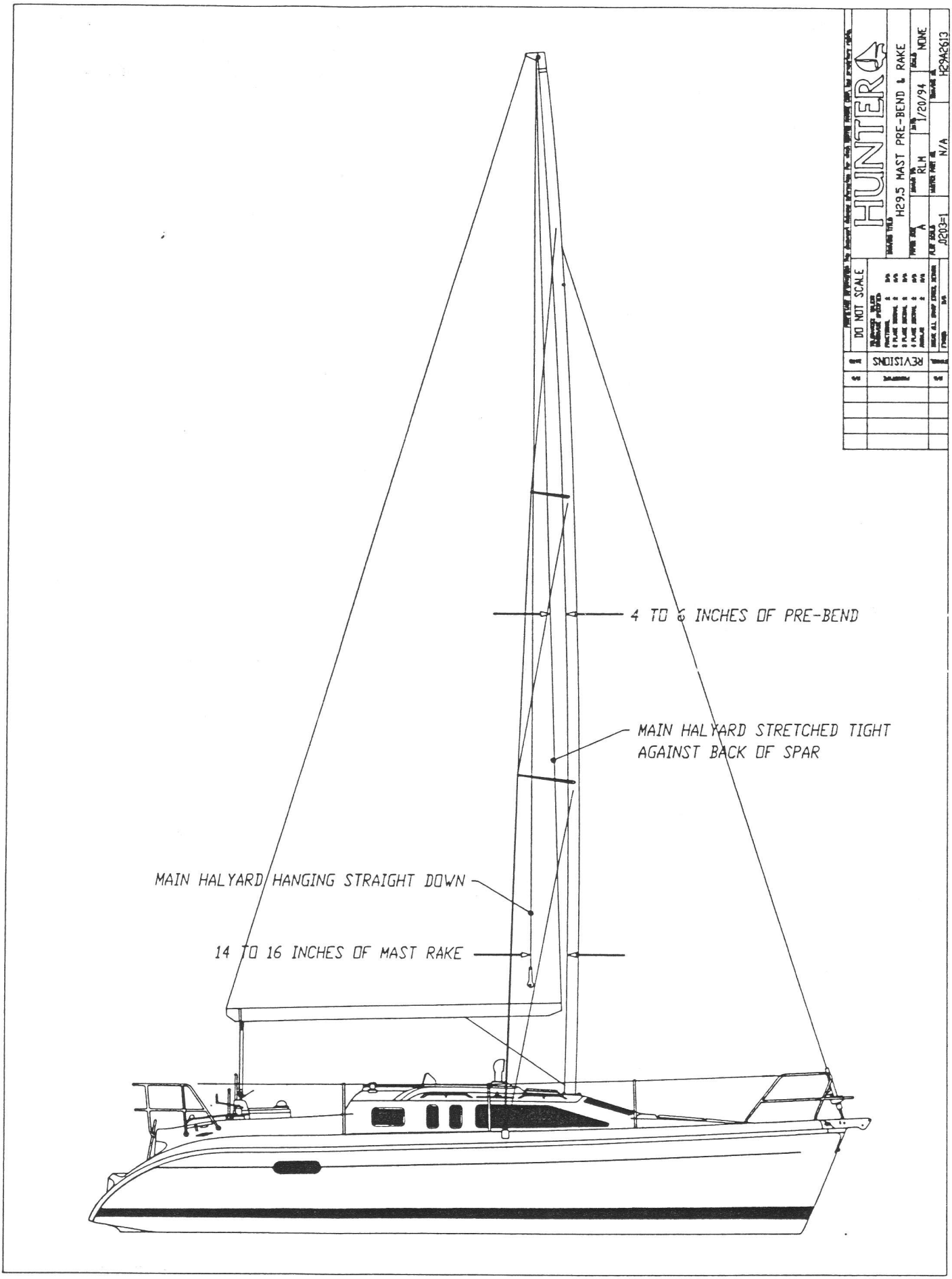
TUNING THE 29.5 FRACTIONAL RIG (CONT)

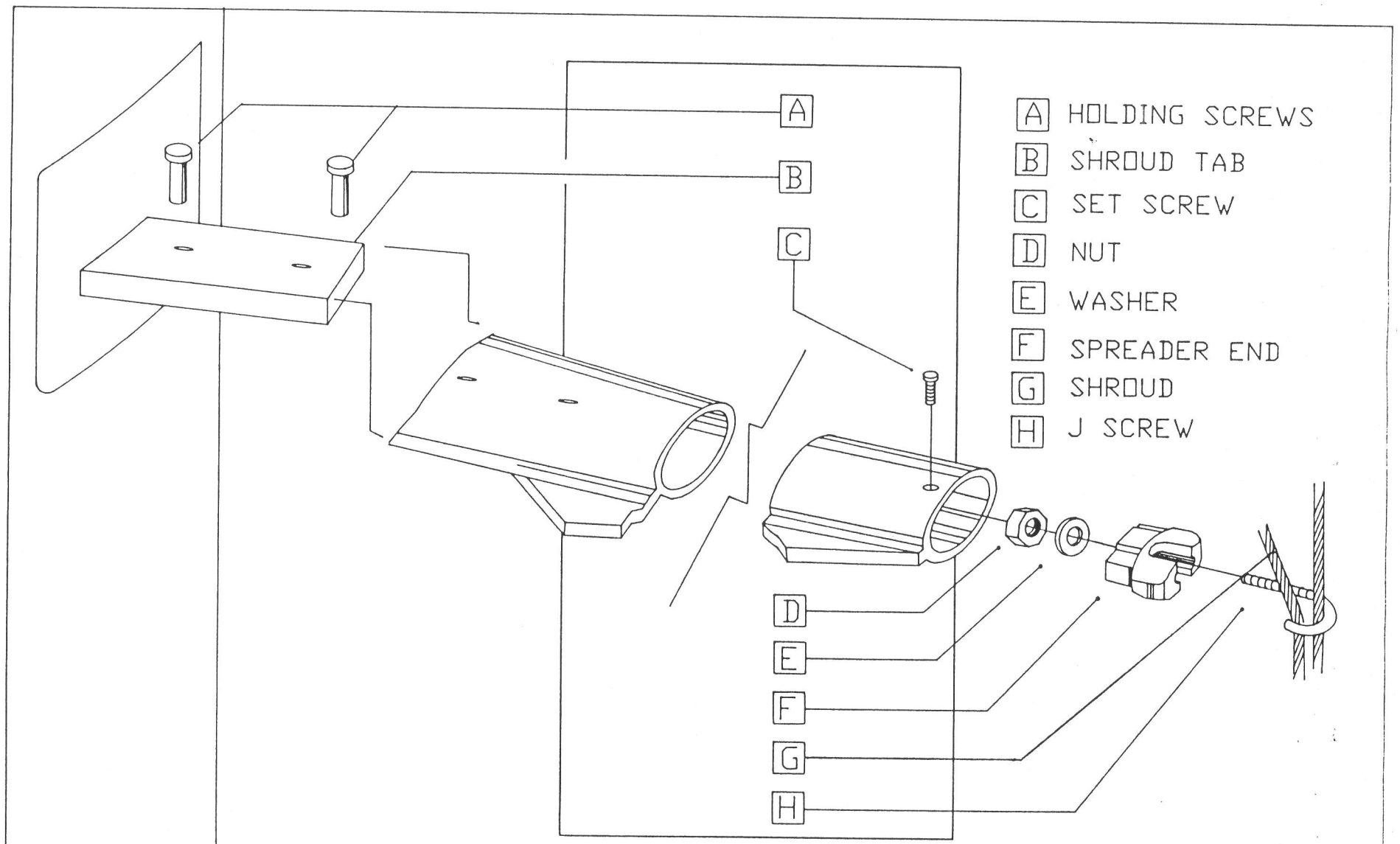
CHECKING THE RIG'S TUNING

Check the mast tuning by sailing in medium winds (10-12 knots). Sometimes fine tuning the intermediate and lower shrouds is necessary when the spar is loaded in sailing conditions. Sail on both tacks, sighting up the luff groove to check athwartship straightness. When sailing with full main and jib all the leeward rigging should remain taught. Only with a double reef in the main should the leeward lower and intermediate shrouds be slack. This is caused by the aft component of the main sail headboard loading pulling the pre-bend out of the spar.

When mast tuning is complete, install cotter pins in all turnbuckles and tape over sharp edges of the cotter pins with chafe tape.


PROVIDE COMBINATION MAST AND STEAMING LIGHT
PROVIDE FOR WINDEX AND ANTENNA
TOP OF EXTRUSION
TOP OF "P"
3/8" DIA PIN
5/8" DIA PIN
FORESTAY LINK PLATE
UPPER SHROUD ATTACHMENT
FORESTAY ATTACHMENT
JIB HALYARD RING
MAST: Z-SPAR 301
BOOM: Z-SPAR 204
UPPER SHROUD
RUNS THROUGH BOTH SPREADER TIPS TO DECK
CENTERLINE OF SPREADER
FORESTAY
P= 36'-4"
I= 34'-0"
UPPER SHROUD
INTERMEDIATE SHROUD
LOWER SHROUD
INTERMEDIATE SHROUD
RUNS THROUGH LOWER SPREADER TIP TO DECK
CENTERLINE OF SPREADER
LOWER SHROUD
CHAINPLATE DETAIL
AFT
FWD
MAIN HALYARD EXIT (STBD SIDE)
JIB HALYARD EXIT (PORT SIDE)
BOOM TOPP. LIFT (PORT SIDE)
BOOM TOPP. LIFT CLEAT (PORT SIDE)
TOP OF BOOM
1st REEF BALE (FIXED)
E = 12'-8"
VANG BALE
2nd REEF BALE (SLIDING)
INTERNAL MAINSHEET EXIT
MAINSHEET BALE
LEAD MAINSHEET FORWARD
4 SHEAVES
MAINSHEET
2 REEFS
OUTHAUL
MAST BUTT
TURNBUCKLES & TOGGLES
SEE DETAIL ABOVE
32
TURNBUCKLE, TOGGLE & LINK PLATES TO STEM CASTING
SEE DETAIL ABOVE
56
PORT SIDE VIEW
FRONT VIEW
HUNTER
H29.5 MAST & RIGGING
DRAWN BY RLH
DATE 21 JAN/94
SCALE NONE
PAPER SIZE A
HUNTER PART NO. N/A
DRAWING NO. H29A2611
PLOT SCALE .0203=1
DO NOT SCALE
REVISIONS

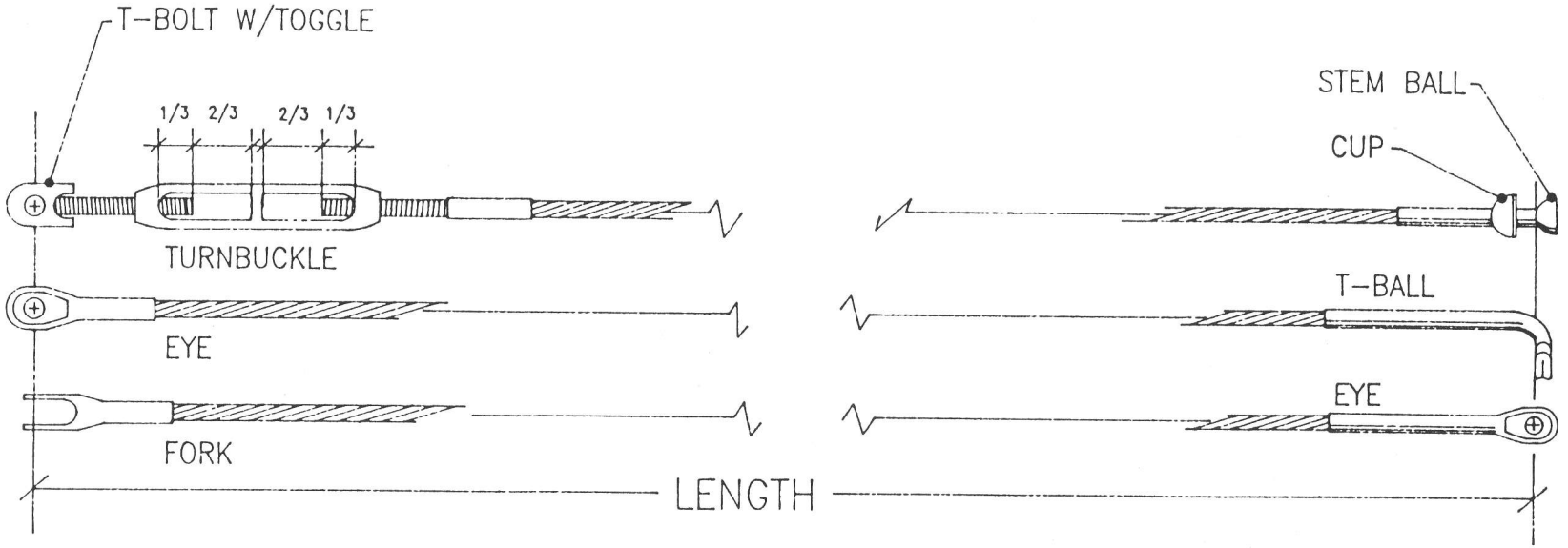

4 TO 6 INCHES OF PRE-BEND
MAIN HALYARD STRETCHED TIGHT
AGAINST BACK OF SPAR
MAIN HALYARD HANGING STRAIGHT DOWN
14 TO 16 INCHES OF MAST RAKE
HUNTER
H29.5 MAST PRE-BEND & RAKE
DO NOT SCALE
REVISIONS
1/20/94
N/A
H29A2613



NOTE: HOLES IN SCHROUD TABS WILL NOT LINE UP WITH HOLES IN SPREADERS UNLESS MAST IS COMPRESSED AT SPREADER MOUNTS

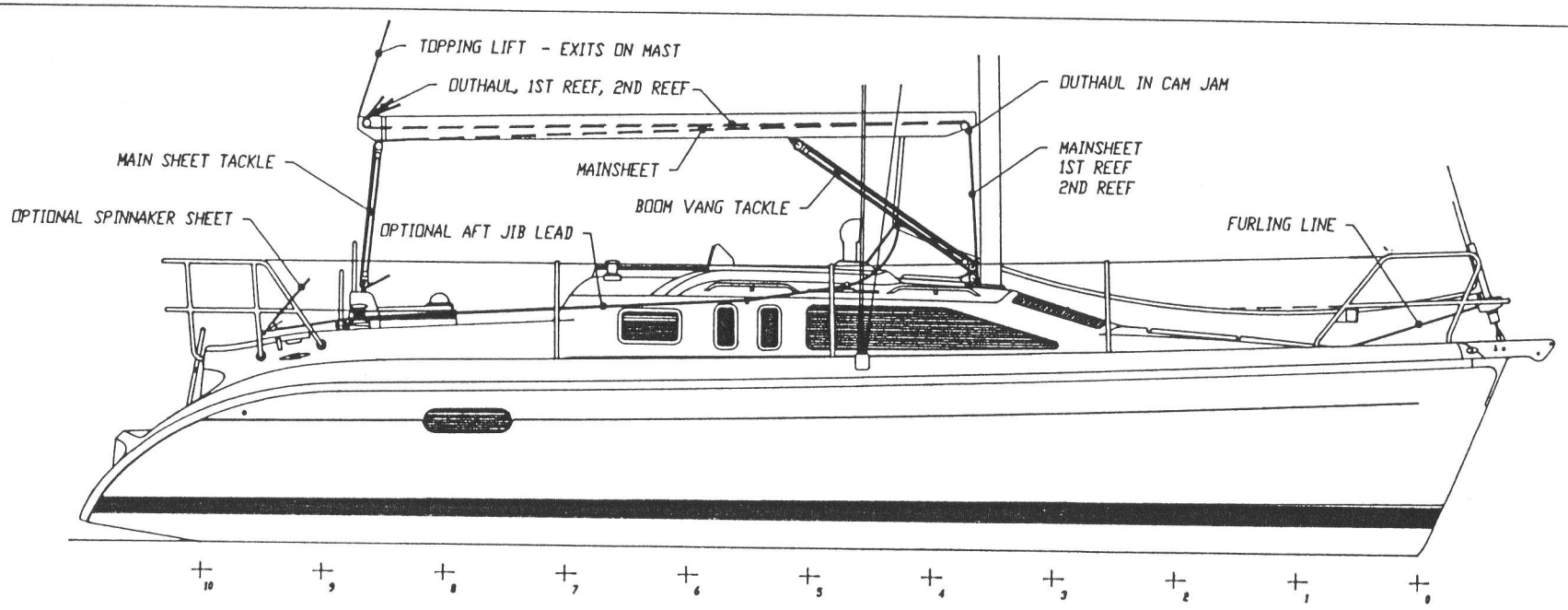
HUNTER

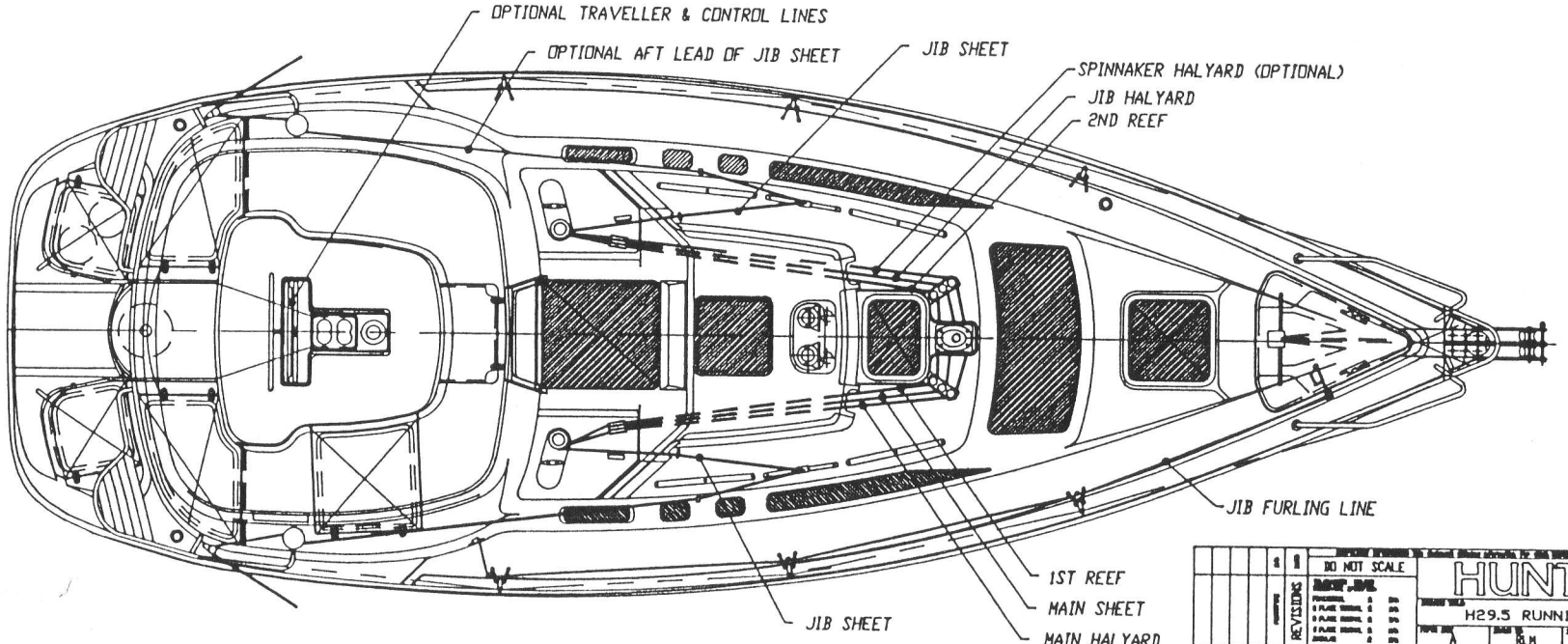
Z-SPAR SPREADER DETAIL H29-A-2613



HUNTER

RIGGING LENGTH STANDARDS H29-A-2632





DO NOT SCALE

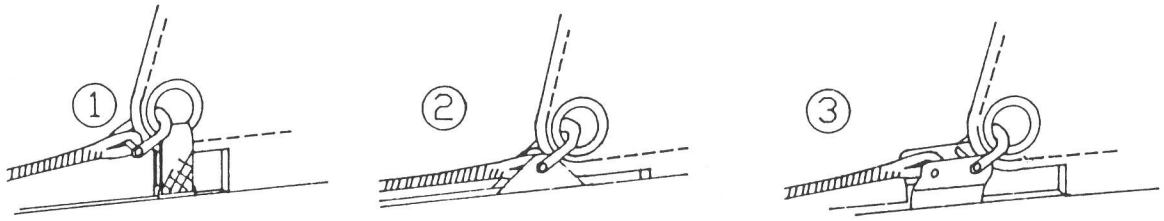
REVISIONS

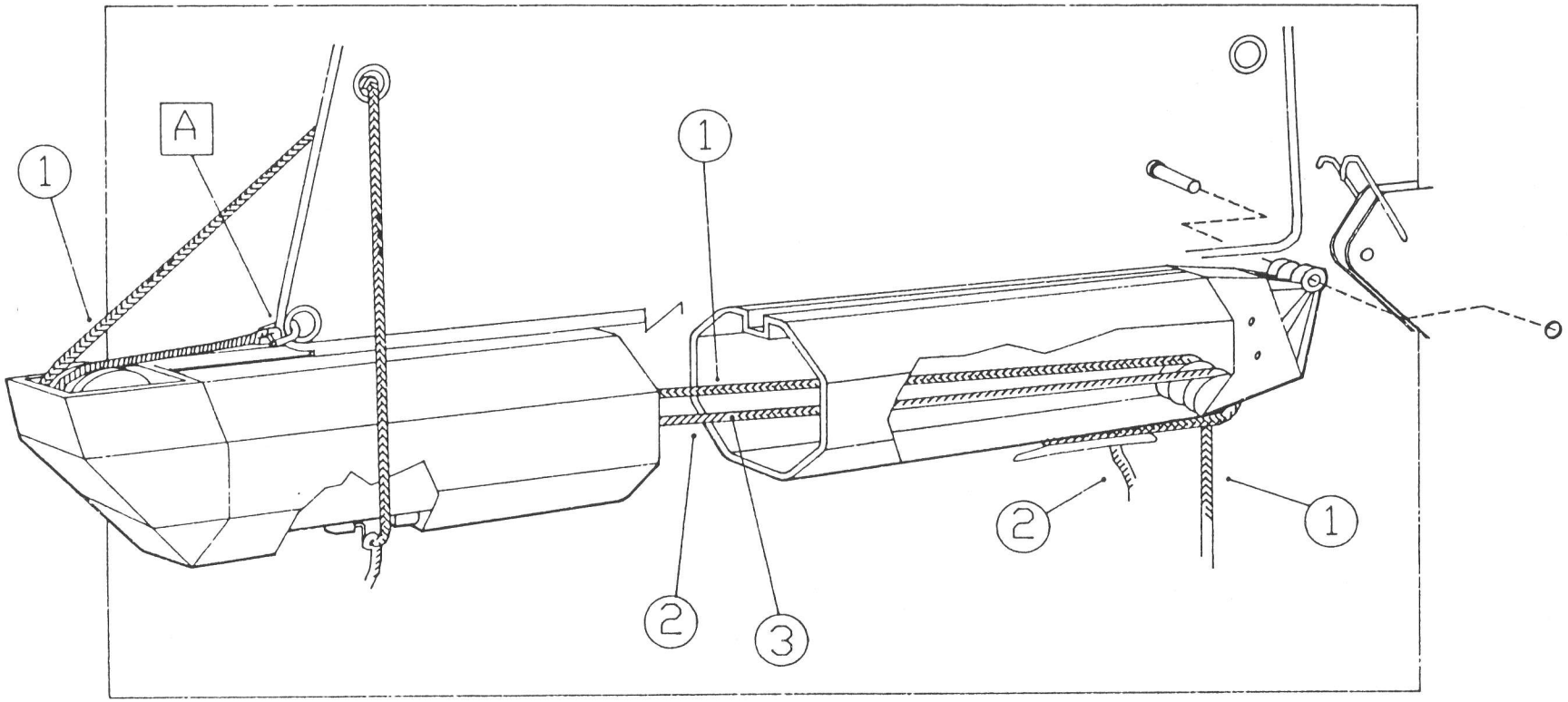
HUNTER

H29.5 RUNNING RIGGING

A	RLM	1/21/94	NONE
J2103-1	N/A	H29A2612	

VARIATIONS:





(1) REEF LINE

(2) OUTHAUL

(3) TRANSITION FROM OH WIRE - OH LINE

[A] D SHACKLE

HUNTER

BOOM AND REEF LAYOUT H29-A-2617

HUNTER 29.5 RIGGING SPECIFICATIONS

STANDING RIGGING

FITTINGS

Description	Wire Size	Upper End	Lower End*	Overall Length **
Forestay	7/32"	stemball eye & toggle	7-12-12 w/toggle & link plates	35' -7 1/2"
Uppers	1/4"	stemball w/shell	8-12-12 w/toggle	35' -8 3/4"
Intermediates	3/16"	stemball w/shell	6-12-12 w/toggle	25' -3"
Lowers	1/4"	stemball w/shell	8-12-12 w/toggle	14' -3 1/4"

All wire is 1 x 19 type 316 stainless steel.

* "X-X-X" represents the turnbuckle size as follows:
Wire size/body size/pin diameter in 32nd's of an inch.
Example: 7-12-12 is a turnbuckle that accepts a 7/32" wire, has a 3/8" (12/32") thread diameter in the body, and uses a 3/8" (12/32") pin.

** See H29-A-2632 "Rigging Length Standards" for details

RUNNING RIGGING (STANDARD)

Line	Color Code	Size	Attachments	Overall Length
Main Halyard*	Black	3/8"	Headboard shackle	93'
Jib Halyard*	Blue	3/8"	Swivel snapshackle	82'
Main Sheet	White	3/8"	B.B.E. **	80'
Jib Sheets (one piece)	White	7/16"	B.B.E.	56'
Outhaul	White	5/16"	B.B.E.	27'
1st. Reef	Green	3/8"	B.B.E.	44'
2nd. Reef	Red	3/8"	B.B.E.	56'
Furling Line	White	1/4"	B.B.E.	35'
Topping Lift	White	1/4"	B.B.E.	78'
Anchor Line	White	3/8"	Shackle	100'
Boom Vang	White	3/8"	Eye splice	25'

* XLS low stretch line
All other lines low stretch Dacron except anchor line which is nylon.

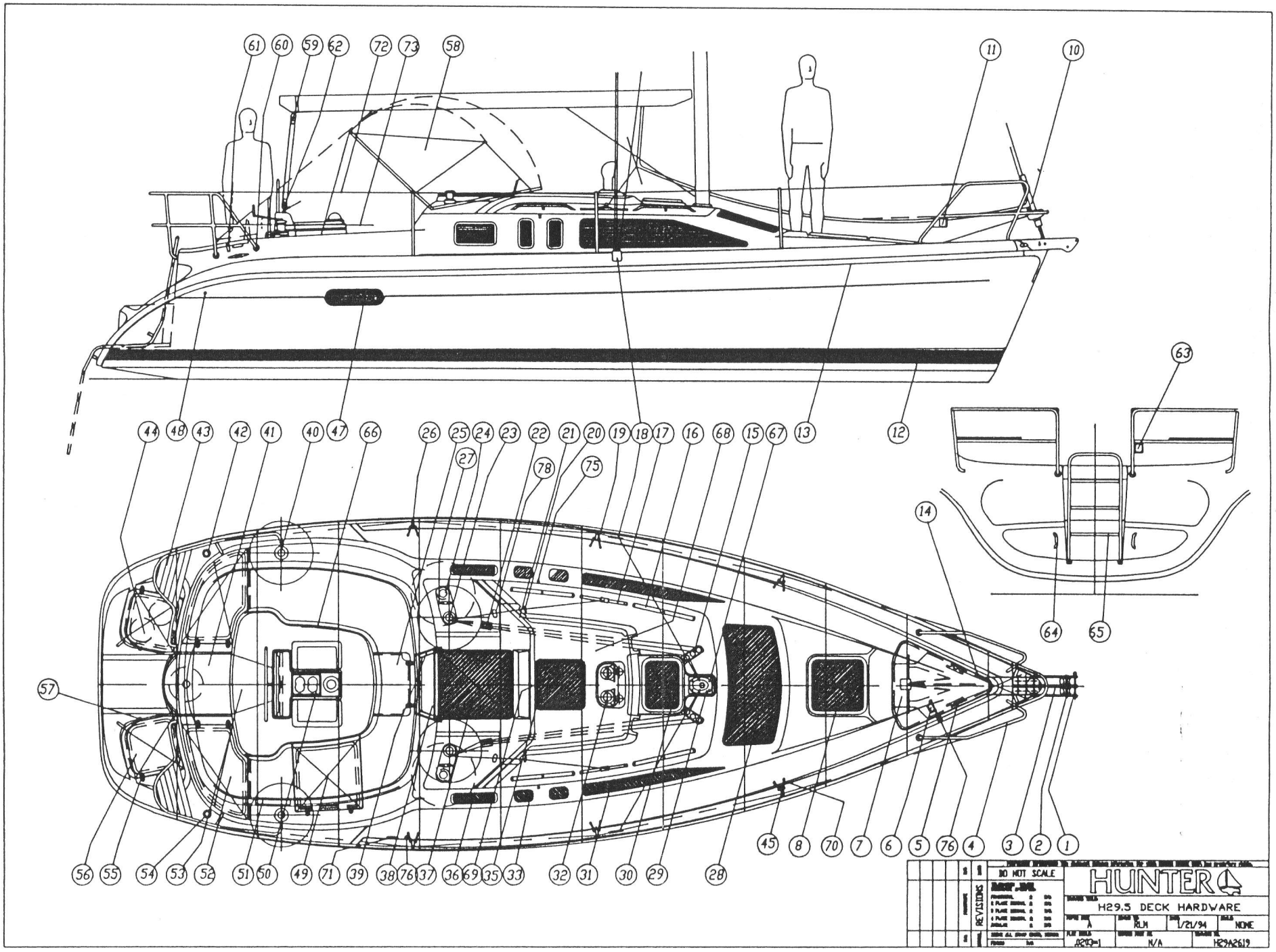
** Burned Both Ends.

HUNTER 29.5 RIGGING SPECIFICATIONS

RUNNING RIGGING (OPTIONAL)

Line	Color Code	Size	Attachments	Overall Length
Traveller Control Line (2)	White	5/16"	eye splice	4'-0"
Spinnaker Halyard*	White	3/8"	swivel snap shackle	86'-0"
Spinnaker Sheets (2)*	White	3/8"	swivel snap shackle	55'-0"
Spinn. Tack Line (Cruising) *	White	3/8"	snap shackle each end	4'-0"
Spinn. Tack Line (Racing) *	White	3/8"	swivel snap shackle	55'-0"
Spinn. Bobstay (Racing) * &**	White	3/8"	BBE ***	5'-0"
Pole Launch Line (Racing) *	White	3/8"	BBE	35'-0"
Pole Retraction Shock Cord (Racing) *		1/2"	BBE	12'-0"

* Dealer or Customer Supplied
** Spectra
*** Burned Both Ends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11 10
63
44 48 43 42 41 40 47 66 26 25 24 23 22 21 20 19 18 17 16 68 15 67 13 12
27 78 75
14
64 65
57
56 55 54 53 52 51 50 49 71 39 38 76 37 36 69 35 33 32 31 30 29 28
45 8 70 7 6 5 76 4 3 2 1
DO NOT SCALE
REVISIONS
HUNTER
H29.5 DECK HARDWARE
RLM
1/21/94
NONE
N/A
H29A2619

HUNTER 29.5 DECK HARDWARE LAYOUT

* OPTIONAL EQUIPMENT

ID	QTY	PART	MFG.	MFG.#	HUNTER#
1	1	DROP NOSE PIN	KENS WELDING		HW2237
2	1	BOW ROLLER W/PIN	KENS WELDING		HW2237
3	1	ALUM BOW CASTING	CUSTOM		HW1601
4	1	BOW RAIL	SOUTH COAST		HW2347
5	2	FWD 8" ALUM CLEATS	YS		HW0975
6	2	ANCHOR LOCKER LATCH	SOUTH COAST		HW4471
7	1	FRP ANCHOR LID	HUNTER		GA270010
8	1	FORWARD HATCH	BOMAR		GCO90010
10	1	FURLING GEAR	HOOD		R10427
11	1	SIDE LIGHTS	AQUA SIGNAL		EL0365/EL0366
12	1	MOLDED BOOT TOP	HUNTER		
13	1	RUB RAIL	HUNTER		HW2453
14	1	WATER DECK FILL			PL1130
15	1	DECK ORGANIZER			HW0170
16	1	HANDRAILS	HUNTER		HW2445
17	1	JIB TRACK			HW0193
18	2	CHAINPLATES & BACKUP	KENS WELDING		HW1604
19	1PR	MIDSHIP STANCHIONS	SOUTHCOAST		HW2064
20	2	JIB SHEET FAIRLEADS			HW1072
21*	1	DODGER EXTRUSION			
22	2	ROPE CLUTCH	GAURHAUR	TRI-3/8"	HW1282
23	2	WINCHES	LEWMAR	#16 ST ALUM	HW2518
24*	2	WINCHES	LEWMAR	#16 ST ALUM	HW2518
25	1	ROPE LOCKER LID	HUNTER		GA270042
26	1PR	AFT STANCHIONS	SOUTH COAST		HW2063
27	2	SHEET CLEATS	YS		HW0980
28	1	3/8" ACRYLIC WINDSHIELD	HUNTER		PX0151
29	1	MAST STEP	Z-SPAR		RI0509
30	1	MID-DECK HATCH	BOMAR	1040-10A	HW0120
31	1PR	FWD 1/4" ACRYLIC SIDE PORTS			PX0152/153
32	2	3" DORADE VENTS	NICRO	NF 10923	HW4857
33	4	OPENING PORTS	BOMAR		HW0052
35	1	UPPER SKYLIGHT ACRYLIC	HUNTER		HW2244
36	2	OPENING PORTS	BOMAR	7X15 ID	HW0035
37	1	COMPANIONWAY ACRYLIC	HUNTER		PX0043/44
38	1	3/8" ACRYLIC PIN BOARDS	HUNTER		HW5284/WT00110
39	1PR	PIN BOARD TRACKS	HUNTER		WT0131
40*	1PR	SPINNAKER WINCHES	LEWMAR	#30 ST	HW2519
41		FRP HELM SEAT	HUNTER		GA270190
42	1	FUEL DECK FILL			PL0520
43	2	STERN RAIL SEAT	HUNTER		GFC8XV02/03
44*	1	PROPANE LOCKER	HUNTER FRP		GA270205
45	1PR	FWD STANCHIONS	SOUTH COAST		HW2065
47	2	FIXED 3/8" LEXAN PORTS	HUNTER		PX0144
48	2	TANK VENTS (P&S)			PL0520
49	1	FRP EURO SEAT & BUMPERS	HUNTER		GA270070
50	1	STEERING CONSOLE	HUNTER		GA270105
51	1	ENGINE PANEL	YANMAR		EL0111

HUNTER 29.5 DECK HARDWARE LAYOUT - Continued

ID	QTY	PART	MFG.	MFG.#	HUNTER#
52	1PR	FRP GULL WING LOCKERS	HUNTER		GA270180/185
53	1	FRP QUAD COVER	HUNTER		GA270085
54	1	WASTE TANK DECK FITTING			PL1140
55	12	COCKPIT LOCKER HINGES			HW4250
56	1PR	SWIM SEATS	HUNTER		GA270195
57	2	SWIM SEAT LATCHES RUBBER TYPE			HW4358
58*	1	DODGER			
59	1	UPPER MAINSHEET BLOCK	SCHAFER	SCH. 05-43	HW0281
60	2	AFT MOORING CLEATS 8" ALUM			HW0975
61	2	GULL WING LATCHES			HW4358
62	1	LOWER MAINSHEET BLOCK	SCHAEFER	SCH. 22-65	HW0282
63	1	STERN LIGHT	AQUA SIGNAL		EL0390
64	2	SWIM HANDLES	SOUTH COAST		HW2404
65	1	SWIM LADDER	SOUTH COAST		HW2160
66	1	COCKPIT PORT	BOMAR	4X12	HW0037
67	1	MAST PLATE & COMP. POST	KENS WELDING		RI0578
68	1	FRP SEA HOOD	HUNTER		GC030200
69	1	LOWER SKYLIGHT ACRYLIC	HUNTER		PX044
70	2	FURLING FAIRLEADS	SCHAEFER	SCH. 78-02	HW0268
71	1	FURLING CLEAT	SCHAEFER	SCH. 60-14 4"	HW0985
72	2	UPPER LIFE LINES	SEACO SOUTH		RI1234
73	2	LOWER LIFE LINES	SEACO SOUTH		
75*	2	AFT SHEET LEAD BULLSEYES			
76	2	FURLING BLOCKS	SCHAEFER	SCH. 200-32	HW0269
77	1	STERN RAIL	SOUTH COAST		HW2255
78	2	CLAM JAMS	NICRO	NF-10557	HW
79	1	BOOM VANG	SCHAEFER		

* OPTIONAL EQUIPMENT - SUPPLIED BY FACTORY, DEALER OR CUSTOMER

HUNTER 29.5 SPINNAKER OPTIONS

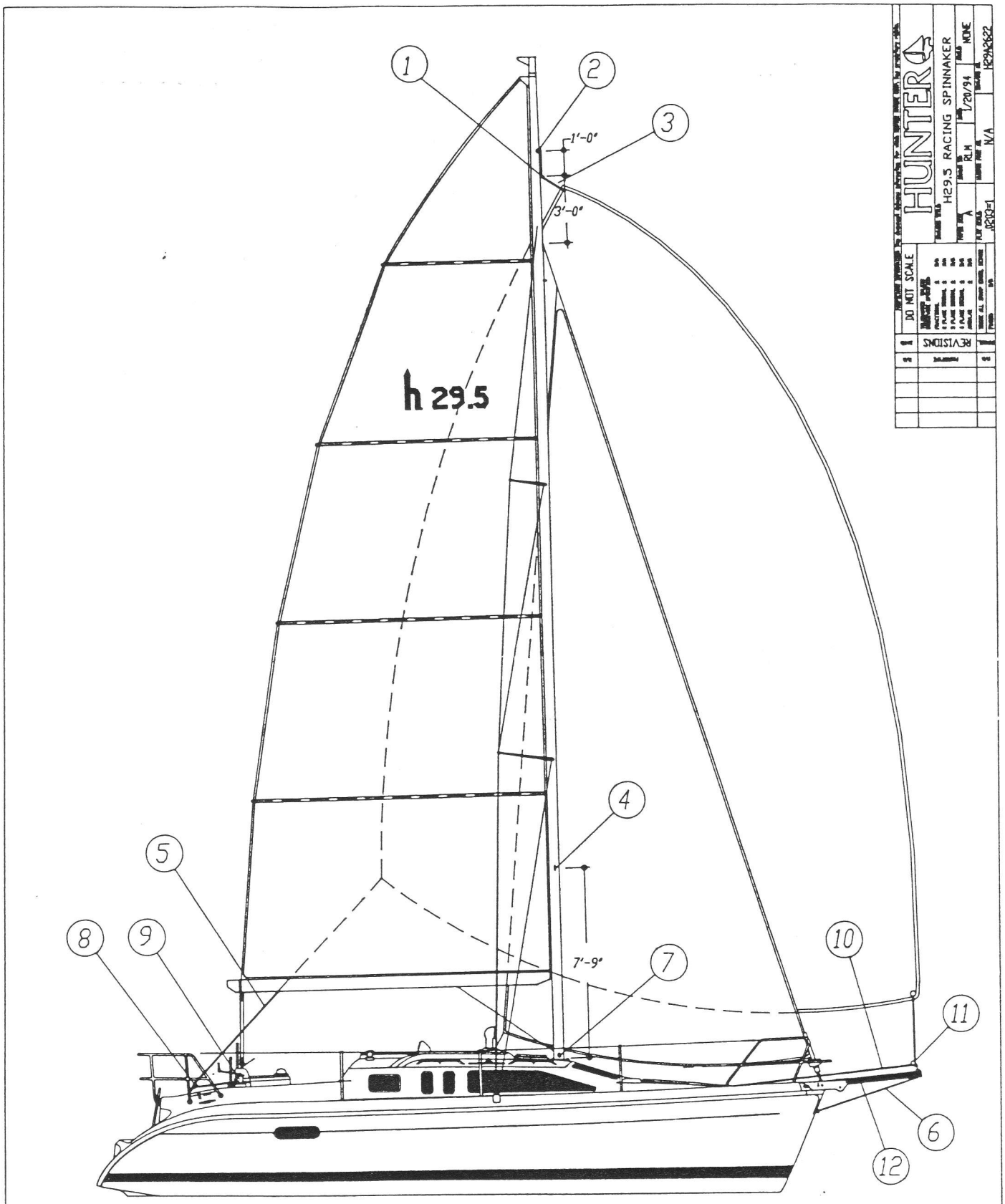
The swept back shrouds and spreaders prevent the boom from being eased as much down wind as on more conventional rigs. Therefore, the 29.5 should not sail directly downwind, but should instead "tack" downwind by gybing from broad reach to broad reach. This will also help to prevent the jib from being blanketed by the large main.

"Tacking" downwind is also much safer, since the boat is more stable and has much less chance of being caught "by the lee" and being exposed to an accidental gybe or broach.

This need to "tack" downwind makes the 29.5 ideally suited to the use of the new asymmetrical spinnakers. These spinnakers are flown like large jibs and do not require conventional spinnaker poles with their inherent and complicated topping lifts, foreguys, after guys, and resultant high mast loadings. For these reasons, we do not recommend the use of a conventional spinnaker and pole without first consulting Hunter Marine.

The asymmetrical spinnaker on the 29.5 can be rigged in a "Cruising" configuration as illustrated in Dwg. #H29-A-2620 where the spinnaker tack is flown from a tack line secured to the "U" bolt on the bow and passing over the bow roller. In this configuration, at the majority of sailing angles, the jib must be furled to allow clear air flow to the spinnaker. If not, the spinnaker will be more difficult to fly. The weather sheet should be lead outside the luff of the spinnaker so the sail will fly downwind when gybing. To ease handing of the sail a "snuffer" or "spinnaker sally" can be used. Talk to your local sailmaker about the best system for your needs and the optimum size of spinnaker. The cutout details for the halyard hardware is shown on dwg#H29-A-2625.

A more performance oriented option is illustrated in dwgs H29-A-2622, 23 & 24 showing the "Racing" option incorporating a retractable aluminum spinnaker pole housed in the anchor locker and running on an anchor roller. Obviously to utilize this option the anchor and rode must be removed from the locker, although the port roller is still available for anchoring.



HUNTER

H29.5 RACING SPINNAKER

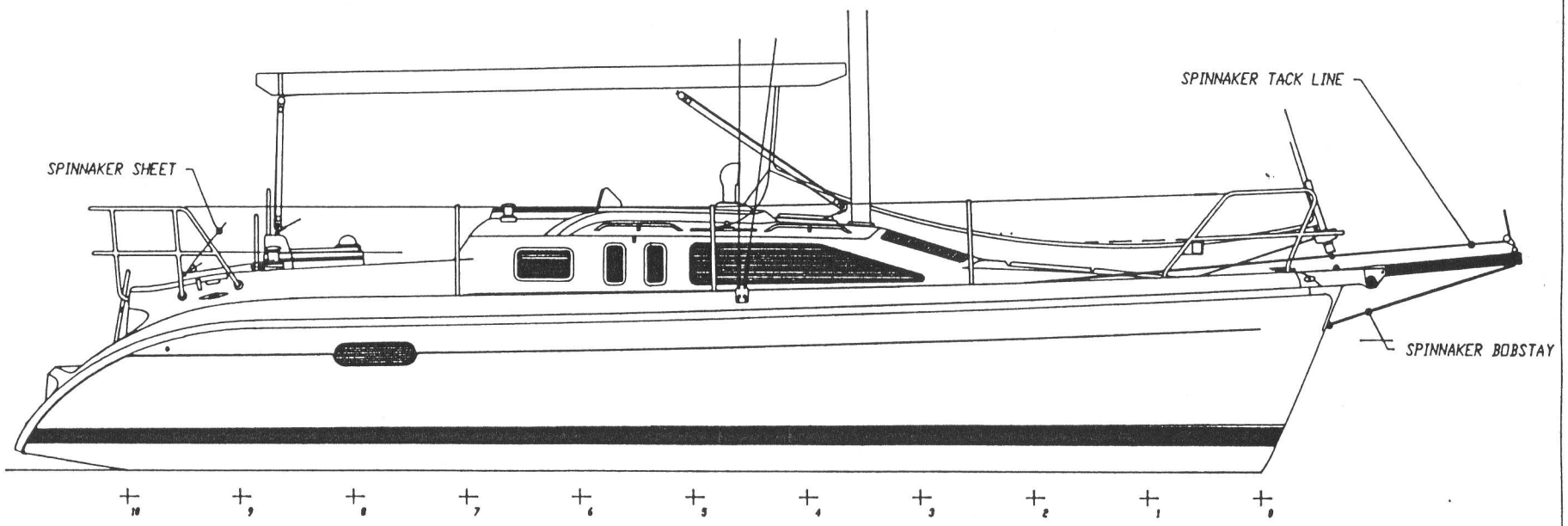
DO NOT SCALE

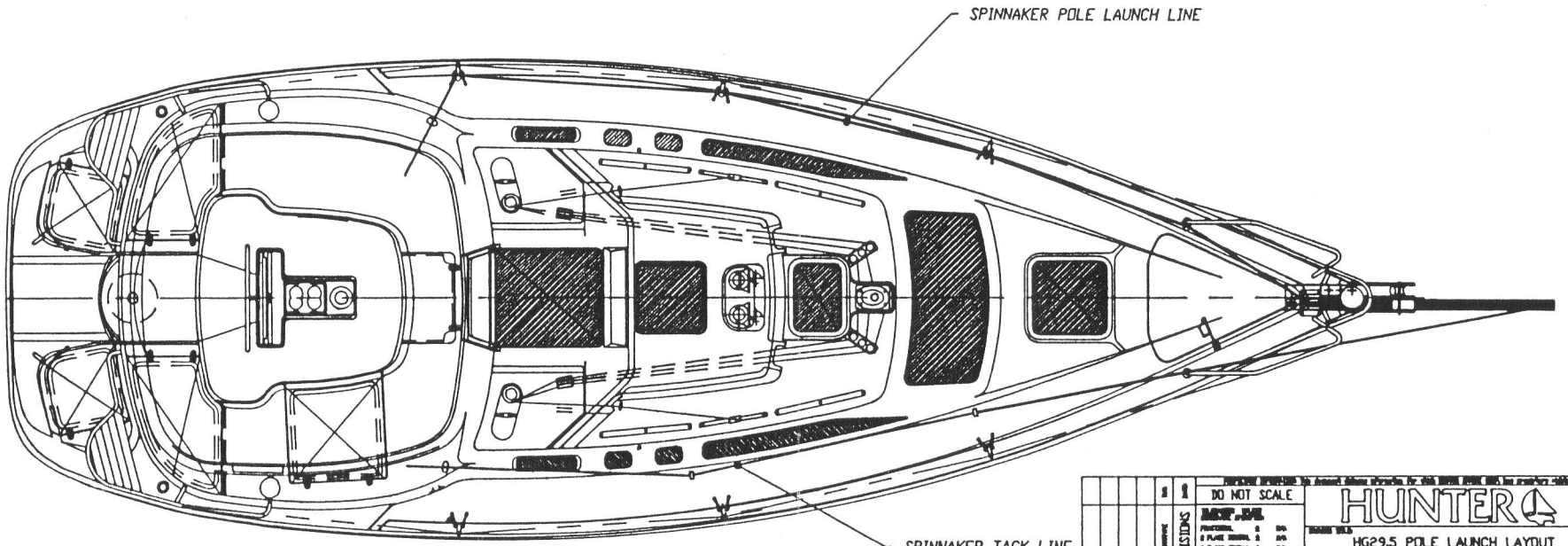
REVISIONS

1. HALYARD DEFLECTION EYE - Z-SPAR
** 2. HALYARD SHEAVE - Z-SPAR
* 3. HALYARD - 3/8" BRAIDED DACRON
** 4. HALYARD EXIT (PORT SIDE) - Z-SPAR
* 5. SHEETS (2) - 3/8" BRAIDED DACRON
* 6. BOB STAY - 3/8" SPECTRA
7. HALYARD DECK BLOCK (PORT SIDE) - Z-SPAR
8. SHEET BLOCK - SCHAEFFER 05-15
9. SHEET WINCHES - LEWMAR #30 ST
*10. TACK LINE - 3/8" BRAIDED DACRON
11. TACK LINE BLOCK - SCHAEFER 05-15
12. RETRACTABLE SPINN POLE - SEE H29A2623

* SEE HUNTER 29.5 RIGGING SPECIFICATIONS FOR MORE DETAILS

** SEE INSTALLATION INSTRUCTIONS -H29A2625





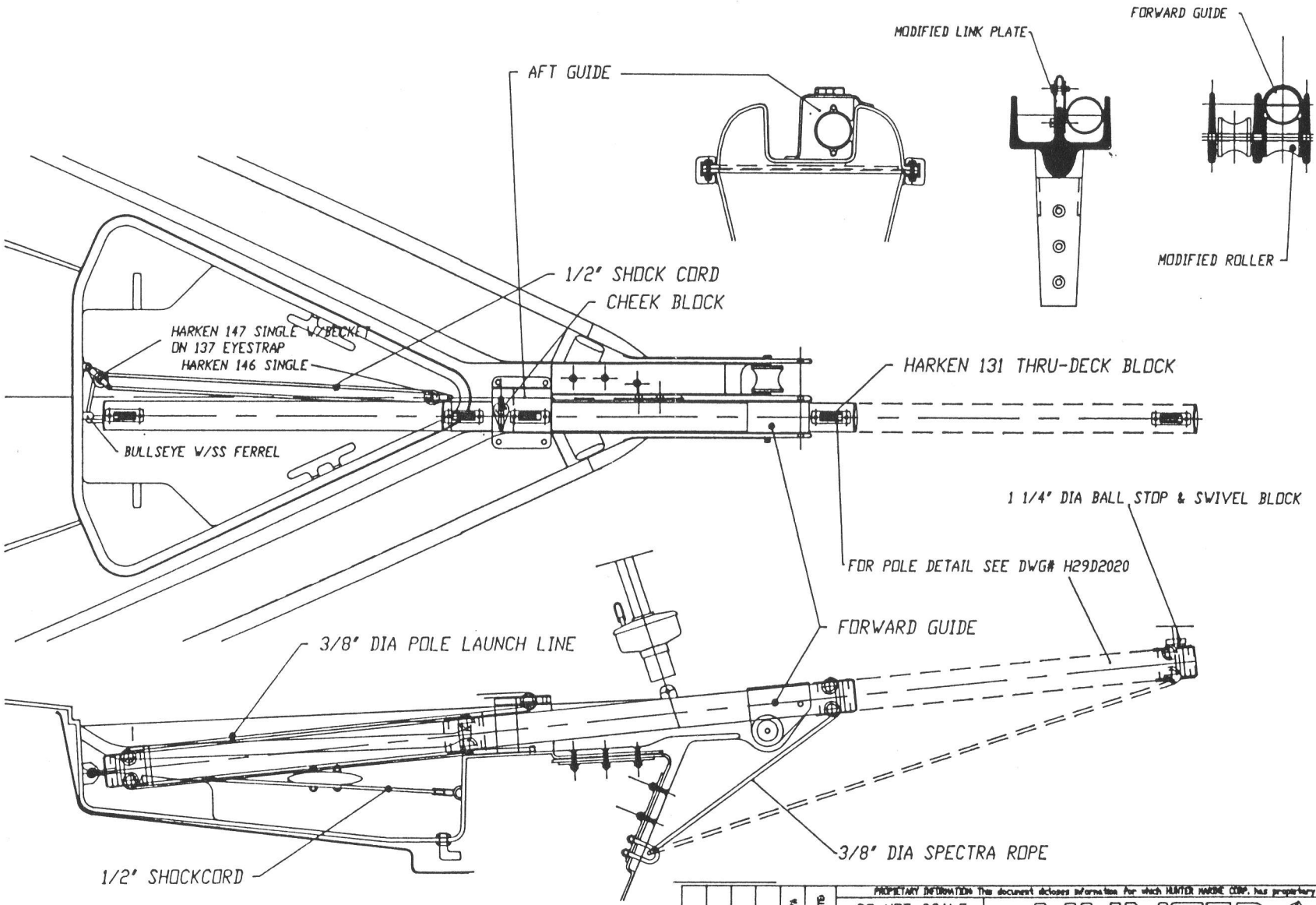
DO Nnot SCALE

REVISIONS

HUNTER

HG29.5 POLE LAUNCH LAYOUT

	RLM	1/21/94	NONE
1203=1	N/A		H29A2634



DO NOT SCALE

TOLERANCES UNLESS OTHERWISE SPECIFIED
FRACTIONAL ± N/A
2 PLACE DECIMAL ± N/A
3 PLACE DECIMAL ± N/A
4 PLACE DECIMAL ± N/A
ANGULAR ± N/A
BREAK ALL SHARP EDGES, DEBURR
FINISH N/A

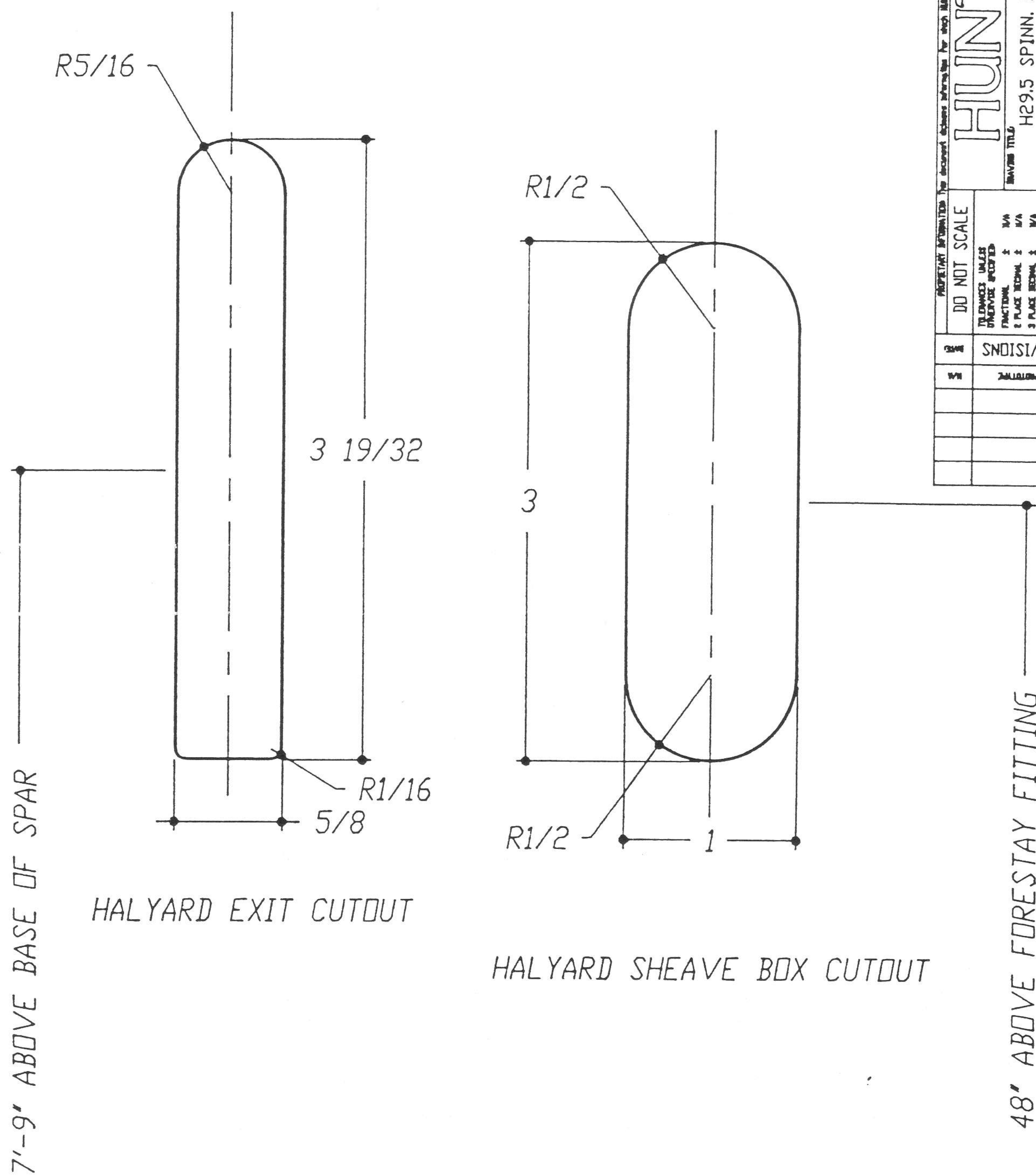
REVISIONS

HUNTER

DRAWING TITLE: H29.5 POLE LAUNCH DETAIL

PAPER SIZE	DRAWN BY	DATE	SCALE
A	RLM	22 JAN/94	NONE

PLOT SCALE	HUNTER PART NO.	DRAWING NO.
.0416=1	N/A	h29a2633



SPINNAKER HALYARD MAST CUTOUTS

PROPRIETARY INFORMATION This document contains information for which Hunter Marine Corp. has proprietary rights.

HUNTER

DO NOT SCALE

TOLERANCES UNLESS OTHERWISE SPECIFIED	
FRACTIONAL ±	N/A
2 PLACE DECIMAL ±	N/A
3 PLACE DECIMAL ±	N/A
4 PLACE DECIMAL ±	N/A
ANGULAR ±	N/A

BREAK ALL SHARP EDGES, RADIUS: N/A
FINISH

REVISIONS

DATE	REVISIONS	SYMBOL
N/A	PROTOTYPE	N/A

DRAWING TITLE: H29.5 SPINN. MAST CUT-OUTS

PAPER SIZE	DRAWN BY	DATE	SCALE
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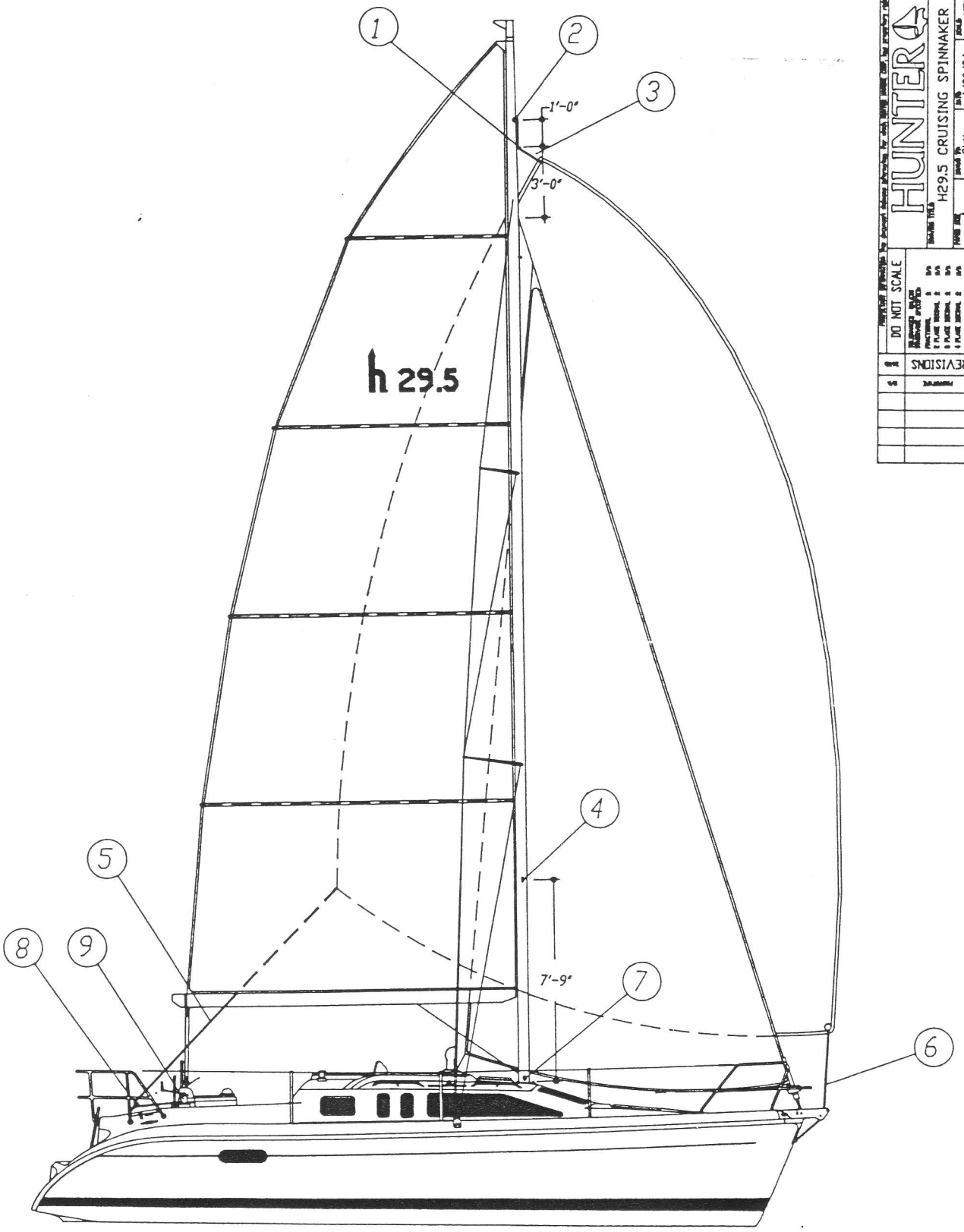


HUNTER

H29.5 CRUISING SPINNAKER

DRAWING TITLE

SIZE A | DRAWN BY RLH | DATE 1/20/94 | SCALE NONE

PLOT SCALE .0200=1 | HUNTER PART # N/A | DRAWING # H29A2620

DO NOT SCALE

REVISIONS

1. HALYARD DEFLECTION EYE - Z-SPAR
** 2. HALYARD SHEAVE - Z-SPAR
* 3. HALYARD - 3/8" BRAIDED DACRON
** 4. HALYARD EXIT (PORT SIDE) - Z-SPAR
* 5. SHEETS (2) - 3/8" BRAIDED DACRON
* 6. TACK LINE - 3/8" BRAIDED DACRON
7. HALYARD DECK BLOCK (PORT SIDE) - Z-SPAR
8. SHEET BLOCK - SCHAEFFER 05-15
9. SHEET WINCHES - LEWMAR #30 ST

* SEE HUNTER 29.5 RIGGING SPECIFICATIONS FOR MORE DETAILS
** SEE INSTALLATION INSTRUCTIONS

GALLEY/HEAD SYSTEMS

WATER SYSTEM OPERATION

Fill fresh water tank at deck fill. The tank filler cap will be marked "water". When tank is full, water will back up through the vent hose and exit through a vent located on the side of the hull

To activate the water system, flip the "water pressure" switch on the electrical panel. This will start the pump and pressurize the system. When the pressure builds, the pump will shut off. With continued use of fresh water the pressure in the system is reduced, automatically restarting the pump. Make sure there is water in the system while pump is in operation to prevent damage to the motor.

If pump kicks in frequently without system use, you may have a leak in the system and it should be checked. **Do not activate water heater unless there is water in the system.**

To operate shower, turn on hot & cold faucets until desired temperature is reached, while shower head is retracted at sink. Pull the shower head out and use. The faucets must be turned off to prevent system drainage.

Opening the faucet will allow the pump to empty the tank. Flushing the tank and lines will be necessary for winterization. Refer to Maintenance & Winterization section for more information.

Seaward Products

POST OFFICE BOX 566
LA PUENTE, CALIFORNIA 91747
PHONE: (818) 968-2117
FAX: (818) 330-5442

WATER HEATERS

OWNER'S MANUAL

FOR
ELECTRIC/HEAT EXCHANGER
WATER HEATERS

MODELS:
S600, S650, S700, S750
S1100, S1150, S1200, S1250

IMPORTANT SAFETY INSTRUCTIONS

WARNING: When using electrical appliances, basic safety precautions to reduce the risk of fire, electric shock, or injury to persons should be followed, including:

1. READ ALL INSTRUCTIONS BEFORE USING THIS WATER HEATER.

2. This water heater must be grounded. Connect only to properly grounded outlet. See "GROUNDING INSTRUCTIONS" found on Page 3, Item 7.

3. Install or locate this water heater only in accordance with the provided installation instructions.

4. Use this water heater only for its intended use as described in this manual.

5. Do no use an extension cord set with this water heater. If no receptacle is available adjacent to the water heater, contact a qualified electrician to have one properly installed.

6. As with any appliance, close supervision is necessary when used by children.

7. Do not operate this water heater if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.

8. This water heater should be serviced only by qualified service personnel. Contact nearest authorized service facility for examination, repair, or adjustment.

SAVE THESE INSTRUCTIONS

WARNING:

This Water Heater is equipped with a heat exchanger. Extended engine coolant circulation through the heater may result in excessively hot water.

This Water Heater Tank and Heat Exchanger are made of aluminum. Do not use any caustic chemicals in Heat Exchanger or damage may occur. Use only engine manufacturers recommended coolant in coolant system. Damage that occurs to Heater due to chemical reaction by caustic chemicals is not under warranty.

CAUTION:

Hydrogen gas can be produced in a hot water system served by these heaters that have not been used for a long period of time (generally 2 weeks or more.) Hydrogen gas is extremely flammable. To reduce the risk of injury under these conditions, it is recommended that the hot water faucet be opened for several minutes at the kitchen sink before using and electrical appliance connected to the hot water system. If hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.

OPERATING INSTRUCTIONS

1. Fill water system and completely fill tank.

2. Locate and turn remote electrical switch to "ON".

3. Turn switch to "OFF" position prior to draining water system.

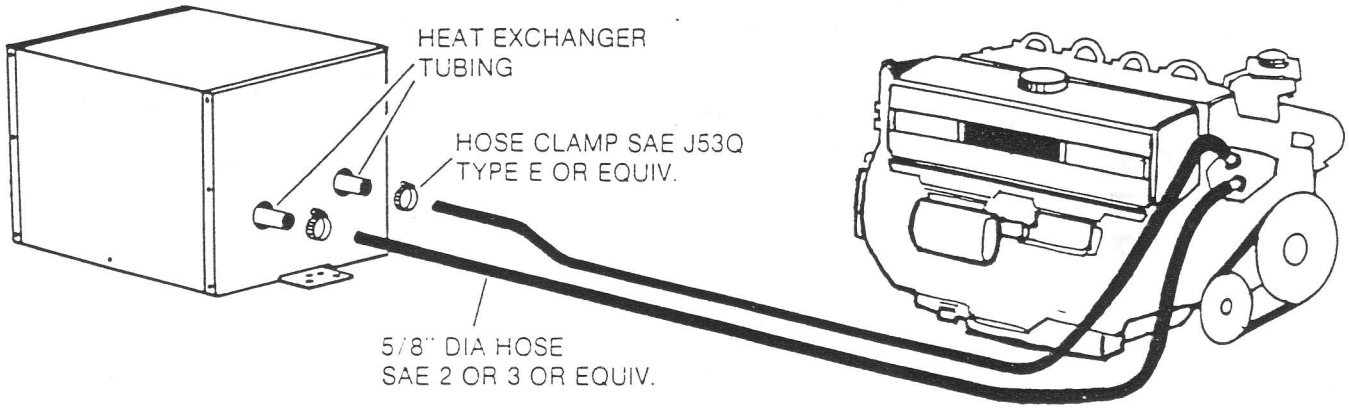
NOTE: Do not operate heater without element being submerged in water.

MAINTENANCE

1. Check heat exchanger lines for leaks at regular intervals. A leak in the system will cause coolant loss and may damage engine.

2. Flush tank periodically.

3. Drain tank if subjected to temperatures less than 32°F, to prevent freezing and possible damage.



INSTALLATION

1. Locate water heater at or below engine level as close to engine as possible..

2. Secure mounting brackets to structure with eight #12 minimum screws or 1/4-20 minimum cap screws and nuts.

3. Connect cold water supply and hot water outlet to heater.

4. Connect heat exchanger system described in figure above.

5. Pressure temperature relief valve is factory installed. The pressure relief shall limit the pressure to 127.5 PSI (879.3 KPA) minimum, 150 PSI (1034.2 KPA) maximum.

   The valve must be oriented, provided with tubing, or otherwise installed so that discharge can exit only within 6 inches above, or at any distance below the structural floor, and cannot contact any live electrical part.

   Install replacement temperature and pressure protective equipment required by local codes, but not less than a combination temperature and pressure relief valve certified as meeting the requirements for relief valves and automatic gas shutoff devices for hot water supply systems, ANSI Z21.22 by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials.

6. Connect the electrical supply by a qualified electrician. The electrical supply shall be permanent wiring, armoured cable or conduit, per national electrical code NFPA 70, with a minimum capacity of 1500 watts.

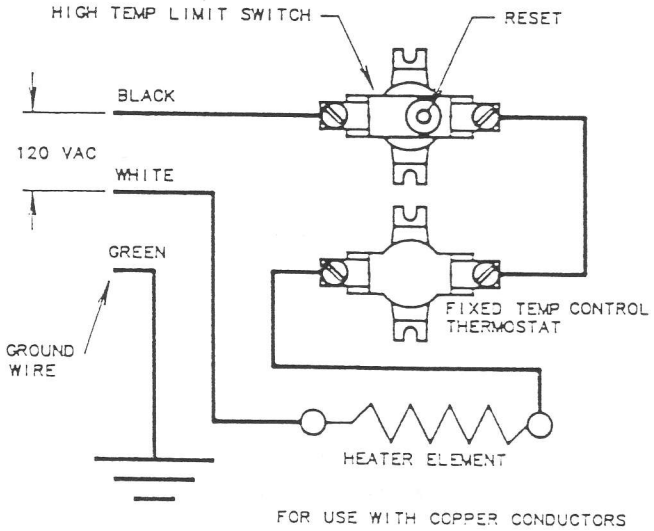
7. GROUNDING INSTRUCTIONS: The supply ground shall be connected to the green wire located in the water heater wiring compartment. Do not place switch in the grounding circuit.

Use a UL-Listed ON-OFF switch rated 15 AMP/120 VAC in the black supply line on 120 Volt models. Use a UL-Listed double pole ON-OFF switch rated 10 AMPS/220-240 VAC in the red and black supply lines on 220 Volt models.

The heater is equipped with a high limit switch which can be manually reset. If the limit switch activates, proceed as follows:

- Turn power off at main power panel or remote switch
- Remove wiring access cover
- Depress red button on high temperature limit
- Replace cover and turn power on
- If temperature limit switch reactivates, contact a Seaward Products authorized service center.

WIRING DIAGRAM FOR 120V

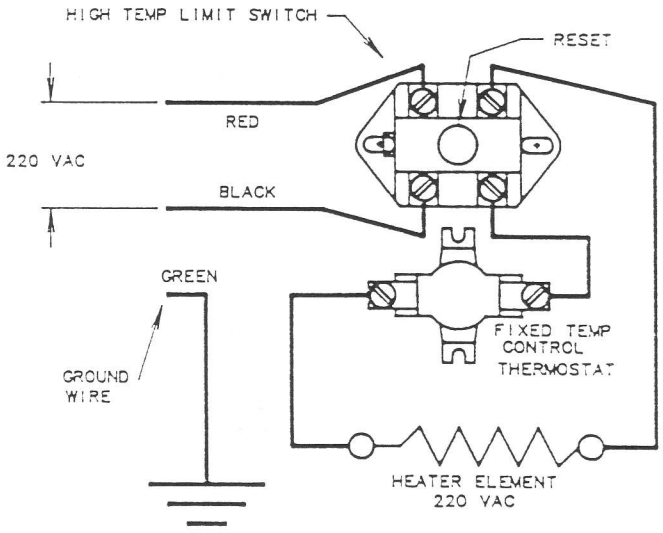


FOR USE WITH COPPER CONDUCTORS

CAUTION !
TO REDUCE RISK OF SHOCK OR FIRE USE ONLY ON A UTILITY SYSTEM HAVING A MAXIMUM 120/250 VOLT, THREE WIRE SYSTEM.

120 VOLT AC

WIRING DIAGRAM FOR 240V



FOR USE WITH COPPER CONDUCTORS

240 VOLT AC

PARTS LIST
MODELS
S600, S650, S700, S750
S1100, S1150, S1200, S1250

ITEM	MODEL NO.	PART. NO.	DESCRIPTION
1.	S600/S700	80253	TANK ASSEMBLY
	S1100/S1200	80254	
2.	ALL MODELS	73127	TEMPERATURE/PRESSURE VALVE
3.	ALL MODELS	73124	HEATING ELEMENT GASKET
4.	120 VOLT	73364	HEATING ELEMENT
	240 VOLT	73365	
5.	120 VOLT	73128	HIGH LIMIT SWITCH
	240 VOLT	73154	
6.	ALL MODELS	73129	THERMOSTAT
7.	120 VOLT	73148	THERMOSTAT MOUNTING PLATE
	240 VOLT	73171	
8.	ALL MODELS	73123	DRAIN VALVE
9.	ALL MODELS	73145	WIRE SHIELD
10.	S600	73137	JACKET
	S700	73283	
	S1100	73166	
	S1200	73287	
11.	S600	73140	BACK PANEL
	S700	73286	
	S1100	73169	
	S1200	73290	
12.	S600	73139	FRONT PANEL
	S700	73285	
	S1100	73168	
	S1200	73289	
13.	S600	73138	BASE
	S700	73284	
	S1100	73170	
	S1200	73288	
14.	S600/S1100	73141	WIRE ACCESS COVER
	S700/S1200	73291	
15.	S600/S700	73146	INSULATION WRAP
	S1100/S1200	73175	
16.	S600/S700	73147	INSULATION FRONT
	S1100/S1200	73176	
17.	S600/S700	73330	INSULATION BACK
	S1100/S1200	73331	

PARTS LIST
MODELS
S600, S650, S700, S750
S1100, S1150, S1200, S1250

ITEM	MODEL NO.	PART. NO.	DESCRIPTION
1.	S600/S700	80253	TANK ASSEMBLY
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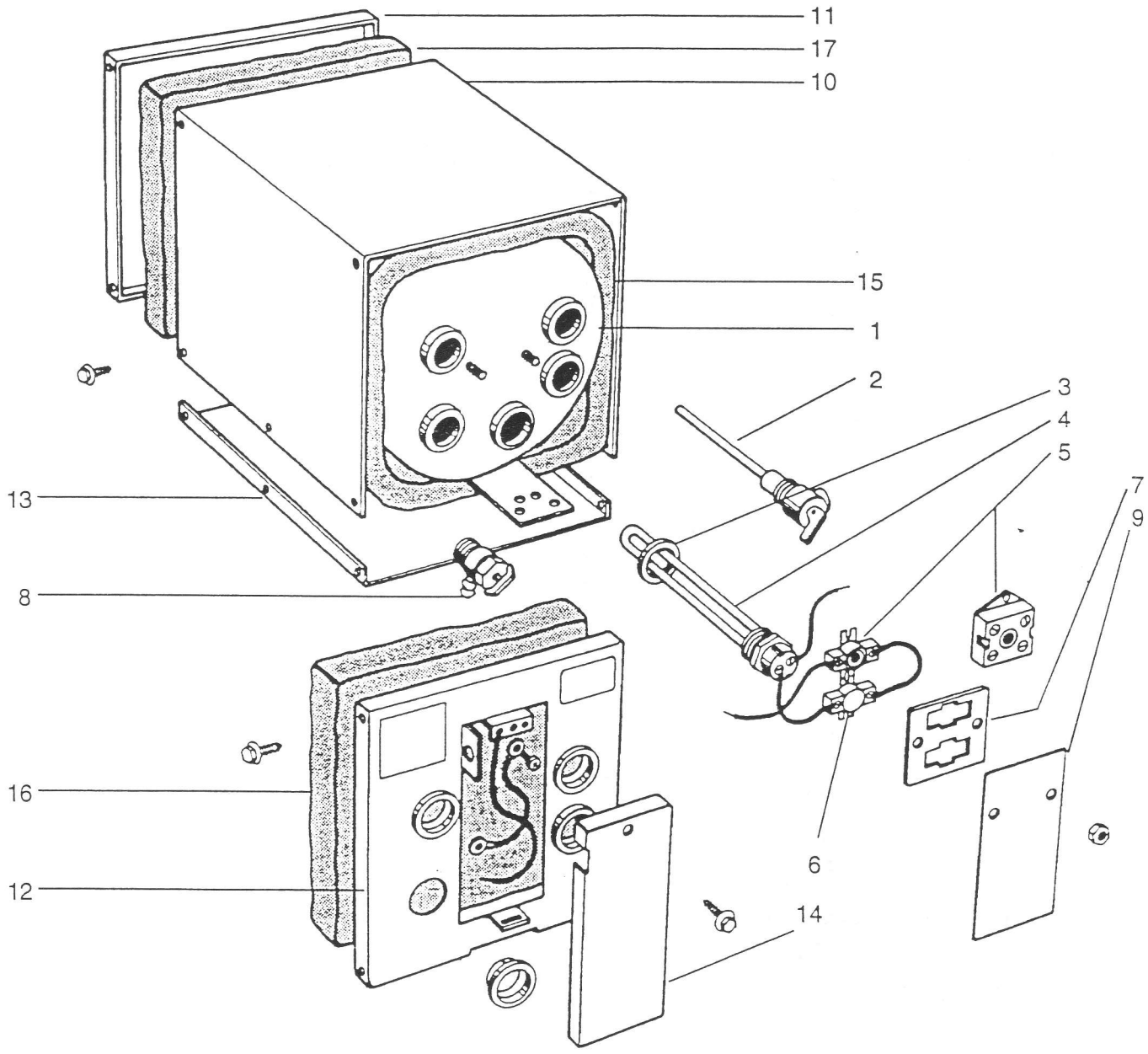
EXPLODED VIEW



REPAIR PARTS

Repair parts listed herein may be ordered through Seaward Products, Seaward Distributors and Dealers, or Dealer's Authorized Service Centers.

All parts will be shipped at prevailing prices.

When ordering repair parts, please give the following information:

1. The Part Number
2. The Part Description
3. The Model Number of the Heater
4. The Serial Number of the Heater

The Model Number and the Serial Number of the heater will be found on the rating plate located on the front panel.

For the Authorized Service Center nearest you, please contact Seaward Products.

CUSTOMER SERVICE

Seaward Products

15600 SALT LAKE AVENUE
CITY OF INDUSTRY, CA 91745
POST OFFICE BOX 566
LA PUENTE, CA 91747
PHONE: (818) 968-2117
FAX: (818) 330-5442

Models 29090-0000 29120-0000

MANUAL MARINE TOILET

Models 29090-0000 29120-0000

FEATURES

- Easy to clean white ceramic bowl
- Sturdy wood seat with durable baked enamel finish
- Forward angled pump for easy operation
- Convenient top-mounted dry bowl selector
- Reversible pump mounting for right or left hand installation
- External seal housing/rod guide for easy replacement
- Smooth external surfaces with skirted base to maintain cleanliness
- Triadic full-flow joker valve to avoid accidental blockage
- Multi-angle discharge port for versatility of plumbing connection

Specifications: Inlet port – 3/4", Disharge port – 1-1/2"
Weight – compact bowl: 26 lb
large bowl: 32 lb

OPERATION

Manual Marine toilets have traditionally been somewhat cumbersome and confusing to operate and maintain. The PAR toilet has been designed with user convenience in mind. The pump assembly is angled forward to provide a natural, smooth stroke action. It has a top mounted wet/dry bowl selector which can be operated with the same hand used for pumping without releasing the pump handle.

The PAR toilet is surprisingly easy to operate. Simply move the wet/dry bowl selector to the wet bowl position (left) and pump handle up and down a few times to add some water to the bowl prior to use. After using, flush by again pumping handle up and down (in wet bowl position) until bowl is thoroughly rinsed and evacuated. Then move the wet/dry bowl selector to the dry bowl position (right) and continue pumping until only about one cup of water remains in the bottom of bowl. Leave the wet/dry bowl selector in the dry bowl position when toilet is not use.

APPLICATION

The PAR Manual toilet is designed to meet the requirements of onboard marine applications. It may be installed above or below the waterline (special plumbing requirements apply to below waterline installations). The toilet may be plumbed so waste is discharged to holding tank, directly overboard (where permitted by law) or into a certified waste treatment device. For installation versatility, the pump assembly may be positioned on the left or right hand side of the bowl. Its multi-angle discharge port will allow routing of discharge hose in almost any direction for ease of installation and neat appearance.

The toilet is available with either a compact china bowl to fit restrictive areas or a large bowl with household size seat assembly for maximum comfort. Its forward angled double action pump with convenient top mounted dry bowl selector is easy and natural to operate. It is self-priming with a dry suction lift of up to 3 feet (1 meter) and a discharge head to 9 feet (3 meters). A full-flow triadic joker valve resists blockage while providing positive back-flow prevention.

Hazard of flooding. If toilet is installed below the waterline, it must be installed with properly positioned vented loops. Failure to do so may result in flooding which can cause loss of property and life.

MODELS AVAILABLE

29090-0000 Compact Size Bowl & Seat
29120-0000 Household Size Bowl & Seat

Positioning and Mounting

The PAR Manual Toilet is assembled at the factory for operation with the right hand. If preferred, or required by available space, the pump and bowl may be rotated 180 degrees to provide left hand operation. To do this, remove hose from inlet elbow (back of bowl) and rotate elbow 180 degrees. It may be necessary to remove the elbow, loosen spud retaining nut and rotate the spud fitting so elbow will be tight when pointing in the opposite direction. Remove, rotate 180 degrees and reinstall both the bowl and pump assembly. Reconnect hose to inlet elbow and the toilet is ready for left hand operation.

The toilet must be installed on a well supported flat surface. Ideally, if underside of mounting surface is accessible, the toilet base should be through-bolted (using 5/16" bolts, washers and locknuts) to the mounting surface. If the underside of mounting surface is not accessible, the use of 5/16" lag bolts and washers is an acceptable alternative.

Before installing, position toilet in location to be installed. Ensure there is adequate space around toilet to easily operate pump and raise seat and lid to a fully opened position. Seat and lid should swing open at least 110 degrees and be supported when open to avoid strain on hinges. Ensure the base drain plug is accessible and inlet and discharge hoses can be attached to their respective ports without inducing significant lateral force. The discharge elbow may be rotated (by loosening two flange screws, rotating elbow and retightening screws) to accept the most convenient routing of the discharge hose.

When proper installation has been established mark the four base mounting holes on mounting surface and remove toilet. Ensure that no wiring or plumbing is positioned under the mounting surface which may be accidentally damaged when the surface is drilled. Drill appropriate size holes for fasteners being used. Mount toilet using flat washers between head of bolts and plastic toilet base. If desired a small bead of silicone or latex sealant may be applied around base where it contacts the mounting surface to prevent moisture from getting under the toilet base.
NOTICE: Do not use Polysulfide base sealants because they may chemically attack the plastic which can result in breakage.

Plumbing

If installing a new inlet thru-hull/seacock, ensure that it is positioned on a part of the hull which is wetted at all angles of heel or trim and free of water turbulence at any hull speed. If discharging waste overboard (check legal restrictions for overboard dishcarge), ensure discharge thru-hull/seacock is both aft of and higher than the inlet thru-hull/seacock. All inlet plumbing should be a minimum of ¾" ID and discharge plumbing a minimum of 1½" ID. All hose ends should be double clamped with stainless steel hose clamps.

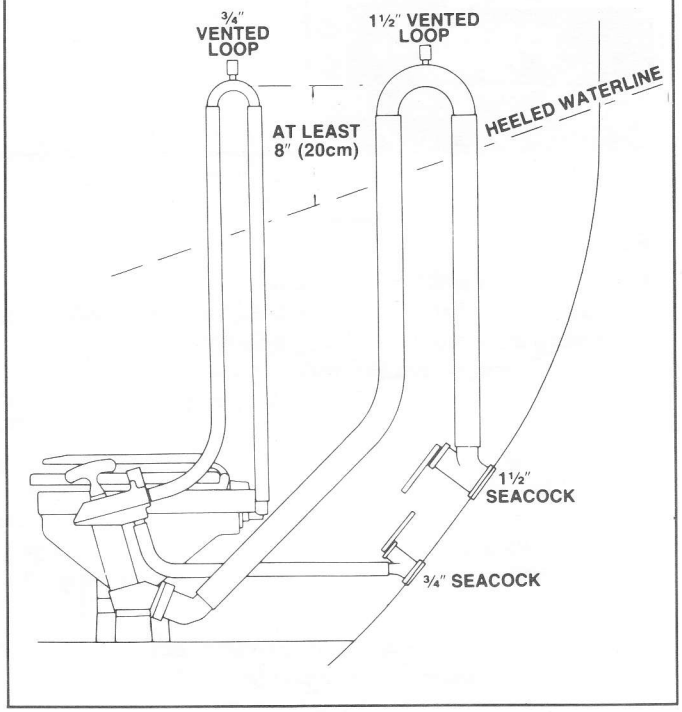
If toilet is above waterline route hoses to seasocks, holding tank or treatment device via a route as direct as possible. However, for maximum sealing effect on the discharge joker valve, it is recommended that the discharge hose is looped upward about 8" above the discharge elbow before it descends to its termination point. All bends and elbows in plumbing should be kept to a minimum. It should not be necessary to use any sealing compound when attaching hoses to the inlet or discharge ports.

Hazard of flooding. If toilet is installed below the waterline, it must be installed with properly positioned vented loops. Failure to do so may result in flooding which can cause loss of property and life.

If toilet is below waterline, a ¾" vented loop must be installed in a length of hose connecting the flushing pump to the rear of the bowl. The vented loop fitting must be positioned 8" above the waterline at all angles of heel or trim. To accomplish this remove the ¾" hose supplied with toilet and replace with a new length of hose long enough to properly position the vented loop. If the toilet is plumbed for overboard discharge, a 1½" vented loop must be installed in the discharge hose. The waste vented loop fitting must also be positioned 8" above the waterline at all angles of heel or trim and ideally should be located as close to the toilet as practical.

HAZARD OF FLOODING. CLOSE INLET AND OUTLET SEACOCKS PRIOR TO DISASSEMBLING TOILET. FAILURE TO DO SO CAN CAUSE FLOODING WHICH MAY RESULT IN PROPERTY DAMAGE OR LOSS OF PROPERTY AND LIFE.

Toilet below the waterline



If unfamiliar with proper plumbing requirements for marine toilets, it is recommended that a qualified marine plumbing technician is contacted to do the installation.

MAINTENANCE/SERVICE INSTRUCTIONS

Maintenance

Periodic maintenance is generally not required; however, after long periods of non-use, the toilet may be easier to operate if lubricated. To do this, fill bowl half-way with warm water and add a few drops of mineral oil or baby oil. With the wet/dry bowl selector in the dry bowl position, empty bowl using long complete strokes.

To winterize toilet, operate the pump in the dry bowl mode to evacuate as much water as possible. Drain the remaining water from the base by removing the base plug.

If charging the holding tank with anti-freeze by pumping it through the toilet, use only ethylene glycol based anti-freeze. To use petroleum based anti-freeze may cause damage to the internal rubber toilet parts.

Service

Before performing any service flush the toilet long enough to ensure all waste is flushed from the discharge hose. Close both inlet and discharge (if applicable) seacocks and put a "DO NOT OPEN" notice on each to guard against accidental opening and flooding while service is being performed.

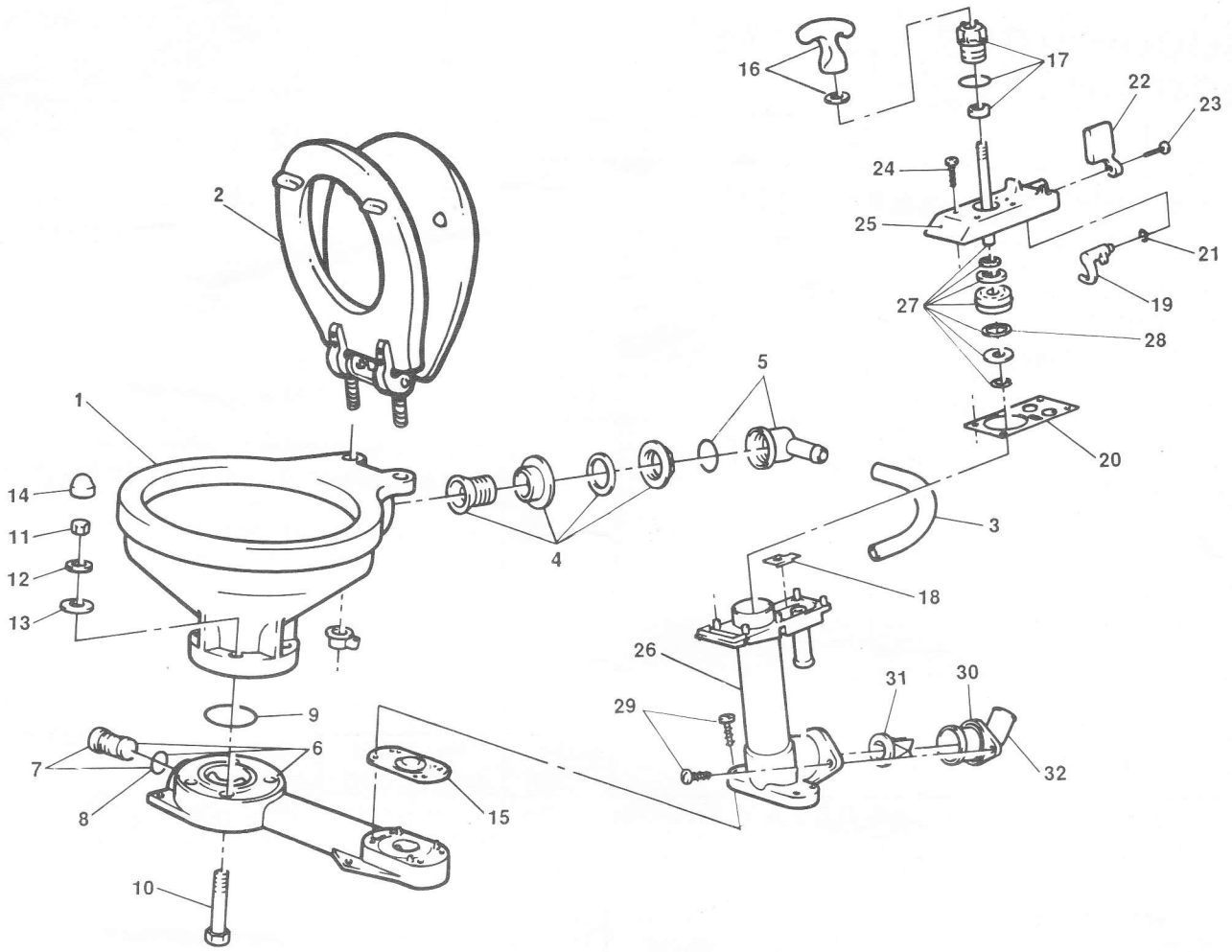
SEAL REPLACEMENT – Lift handle and wrap rod with one turn of tape just under the handle. Gently grasp piston rod (on tape) with pliers and unscrew handle. HOLD PISTON ROD AT ALL TIMES OR IT MAY DROP DOWN INTO PUMP. Remove bumper washer and unscrew and remove seal/rod guide assembly. Wrap threads of piston rod with one turn of tape to protect new seal and install new seal/rod guide assembly. Remove tape from threads and reinstall bumper washer and handle. Tighten handle snuggly (do not overtighten) and remove remaining tape.

MAJOR OVERHAUL – Loosen hose clamps on inlet hose and remove it from the pump. Remove bowl link hose from rear of pump assembly. Remove the two screws that secure the discharge flange and elbow. Remove the four screws that secure the pump to the base and remove pump assembly. The discharge joker valve and base valve/gasket can now be removed. Remove the six screws that secure the top valve cover, move the wet/dry bowl selector to the wet bowl position and remove valve cover and piston rod assembly from pump cylinder. Remove top valve/gasket assembly and valve seat. Remove piston O-Ring and seal/rod guide assembly (see Seal Replacement instructions). Clean all parts and inspect for damage. Ensure pump cylinder wall is not badly grooved or worn.

Install new seal/rod guide assembly (see Seal Replacement instructions). Install new piston O-Ring. Lubricate bore of pump cylinder with petroleum jelly. Position valve seat and top valve/gasket assembly on top of cylinder. With the wet/dry bowl selector in the wet bowl position, insert piston into cylinder bore and position valve cover on top of cylinder. Secure with six screws. Install joker valve in discharge elbow and base valve/gasket assembly on base. Position discharge flange and elbow on pump and secure with two screws. Position pump assembly on base and secure with four screws. Reattach bowl link hose to pump. Reattach inlet hose to pump and secure with clamps.

BOWL SEAL REPACEMENT – To replace the bowl seal (base O-Ring) disconnect inlet and discharge hoses and remove toilet from its mounting surface. Pry nut caps from bowl fasteners. Invert toilet and hold bolts on underside of base while removing nuts and washers. Lift base from bowl and remove O-Ring. Install new O-Ring, position base on bowl and resecure with fasteners ensuring plastic washers are sandwiched between S.S. flat washers and ceramic bowl. Invert toilet and snap plastic nut caps onto nuts. Reinstall toilet on mounting surface, connect hoses and secure with hose clamps.

EXPLODED VIEW



REPAIR KITS AVAILABLE

KIT	PART NO.	DESCRIPTION
A	29045-0000	MAJOR SERVICE KIT, PUMP
B	29040-1000	PUMP ASSEMBLY
C	29094-0000	VALVE COVER ASSEMBLY
D	29051-0000	PUMP CYLINDER ASSEMBLY
E	29047-0000	BOWL INSTALLATION KIT

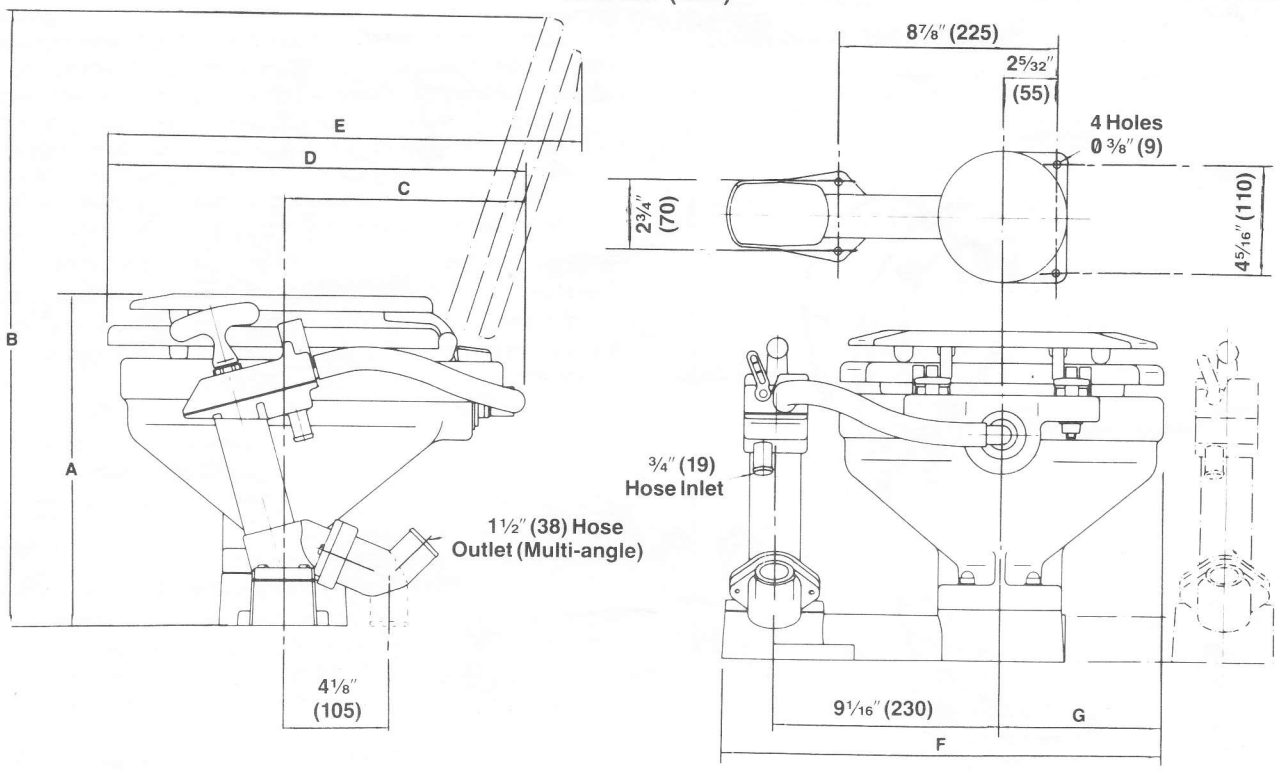
PARTS LIST

KEY	DESCRIPTION		QTY. PER TOILET	PART NO.	QTY. PER REPAIR KIT A	B	C	D	E
1	BOWL	COMPACT	1	59127-7002					
		LARGE	1	18753-0060					
2	SEAT, LID & HINGE SET	COMPACT	1	18753-0437					
		LARGE	1	18753-0438					
3	HOSE	COMPACT	1	29035-0000					
		LARGE	1	29035-0001					
4	BOWL SPUD		1	29048-0000					
5	INTAKE ELBOW & O-RING		1						
6	BASE, PLUG & O-RING ASSY		1	29041-1000					
7	PLUG & O-RING ASSY		1	29028-1000					
8	O-RING (PLUG)		1		1				
9	O-RING (BOWL)		1		1				1
10	BOLT		4						4
11	NUT		4						4
12	WASHER (SS)		4						4

PARTS LIST

KEY	DESCRIPTION	QTY. PER TOILET	PART NO.	QTY. PER REPAIR KIT A	B	C	D	E
13	WASHER (NYLON)	4						4
14	CAP	4		2				4
15	BASE VALVE GASKET	1	29043-0000	1	1			
16	HANDLE WITH BUMPER WASHER	1	29026-0000	1	1 1			
17	SEAL ASSEMBLY	1	29044-0000	1	1	1		
18	TOP VALVE SEAT	1		1	1		1	
19	CAM	1			1	1		
20	TOP VALVE GASKET	1	29042-0000	1	1			
21	O-RING (FLUSH LEVER)	1		1	1	1		
22	FLUSH CONTROL LEVER	1			1	1		
23	SCREW (FLUSH LEVER)	1		1	1	1		
24	SCREW (VALVE COVER)	6		1	6	6		
25	VALVE COVER	1			1	1		
26	PUMP CYLINDER	1			1		1	
27	PISTON, ROD & O-RING ASSY	1	29046-0000		1			
28	O-RING (PISTON)	1	29017-1000	1				
29	SCREW (PUMP CYLINDER)	6		1	2		2	
30	DISCHARGE FLANGE	1	29091-0000		1		1	
31	JOKER VALVE	1	29092-0000	1	1		1	
32	DISCHARGE ELBOW	1	29029-0000		1		1	

DIMENSIONAL DRAWING
INCHES (mm)



		A	B	C	D	E	F	G
29090-0000	MANUAL TOILET STANDARD BOWL	13 3/16 (335)	24 1/4 (615)	9 3/4 (247)	16 3/4 (425)	19 1/8 (485)	17 3/4 (450)	6 1/2 (165)
29120-0000	MANUAL TOILET LARGE BOWL	13 5/8 (345)	27 5/8 (700)	11 (280)	19 5/16 (490)	22 7/8 (580)	18 5/16 (465)	7 1/8 (180)

One Year Limited Warranty

A. LIMITED WARRANTY: ITT warrants that at the time of shipment, the products manufactured by ITT and sold hereunder shall be in conformity with applicable written specifications and descriptions referred to or set forth herein, free from defects in material and workmanship, merchantable, and suitable for a particular purpose, provided such is implied by State law under the circumstances of this sale.

B. WARRANTY ADJUSTMENT:

1. ITT agrees to repair or furnish a replacement for, but not to remove or install, any product or component thereof which, within one (1) year from date of purchase, shall upon test and examination by ITT prove defective within the above warranty. Receipt verifying purchase date is required to obtain adjustment.

2. Buyer shall notify ITT of any defect within this warranty no later than ninety (90) days after the defect is discovered.

3. No product will be accepted for return or replacement without the prior written authorization of ITT. Upon such authorization, and in accordance with instructions from ITT, the product will be returned to ITT, shipping charges prepaid by Buyer. Products returned to ITT will be addressed as follows:

ITT JABSCO
1485 Dale Way
Costa Mesa, California 92626-3998

Or to such alternate locations as may be designated on the product, its container, or this sheet.

Repair or replacement made under this warranty will be shipped prepaid to Buyer.

C. EXCLUSIONS FROM WARRANTY AND LIMITATION OF LIABILITY:

1. The foregoing warranty is limited solely as set forth herein and applies only for the period designated above.

2. ITT SHALL NOT BE LIABLE FOR ANY LOSS, DAMAGE, SPECIAL OR CONSEQUENTIAL DAMAGE OF ANY KIND, WHETHER BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, OR STRICT LIABILITY ARISING IN CONNECTION WITH THE SALE, USE, OR REPAIR OF THE PRODUCT.

3. THE MAXIMUM LIABILITY OF ITT IN CONNECTION WITH THIS WARRANTY SHALL NOT IN ANY CASE EXCEED THE CONTRACT PRICE FOR THE PRODUCT CLAIMED TO BE DEFECTIVE OR UNSUITABLE.

4. This warranty does not extend to any product manufactured by ITT which has been subjected to misuse, neglect, accident, improper installation, or use in violation of instructions furnished by ITT.

5. This warranty does not extend to or apply to any unit which has been repaired or altered at any place other than ITT's factory, or by persons not expressly approved by ITT, nor to any unit the serial number, model number, or identification of which has been removed, defaced or changed.

6. Components manufactured by any supplier other than ITT shall bear only that warranty made by the manufacturer of that product.

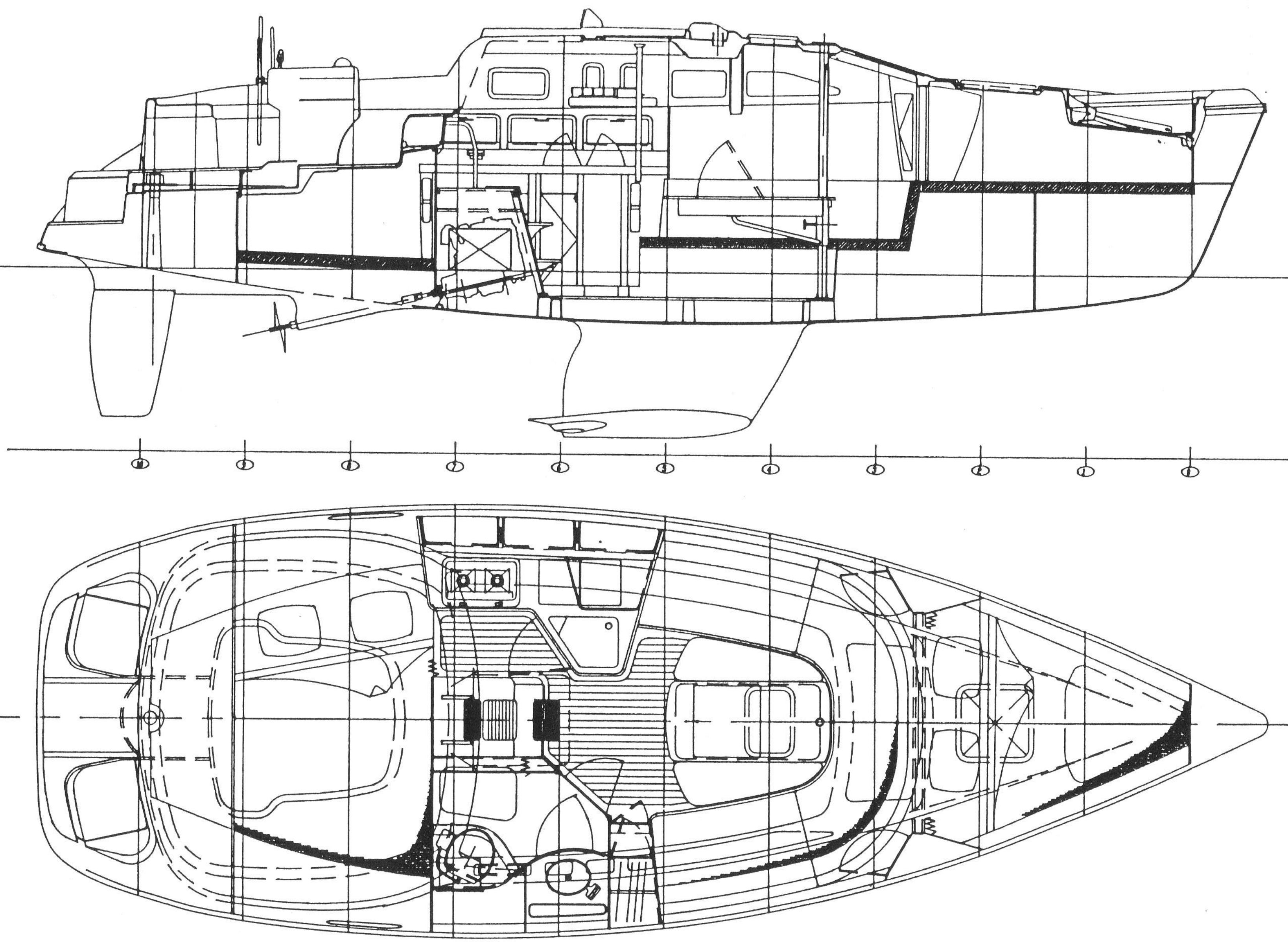
7. This warranty applies to products defined as "consumer products" by the Consumer Product Warranties Act as from time to time amended.

D. CONSUMER RIGHTS: This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Some states do not allow exclusion or limitation of damages.

STANDARD WARRANTY: If the products manufactured and sold hereunder are not Consumer Products, the warranty extended to Buyer shall be as set forth in subparagraphs (A), (B), and (C), **EXCEPT THAT ALL EXPRESS OR IMPLIED WARRANTIES OR MERCHANTABILITY OR SUITABILITY FOR ANY PARTICULAR PURPOSE ARE EXCLUDED.**

ITT Jabsco
ITT Fluid Technology Corporation
1485 Dale Way, P.O. Box 2158, Costa Mesa, CA 92628-2158
Tel: (714) 545-8251; Fax: (714) 957-0609
Bingley Road, Hoddesdon, Hertfordshire EN11 OBU England
Tel: 0992-467191; Tlx: 263251 G; Fax: 0992-467132

Form: 43000-0487 Rev. 10/93



DO NOT SCALE

REVISIONS

HUNTER

INTERIOR ARRANGEMENT PLAN

A

RLM

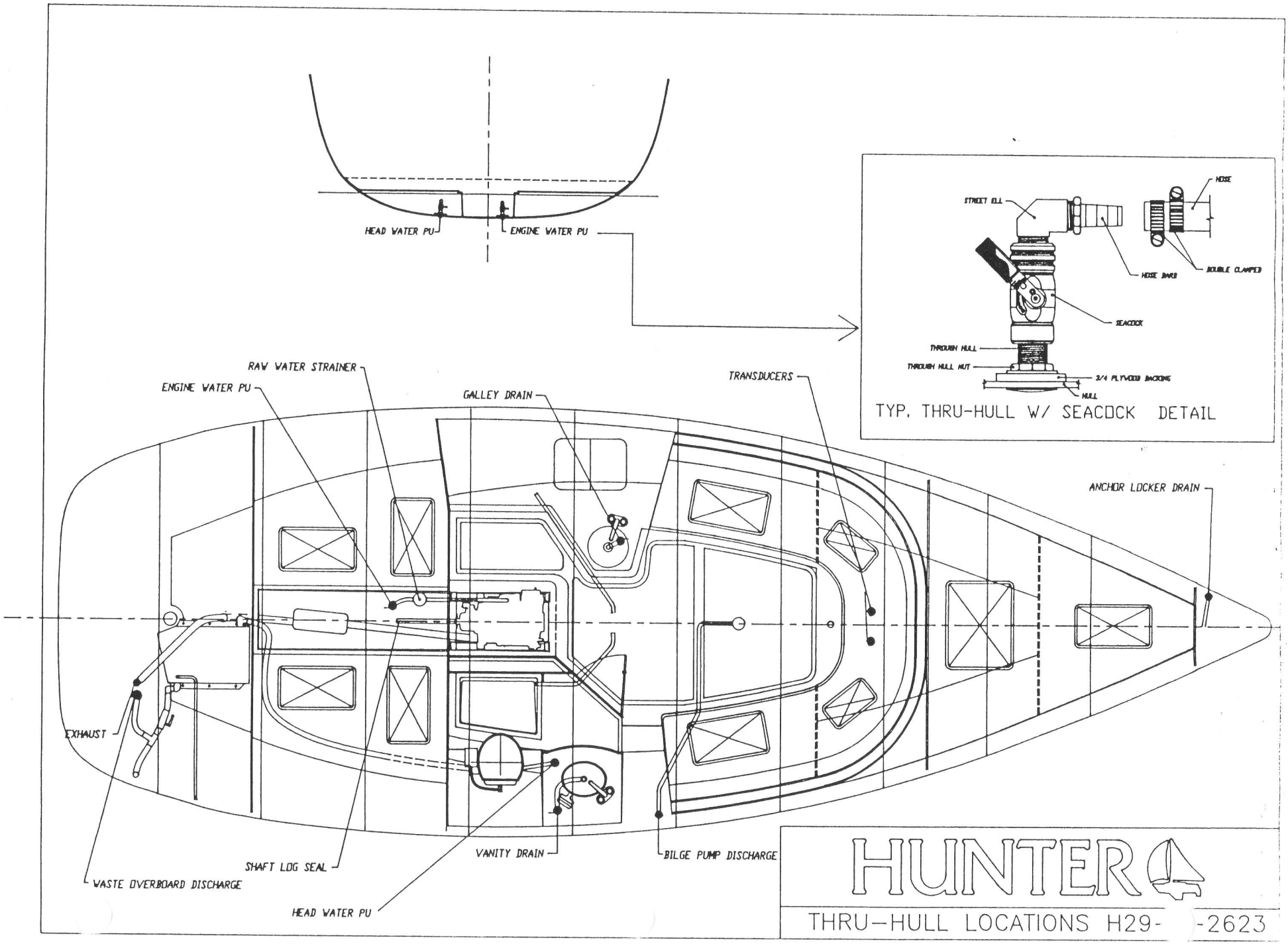
1/21/94

NONE

A203-1

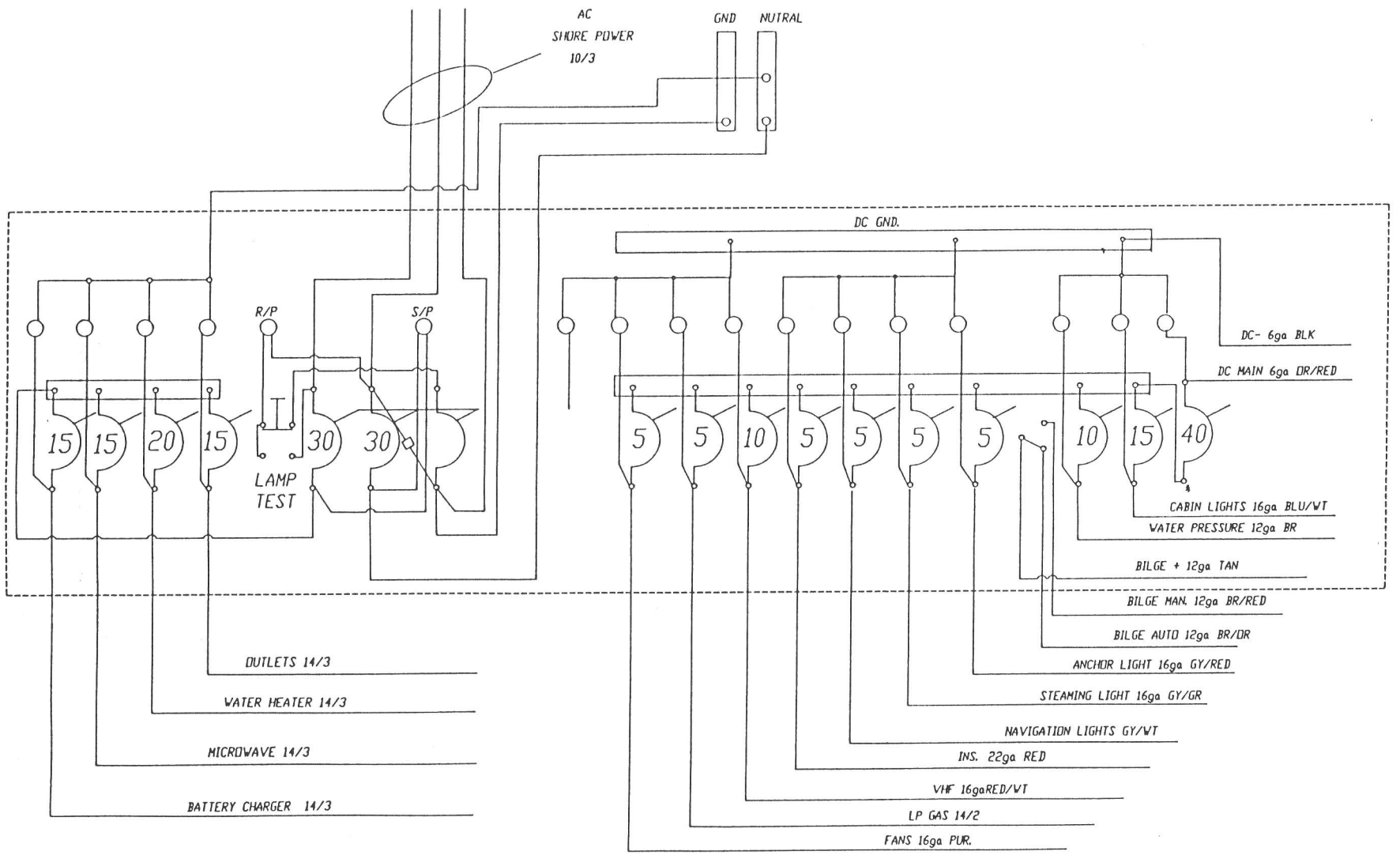
N/A

H29A2621



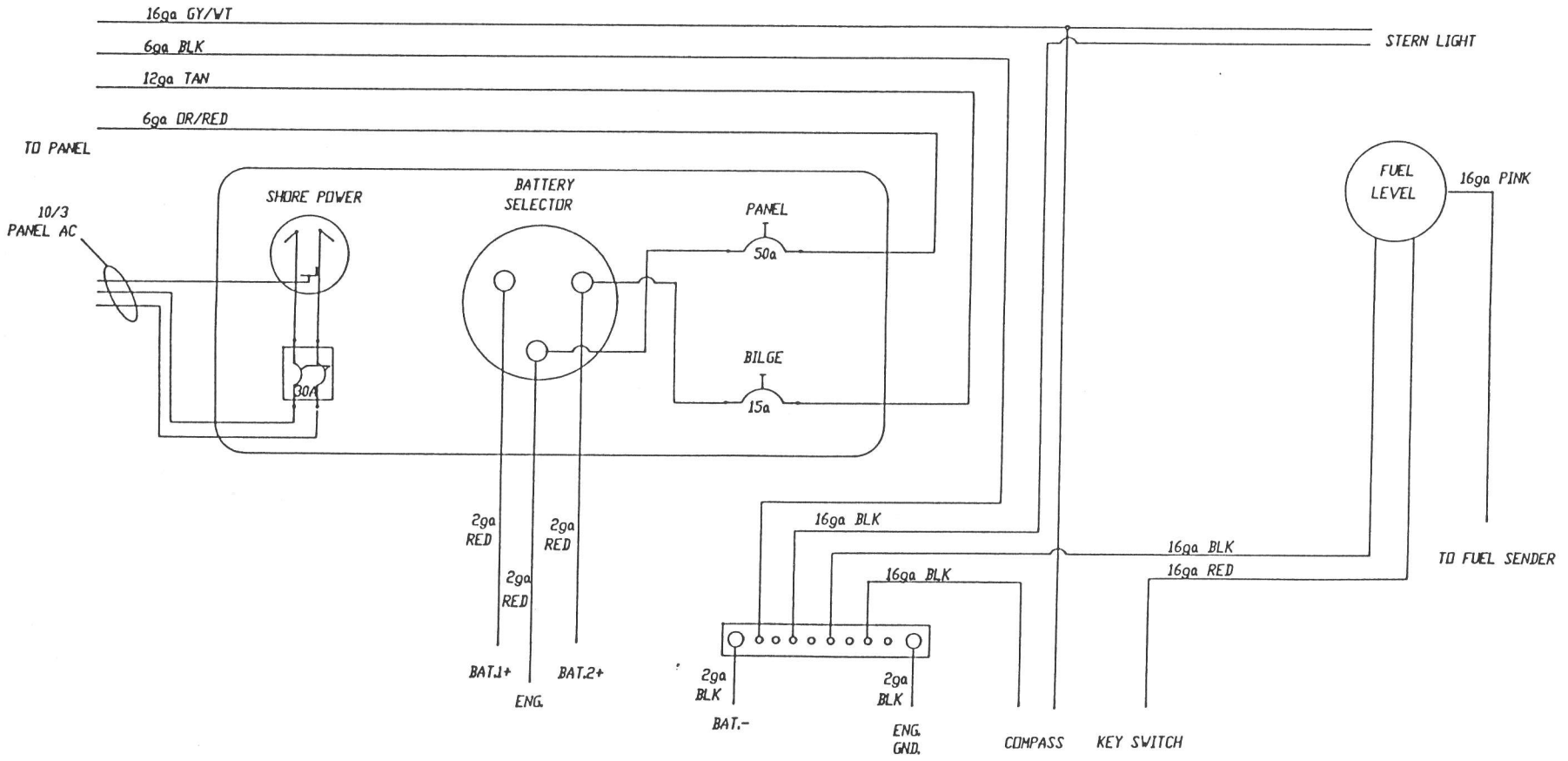
HUNTER

THRU-HULL LOCATIONS H29- -2623



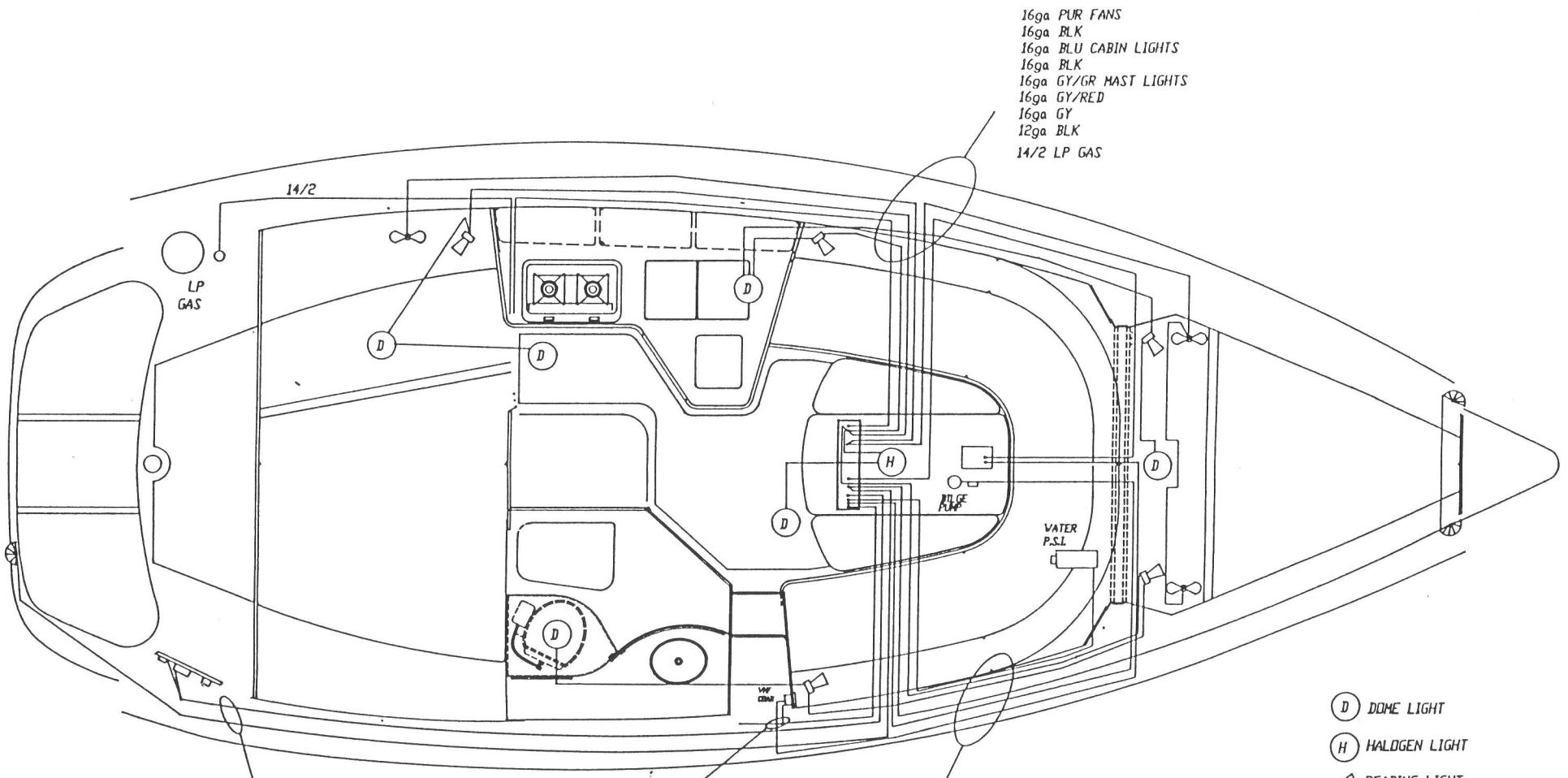
HUNTER

PANEL SCHEMATIC H29-A-2626



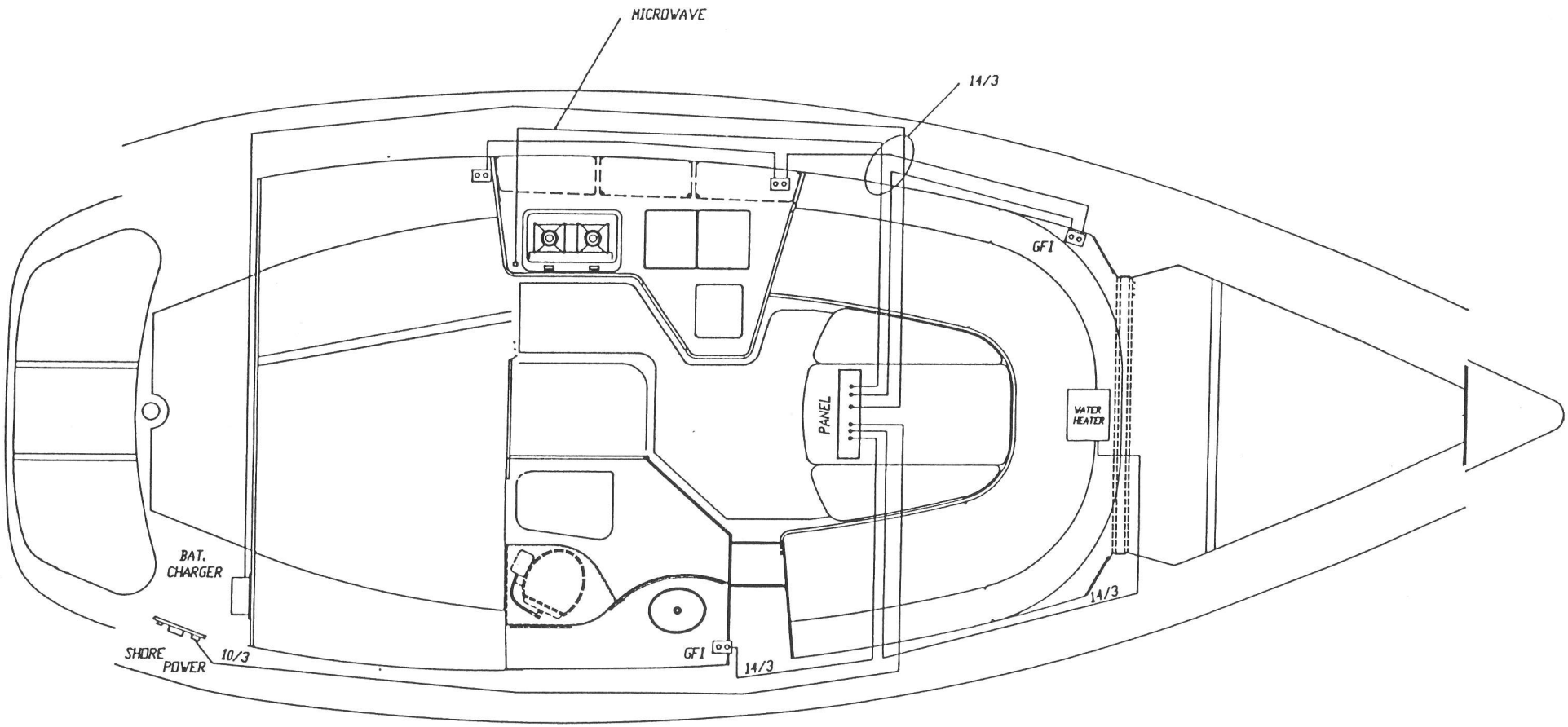
HUNTER

BATTERY SWITCH & SHORE POWER H29-A-2629



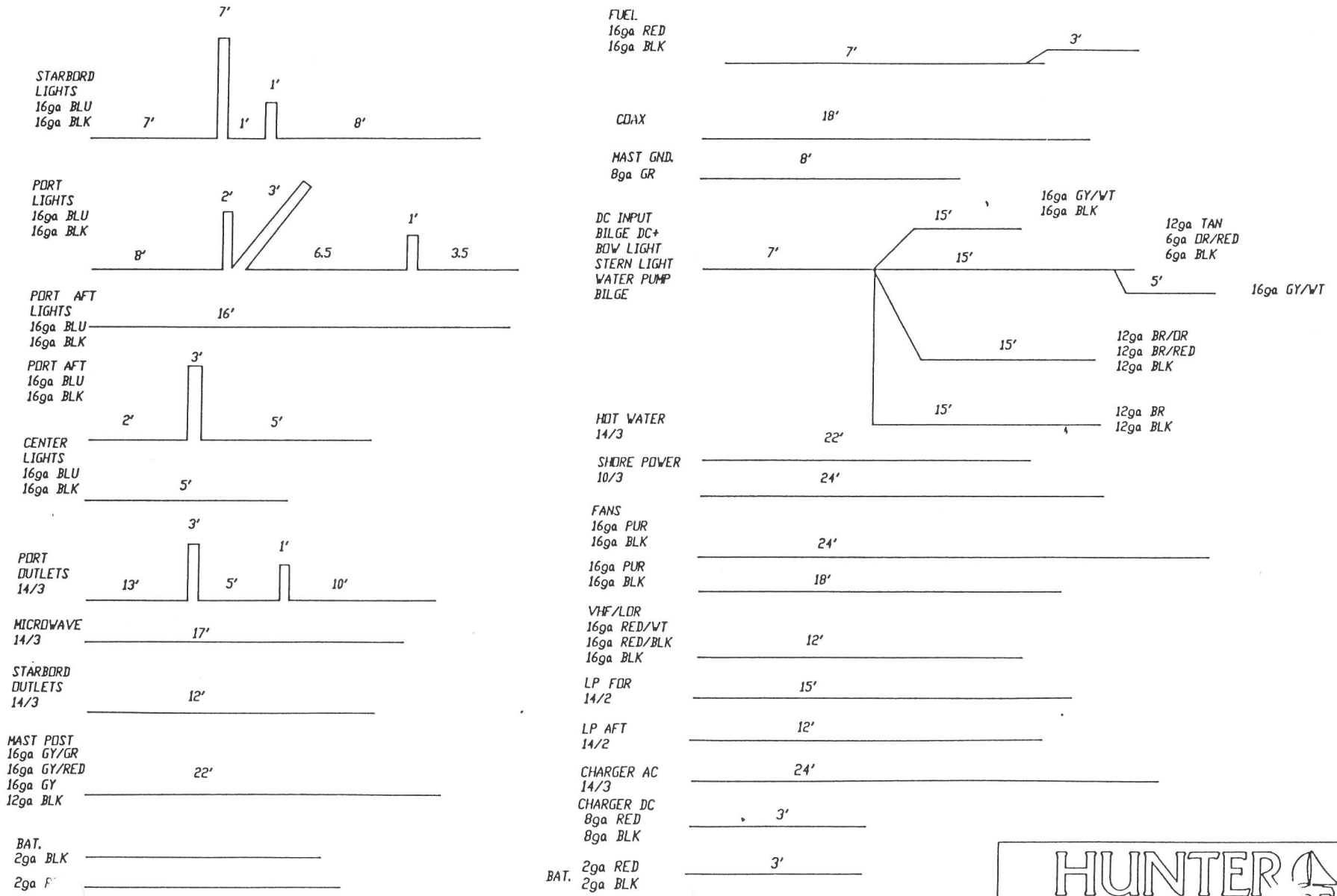
HUNTER

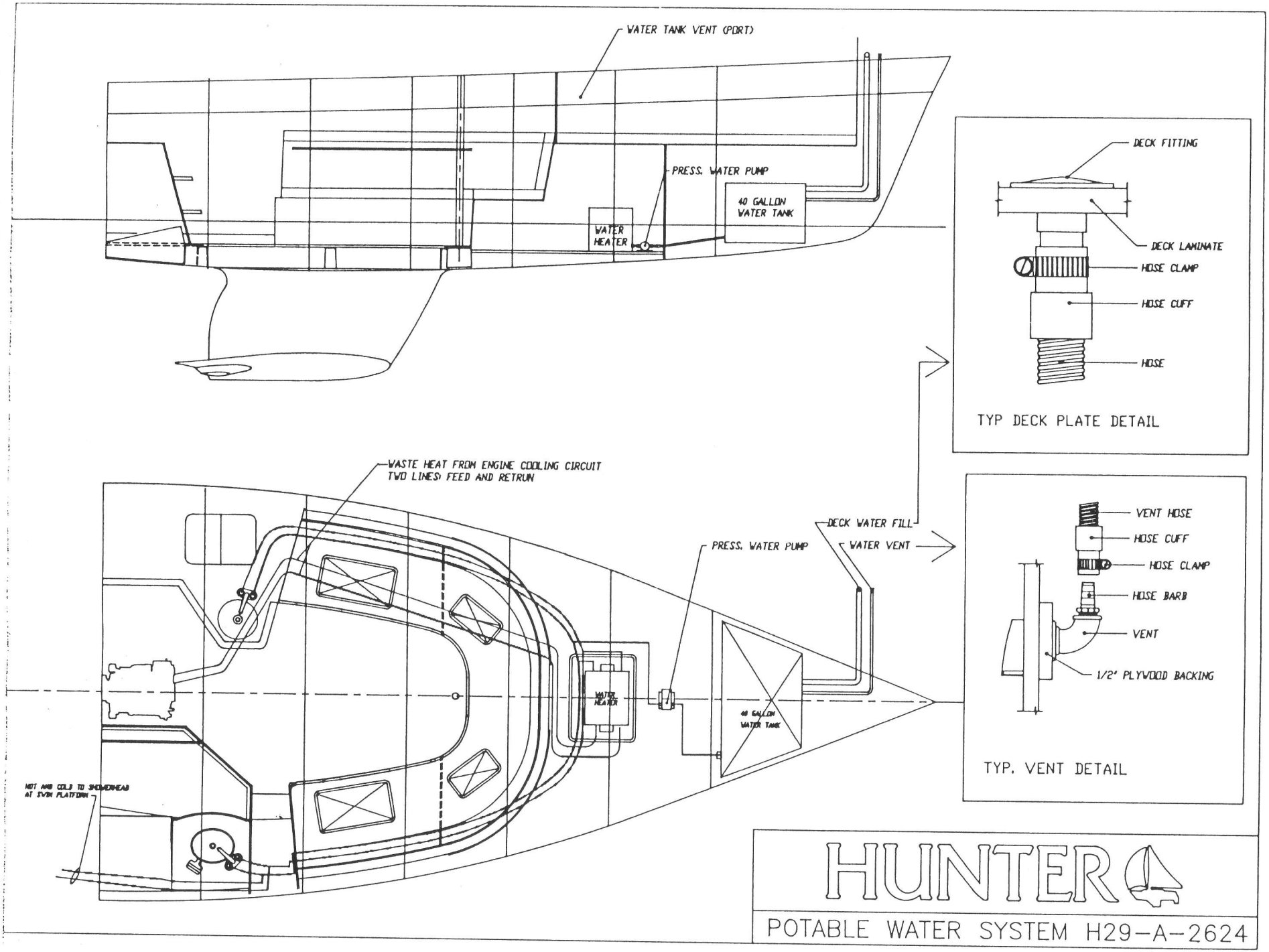
12 VDC SYSTEM H28-A-2630



HUNTER

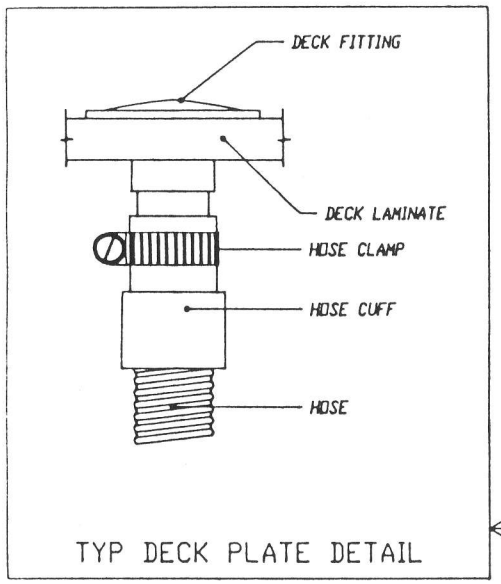
110 VAC SYSTEM H29-A-2631


STARBORD LIGHTS 16ga BLU 16ga BLK
7'
1'
7'
1'
8'
PORT LIGHTS 16ga BLU 16ga BLK
2'
3'
8'
6.5
1'
3.5
PORT AFT LIGHTS 16ga BLU 16ga BLK
16'
PORT AFT 16ga BLU 16ga BLK
3'
2'
5'
CENTER LIGHTS 16ga BLU 16ga BLK
5'
PORT OUTLETS 14/3
3'
1'
13'
5'
10'
MICROWAVE 14/3
17'
STARBORD OUTLETS 14/3
12'
MAST POST 16ga GY/GR 16ga GY/RED 16ga GY 12ga BLK
22'
BAT. 2ga BLK
2ga
FUEL 16ga RED 16ga BLK
7'
3'
COAX
18'
MAST GND. 8ga GR
8'
DC INPUT BILGE DC+ BOW LIGHT STERN LIGHT WATER PUMP BILGE
16ga GY/WT 16ga BLK
15'
12ga TAN 6ga DR/RED 6ga BLK
7'
15'
5'
16ga GY/WT
15'
12ga BR/DR 12ga BR/RED 12ga BLK
15'
12ga BR 12ga BLK
HOT WATER 14/3
22'
SHORE POWER 10/3
24'
FANS 16ga PUR 16ga BLK
24'
16ga PUR 16ga BLK
18'
VHF/LOR 16ga RED/WT 16ga RED/BLK 16ga BLK
12'
LP FOR 14/2
15'
LP AFT 14/2
12'
CHARGER AC 14/3
24'
CHARGER DC 8ga RED 8ga BLK
3'
BAT. 2ga RED 2ga BLK
3'
HUNTER
WIRE LENGTHS H29-A-

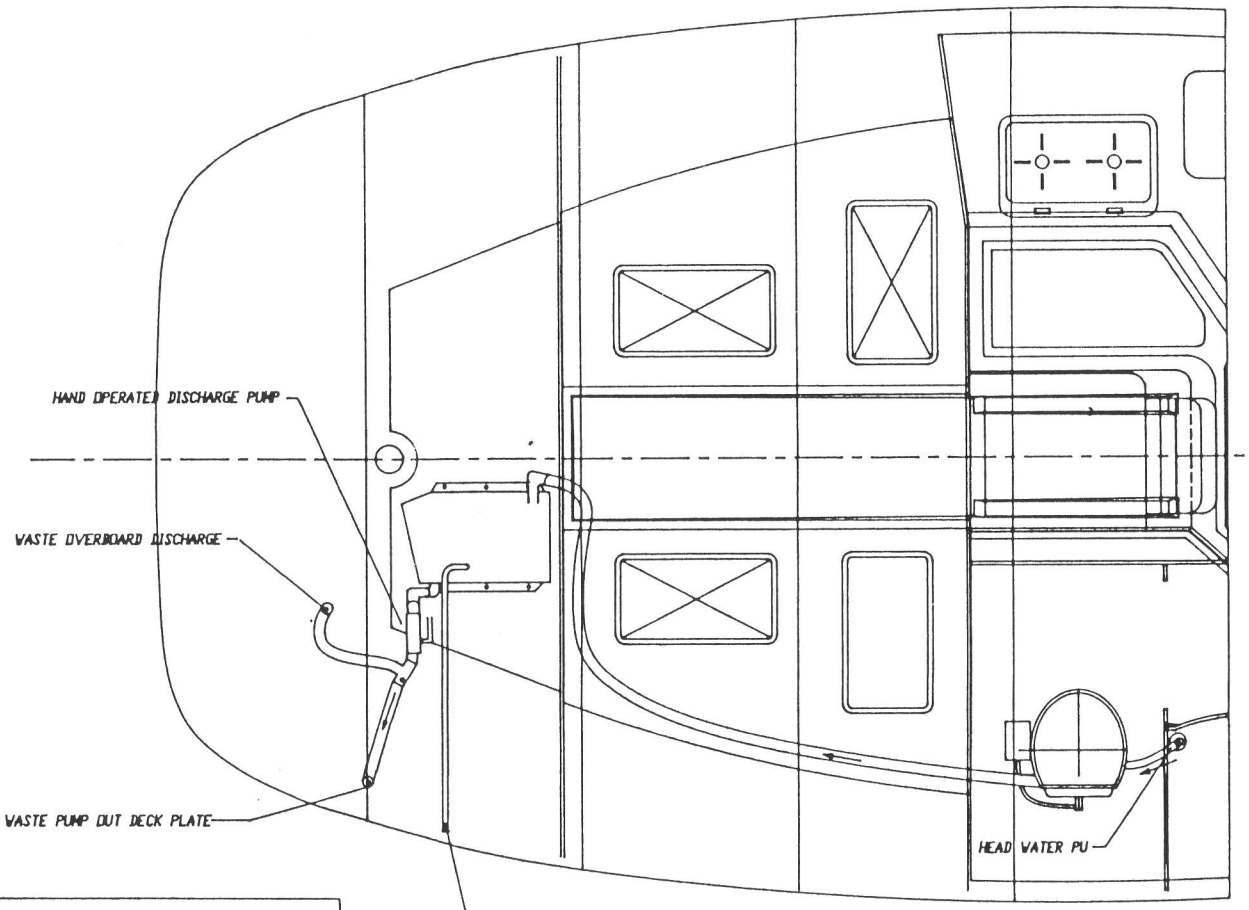


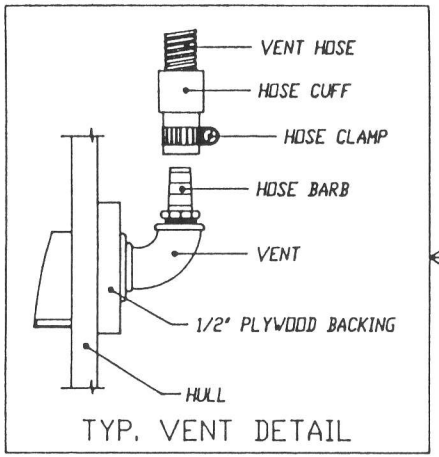
HUNTER

POTABLE WATER SYSTEM H29-A-2624



TYP DECK PLATE DETAIL

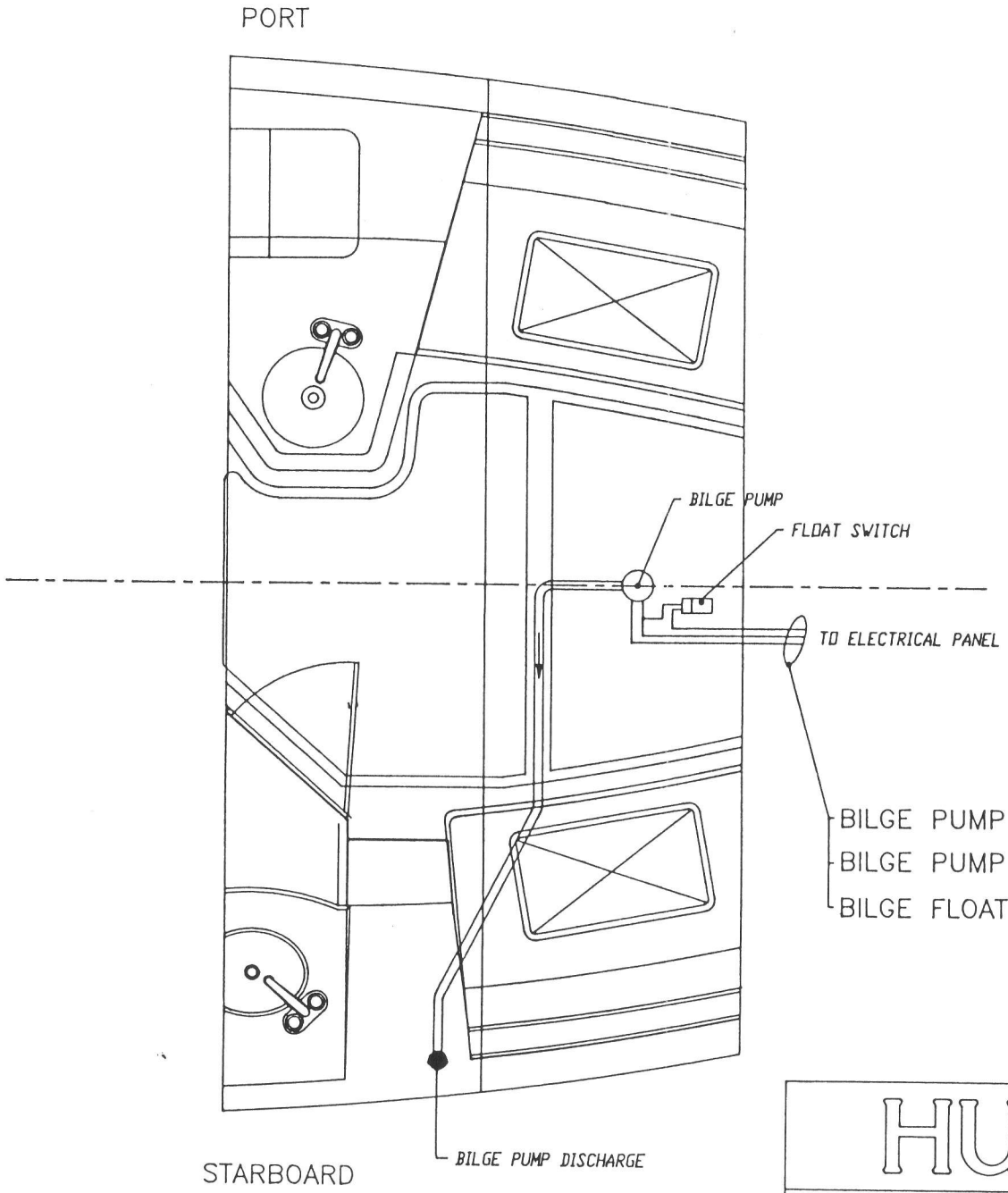




TYP. VENT DETAIL

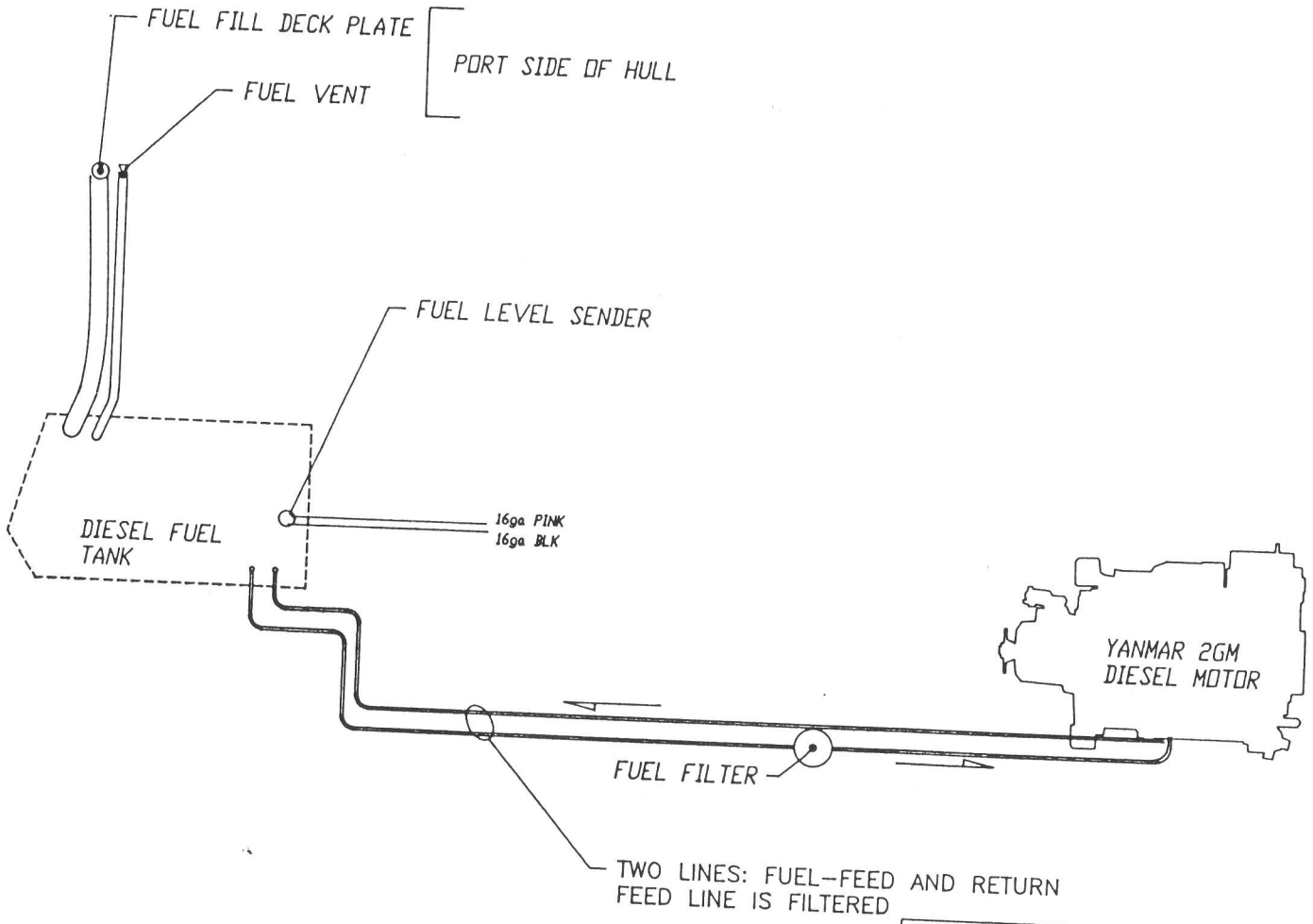
HUNTER

HEAD & WASTE SYSTEM H29-A-2625



HUNTER

BILGE PUMP LAYOUT H29-A-2627



HUNTER

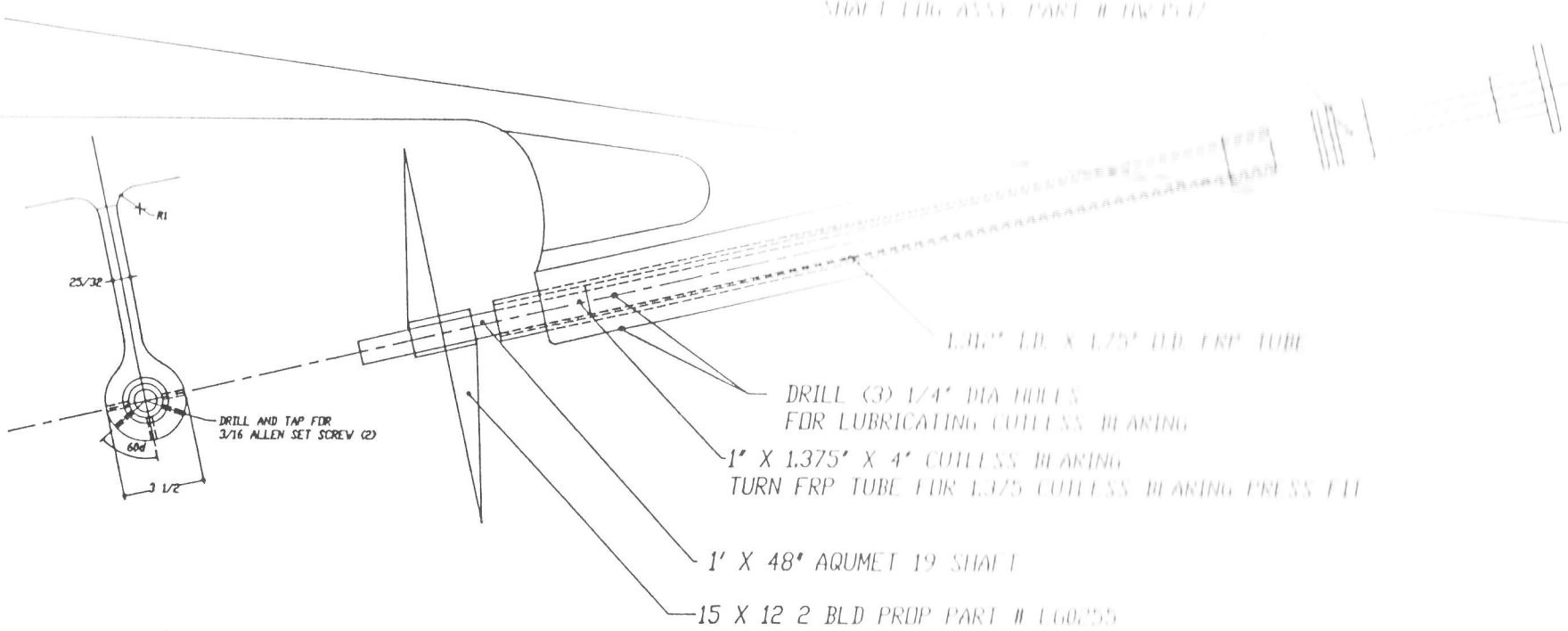
FUEL SYSTEM H26-A-2628

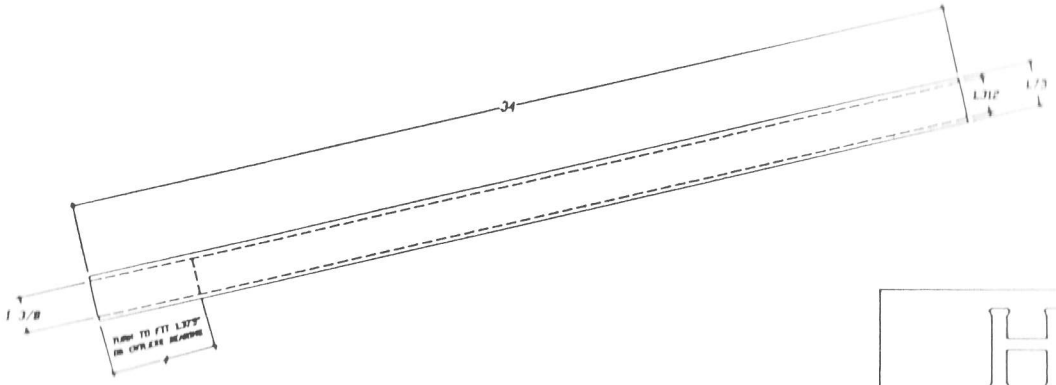
HUNTER 29.5 - Pumps, Strainers and Filters

COMPONENT	MANUFACTURER AND PART NUMBER
Bilge pump	Rule 800 or Mayfair 800
Water pump	ITT Jabsco Flo-Jet 4405-143-C
Water strainer	ITT Jabsco 364000-1010
Engine strainer	1/2" Perko 493-004 PLB
Fuel filter	Racor 110

DWL

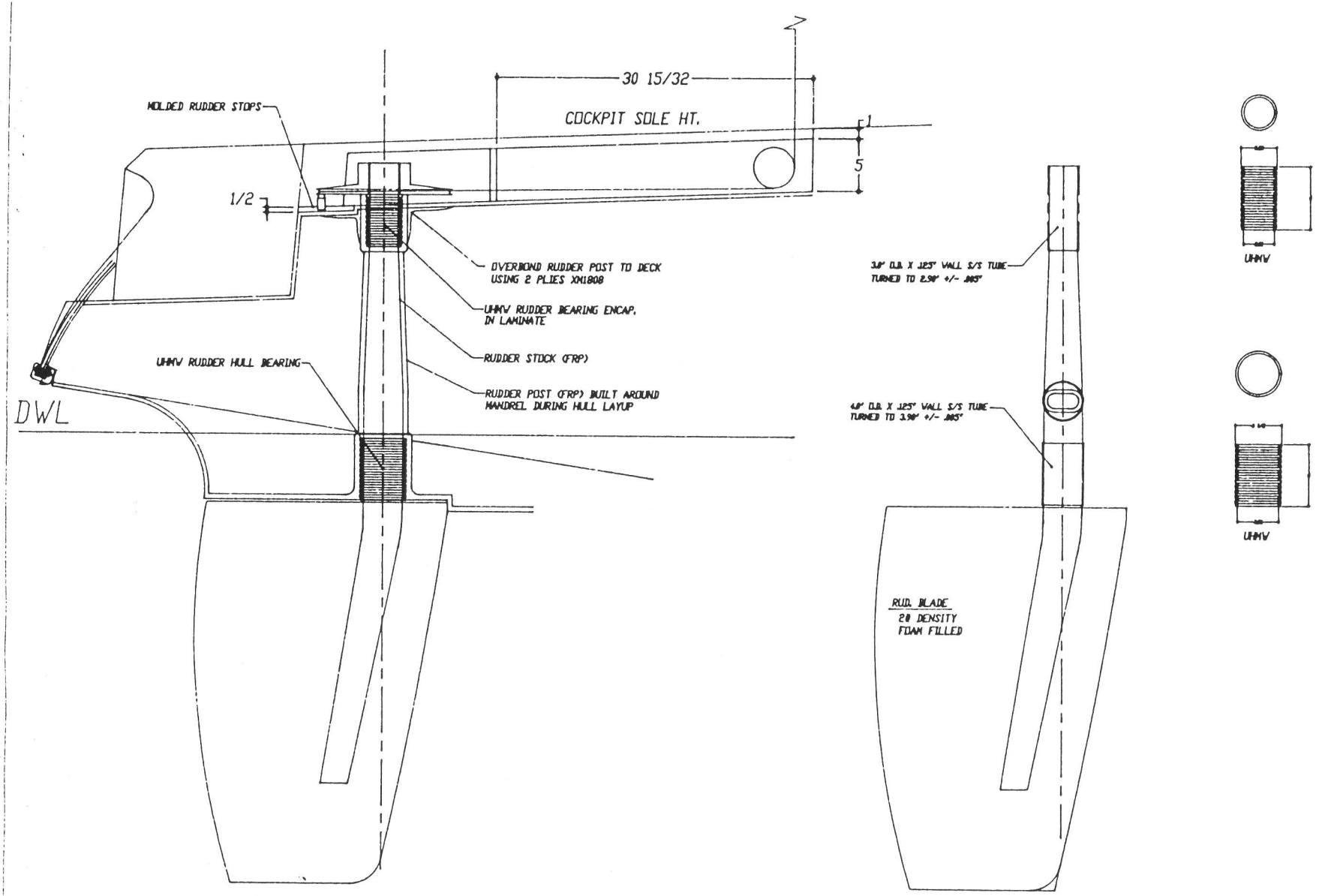
DWL





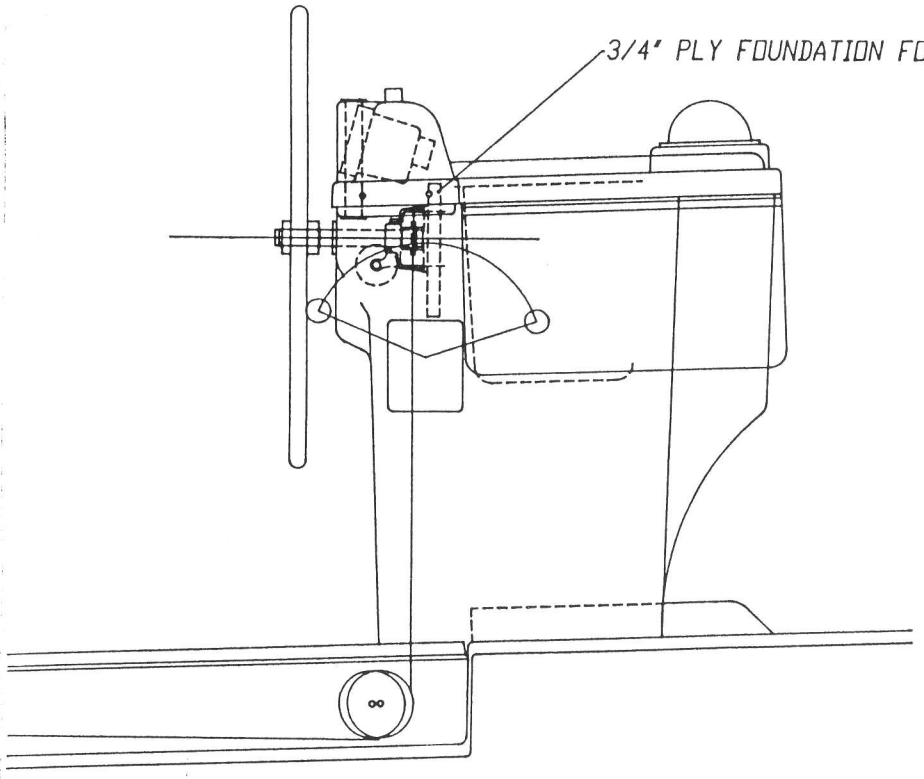
HUNTER

H29.5 FRP SHAFT LOG H29-[illegible]-2634

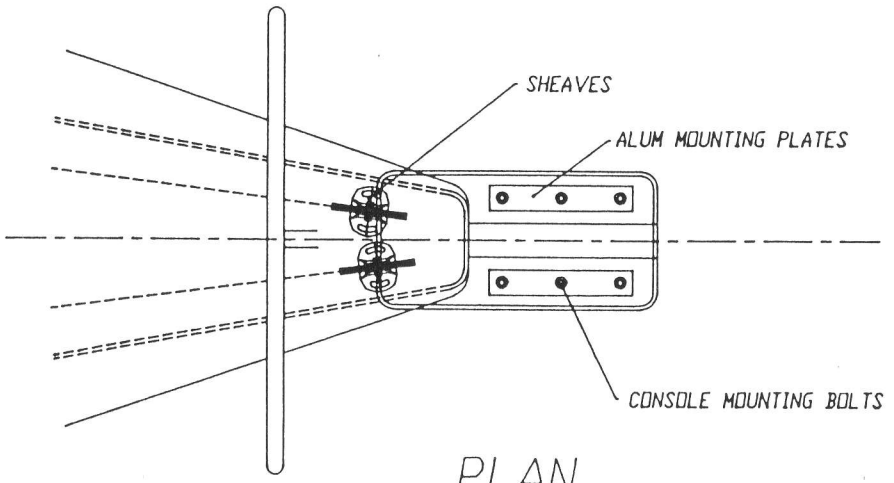


HUNTER

H29.5 STEERING GEAR H29-A-2635



PROFILE



PLAN

HUNTER

H29.5 STEERING GEAR H29-A-2635

HUNTER 29.5 LIGHT BULB SPECIFICATION

Your Hunter 29.5 has 12 interior lights, 3 navagation lights and 2 lights on the mast.
Interior lights include: 5 swivel-reading lamps, 6 dome lights and 1 halogen light.
Exterior lights include: 2 side lights on bow rail, 1 stern light, and 1 anchor/steaming light at top of mast.

LIGHT	REPLACEMENT BULB
Interior	
Swivel	#1831 and Wagner #S8-1073
Dome	#1572 and Wagner #S8-1141
Halogen	#Aqua Signal #90400282
Exterior	
Red bow	Osram 12V #6411, Phillips 12V #12866
Green bow	Same as above
Stern	Same as above
Anchor/Steaming	Perko #71 DP CLR

TEAK CARE

Teak wood is a high quality, extremely durable wood with a high oil content. In order to help you protect the original beauty of your teak interior, we have sealed the beauty of your interior with a 3 to 4 coat finish system of high quality Seafin Teak Oil, manufacturered by *Dalys* (wood finishing products). This material is a penetrating oil that dries to a low sheen to seal and protect the wood from moisture and weathering. It creates a durable, nonslip surface to repel water and resist wear. It won't chip, peel or blister. It reduces work and maintenance cost because it is easy to maintain and repair. With proper maintenance it will out live urethane varnish on interior and even exterior surfaces. (floor, bulkheads, trim wood & furniture).

MAINTENANCE

When oiled surfaces require renewing, simply wipe the surface area free of loose dirt, dust or other contaminants. Dampen a cloth with the Seafin Teak Oil and wipe on. Let stand for 5-15 minutes then polish dry.

REPAIRS

When wood work is damaged from scrapes or abrasions that go into or thru the finish, take the following steps:

1. Take 180 to 220 grit wet/dry sand paper to smooth out rough spots.
2. Wipe clean of dust and dirt with a clean rag. Note - before applying oil wood surface must be dry.
3. Wipe or brush on oil, allow to penetrate 5-15 minutes while surface is still wet.
4. Sand until smooth with a 400A wet/dry sandpaper.
5. Wipe dry with a clean rag. Allow 8-12 hours drying time.
6. Apply 2nd coat, and repeat above procedure.

This process may be repeated as many times as needed to bring damaged area back up to its original finish. If you have trouble with getting the same sheen, you may apply with a completely dampened/rung out cloth, a very light coat over this area and/or whole surface area to get an even sheen.

DALYS
3525 STONEWAY NORTH
SEATTLE, WA 98103
(206) 633-4200

MAINTENANCE

Engine, Transmission and Drivetrain

ENGINE

Follow the fuel and lubrication requirements in the Engine Manual. Check the engine oil level before and after operation and use quality motor oil (refer to Engine Manual). Be certain the proper amount of oil is in the crankcase at all times.

Engine alignment: The engine should be aligned by experienced marine service personnel. Final alignment should be done after launching, with all normal gear aboard. A description of the procedure follows:

> The coupling flanges must come together evenly at all points, a feeler gauge is used to check the gap. If adjustment is necessary, the engine is tilted up or down and/or side to side until the flanges meet equally. Severe vibration will result from misalignment and can cause strut bearing and shaft damage. Alignment should be checked again after several weeks of use.

Any questions or problems concerning the engine, please contact our distributor, Mack Boring at (201) 964-0700.

TRANSMISSION

Follow the lubrication requirements of the Engine Manual. The oil level should be checked immediately after operation.

DRIVETRAIN

The shaft log (stuffing box) should be inspected periodically.

The stuffing box is held to the fiberglass shaft log by a rubber tube secured with hose clamps. The clamps should be tight and no water should leak from this location. While under weigh a slight drip from the stuffing box at the shaft exit is necessary (four drops a minute) and is normal.

To adjust, loosen the lock nut, tighten gland nut one-quarter turn, and retighten lock nut. If excessive water flow persists after adjustment, replace the packing with 5/16" square flax packing and then adjust as above.

Steering

Refer to the manufacturer's instructions for maintaining pedestal steering system. Cables should routinely be inspected for proper tension. Lightly oil all cables.

Electrical Systems

The electrical system is a 12-volt, negative ground installation. The owner should weekly inspect batteries, terminals and cables for signs of corrosion, cracks, and electrolyte leakage. Battery terminals are to be kept clean and greased. Refer to separate instructions on batteries, wiring diagram, and electronics

MAINTENANCE

Plumbing Systems

All pumps should be checked frequently to insure proper operation. **This is an especially important regular maintenance item since proper functioning of a pump could save your vessel from serious damage in the future.**

Inspect all hoses for chafing and deteration. See that hose clamps are tight. Check that the pump impeller area is clean and free of obstructions.

Inspect electrical wiring for corrosion. Make sure float switches move freely and are making an electrical connection.

The owner should become familiar with the layout of the water and waste systems by walking through the boat with the diagrams provided in this manual. It is especially important that the owner knows all thru-hull valve locations and inspects for leaks frequently. Refer to plumbing diagrams in Specification and Technical section of this manual.

General Thru-hull List *(varies from boat to boat-see diagrams in Spec & Tech Info.)*

1) Engine cooling system
2) Galley sink
3) Head sink
4) Head toilet (water intake)
5) Holding tank discharge
6) Scupper drains

Fuel System

The owner should inspect the condition of fuel lines for cracks or leaks. A primary source of fuel-related problems is water in the system. The owner should use only well maintained fueling facilities and make sure fuel fill caps are tightly secured after filling. Check and maintain fuel filters periodically. Refer to your Engine Manual for additional information.

General Care

CLEANING FIBERGLASS SURFACES: Fiberglass surfaces should be cleaned regularly. Normal accumulations of surface dirt can be removed simply by occasional rinsings with water. If your boat is operated in salt water, more frequent rinsing will be required. To remove stubborn dirt, grease or oil, use a mild detergent and a soft brush. Rinse with clean fresh water. Avoid the plexiglass companionway slider , deck hatches and fixed ports when using a deck brush, since these surfaces can scratch.

It is also a good idea to wax the fiberglass once or twice a year to maintain a deep , glossy appearance. Your local marine supply should be able to provide an appropriate wax.

Sail Care: Sunlight is a sail's worst enemy, so cover the sails when they are not in use. An ultraviolet guard, fitted down the leech of a roller headsail, will protect the exposed part from the weathering effect of the sun and from dirt and grit. Mildew, which discolors, is prevented by storing sails dry and by hand-washing twice a season.

Sail care continued.

Check all sails regularly for chafe, particularly where they chafe on deck fittings or rigging, at reef points, batten sleeves and the foot of the headsail. Sail batten pockets should be inspected on a regular basis.

To stow the mainsail, start at the leech and flake it on to the boom, left and right, in about 18-in. (46-cm) folds, while pulling the leech aft. Secure with a sail tie and continue to the luff. Lash to the boom with sail ties or shock cord.

The headsail, neatly rolled and fastened, can be temporarily stowed along the lifelines. To stow below, flake it into a length; 1. then roll from luff to leech, 2. Take care not to crease the leech. Pack in a clearly marked bag.

Fabric Care

If wet, prop cushions vertically to promote airflow around each cushion. Cushions can be cleaned by most dry cleaners. **Dry clean only.**

Winch Maintenance

Follow the maintenance instructions prescribed by the winch manufacturer. We recommend a minimum of an annual cleaning and light greasing.

General Hardware Maintenance

Check all fittings regularly to be sure screws are tight. Occasionally lubricate (use silicone lubricants) all moving parts on such fittings as blocks, turnbuckles and cam cleats, as well as the locking pins of snatch blocks, track slides, spinnaker poles, etc. Inspect cleats and fairleads for roughness and smooth with fine grained emery paper if necessary. Also, replace any missing or damaged cotter pins in turnbuckles and shackles, and either tape them or use protective covers manufactured for that purpose.

Shaft Alignment Procedure

1. Separate the coupling, move the shaft end back to clear the pilot in the center.

2. Establish the shaft in the center of the shaft log by raising the shaft until it touches the top of the log - note position - lower the shaft until it touches bottom of the log - note position - repeat sidewise and locate shaft in the center; block shaft in this position, using a block of wood under the shaft packing gland.

3. Now, adjust the engine mounts to allow the pilot on the coupling halves to slip together without moving shaft up, down, or sideways.

4. Adjust the engine mounts as necessary until a 0.004" feeler gauge will not enter anywhere along the edge of the flange between the faces.

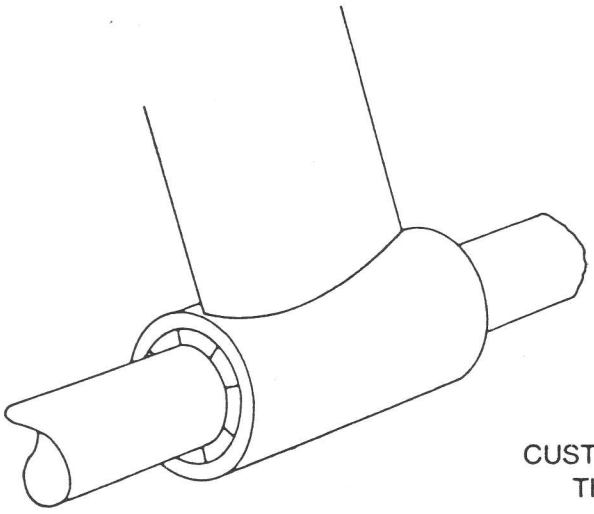
5. Tighten the locks on the adjustable mounts.

6. Recheck coupling with feeler, readjust if necessary.

7. Check stuffing box (allow to drip slightly).

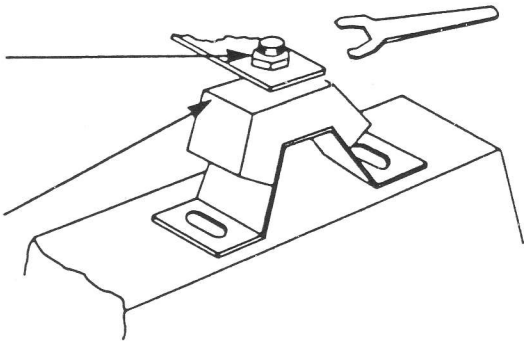
ALIGNMENT DIAGRAM

Step 1



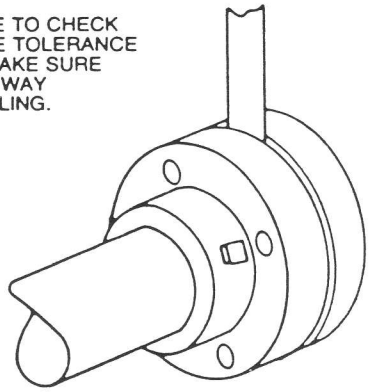
CUSTLASS BEARING
THRU-STRUT

Step 2



Step 3

USE FEELER GAUGE TO CHECK COUPLING GAP. THE TOLERANCE SHOULD BE .004". MAKE SURE TO CHECK ALL THE WAY AROUND THE COUPLING.



NOTE: CHECK COUPLING GAP WITHOUT COUPLING BOLTS IN PLACE.

STORAGE/WINTERIZATION

IMPORTANT: Winter storage is recommended to be done in one of the following three ways, either: 1) by blocking the boat via a cradle; or 2) with chained stands on level ground; or 3) by storing the boat in the water with a bubbler system to prevent icing. Damage to your boat, including engine misalignment caused by twisting, is not covered by the warranty.

SAILS

Sails should be properly folded and stowed in a dry, well ventilated place. Many sailboat owners send their sails back to the sail manufacturer at the end of each season. The sailmaker will check the stitching and sailcloth for wear and store the sails until the start of the next season.

ELECTRICAL

Remove battery from boat. (Refer to Engine Manual.) and charge. It is a good idea to also to remove the electronics (Radio, Radar, etc.) and store in a safe place.

CUSHIONS

Cushions should be removed and stored at home if possible. If not, prop them vertically to promote airflow around each cushion. *Dry Clean Only!*

HATCHES

Tenting the deck during storage will help prevent ice from forming and damaging hatches and deck fittings. The installation of a passive vent will help with ventilation while the boat is in storage.

WATER SYSTEM - WATER HEATER

WATER SYSTEM:

Open a faucet and allow the pump to empty the tank. Then add approximately two gallons of nontoxic antifreeze solution to the tank and repeat the pumping out procedure.

A second method is to disconnect the hoses at the pump, allowing them to drain. Find the lowest point in the system and disconnect the fitting. Open all faucets to allow the lines to drain. If possible, use a short piece of hose on the faucet to blow through the lines to clear all water. A diluted solution with baking soda will help freshen the system.

WATER HEATER:

Open valve and drain fully. Leave valve open during lay-up time.

TOILET AND HOLDING TANK

Drain and flush toilet. Using automotive antifreeze (ethyleneglycol) in a 50/50 mixture with water, pump through toilet and into holding tank. Refer to Galley/Head section for instructions.

STORAGE/WINTERIZATION CONTINUED.

ENGINE

1. Drain the cooling water completely out of the engine and flush the line thoroughly with fresh water. Don't use high pressure through the line.
2. Remove the fuel completely from all fuel lines.
3. Disconnect the main battery cables from the battery terminals.
4. To prevent corrosion inside the cylinders, pour a little lubricating oil into the suction pipe while turning the engine. Enough oil to reach the intake/exhaust valve is sufficient.
5. Put the piston at top dead center of compression stroke so that the intake/exhaust valves are completely closed.
6. Apply a thin anticorrosion treatment to the plating and exposed painted surfaces.
7. The engine should be in a well ventilated area, and protected from any kind of dampness.
8. Put a dust cover over the engine.
9. Check your operation manual for engine diagram and for "Manufacturer's Recommended Winterizing Procedures."

OUTBOARD ENGINE

Take it home and store it in a safe place. Be very careful storing the gas tank as the gasoline is very flammable. Refer to "Engine Manual" for specific maintenance schedule.

DEPARTURE FROM THE BOAT

The check list for leaving a boat unattended is very important because items overlooked often will not be remembered until you are far from the boat and corrective actions are impractical or impossible. Primary choices for this list are items relating to the safety and security of the unattended craft-turning off fuel valves, the proper settings for electrical switches, pumping out the bilge and leaving the switch on automatic (or arranging for periodic pumping out). Other departure check list items are securing ports, windows, hatches, and doors.

ROUTINE MAINTENANCE

Routine maintenance check lists should include items based on how much the boat is used (usually in terms of engine hours) and on calendar dates (weekly, monthly, or seasonal checks). Typical of the former are oil level checks and changes, and oil and fuel filter changes.

On a calendar basis the lists should note such matters as electrolyte levels in storage-batteries, pressure gauges on dry-chemical fire extinguishers, and all navigation lights. Check the operation of automatic bilge alarms or pump switches by running water into the boat. Periodically close and open seacocks several times to ensure their free and easy operation in case they are needed in an emergency. Equipment and supplies carried on board for emergencies should be inspected for any signs of deterioration.

MAINTENANCE

Electrolysis and Galvanic Protection

Salt water allows electric current to flow from anodic to cathodic material. Any two metals from two components, and their relative positions in the galvanic rating table, will determine which loses material (the anode) and which remains largely undisturbed (the cathode). The rate of wear is determined by the distance apart on the galvanic table of two metals. Thus a sacrificial zinc anode is often fitted to the underwater area of a boat to attract any destructive currents away from bronze or steel propeller shafts, for example.

It is not enough to know that your boat does not suffer from electrolysis: a newcomer in the adjacent marina berth may start a too-friendly association with metal components on it. An easy place to fit an anode is on the propeller shaft, or covering the propeller nut. The anode should not be painted because this will only defeat the purpose.

To prevent electrolysis in sea water, the difference between the voltage of two adjacent metals should not exceed 0.20V. Zinc and carbon steel, for example, used together, risk corrosion, while lead and active stainless steel are compatible. Metals with a high voltage corrode faster and need a larger area to diffuse the electrochemical reaction.

HUNTER MARINE
LIMITED WARRANTY

Hunter Marine warrants to the first-use purchaser for a period of twelve (12) months from the date of sale any part manufactured by Hunter to be free of defects caused by faulty workmanship or materials under normal use and service.

During this period Hunter Marine will replace any part judged to be defective by Hunter Marine free of charge at its plant or at the option of Hunter, by an authorized Hunter Marine dealer. Transportation costs are the responsibility of the first-use purchaser. The labor cost reimbursement will be based on a labor allowance schedule established by Hunter Marine and, where not applicable, on a reasonable number of hours as determined by Hunter Marine. All repairs and replacements must be approved in advance by an authorized Hunter Marine representative.

The warranty does not cover:

(1) Paint, window glass, gel coat, upholstery damage, plastic finishes, engines, engine parts, propellers, shafts, controls, instruments and equipment not manufactured by Hunter Marine.

(2) Boats or parts which have been altered or subjected to negligence or misuse.

(3) Commercially used boats.

This warranty is expressly in lieu of any and all other remedies and expressed warranties. Any implied warranties, including the warranties of merchantability and fitness are limited to the duration of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so that the above limitation may not apply to you.

Any consequential damages which may be incurred are excluded and the liability of Hunter Marine and the purchaser's remedy shall be limited to repair or replacement of any part or party judged defective by Hunter Marine. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation exclusion may not apply to you.

The purchaser acknowledges that no other representations were made to him with respect to the quality and function of the boat.

This warranty gives you specific legal rights and you may have other rights which vary from state to state.

This warranty shall not be effective unless the Hunter Marine warranty card and pre-delivery service record are completed and returned to Hunter Marine within ten (10) days after the date of sale to the first-use purchaser.

HUNTER

FIVE YEAR BOTTOM BLISTER LIMITED WARRANTY

Hunter Marine warrants to the original purchaser that each new sailboat, manufactured by Hunter Marine, will be free from gel-coat blistering on underwater surfaces of the hull for a period of five years from the initial date of delivery.

During this period, Hunter Marine will supply or reimburse 100% of the parts and labor required to repair a blistered underwater surface of the hull by an authorized Hunter dealer. The labor cost reimbursement will be based on a Labor Allowance Schedule established by Hunter Marine, however if the repair is performed by a non-Hunter dealer, the repair cost must be authorized by Hunter Marine and based on a reasonable number of hours as determined by Hunter Marine. Transportation, hauling, launching, bottom paint, storage, dockage, cradling rental, rigging and derigging, or other similar costs will not be covered by Hunter Marine's Warranty Policy. It is recommended that the repair be done during a seasonal haul out for service or storage

The following circumstances will void this Limited Warranty:

1) If the gel-coat has been sanded, sandblasted, or subjected to abrasion or impact.

2) If the instructions provided in the Hunter owner's manual are not followed according to Hunter Marine's required bottom preparation procedures.

3) If prior approval is not obtained by Hunter Marine for repair.

4) If the Hunter Warranty Card is not sent to Hunter Marine within 10 days of delivery.

This warranty is expressly in lieu of any and all other remedies and expressed warranties. Any implied warranties including the warranties of merchantability and fitness are limited to the duration of this limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Any consequential damages which may be incurred are excluded and the liability of Hunter Marine and the purchaser's remedy shall be limited to repair or replacement of any part or parts judged defective by Hunter Marine. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

The purchaser acknowledges that no other representations were made to him with respect to the quality and function of the boat.

This warranty gives you specific legal rights and you may have other rights which vary from state to state.

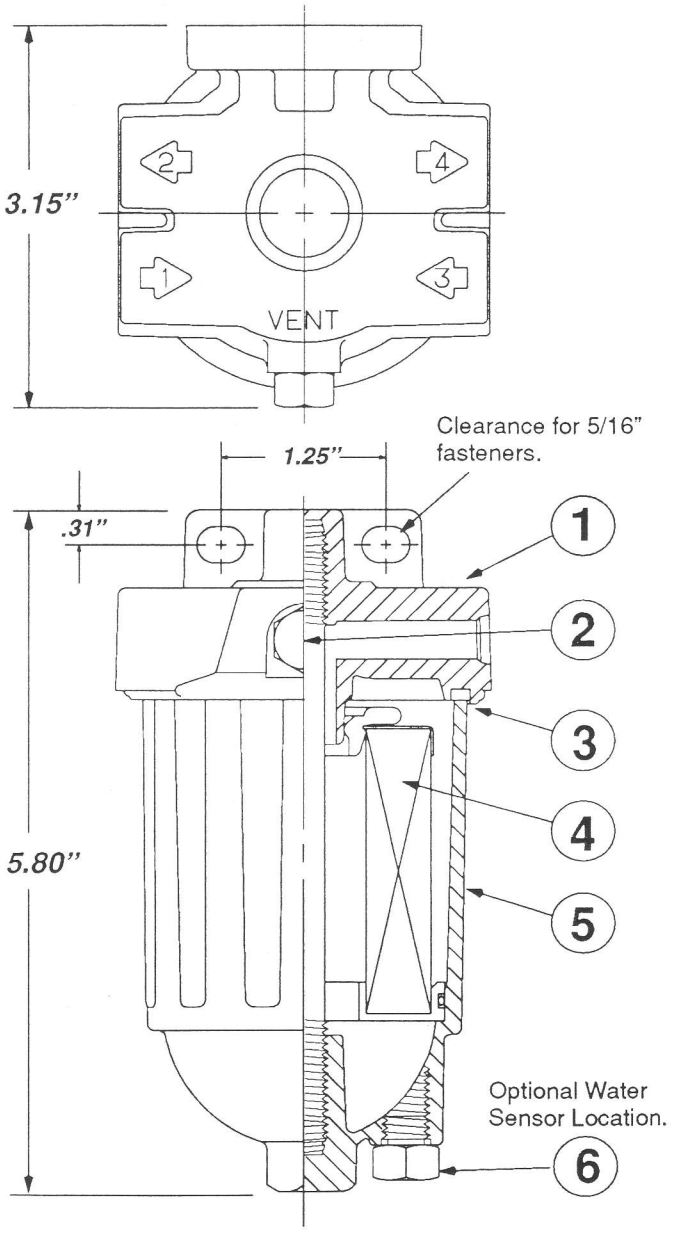
Effective date, September 15, 1989
HUNTER MARINE CORPORATION

Model 110A
Diesel or Gasoline
Fuel Filter/Water Separator

MARINE
UL
LISTED

RACOR®
Parker Hannifin Corporation
Racor Division
P.O. Box 3208, 3400 Finch Rd.
Modesto, CA 95353 USA
209/521–7860, 800/344–3286
FAX 209/529–3278

Parker
Filtration



The Racor Model 110A Diesel or Gasoline Fuel Filter/Water Separator may be installed on the vacuum or pressure side of the fuel system (up to 150 PSI, with high pressure fittings) with a maximum flow capacity of 15 GPH for Diesel fuel systems or 35 GPH for Gasoline fuel systems.

The compact size and 4–port versatility make the Model 110A the most popular small fuel filter/water separator on the market today. Servicing is also made easier by the spin–on bowl assembly and simple element change procedure.

The Model 110A is extremely effective in removing better than 99% of free water normally found in fuel due to condensation. The R11T replacement filter uses Racor's proprietary Aquabloc™ filtering media which removes particulates and prevents water from entering the injection system.

An optional In–bowl Water Sensor is available which will inform the operator when servicing is required. *NOTE: Not recommended for pressure side installations above 150 PSIG.*

INSTALLATION

WARNING! Exercise caution when installing the 110A in gasoline applications to avoid fire hazards. DO NOT SMOKE, allow open flame or heat which could ignite a fire. Perform the installation in a well ventilated area.

Refer to the installation diagrams on the reverse side and keep a few points in mind when installing the 110A.

A. For diesel applications, install the 110A underhood for protection against extreme cold temperatures. This will help in preventing fuel gelling. *Diesel fuel additives containing alcohol can damage non–metal components in fuel systems and are not recommended.*

B. Ensure that the fuel lines are secured in all applications to protect them from rubbing on other surfaces. Avoid tight bends and high heat sources. *Continued >*

PARTS LIST

Item	*Part No.*	*Description*
1a	RK21359	Replacement Head, 9/16" SAE
1b	RK21361	Replacement Head, 1/4" NPT
1c	RK21362	Replacement Head, 14mm
2	RK10110	Metal Vent Plug
3	RK21363	Gasket / O–ring Kit
4	R11T	Replacement Element, 10 mic.
5	RK21364	Replacement Bowl Assy.
6a	RK20022	Drain Plug Kit
6b	RK10054	Optional Water Sensor Probe

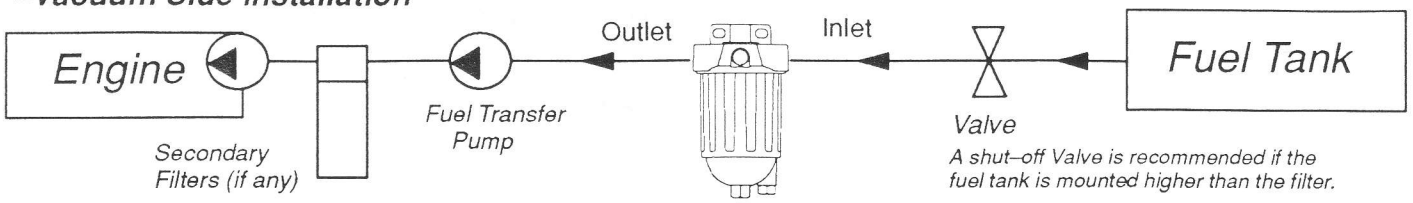
also order RK20725, Water Sensor Alarm Kit.

SPECIFICATIONS

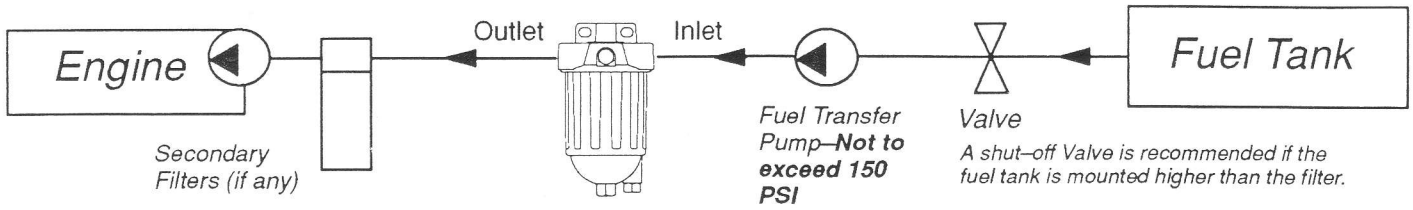
Fuel Ports	9/16"–18 SAE, 1/4"–18 NPT or 14 MM
Maximum Flow Rate	Diesel: 15 GPH / 57 LPH Gasoline: 35 GPH/ 132 LPH
Replacement Element	R11T
Element Removal	
Underunit clearance ,Min.	1" (25.4mm)
Clean Vac./Press.Drop*	1.25 inHg.(4.23 kPa)
Height	5.8" (147 mm)
Width	3.2" (81 mm)
Depth	3.15" (80 mm)
Weight, Dry	1.3 lbs. (.59 kgs)
Temp. Rating	–50 / 255 dg.F (–46 / 107 dg.C)

** Specifications result from tests conducted at the maximum flow rate.*

–Vacuum Side Installation



–Pressure Side Installation *NOTE: PRESSURE FITTINGS **MUST** BE USED. SEE FITTINGS CHART BELOW.*



WARNING! Fuel and vapors are extremely flammable! Do not smoke, allow open flame or heat which could ignite and create a fire.

PRIMING.
VACUUM SIDE APPLICATIONS: Spin the bowl from the Head and fill with clean fuel. Spin the bowl onto the Head and tighten firmly by hand. Note: If using a torque wrench, do not exceed 60 inch pounds. Start the engine and check for leaks. Correct as necessary with the engine off.

PRESSURE SIDE APPLICATIONS: Follow instructions under Vacuum Side Applications above or use the engine fuel pump to prime the filter as follows: Crank the engine until the engine starts. Do not exceed 10 seconds of cranking. Let the starter motor cool before cranking again to avoid unnecessary damage.

DRAINING THE COLLECTION BOWL. Water is heavier than fuel and will settle to the bottom of the bowl and appear different in color once collected in a clear jar. If your Model 110A is equipped with an In–bowl Water Sensor Probe (RK 10054) and Alarm Kit (RK 20725–12 volt d.c.) the operator will be warned when a high water level condition exists and servicing is needed. In marine or high humidity environments, check the collection bowl frequently (daily if a poor fuel source is suspected).

WITH ENGINE OFF: Remove the Drain Plug momentarily to evacuate contaminants, then replace . NOTE: In some applications it may be necessary to open the Vent Plug first before removing the Drain Plug to 'break the vacuum'. Follow PRIMING instructions, above.

FITTNGS CHART FOR 9/16"–18 SAE PORTS *

PRESSURE or VACUUM FITTINGS (Plated Steel)

		T2	Part Number
SAE 37° Elbow	T2	7/16"–20 9/16"–18	9010–6–4 9010–6–6
SAE 37° Straight	T2	7/16"–20 9/16"–18	9020–6–4 9020–6–6
NPT Female	T2	1/4" NPT 3/8" NPT	9040–6–4 9040–6–6

VACUUM FITTINGS ONLY (Plated Steel)

Barbed Elbow	T2	T2 5/16" to 3/8" (8 to 10mm) inside dia.	9010HF6–5/6
Barbed Straight	T2		9020HF6–5/6

** For NPT or Metric port fittings, see your dealer or call toll–free 800–C–PARKER for the Parker Fittings dealer nearest you..*

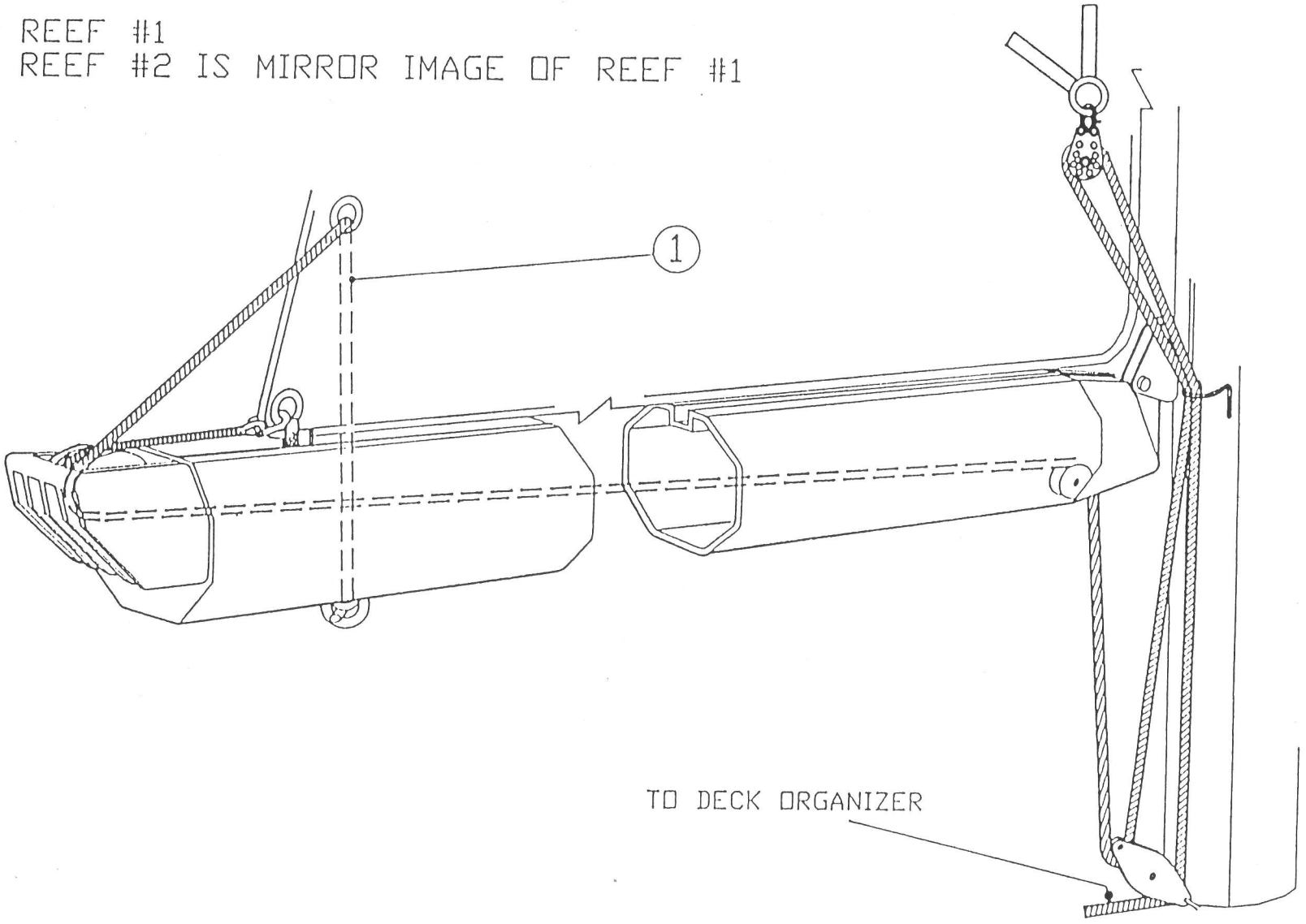
ELEMENT REPLACEMENT. Element replacement frequency is determined by the contamination level in fuels. Fuel flow to the engine becomes restricted as the element slowly plugs with contaminants, resulting in noticeable power loss and/or hard starting. When any one occurs, change the element as soon as possible. (As a guideline: every 500 hours, 10,000 miles, every other oil change or annually). *Always carry an extra replacement element as one tankful of excessively contaminated fuel can plug a fuel filter.*

1. Drain the unit of fuel by removing the Drain Plug.
2. Spin the Bowl from the Head and remove the Element.
3. Install the new element and coat the new Head–to–Bowl Seal with a coating of motor oil.
4. Spin the Bowl onto the Head and tighten firmly by hand. Note: If using a torque wrench, do not exceed 60 inch pounds. Follow PRIMING instructions, above.

TROUBLESHOOTING. If your unit will not prime or fails to hold prime, first check that the Vent Plug, Drain Plug and the Head / Bowl are properly tightened. Next, check fitting / fuel line connections for security, and ensure none of the lines are pinched or that the fuel tank strainer is clogged. If problems persist and the element is new, call Racor Customer Service for assistance. *See phone numbers on reverse side.*

Racor's policy is one of continual improvement in design and manufacturing to insure still finer products; therefore, specifications, equipment and product information (while correct at the time of publication) is subject to change without notice. Product Brochure PN. 21410 Rev. B

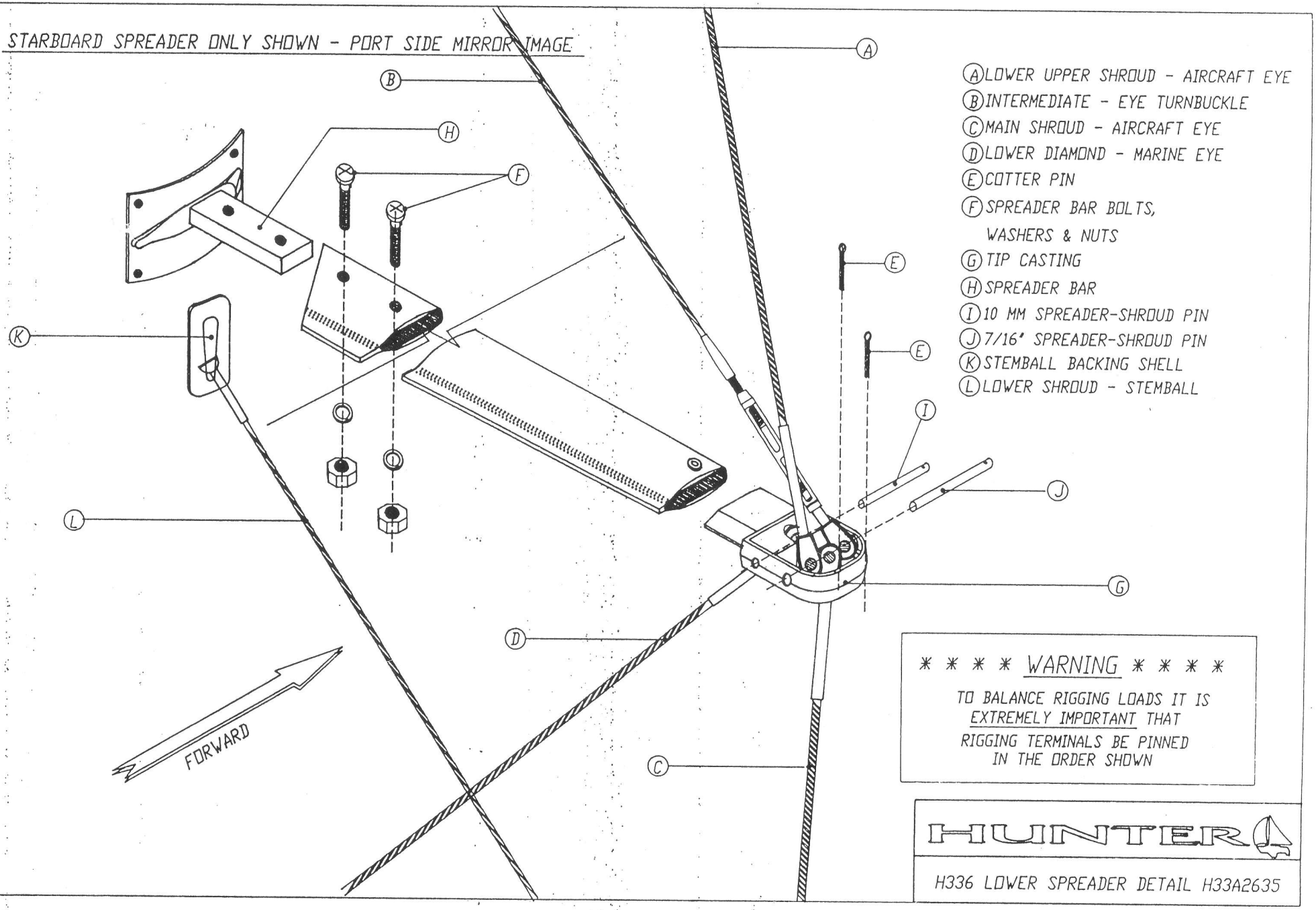
① REEF #1
REEF #2 IS MIRROR IMAGE OF REEF #1



HUNTER

BOOM AND REEF LAYOUT

STARBOARD SPREADER ONLY SHOWN - PORT SIDE MIRROR IMAGE



(A) LOWER UPPER SHROUD - AIRCRAFT EYE
(B) INTERMEDIATE - EYE TURNBUCKLE
(C) MAIN SHROUD - AIRCRAFT EYE
(D) LOWER DIAMOND - MARINE EYE
(E) COTTER PIN
(F) SPREADER BAR BOLTS, WASHERS & NUTS
(G) TIP CASTING
(H) SPREADER BAR
(I) 10 MM SPREADER-SHROUD PIN
(J) 7/16" SPREADER-SHROUD PIN
(K) STEMBALL BACKING SHELL
(L) LOWER SHROUD - STEMBALL

* * * * WARNING * * * *

TO BALANCE RIGGING LOADS IT IS EXTREMELY IMPORTANT THAT RIGGING TERMINALS BE PINNED IN THE ORDER SHOWN

HUNTER

H336 LOWER SPREADER DETAIL H33A2635