

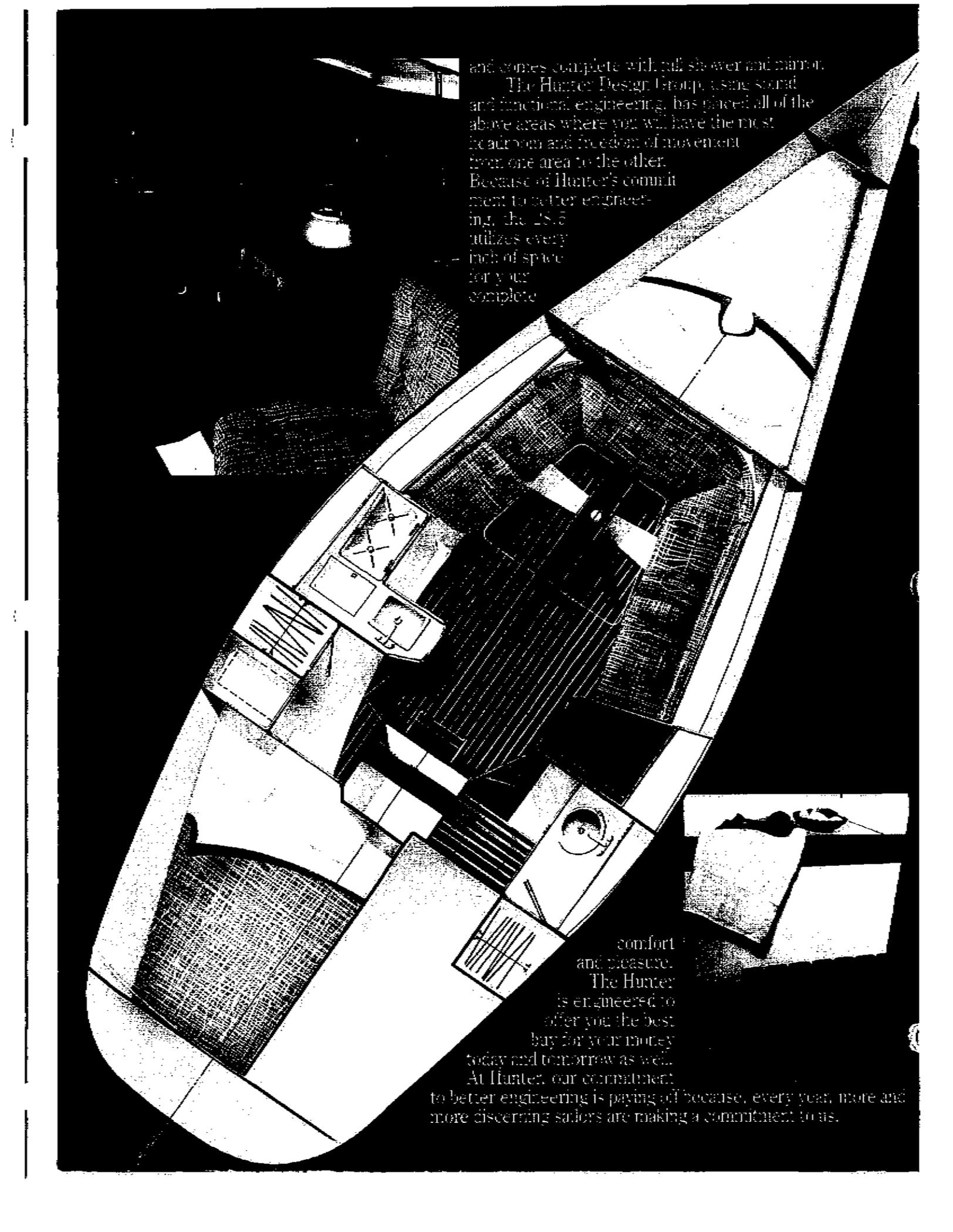
Committed to  
Better Engineering.  
**HUNTER**



**28.5**







and comes complete with full shower and mirror.

The Hunter Design Group, using sound and functional engineering, has placed all of the above areas where you will have the most headroom and freedom of movement from one area to the other.

Because of Hunter's commitment to better engineering, the 28.5 utilizes every inch of space for your complete

comfort and pleasure.

The Hunter is engineered to offer you the best buy for your money today and tomorrow as well.

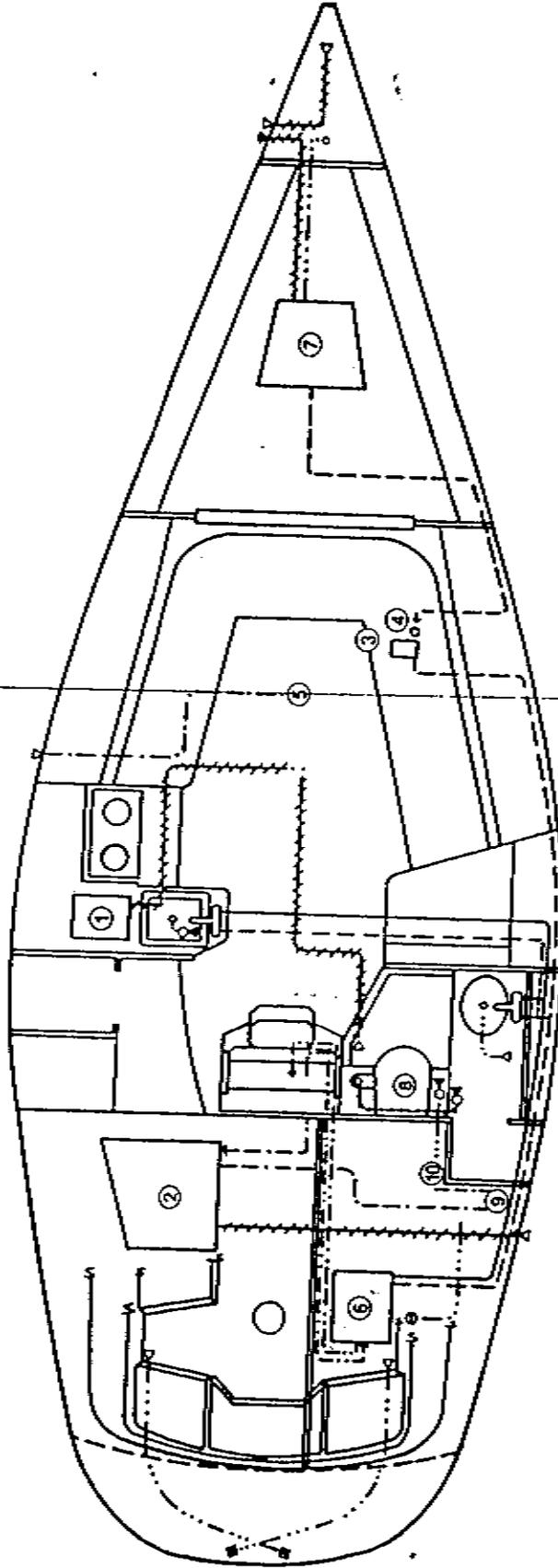
At Hunter, our commitment to better engineering is paying off because, every year, more and more discerning sailors are making a commitment to us.





# HUNTER 28.5

## PLUMBING DIAGRAM



### LEGEND

- 1. ICE BOX
- 2. HOLDING TANK
- 3. PRESSURIZED WATER PUMP
- 4. WATER FILTER
- 5. AUTOMATIC BILGE PUMP
- 6. WATER HEATER
- 7. WATER TANK
- 8. HEAD
- 9. MANUAL WASTE PUMP
- 10. VENTED LOOP

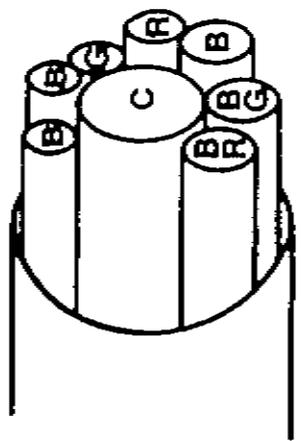
### SYMBOLS

- POLYBUTYLENE TUBE (HOT)
- - - POLYBUTYLENE TUBE (COLD)
- · - · 1" SHIELDVAC HOSE
- · - · 1 1/4" SHIELDVAC HOSE
- · - · 1 1/2" SHIELDVAC HOSE
- · - · 3/4" SHIELDVAC HOSE
- · - · 1/2" BLACK WATER HOSE
- · - · 1 1/2" SHIELDVAC HOSE

- △ PLASTIC THRU-HULL
- ▲ BRONZE THRU-HULL
- GATE VALVE
- ⊙ WASTE DECK PLATE
- ◊ VENT
- WATER FILL NECK PLATE
- ⊞ THRU-HULL SCUPPERS
- · - · 3/4" SHIELDVAC HOSE

# HUNTER 28.5

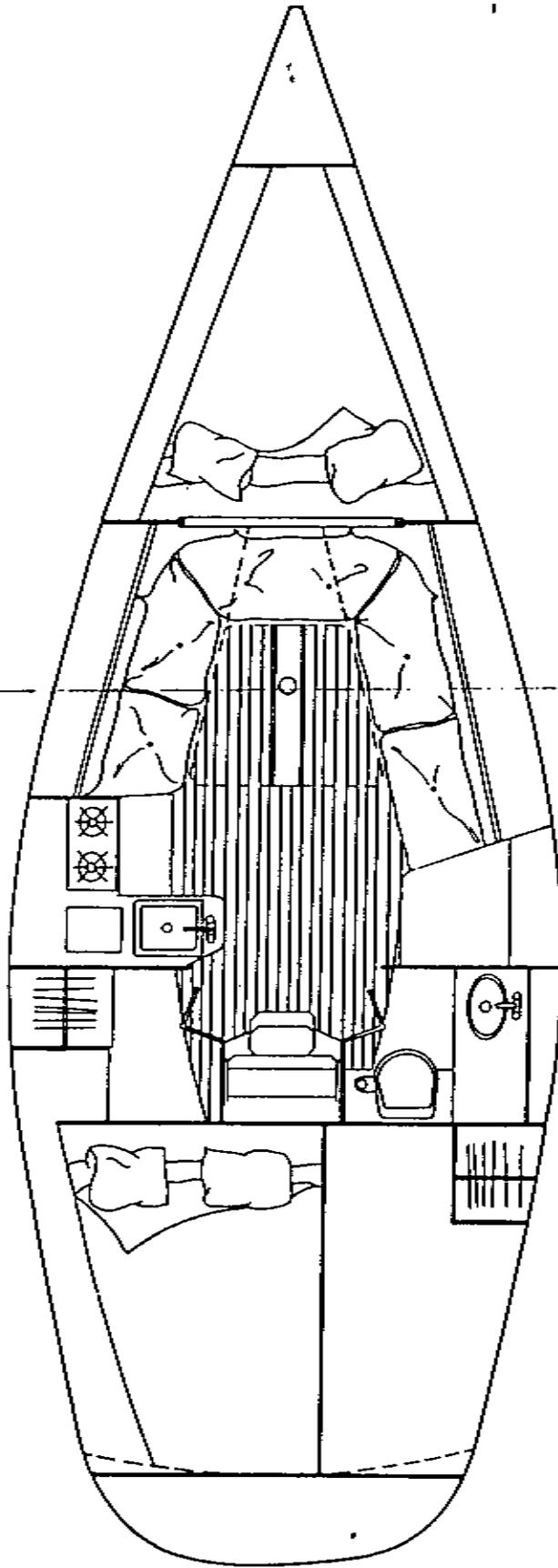
ELECTRICAL DIAGRAM - AC/DC  
Continued



WIRE HARNESS			
SYMBOLS	COLOR	GAUGE	APPLICATION
C	WHITE	Coax.	ANTENNA
BR	BROWN	12	ELECTRIC BILGE PUMP (HOT)
BG	BEIGE	12	ELECTRIC BILGE PUMP (COMMON)
B	BLACK	12	ELECTRIC BILGE INLINE FUSE
R	RED	16	MAST LIGHTS (HOT)
G	GREEN	16	MAST STEAMING LIGHTS (HOT)
B	BLACK	16	MAST LIGHTS (COMMON)
B	BLACK	16	MAST STEAMING LIGHTS (COMMON)

# HUNTER 28.5

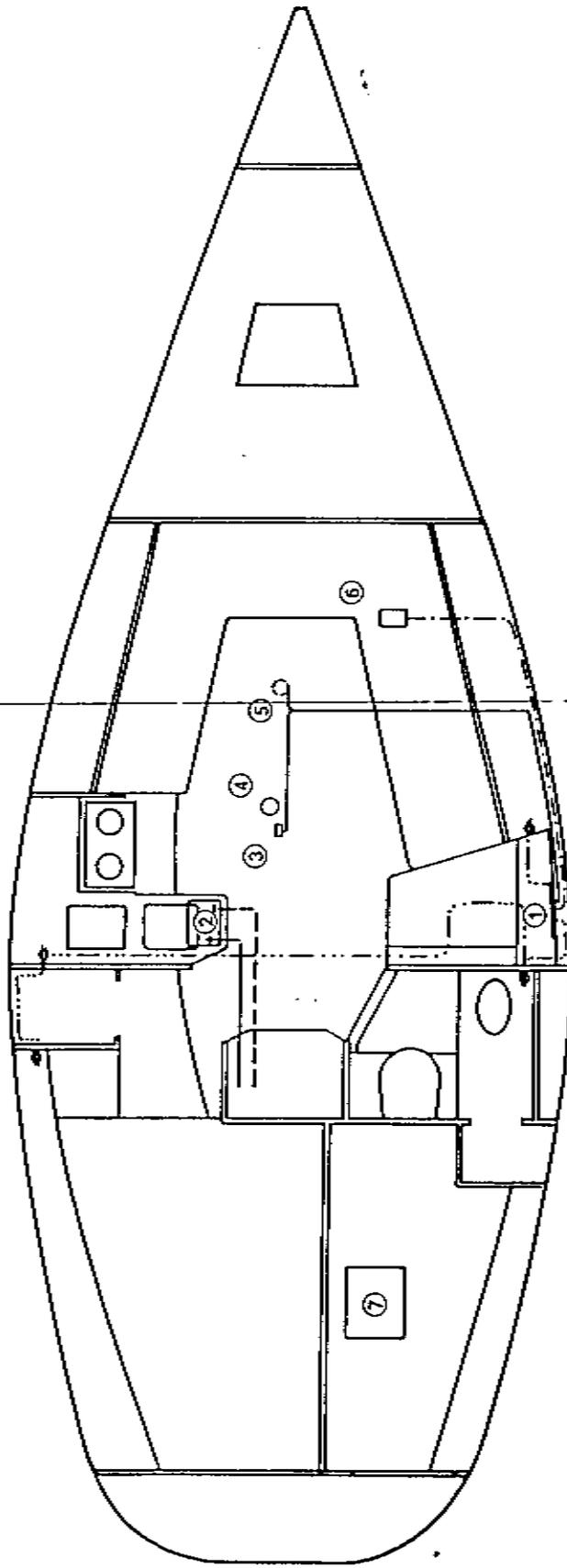
INTERIOR



# HUNTER 28.5

ELECTRICAL DIAGRAM—AC/DC

NOTE: CHAINPLATES AND MAST ARE  
GROUNDED TO FORWARD  
KEEL EAR BOLTS WITH  
8 GA. BLACK WIRE.



## LEGEND

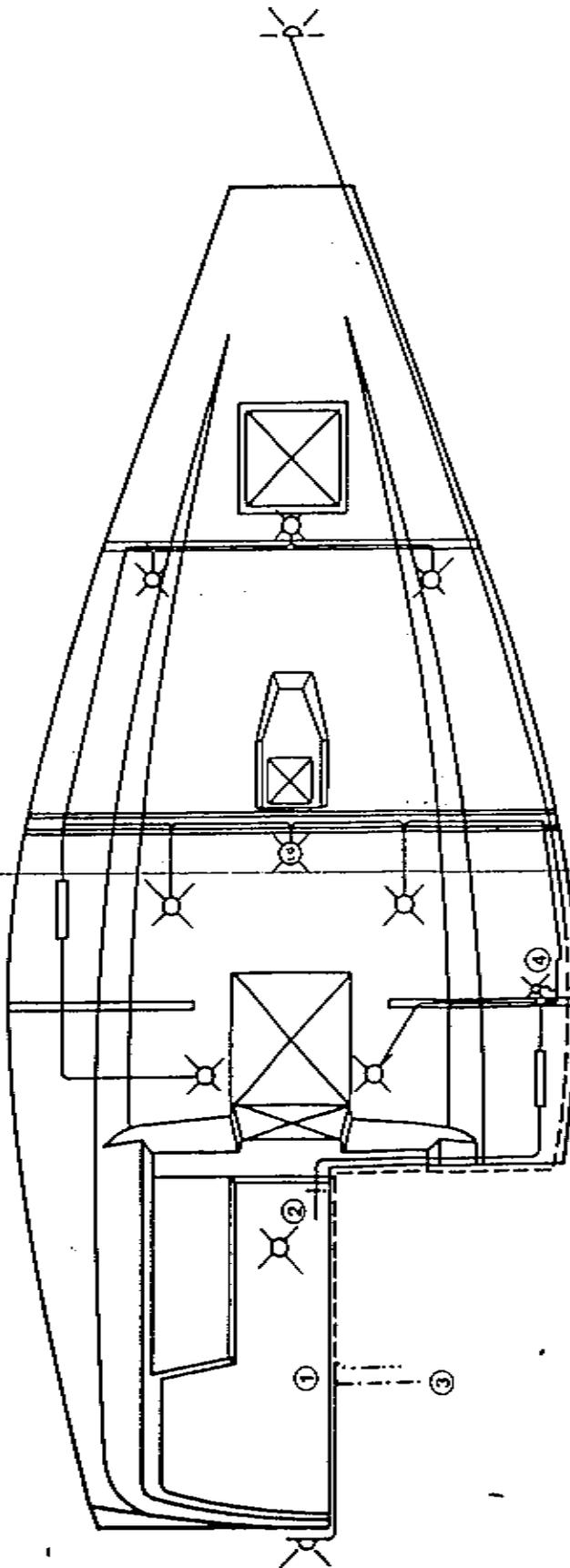
1. SWITCH PANEL
2. 72 AMP BATTERY
3. AUTOMATIC FLOAT SWITCH
4. BILGE PUMP (ELECTRIC)
5. MAST COMPRESSION POST
6. PRESSURIZED WATER PUMP (ELECTRIC)
7. WATER HEATER

## SYMBOLS

- 4 GA. RED BATTERY CABLE
- 4 GA. BLACK BATTERY CABLE
- - - 14/3 BOAT CABLE (110V)
- WIRE HARNESS "B"
- 10 GA. WIRE (BLACK/RED) FOR PRESSURIZED WATER PUMP

# HUNTER 28.5

WIRING THRU HEADLINER DIAGRAM - AC/DC



- LEGEND**
- 1. COMPASS
  - 2. ENGINE
  - 3. SHORE POWER INLET
  - 4. SWITCH PANEL

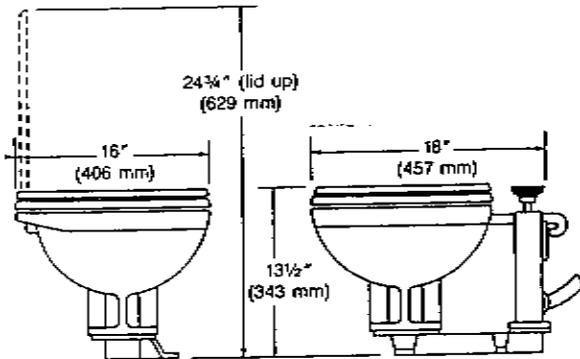
- SYMBOLS**
- SMALL CABIN LIGHTS
  - LARGE CABIN LIGHT
  - BOW AND STERN LIGHTS
  - FLOURESCENT LIGHTS
  - CHART LIGHT

- 16 GA. BLACK/BLUE WIRES (CABIN LIGHTS)
- WIRE HARNESS "A"
- 10 GA. BLACK/RED WIRES (ENGINE TO SWITCH PANEL DC FEED)
- 10/3 BOAT CABLE (SHORE POWER)
- 14/3 BOAT CABLE (WATER HEATER)

# SeaLander™ Model 752 manual marine toilet

The SeaLander 752 Manual Marine Toilet offers the simple solution for boats where power and space are at a premium or not available.

- Remarkably compact. Perfect for small craft and sailboats.
- Easy-to-clean vitreous china bowl with high quality white enameled seat.
- Long life hand pump.
- Combines easily with TDX systems or conventional holding tanks.
- ¾" (19mm) intake. 1½" (38mm) discharge.



Use these specifications to order:

Order No.	Description	Weight
752	Manual Toilet with mirror china bowl and hand pump attached. Includes seat and cover.	22½ lbs. (10kg)

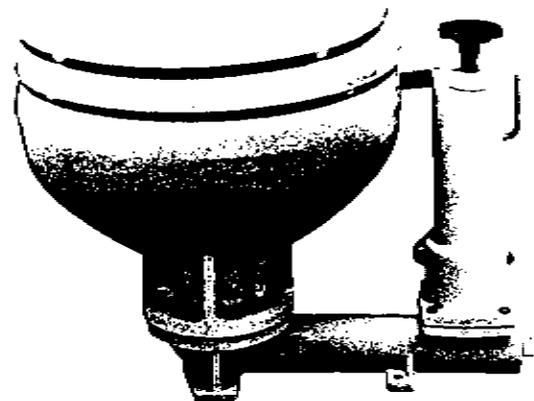
#### INSTALLATION

1. Position toilet above or below water line keeping in mind the intake and discharge hoses must be routed direct as possible avoiding sharp bends.
2. Fasten toilet base to floor with #14 or ¼" bronze or stainless steel screws and flat washers.
3. Install water inlet hull fitting below water line with a ¾" sea cock or gate valve.
4. Route ¾" I.D. hose between inlet hull fitting and inlet at toilet. Secure with stainless steel hose clamps.
5. Route 1½" I.D. discharge hose between toilet and holding tank, treatment device, or overboard discharge sea cock (outside U.S. waters only). Secure with stainless steel hose clamps.

#### OPERATION

1. To flush toilet: move valve lever to open flush position and operate pump handle. Return valve lever to dry bowl closed position.
2. To empty toilet bowl: leave valve lever in dry bowl closed position and operate pump handle.

**IMPORTANT: WHEN TOILET IS INSTALLED BELOW WATER LINE, IT IS IMPERATIVE THAT VALVE LEVER BE FULLY IN DRY BOWL CLOSED POSITION WHEN TOILET IS NOT IN USE.**  
WHEN TOILET IS NOT IN USE, CLOSE THE SEA COCK.



- Four-bolt mounted hand pump allows either right side or left side installation/operation.
- Corrosion-proof fittings, pump and base.

#### CLEANING

Do not use alcohol or alcohol based cleansing or deodorizing agents on the plastic parts of the toilet.

#### WINTERIZATION

1. In colder climates automotive antifreeze (ethylene glycol) can be used. A 50/50 mixture of water and antifreeze should be pumped through the toilet to the holding tank or treatment device.
2. Drain toilet by removing the drain plug in the base and operating the pump handle. In salt water areas a thorough flushing with fresh water will aid in removing salt from the system, thus ensuring trouble-free use the following season.

**SeaLander**  
TECHNOLOGY, INC.

An Affiliate of N.A. Taylor Company, Inc.

P.O. Box 38, Fourth Street, Big Prairie, OH 44611 • (216) 496-3211

## V. 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.

### A. Sails

Sails and synthetic lines should be washed and dried thoroughly. 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.

### B. Electrical

Remove battery from boat. (Refer to Engine Manual.)

### C. Cushions

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

### D. Hatches

Hatches and floorboards should be left open a crack to provide ventilation for the whole boat. However, it is prudent to loosely cover any open hatches with a tarp or plastic sheeting.

### E. Water System—Water Heater

#### WATER SYSTEM:

Open a faucet and allow the pump to empty the tank. Then add approximately two gallons of *non-toxic* anti-freeze 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.

#### WATER HEATER:

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

### F. Toilet and Holding Tank

Drain and flush toilet. Using automotive anti-freeze (ethyleneglycol) in a 50/50 mixture with water, pump through toilet and into holding tank.

## G. Engine

1. Drain the cooling water completely out of the engine and flush the line thoroughly with freshwater. 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 anti-corrosion 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."

## H. Outboard Engine

1. Take it home and store it in a safe place. Be *very careful* storing the gas tank as the gasoline is very flammable.



SOUTHEASTERN FOUNDRY

BOATS

H-25.5

H-27

H-28.5

H-31

H-34

H-40

H-45

SHAFTING

1" x 54" x 0A x Bronze SMT

1" x 46 1/2" x 0A x Bronze SMT

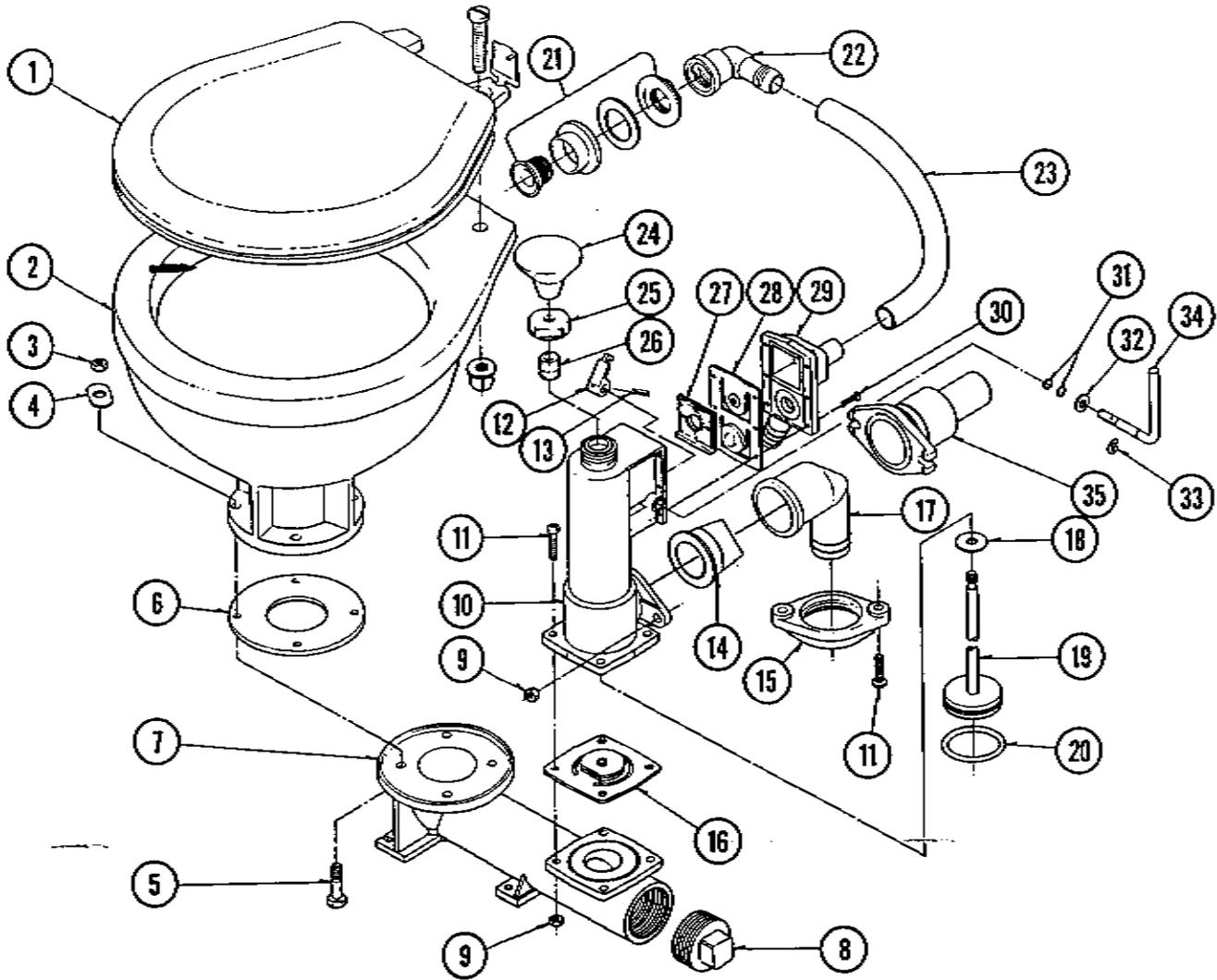
1" x 49" x 0A x Bronze SMT

1" x 48 1/4" x 0A x Bronze SMT

1" x 50 3/4" x 0A Bronze SMT

1" x 71" X 0A x Bronze SMT

1" x 72 x 0A x Bronze SMT



**MODEL 752 MANUAL MARINE TOILET**

**PARTS LIST**

ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
1	390349078	1	Seat & Lid 751-752	21	390348260	1	Spud, 751-752
2	390349079	1	Bowl, China 750 thru 752	22	390341088	1	Elbow, 3/4 FPT x 1" Hose
3	390346604	4	Nut, 1/4-20 Hx S.S.	23	390341107	1	Hose, 3/4 x 10 3/4 751-752
4	390340940	4	Washer, Oval S.S.	24	390340113	1	Knob, 752
5	390341197	4	Bolt, 1/4-20 x 1 1/2 Hx Hd S.S.	25	390340016	1	Nut, Piston Rod Seal
6	390340044	1	Gasket, Bowl	26	390340012	1	Seal, Piston Rod
7	390340048	1	Base, 752 with Drain Plug (Item 8)	27	390340029	1	Seat, Valve Intake
8	390340047	1	Plug, Drain	28	390341152	1	Double Flap Valve 751-752
9	390340053	6	Nut, #6-8 mm Hx S.S.	29	390340032	1	Cover, Valve
10	390340020	1	Cylinder, Pump	30	390340039	6	Screw, Valve Cover
11	390340043	6	Screw, Phillips 6-8 x 30 mm S.S.	31	390340056	2	O-Ring
12	390340021	1	Cam, Valve	32	390340055	1	Washer, Flat
13	390340081	1	Pin, Cam	33	390340054	1	Retaining Ring
14	390342310	1	Valve, Check 751-752	34	390340052	1	Handle, Valve Control
15	390340058	1	Flange, Discharge	35	361230194	1	Optional Straight Outlet (replaces Items 15 & 17)
16	390340060	1	Valve, Base	Not Shown	390340059	1	Assy, Pump (Items 10, 12, 13, 24 thru 34)
17	390340057	1	Elbow, Discharge	Not Shown	390340115	1	Kit, repair (Items 6, 12, 13, 14, 16, 20, 26, 28, 31)
18	390340051	1	Washer, Pump Shaft				
19	390340049	1	Piston, Pump				
20	390340050	1	O-Ring, Piston				

# ORIGO 6000

## INSTRUCTIONS

ORIGO 6000 is a non-pressurized alcohol stove with the fuel absorbed in a non-flammable pulp. ORIGO 6000 has no valves to develop leaks or other components in need of regular service. This makes ORIGO 6000 safe and easy to maintain.

As always — when working with a naked flame — certain precautions are required. So, read the following simple instructions carefully before using your new ORIGO 6000 stove. If an accident should ever occur, remember that burning alcohol can be extinguished with water.

### LOCATION OF YOUR NEW ORIGO 6000

Your stove should be located in a well-ventilated space. Avoid excessive draft. Mount the stove as far away from combustible materials as possible. Preferably mount the stove in a metal-lined space.

### DESCRIPTION (Photo 1)

- 1 Stove top burner opening
- 2 Stove top regulator knob
- 3 Catch button
- 4 Locking screw, oven burner lid
- 5 Oven burner regulator knob
- 6 Oven thermometer

### TO FILL TOP BURNERS, OPEN THE STOVE TOP

For safety reasons the stove top can only be opened when the burner openings are completely covered by the regulating plates (flames extinguished), so turn the knobs to 0 position. Press the catch button and lift the top (Photo 2).

Lift out tank unit. Tank must not be filled near an open flame or a hot object.

It is essential that not only has the flame been completely extinguished, but that there is no heat glow on burner top. During use, the tanks are heated and the fuel requires space to expand. It is therefore important to avoid overfilling the tanks. The tank openings are recessed to facilitate filling.

Hold the tank as shown in photo 3, with the recess pointing down and pour the fuel directly into the opening covered by the wire mesh.

Check quantity by raising to vertical. When fuel is visible in recess, do not fill more (photo 4).

After filling, make certain no excess fuel remains in stove. Always wipe tanks dry. Place tanks in stove. Check that they fit properly in mountings. Close the stove up: Knobs in 0 position! Fold down the stove top, the catch will lock. (Make certain that the regulating plates cover the burner openings so that stove top is level).

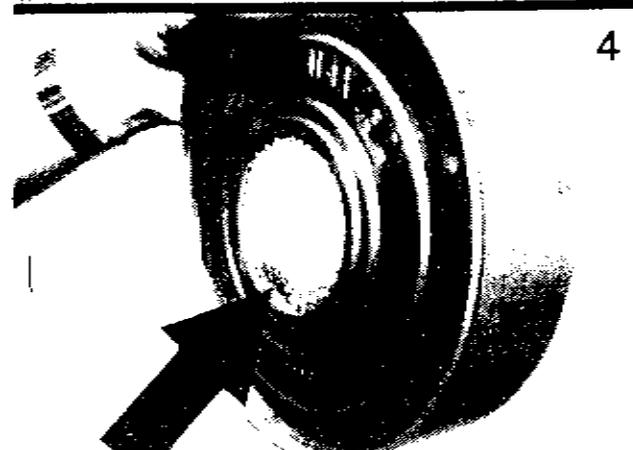
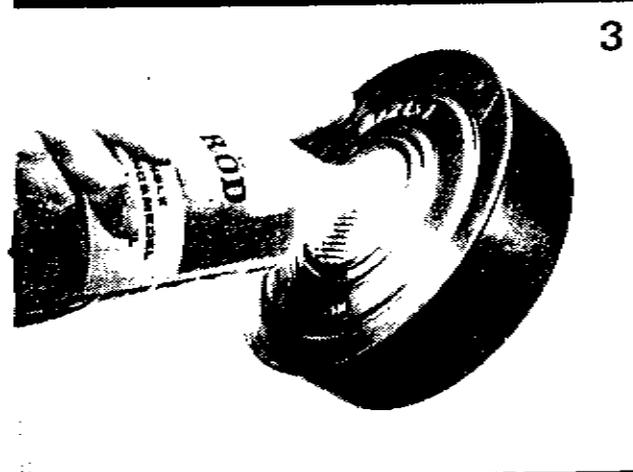
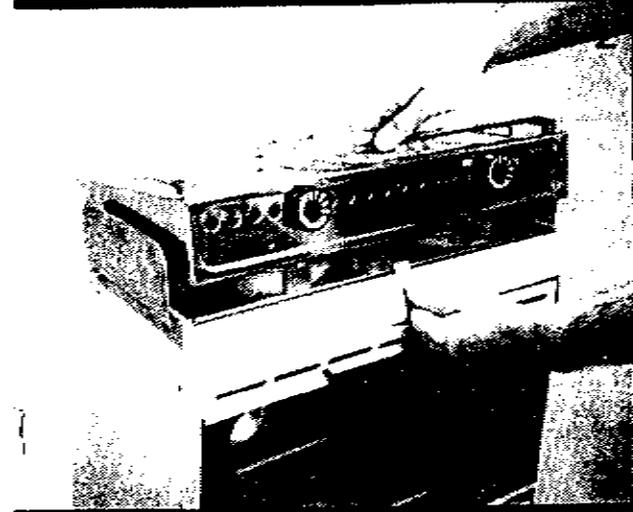
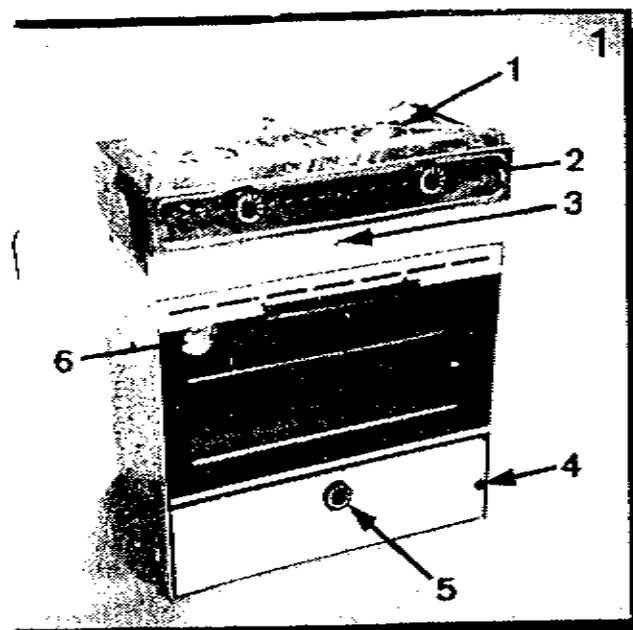
### TO LIGHT (Photo 5)

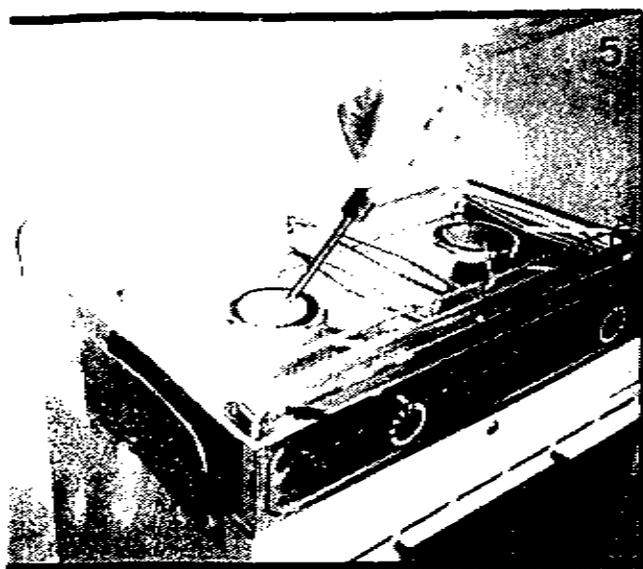
Turn regulator knob counter-clockwise to open burner. Place a lighted match or lighter (optional extra) at burner opening. (Match can be dropped in and removed at next filling).

If the stove is warm (from previous use), burner may ignite suddenly and simultaneously snuff itself out. If this happens, blow down into burner opening to dissipate alcohol vapor, and re-light. Winterize your stove by burning remaining fuel.

### TO EXTINGUISH

Turn regulator knob fully clockwise.





At the back of the stove top is an oblong hole, into which the grid retaining hook fits. To remove grid, slide hook out of retaining hole, and grid can be lifted off.

#### OVEN

The tank and burner for the oven is located in the bottom of the stove. Access to fill and light is through the lower lid. Unscrew the locking screw and open lid. Pull out the tank, while pressing the click spring (photo 7) and fill according to instructions above. When reinserting the tank into its compartment, check that it is in the right position and that the click spring has engaged. The burner can now be lighted as described above and lid closed. Access to light the oven can also be gained by lifting the bottom lid inside the oven.

Extinguish by turning regulator knob fully clockwise.

Heat oven to desired temperature with burner fully open and reduce flame when the temperature is reached.

#### INSTALLING

ORIGO 6000 is delivered with gimbals. It is recommended that these are used, but it is also possible to screw it to a horizontal surface, should this be preferred. It is possible to open the oven burner lid widely by carefully depressing the lid below the stopper to gain access to the attachment means in the bottom corners. When fitting the stove with gimbals, first determine the best position for the pivot points. This can be done by placing the stove in the desired position, open the stove top and mark through the holes in the gimbal sideplates. Remove the stove, fasten the pivot arms with fiber washers and screws removed. Fit one washer with round hole on each pivot and lift the stove from below up between the pivots so that the gimbal sideplates will spring into place on the pivots. With open stove top fit the fiber washers with oblong holes and fasten the screw. Adjust the tension of the screws to desired friction.

Whether the fixed or gimballed installation is used it is very important that there is ample distance to the surrounding fittings. To secure the distance along the sides the gimbal side plates shall not be removed.

At the back of the stove is an outlet for hot air so a clearance of 4 inches to the fittings behind is required.

If gimballed, allow for ample room to swing.

#### GASKETS

The stove top is supplied with rubber gaskets. These are to be used if you are not using your stove for some time. Can also be used to prevent evaporation in hot climate.

Use this way: fold up the stovetop, check that the stove has become cold. Put the gaskets over the tank openings. Fold down the stovetop to horizontal position and open the burners to lock the top in closed position.

#### OPTIONAL EXTRAS

Potholders  
Lighter

#### WARNING

To be used only with denatured alcohol.

Must never be used with gasoline, kerosene, diesel or any other type of fuels.

#### TECHNICAL DATA

Height:	approx	21 1/8" ( 537 mm )	excl. cooking grid
Depth:	approx	13 3/16" ( 335 mm )	
Length:	approx	18 1/4" ( 464 mm )	
	approx	20 1/16" ( 510 mm )	incl. gimbal
Fuel tanks:	approx	2.5 pints each tanks ( 1,2 L )	
Fuel:		denatured alcohol, methylated spirit	
Efficiency:		will boil 2 pints of water in approx 7 minutes	

ORIGO USA INC.  
1121 LEWIS AVE.  
SARASOTA  
FLORIDA 33577  
USA

# 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:

NAME \_\_\_\_\_ NUMBER \_\_\_\_\_  
AGE \_\_\_\_\_ PHONE # \_\_\_\_\_

ADDRESS \_\_\_\_\_

NAME \_\_\_\_\_ AGE \_\_\_\_\_ PHONE # \_\_\_\_\_

ADDRESS \_\_\_\_\_

NAME \_\_\_\_\_ AGE \_\_\_\_\_ PHONE # \_\_\_\_\_

ADDRESS \_\_\_\_\_

4. Engine:

HP \_\_\_\_\_ 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 on:

\_\_\_\_\_

at: \_\_\_\_\_

# FOR SAFE BOATING

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## 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 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 on page I-5.)

Perform pre-departure check list. (See check list on page I-4.)

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.

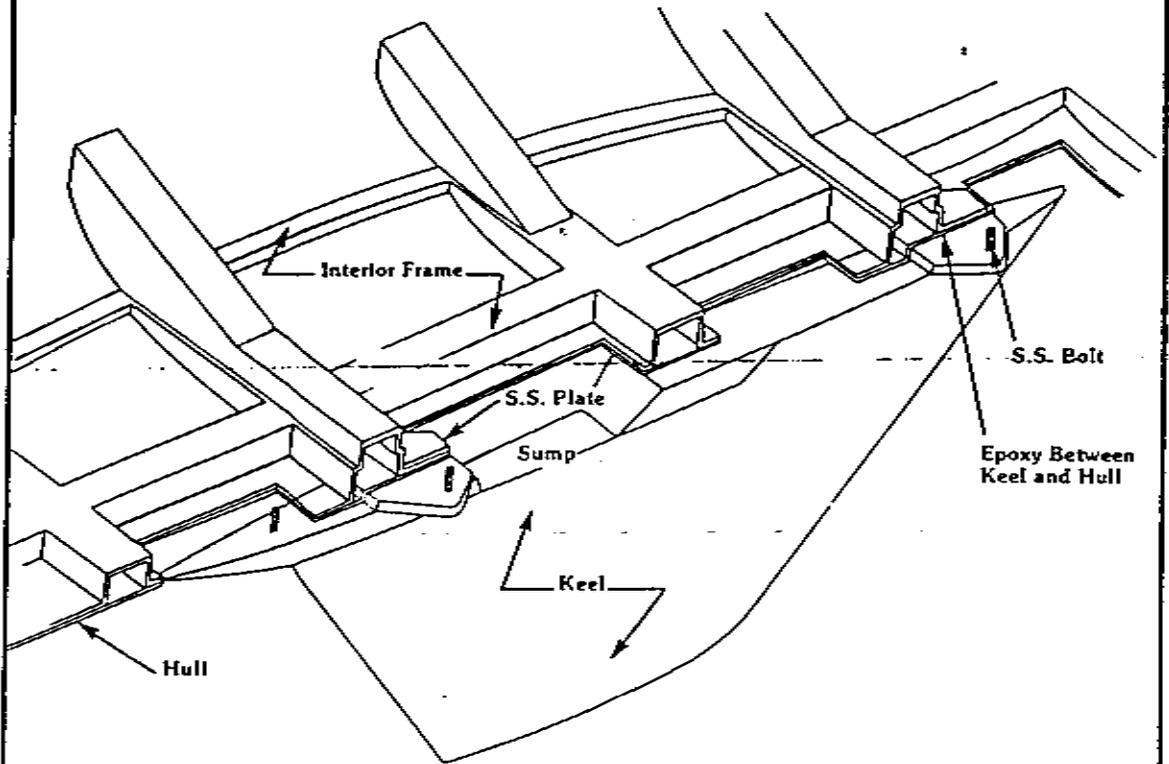
Keep a good lookout. This is especially true of sailboats. Keep a watch to leeward under the headsail. Keep away from swimmers, divers and skiers.

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. Get and carry a radio with a NOAA "weather band" on FM 162.40-162.55MHZ.

# Hunter

TYPICAL KEEL INSTALLATION



# Engineered Like A Custom.

Like all Hunter boats, the Hunter 28.5 begins with a hull that is laid up by hand with pre-cut fiberglass to insure consistency. After the hull is cured and thoroughly inspected, we then bond a full length internal frame and stringer system of unidirectional fiberglass directly to the hull to increase its stiffness without adding undue weight. The chainplate is secured to this system and is then brought thru the deck in one clean penetration, creating more interior space and minimizing deck clutter. The load is then distributed to the hull thru the internal frame and stringer system.

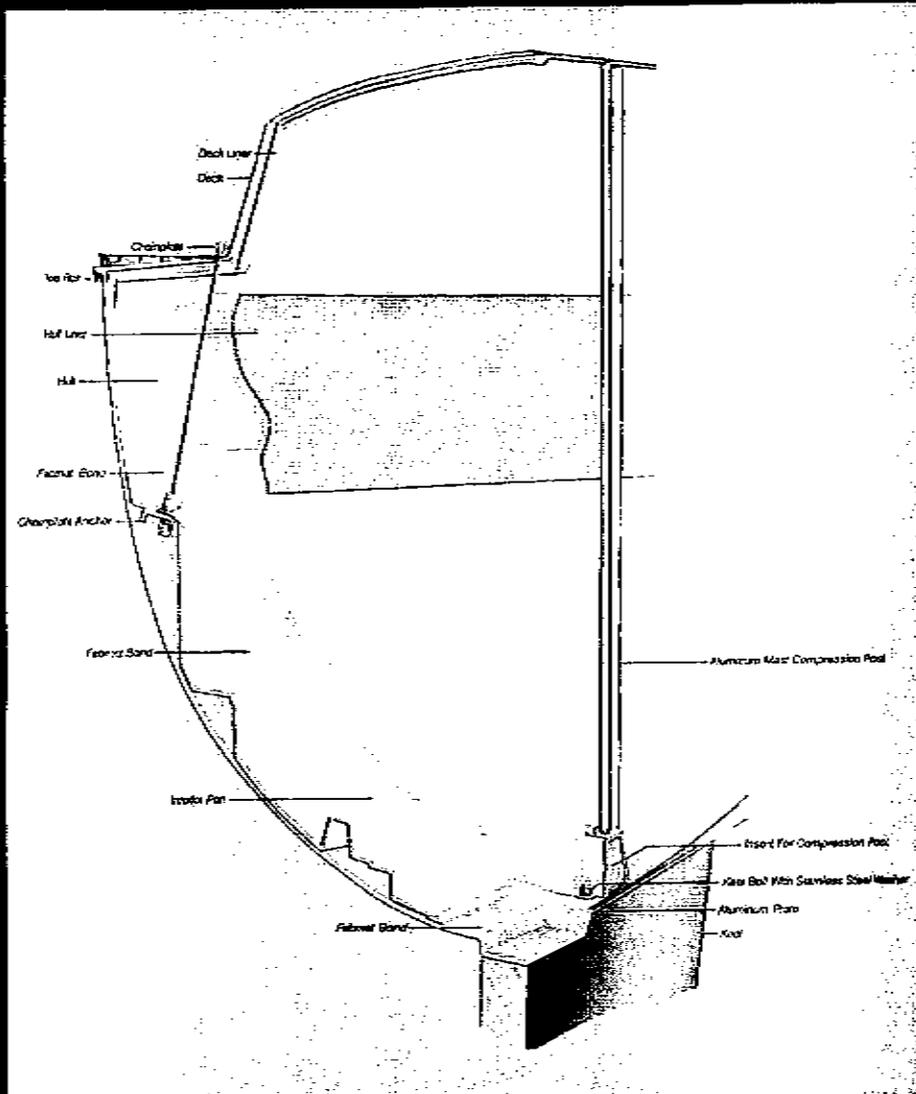
This new structural system allows the Hunter Design Group to obtain the maximum utilization of the interior space below decks.

The exterior hull-to-deck joint is engineered to minimize leaks and act as a spray rail. A custom pre-bent toe rail extrusion is thru bolted providing additional strength and protection. The stanchions are mounted outboard which allows for easier and safer movements about the side decks.

The new Hunter 28.5 has the patented B&R rigging system (Patent No. 3862613)—with no babystay or running backstays—so you get better control and faster tacking. The swept back spreaders allow tighter sheeting angles of the headsails, and a smaller spar section reduces windage and interference with the leading edge of the mainsail.

Mounted securely between the keel and the bottom of the mast is an aluminum compression post which adds additional strength overall between hull and deck.

Finally, the laminar flow section of the keel has been cast for



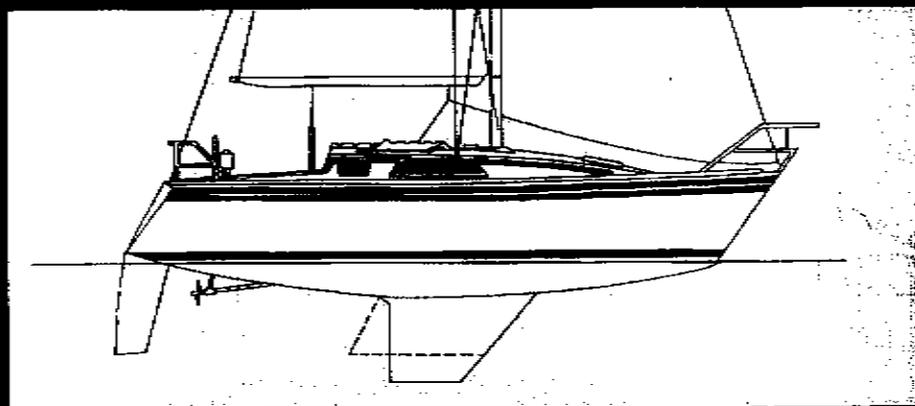
a more accurate, more efficient shape. And an aircraft type fairing provides a sleeker interface between the hull and the keel.

Warren Luhrs and the Hunter Design Group are continually seeking ways to improve and update each and every boat that comes off the line.

New techniques and materials

are continually sought and studied to keep Hunter Marine at the forefront in the market place.

Compare for yourself and see our commitment not only to better engineering but to you as well. We pride ourselves not only on our product, but also our dealer network, to keep our customers happy and glad they bought a Hunter.



## **R SAFE BOATING** *(Continued)*

---

### **IF A PROBLEM OCCURS**

Call the Coast Guard on 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.

### **IF YOU ARE LOST**

Make copies of the example on page I-5 and use one before each trip. Fill it out and leave it with a reliable person who will notify the Coast Guard or a rescue organization if you fail to return on time. Do not forget to cancel your float plan upon your return.

# CLOSING UP YOUR BOAT AFTER SAILING

---

When leaving your Hunter or Legend 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.

# MAINTENANCE

---

## 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. Re-check coupling with feeler, re-adjust if necessary.
7. Check stuffing box (allow to drip slightly).

# YANMAR MARINE DIESEL

## QUICK REFERENCE LIST

ENGINE MODEL	OIL FILTER	FUEL FILTER	AIR ELEMENT	COOLING WATER BELT	GENERATOR BELT	ANTICORROSIVE ZINC	IMPELLER
1GM 2GM/3GM(D) 2GMF/3GMF	124450-35100 . .	104500-55710 . .	128170-12540 128270-12540 .	NA 104511-78780 .	128170-77350 25132-003000 121150-42290	27210-200200 27210-200300 .	128170-42070 104211-42070 124223-42091
1GM10 2GM20/3GM30 2GM20F/3GM30F	124450-35100 . .	. . .	128171-12540 128270-12540 .	NA 104511-78780 .	128170-77350 128670-77350 124732-42290	27210-200200 27210-200300 NA	128170-42070 104211-42070 124223-42091
3HM 3HMF 3HMA35 3HMA35F	124450-35110 . . .	. . . .	124770-12540 . . .	. . . .	128695-44780 . 123672-77370 121252-42290	. NA 27210-200300 NA	. . . .
2QM15 2QM 2QM20/3QM30 3QM	124450-35100 124550-35110 . .	. 124220-35210 104500-55710 124220-35210	. . . .	104514-77350 NA NA NA	105582-77790 124240-42291 25117-003151 124240-42291	27210-200300 X 27210-200300 X	104211-42070 124223-42091 . 145410-46090
4JHE(-TE,-HTE) 4JHDTE,4JH2E (-TE, HTE,DTE) 4LH-TE/HTE 4LHDTE	129150-35150 . 119100-35100 127695-35150	129470-55701* 129470-55700 121857-55710 41650-502320	129470-12310 . 119171-12300 .	25132-004600 . 121850-42280 .	25132-004600 . 121850-42280 .	NA NA NA NA	129470-42530 . 127610-42200 .
SB8 SB12 SVE8 SVE12	104271-35130+ . . .	104500-55710 . 104800-55710 .	NA NA NA NA	NA NA NA NA	105282-77790 105582-77790 105282-77790 105582-77790	104211-41300 NA NA NA	104211-42070 . 104214-46830 NA
YSB8 YSB12 YSE8 YSE12	. . . .	104500-55710 . 104300-55790 104500-55790	NA NA NA NA	104214-42780 104514-42780 104214-42780 104514-42780	104211-42780 104514-77350 104211-42780 104514-77350	27210-200300 . 104211-41300 .	104211-42070 . . .

- X 27210-200300 USED ON FRESHWATER VERSION ONLY
- t 1 GM 10 ABOVE S/N 03690 USE 105582-77790
- \* 4JHE BELOW S/N 01179 AND 4JHTE BELOW S/N 11201 USE 129470-55600
- NA NOT USED ON THIS MODEL
- + METAL ELEMENT. RARELY REPLACED

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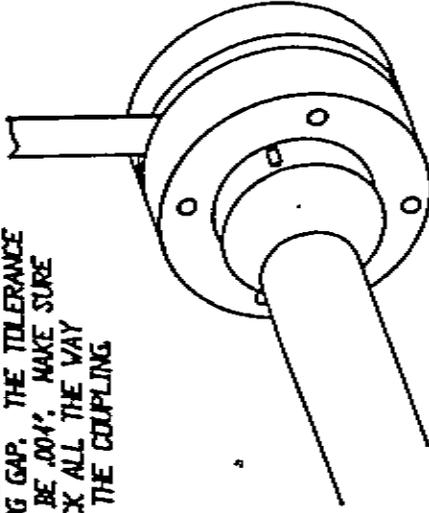
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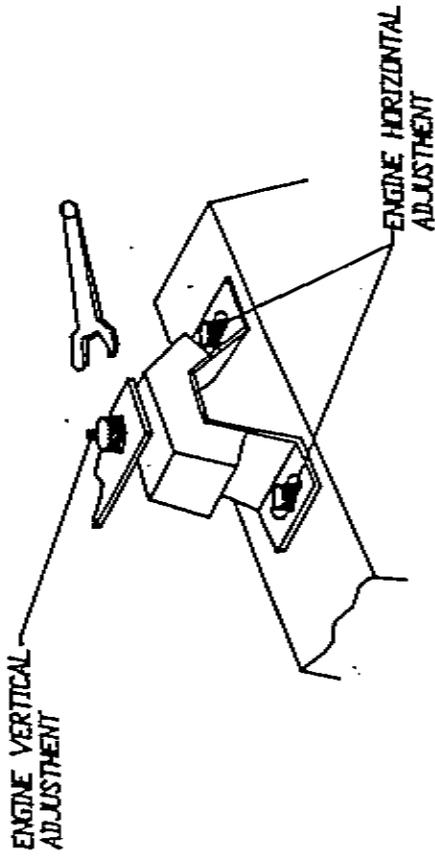
STEP 2

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.

STEP 1



# HUNTER

ALIGNMENT DIAGRAM

GEN2619A

P R E F O R M E D			
Stainless Steel			
T Y P E 302			
Diameter (Inches)	Breaking Strength Pounds	Weight Pounds M Feet	
<b>1 x 19</b>			
-	-	-	-
1/16"	500	8.5	-
3/32"	1200	20.0	-
1/8"	2100	35.0	-
5/32"	3300	55.0	-
3/16"	4700	77.0	-
7/32"	6300	102.0	-
1/4"	8200	135.0	-
9/32"	10300	170.0	-
5/16"	12500	210.0	-
3/8"	17500	300.0	-
7/16"	22500	410.0	-
1/2"	30000	521.0	-
9/16"	36200	670.0	-
5/8"	47000	855.0	-

P R E F O R M E D			
Stainless Steel			
T Y P E 316			
Diameter (Inches)	Breaking Strength Pounds	Weight Pounds M Feet	
<b>1 x 19</b>			
-	-	-	-
1/16"	-	-	-
3/32"	1150	20.0	-
1/8"	1780	35.0	-
5/32"	2800	55.0	-
3/16"	4000	77.0	-
7/32"	5350	102.0	-
1/4"	6900	135.0	-
9/32"	9400	170.0	-
5/16"	10600	210.0	-
3/8"	14800	300.0	-
7/16"	20000	410.0	-
1/2"	27000	521.0	-
9/16"	32400	670.0	-
5/8"	42000	855.0	-

P R E F O R M E D			
Stainless Steel			
T Y P E 302			
Diameter (Inches)	Breaking Strength Pounds	Weight Pounds M Feet	
<b>7 x 7</b>			
3/64"	270	4.2	-
1/16"	480	7.5	-
3/32"	920	16.0	-
1/8"	1700	28.5	-
5/32"	2400	43.0	-
3/16"	3700	62.0	-
7/32"	5000	83.0	-
1/4"	6400	106.0	-
9/32"	7800	134.0	-
5/16"	9000	167.0	-
3/8"	12000	236.0	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

P R E F O R M E D			
Stainless Steel			
T Y P E 316			
Diameter (Inches)	Breaking Strength Pounds	Weight Pounds M Feet	
<b>7 x 7</b>			
3/64"	240	4.2	-
1/16"	360	7.5	-
3/32"	700	16.0	-
1/8"	1360	28.5	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

P R E F O R M E D			
Stainless Steel			
T Y P E 302			
Diameter (Inches)	Breaking Strength Pounds	Weight Pounds M Feet	
<b>7 x 19</b>			
-	-	-	-
1/16"	480	7.5	-
3/32"	920	16.0	-
1/8"	1760	29.0	-
5/32"	2400	45.0	-
3/16"	3700	65.0	-
7/32"	5000	86.0	-
1/4"	6400	110.0	-
9/32"	7800	139.0	-
5/16"	9000	173.0	-
3/8"	12000	243.0	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

P R E F O R M E D			
Stainless Steel			
T Y P E 316			
Diameter (Inches)	Breaking Strength Pounds	Weight Pounds M Feet	
<b>7 x 19</b>			
-	-	-	-
-	-	-	-
-	-	-	-
1/8"	1300	29.0	-
5/32"	2000	45.0	-
3/16"	2900	65.0	-
-	-	-	-
1/4"	4900	110.0	-
-	-	-	-
5/16"	7600	173.0	-
3/8"	11000	243.0	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

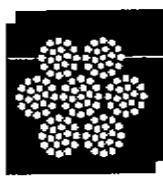


**W**e proudly produce *Hackensack* preformed stainless steel strand and cable for quality rigging. Our expert technical staff tightly monitors and controls each stage of the manufacturing process. That means you're getting the best rigging wire available for ensured product durability and longer life. Offering you clean, uniform, fatigue and corrosion resistant *Hackensack* quality rigging products.

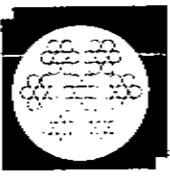
P R E F O R M E D			
Stainless Steel			
WHITE VINYL COATED 302			
Bare Cable Diameter	Vinyl Outer Diameter	Breaking Strength Pounds	Weight Pounds M Feet
<b>7 x 7</b>			
1/16"	1/8"	480	13.5
1/8"	7/32"	1700	41.0
1/8"	1/4"	1700	45.0
3/16"	1/4"	3700	80.0
3/16"	5/16"	3700	92.0
1/4"	3/8"	6100	145.0

**7 x 19**

The most flexible of marine cables. High strength and resistance to crushing loads. Used for guys, haywards, running backstays, topping lifts and wire sheets.



**WHITE VINYL COATED**  
Commonly used for handrails and life lines. Outside diameter of coating same as shank diameter of swaged fittings.



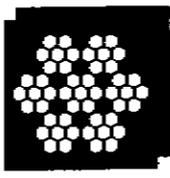
**1 x 19**

Designed primarily for standing rigging on medium and large size boats. (left hand lay only)



**7 x 7**

The standard flexible cable. Used primarily on small boats for standing rigging where flexibility is required.



## PROTECT YOUR RIGGING

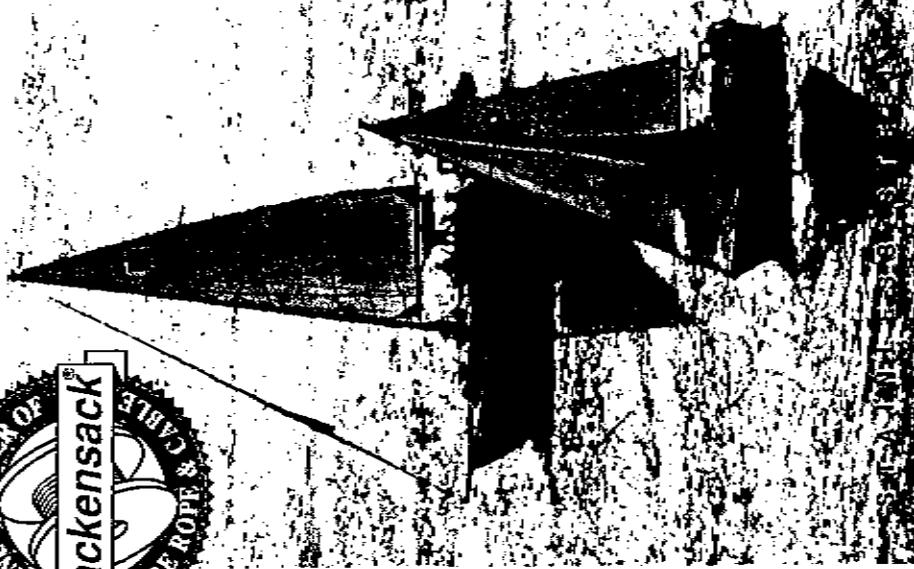
No matter how good your rigging is, without careful inspection and proper maintenance it is subject to fatigue, wear, discoloration, and, therefore, product failure. Remember to inspect and clean will increase the life of your investment and secure your rigging. We would like to suggest the following:

- | Always rinse your rigging with fresh water after sailing. Especially after saltwater sailing. Salt can create corrosion pits, causing cracks and deterioration. In these severe corrosion conditions we recommend using high corrosion resistant alloy type 316.
- | Clean with a water soluble detergent without chlorine. Non-abrasive cleansers are best for hard white vinyl coated cables.
- | Store wrapped rigging with twine. *Never* use tape. Tape causes moisture, attracts dirt, and leaves residue that creates corrosion.
- | Inspect rigging for stains. Rust stains may indicate stress cracks or corrosion. Remove stains with synthetic or brass pads. *Never* use steel wool pads.
- | Look for broken wires - a sign of fatigue in rigging. Replace standing rigging if wires are broken.
- | *Never* mix stainless steel and galvanized metals on cable, fittings, pins, cotter keys, etc. If mixing dissimilar metals, electric currents may conduct between metal causing rapid deterioration.
- | After un-stepping, make sure to release all standing rigging to avoid bending, crushing, and kinking.
- | Store rigging in a dry place. *Never* store in plastic bag. Plastic, like tape, causes corrosion.

PROTECT YOUR RIGGING

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## II. General Handling & Operation

### A. 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  $\frac{3}{4}$  throttle at least once a month to clean out carbon build-up 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 the engine.

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

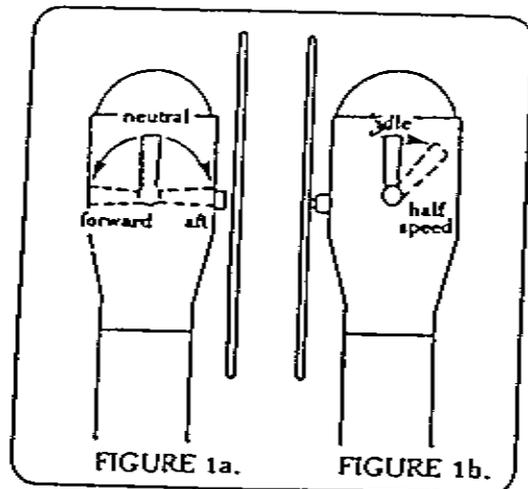


FIGURE 1a.

FIGURE 1b.

#### MOTORING:

When engine is warm, you may move the "shift" lever either forward to

go ahead or aft to move in reverse.

**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.

## B. Electrical System

Your Hunter is fitted with an electrical system designed for both AC (AC not available on the 26.5 and smaller) 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 battery(ies) 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 battery(ies) and attach them to a trickle charger to keep them fully charged and ready to use.

## C. 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.

## D. Stove

Follow the operating instructions supplied with the unit installed with your boat.

## E. Toilet

**IMPORTANT:** When not in use, lever must be left in the "dry" position to prevent flooding.

Before using, place the lever in the "wet" position and pump slowly to partly fill and wet the inside of the bowl. Return to "dry" position.

After using, return the lever to the "wet" position for flushing and pump until the bowl is thoroughly cleaned. Continue with several more full strokes to flush discharge lines. Return lever to the "dry" position and pump slowly until bowl is empty.

## F. Pumps

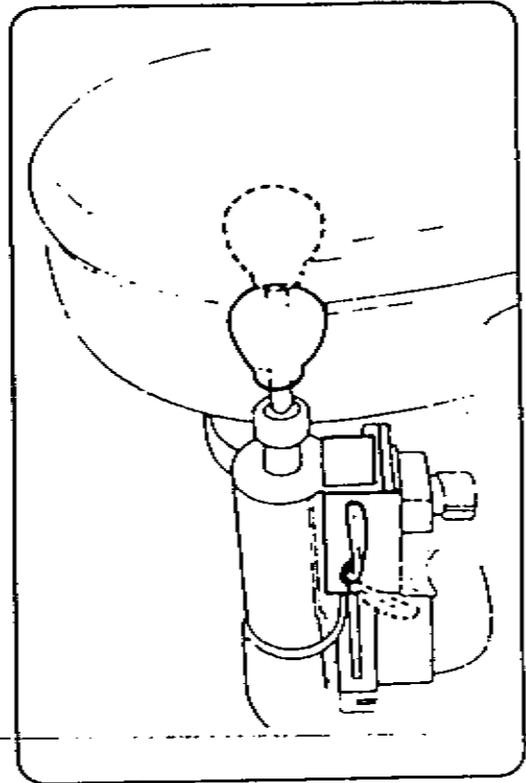
All pumps should be checked frequently to insure proper operation. *This is an especially important regular maintenance item since functioning of a pump could save your vessel from serious damage at some future time.*

Inspect all hoses for chafing and dry rot. See that hose clamps are tight.

Check that pump impeller area is clean and free of obstructions.

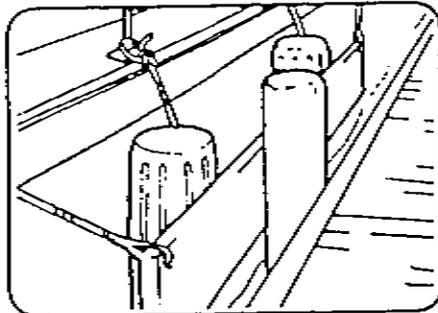
Inspect electrical wiring for corrosion.

Make sure float switch moves freely and is making an electrical connection.



## G. Docking

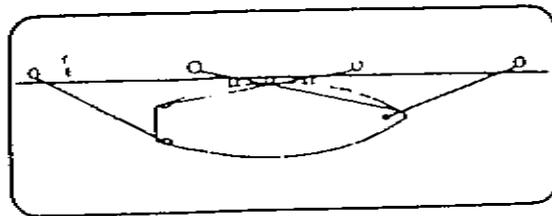
Docking your boat should be handled carefully to avoid potential damage. Under normal wind and water conditions, the following considerations should be made:



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 *Chapman's* or other approved boating guide.

## H. Anchoring

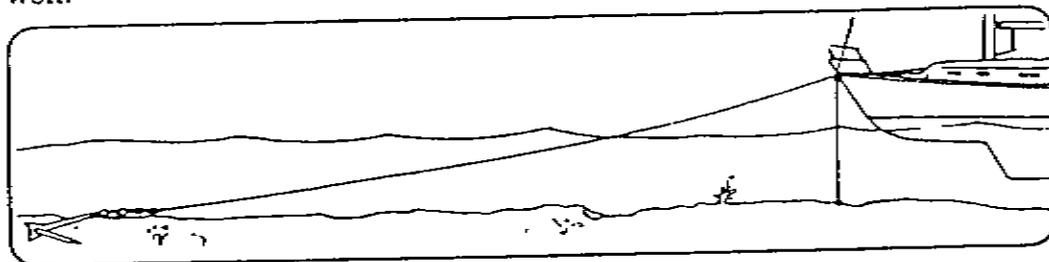
Your Hunter comes with an on-deck anchor well and a burying-type anchor as standard equipment. The anchor is selected to suit the size and weight of your boat under normal anchoring conditions, and provides its best holding characteristic in muddy or sandy bottoms.

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.



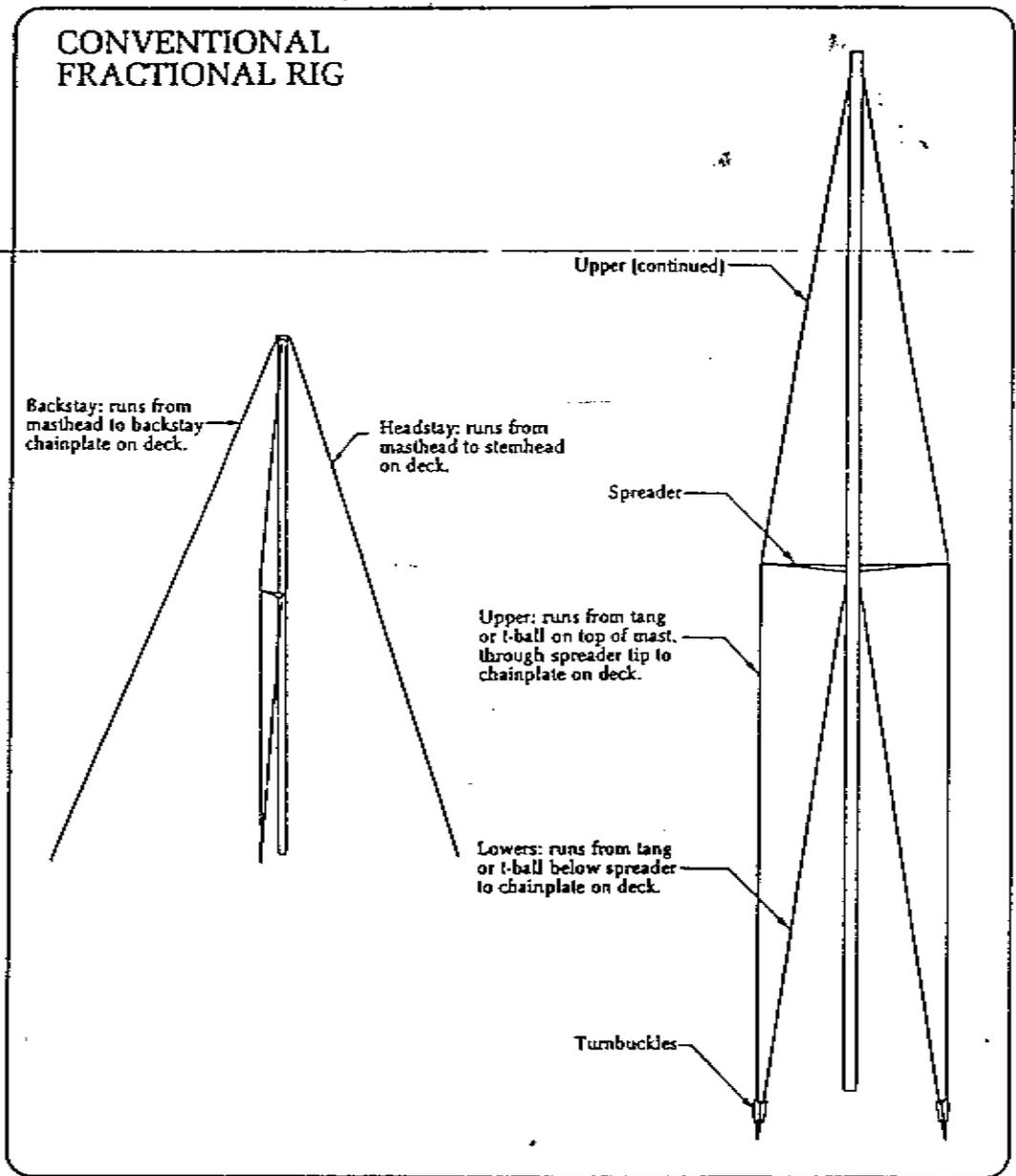
### III. Sails & Rigging

#### A. Tuning the Conventional Fractional Rig (Hunter 23,-30-Hunter 26.5, Hunter 333, Legend 35, Legend 37)

##### TUNING THE RIGGING:

After raising your mast, attach the headstay, backstay, upper shrouds and lower shrouds. Set the headstay turnbuckle at half open and then tighten backstay turnbuckle to medium tension.

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 shroud until the measurements port and starboard are exactly the same. Now the spar is plumb athwartships, tension both uppers equally, counting turnbuckle revolutions as you go. Tighten uppers until you have approximately one inch of "prebend" fore and aft in the mast. This is achieved because the swept spreaders will push the middle part of the mast forward as you increase tension of the uppers.

Now tighten the lower shrouds evenly, making sure the mast remains straight athwartship. Sight up the luff groove to assure this straightness. Lower shrouds should end up almost as tight as the uppers. (The uppers should always be the tightest.) Both the Legend 35 and Legend 37 are equipped with double spreaders. The three shrouds should be made progressively tighter toward the top of the rig; the uppers should be the tightest of all. Tighten backstay to a taut position; perhaps eight to ten turns past your original tension.

Check the mast tuning by sailing in medium winds (10-12 knots). Sometimes fine tuning the upper 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. Both upper and lower shrouds should be taut on the leeward side.

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

## B. Tuning the B&R Rig (Hunter 28.5, Legend 40, Legend 45)

### NOMENCLATURE DESIGNATION:

upper-upper .....	D3*
lower-upper .....	V2
lower-intermediate .....	V1
lower .....	D1
upper-intermediate .....	D2*
lower-diamond .....	d1
upper-diamond .....	d2

\*D2 and D3 are cut to a fixed length (no turnbuckles).

Initial tuning is best accomplished before the mast is stepped.

Support the mast, forward side down, about one-quarter of its length from the end and at its center. Once the mast is supported, make certain that it has no bow in any direction. Attach a small string from the masthead, in line with the sail track groove, to the base of the mast, stretching it as tight as possible. Check to make sure it is a constant distance from the mast along the entire length.

You are now ready to "tune in" the desired mast bend, which is one percent of the mast height above the boom ( $.01 \times$  mast height above boom). On a 50' mast, this would be .5 feet at the mid-point of the mast.

Using the rigging diagram, locate d1 and d2. Before tuning, make sure the turnbuckles are adjusted back with equal thread showing. Carefully counting turns, adjust d1 port, d1 starboard, d2 port and d2 starboard evenly until the desired bend is induced. This is checked by measuring from the string down to the mast at the center of the mast.

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It is important to make sure the mast is straight athwartships at this time.

You are now ready to step the mast.

Step the mast with all shrouds loosely attached.

Adjust the forestay and backstay to obtain the desired mast rake. The mast should be vertical or raked aft. The more rake, the greater the weather helm. The forestay and backstay should have a reasonable amount of tension on them.

Adjust V2 (port and starboard) evenly until they are tight. You should finish with approximately equal amounts of thread showing on each turnbuckle.

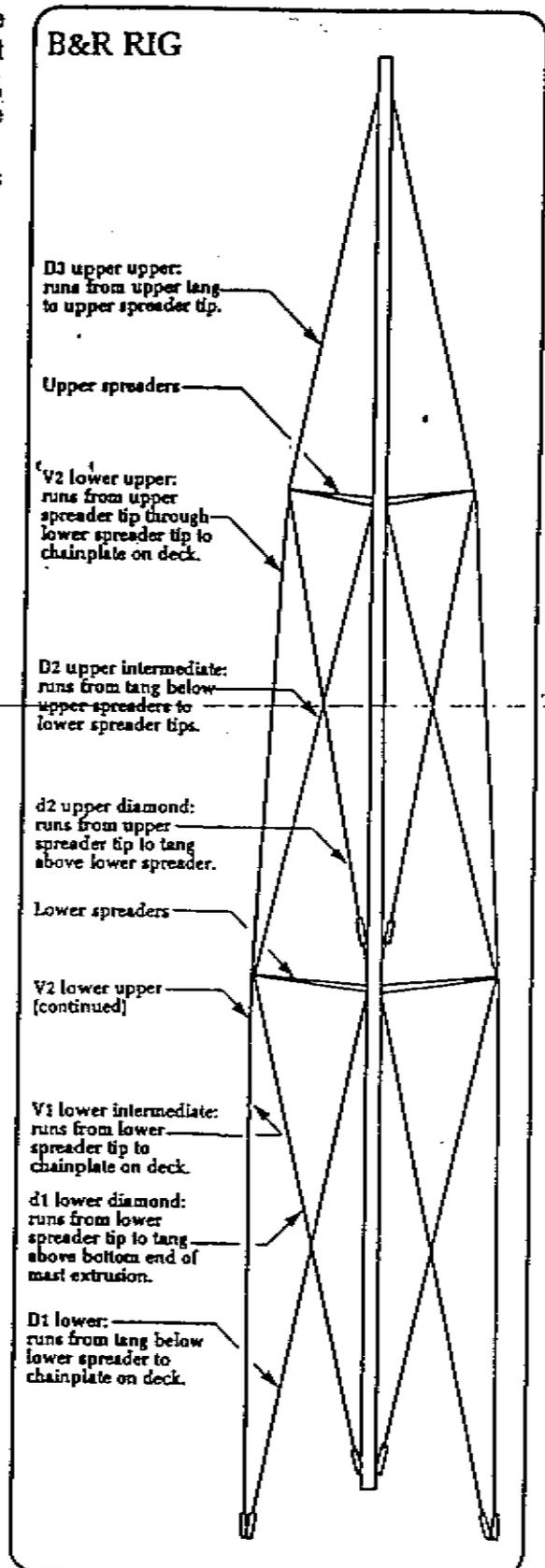
Using the jib halyard, check the mast for athwartship plumb. Pull the halyard out to the side of the boat and below the shear. Repeat the procedure on the opposite side. If you find a big difference (more than 1/2 inch), adjust turnbuckles an equal amount in opposite directions until the mast is straight.

Adjust V1 (port and starboard) using the above procedure.

Repeat the procedure for D1 (port and starboard).

Your mast should now have the original "pre-bend" and be straight athwartship.

Check the mast tuning by sailing in medium winds (10 to 12 knots). Sail on both tacks, sighting up the luff groove to check athwartship straightness. Shrouds should not be loose on the leeward side. (This is especially important with the B&R rig.) Follow the progressive shroud tightness routine described in the tuning instructions for the conventional rig. When mast tuning is complete, install cotter pins in all turnbuckles and tape over sharp edges of the cotter pins with chafe tape.



## C. Roller Furling

### OPERATING THE ROLLER FURLING:

1. To furl the sail, release the jib sheet and pull in on furling line from cockpit. Hand power is all that's needed; only special situations necessitate using a winch.
2. To roll the jib tightly around the headstay, it is advisable to keep some tension on the jib sheet. This can be done by holding the jib sheet and allowing it to slide through your fingers or by leaving two turns around a winch while furling. After jib has been completely furled, furling line should be cleated and jib sheet tensioned.
3. To unfurl, uncleat furling line, leaving one turn around the cleat for friction. This prevents snags on the drum. The jib sheet on leeward side of boat is then pulled to unfurl sail. It may be unrolled part-way or all the way, depending on wind conditions.

### REEFING THE ROLLER FURLING SAIL:

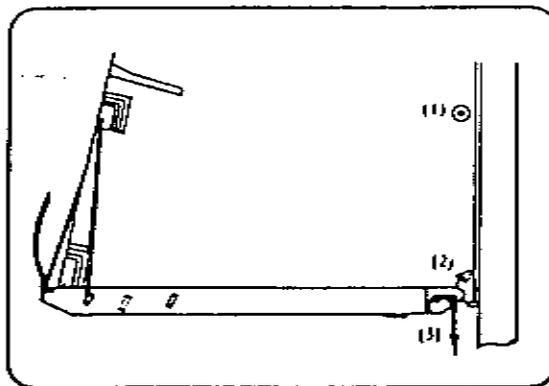
1. The sail should be tightly rolled to maintain optimum sail shape. Leave two turns around the sheet winch with the tail of the jib sheet held loosely in your hand. Then pull the furling line in against tension of jib sheet to achieve the tightest roll (and, therefore, the best sail shape).
2. You may reef the sail to any point. Most any sail may be reefed except a large genoa which is specifically cut very full and has a lightweight cloth that cannot withstand the strain of reefing. (Consult a sailmaker if in doubt.)

## D. Reefing the Mainsail

Your Hunter or Legend is equipped with an easy-to-use jiffy reefing system.

To reef the main:

1. Ease the mainsheet (boom vang if installed), making sure topping lift is secured in position.
2. Lower the main halyard so that tack reef cringle can be placed on gooseneck reef hook. Re-tension main halyard when hooked in place.
3. Clew reef line must now be tensioned so that clew reef cringle is brought down snugly against boom.
4. Readjust mainsheet and boom vang.
5. The reefed folds of cloth can be rolled up and secured with short lines through the reef points and around the folds and boom. **IMPORTANT:** Be sure to untie these first when shaking out the reef.
6. To unreef, reverse the procedure.



## E. Sail Care and Storage

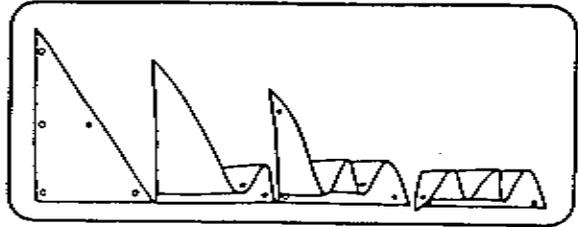
Your Hunter or Legend comes with Dacron mainsail and 110% genoa jib. To extend the life of your sails and maintain their best performance:

1. Never use them in wind ranges that exceed their capabilities.
2. Never let them luff for extended periods of time.
3. Rinse your sails in freshwater whenever possible if you sail in saltwater. Tub wash them every few seasons to keep them bright and attractive. **CAUTION:** Do not machine wash. Use a mild detergent in warm water, and *remove all detergents completely with a thorough rinsing.*

For oil and grease stains, use commercial cleaning solvents. Should a yellow stain develop, bleach with oxalic acid and rinse thoroughly. Rust stains should be soaked in a warm solution of two parts hydrochloric acid per 100 parts water, rinsing thoroughly.

After rinsing your sails, spread them and allow to dry thoroughly before bagging. This is a good time to inspect them for minor damage.

When dry, fold according to diagram. First spread sail on flat surface, then fold in a smooth, accor-



dian pleat from the foot to the head. Next, roll the folded sail from the tack to the clew and slide carefully into bag.

At the end of each season, it is good practice to have your local sailmaker inspect your sails for signs of wear and tear.

## F. Care of Standing Rigging

The stays and shrouds on your Hunter or Legend are highly durable stainless steel to insure years of reliable service. To protect your standing rigging, keep it clean and, whenever possible, rinse thoroughly with freshwater. Check occasionally for "fish hooks," strands of wire that have broken and curled outward. These can snag sails and inflict painful cuts in bare hands. Broken strands indicate the wire is deteriorating and should be replaced.

Also inspect turnbuckles regularly and replace any missing cotter pins. Occasional lubricating improves both the life and the function of the turnbuckles.

## G. Care of Running Rigging

To protect your running rigging (sheets, halyards) from damage, wash with cold water (and a mild detergent, if necessary), especially after exposure to saltwater. Rinse thoroughly and coil. Hang the tail ends of halyards off the deck to promote drying. Sheets should also be hung to dry.

Inspect all lines periodically for fraying and other damage. Lines showing substantial wear should be replaced.

## H. Stepping the Mast On the Hunter 23

Hunter Marine recommends that you walk through the following seven steps and assign each person their respective task and positions during the stepping of the mast. Sailing is a fun and safe sport when the crew operates as a team. Good luck and smooth sailing.

## IV. Maintenance

### A. 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. (Refer to this manual's alignment drawing.)

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#### 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 shaft log tube by a rubber tube secured by hose clamps. The clamps should be tight and no water should leak from this location. A slight drip from the stuffing box at the shaft exit is necessary (four drops a minute) and 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 and then adjust as above.

### B. Steering

The manufacturer's instructions for maintaining pedestal steering system should be followed closely. Wires should be periodically inspected for proper tension. Lightly oil all wire.

### C. Electrical Systems

The electrical system is a 12-volt, negative ground installation. The owner should periodically inspect battery(ies) and cables for signs of corrosion, cracks, and electrolyte leakage.

### D. 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 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 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.

**General Thru-hull List** (*varies from boat to boat—see diagrams in section VI*)

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

## E. 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 seek out only well maintained fueling facilities and make sure fuel fill caps are tightly secured after filling. Check and maintain fuel filters periodically.

## F. 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.

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.

### FIBERGLASS REPAIRS:

Your Hunter or Legend dealer can supply you with the proper gel coat used to repair any hairline cracks or chips.

1. Using a mild detergent solution, clean repair area completely of wax, dirt or oil, and dry completely.
2. To patch "spiderweb" or hairline cracks, begin by widening the crack so that it will hold putty. This is most easily done with an electric drill or router equipped with a V-shaped grinding bit. Also, cut one-quarter inch or so beyond the end of each crack to relieve any stress.
3. Brush away all dust from the crack.
4. Mix gel coat with filler powder to form a creamy consistency. Mix more than enough patching compound to do the job and stir to a smooth blend.

Temperatures should be in the 60s or above, or a heat lamp should be used for application.

5. Using a putty knife, work the mixture firmly into the crack to eliminate air bubbles. Leave an excess of about one-sixteenth of an inch above the surface of the crack to allow for shrinkage. Wet sand and buff (with compound) the repaired area.

#### **TEAK CARE:**

Teak wood is an extremely durable wood with a high oil content. To maintain that durable quality it should be given a coat of teak oil once a year or more in northern climates and twice a year or more in tropical climates.

Teak can be allowed to weather out, as seen on many boats, but this will eventually lead to cracking and splitting.

If you wish to maintain your teak with varnish, resin or urethane, a sealer should be applied after cleaning and sanding. Complete finishing procedures can be obtained from your marine finish products manufacturer or supplier.

#### **FABRIC CARE:**

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

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#### **WINCH MAINTENANCE:**

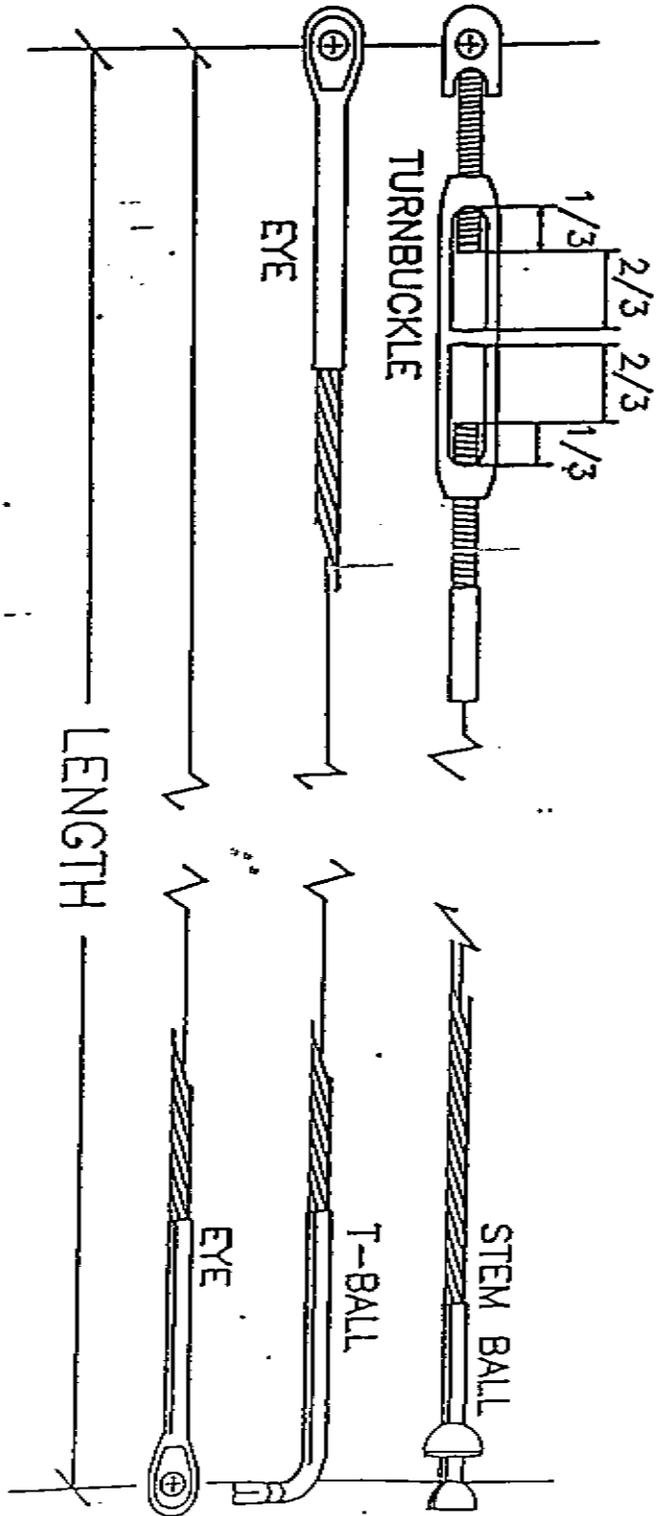
Follow the maintenance instructions prescribed by the winch manufacturer.

#### **GENERAL HARDWARE MAINTENANCE:**

Check all fittings regularly to be sure screws are tight. Occasionally lubricate 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 chocks, 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.





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Finaling Program

1/2

Qty	Description	Wire Size + Type	Fitting to Fitting	O/A Dia.	Cut Dim.
1	Head Stays	1/1 X 15	M eye	8-16-16	39'-2"
1	Upper Brackets	1/1 X 15	M eye	Stand	30'-0"
1	Lower Brackets	3/16 X 15	Stand	6-12-12	9'-10 1/4"
2	Upper supports	3/16 X 15	M eye	A+10 eye	10'-8 5/8"
2	Lower supports	3/16 X 15	A+10 eye	6-12-12	25'-6"
2	Upper Intermediate	3/16 X 15	M eye	A+10 eye	11'-6"
2	Lower Intermediate	3/16 X 15	A+10 eye	6-12-12	13'-8 3/4"
2	Upper Diamonds	5/32 X 15	M eye	5-10-10	11'-8 3/4"
2	Lower Diamonds	5/32 X 15	M eye	5-10-10	12'-2 1/4"
2	Lower	1/1 X 15	M eye	8-12-12	13'-4 1/4"
	ADD				
	* 3/8 X 5/16 X 5/16				
	Splitter Plate				

## V. 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.

### A. Sails

Sails and synthetic lines should be washed and dried thoroughly. 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.

### B. Electrical

Remove battery from boat. (Refer to Engine Manual.)

### C. Cushions

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

### D. Hatches

Hatches and floorboards should be left open a crack to provide ventilation for the whole boat. However, it is prudent to loosely cover any open hatches with a tarp or plastic sheeting.

### E. Water System—Water Heater

#### WATER SYSTEM:

Open a faucet and allow the pump to empty the tank. Then add approximately two gallons of *non-toxic* anti-freeze 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.

#### WATER HEATER:

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

### F. Toilet and Holding Tank

Drain and flush toilet. Using automotive anti-freeze (ethyleneglycol) in a 50/50 mixture with water, pump through toilet and into holding tank.

## G. Engine

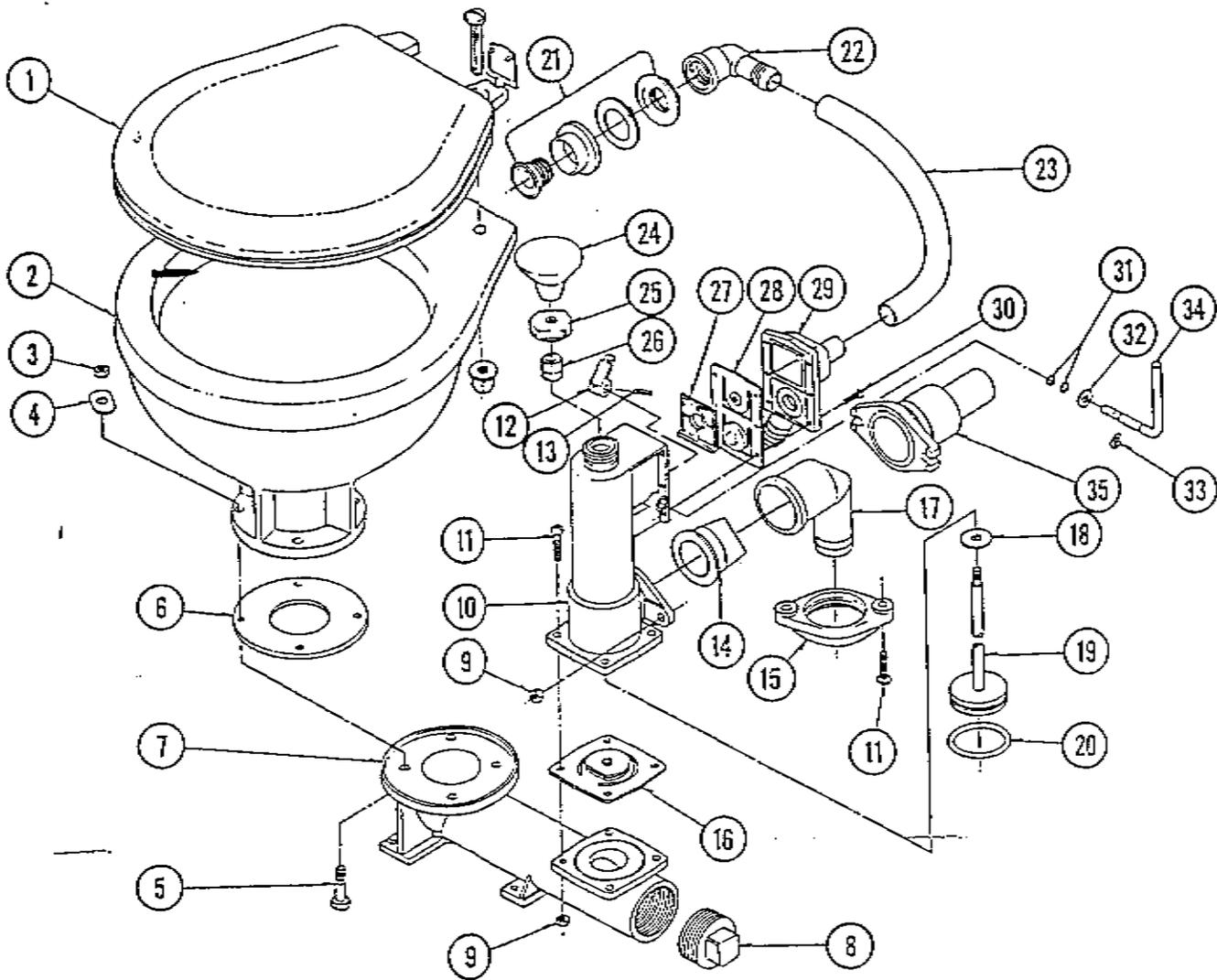
1. Drain the cooling water completely out of the engine and flush the line thoroughly with freshwater. Don't use high pressure through the line.
2. Remove the fuel completely from all fuel lines.
3. Disconnect the main battery cables from the battery terminals.
4. To prevent corrosion inside the cylinders, 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 anti-corrosion 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."

## H. Outboard Engine

1. Take it home and store it in a safe place. Be *very careful* storing the gas tank as the gasoline is very flammable.

# ENGINES & PROPELLERS

MODEL	ENGINE	TRANSMISSION	STANDARD 2-BLADE PROPELLER
Hunter 23, 26, 5	Outboard Motor		
Hunter 28, 5	Yanmar 2GM20F Diesel	2.62:1	14" X 12" X 1" R.H.
Hunter 333	Yanmar 2GM20F Diesel	2.62:1	15" X 11" X 1" R.H.
Hunter 35	Yanmar 3GM30F Diesel	2.61:1	10" X 11" X 1" R.H.
Hunter 37	Yanmar 3HM35F Diesel	2.14:1	17" X 10" X 1" R.H.
Hunter 40	Yanmar 4JHSE Diesel	2.14:1	17" X 10" X 1" R.H.
Hunter 45	Yanmar 4JHTE Diesel	2.17:1	10" X 15" X 1" R.H.



### MODEL 752 MANUAL MARINE TOILET

#### PARTS LIST

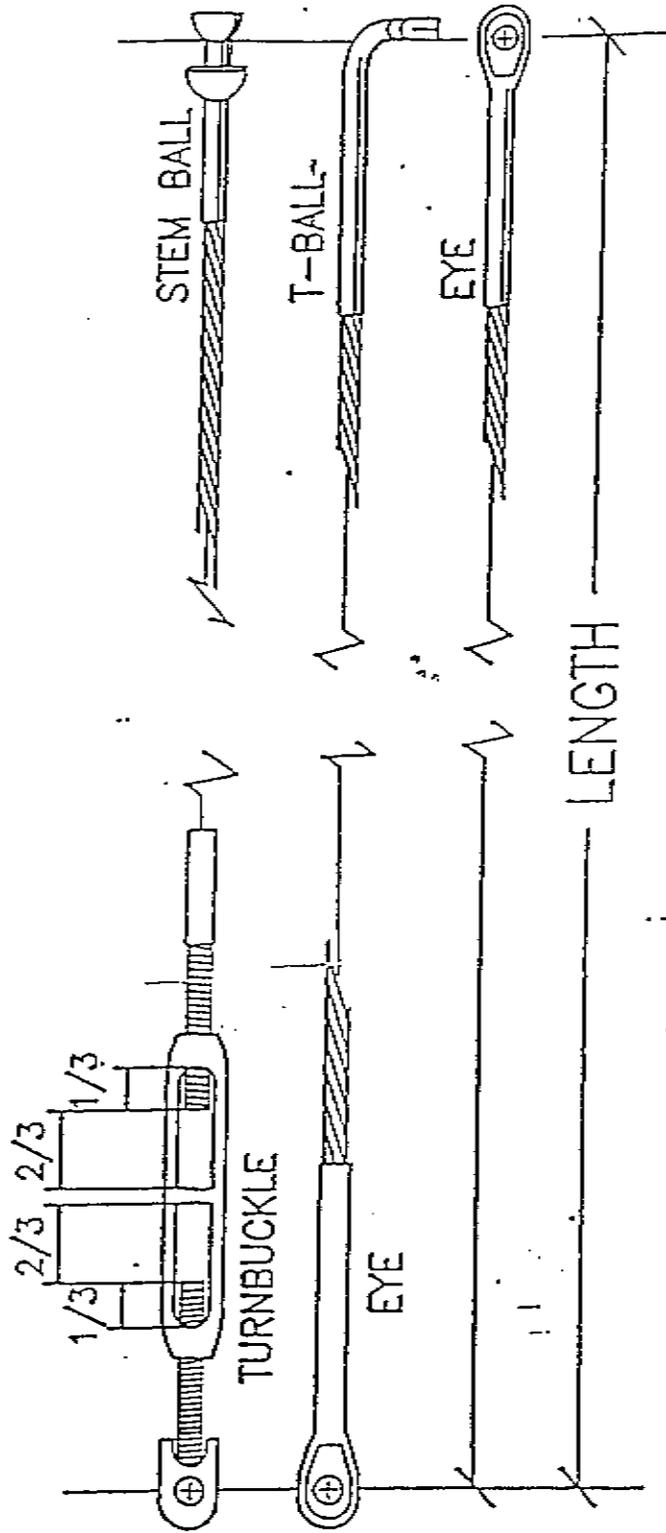
ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
1	390349078	1	Seat & Lid 751-752	21	390348250	1	Spud, 751-752
2	390349079	1	Bowl, China 750 thru 752	22	390341088	1	Elbow, 3/4 FPT x 1" Hose
3	390346604	4	Nut, 1/4-20 Hx S.S.	23	390341107	1	Hose, 3/4 x 10 3/4 751-752
4	390340940	4	Washer, Oval S.S.	24	390340113	1	Kneb, 752
5	390341197	4	Bolt, 1/4-20 x 1 1/2 Hx Hd S.S.	25	390340016	1	Nut, Piston Rod Seal
6	390340044	1	Gasket, Bowl	26	390340012	1	Seal, Piston Rod
7	390340048	1	Base, 752 with Drain Plug (item 8)	27	390340029	1	Seat, Valve Intake
8	390340047	1	Plug, Drain	28	390341152	1	Double Flap Valve 751-752
9	390340053	6	Nut, #6-8 mm Hx S.S.	29	390340032	1	Cover, Valve
10	390340020	1	Cylinder, Pump	30	390340039	6	Screw, Valve Cover
11	390340043	6	Screw, Phillips 6-8 x 30 mm. S.S.	31	390340056	2	O-Ring
12	390340021	1	Cam, Valve	32	390340055	1	Washer, Flat
13	390340081	1	Fin, Cam	33	390340054	1	Retaining Ring
14	390342310	1	Valve, Check 751-752	34	390340052	1	Handle, Valve Control
15	390340058	1	Flange, Discharge	35	381230194	1	Optional Straight Outlet (replaces items 15 & 17)
16	390340060	1	Valve, Base	Not Shown	390340059	1	Assy, Pump (Items 10, 12, 13, 24 thru 34)
17	390340057	1	Elbow, Discharge	Not Shown	390340115	1	Kt, repair (Items 6, 12, 13, 14, 16, 20, 26, 28, 31)
18	390340051	1	Washer, Pump Shaft				
19	390340049	1	Piston, Pump				
20	390340050	1	O-Ring, Piston				

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# PRE-DEPARTURE CHECK-LIST

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- ] 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.
- ] Turn on engine cooling water intake thru-hull valve.



HUNTER  RIGGING LENGTHS GEN2614A