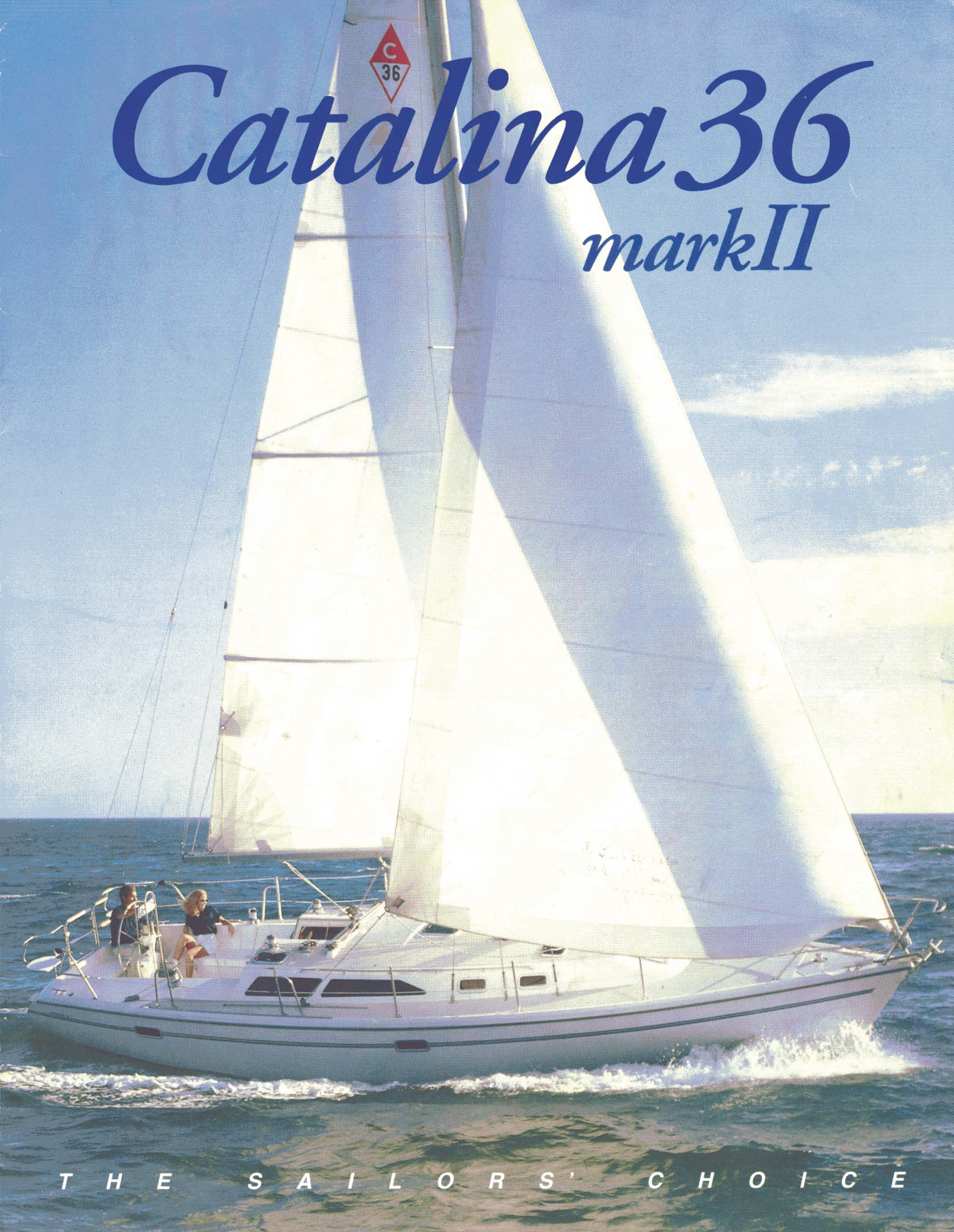

C
36
Catalina 36
markII
THE SAILORS' CHOICE

YACHT NAME

REGISTRAION OR DOCUMENTATION NO.	PORT OF CALL
DATE OF COMMISIONING	HULL NUMBER
OWNER'S NAME	OWNER'S ADDRESS

CATALINA 36 SPECIFICATIONS

L.O.A. ..... 36' 4"
L.W.L. ..... 30' 3"
Beam ..... 11' 11"
FIN KEEL
Draft ..... Std. 5' 10"
Ballast ..... Std. 6,000 Lbs.
Displacement ..... 13,5000 Lbs.
Disp/Length 218
Theoretical Hull Speed ..... 7.4 Knots
WING KEEL
Draft ..... Std. 4' 5"
Ballast ..... Std. 6,600 Lbs.
Displacement ..... 14,100 Lbs.
Disp/Length 227
STANDARD RIG
Sail Area, Rated 555
Mainsail, Rated 234
100% Foretriangle 321
135 % Genoa 418
155 % Genoa 500
Spinnaker 848
Sail Area Displacement
Standard Keel 15.7
Wing Keel 15.2
I ..... 44.75'
J ..... 14.33'
P ..... 39.00'
E ..... 12.00'
TALL RIG
Sail Area, Rated 601
Mainsail, Rated 266
100% Foretriangle 335
135 % Genoa 435
155 % Genoa 522
Spinnaker 915
Sail Area Displacement
Standard Keel 16.94
Wing Keel 16.42
I ..... 46.75'
J ..... 14.33'
P ..... 41.00'
E ..... 13.00'
BERTHS
(1) Double Forward 2
(1) Double Aft 2
(1) Convertible Double in Main Cabin 2
(1) Convertible Single in Main Cabin 1
Total 7
ICE BOX
One Cabin, (approx.) ..... 5.75 Cu. ft.
Two Cabin, (approx.) ..... 5.75 Cu. ft.
L.P.G.
(1) 10 Lbs. ..... Aluminum Tank with Solenoid
HOLDING TANK CAPACITY
One Cabin ..... 18 Gal.
Two Cabin ..... 15 Gal.
FUEL TANK CAPACITY
One Cabin ..... 32 Gal.
Two Cabin ..... 25 Gal.
EST. CONSUMPTION @ CRUISING R.P.M. ..... 1.2 G.P.H.
Theoretical Hull Speed ..... 7.4 Knots
WATER TANK CAPACITY
One Cabin
(1) Center Aft ..... 22 Gal.
(1) Port Aft ..... 18 Gal.
(1) *Forward* ..... 34 Gal.
Waterheater ..... 6 Gal.
Total ..... 80 Gal.
Two Cabin
(1) Center Aft ..... 22 Gal.
(1) Port Aft ..... 22 Gal.
(1) Forward ..... 34 Gal.
Waterheater ..... 6 Gal.
Total ..... 84 Gal.
DISTANCE FROM WATERLINE TO MASTHEAD
Standard Rig (approx.) ..... 50' 2"
Tall Rig (approx.) ..... 52' 2"
HEADROOM
Main Cabin (approx.) ..... 6' 5"
STANDARD ENGINE
Universal ..... Model M-35
30 H.P. Diesel ..... 75.5 Cu. Inch
(4) Cylinder ..... F.W. Cooled, 2:1 Reduction Gear
STANDARD PROPELLER
15" X10" on 1" Diameter Shaft ..... 2 Blade, RH
OPTIONAL PROPELLER
15" X9" on 1" Diameter Shaft ..... 3 Blade, RH
STANDARD STEERING
Pedestal Steering - Edson ..... 32" Dia. Wheel
Engine Controls and Wheel Brake on Pedestal
COMPASS ..... Ritchie SP.5 Stainless Steel Binnacle
RIGGING
Single Spreaders ..... In-Line
Upper Shrouds, Forestay, Backstay ..... Single 5/16" D., 1X19
Lower Shrouds (2) ..... Double 1/4" D., 1X19
Rope Halyards ..... Low Stretch, Led Aft
Boom Vang ..... 4:1 Purchase
PRIMARY WINCHES
Lewmar 46 ..... Chrome Bronze, Self-tailing
MAIN HALYARD WINCH
Lewmar 30 ..... Chrome Bronze, Self-Tailing
JIB HALYARD WINCH
Lewmar 30 ..... Chrome Bronze

Specifications and equipment subject to change without notice.

FOREWORD

Congratulations on the acquisition of your new Catalina 36. All Catalina yachts are designed and built with care using quality materials to assure you years of sailing enjoyment with a minimum of upkeep and maintenance.

Before attempting maintenance or operation of your Catalina 36, please read the Catalina Yachts Limited Warranty booklet and fill out the enclosed warranty registration card.

The registration card enables Catalina to inform you of developments and modifications to enhance the performance or comfort of your yacht. It is also important to be able to contact owners to comply with Coast Guard defect notification requirements.

The launching and rigging of the Catalina 36 should be handled by experienced boat yard personnel under the direction of your authorized dealer. After the boat is launched, the dealer will complete the last stages of rigging and mast tuning.

The index page lists the contents of this manual. Warrantees and information regarding installed optional equipment have been included when available and applicable.

Maintaining your yacht properly can become a satisfying part of your sailing activities. A regular inspection is the best preventive maintenance. It will help keep your boat safe and in good condition while in use, and insure peace of mind when the boat is left unattended.

Take good care of your boat and take the time to learn and practice good seamanship.

4th EDITION 1-16-91

5th EDITION 8-03-92

6th EDITION 4-27-94

7th EDITION 2-26-98

8th EDITION 12-22-98

PREFACE

This manual is intended and supplied to help owners of Catalina 36's understand their boats and answer common questions about maintenance and systems design specific to the Catalina 36.

This manual is not intended to provide sailing instructions. It is assumed the operator will consult books written for that purpose, or take sailing lessons or courses to gain the knowledge necessary for the safe operation of the vessel.

The systems descriptions and illustrations in this manual apply to boats built at the time of publication. Our policy of constant improvement necessitates that changes have been made to the Catalina 36 since its introduction. Therefore, these illustrations and descriptions may not apply to boats built before the time of publication.

Owners of earlier hulls, who have questions not answered herein should consult with their local Catalina dealer, or write to Catalina Yachts. Please include your hull number in all correspondence.

The maintenance check lists contained within this manual are intended as guidelines for boats in normal service under typical conditions.

Climate and use will vary and may require additional or special maintenance. Consult with your local boat yard or Catalina dealer for specific maintenance and precautions recommended for your purposes and climate.

Caution: The aluminum and other metal parts conduct electricity. Coming in contact with or near an electrical power line or lightning can cause severe injury or death. Stay away from overhead electrical power lines when sailing and/or launching the boat.

2.0 COMMISSIONING CHECK LIST

2.1 PRE-LAUNCH CHECK:

1._____SHAFT TURNS FREELY BY HAND, ZINC COLLAR INSTALLED IF REQUIRED
2._____CHECK INTAKE HOSES AND CLAMPS
3._____CHECK ALL THRU HULL FITTINGS
4._____DRAIN PLUGS TIGHT,___ENGINE, MUFFLER, AND EXHAUST LINE
5._____BOTTOM CLEAN, PAINT OK
6._____HULL SIDES CLEAN, GEL COAT OK
7._____DECKS CLEAN
8._____TEAK CLEANED AND OILED
9._____INTERIOR FINISHED, OILED, CLEAN
10._____CUSHIONS, CARPETING, CURTAINS, CLEAN AND IN PLACE
11._____TABLE CONVERTS TO BERTH OK, DINETTE, TRADITIONAL TABLE STOWS
12._____HATCH LIDS PRESENT AND FIT OK OK
13._____LIFELINES AND PULPITS RIGGED AND OK
14._____SPREADERS TAPED AND DRILLED AT BASE END,UPPER SHROUD WIRED TO TIP END AND TAPED
15._____RIGGING LENGTHS VERIFIED WITH CHECK LIST IN KIT
16._____MAST AND BOOM INSPECTED:COTTER PINS, SHEAVES, TANGS, SPREADER OK
17._____MAST LIGHTS CHECKED BEFORE MAST STEPPED
18._____CHECK OVERHEAD FOR ELECTRICAL WIRES WHICH MAY INTERFERE WITH THE SPACE REQUIRED TO RAISE THE MAST TO ITS FULL UPRIGHT POSITION. IF THERE ARE WIRES OF ANY KIND ANY WHERE NEAR THE BOAT, DO NOT RAISE THE MAST. MOVE BOAT TO ANOTHER LOCATION AWAY FROM ANY WIRES. CONTACT WITH WIRES CAN BE FATAL.

2.1 IN WATER CHECK:

2.2.1 ELECTRICAL:

1._____ELECTRICAL EQUIPMENT OPERATIONAL:
___RUNNING___CABIN___BOW___ANCHOR___SPREADERS
___PRESSURE___WATER___MACERATOR PUMP___MASTER
2._____SHORE POWER OUTLET OK
3._____CHECK BATTERY SWITCH #1___#2___OK
4._____CHECK BATTERY FLUID LEVEL
5._____CHECK BATTERY TERMINAL FOR TIGHTNESS

2.2.2 PLUMBING:

1._____NO LEAKS AT THRU HULL FITTINGS WITH SEACOCKS OPEN
2._____FILL ALL WATER TANKS
3._____CHECK ALL WATER TANKS
4._____TEST ALL FAUCETS AND FOOT PUMPS FOR LEAKS
5._____CHECK FOR LEAKS AT SINK DRAIN, SINK DRAINS OK
6._____PUT WATER IN ICE BOX AND CHECK FOR PROPER DRAINAGE
7._____CHECK BILGE PUMP OPERATION, HANDLE PRESENT
8._____CHECK HEAD BY FLUSHING AND PUMPING
9._____CHECK SHOWER SUMP DRAIN LINE
10._____CHECK HOLDING TANK, PUMP VENT AND FITTING

2.0 COMMISSIONING CHECK LIST (CONTD):

11.___ CHECK HEAD AND PUMP HANDLE FOR LEAKS
12.___ MAIN HATCH NO LEAKS, SLIDES FREELY,HATCH BOARDS FIT OK
13.___ CABIN WINDOWS HOSE TESTED FOR LEAKS
14.___ ANCHOR LOCKER DRAIN OK, NO LEAKS
15.___ STOVE OPERATES OK: CHECKS, TANK, FUEL LINE, BURNER, AND OVEN

2.2.3 RIGGING AND HARDWARE:

1. ___ MAST STEPPED
2. ___ PIN, TAPE, AND TUNE STANDING RIGGING
3. ___ BACKSTAY ADJUSTER, WHISKER POLE, SPINNAKER GEAR, BOOM VANG
4. ___ BLOCKS, CARS, CLEATS RIGGED OK
5. ___ TEST ALL WINCHES, WINCH HANDLES PRESENT

2.2.4 ENGINE:

1. ___ NO LEAKS: SHAFT, RUDDER, STUFFING BOX, OR SHAFT LOG
2. ___ SHAFT, DIMPLED FOR SET BOLTS AT COUPLING; BOLTS WIRED AND COUPLING SECURED
3. ___ WITH FUEL TANKS FULL, NO LEAKS AT FILL PIPES, OVERFLOW VENT, OR ANY FUEL LINE CONNECTIONS
4. ___ WITH COUPLING DISCONNECTED, ENGINE AND SHAFT ALIGNMENT OK- RECHECK ALIGNMENT AFTER RIGGING TUNED
5. ___ TRANSMISSION OIL LEVEL OK
6. ___ CRANK CASE OIL LEVEL OK
7. ___ FUEL VALVES OPEN, BLEED AND PRIME LINES IF DIESEL ENGINE
8. ___ CHECK THAT SHAFT IS COUPLED AND ALIGNED TO .003 MAXIMUM TOLERANCE
9. ___ ENGINE WIRE OK, CONNECTIONS TIGHT
10. ___ THROTTLE CONTROL CABLE TRAVEL AND BRACKETS OK
11. ___ CLUTCH CONTROL CABLE TRAVEL AND BRACKETS OK
12. ___ START ENGINE
13. ___ EXHAUST WATER FLOW OK
14. ___ NO LEAKS IN FUEL LINES AT FITTING, FUEL FILTER, FUEL PUMP, OR INJECTORS
15. ___ NO ENGINE OR OIL LEAKS
16. ___ IDLING SPEED SET ___R.P.M.'S
17. ___ CHECK CHOKE OPERATION, CHECK SHUTOFF CABLE FOR DIESEL ENGINE
18. ___ CHECK FOREWARD AND REVERSE SHIFTING
19. ___ CHECK ENGINE INSTRUMENTS FOR OPERATION, TACHOMETER FOR CALIBRATION
20. ___ RUN IN GEAR FOR TEN (10) MINUTES
21. ___ RECHECK PACKING GLAND AFTER ENGINE STOPS
22. ___ BILGE BLOWER AND VENT SYSTEM OK

2.0 COMMISSIONING CHECK LIST (CONTD):

2.3 OPERATING CHECK LIST:

1. ___ PEDESTAL STEERING OPERATION OK, COMPASS OK
2. ___ SAILS AND HALYARD OK
3. ___ BOAT PERFORMANCE UNDER POWER AND SAIL OK

2.3.1 FINAL CHECK:

1. ___ ALL ACCESSORY EQUIPMENT OPERATES OK
2. ___ ALL BOAT, ENGINE, AND ACCESSORY LITERATURE, AND/OR MANUALS ABOARD
3. ___ WARRANTY CARDS COMPLETED AND MAILED, OWNER REGISTRATION CARD ATTACHED, OWNER INFORMED OF WARRANTY RESPONSIBILITIES
4. ___ ENGINE WARRANTY CARD COMPLETED AND MAILED

3.0 MAINTENANCE GUIDE

3.1 PRE-USE MAINTENANCE:

RIGGING
1. INSPECT TURNBUCKLES TIGHTEN AS REQUIRED.
2. INSPECT CLEVIS PINS AND COTTER PINS.
3. VISUALLY INSPECT SPREADER TIPS AND OTHER AREAS WHERE SAILS MAY CHAFE DURING SAILING, REPLACE TAPE AS NECESSARY.
4. HALYARDS FREE AND NOT TANGLED.
5. INSPECT MAST HARDWARE ATTACHMENT BOLTS, TIGHTEN AS REQUIRED.

HULL AND DECK INSPECTION:
1. BILGES AND COMPARTMENTS ARE DRY.
2. THRU HULL VALVES, HOSES, AND CLAMPS, OK.
3. CHECK RUNNING LIGHTS

ENGINE:
1. CHECK ENGINE OIL AND FUEL LEVELS.
2. PACKING GLAND OK, COOLING WATER INTAKE VALVE OPENS AND CLOSES OK.
3. THROTTLE SHIFT OK.
4. BLOWER SYSTEM.
5. CHECK BILGE AREAS FOR FUEL BEFORE STARTING ENGINE.

3.2 MONTHLY MAINTENANCE:

RIGGING:
1. INSPECT CHAIN PLATES, FASTENINGS, AND BOLTS, TIGHTEN AS NECESSARY.
2. INSPECT BLOCKS, SHACKLES, COTTER PINS.
3. CHECK RIGGING TUNE, RIGGING WIRE CONDITION.
4. CHECK TURNBUCKLES AND LOCKING PINS.

HULL AND DECK:
1. CHECK COCKPIT DRAINS, CLEAR DEBRIS.
2. INSPECT HULL VALVES, OPEN AND CLOSE FREELY.
3. WINCHES TURN FREELY, LUBRICATE AS PER MANUFACTURER'S RECOMMENDATIONS.
4. CLEAN AND OIL EXTERIOR TEAK AS NECESSARY.
5. CLEAN AND WAX GEL COAT SURFACES AS NECESSARY.

ENGINE:
1. CHECK OIL AND FLUID LEVELS.
2. BATTERY: CHECK FLUID LEVELS AND TIE DOWNS.
3. TIGHTEN ALL BOLTS AND NUTS TO PROPER TORQUE.
4. CHECK FUEL TANK FITTINGS, AND HOSE CLAMPS.
5. DISASSEMBLE AND INSPECT COOLING SYSTEM ANTI-SYPHON (LOCATED UNDER GALLEY COUNTER NEAR SINK).

3.3 SEASONAL MAINTENANCE:

RIGGING:
1. MAST HEAD PINS AND SHEAVES TURN FREELY.
2. HALYARDS ARE IN GOOD CONDITION
3. SPREADERS TIPS AND BASES, AND MAST FITTINGS
4. ALL SHROUD TERMINATIONS AND SWEDGED FITTINGS, CHECK FOR CRACKS OR CORROSION.
5. GOOSENECK ASSEMBLY AND BOOM ASSEMBLY.
6. MAST, BOOM, AND SPREADERS CLEANED AND WAXED.

HULL, DECK, AND CABIN:
1. ALL CHAINPLATES AND THRU BOLTS TIGHT.
2. DISASSEMBLE WINCHES AND LUBRICATE BEARINGS AND PAWLS.
3. ELECTRICAL SYSTEM AND BATTERY TIE DOWNS, COAT TO PREVENT CORROSION, AND TERMINAL CONNECTORS.
4. DRAIN AND FLUSH FRESH WATER SYSTEM.
5. CHECK HEAD AND ANTI-SIPHON VALVE IN TOILET.
6. HATCH GASKETS, AND HOLD DOWN DOGS.
7. BOTTOM, KEEL, AND RUDDER CONDITION.
8. LIFELINES, STANCHIONS, AND PELICAN HOOKS.

ENGINE:
1. CHECK SHAFT ALIGNMENT, REPACK STUFFING BOX IF NECESSARY.
2. CLEAN MOTOR THOROUGHLY.
3. INSPECT FUEL SYSTEM.
4. TUNE ENGINE AS PER MANUFACTURERS RECOMMENDATIONS.

3.4 FIBERGLASS MAINTENANCE AND REPAIR:

ONE OF THE MAJOR BENEFITS OF A FIBERGLASS BOAT IS THE ELIMINATION OF MAINTENANCE CHORES REQUIRED BY OTHER MATERIALS. YOU HAVE ONLY THREE RELATIVELY EASY MAINTENANCE RULES TO FOLLOW TO KEEP YOUR BOAT LOOKING LIKE NEW.

1. EACH YEAR CLEAN, BUFF, AND WAX THE EXTERIOR OF THE BOAT.

2. TOUCH UP AND PATCH SCRATCHES, SCARS, AND SMALL BREAKS.

3. REPAIR ANY MAJOR BREAKS AS SOON AS POSSIBLE TO AVOID ADDITIONAL DAMAGE TO THE HULL OR DECKS.

MOST FIBERGLASS BOATS ARE MANUFACTURED OF TWO "LAYERS" OF MATERIAL, PERMANENTLY BONDED TOGETHER BY A CHEMICAL REACTION. THE OUTSIDE SURFACE IS FORMED BY A COLORED GEL COAT. THIS IS A SPECIAL RESIN MATERIAL CONTAINING CONCENTRATED COLOR. IT PROVIDES A SMOOTH, FINISHED SURFACE.

THE SECOND "LAYER" IS MADE UP OF POLYESTER RESIN REINFORCED WITH LAMINATIONS OF FIBER GLASS MAT, CLOTH, OR WOVEN ROVING. BOTH THE GEL COAT AND POLYESTER RESIN ARE "CURED" BY A CHEMICAL CATALYST WHICH CAUSES THEM TO FORM A HARD, STRONG MASS THAT IS HIGHLY RESISTANT TO IMPACT AND DAMAGE.

AFTER SAILING, A GOOD HOSING DOWN WITH FRESH WATER AND A MILD DETERGENT WILL KEEP YOUR BOAT SPARKLING FRESH AND CLEAN. THE NON-SKID SURFACES MAY NEED TO BE SCRUBBED WITH DETERGENT. SMOOTH GLASS AREAS MAY BE POLISHED WITH LIQUID WAX OR ANY GOOD FIBERGLASS WAX TO ADD EXTRA LUSTRE. IN THE CASE OF OLDER BOATS, WHERE SOME FADING OF THE GEL COAT HAS OCCURRED, THE SURFACE SHOULD BE BUFFED WITH POLISHING COMPOUND AND THEN WAX FINISHED.

WHEN BUFFING THE BOAT TO RESTORE ITS FINISH, CARE SHOULD BE TAKEN NOT TO CUT THROUGH THE GEL COAT SURFACE. THIS IS ESPECIALLY TRUE ON CORNERS AND EDGES OF THE HULL. A POWER BUFFER MAY BE USED OR THE WORK DONE BY HAND, USING A LIGHTLY ABRASIVE RUBBING COMPOUND SUCH AS MIRRO GLAZE NO. 1 FOR POWER BUFFERS, OR DUPONT NO. 7 FOR HAND BUFFING. ANY HIGH QUALITY PASTE WAX MAY BE USED AFTER BUFFING.

3.4.1 FIBERGLASS TOUCH UP AND REPAIR

Scratches, Shallow Nicks, Gouges, Small Holes (that do not penetrate through the hull)

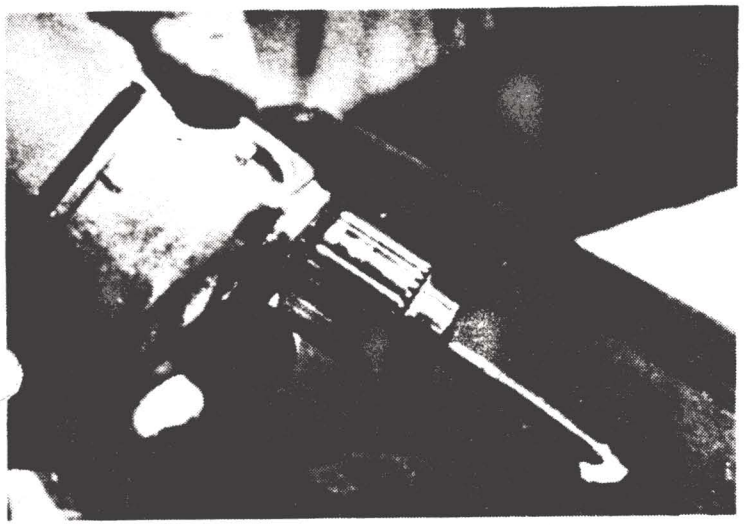
These repairs are easy because only the surface of the boat is damaged. They fall into two categories: (1) damage to the gel coat colored outer surface, and (2) holes or gouges that are deep enough to penetrate the fiber glass reinforced area of the boat. The repair operations are similar.

For damage to the gel coat surface, you will need a small can of gel coat, of the same color as your boat, and a small amount of catalyst. For deeper holes or gouges (1/8" or more) you will also need some short strands of fiber glass which can be trimmed from fiber glass mat or purchased in the form of "milled fibers." These materials can be purchased from your dealer.

(1) Be sure the area around the damage is wiped clean and dry. Remove any wax or oil from the inside of the hole or scratch.

(2) Using a power drill with a burr attachment, roughen the bottom and sides of the damaged area and feather the edge surrounding the scratch or gouge. Do not "undercut" this edge. (If the scratch or hole is shallow and penetrates only the color gel coat, skip to step No. 8.)

(3) Into a jar lid or on a piece of cardboard, pour a small amount of gel coat . . . just enough to fill the area being worked on. Mix an equal amount of milled fibers with this gel coat, using a putty knife or small flat stick. Then add two drops of catalyst, using an eyedropper for accurate measurement. For a half-dollar-size pile of gel coat, this amount of catalyst will give you 15 to 20 minutes working time before it begins to "gel". Carefully cut the catalyst into the gel coat and mix thoroughly.



(4) Work this mixture of gel coat, fibers and catalyst into the damaged area, using the sharp point of a putty knife or knife blade to press it into the bottom of the hole and to puncture any air bubble which may occur. Fill the scratch or hole above the surrounding undamaged area about 1/16".

(5) Lay a piece of cellophane or waxed paper over the repair to cut off the air and start the "cure."

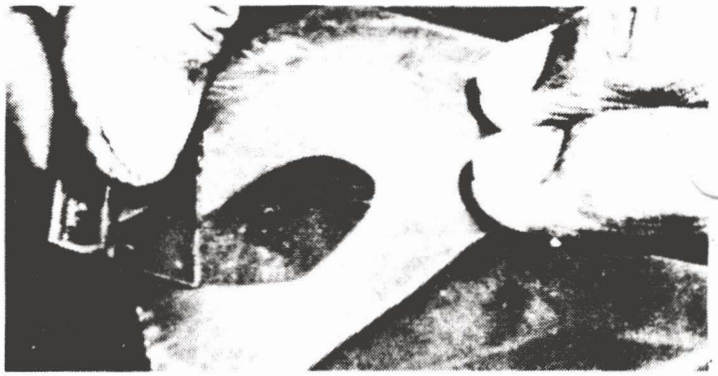
(6) After 10 or 15 minutes the patch will be partially cured. When it feels rubbery to the touch, remove the cellophane and trim flush with the surface, using a sharp razor blade or knife. Replace the cellophane and allow to cure completely (30 minutes to an hour). The patch will shrink slightly below the surface as it cures.

(7) Again use the electric drill with burr attachment to rough up the bottom and edges of the hole. Feather hole into surrounding gel coat, do not undercut.

(8) Pour out a small amount of gel coat into a jar lid or on cardboard. Add a drop or two of catalyst and mix thoroughtly, using a cutting motion rather than stirring. Use no fibers.

(9) Using your finger tip or the tip of a putty knife, fill the hole about 1/16" above the surrounding surface with the gel coat mixture.

10. Lay a piece of cellophane over the patch to start the curing process. Repeat step 6, trimming patch when partially cured.



11. Immediately after trimming, place another small amount of gel coat on one edge of the patch and cover with cellophane. Then, using a rubber squeegee or back of the razor blade, squeegee level with area surrounding the patch. Leave cellophane on patch for 1 to 2 hours, or overnight, for a complete cure.

12. USING A SANDING BLOCK, sand the patched area with 600 grit WET sandpaper. Finish by rubbing or buffing with a fine rubbing compound. Some slight color difference may be observed. Weathering will blend touch-up, if properly applied.

3.5 BOTTOM BARRIER COATING AND PAINT PREPARATION:

Anti-fouling paint should be applied to the bottom of your Catalina 36 MK II if it is to be moored in either fresh or salt water for any length of time. There are many brands available. Anti-fouling paint prevents the growth of algae, barnacles, and other fouling organisms on underwater surfaces.

Catalina 36 MK II models are manufactured with an integrally molded blister protection system in the hull laminate. This water absorption barrier material is between the gel coat surface layer and the laminates of the hull.

The bottom may be prepared for painting using conventional dewaxing solvents, then sanding the gel coat surface or using a chemical etching type primer. The keel has been painted using epoxy primer, filler-fairing compound and finished with epoxy paint. This material is a suitable substrate for most anti-fouling systems, however a "test patch" of the intended anti-fouling paint should be tried on a small area to insure compatibility before coating the entire keel area.

3.6 TEAK MAINTENANCE:

WOOD TRIM AND PARTS-MOST EXTERIOR WOOD IS TEAK AND CAN BE KEPT LOOKING GOOD BY OCCASIONAL OILING WITH TEAK OIL.

SHOULD THE TEAK BECOME WEATHERED, CLEANING AND BLEACHING WITH A COMMERCIALLY AVAILABLE TEAK CLEANER AND BLEACH WILL RESTORE THE COLOR OF THE WOOD. THEN OIL THE WOOD WITH A GOOD GRADE TEAK OIL TO RESTORE THE GOLDEN COLOR OF THE TEAK. DO NOT USE WIRE OR HARD BRISTLE BRUSHES ON THE WOOD, AS THIS WILL REMOVE THE SOFTER WOOD BETWEEN THE ANNUAL RINGS AND LEAVE A ROUGH SURFACE.

3.7 SPAR AND RIGGING MAINTENANCE:

STANDING RIGGING:

YOUR BOAT IS EQUIPPED WITH STAINLESS STEEL STANDING RIGGING AND DACRON RUNNING RIGGING TO GIVE YOU YEARS OF TROUBLE FREE SERVICE. HOWEVER, DUE TO NORMAL WEAR AND TEAR, IT IS RECOMMENDED THAT A PERIODIC INSPECTION BE MADE ON ALL FITTINGS AND WIRE. TURNBUCKLES SHOULD NEVER BE NEGLECTED AND SHOULD BE UNSCREWED FROM TIME TO TIME IN ORDER THAT THEY DO NOT SEIZE EVERY THREE MONTHS SHOULD BE ABOUT RIGHT FOR THE AVERAGE SAILOR. A SLIGHTLY BENT TURN-BUCKLE SHAFT OR BROKEN WIRE IN YOUR SHROUDS SHOULD BE REPLACED IMMEDIATELY.

UNDER MOST CONDITIONS, 1 X 19 STANDING RIGGING HAS A SAFE "WORKING" LIFE SPAN OF APPROXIMATELY FIVE YEARS: SEVEN YEARS UNDER IDEAL CONDITIONS. FACTORS WHICH REDUCE THE LIFE OF THE WIRE ARE ENVIRONMENTAL FACTORS SUCH AS HIGH HUMIDITY (FLORIDA, THE CARIBBEAN, AND GULF STATES): HIGH SALINITY (GREAT SALT LAKE, GULF STATES, OR MOORING NEAR A SEA WALL WITH CONSTANT SALT SPRAY); EXTREMES IN TEMPERATURE; AND INDUSTRIAL POLLUTION (PULP MILLS, GENERATING PLANTS, ACID RAIN, AND SMOG). HIGH LOADING OF THE RIGGING AS

3.0 MAINTENANCE GUIDE (CONTD)

REQUIRED IN MOST RACING BOATS ALSO INDUCES STRESS IN THE RIGGING SYSTEM.
MANY OF US HAVE TO DEAL WITH AT LEAST ONE OF THESE CONDITIONS AND SHOULD CONSIDER REPLACING STANDING RIGGING NEARER THE FIVE YEAR LIMIT.

UNLIKE RUNNING RIGGING WIRE ROPE, WHICH GIVES US CLEAR SIGNS THAT IT IS DETERIORATING BY BROKEN STRANDS AND "MEAT HOOKS", STANDING RIGGING MAY GIVE NO SIGN THAT FAILURE IS IMMINENT. THE USUAL POINT OF FAILURE OF STAY OR SHROUD IS APPROXIMATELY 1/4" INSIDE THE BOTTOM SWEDGED THREADED STUD FITTING WHICH THREADS INTO THE TURNBUCKLE BARREL.

ALTHOUGH THE STUD IS COMPRESSED AROUND THE WIRE DURING THE SWEDGING PROCESS, SALT WATER AND POLLUTANTS WORK DOWN INTO THE TINY CAVITIES BETWEEN THE WIRE STRANDS AND THE INEVITABLE CORROSIVE PROCESS STARTS IN THE CREVICE THE FIRST TIME THE RIGGING BECOMES WET WITH SALT WATER.

A COMMON METHOD OF VISUALLY MONITORING SWEDGE FITTING CONDITIONS EMPLOYED BY DISTANCE RACERS AND CRUISERS IS TO DAB A SMALL RING OF ENAMEL PAINT AROUND THE JOINT BETWEEN THE WIRE AND THE SWEDGE FITTING. THIS WILL HELP PROVIDE A MEANS TO SEE IF THE WIRE IS PULLING OUT OF THE FITTING.

ANOTHER TECHNIQUE USED TO CHECK THE CONDITION OF SWEDGE FITTINGS IS A "DYE PENETRANT" TEST. THIS SIMPLE TEST WILL DETECT ANY CRACKS WHICH MAY DEVELOP IN THE FITTINGS DUE TO INTERNAL PRESSURE FROM THE CORROSIVE PROCESS. INEXPENSIVE DYE TEST KITS USUALLY ARE AVAILABLE AT MOST WELDING SUPPLY STORES. DYE TESTS USUALLY ARE NOT REQUIRED BY WEEKEND SAILORS, BUT MAY BE DONE BEFORE AN EXTENDED CRUISE OR OCEAN PASSAGE IF ANY DOUBT ABOUT THE INTEGRITY OF THE RIGGING EXISTS.

ALL STAINLESS STEEL WIRE ROPE RIGGING WILL DEVELOP SOME RUST FILM WHEN NEW.THIS IS NORMAL.

THE RUST IS CAUSED BY TWO FACTORS. WHEN WIRE ROPE IS MANUFACTURED, THE WIRE STRANDS ARE FED OVER STEEL ROLLERS DURING THE PROCESS OF TWISTING OR LAYING THE WIRE. TRACE AMOUNTS OF THE FERROUS STEEL FROM THE ROLLERS AND DIES ARE TRANSFERRED TO THE WIRE STRANDS. AS THIS SMALL AMOUNT OF STEEL RUSTS IT CAUSES A FILM ON THE NEW WIRE.

THE SECOND CAUSE OF THE RUST FILM ON NEW WIRE ROPE IS THE MICROSCOPIC VEINS OF FERROUS MATERIAL WHICH EXIST IN ALL STAINLESS STEEL. AFTER A PERIOD OF TIME, AS THE SURFACE MATERIAL VEINS ARE DEPLETED AND THE STAINLESS STEEL HAS BEEN CLEANED SEVERAL TIMES, NEW RUST FILM DEVELOPMENT WILL SLOW TO A MINIMUM.

FOR THE AVERAGE SAILOR, THE BEST INSURANCE AGAINST A RIGGING FAILURE IS A PERIODIC (EVERY SIX MONTHS IS RECOMMENDED) INSPECTION OF ALL RIGGING PARTS, INCLUDING TURNBUCKLES, AND REPLACEMENT OF STANDING RIGGING AS REQUIRED.

FITTINGS:

MARINE FITTINGS TODAY NEED LITTLE MAINTENANCE. DECK HARDWARE SHOULD BE HOSED DOWN WITH FRESH WATER AFTER EACH SAIL IN SALT WATER. STAINLESS STEEL FITTINGS SUCH AS PULPITS AND LIFELINE STANCHIONS SHOULD BE CLEANED AND WAXED PERIODICALLY TO MAINTAIN THEIR APPEARANCE. WINCHES REQUIRE OCCASIONAL CLEANING AND LUBRICATION WHERE POSSIBLE, A MAINTENANCE BROCHURE FOR YOUR WINCHES HAS BEEN INCLUDED IN THIS MANUAL. MASTHEAD FITTINGS, HALYARD SHEAVES, ETC., SHOULD BE INSPECTED, CLEANED, AND LUBRICATED PERIODICALLY. KEEP YOUR EQUIPMENT CLEAN OF DIRT AND SALT.

SPARS:

LIKE ALL OTHER FITTINGS, MAST AND BOOMS SUFFER FROM SALT WATER, AIR AND SPRAY. THESE SHOULD BE KEPT WAXED WHERE POSSIBLE, AND AT LEAST ALWAYS HOSED DOWN WITH FRESH WATER. ALWAYS SEE THAT THE HALYARDS ARE TIED OFF AWAY FROM THE MAST. THIS WILL ELIMINATE SLAPPING IN THE WIND, AND SUBSEQUENT MARKING OF THE MAST. KEEP TACK PIN (WHICH IS LOCATED ON FRONT OF BOOM) WELL LUBRICATED, AS THE STAINLESS STEEL PIN CAN BECOME SEIZED IN THE ALUMINUM GOOSENECK CASTING WITHOUT PROPER LUBRICATION.

FIND A HIGH PRESSURE NOZZLE AND SHOOT FRESH WATER TO THE TOP OF THE MAST AND SPREADERS. THIS WILL HELP KEEP YOUR SAILS CLEAN TOO, AS THEY RUB ON THE MAST AND SPREADERS.

INSPECT SPREADERS AND SPREADER BRACKETS FOR SIGNS OF FATIGUE. SEE THAT ENDS OF SPREADERS ARE WIRED AND WELL COVERED WITH TAPE TO PREVENT WEAR ON THE SAILS.

3.8 SAIL MAINTENANCE:

SAILS SHOULD NEVER BE PUT AWAY WET. IF THEY ARE WET AFTER SAILING, LEAVE THEM LOOSE IN BUNDLES AND DRY THEM AT YOUR FIRST OPPORTUNITY.

FOR MOST PROBLEMS SUCH AS COMMON DIRT, DRIED OR CAKED SALT, ETC., TRY SCRUBBING THE SURFACE WITH A SOFT BRISTLED BRUSH AND LIQUID DETERGENT. AVOID HARSH POWDER DETERGENTS AND STIFF BRUSHES, AS THEY MAY DAMAGE THE FINISH OR STITCHING. THIS APPROACH SHOULD WORK NICELY FOR MOST APPLICATIONS. MORE SEVERE STAINS CAN BE TAKEN CARE OF BY THE FOLLOWING:

* IMPORTANT: FOR WHITE SAILS ONLY!

BLOOD: SOAK THE STAINED PORTION FOR 10-20 MINUTES IN A SOLUTION OF BLEACH (CLOROX) AND WARM WATER, GENERALLY 10 PARTS WATER TO 1 PART BLEACH. SCRUB AND REPEAT IF NECESSARY. RINSE THOROUGHLY, PARTICULARLY NYLON, AND DRY COMPLETELY.

OIL, GREASE, TAR AND WAX: WARM WATER, SOAP AND ELBOW GREASE SEEM TO BE EFFECTIVE. ON HARD STAINS, STAIN REMOVER AND DRY CLEANING FLUIDS SHOULD DO THE TRICK. BE CAREFUL TO REMOVE ALL FLUIDS. AS THEY CAN SOFTEN THE VARIOUS RESINATED COATINGS ON SAILCLOTH.

RUST AND METALLIC STAINS: THESE TYPES OF STAINS ARE VERY OFTEN THE MOST FRUSTRATING AND DIFFICULT TO REMOVE. FIRST SCRUB WITH SOAP AND WATER, AND APPLY ACETONE, M.E.K., OR ALCOHOL. AS A LAST RESORT, YOU MIGHT TRY A DILUTED MIXTURE (5%) OF OXALIC SOAKED FOR 15-20 MINUTES. HYDROCHLORIC ACID, 2 PARTS TO 100 IN WARM WATER, WILL ALSO WORK.

MILDEW: HOT SOAPY WATER WITH A LITTLE BLEACH WILL GENERALLY PREVAIL. AFTER SCRUBBING, LEAVE THE SOLUTION ON THE FABRIC FOR A FEW MINUTES AND RINSE THOROUGHLY. WHEN USING A BLEACH, A RESIDUAL CHLORINE SMELL MAY BE PRESENT AFTER RINSING. A 1% SOLUTION OF THIOSULPHATE (PHOTOGRAPHER'S HYPO) SHOULD REMOVE ALL CHLORINE TRACES. HERE AGAIN, RINSE AND DRY WELL.

PAINT AND VARNISH: ACETONE AND M.E.K. SHOULD REMOVE MOST COMMON PAINT AND STAINS. VARNISH CAN BE EASILY REMOVED WITH ALCOHOL.

TEMPERKOTE OR MYLAR SAILS ARE STILL NEW AND EXPERIMENTAL. AT THIS POINT IN TIME, AVOID MOST SOLVENTS, AS THEY CAN DAMAGE THE FABRIC OVER A PERIOD OF TIME. SOAP AND DILUTED BLEACHES SHOULD TAKE CARE OF MOST STAINS.

GENERALLY SPEAKING, USE ALL SOLVENTS WITH CARE. ALWAYS RINSE AND DRY THOROUGHLY. IT SHOULD BE EMPHASIZED THAT NYLON RIPSTOP SPINNAKER FABRICS ARE LESS DURABLE AND MORE SENSITIVE THAN THEIR POLYESTER COUNTERPARTS. BLEACHES AND SOLVENTS CAN RUIN NYLON IF NOT USED PROPERLY.

FOLLOW THE ABOVE GUIDELINES, TAKE YOUR SAILS INTO YOUR SAILMAKER FOR PERIODICAL INSPECTION, AND I'M SURE YOU WILL HAVE MANY EFFECTIVE SEASONS OF RACING AND CRUISING PLEASURE.

3.9 INTERIOR CUSHION, FABRIC COVER:

CLEANING:

1. REGULAR VACUUM CLEANING OR BRUSHING IN THE DIRECTION OF THE PILE WITH A SOFT BRUSH.

2. STAINS SHOULD, IF POSSIBLE, BE REMOVED AT ONCE WITH A DAMP CLOTH. DO NOT ALLOW STAINS TO HARDEN AND AGE.

3. GREASY STAINS CAN BE REMOVED WITH ORDINARY CLEANING FLUID.

4. FOR OVERALL CLEANING, USE COMMERCIAL TYPES OF UPHOLSTERY SHAMPOO USING ONLY THE FOAM TO PROTECT THE BACK PADDING FROM MOISTURE. AFTER A MINUTE OR SO, REMOVE FOAM, AND WHEN DRY, VACUUM OR BRUSH IN THE DIRECTION OF THE PILE.

5. DO NOT USE HEAT SUCH AS AN IRON OR STEAM.

3.9.1 CURTAINS:

WHEN CURTAINS BECOME SOILED, DO NOT HAND OR MACHINE WASH, AS IT WILL WEAKEN THE MATERIAL. DRY CLEANING IS THE RECOMMENDED PROCEDURE FOR THE REMOVAL OF ANY DIRT OR STAINS.

4.0 Y A C H T S Y S T E M S

4.1 RIGGING:

4.1.1 STEPPING THE MAST:

CAUTION: THE ALUMINUM AND OTHER METAL PARTS CONDUCT ELECTRICITY. BEING IN CONTACT WITH OR NEAR AN ELECTRICAL POWER LINE OR LIGHTNING CAN CAUSE SEVERE INJURY OR DEATH. STAY AWAY FROM OVERHEAD ELECTRICAL POWER LINES WHEN SAILING AND/OR LAUNCHING THE BOAT.

WHEN TRAILERING YOUR BOAT ALWAYS TRY TO UNFASTEN AS LITTLE RIGGING AS POSSIBLE. IT IS NECESSARY ONLY TO UNFASTEN THE TWO FORWARD LOWER SHROUDS AND THE FORESTAY BEFORE LOWERING THE MAST.

1. BEFORE RAISING MAST, MAKE SURE HALYARDS ARE NEATLY TIED DOWN AND THAT THEY ARE ON PROPER SIDES OF THE SPREADERS. YOU SHOULD NEVER ATTEMPT TO RAISE THE MAST UNLESS THE UPPER SHROUDS (THOSE THAT PASS OVER THE SPREADERS) AND THE AFT LOWER SHROUDS ARE ATTACHED TO THE DECK FITTINGS AND THE TURNBUCKLES WELL 'STARTED' INTO THEIR BARRELS. THE TURNBUCKLES MUST NOT BE COMPLETELY TIGHTENED HOWEVER, BECAUSE SLACK IS NEEDED IN THE SHROUDS TO ENABLE THE MAST TO BE FULLY RAISED. THE BACKSTAY SHOULD BE ATTACHED TO THE TRANSOM CHAINPLATE. THE UPPER SHROUDS, AFTER LOWER SHROUDS, AND BACKSTAY WILL KEEP THE MAST FROM FALLING OVER WHEN IT IS RAISED, THEREFORE, ALL OF THESE MUST BE ATTACHED TO THE CHAINPLATES BEFORE THE MAST IS RAISED.

2. MAKE SURE THAT THE SHROUDS AND STAYS ARE NOT FOULED. BACKSTAY SHOULD LIE CLEAR OF THE TRANSOM. YOU MAY STEP THE MAST ON LAND OR WHILE THE BOAT IS IN THE WATER. IT SEEMS TO BE EASIER ON LAND BECAUSE THE BOAT IS STILL. ALSO, IT KEEPS OTHER SAILORS FROM GETTING IMPATIENT WHILE THEY WAIT FOR YOU TO MOVE OUT OF THE LAUNCH AREA.

3. WALK THE MAST AFT AND DROP THE MAST FOOT INTO THE TABERNACLE LOCATED ON TOP OF THE DECK, KEEPING THE MAST IN CENTER LINE OF BOAT. INSERT THE PIVOT BOLT AND LOCKING NUT.

4. ONE CREW MEMBER SHOULD PULL ON A LINE TIED SECURELY TO THE FORESTAY WHILE ANOTHER PUSHES UP ON THE MAST AND WALKS FROM THE COCKPIT FORWARD. WITH THE MAST ERECT, ATTACH THE FORESTAY AND FORWARD LOWER SHROUDS.

4.1.2 TUNING THE MAST:

Your mast is held aloft by the standing rigging (forestay, backstay, upper shrouds, fore and aft, lower shrouds). The term "tuning" refers to adjustment of the standing rigging so that the mast remains "in column" (not bent) when under load. This is accomplished by following the procedure outlined below:

AT THE DOCK:

1. Adjust forestay and backstay so that the mast is straight up and down. Tie a bolt to a 6 or 7 foot long piece of light line to make a quick plumb bob, and tape the free end of the line to the front of the mast as high up as you can reach. This devise will help you to determine if the mast is perpendicular or not.

2. Adjust the upper shrouds so that the mast is centered atwarthships. That is, from side to side as opposed to bow and stern.

3. The upper shrouds should be firm but not bar tight. A 50 pound push should deflect the upper shroud about 1" at shoulder height.

4. The lower shrouds (4 of them) should be adjusted so that they are looser than the upper shrouds. While at dock, they should have no slack, but no tension either. No lower shroud, when pushed, should deflect the mast more than any other shroud when pushed equally hard. If this cannot be achieved, the upper shrouds are too tight. Back off one half turn at a time of the upper shroud turnbuckles until the tension on the lower shrouds is brought into balance.

UNDER SAIL:

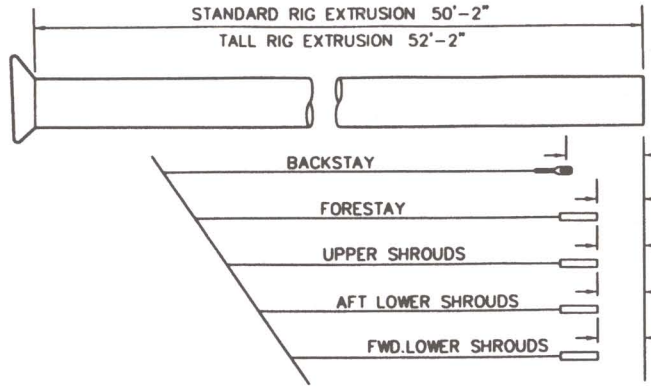
The object of fine tuning is to have the mast "in column" (not bent fore or aft or athwartships) when sailing in conditions typical for your area. This is accomplished through adjustments to the lower shroud turnbuckles. Here are some points to look for:

1. When sailing on port tack, sight up the mast from the base. If the middle (where the spreaders are) is sagging to leeward, take up equally on both port lower shrouds until the mast is "in column". Repeat this procedure on starboard tack.

2. If, when sighting up the mast while on port tack, the middle is bowed forward (but not to leeward), take up a turn on the port aft lower shroud and let out a turn on the port forward lower shroud turnbuckle. Reverse these adjustments if the middle of the mast is aft of the "in column" position.

3. If a perfectly straight mast is not obtained, the mast head (top) may be curved aft and to leeward. The mast head should never be "hooked" or bowed forward, nor to weather.

All rigging wire used on yachts has a tendency to stretch, especially on a new yacht, and after you have sailed in heavier wind than you are normally experienced for, therefore, you should periodically check the tension on the shrouds and stays, and tighten them, if it is required. Rigging, as well as tuning, becomes all too important when setting up the mast. A knowledgeable person should oversee the rigging and tuning so as to eliminate the possibility of an eccentric load, which might occur with an improperly loaded shroud. Special attention should be given to the initial stretch of the shrouds and a further gradual stretch of the wire over the first few hard outings.



STANDARD	TALL	TOP FITTING	BOTTOM FITTING
16'-11 1/2"	17'-4"	EYE 5/8" PIN	FORK 5/8" PIN
4'-10"	5'-1 3/4"	EYE 5/8" PIN	5/8" STUD
5'-7 3/4"	5'-8"	EYE 1/2" PIN	1/2" STUD
5'-7 1/4"	5'-7 1/2"	EYE 1/2" PIN	1/2" STUD
5'-10 1/4"	5'-9"	EYE 1/2" PIN	1/2" STUD

RUNNING RIGGING

DESCRIPTION	MATERIAL	LENGTH	QTY.
TOPPING LIFT TAIL	5/16" DACRON	100' 0"	1
REEFING LINE	3/8" DACRON	60' 0"	1
FOREGUY	3/8" DACRON	45' 0"	1
GENOA SHEET	7/16" DACRON	55' 0"	2
JIB SHEET	7/16" DACRON	45' 0"	2
TRAVELER CONTROL LINES	5/16" DACRON	30' 0"	2
SPINNAKER SHEET	7/16" DACRON	70' 0"	2
MAINSHEET	7/16" DACRON	100' 0"	1
2nd REEFING LINE	3/8" DACRON	80' 0"	1
SOLID VANG LINE	3/8" DACRON	13' 0"	1
VANG PURCHASE LINE	3/8" DACRON	32' 0"	1

STANDING RIGGING

DESCRIPTION	MATERIAL	LENGTH		QTY.
		STD.	TALL	
BACKSTAY	5/16" WIRE 1x19	32'-11 3/4"	34'-7"	1
BACKSTAY BRIDLE **	1/4" WIRE 1x19	15'-1"	15'-1"	2
FORESTAY *	5/16" WIRE 1x19	45'-1"	47'-3"	1
UPPER SHROUDS	5/16" WIRE 1x19	42'-10 3/4"	44'-11"	2
AFT LOWER SHROUDS	1/4" WIRE 1x19	22'-10 1/4"	23'-10 1/4"	2
FWD LOWER SHROUDS	1/4" WIRE 1x19	22'-7"	23'-8 1/2"	2

*For SCHAEFER furling system only

**Bridle to be FORK to 3/8" STUD

HALYARDS

DESCRIPTION	MATERIAL	LENGTH		QTY.
		STD.	TALL	
MAINSAIL HALYARD	3/8" LOW STRETCH	115'-0"	117'-0"	1
JIB HALYARD	3/8" LOW STRETCH	115'-0"	117'-0"	2
SPINNAKER HALYARD	3/8" LOW STRETCH	115'-0"	117'-0"	1

NOTES: 1) TOLERANCES ±1/2"

2) MEASUREMENTS FROM CENTER OF EYE TO CENTER OF EYE OR END OF STUD

REV.Nº	DESCRIPTION	DATE
9	VANG frm 26' to 13' – PURCHASE frm 30' to 32'	12-15-96
8	ADD SOLID VANG & VANG PURCHASE LINES	6-30-95
7	MAINSHEET FROM 80' TO 100'	6-30-94
6	ADD MK-II DIMS, BRIDLES FROM 15' TO 15'1"	3- 1-94
5	TOPPING LIFT TAIL FROM 53' TO 100'	12-24-92
0	ORIGINAL ISSUE	10-15-91

Catalina Yachts

21200 VICTORY BLVD.
WOODLAND HILLS, CA.
91367-(818)884-7700

SCALE: NONE

DATE: 10-15-91

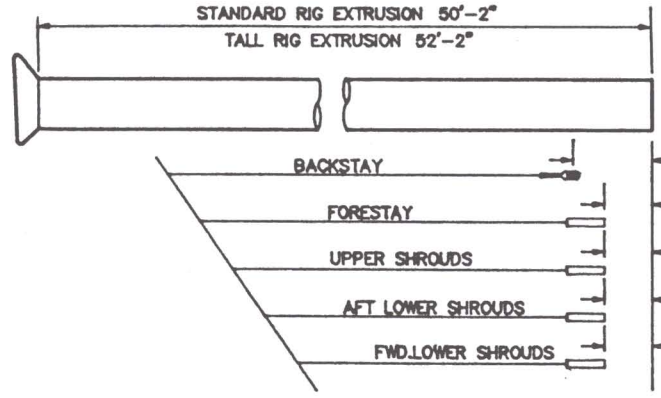
APPROVED BY:

DRAWN BY: DANIEL CASAL

TITLE: RIGGING LENGTH

BOAT: CATALINA 36 MK II

DRAWING NUMBER: 360-34003/4- 9



STANDARD	TALL	TOP FITTING	BOTTOM FITTING
16'-11 1/2"	17'-4"	EYE 5/8" PIN	FORK 5/8" PIN
4'-10"	5'-1 3/4"	EYE 5/8" PIN	5/8" STUD
5'-7 3/4"	5'-8"	EYE 1/2" PIN	1/2" STUD
5'-7 1/4"	5'-7 1/2"	EYE 1/2" PIN	1/2" STUD
5'-10 1/4"	5'-9"	EYE 1/2" PIN	1/2" STUD

RUNNING RIGGING

DESCRIPTION	MATERIAL	LENGTH	QTY.
TOPPING LIFT TAIL	5/16" DACRON	100' 0"	1
REEFING LINE	3/8" DACRON	60' 0"	1
BOOM VANG LINE	7/16" DACRON	40' 0"	1
FOREGUY	3/8" DACRON	45' 0"	1
GENOA SHEET	7/16" DACRON	55' 0"	2
JIB SHEET	7/16" DACRON	45' 0"	2
TRAVELER CONTROL LINES	5/16" DACRON	30' 0"	2
SPINNAKER SHEET	7/16" DACRON	70' 0"	2
MAINSHEET	7/16" DACRON	80' 0"	1
2nd REEFING LINE	3/8" DACRON	80' 0"	1

STANDING RIGGING

DESCRIPTION	MATERIAL	LENGTH		QTY.
		STD.	TALL	
BACKSTAY	5/16" WIRE 1x19	32'-11 3/4"	34'-7"	1
BACKSTAY BRIDLE**	1/4" WIRE 1x19	15'-0"	15'-0"	2
FORESTAY *	5/16" WIRE 1x19	45'-1"	47'-3"	1
UPPER SHROUDS	5/16" WIRE 1x19	42'-10 3/4"	44'-11"	2
AFT LOWER SHROUDS	1/4" WIRE 1x19	22'-10 1/4"	23'-10 1/4"	2
FWD LOWER SHROUDS	1/4" WIRE 1x19	22'-7"	23'-8 1/2"	2

*For SCHAEFER furling system only

**Bridle to be FORK to 3/8" STUD

HALYARDS

DESCRIPTION	MATERIAL	LENGTH		QTY.
		STD.	TALL	
MAINSAIL HALYARD	3/8" LOW STRETCH	115'-0"	117'-0"	1
JIB HALYARD	3/8" LOW STRETCH	115'-0"	117'-0"	2
SPINNAKER HALYARD	3/8" LOW STRETCH	115'-0"	117'-0"	1

NOTES: 1) TOLERANCES ±1/2"

2) MEASUREMENTS FROM CENTER OF EYE TO CENTER OF EYE OR END OF STUD

REV.N°	DESCRIPTION	DATE
5	TOPPING LIFT TAIL FROM 53' TO 100'	12-24-92
4	TALL RIG FORESTAY WAS 47'-7 1/2"	7-31-92
3	TRAV. CONTROL LINES FROM 24' TO 30'	3-2-92
2	TALL RIG LENGTHS	12-19-91
1	SINGLE LINE REEF	12-6-91
0	ORIGINAL ISSUE	10-15-91

Catalina Yachts
21200 VICTORY BLVD.
WOODLAND HILLS, CA.
91367-(818)884-7700

SCALE: NONE | APPROVED BY: | DRAWN BY: DANIEL CASAL

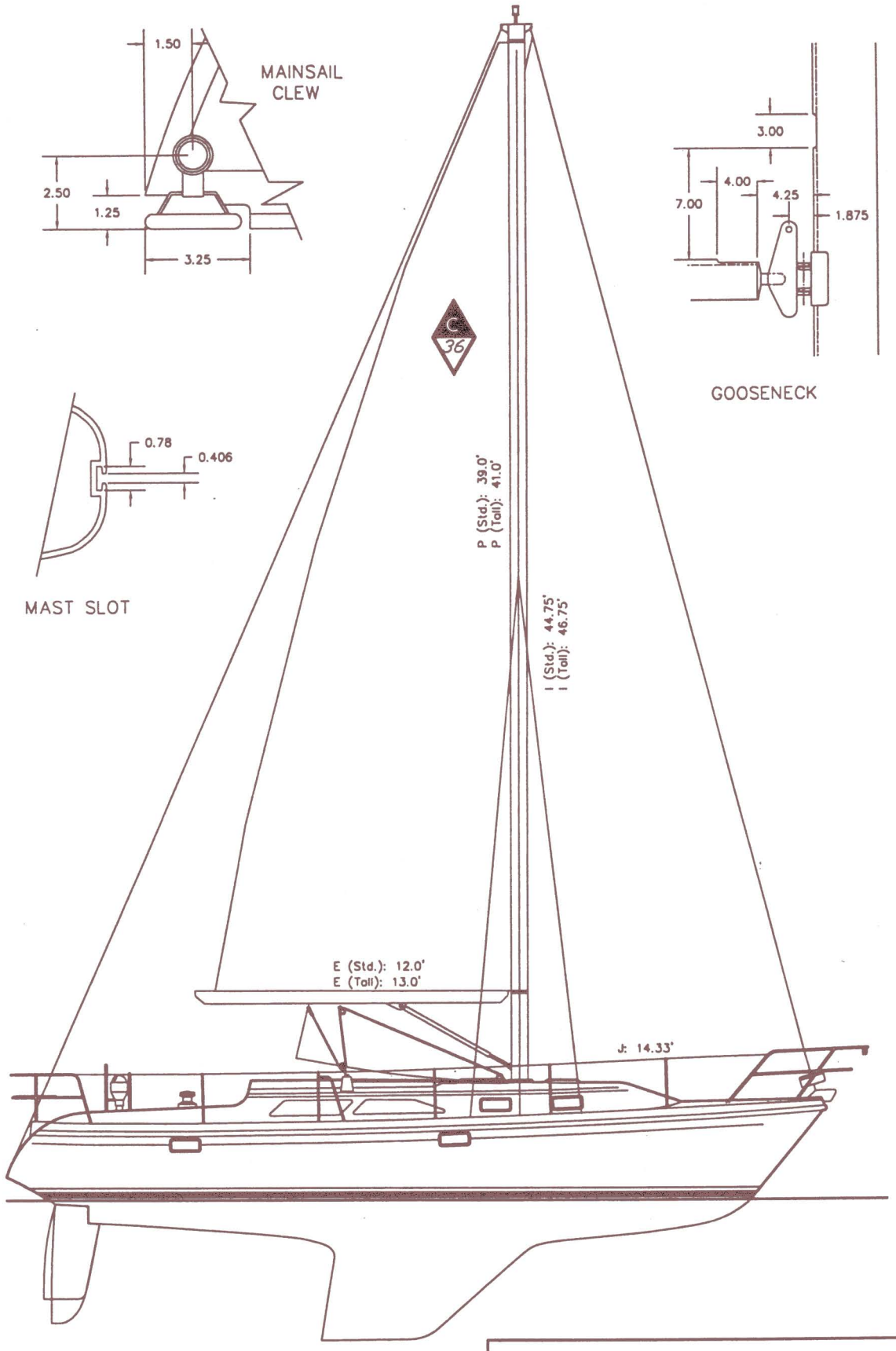
DATE: 10-15-91

TITLE:

RIGGING LENGTH

BOAT: CATALINA 36

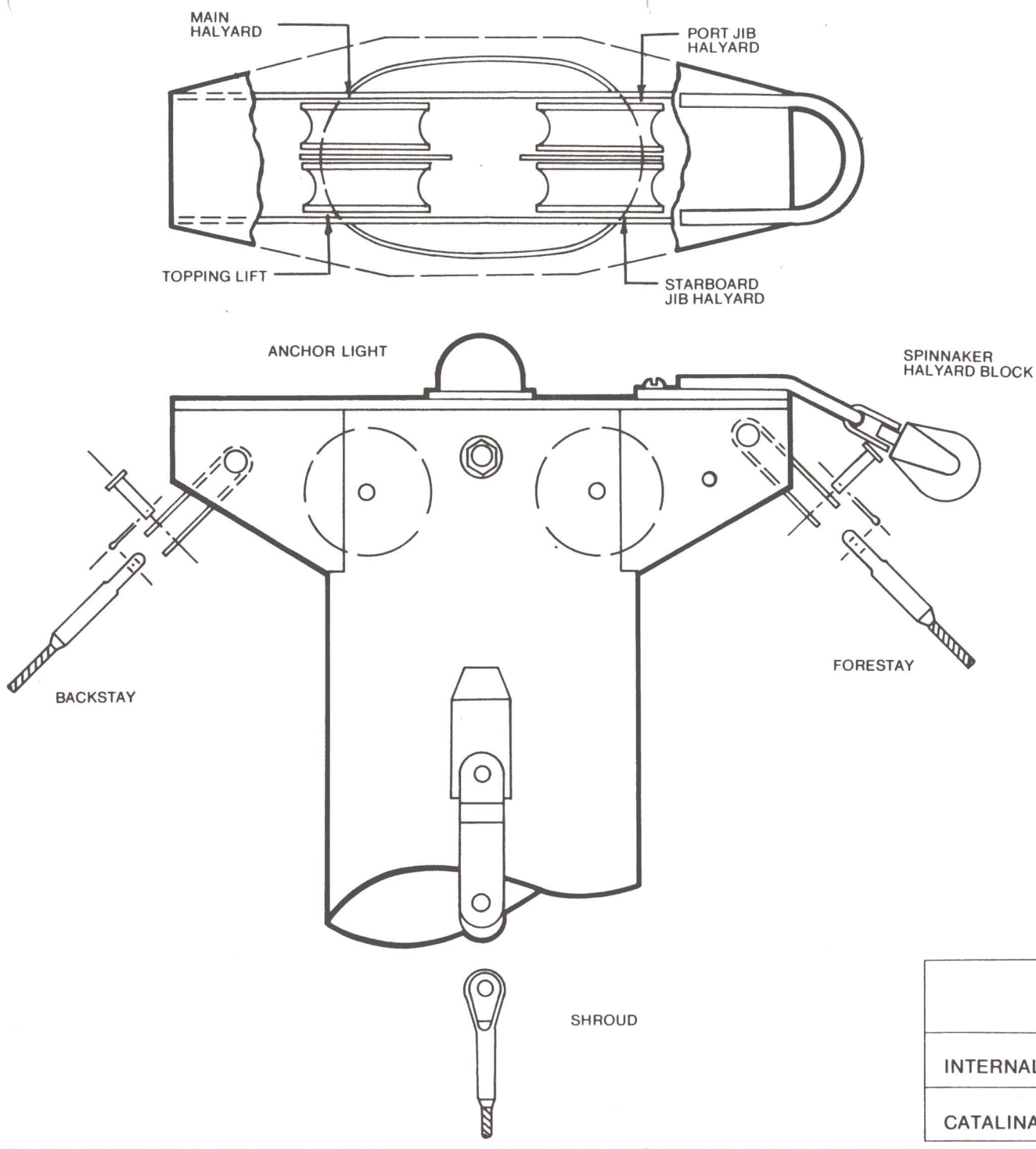
DRAWING NUMBER: 360-34003/4- 5



Catalina // Yachts

SAIL PLAN

4.1.4



CATALINA YACHTS INC. 21200 VICTORY BLVD. WOODLAND HILLS, CA
INTERNAL HALYARD MAST HEAD ASSEMBLY
CATALINA 36 OWNERS MANUAL 4.1.5

4.1.6 MAINSAIL REEFING:

Reefing should always be done before it becomes necessary. Some sailors use the rule of thumb that if the thought of reefing occurs to you, it is time to reef. Sailing at extreme angles of heel, 25 degrees or more, is not efficient, fast or comfortable.

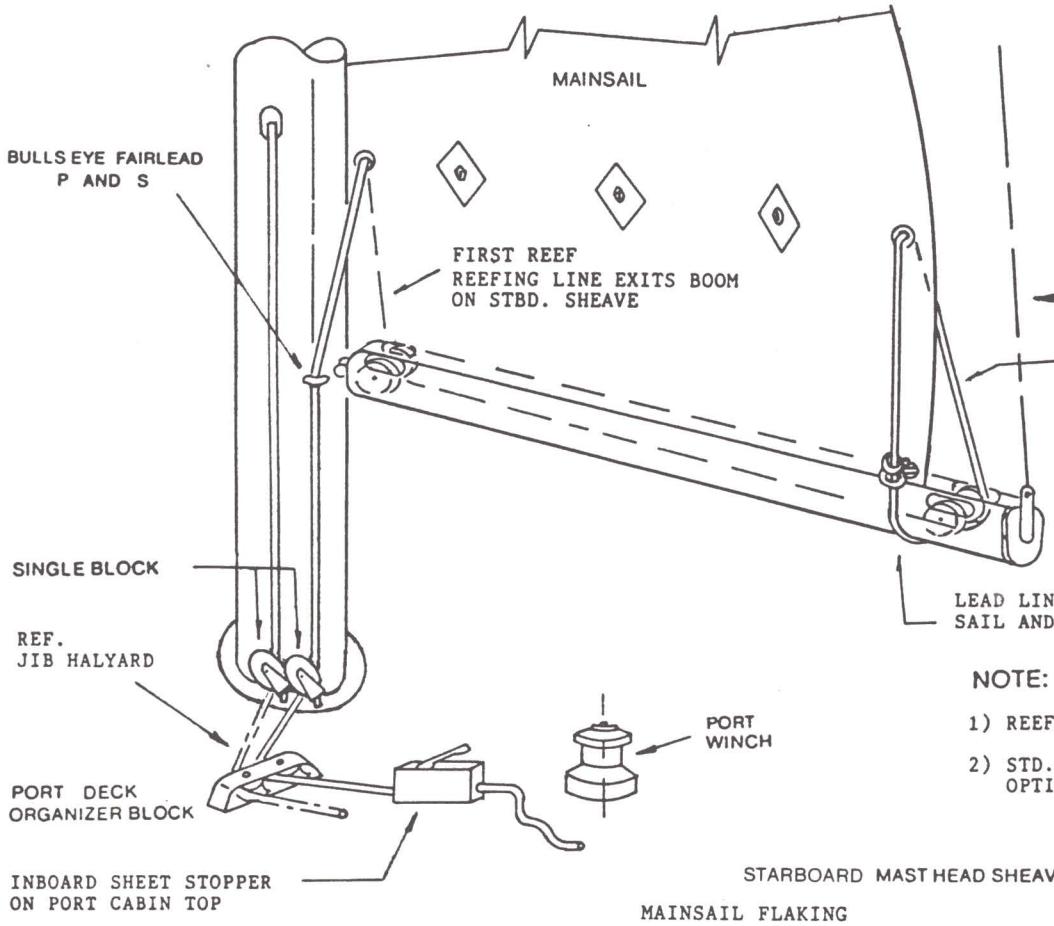
Your Catalina is equipped with single line reefing, for reefing the mainsail. The system consists of a line tied around the boom and reeved through the cringles, internal boom sheaves, and blocks as shown in the illustration. It is controlled through the port cabin top winch. A second reef line may be installed in a like manner, but to the opposite side of the boom, and led to the starboard side of the cockpit.

Tie a loop of line around the main boom with a bowline, through the cringles at the first reef and into the boom on the starboard sheave. The line exits the starboard forward sheave and through the cringle in the sail at the first reef. Lead the line to the turning block at the base of the mast, through the organizer on deck and through the sheet stopper to the winch on the port side.

REEFING PROCEDURE:

1. Ease the mainsheet.
2. Release the main halyard on the starboard side of the cockpit, to a predetermined point. (marking the halyard with ink or a colored thread into the line is helpful.) Recleat the halyard after lowering.
3. Pull the luff and leech cringles down to the boom by pulling the reefing line through the blocks with the port cockpit winch and cleat off.
4. Snug up the main halyard as required to flatten out the mainsail.
5. Trim in the mainsheet.
6. Roll or gather and neaten up extra sail area onto boom utilizing remaining reef points with lines around boom.

MAINSAIL SINGLE LINE REEFING ILLUSTRATION

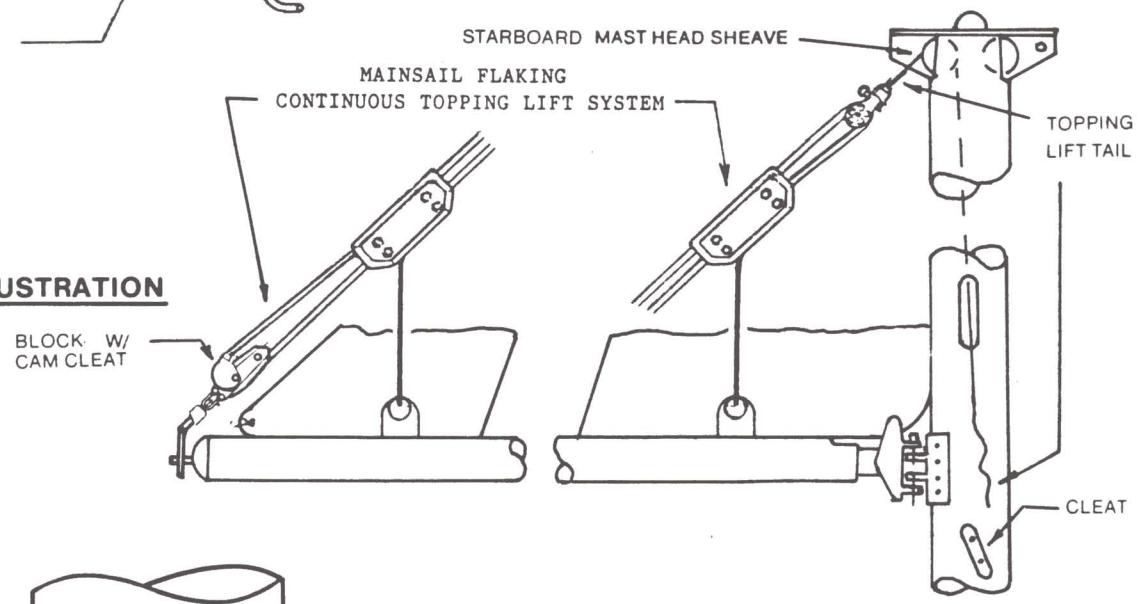


NOTE:

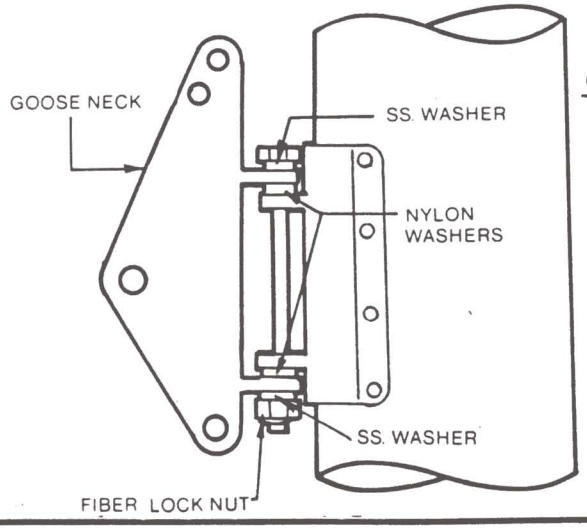
1) REEFING LINE 3/8" x 55' DACRON.

2) STD. SINGLE LINE REEF SHOWN, OPTIONAL SECOND REEF OPPOSITE SIDE

TOPPING LIFT ILLUSTRATION



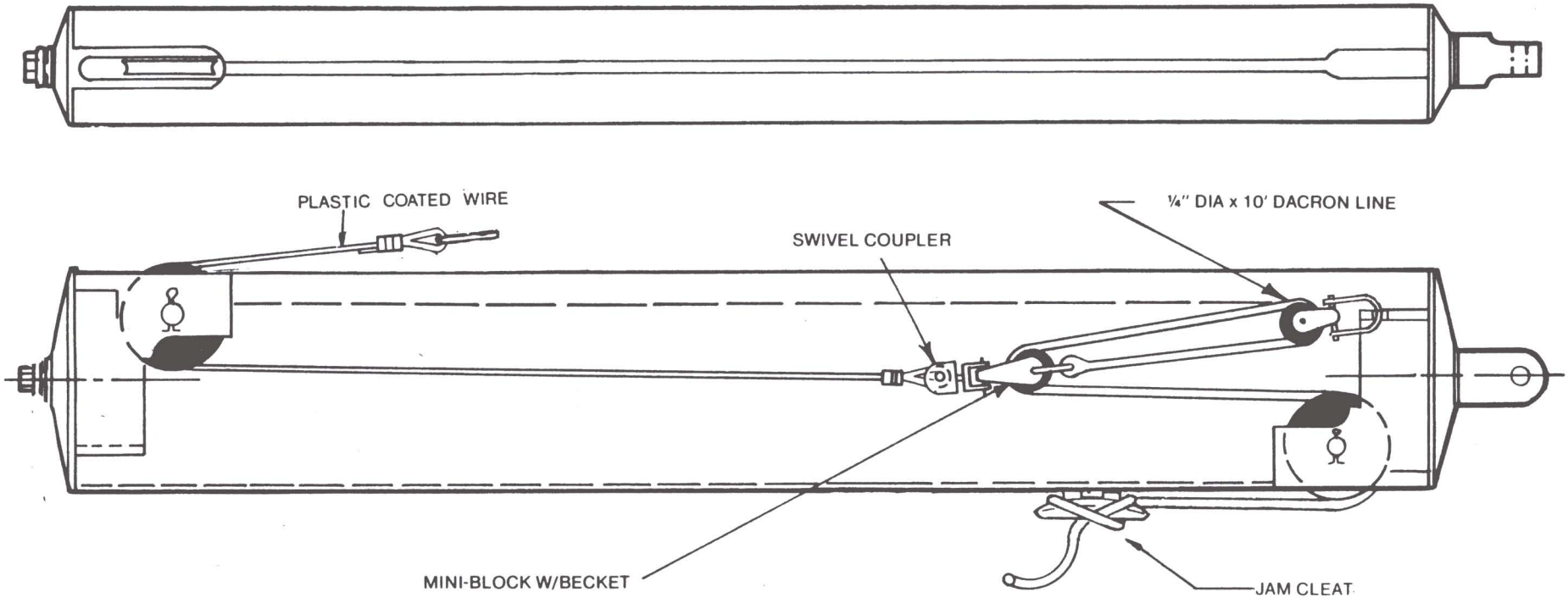
GOOSENECK ILLUSTRATION



* BLOCKS ARE DRAWN OVERSIZE FOR CLARIFICATION

CATALINA YACHTS INC. 21200 VICTORY BLVD. WOODLAND HILLS, CA
MAIN SAIL REEFING TOPPING LIFT ASSEMBLY GOOSE NECK ARRANGEMENT 1-25-92
CATALINA 36 OWNERS MANUAL 4.1.7

TOP VIEW



NOTE: REEFING NOT DRAWN FOR CLARITY.

CATALINA YACHTS INC. 21200 VICTORY BLVD. WOODLAND HILLS, CA	
INTERNAL OUTHAUL ASSEMBLY	5-8-92
CATALINA 36 OWNERS MANUAL	4.1.8

MAINSHEET ARRANGEMENT

SINGLE FIXED BLOCK — A

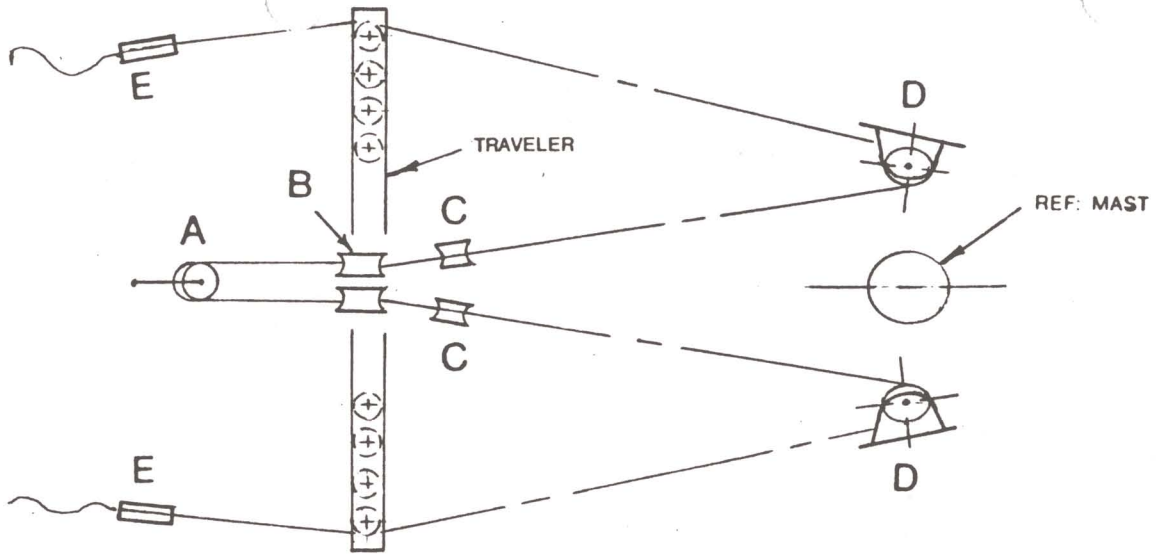
DOUBLE FIXED BLOCK — B

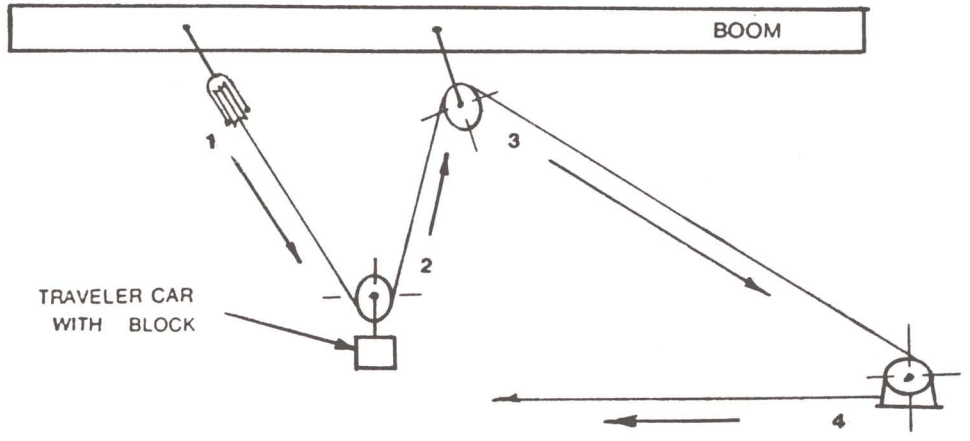
SINGLE SWIVEL BLOCK — C

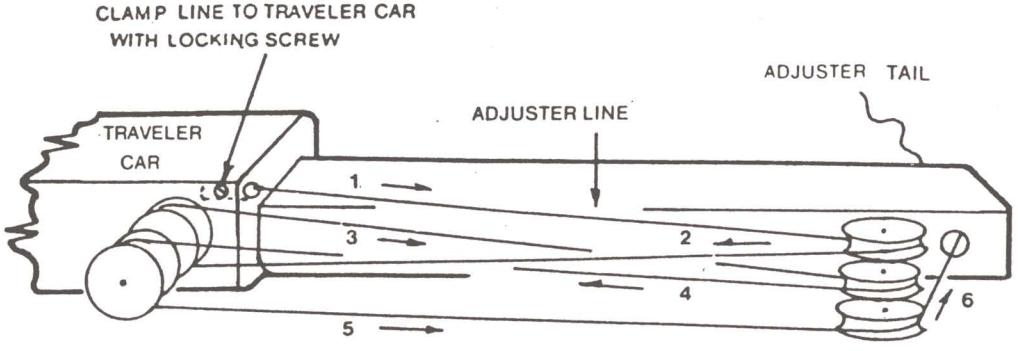
SINGLE PIVOTING BLOCK — D

CLAM CLEAT W/SPRING GATE — E

NOTE: DO NOT LEAD MAINSHEET THROUGH. LOCK-OUT BAIL ON CAM CLEAT, THIS BAIL IS USED TO PREVENT THE MAINSHEET FROM ACCIDENTALLY ENGAGING IN CLEAT DURING NORMAL USE. USE CLEAT WHEN REEFING OR WHEN WINCH IS IN USE FOR MAIN HALYARD.





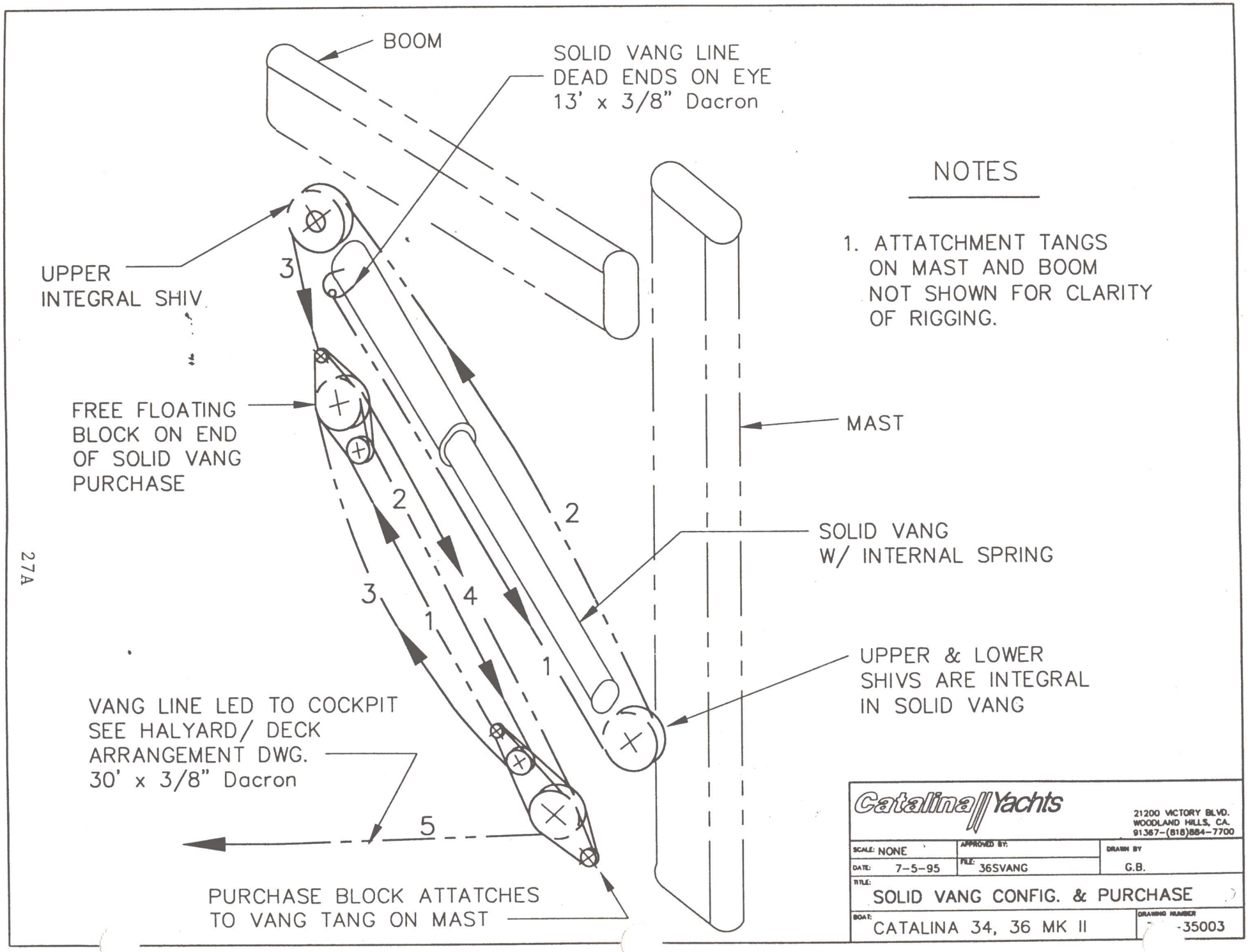


TRAVELER ADJUSTER ASSEMBLY

CATALINA YACHTS INC.
21200 VICTORY BLVD.
WOODLAND HILLS, CA

MAINSHEET / **TRAVELER ASSEMBLY**

CATALINA 36 MKII OWNERS MANUAL .4.1.9



NOTES

1. ATTATCHMENT TANGS ON MAST AND BOOM NOT SHOWN FOR CLARITY OF RIGGING.

27A

Catalina Yachts

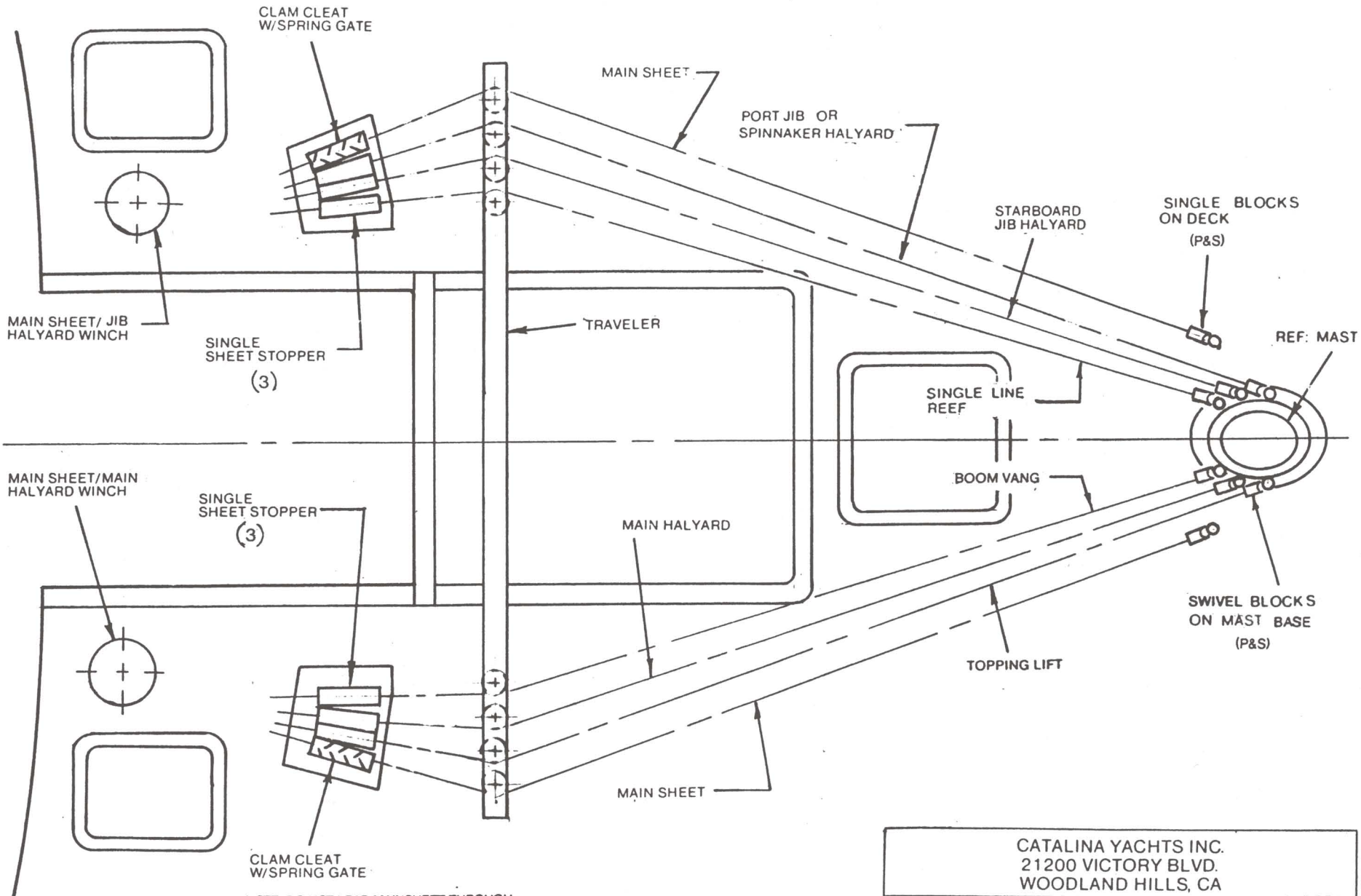
21200 VICTORY BLVD.
WOODLAND HILLS, CA.
91367-(818)884-7700

SCALE: NONE	APPROVED BY:	DRAWN BY
DATE: 7-5-95	FILE: 36SVANG	G.B.

TITLE: SOLID VANG CONFIG. & PURCHASE

BOAT: CATALINA 34, 36 MK II

DRAWING NUMBER -35003

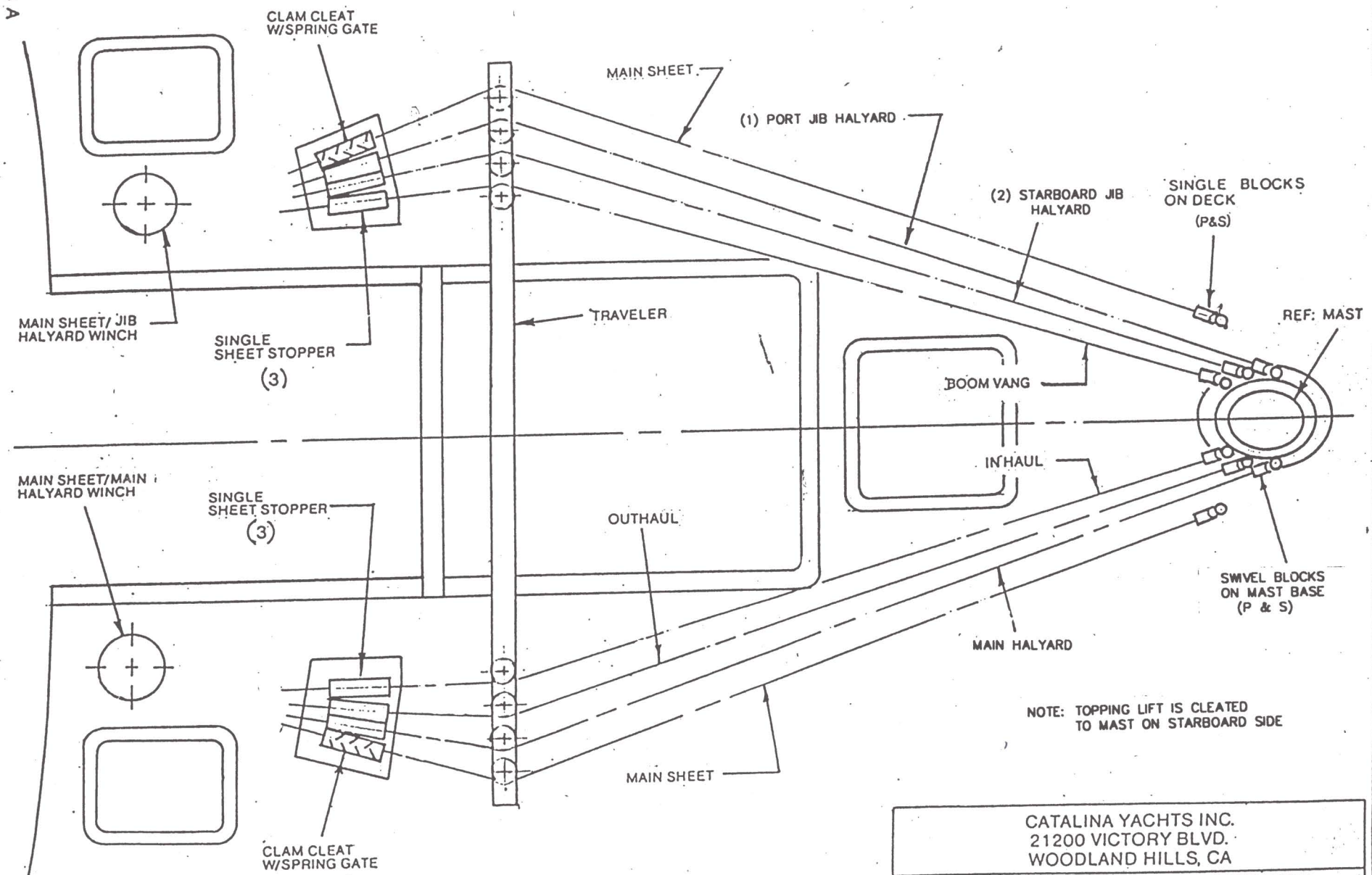


NOTE: DO NOT LEAD MAINSHEET THROUGH. LOCK-OUT BAIL ON CAM CLEAT, THIS BAIL IS USED TO PREVENT THE MAINSHEET FROM ACCIDENTALLY ENGAGING IN CLEAT DURING NORMAL USE. USE CLEAT WHEN REEFING OR WHEN WINCH IS IN USE FOR MAIN HALYARD.

CATALINA YACHTS INC.
21200 VICTORY BLVD.
WOODLAND HILLS, CA

HALYARD ARRANGEMENT ILLUSTRATION

CATALINA 36 MK II | OWNERS MANUAL | 4.1.10



NOTE: DO NOT LEAD MAINSHEET THROUGH LOCK-OUT BAIL ON CAM CLEAT, THIS BAIL IS USED TO PREVENT THE MAINSHEET FROM ACCIDENTALLY ENGAGING IN CLEAT DURING NORMAL USE. USE CLEAT WHEN REEFING OR WHEN WINCH IS IN USE FOR MAIN HALYARD.

CATALINA YACHTS INC.
21200 VICTORY BLVD.
WOODLAND HILLS, CA

HALYARD ARRANGEMENT ILLUSTRATION
FURLING MAST ONLY

CATALINA 34 MK II, CATALINA 36 MK II OWNERS MANUAL 4.1.10

Congratulations! Your yacht is fitted with a Z.Spars furling spars

The design and technology of our furling masts will provide you with convenience and confort whilst cruising

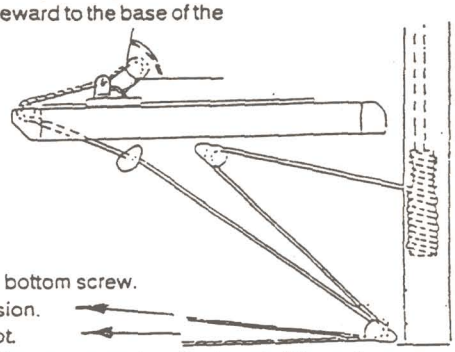
Preparation

Installing the furling rope.

Inside the slot under the gooseneck you will be able to see the coils of rope wound on the furling drum.
Make sure the rope is fully wound on the drum then unwind three turns.
Lead the rope from this slot around the pulley situated under the boom just in front of the kicker, then through the swivel pulley attached to the aft end of the mast base, through the halyard organiser and back to the self-tailing winch on the coach roof.

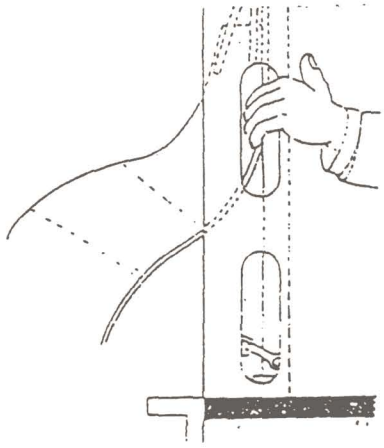
Installing the outhaul rope.

This rope attaches to the front of the boom traveller, it lead around the pulley in the clew of the mainsail, back underneath the pulley on the boom car, around the sheave in the boom outhaul casting, through the halyard exit underneath the boom, through a pulley behind the kicker, then led foreward to the base of the mast and back to the cockpit in the same way as the furling rope.



Installing the sail

Open both sets of inspection covers by removing the top screw and loosening the bottom screw.
Moving the top covers sideways will reveal the sail entry slot cut in the furling extrusion.
Thread the head of the sail through the mast slot and feed the sail into the entry slot.
Lower the main halyard down to allow the shackle on the swivel to be attached to the strap sewn into the head of the sail using an allen key.
Continue to feed the sail gently with the finger whilst the main halyard is being hoisted.
Do not attempt to install the sail with the wind from astern. (This trask is best atempted in little or no wind.)
Connect the bottom strap of the sail to the base of the furling extrusion with the shackle provided by gaining access through the lower pair of inspection ports. Complete the installation by applying moderate tension on halyard.
Refit inspection hatches.



Furling the sail

Maintain a slight tension on the outhaul rope. Furl the sail with the wind ahead (a slight pressure from the wind prevent creases in the sail.)

Attention

Ensure that when the sail is fully furled (as far as the reinforcement patch at the clew) the furling drum has 2 or 3 turns of rope left on it.

It is not possible to use vertical battens.

Check that the kicker dont stop the main sail furling operation, it may stech the main sail to much.
Ajust the main topping lift to prevent this effect.

Maintenance

Your Z Spars mast require minimum maintenance

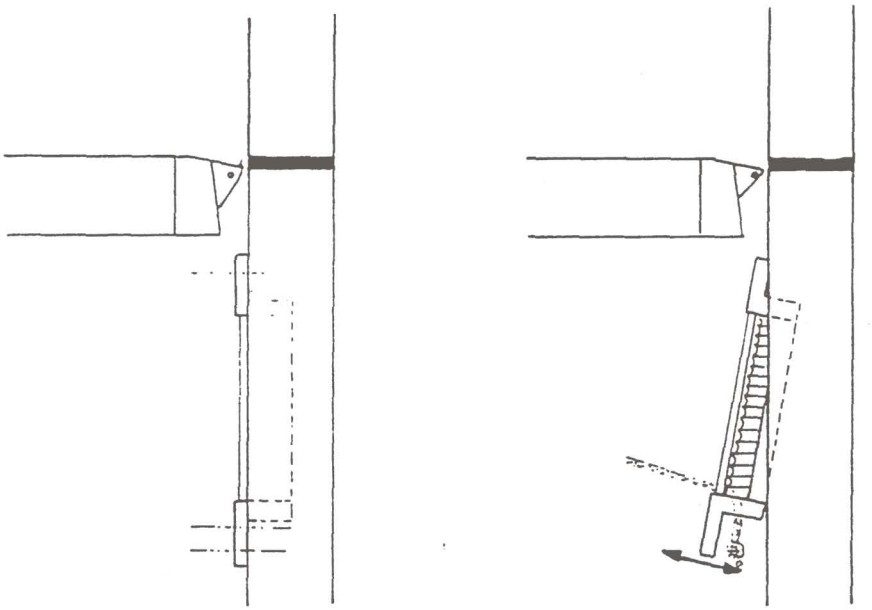
Greasing

Use a grease gun with nozzle, not an acrosol:

1. on the ball race of the halyard swivel.
2. on the ball race of the top and bottom of the furling mecanism.

Changing the furling rope

Remove the lower holding the furling mechanism to the mast and pull it away at the lower end (see sketch)
The furling rope is retained by a simple knot inside the furling screw. Push the rope inwards and
the knot will appear at the bottom of the furling screw. Undo the knot and replace the rope.
(we recommend 10 mm rope of good quality which will not tend to flatten.) Rassemble the unit before
loading all the treads of the screw with the new rope..
Lower main halyard and rejoin the furling extrusion to the mecanism by fastening
the tack shackle. Refit inspection hatches.



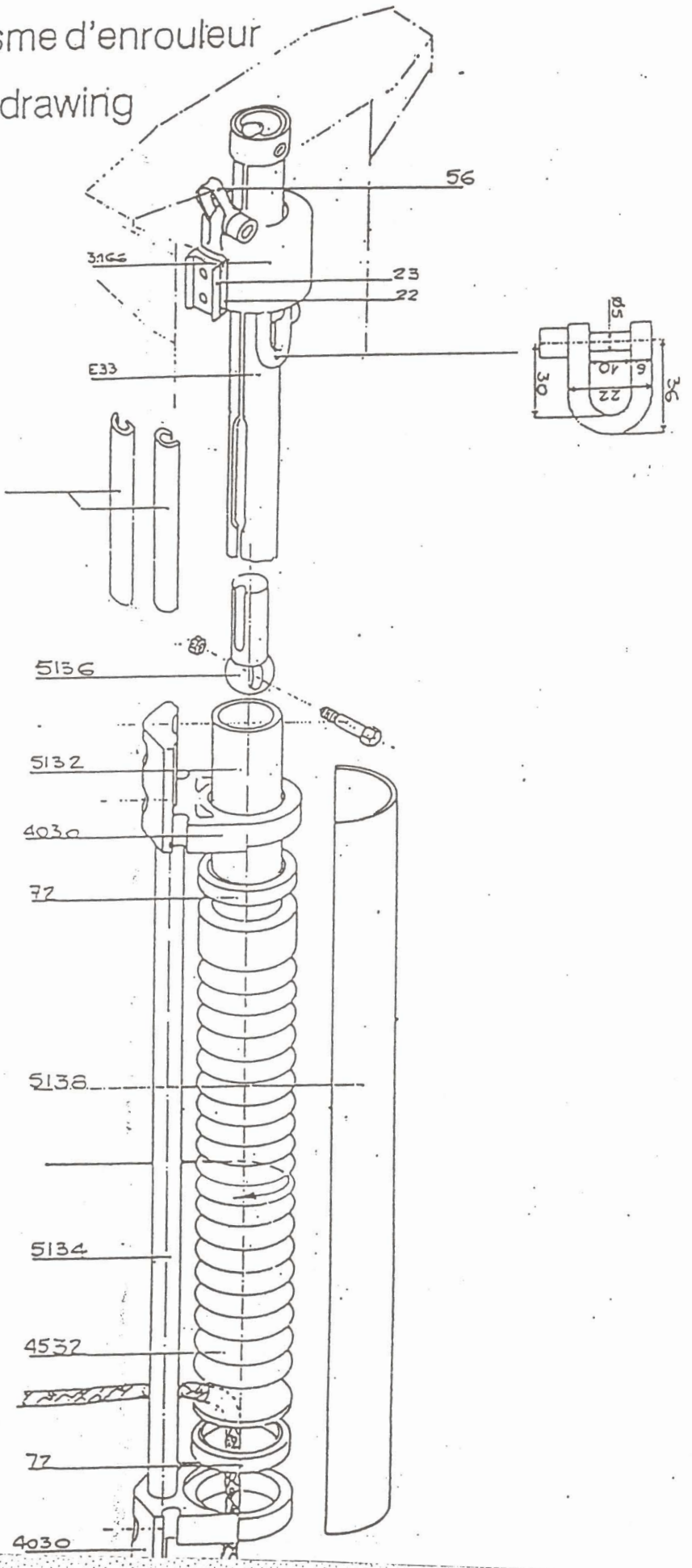
Cause of malfunction

When unfurling the sail there is resistance for the boom car to move towards the clew of the sail.
Mast likely cause is either too much main sheet or kicker tension.

When unfurling the sail there are crease as through the sail is fresh out of the sail bag.
Most probable cause is that the sailmaker has made the luff too long.
Another possible cause: The sail was furl with a kicker too stech so the boom was too low.

Eclaté du mecanisme d'enrouleur

Furling mecanism drawing



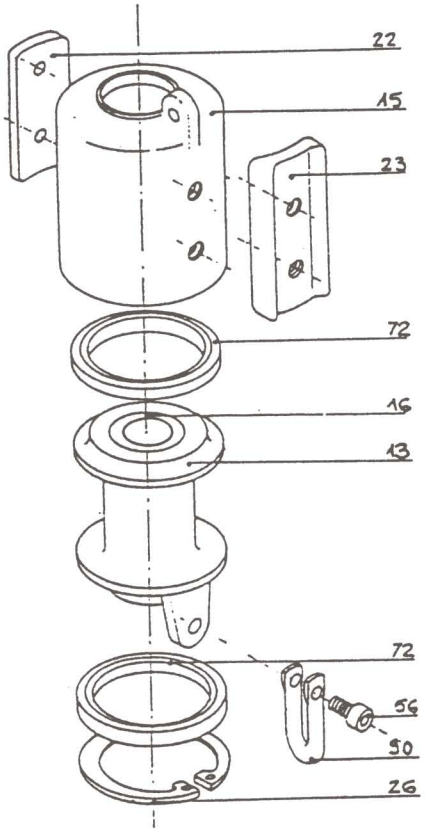
PROTECTION ref:1516

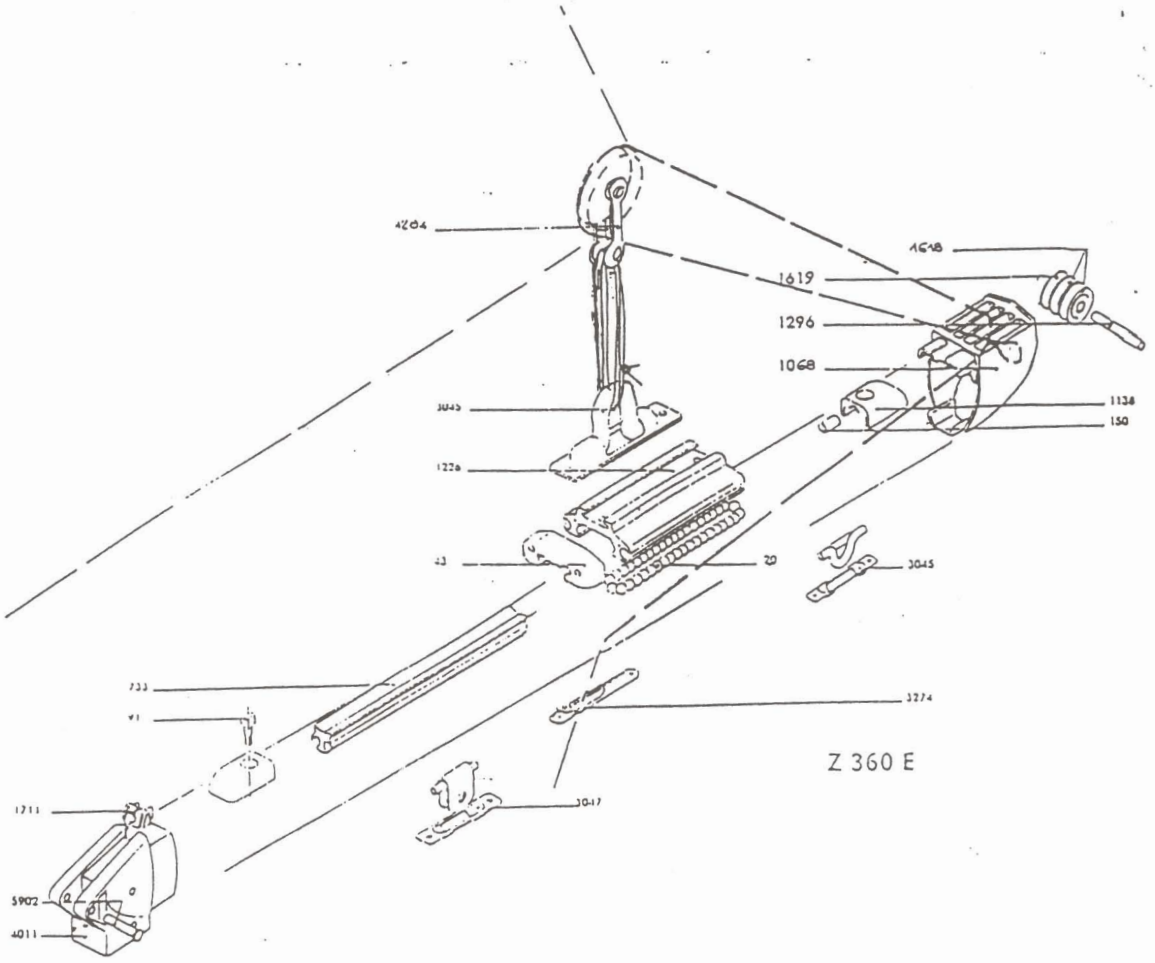
SLOT ref 1516

coile ref:SIKAFLEX A.M

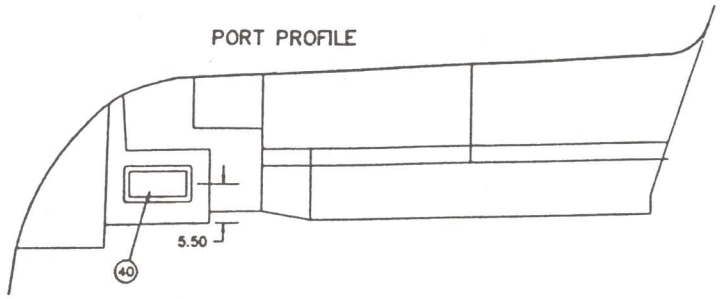
glue REF: SIKAFLEX A.M

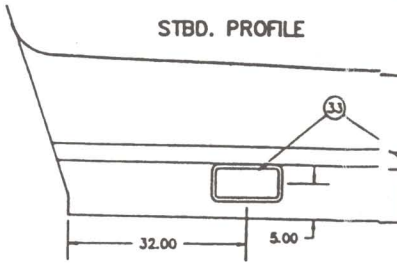
Halyard Swivel

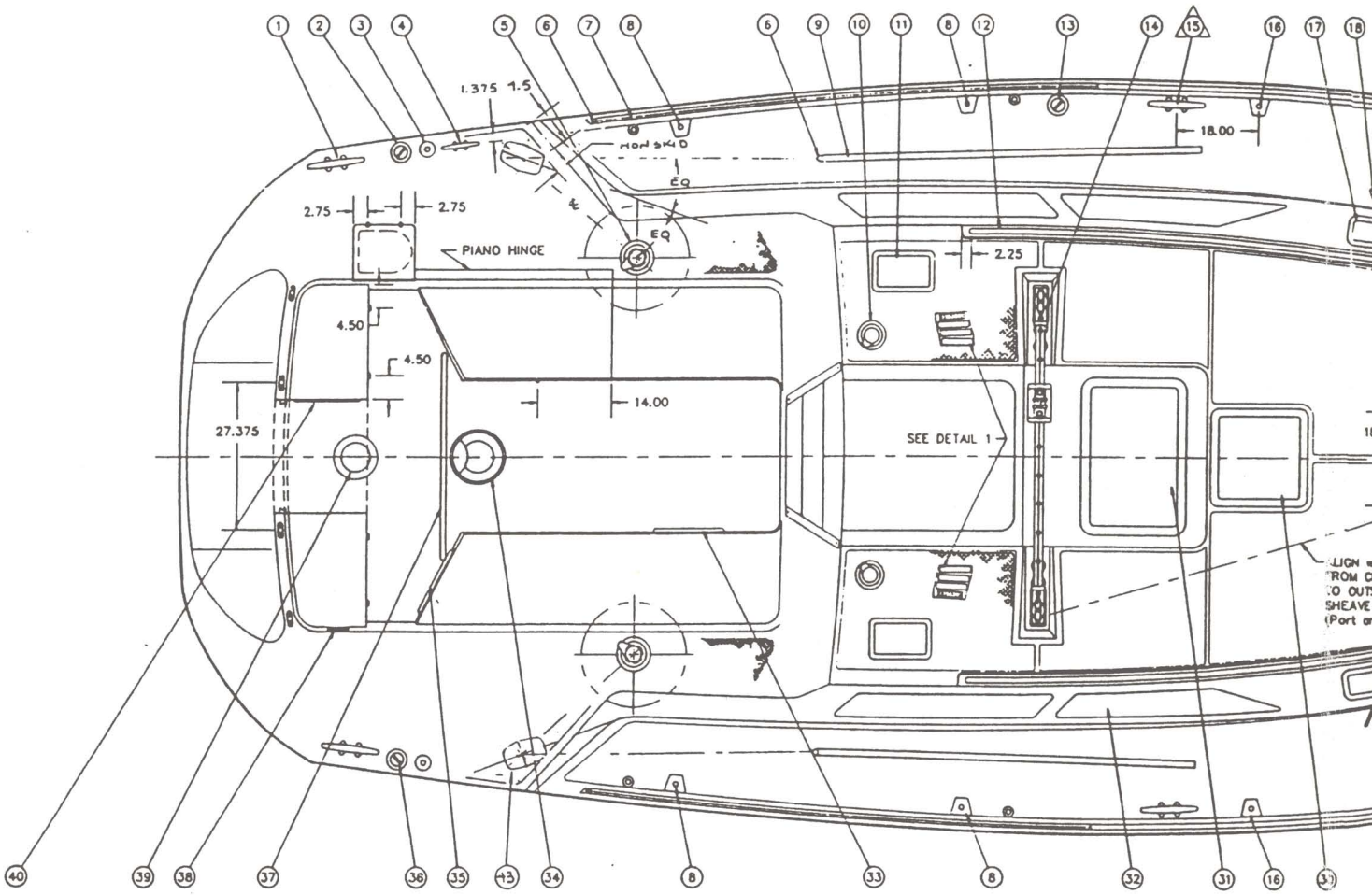




Z DIFFUSION avenue Louis LUMIERE 17185 PERIGNY CEDEX TEL 46 44 20 88 FAX 46 44 76 31







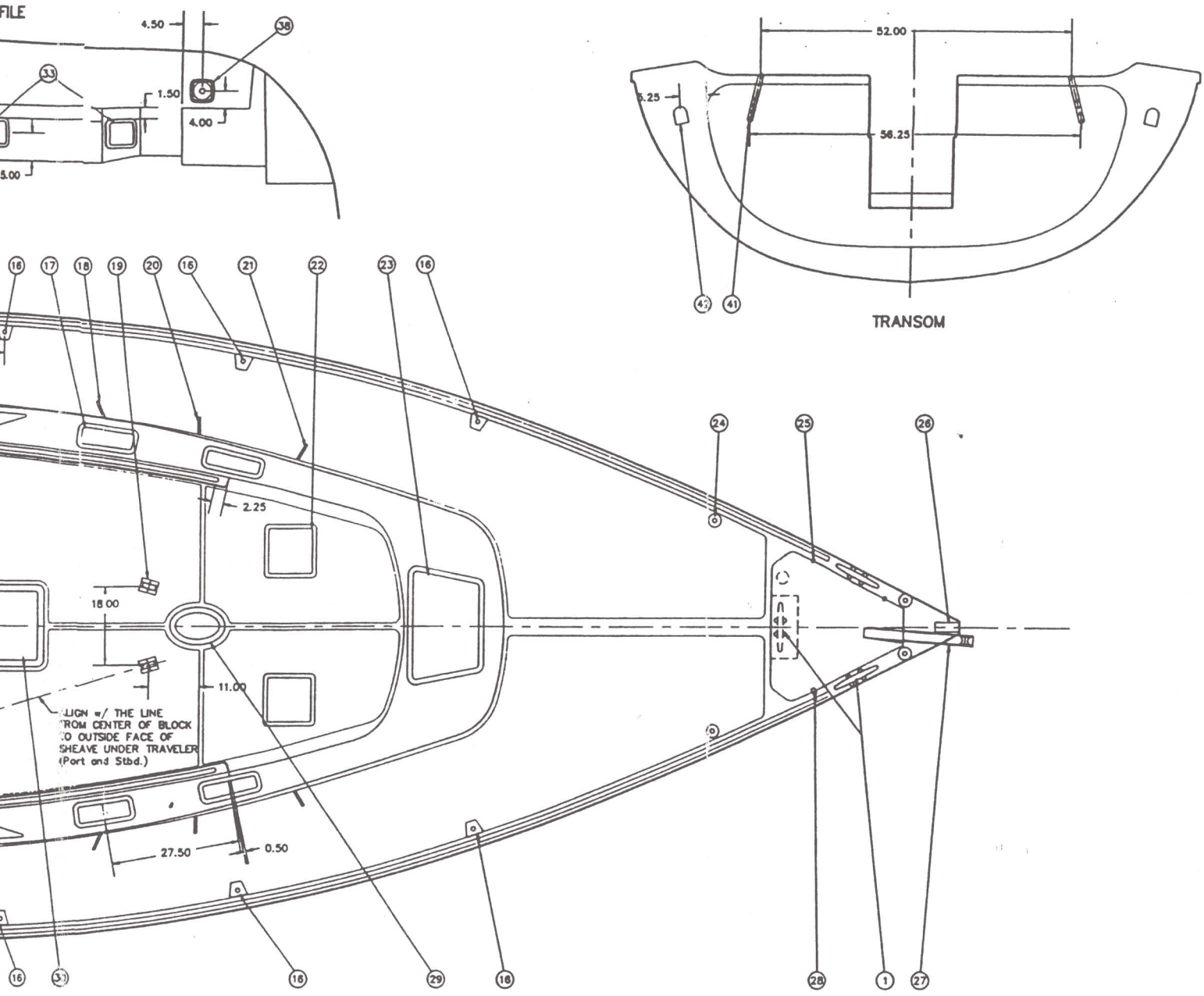
	FS	
1	A	MOORING CLEAT 10" (Port and Stbd)
2	F	FUEL FILL
3	B/E	STERN PULPIT BASE (Port and Stbd)
4	B	FURLING SYSTEM CLEAT 6.5"
5	B	PRIMARY WINCH LEWMAR 48CST (Port and Stbd)
6	B	END STOP AFT
7	B	OUTBOARD GENOA 1 1/4" T-TRACK
8	B	GATE STANCHION
9	C	INBOARD GENOA 1 1/4" T-TRACK
10	B	HALYARD WINCH LEWMAR 30 CST (Port and Stbd)
11	F	LEWMAR HATCH 39420070 T (Port and Stbd.)
12		STAINLESS STEEL HAND RAIL (Port and Stbd)
13	F	WASTE DECK PLATE
14	B/E	TRAVELER w/CAR, CONTROL BLOCKS AND INTEGRAL QUAD DECK ORGANIZERS
15	A	MOORING CLEAT 10" (Port and Stbd) OPTIONAL (EXPORT BOATS)
16	B	STRAIGHT STANCHION (Port and Stbd)
17		LEWMAR OPENING PORT 8912 (Port(2) and Stbd.(2))
18		CHAINPLATE AFT LOWER SHROUD (Port and Stbd)
19	D	MAINSHEET SWIVEL BLOCKS-GARHAUER (Port and Stbd.)
20		CHAINPLATE UPPER SHROUDS (Port and Stbd)
21		CHAINPLATE FWD. LOWER SHROUD (Port and Stbd)

	FS	
22	F	LEWMAR HATCH 39410070 T (Port and Stbd.)
23	F	LEWMAR HATCH 39665070
24	B/E	BOW PULPIT BASE
25	B	ANCHOR LOCKER HINGES (2)
26		STEM FITTING
27	A	ANCHOR ROLLER WINDLINE CR2
28	B	ANCHOR LOCKER HASP
29	C	MAST COLLAR w/BLOCKS
30	F	LEWMAR HATCH 39540070
31	F	SOLAR PANEL - UNITED SOLAR SYSTEMS MCB 262 (OPTIONAL)
32		PLEXIGLASS WINDOWS (Port and Stbd)
33		LEWMAR OPENING PORT 8912
34	B/F	EDSON PEDESTAL w/GUARD, BRAKE,ENGINE PANEL AND COMPASS
35		LEWMAR OPENING PORT 8912
36	F	WATER FILL
37		EDSON DESTROYER WHEEL
38	B	MANUAL BILGE PUMP
39	F	RUDDER POST DECK PLATE - BOWMAR GA36
40	F	STERN SHOWER - SSI 48500
41	A	BACKSTAY CHAINPLATE (Port and Stbd)
42	F	PLASTIC VENT COVER (Port and Stbd)

13 FOOT BLOCKS

PORT

STARBOARD



T BLOCKS (PT & STBD)

DETAIL 1

PORT

- PORT MAINSHEET CLAMCLEAT
- PORT JIB HALYARD STOPPER
- STBD. JIB HALYARD STOPPER
- SINGLE LINE REEF STOPPER

STARBOARD

- VANG STOPPER
- MAIN HALYARD STOPPER
- BOOM TOOPING LIFT STOPPER
- STBD. MAINSHEET CLAMCLEAT

ITEM	FASTENING SCHEDULE (FS)	SYMBOL
1	THROUGH BOLT, WITH BACKUP PLATE LOCK WASHER AND HEX NUT	A
2	THROUGH BOLT WITH LARGE FLAT WASHER, LOCK WASHER AND HEX NUT	B
3	THROUGH BOLT WITH LARGE FLAT WASHER LOCK WASHER, HEX NUT AND CAP NUT	C
4	THROUGH BOLT WITH LARGE WASHER AND BARREL NIT	D
5	TAP INTO METAL PLATE IN DECK	E
6	SELF TAPPING SCREW	F

NOTE: 1) REFERENCE CURRENT BEDDING SCHEDULE FOR CORRECT MATERIAL

REV.N°	DESCRIPTION	DATE
1	ADD FOOT BLOCKS	7-9-94
0	ORIGINAL ISSUE	4-14-94

Catalina Yachts
21200 VICTORY BLVD.
WOODLAND HILLS, CA.
91367-(818)884-770

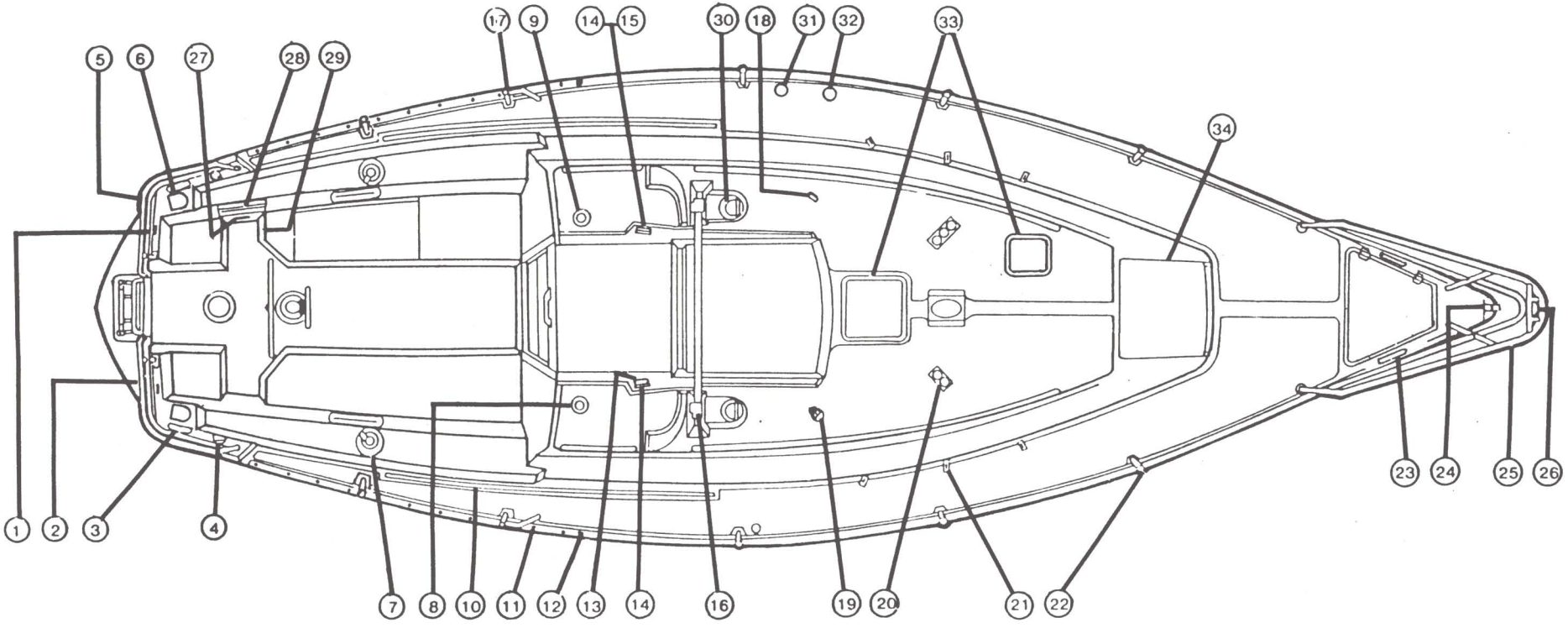
SCALE: 3/4"=1'	APPROVED BY:	DRAWN BY: DANIEL CASAL
DATE: 4-14-94	REV. 7-15-94	

TITLE: DECK PLAN

DWG #: CATALINA 36 MK II

DRAWING NUMBER: 360-24012

1. BACKSTAY CHAINPLATE P&S
2. STERN PULPIT
3. STERN MOORING CLEAT P&S
4. WATER FILL PLATE P&S
5. STERN LIGHT
6. VENTILATOR P&S
7. PRIMARY WINCH P&S
8. MAIN SHEET/ MAIN HALYARD WINCH
9. JIB HALYARD WINCH
10. 6'-0" TRACK P&S
11. 8'-0" T-TRACK P&S
12. END STOP P&S
13. CLAM CLEAT w/SPRING GATE
14. SINGLE SHEET STOPPER
15. DOUBLE SHEET STOPPER (FOR SECOND JIB HALYARD OR SPINN. GEAR OPTION)
16. TRAVELER
17. BRACED STANCHION P&S
18. PADEYE
19. SWIVEL BLOCK
20. DECK ORGANIZER BLOCK P&S
21. CHAIN PLATE (3) P&S
22. STANCHION
23. BOW MOORING CLEAT
24. STEM HEAD FITTING
25. BOW PULPIT
26. BOW LIGHT
27. BILGE PUMP
28. ENGINE PANEL
29. 110 VOLT CONNECTOR
30. COWL VENT P&S
31. FUEL FILL PLATE
32. WASTE PUMP OUT
33. DECK HATCH
34. FORWARD HATCH



CATALINA YACHTS INC.
21200 VICTORY BLVD.
WOODLAND HILLS, CA

DECK HARDWARE

CATALINA 36 OWNERS MANUAL 4.1.11

NSN # 6140-01-457-4300

4.0 YACHT SYSTEMS (CONTD)

Part No = NG-4D

4.2 ELECTRICAL:

1400 = MCA 400 = RESERVE AMPS (EACH) 200 = AMP HOUR

4.2.1 BATTERIES: (2x EXIDE COMMERCIAL GOLD 4D's

609-627-7200 1-800-START-IT

YOUR ELECTRICAL SYSTEM IS POWERED BY A MARINE GRADE 12 VOLT, DEEP CYCLE 90 AMP HOUR BATTERY. ATTENTION SHOULD BE GIVEN TO MAINTAINING THE PROPER LEVEL OF DISTILLED WATER. DO NOT OVER-FILL.

THE BATTERIES ARE PROVIDED WITH A TIE DOWN TO PREVENT THEIR TIP-PING OVER AT EXTREME ANGLES OF HEEL. BE SURE THESE TIE DOWNS ARE FASTENED SECURELY.

WITH PROPER CARE, THE BATTERY INSTALLED IN YOUR CATALINA 36 WILL PROVIDE LONG AND SATISFACTORY SERVICE. PROPER CARE IS NOT DIFFICULT IF A FEW BASIC POINTS ARE KEPT IN MIND.

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

ELECTROLYTE LEVEL:

THE ELECTROLYTE LEVEL IN A BATTERY SHOULD NEVER BE ALLOWED TO FALL LOW ENOUGH TO EXPOSE THE PLATES. THIS NOT ONLY RESULTS IN A LOSS OF BATTERY CAPACITY WHILE THE BATTERY IS LOW, BUT WILL CAUSE HARDENING OF THE ACTIVE MATERIAL ON THE BATTERY PLATES. THIS WILL RESULT IN A PERMANENT LOSS OF BATTERY CAPACITY.

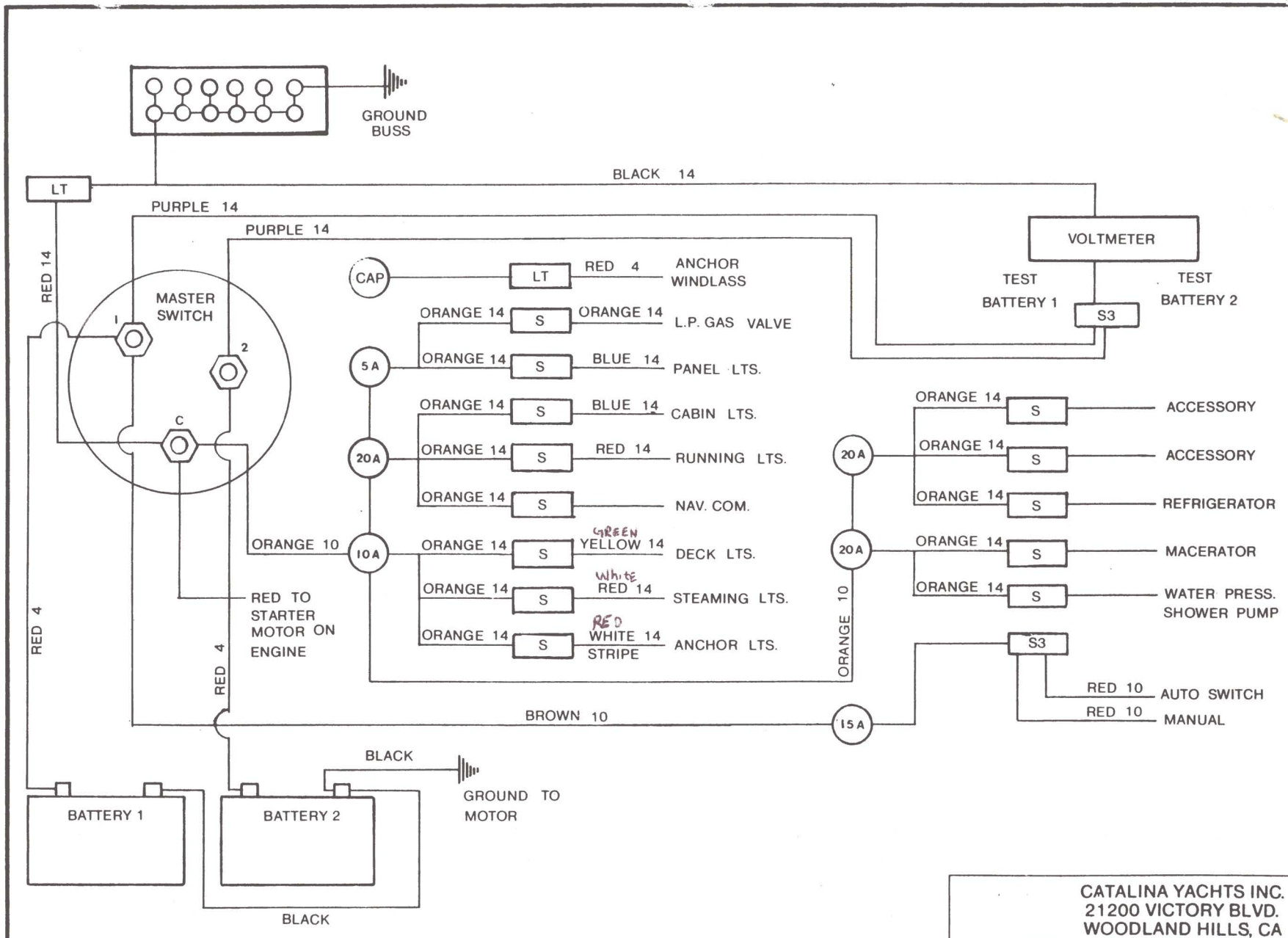
CAUTION! USE ONLY PURE DISTILLED WATER TO REPLENISH ELECTROLYTE LEVELS. THE WATER FROM MANY CITY WATER SUPPLY SYSTEMS IS UNSATISFACTORY FOR BATTERY USE.

DISCHARGED STATE:

LEAVING A BATTERY IN A DISCHARGED STATE FOR ANY LENGTH OF TIME CAN ALSO RESULT IN A PERMANENT LOSS OF CAPACITY FOR THE BATTERY. DOING SO IN COLD WEATHER CAN DESTROY THE BATTERY SINCE IT WILL FREEZE AT RELATIVELY LOW TEMPERATURES.

CLEAN CONNECTIONS:

KEEP BATTERY CONNECTIONS CLEAN AND TIGHT. A CUP FULL OF STRONG BAKING SODA SOLUTION AND A TOOTHBRUSH WILL CLEAN CORROSION FROM THE TERMINALS AND NEUTRALIZE ANY SPILLED ACID (DO NOT ALLOW ANY OF THE SOLUTION TO ENTER THE BATTERY CELLS). A COATING OF PETROLEUM JELLY ON THE BATTERY TERMINALS WILL INHIBIT CORROSION.



NOTE:
USE FLANGED SPADE OR
RING TERMINALS – NO STRAIGHT
SPADE TERMINALS PER NMMA

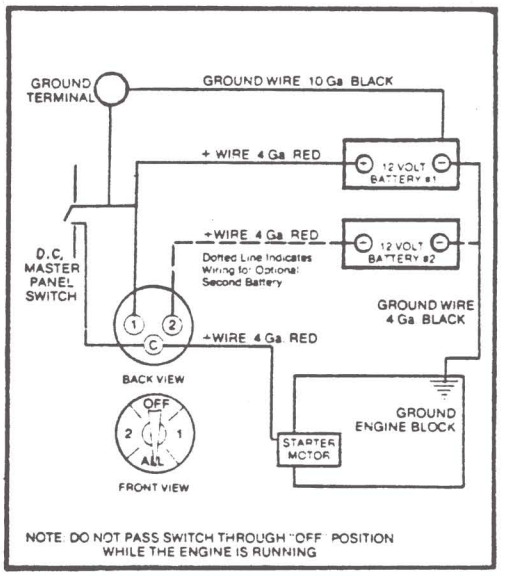
CATALINA YACHTS INC. 21200 VICTORY BLVD. WOODLAND HILLS, CA	
12 V.D.C. PANEL SCHEMATIC	
CATALINA 36 OWNERS MANUAL	4.2.2

4.2.3 MAIN BATTERY SWITCH:

EACH ELECTRICAL CIRCUIT IS FUSED UNDER A SCREW COVER AND SPARES SHOULD BE OBTAINED BEFORE LONG CRUISES. THE SYSTEM IS ALSO CONTROLLED BY A MASTER SWITCH. YOU SHOULD BE SURE THAT YOUR BOAT IS FREE OF GASOLINE FUMES BEFORE USING THE ELECTRICAL SYSTEM. ALWAYS RUN THE BLOWER FOR AT LEAST FIVE MINUTES BEFORE STARTING THE ENGINE.

THE CIRCULAR BATTERY SWITCH (SEE ILLUSTRATION 4.2.4) HAS THE MARKINGS 1,2, AND "ALL" AS WELL AS "OFF". IF YOU HAVE ORDERED THE EXTRA BATTERY OPTION, YOU CAN SELECTIVELY CHARGE THE BATTERY WITH THE ENGINE ALTERNATOR. MANY EXPERIENCED SAILORS USE BATTERY #1 FOR ELECTRICAL LIGHTING NEEDS AND KEEP #2 IN RESERVE FOR STARTING THE ENGINE.

WHEN THE ENGINE IS RUNNING, NEVER PASS THROUGH THE "OFF" POSITION TO CHARGE FROM ONE BATTERY TO THE OTHER OR THE ALTERNATOR DIODES WILL BE BURNED OUT. SWITCHING FROM ONE BATTERY TO ANOTHER SHOULD ONLY BE DONE WHEN THE ENGINE IS STOPPED. IF BOTH BATTERIES ARE OF EQUAL CHARGE, KEEP THE SELECTOR SWITCH ON "ALL" POSITION, AND USE "ALL" TO START THE ENGINE IF BOTH BATTERIES ARE LOW.



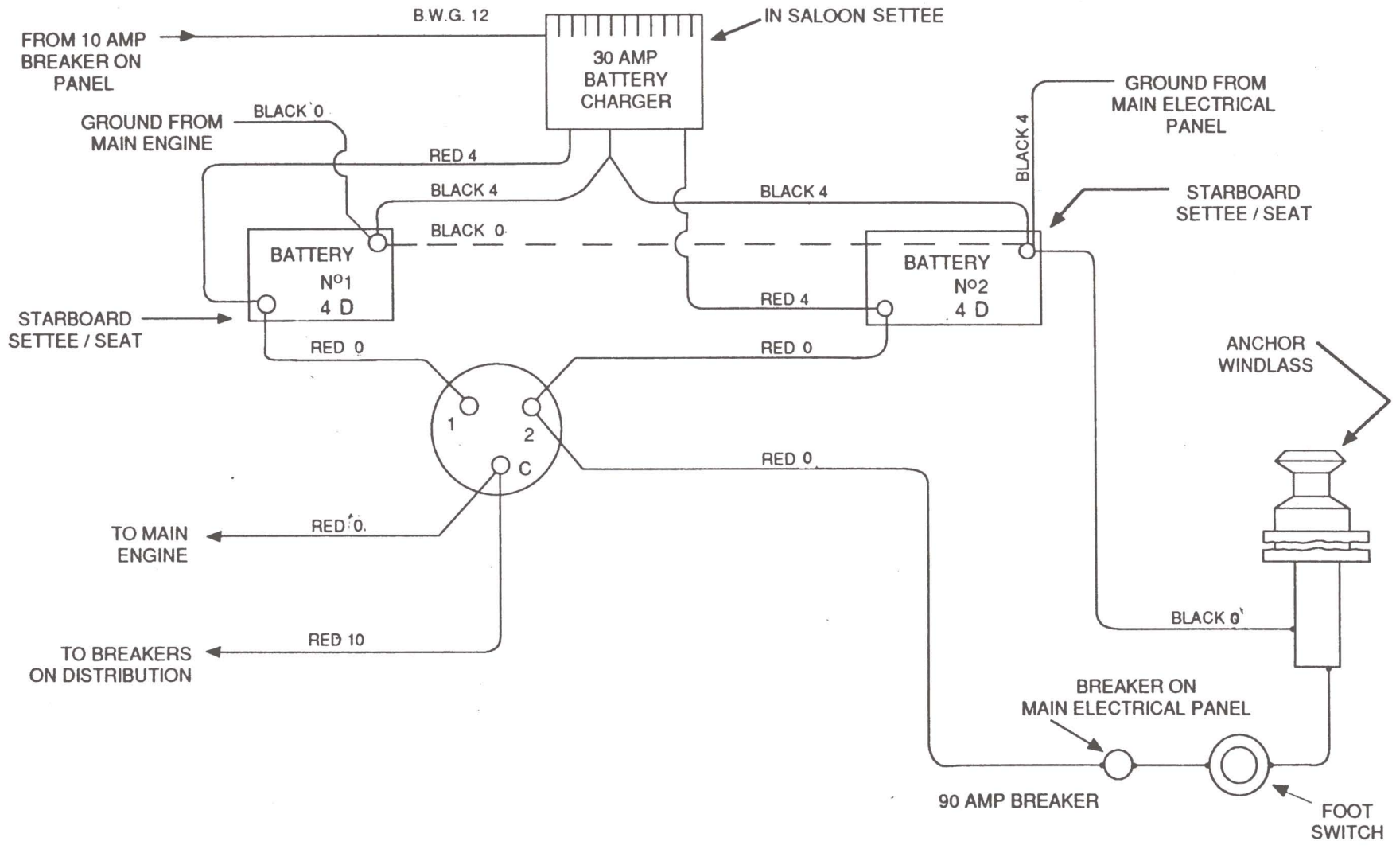
MAIN BATTERY SWITCH SCHEMATIC 4.2.4

4.2.5 110 VOLT SYSTEM:

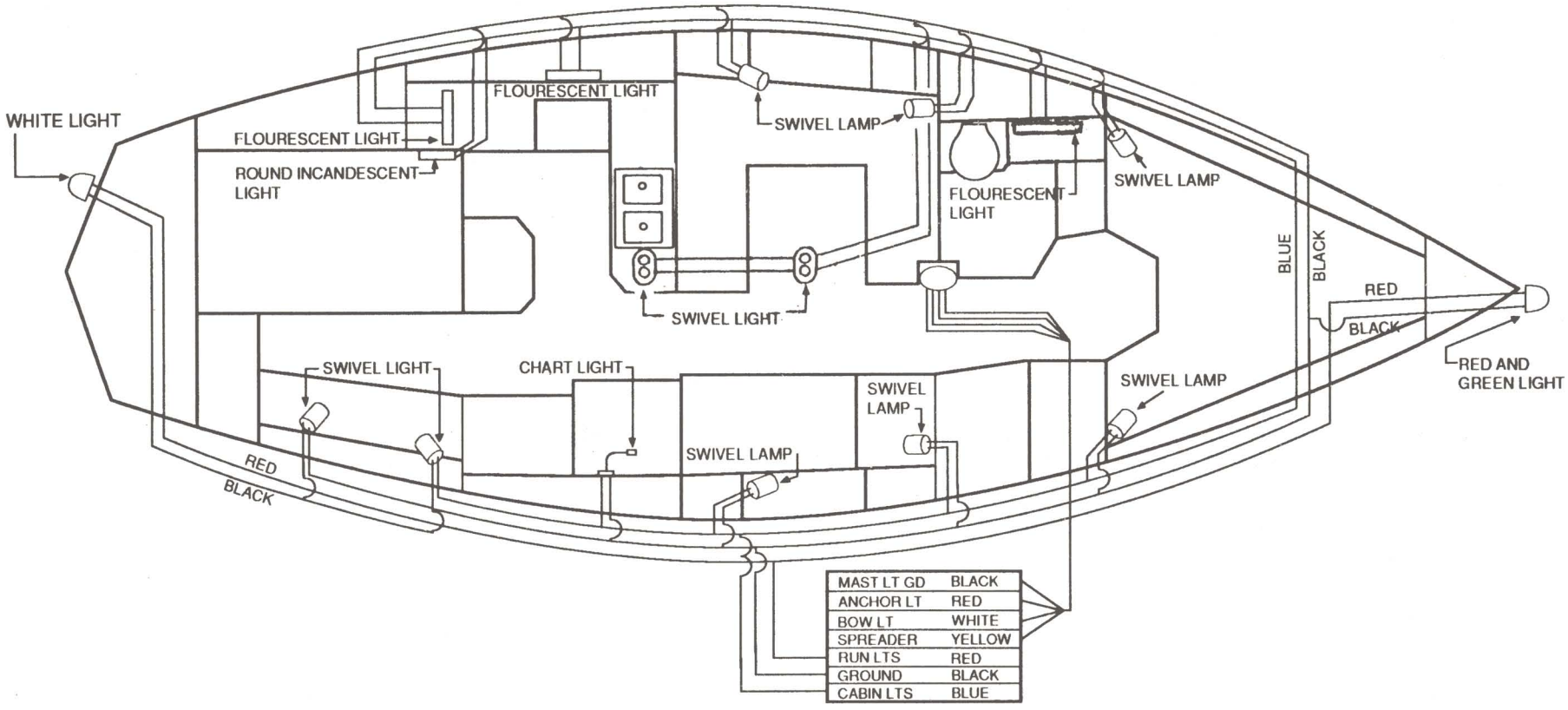
THE 110 VOLT AC SYSTEM IS CONNECTED TO SHORE POWER BY A GROUNDED TWIST-LOCK CONNECTOR MOUNTED ON THE OUTSIDE OF THE PORT COCKPIT COAMING.

A THIRTY (30) AMP TWO POLE CIRCUT BREAKER IS LOCATED ON THE MAIN PANEL. SIX (6) DUPLEX OUTLETS FOR THE 110 VOLT SYSTEM ARE LOCATED IN THE CABIN. BE CERTIN THAT ALL 110 VOLT APPLIANCES, OTHER THAN LAMPS, HAVE AN ADEQUATE GROUNDING CONNECTOR. WET FEET OR MOIST ATMOSPHERE INCREASES THE POTENTIAL SHOCK HAZARD.

IMPORTANT! DO NOT OPEN THE ELECTRICAL PANEL FOR ANY PURPOSE WITH THE 110 V. SHORE POWER CONNECTED TO THE DOCK. 110 V. WIRING IS EXPOSED WHEN THE PANEL IS OPEN. CONTACT WITH 110 VOLT WIRING CAN CAUSE ELECTROCUTION!



CATALINA YACHTS INC 21200 VICTORY BLVD. WOODLAND HILLS, CA
12 VDC POWER DISTRIBUTION SYSTEM
CATALINA 36 4.2.6



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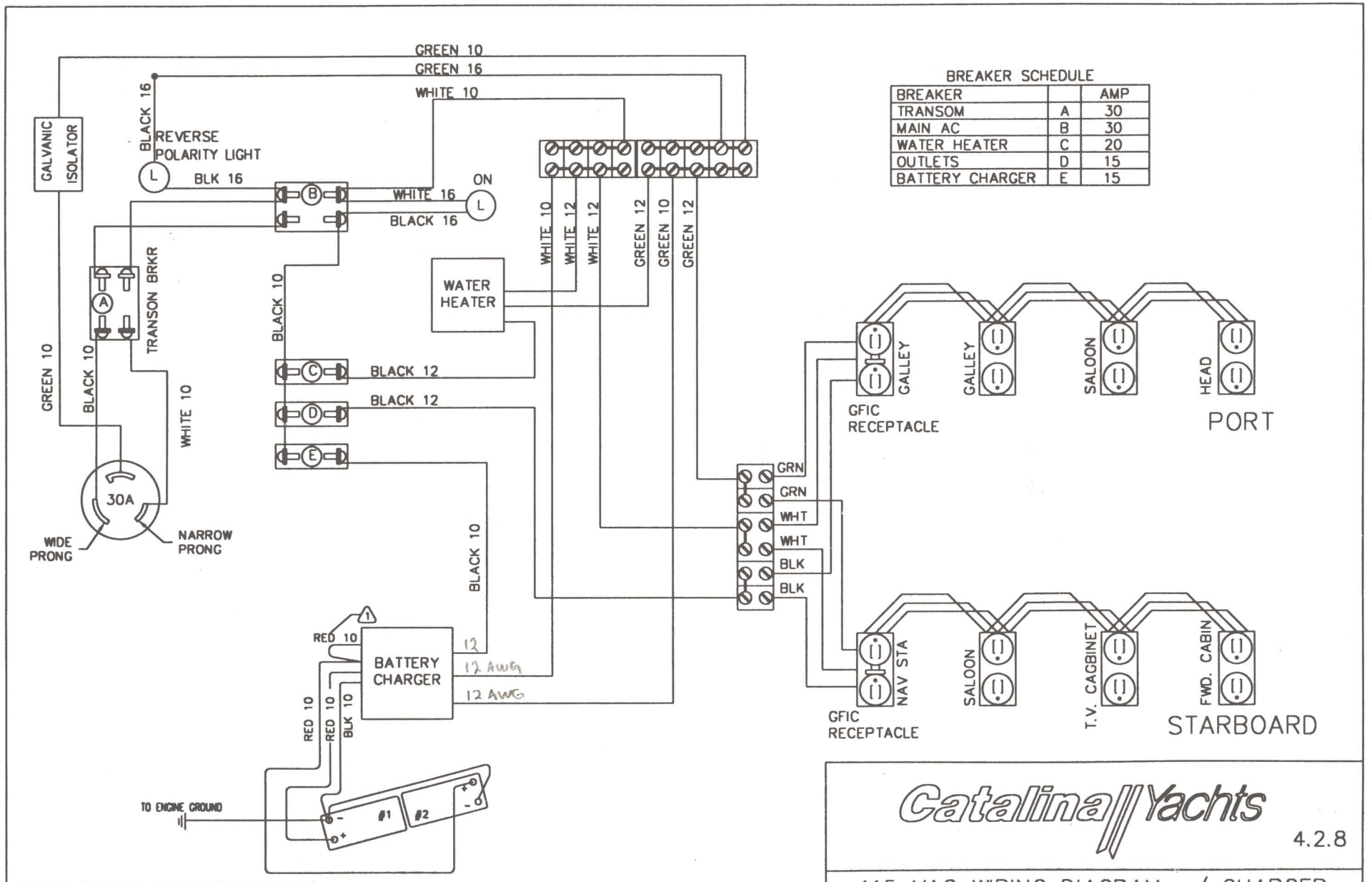
12 VOLT SCHEMATIC Rev. 4-8-94

CATALINA 36 MK II 4.2.7



BREAKER SCHEDULE

BREAKER		AMP
TRANSOM	A	30
MAIN AC	B	30
WATER HEATER	C	20
OUTLETS	D	15
BATTERY CHARGER	E	15

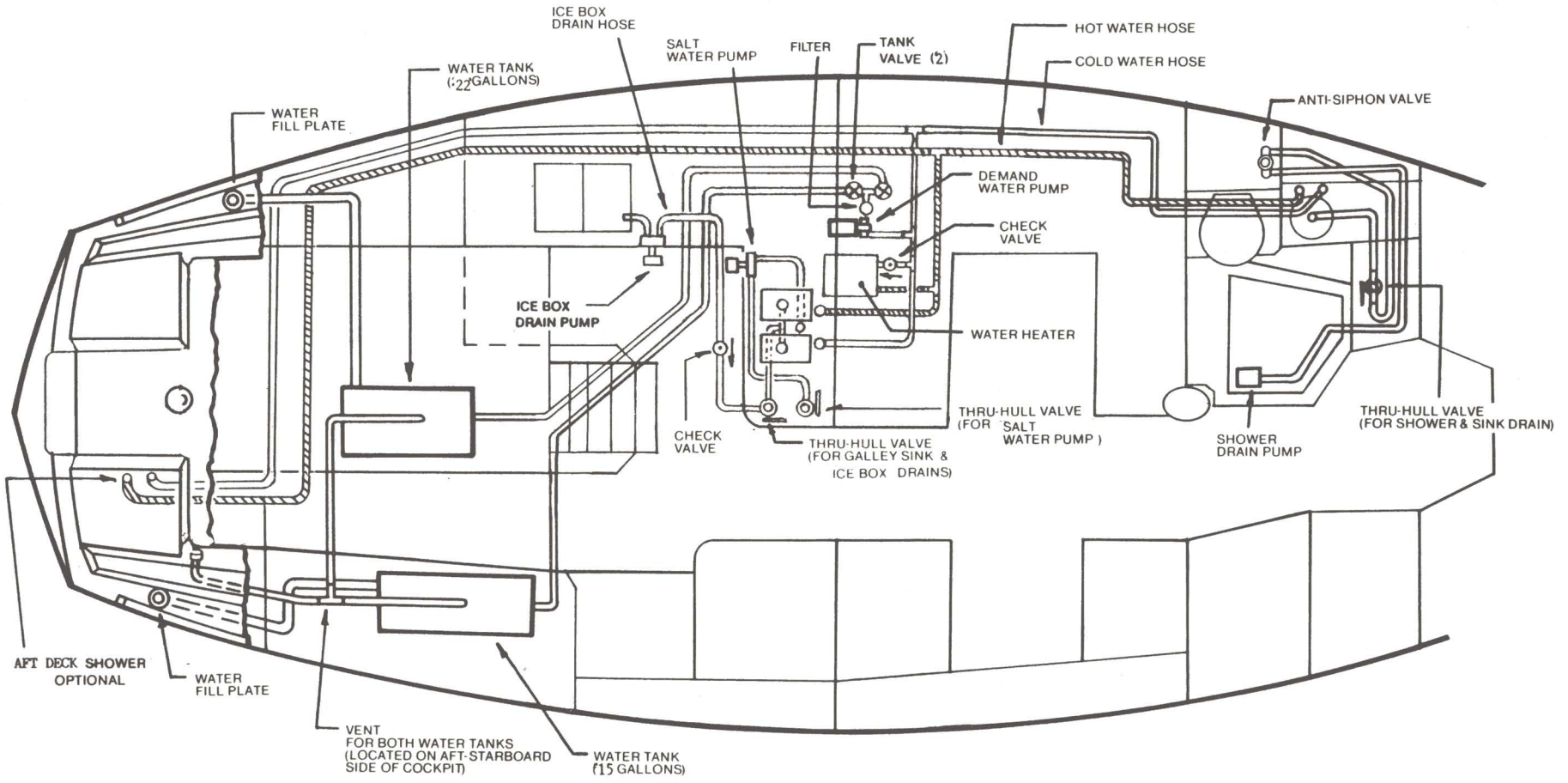
NOTES: (UNLESS OTHERWISE SPECIFIED)
⚠ UNUSED POSITIVE TERMINALS MUST BE CONNECTED TO ACTIVE TERMINAL PER MANUFACTURERS INSTRUCTIONS.

Catalina Yachts

4.2.8

115 VAC WIRING DIAGRAM w/ CHARGER

CATALINA 36 Mk II | REV 12.22.1998



CATALINA YACHTS INC.
21200 VICTORY BLVD.
WOODLAND HILLS, CA

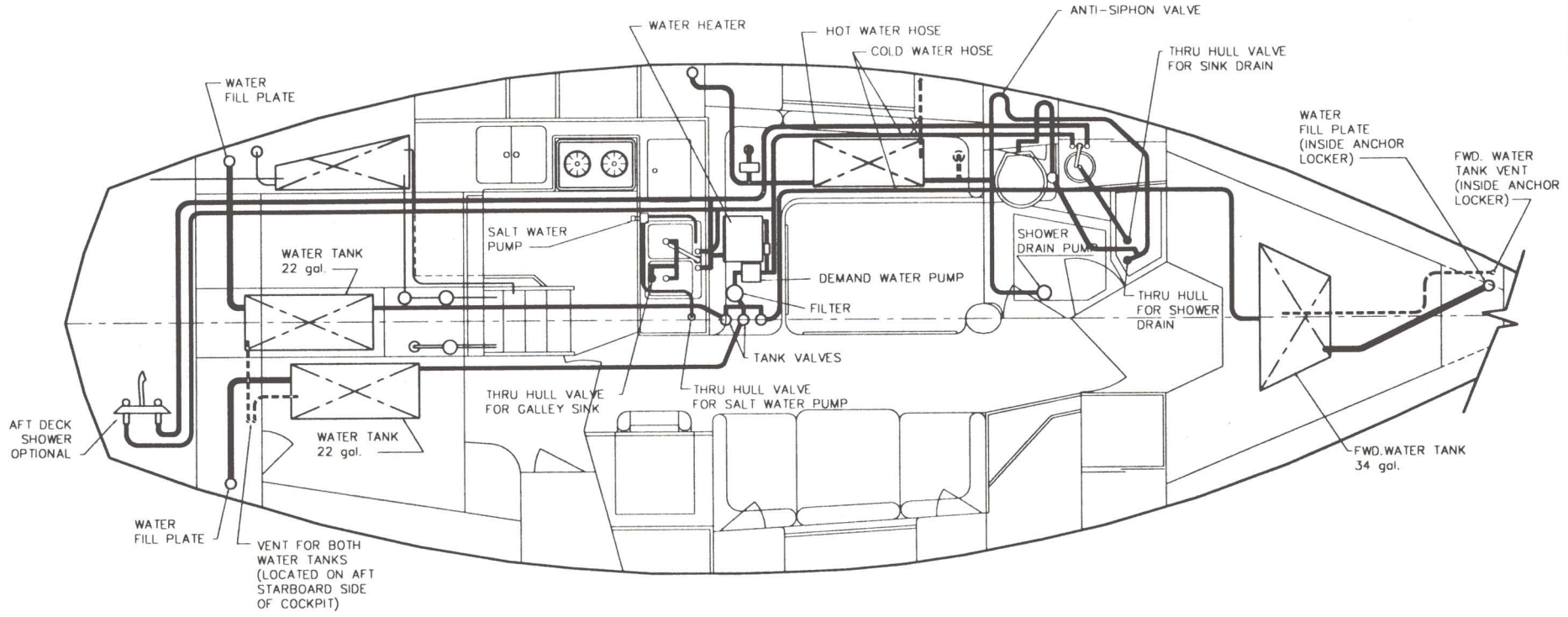
HOT & COLD PRESSURE
SYSTEM PLUMBING SCHEMATIC

03-21-91

CATALINA 36 1 CABIN

OWNERS
MANUAL

3.1



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21200 VICTORY BLVD.
WOODLAND HILLS, CA.
91367-(818)884-7700

HOT , COLD AND SALT WATER SYSTEM PLUMBING SCHEMATIC

4.3.3 INSTRUCTIONS FOR SANITIZING POTABLE WATER SYSTEMS:

TO ASSURE COMPLETE SANITATION OF YOUR POTABLE WATER SYSTEM IT IS RECOMMENDED THAT THE FOLLOWING PROCEDURES BE USED. THIS APPLIES IF IT IS A NEW SYSTEM, ONE NOT USED FOR A PERIOD OF TIME, OR ONE THAT MAY HAVE BECOME CONTAMINATED.

(1) PREPARE A CHLORINE SOLUTION USING ONE GALLON OF WATER AND ¼ CUP OF CHLORX OR PUREX HOUSEHOLD BLEACH (5% HYPERCHLORITE SOLUTION). WITH TANK EMPTY, POUR CHLORINE SOLUTION INTO TANK. USE ONE GALLON OF SOLUTION FOR EACH 15 GALLONS TANK CAPACITY.

(2) COMPLETE FILLING TANK WITH FRESH WATER. OPEN FAUCET AND DRAIN COCK UNTIL ALL AIR HAS BEEN RELEASED AND ENTIRE SYSTEM IS FILLED.

(3) ALLOW TO STAND FOR THREE HOURS.

(4) DRAIN AND FLUSH WITH POTABLE FRESH WATER. (IMPORTANT)

(5) TO REMOVE EXESSIVE CHLORINE TASTE OR ODOR WHICH MIGHT REMAIN, PREPARE A SOLUTION OF ONE QUART VINEGAR TO FIVE GALLONS WATER AND ALLOW THIS SOLUTION TO AGITATE IN TANK FOR SEVERAL DAYS BY VESSEL MOTION.

(6) DRAIN TANK AND AGAIN FLUSH WITH POTABLE WATER. (IMPORTANT)

THE ABOVE RECOMMENDATIONS CONFORM TO SECTION 10.8 IN THE A119.2 CODE COVERING ELECTRICAL, PLUMBING, AND HEATING OF A RECREATIONAL VEHICLE. THE SOLUTION IS APPROVED AND RECOMMENDED BY COMPETENT HEALTH OFFICIALS.

4.3.4 MANUAL BILGE PUMP:

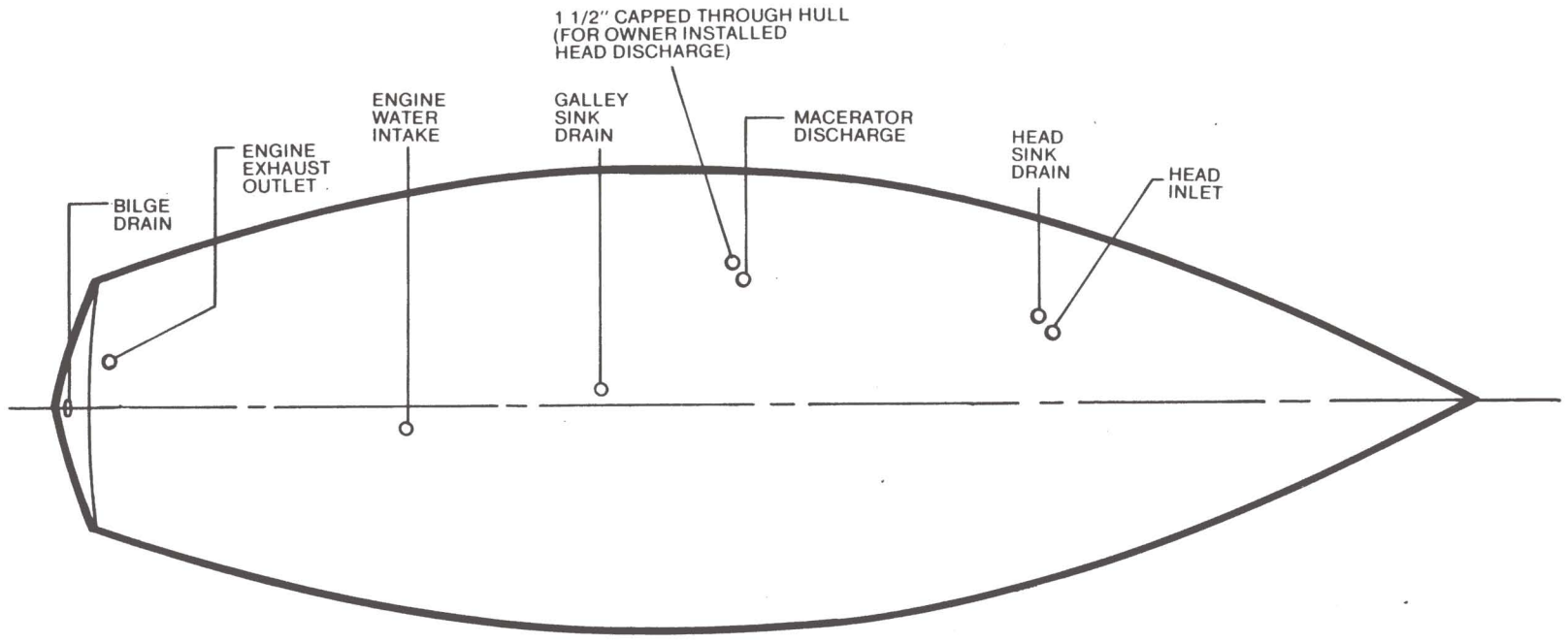
THE MANUAL BILGE PUMP IS LOCATED ON THE AFT PORT END OF THE COCKPIT. THE HANDLE IS STORED IN A CLIP FITTING JUST ABOVE THE PUMP INSIDE THE LOCKER. INSERT THE HANDLE THROUGH THE WATER TIGHT FITTING IN THE COCKPIT TO OPERATE THE PUMP. THE PUMP INTAKE HOSE IS IN THE STUB UNDER THE MAIN CABIN SOLE.

4.3.5 SEACOCKS:

ALL UNDERWATER THRU HULL FITTINGS ARE EQUIPPED WITH SEACOCKS. IT IS GOOD PRACTICE TO CLOSE ALL SEACOCKS WHEN LEAVING THE BOAT, ESPECIALLY FOR LONG PERIODS OF TIME.

TO CLOSE SEACOCKS, TURN HANDLE PERPENDICULAR TO FLOW. TO OPEN, TURN HANDLE 1/4 TURN TO PARALLEL.

IT IS GOOD PRACTICE TO OPERATE THE GATE VALVES AT LEAST ONCE A MONTH TO KEEP THEM IN GOOD WORKING ORDER.



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THROUGH HULL LOCATIONS

4.3.7 MARINE TOILET OPERATION:

USING THE HEAD:

1. READ THE INSTRUCTIONS FOR OPERATION OF THE TOILET SUPPLIED WITH THE MARINE HEAD. THESE INSTRUCTIONS ARE ALSO PRINTED ON THE TOILET PUMP HOUSING. BE SURE EVERYONE WHO WILL BE USING THE HEAD IS FAMILIAR WITH THESE INSTRUCTIONS.

2. IMMEDIATELY BEFORE USING THE HEAD, THE INLET VALVE "A" MUST BE OPENED. THIS PROVIDES FLUSHING WATER TO THE TOILET. THE VALVE SHOULD BE KEPT CLOSED WHEN THE HEAD IS NOT IN USE. THIS WILL PREVENT WATER FROM FLOODING THE BOAT IF THE VALVE IN THE TOILET PUMP SHOULD FAIL.

3. WASTE WILL BE PUMPED DIRECTLY INTO THE HOLDING TANK WHEN THE BOWL IS EMPTIED. A MINIMUM AMOUNT OF WATER FOR EVERY FLUSH SHOULD BE USED IN ORDER TO TAKE BEST ADVANTAGE OF THE TANKS CAPACITY BETWEEN PUMP-OUTS.

EMPTYING THE TANK THROUGH THE DECK DISCHARGE PLATE:

1. THE HOLDING TANK SHOULD BE EMPTIED VIA THE DECK DISCHARGE PLATE ONLY AT APPROVED SHORE BASED PUMP-OUT STATIONS.

2. REMOVE THE CAP FROM THE DECK DISCHARGE PLATE. THE THREADS ON THE PLATE CAP SHOULD BE PERIODICALLY COATED WITH SILICONE SPRAY OR PETROLEUM JELLY TO INSURE A GOOD SEAL.

3. THE PUMP-OUT STATION SUCTION HOSE SHOULD FORM A SEAL AT THE DECK PLATE.

4. BE SURE INLET VALVE "A" IS CLOSED WHEN THE TANK IS BEING EMPTIED.

5. AFTER THE TANK IS EMPTY, YOU MAY WISH TO OPEN VALVE "A" AND PUMP SOME WATER THROUGH THE TOILET AND INTO THE TANK TO DILUTE RESIDUAL SLUDGE AND RINSE THE TANK AND LINES.

6. CLOSE ALL VALVES AFTER THE TANK IS EMPTIED AND RECAP THE DECK PLATE.

EMPTYING THE TANK USING THE MACERATOR PUMP:

1. READ THE MACERATOR PUMP OPERATING INSTRUCTIONS SUPPLIED BY THE PUMP MANUFACTURER.

2. CLOSE THE INLET VALVE "A".

3. OPEN THE THROUGH HULL VALVE "B".

4. TURN ON THE PUMP WITH THE SWITCH ON THE 12 VOLT PANEL.

5. THE PUMP WILL CHANGE TONE AFTER IT BECOMES PRIMED. IT WILL RESUME THE HIGHER PITCHED TONE AFTER THE TANK IS EMPTIED.

6. YOU MAY WISH TO RINSE THE TANK, HOSE LINES, AND MACERATOR PUMP BY PUMPING CLEAR WATER THROUGH THE HEAD. THEN REPEAT THE PROCEDURE FOR EMPTYING THE TANK.

7. CLOSE VALVE "B" IMMEDIATELY AFTER EMPTYING THE HOLDING TANK.

4.3.8 MACERATOR PUMP AND TROUBLESHOOTING:

PROBLEM 1: THE MACERATOR PUMP MOTOR STARTS THEN STOPS.

A. CHECK THE FUSES; IT SHOULD BE 20 AMP.

B. CHECK THE VALVES; "B" VALVE MUST BE OPEN.

C. CHECK THE VENT LINE. IF THE BOAT HAS BEEN SAILED AT EXTREME ANGLES OF HEEL, FLUID MAY BE CLOGGING THE VENT LINE. DISCONNECT THE VENT AT THE TANK AND EMPTY THE HOSE INTO A DISPOSABLE CONTAINER.

D. SLUDGE MAY HAVE FORMED IN THE BOTTOM OF THE TANK. THIS SHOULD BE DILUTED AS MUCH AS POSSIBLE. THE TANK SHOULD BE EMPTIED REGULARLY TO PREVENT SLUDGE BUILD UP.

PROBLEM 2: THE HEAD TOILET PUMP HAS EXCESSIVE BACK PRESSURE AND WILL NOT EVACUATE THE BOWL.

A. REFER TO THE TOILET MANUFACTURERS SPECIFICATIONS AND OPERATION INSTRUCTIONS.

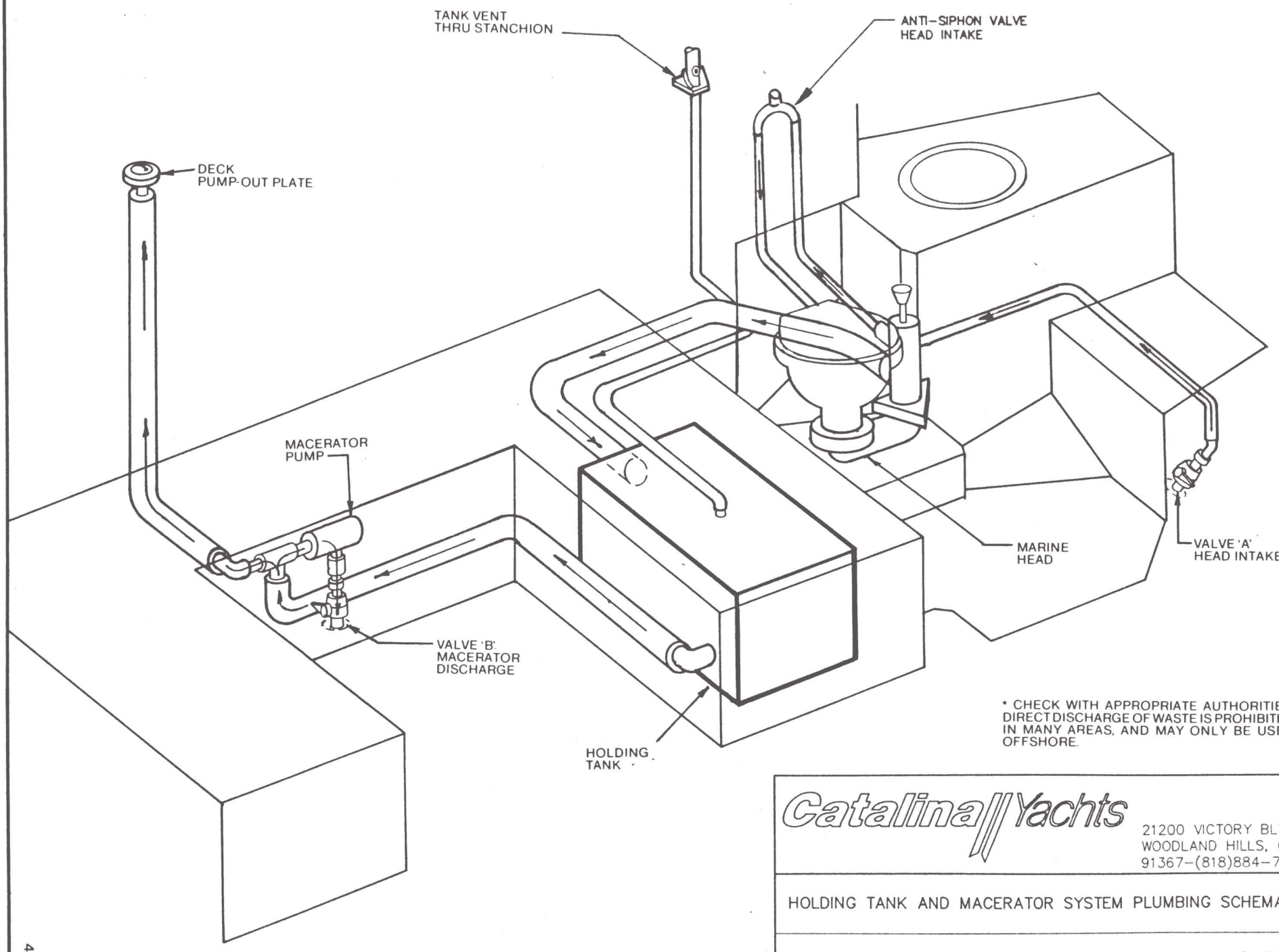
PROBLEM 3: THE MACERATOR PUMP, WHEN ON, MAKES A HIGH PITCHED SOUND BUT DOES NOT EMPTY THE TANK.

A. IMPELLER IN MACERATOR PUMP IS FAULTY AND MUST BE REPLACED.

B. THE VENT IS CLOGGED AND THE PUMP CANNOT PULL A PRIME AGAINST THE VACUUM IN THE TANK.

C. THE HOSE INTO THE PUMP MAY BE CLOGGED.

D. THE PUMP MAY BE DRAWING AIR THRU THE DECK PLATE PREVENTING A PRIME. CHECK SEAL AT DECK PLATE MARKED "WASTE", AND LUBRICATE THREADS.



* CHECK WITH APPROPRIATE AUTHORITIES. DIRECT DISCHARGE OF WASTE IS PROHIBITED IN MANY AREAS, AND MAY ONLY BE USED OFFSHORE.

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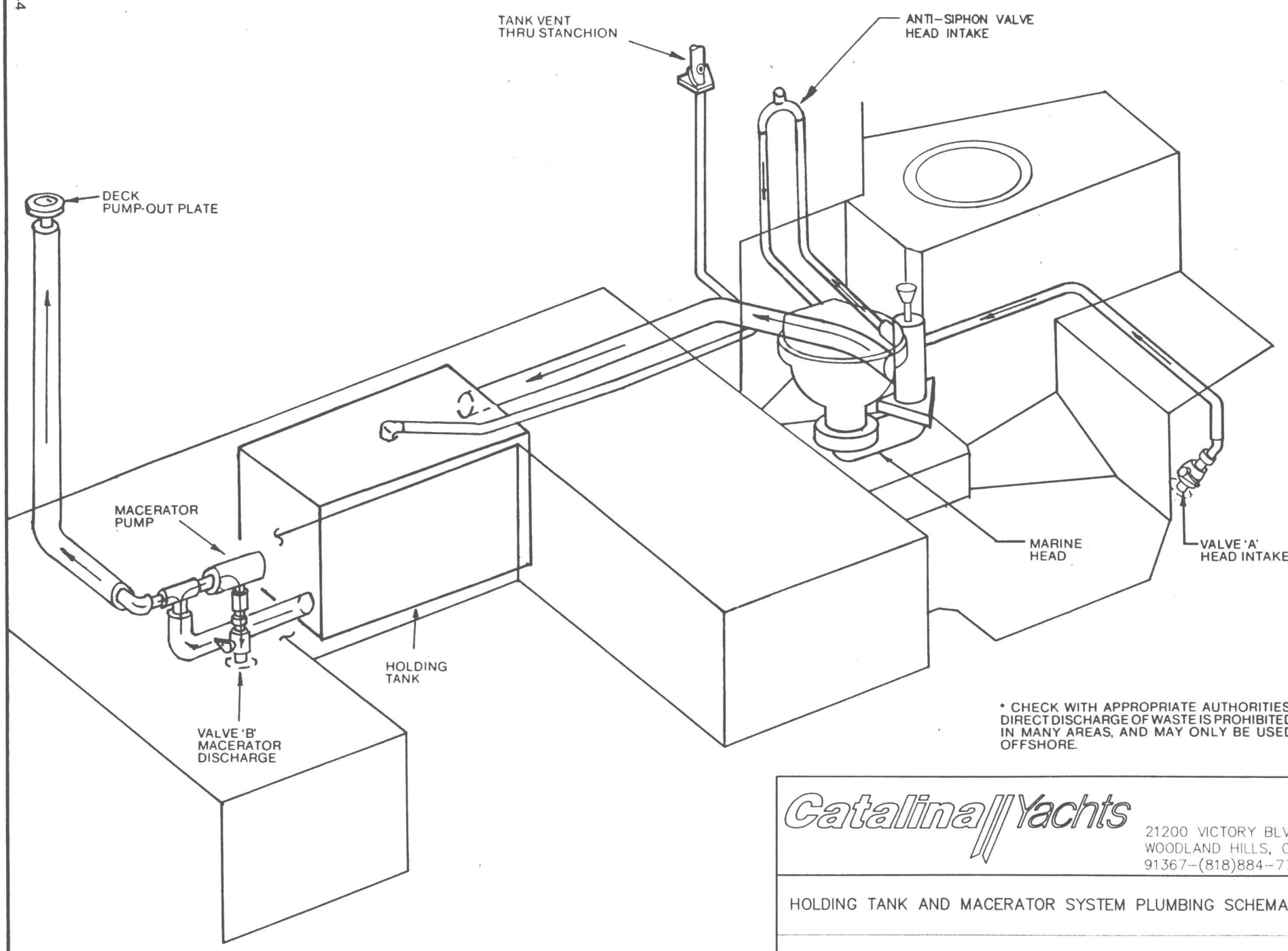
HOLDING TANK AND MACERATOR SYSTEM PLUMBING SCHEMATIC



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HOLDING TANK AND MACERATOR SYSTEM PLUMBING SCHEMATIC

4.4 AUXILLARY POWER

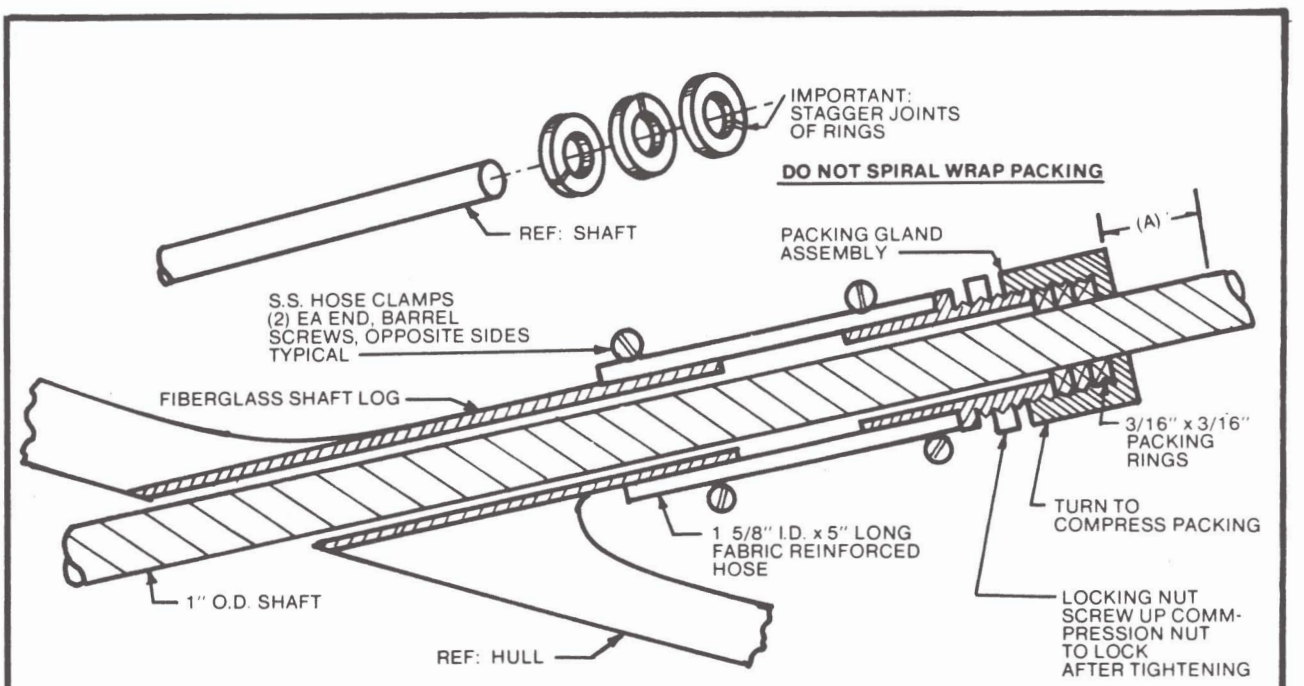
4.1 GENERAL ENGINE INFORMATION:

FOR A COMPLETE DESCRIPTION OF YOUR ENGINE, PLEASE CONSULT THE GUIDE SUPPLIED BY THE ENGINE MANUFACTURER. THIS CAN BE FOUND IN YOUR OWNER'S PACKET.

TWO POINTS ARE WORTH SPECIAL ATTENTION. FIRST, MARINE ENGINES WORK UNDER CONDITIONS TOUGHER THAN THOSE CONDITIONS OF AUTOMOTIVE ENGINES. YOUR MARINE ENGINE FACES CONSTANT TORQUING NOT ENCOUNTERED ON THE HIGHWAY. FOR THIS REASON, YOU MUST CHANGE YOUR ENGINE'S CRANK OIL AS RECOMMENDED IN THE ENGINE MANUFACTURER'S GUIDE. SECOND, BEFORE USING YOUR ENGINE, THE SHAFT COUPLING MUST BE ADJUSTED WITHIN A TOLERANCE OF .003 T.I.R. THOUSANDTHS AFTER LAUNCHING. THIS IS DONE DURING COMMISSIONING OF THE YACHT. BE SURE THAT YOUR DEALER HAS MADE THIS ADJUSTMENT BEFORE USING YOUR ENGINE.

CHANGE THE OIL REGULARLY. KEEP SPARE SPARK PLUGS AND ALTERNATOR BELTS ON HAND AND USE ONLY 2/3 TO 3/4 THROTTLE ON LONG PASSAGES. KEEP YOUR FUEL TANK FULL WHENEVER POSSIBLE TO PREVENT WATER CONDENSATION IN YOUR FUEL TANK.

TO RETARD ELECTROLYSIS, WE RECOMMEND INSTALLING A ZINC COLLAR IMMEDIATELY ON THE PROPELLER SHAFT.



(A) MAINTAIN CLEARANCE BETWEEN ENGINE COUPLING AND PACKING GLAND FOR REMOVAL AND REPACKING OF GLAND

(B) SHAFT MUST NOT CONTACT GLAND OR LOG, SHAFT MUST BE IN CENTER OF LOG AND GLAND.

(C) PACKING GLAND SHOULD NOT BE OVER TIGHTENED, ONE TO TWO DROPS PER MINUTE IS NORMAL.

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PACKING GLAND ASSEMBLY
CATALINA 36 OWNERS MANUAL 4.4.2

4.4.3 SHAFT PACKING GLAND (STUFFING BOX):

THE PACKING GLAND IS LOCATED UNDER THE AFT DOUBLE BERTH AT THE BASE OF THE COMPANION WAY LADDER.

A PROPERLY ADJUSTED SHAFT PACKING GLAND SHOULD DRIP SLIGHTLY (FROM 4 TO 10 PER MINUTE) WITH THE ENGINE OFF. TOO LOOSE AN ADJUSTMENT WILL ALLOW TOO MUCH WATER IN THE BILGE AND ENGINE OPERATION WILL SPRAY WATER FROM THE SHAFT. TOO TIGHT AN ADJUSTMENT WILL ROB THE ENGINE OF POWER, AND THE LACK OF WATER LUBRICATION IN THE PACKING GLAND CAN GENERATE ENOUGH HEAT TO DAMAGE THE GLAND AND/OR SCORE THE PROPELLER SHAFT.

ADJUSTMENT:

1. HOLDING THE PACKING NUT WITH ONE WRENCH, USE A SECOND WRENCH TO LOOSEN THE LOCK NUT. TURN THE LOCK NUT FAR ENOUGH TO KEEP IT FROM INTERFERRING WITH THE NEXT ADJUSTMENT (2 OR 3 TURNS).

2. TIGHTEN THE PACKING NUT TO OBTAIN 4 TO 15 DROPS PER MINUTE. HAND TIGHTENING OF THE PACKING NUT IS OFTEN SUFFICIENT TO OBTAIN THIS ADJUSTMENT. IF THIS IS NOT THE CASE, AN ADDITIONAL 1/4 TO 1/2 TURN WITH THE WRENCH SHOULD PRODUCE THE DESIRED RESULT.

3. HOLD THE PACKING NUT IN PLACE WITH ONE WRENCH, AND USE THE SECOND WRENCH TO BRING THE LOCKING NUT SECURELY AGAINST THE PACKING NUT. MAKE CERTAIN THAT THE LOCKING NUT IS TIGHT. FAILURE TO DO THIS COULD ALLOW THE PACKING NUT TO BACK OFF WHEN THE ENGINE IS OPERATING.

4. OPERATE THE ENGINE AT SLOW SPEEDS IN FORWARD AND REVERSE AND USE A LIGHT TO CHECK FOR EXCESSIVE WATER AT THE PACKING NUT. SHUT OFF THE ENGINE AND RECHECK PACKING FOR PROPER DRIP.

4.4.4 SHAFT ALIGNMENT:

FOR PROPER OPERATION OF THE ENGINE, THE PROPELLER SHAFT AND ENGINE MUST BE ALIGNED.

ALIGNMENT IS GAUGED AT THE ENGINE AND SHAFT COUPLING. ALIGNMENT PROCEDURES MUST BE DONE WITH THE BOAT IN THE WATER AFTER THE MAST IS ERECTED, AND THE RIG IS TUNED.

1. THE PROPELLER SHAFT MUST BE DIMPLED (1/8' DEEP) FOR TWO (2) COUPLING SET SCREWS. THE SET SCREWS MUST BE SAFETY WIRED, USING THE STAINLESS STEEL WIRE PROVIDED, AS ILLURSTRATED. CHECK KEY IN KEY WAY, AS IT MUST BE IN PLACE BETWEEN SHAFT AND COUPLER.

2. REMOVE COUPLING FLANGE BOLTS AND CHECK PROPELLER SHAFT FOR CLEARANCE. ADJUST STUFFING BOX TO PREVENT EXCESSIVE SEEPAGE, YET ALLOW SHAFT TO SPIN FREELY.

3. SLIDE SHAFT AWAY FROM ENGINE AND CHECK COUPLING MATING SURFACES. THESE

MUST BE CLEAN.

4. SLIDE SHAFT FOREWARD TO CONNECT COUPLING SURFACES. PILOT ON TRANSMISSION FLANGE MUST ALIGN WITH RECESS IN SHAFT COUPLING FLANGE. THIS IS AN INDICATION OF CORRECT AXIAL ALIGNMENT.

5. WITH COUPLING FLANGES IN CONTACT, MEASURE GAP AROUND EDGE OF COUPLING FLANGES WITH .003 FEELER GAUGE. MAXIMUM ALLOWABLE GAP AT ANY POINT IS THREE THOUSANDTHS OF AN INCH. TAKE THIS MEASUREMENT SEVERAL TIMES.... ROTATING SHAFT 1/4 TURN EACH TIME. ANY GAP IN EXCESS OF .003 MUST BE CORRECTED BY CHANGING ENGINE POSITION, ESPECIALLY FORE/AFT TILT.

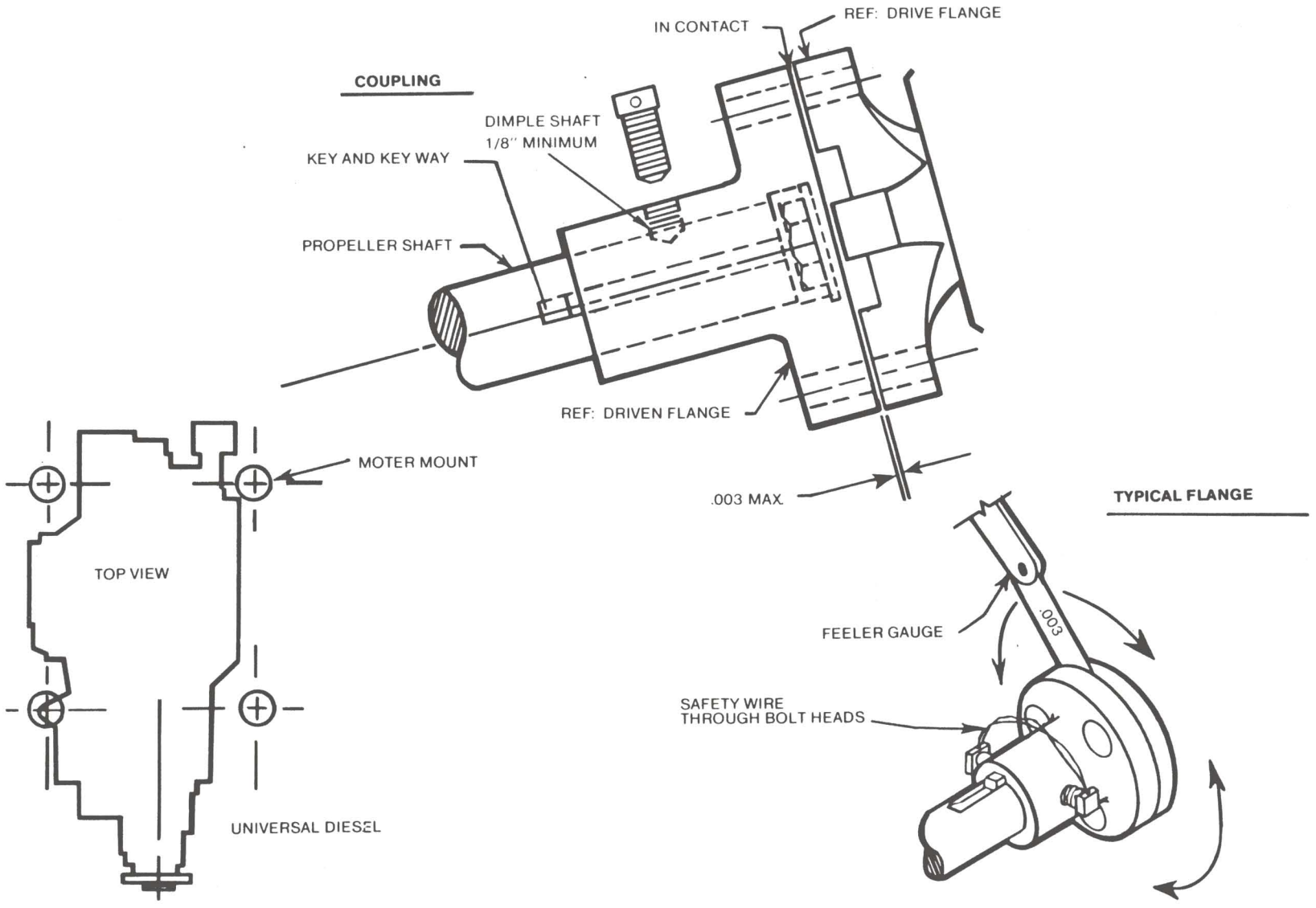
   FOR EXAMPLE, EXCESSIVE GAP AT THE BOTTOM OF THE COUPLING (SEE DRAWING) INDICATES ENGINE IS TILTED TOO FAR AFT (FRONT TOO HIGH). USING A 15/16 END WRENCH, LOOSEN LOCK NUTS ON FORWARD MOTOR MOUNT(S). LOWER FRONT OF ENGINE BY CLOCKWISE ROTATION OF MOTOR MOUNT NUTS. REMEASURE GAP AT COUPLING. A GAP AT THE TOP OF THE COUPLING WOULD REQUIRE THE EXACT REVERSE PROCEDURE.

6. PULL SHAFT BACKWARDS AS IN STEP 3. AGAIN SLIDE SHAFT FORWARD, RECHECKING AXIAL ALIGNMENT AS IN STEP 4.

7. REPEAT STEPS 5 AND 6 UNTIL ALIGNMENT WITHIN TOLERANCE IS ACHIEVED.

8. TIGHTEN MOTOR MOUNT LOCK NUTS AND INSTALL COUPLING BOLTS.

NOTE: ALIGNMENT SHOULD BE CHECKED YEARLY, OR WHENEVER ANY EXCESS VIBRATION IS NOTICED. THE ALIGNMENT CAN ALSO BE AFFECTED BY CHANGES IN RIGGING TENSION.



MEASURE GAP BETWEEN MATING FACES OF COUPLING FLANGES. MAXIMUM ALLOWABLE GAP AT ANY POINT IS .003 WHEN ANY POINT OF COUPLING FACES ARE IN CONTACT. TAKE THIS MEASUREMENT SEVERAL TIMES, ROTATING SHAFT 1/4 TURN EACH TIME. THIS MEASUREMENT MUST BE MADE WITH COUPLING BOLTS REMOVED.

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SHAFT ALIGNMENT ILLUSTRATION

4.4.6 FUELING:

THE FUEL OF THE CATALINA 36 IS ILLUSTRATED AND CONSISTS OF AN ALUMINUM FUEL TANK, FUEL FEED AND RETURN LINES. A SECONDARY FUEL FILTER ON THE ENGINE, AND AN ELECTRIC FUEL PUMP CONTROLLED BY THE ENGINE KEY SWITCH, A DECK FILL PLATE, AND AN OVERBOARD VENT THROUGH THE TRANSOM.

REFER TO THE ENGINE MANUAL PROVIDED FOR RECOMMENDED FUEL TYPE. A DIESEL ENGINE DOES NOT REQUIRE AN IGNITION SYSTEM AND IS SUPERIOR TO A GASOLINE ENGINE IN DEPENDABILITY. THIS DEPENDS ON THE CLEAN FUEL BEING SUPPLIED TO THE ENGINE SINCE THE CLOSE TOLERANCES REQUIRED BY THE ENGINE'S FUEL DELIVERY SYSTEM MAKE IT INTOLERANT OF DIRT OR WATER CONTAMINATION. THE ENGINE IS SUPPLIED WITH PRIMARY AND SECONDARY FILTERS THAT PREVENT CONTAMINANTS FROM REACHING THE ENGINE WHERE THEY COULD CAUSE DAMAGE. HOWEVER, A CLOGGED FILTER, ALTHOUGH PROVIDING THIS PROTECTION, CAN ALSO STOP AN ENGINE, KEEPING THE FILTERS FREE OF DIRT AND WATER IS CRITICAL.

BEFORE FUELING:

1. EXTINGUISH ALL SMOKING MATERIALS AND CHECK THE FUELING AROUND THE AREA FOR OTHER SOURCES OF SPARK OR FLAME. REMOVE IF FOUND.

2. SHUT OFF THE ENGINE, AND ANY ELECTRICAL ACCESSORIES OR DEVICES.

3. DE-ENERGIZE ALL ELECTRICAL EQUIPMENT BY TURNING THE SELECTOR SWITCH TO THE OFF POSITION.

4. CLOSE ALL HATCHES AND PORTS.

5. ENSURE THAT A FIRE EXTINGUISHER IS READILY AVAILABLE.

6. ENSURE THAT THE PROPER (DIESEL, NOT GASOLINE) HOSE IS ABOUT TO BE USED.

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

FUELING PROCEDURE:

1. REMOVE FILL PIPE COVER USING A PROPER TOOL.

2. PLACE NOZZLE OF FUEL HOSE IN THE FILL PIPE. KEEP THE NOZZLE IN CONTACT WITH THE DECK PLATE RIM DURING FUELING TO AVOID THE POSSIBILITY OF A STATIC SPARK.

3. FILL SLOWLY. DO NOT OVERFILL. IF IT IS NOT POSSIBLE TO SEE THE METER ON THE FUEL PUMP, THE ATTENDANT OR A CREW MEMBER SHOULD CALL OUT THE GALLONAGE FROM THE FUEL DOCK. FILLING THE TANK TO ONLY 95% OF CAPACITY WILL AVOID OVERFLOW PROBLEMS ON A HOT DAY.

4. REPLACE COVER, CLEAN UP ANY SPILLED FUEL. IF ANY RAGS, ETC., WERE USED FOR

THIS PURPOSE, DISPOSE OF THEM ASHORE.

5. CHECK BELOW DECKS FOR PRESENCE OF FUMES OR FUEL LEAKAGE. CHECK BILGE, ENGINE SPACE, AND MAIN CABIN. IF FUMES OR EVIDENCE OF LEAKAGE IS FOUND, DETERMINE THE CAUSE, CORRECT IT, AND CLEAN UP ANY SPILLAGE BEFORE PROCEEDING.

6. OPEN ALL HATCHES AND PORTS TO VENTILATE THE BOAT.

7. SWITCH ON BATTERY.

8. THE ENGINE SHOULD BE STARTED ONLY WHEN IT IS CERTAIN THAT NO POTENTIALLY HAZARDOUS CONDITIONS EXIST.

4.4.7 FUEL SANITATION:

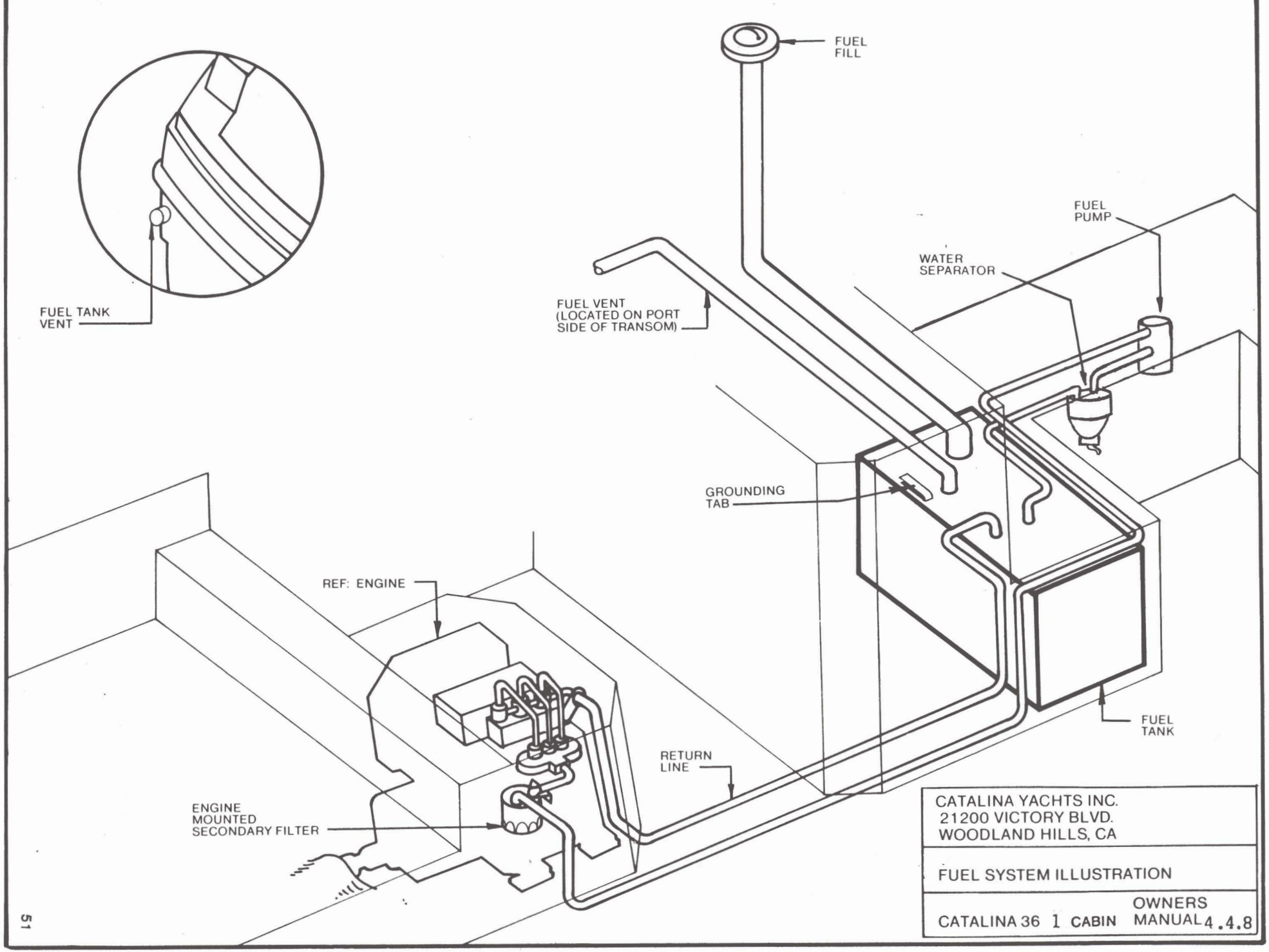
BACTERIAL CONTAMINATION:

BACTERIAL CONTAMINATION OF THE DIESEL FUEL CAN CAUSE PROBLEMS. THE BACTERIA NEED BOTH WATER AND FUEL TO EXIST, AND THRIVE AT THE FUEL/WATER INTERFACE IN A FUEL TANK. AS THEY MULTIPLY, THEY FORM MORE WATER AND A FILTER CHOCKING BROWN SLIME. THEIR PRESENCE WILL NOT BE KNOWN UNTIL ROUGH WEATHER CHURNS UP THE FUEL TANK CAUSING CLOGGED FILTERS AT THE WORST POSSIBLE TIME.

KEEPING WATER OUT OF THE FUEL WILL PREVENT THE PROBLEM ENTIRELY. HOWEVER, A CERTAIN AMOUNT OF WATER DUE TO NORMAL CONDENSATION IN THE TANK IS TO BE EXPECTED.

FUEL ADDITIVES:

FUEL ADDITIVES OR FUNGICIDES PROVIDE ANOTHER MEANS OF COMBATTING CONTAMINATION. ADDITIVES BREAK THE WATER DOWN TO A MOLECULAR LEVEL, DISPERSING IT THROUGHOUT THE FUEL AND ALLOWING IT TO PASS HARMLESSLY THROUGH THE FUEL SYSTEM. SEVERAL BRANDS OF THIS PRODUCT ARE AVAILABLE AT MARINE STORES.



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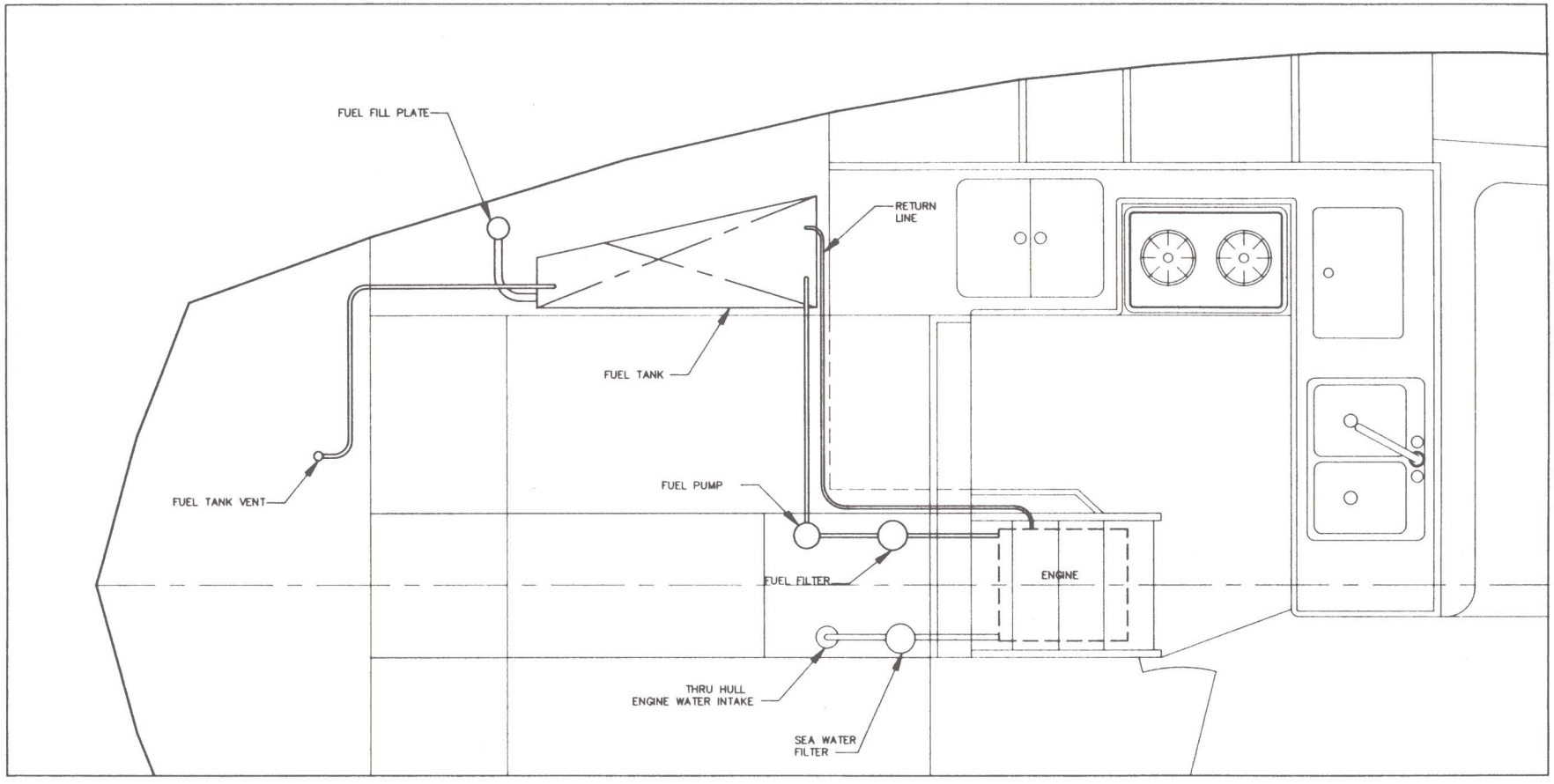
FUEL SYSTEM ILLUSTRATION

CATALINA 36 1 CABIN OWNERS MANUAL 4.4.8



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21200 VICTORY BLVD.
WOODLAND HILLS, CA.
91367--(818)884-7700

FUEL SYSTEM PLUMBING SCHEMATIC

4.4.10 EXHAUST SYSTEM MAINTENANCE:

IN-BOARD ENGINE INSTALLATIONS ON SAILBOATS DIFFER FROM ENGINE INSTALLATIONS ON POWER BOATS. THE PRIMARY DIFFERENCE IS THAT THE ENGINE IS USUALLY INSTALLED BELOW THE WATERLINE OF THE VESSEL.

THE BENEFITS OF THESE LOCATIONS ARE THAT THE WEIGHT OF THE ENGINE IS WHERE IT WILL NOT ADVERSELY EFFECT TRIM, AND THAT THE SHAFT IS AT AN EFFICIENT ANGLE FOR POWERING AND MINIMUM DRAG WHEN SAILING.

ENGINE INSTALLATIONS BELOW THE WATERLINE REQUIRE SPECIAL ATTENTION TO THE DESIGN OF THE EXHAUST SYSTEM. THE DISCHARGED COOLING WATER MUST BE EXHAUSTED ABOVE THE WATERLINE TO AVOID EXCESSIVE BACK PRESSURE ON THE ENGINE AND PREVENT SEA WATER FROM TRAVELING UP THE EXHAUST LINE AND ENTERING THE ENGINE.

TO EXHAUST THE ENGINE ABOVE THE WATERLINE, THE DISCHARGED COOLING WATER AND EXHAUST GAS MUST BE "LIFTED" TO A LEVEL ABOVE THE THRU HULL FITTING ON THE TRANSOM.

IN THE CATALINA 36 THE EXHAUST COOLING WATER AND EXHAUST GAS ARE LIFTED ABOVE THE WATERLINE BY AN "AQUA-LIFT" TYPE MUFFLER. THE AQUA-LIFT MUFFLER PERFORMS THREE JOBS:

1. IT MIXES ENGINE GAS AND WATER TO COOL THE GAS AND LOWER EXHAUST LINE TEMPERATURE.

2. IT BAFFLES AND DEADENS ENGINE EXHAUST NOISE.

3. IT CREATES PRESSURE REQUIRED TO LIFT AND EXPEL COOLING WATER.

AS SHOWN IN ILLUSTRATION 4.4.10 THE INLET TUBE INTO THE AQUALIFT IS SHORT AND THE OUTLET TUBE IS LONG NEAR THE BOTTOM OF THE TANK.

AS WATER ACCUMULATES IN THE BOTTOM OF THE TANK, EXHAUST GAS PRESSURE BUILDS IN THE TOP OF THE TANK. THIS FORCES THE COOLING WATER UP THE EXIT TUBE AND THROUGH EXHAUST LINE OVERBOARD.

THE SYSTEM REQUIRES EXHAUST PRESSURE IN THE TANK TO FUNCTION. WHEN THE STARTER IS TURNING OVER, BEFORE THE ENGINE FIRES, WATER IS BEING PUMPED THROUGH THE COOLING SYSTEM BY THE BELT DRIVE COOLING WATER PUMP. IT IS VERY IMPORTANT NOT TO OPERATE THE STARTER MOTOR FOR MORE THAN 30 SECONDS IF THE ENGINE DOES NOT FIRE. SHOULD IT BE NECESSARY TO OPERATE THE STARTER MOTOR MORE THAN 40 SECONDS, WATER MUST BE DRAINED FROM THE AQUALIFT BY REMOVING THE DRAIN SCREW AT THE BASE OF THE AQUALIFT.

THE DRAIN SCREW MAY BE REMOVED UNTIL THE ENGINE FIRES, IF DESIRED ALL CATALINA 36's ARE EQUIPPED WITH ANTI-SIPHON VALVES AS AN ADDITIONAL PRECAUTION TO PREVENT COOLING WATER FROM ENTERING THE ENGINE.

REFER TO ITEM "B" OF ILLUSTRATION 4.4.11 THE FUNCTION OF THE ANTI-SIPHON VALVE

IS TO PREVENT COOLING WATER FROM BEING SIPHONED THROUGH THE THRU HULL VALVE, THROUGH THE ENGINE COOLING SYSTEM AND INTO THE AQUALIFT MUFFLER WHEN THE ENGINE IS NOT OPERATING.

IF THE MUFFLER WERE TO FILL COMPLETELY WITH WATER, WATER WOULD TRAVEL UP THE INLET TUBE AND ENTER THE ENGINE BLOCK.

THE CATALINA 36 EXHAUST SYSTEM IS BASICALLY SIMPLE AND WILL PROVIDE TROUBLE FREE SERVICE IF YOU PERFORM REGULAR MAINTENANCE AND INSPECTION. THE IMPORTANT POINTS TO REMEMBER ARE:

1. CLOSE THE ENGINE COOLING WATER THRU HULL VALVE WHEN YOU ARE NOT OPERATING THE ENGINE.

2. DO NOT OPERATE THE STARTER MOTOR FOR MORE THAN 30 SECONDS WITHOUT DRAINING THE AQUALIFT MUFFLER.

3. PERIODICALLY DISASSEMBLE THE ANTI-SIPHON VALVE. BE SURE THE GASKET IS NOT FOULED WITH SALT DEPOSITS AND THAT IT MOVES FREELY UNDER THE CAP.

4. CHECK THE OPERATION BY REMOVING THE VALVE:

    A. PUT A FINGER OVER ONE LARGE HOLE AND BLOW THROUGH THE OTHER. AIR SHOULD NOT ESCAPE THROUGH THE CAP.

    B. IF YOU SUCK THROUGH ONE LARGE HOLE WITH A FINGER OVER THE OTHER, AIR SHOULD ENTER THE VALVE THROUGH THE CAP.

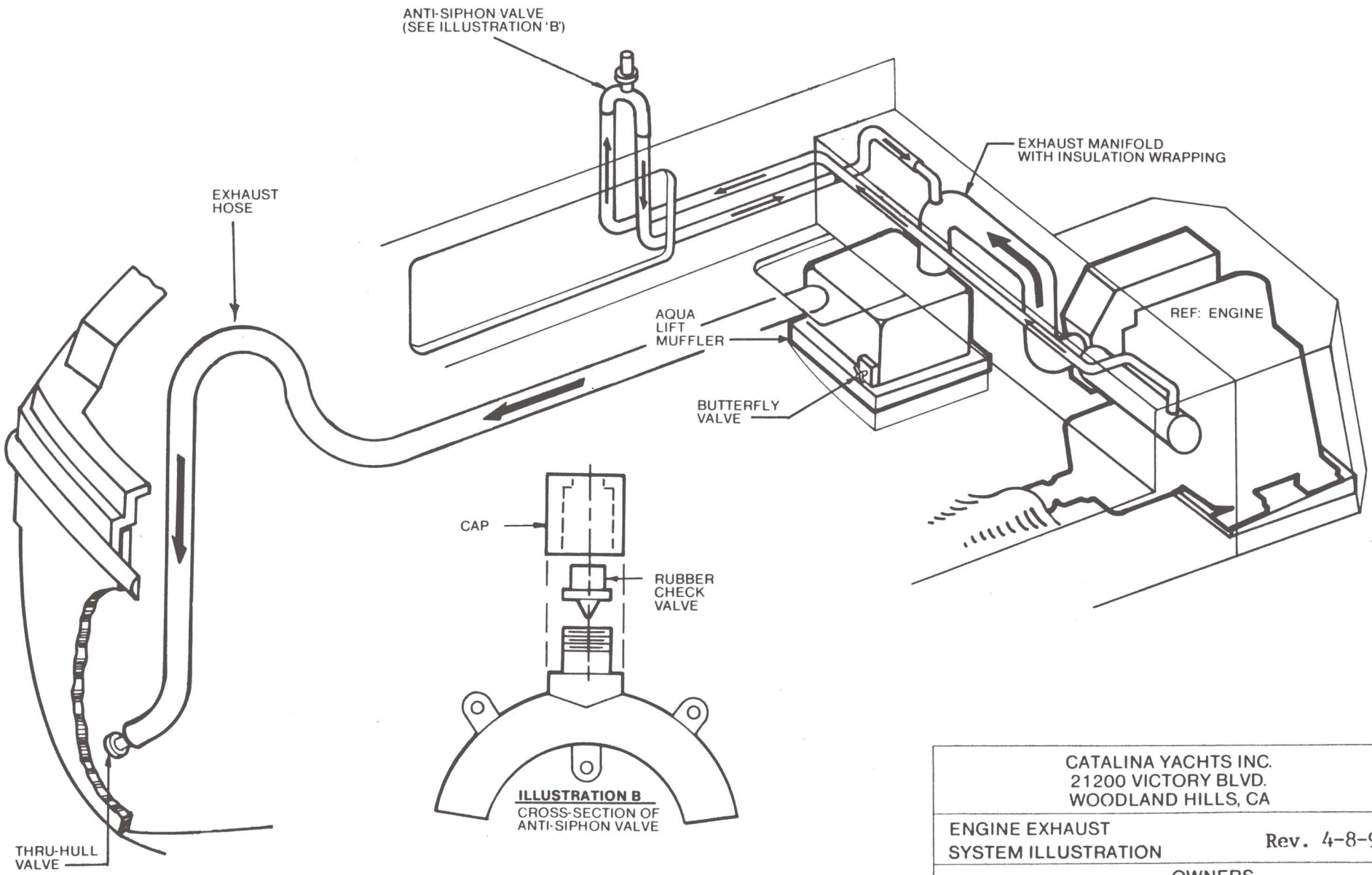

ILLUSTRATION B
CROSS-SECTION OF
ANTI-SIPHON VALVE

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ENGINE EXHAUST SYSTEM ILLUSTRATION	Rev. 4-8-94
CATALINA 36 MKII	OWNERS MANUAL 4.4.11

4.5.1 EMERGENCY TILLER:

IT IS RECOMMENDED THE SKIPPER AND CREW BECOME FAMILIAR WITH THE EMERGENCY TILLER AND ITS USE.

THE EMERGENCY TILLER SHOULD BE STORED IN A CONVENIENT LOCATION, KNOWN TO EVERYONE OPERATING THE BOAT.

A DRY RUN OF THE SYSTEM WILL MINIMIZE CONFUSION IN AN EMERGENCY:

1. LOCATE THE EMERGENCY TILLER.

2. REMOVE THE WHEEL. KEEPING A WRENCH HANDY FOR THIS PURPOSE IS A GOOD IDEA.

3. INSERT THE EMERGENCY STEERING TILLER IN THE RUDDER POST CAP.

NOTE: THE EMERGENCY TILLER MOVES THE WHOLE STEERING, INCLUDING CABLES AND QUADRANT. THESE ELEMENTS MUST BE FREE TO MOVE IN ORDER TO STEER THE BOAT.

4.6.1 GALLEY STOVE:

THERE IS PROVISION FOR A GIMBALLED STOVE WITH OVEN ON THE PORT SIDE OF THE GALLEY AREA. A TWO BURNER LPG STOVE IS FACTORY STANDARD INSTALLATION. IT COMES WITH AN OPERATION AND MAINTENANCE BOOKLET PROVIDED BY THE STOVE MANUFACTURER. A C.N.G. STOVE WITH OVEN IS AVAILABLE AS A FACTORY OPTION. FOLLOW THE INSTRUCTIONS FOR OPERATION CAREFULLY WHEN USING THE STOVE. ALTHOUGH COMPRESSED NATURAL GAS IS AMONG THE SAFEST OF COOKING FUELS, EXTREME CAUTION SHOULD BE USED WHEN COOKING ABOARD OR HANDLING C.N.G. FUEL TANKS.

THE LPG STOVE IS EQUIPPED WITH AN ELECTRIC SOLENOID SWITCH LOCATED ON THE PANEL. WHEN THE RED INDICATOR LIGHT IS ILLUMINATED, THE SOLENOID VALVE AT THE TANK IS OPEN. THE SOLENOID VALVE SHOULD BE ON ONLY WHEN THE STOVE IS USE.

READ AND FOLLOW THE INSTRUCTIONS ON THE TANK AND STOVE CAREFULLY.

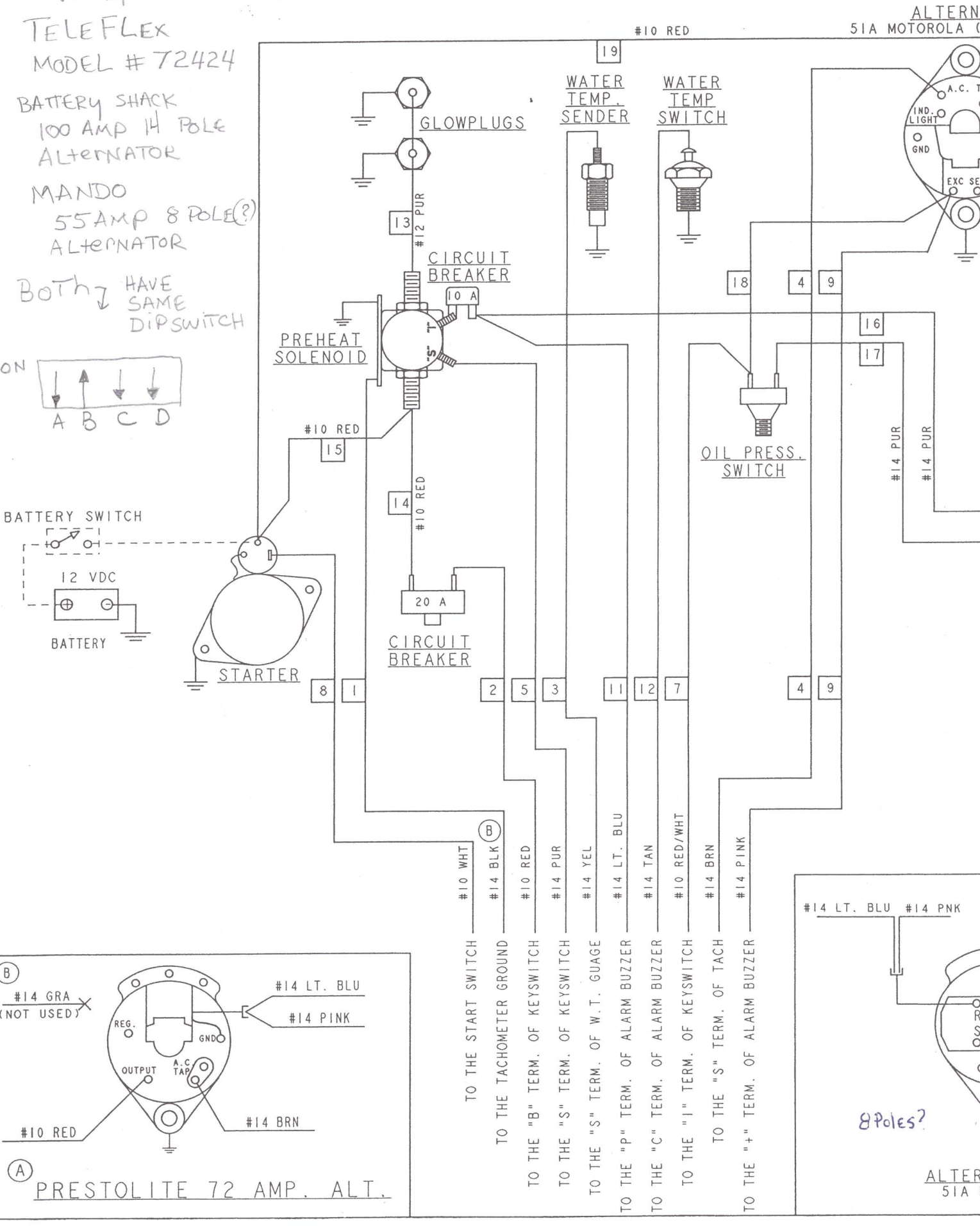
TACH/ Hour METER
TELEFLEX
MODEL # 72424

BATTERY SHACK
100 AMP 14 POLE
ALTERNATOR

MANDO
55AMP 8 POLE(?)
ALTERNATOR

BOTH HAVE SAME DIPSWITCH

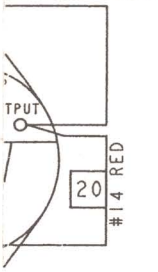
ON
A B C D



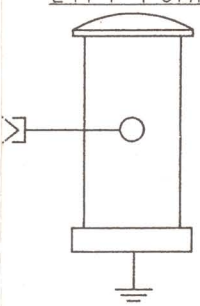
PRESTOLITE 72 AMP. ALT.

ECO NO.	DATE	REV.	REVISION RECORD	AUTH.	DR.BY
3129	11/20 96	A	ADD MANDO 51 AMP. ALTERNATOR		BRN
3792	7/9 98	B	CHANGED WIRE #1 FROM GRN TO BLK ADDED PRESTOLITE 72 AMP. ALTERNATOR		EN

TOR
RESTOLITE)



LIFT PUMP



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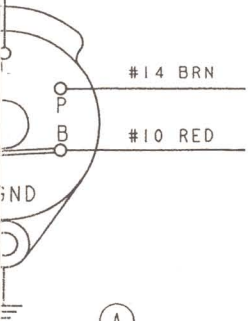

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A

ATOR
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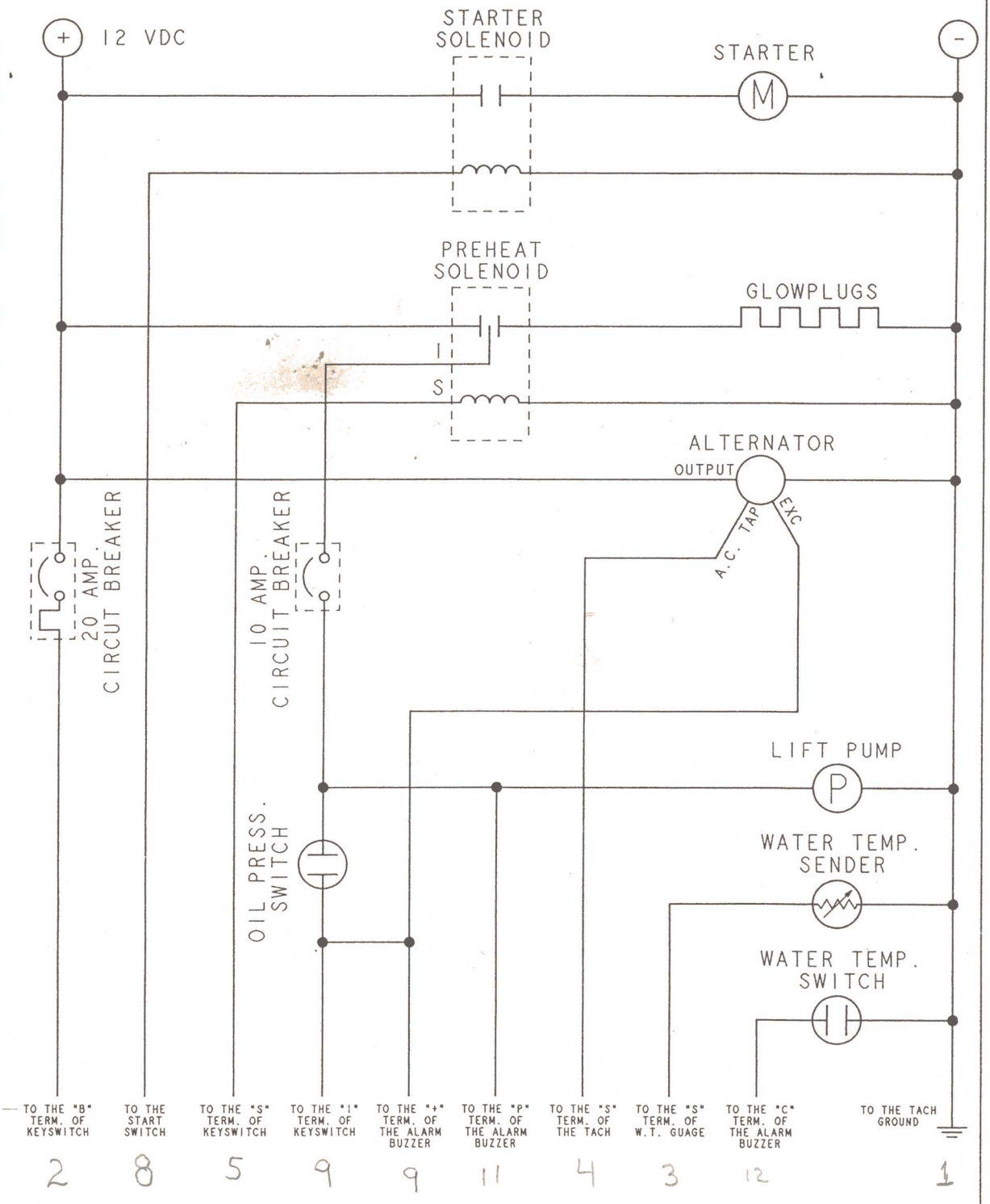
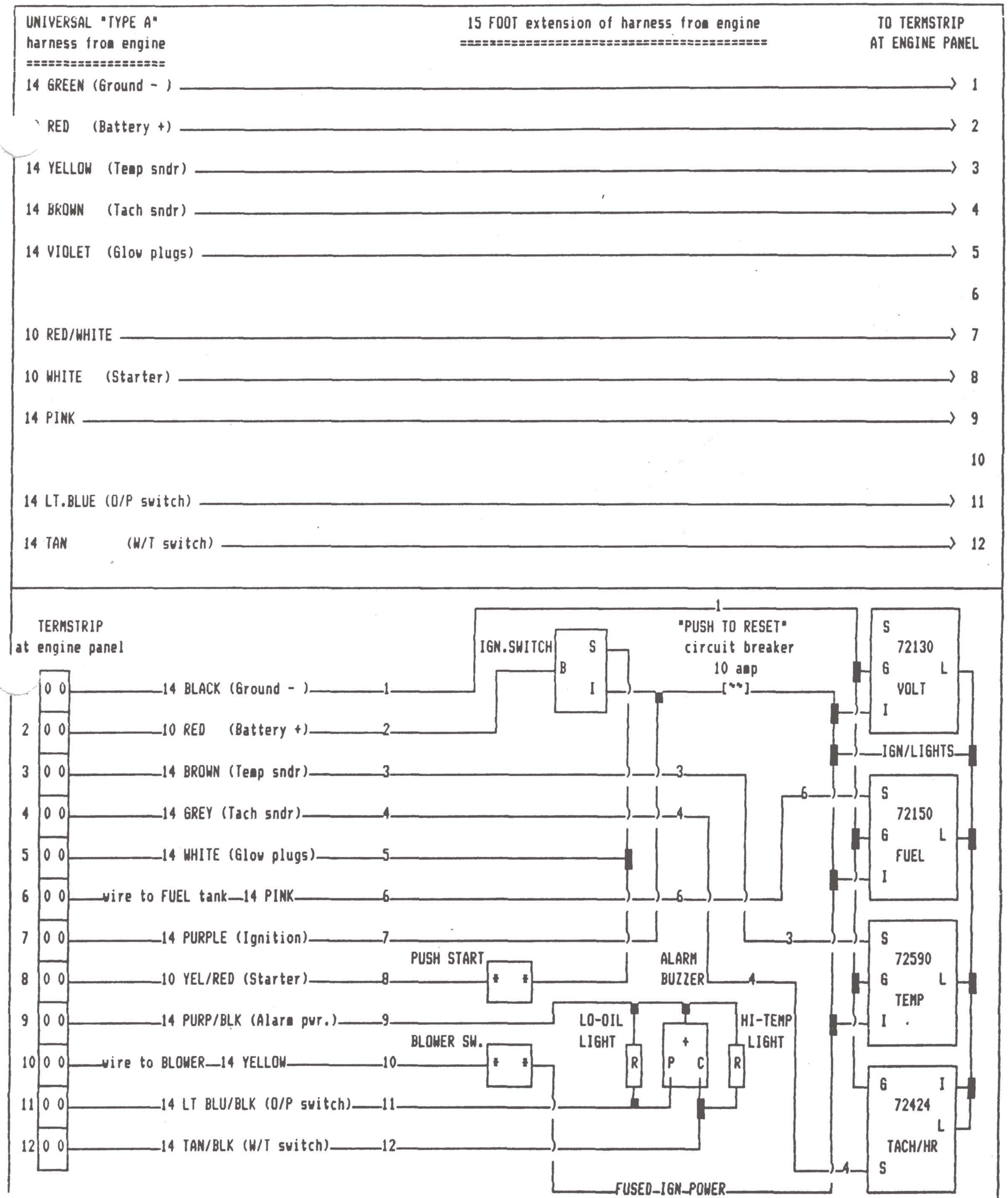


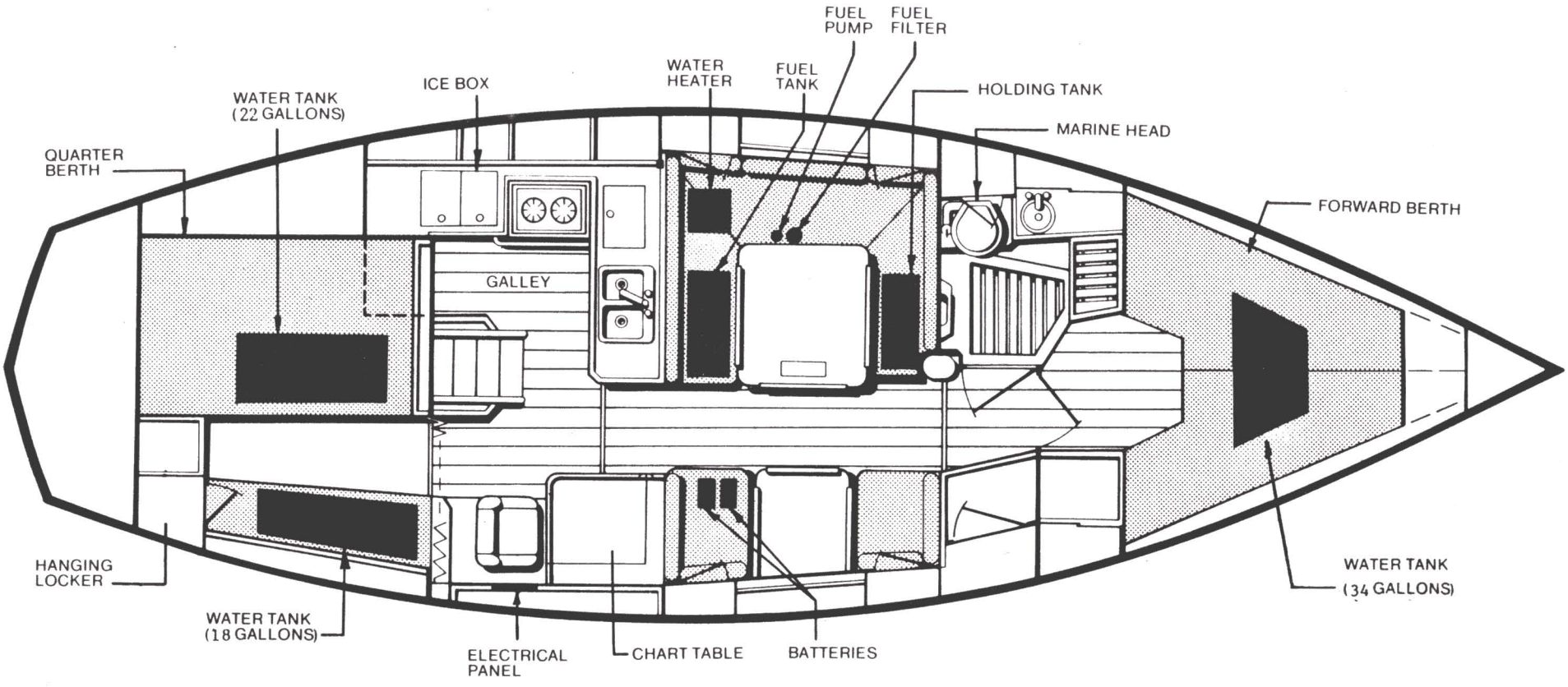
TOLERANCES (UNLESS OTHERWISE NOTED)		WESTERBEKE CORPORATION AVON MA. 02322			
INCHES	MILLIMETERS	TITLE: DIAGRAM, ENGINE WIRING - CATALINA MARINE ENGINES			
.XX ± .02	X ±	DRAWN BY: WRH	DATE: 5 FEB 93	MATERIAL:	
.XXX ± .005	.X ±	APPROVED BY	DATE		
CAST ± .03	.XX ±	SCALE: NONE	SIZE: D	DRAWING NUMBER: 200360	REV: B
ANGLES ± .5°		SHT. 1 OF 1			
FINISH					

DIMENSIONS
INCHES
MILLIMETERS
(WHEN APPLICABLE)



CATALINA YACHTS, (RECTANG)	# W-2554 #

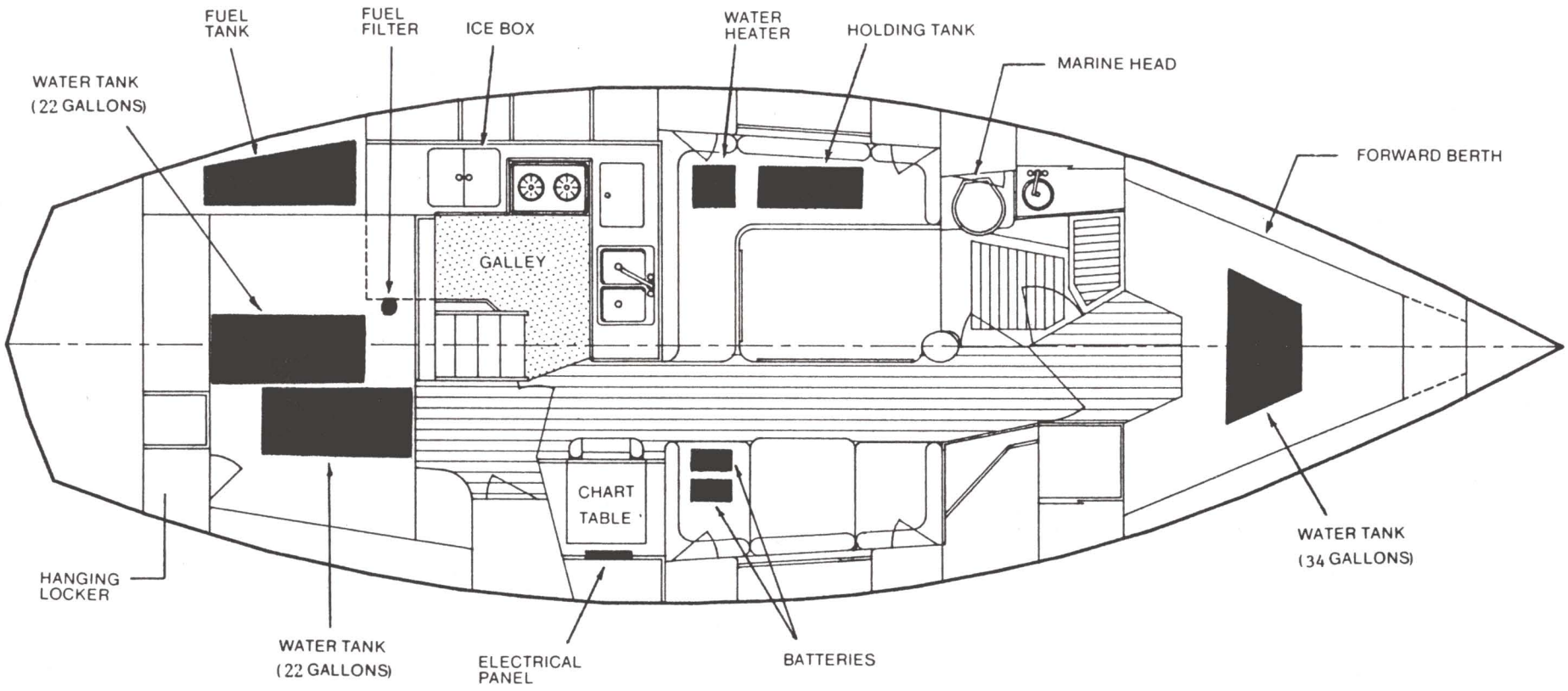
12-15-93 ENGINE->EXTENSION HARNESS->CONTROL PANEL WIRING FOR UNIVERSAL "TYPE A" DSL ENGINE



. CATALINA YACHTS INC.
21200 VICTORY BLVD.
WOODLAND HILLS, CA

CABIN ARRANGEMENT 1 CABIN

CATALINA 36 OWNERS MANUAL 4.6.2



CATALINA YACHTS INC. 21200 VICTORY BLVD. WOODLAND HILLS, CA	
CABIN ARRANGEMENT	2 CABIN
CATALINA 36 OWNERS MANUAL	4.6.3

5.0 D E C O M M I S S I O N I N G

5.1 WINTERIZING YOUR ENGINE:

LAYING UP:

IN COLD CLIMATES WHERE YACHTS ARE DECOMMISSIONED DURING THE WINTER, YOUR CATALINA 36 MAY BE SAFELY STORED IN THE WATER PROVIDED ADEQUATE MEASURES ARE TAKEN TO PREVENT ICE DAMAGE TO THE HULL. CHECK WITH YOUR YARD TO DETERMINE THE FEASIBILITY OF STORING IN THE WATER.

WHEN THE BOAT IS TO BE STORED ON LAND, THE MAST MAY BE LEFT STEPPED ON THE DECK. HOWEVER, IT IS RECOMMENDED THE MAST BE REMOVED AT THE TIME OF HAULING FOR A THOROUGH INSPECTION AND PREPARATION FOR NEXT SEASON.

THIS ALLOWS PLENTY OF TIME TO ORDER AND REPLACE ANY SHROUDS OR RIGGING PARTS NEEDED OVER THE WINTER MONTHS, AVOIDING ANY DELAYS IN THE SPRING COMMISSIONING.

FOLLOWING PROPER LAY-UP PROCEDURES WILL MINIMIZE THE EFFORT NEEDED TO RECOMMISSION IN THE SPRING.

BEFORE HAULING:

1. REFER TO ENGINE MANUAL INSTRUCTIONS FOR WINTERIZING THE ENGINE. PERFORM THE APPROPRIATE IN-WATER STEPS.

2. CONSULT THE MANUFACTURER'S INSTRUCTIONS FOR WINTERIZING ANY OPTIONAL OR OWNER INSTALLED EQUIPMENT.

3. INSPECT THE CRADLE ON WHICH THE BOAT WILL BE STORED. CHECK WELDS AND PADDED POPPITS FOR CONDITION AND REPAIR AS REQUIRED.

4. LIFT THE BOAT WITH STRAPS AT THE LOCATIONS ILLUSTRATED.

AFTER HAULING:

1. WASH BOTTOM, REMOVING GROWTH AND LOOSE PAINT.

2. WASH TOPSIDES, DECK, AND ALL OTHER EXTERIOR FIBERGLASS SURFACES. WAX ALL EXCEPT THE NONSKID SURFACES.

3. REMOVE ALL SAILS. FOLLOW SAILMAKER'S INSTRUCTIONS IN REGARD TO CLEANING. SCHEDULE ANY REPAIRS REQUIRED AND STORE IN A DRY PLACE.

4. REMOVE ALL SHEETS AND LINES, CLEAN, STORE IN A DRY PLACE.

5. IF THE MAST HAD BEEN REMOVED FROM THE YACHT, REMOVE ALL STAYS AND SHROUDS FROM THE MAST. WASH THE ENTIRE STAY OR SHROUD ASSEMBLY, USING FRESH WATER AND A STIFF BRUSH. DRY THOROUGHLY, AND COIL INTO LARGE NONKINKING COILS. STORE THE COILS IN A DRY PLACE. WASH AND WAX ALL SPARS. COIL HALYARD INTO NONKINKING COILS, AND PUT IN A DARK COLORED PLASTIC BAG TO PROTECT FROM SUNLIGHT IF STORING OUTDOORS. LASH THEM TO THE MAST. STORE THE MAST EITHER

INSIDE OR OUTSIDE WITH ADEQUATE SUPPORT ALONG ITS LENGTH.

6. IF MAST IS TO BE LEFT IN PLACE, REMOVE THE BOOM, CLEAN AND STORE AS DESCRIBED BEFORE. CLEAN SHROUD/STAY END FITTINGS, TOGGLES ETC., USING FRESH WATER AND A STIFF BRUSH. APPLY A LIGHT COAT OF SILICONE GREASE, PAYING PARTICULAR ATTENTION TO THE END FITTINGS WHERE THEY CONNECT TO THE STAYS AND SHROUDS.

7. CLEAN AND LUBRICATE ALL DECK HARDWARE THAT CONTAIN MOVABLE PARTS. FOLLOW MANUFACTURER'S INSTRUCTIONS ON WINCHES.

8. REMOVE ALL GEAR SUCH AS BOOKS, DOCUMENTS, BEDDING, PFD'S, ANYTHING MOVABLE THAT IS SUBJECT TO RUST, CORROSION OR MILDEW.

9. REMOVE ALL FOOD SUPPLIES FROM LOCKERS AND ICE CHEST. WASH OUT ICE CHEST INTERIOR WITH A WEAK SOLUTION OF CLOROX. LEAVE ICE CHEST LID OPEN.

10. STORED BATTERIES SHOULD BE FULLY CHARGED, AND BOTH POSITIVE AND NEGATIVE TERMINALS SHOULD BE DISCONNECTED. THE BATTERIES MAY BE EITHER LEFT ABOARD OR STORED IN A COOL, DRY PLACE. SUB ZERO TEMPERATURES WILL NOT HARM A FULLY CHARGED BATTERY.

11. CLOSE ALL MANUAL SHUTOFFS FOR THE STOVE FUEL SYSTEM.

12. WINTERIZE THE HEAD SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

13. WINTERIZE THE HOT AND COLD WATER SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

14. REMOVE ALL ELECTRONIC GEAR THAT MAY REQUIRE SERVICING DURING THE WINTER.

15. REMOVE FIRE EXTINGUISHERS FOR WEIGHING, CHECKING, AND ANY NECESSARY RECHARGING. IF AN AUTOMATIC FIRE EXTINGUISHING SYSTEM IS INSTALLED, RETURN THE CYLINDERS TO THE YACHT AND REINSTALL AS SOON AS POSSIBLE.

16. IF CUSHIONS ARE LEFT ABOARD, BRING COCKPIT CUSHIONS BELOW AND PLACE ALL CUSHIONS ON EDGE TO ENCOURAGE VENTILATION.

17. LEAVE ALL INTERIOR LOCKERS OPEN TO ENCOURAGE VENTILATION.

18. ENSURE THAT COCKPIT AND DECK SCUPPERS ARE OPEN AND FREE.

19. IF THE BOAT IS TO COVERED, ENSURE THAT THE COVER IS INSTALLED IN SUCH A WAY AS TO PROVIDE ADEQUATE VENTILATION, AND THAT THE COVER IS NOT PERMITTED TO CHAFE AGAINST THE HULL OR DECK.

20. IF THE BOAT IS NOT TO BE COVERED, ENSURE THAT MECHANISMS SUCH AS WINCHES AND STEERING PEDESTALS ARE PROVIDED WITH ADEQUATE COVERS.

21. IF THE MAST IS TO REMAIN STEPPED, SNUG ALL SHROUDS AND HALYARDS TO MINIMIZE NOISE AND WEAR.

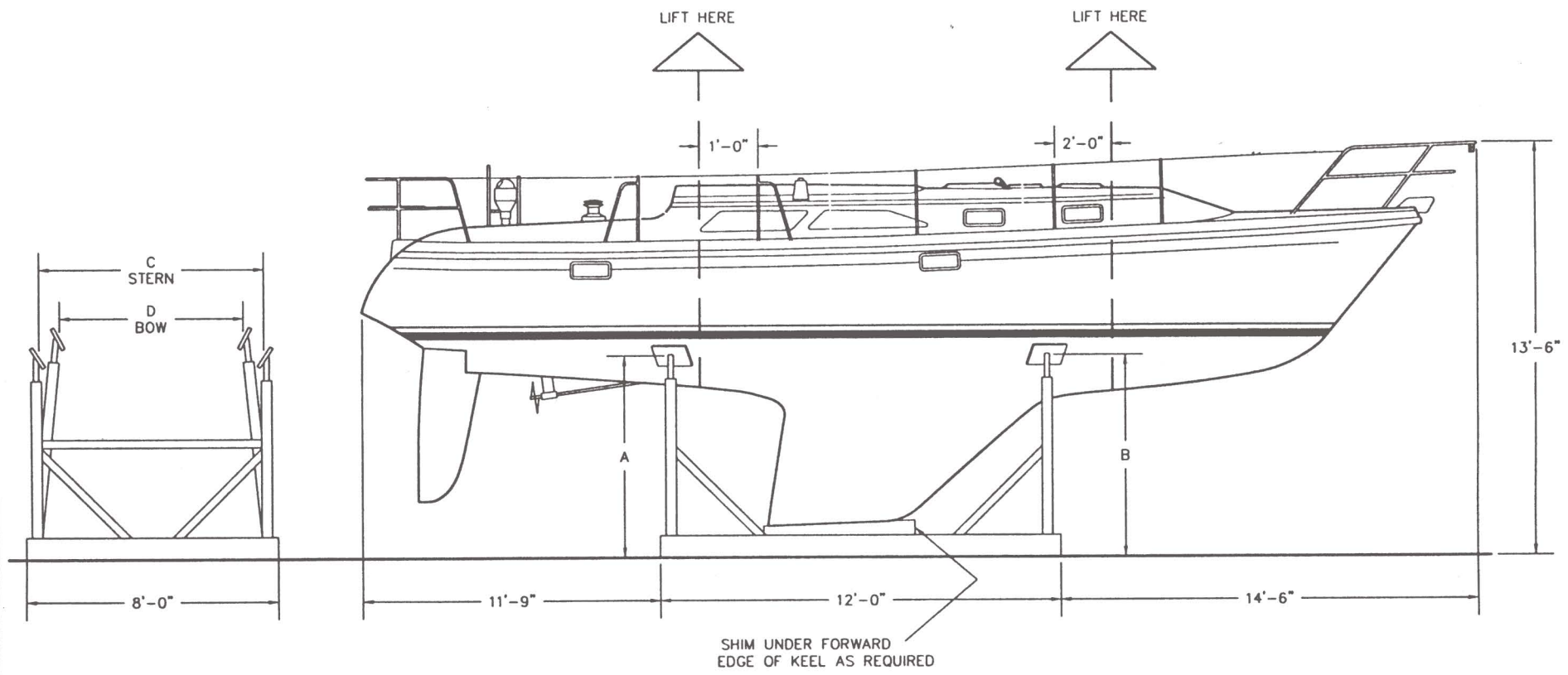
GENERAL NOTES:

WE RECOMMEND THE FOLLOWING PROCEDURES BE FOLLOWED WHEN STORING THE YACHT FOR PROLONGED WINTER MONTHS. BEGIN BY CONSULTING YOUR AUTHORIZED DEALER ABOUT STORING THE BOAT IN OR OUT OF WATER IN FREEZING CLIMATES. IF AT ALL POSSIBLE, THE MANUFACTURER RECOMMENDS KEEPING THE YACHT IN DRY STORAGE FOR SEVERE WINTERS.

ALL THRU HULL FITTINGS SHOULD BE DRAINED AND CLOSED OFF. WATER IN THE SANITATION SYSTEM AND OTHER TANKS SHOULD BE PUMPED OUT.

FOR DIESEL ENGINES, CONSULT THE MANUFACTURER'S MANUAL FOR SPECIAL INSTRUCTIONS. FOR MOST ENGINES HOWEVER, PROCEED AS FOLLOWS:

UNLESS MANUFACTURER'S MANUAL STATES OTHERWISE, DRAIN THE BLOCK, DISCONNECT THE WATER INTAKE HOSE FROM THE THRU HULL FITTINGS, ATTACH AN ADDITIONAL LENGTH OF HOSE AND PLACE THE END OF THIS HOSE IN A BUCKET OF ANTIFREEZE. RUN THE ENGINE UNTIL STRAIGHT ANTIFREEZE COMES OUT THE EXHAUST LINE. STOP THE ENGINE AT THIS POINT, PLUG OR CAP THE EXHAUST LINE, AND REMOVE THE ADDITIONAL HOSE AND BUCKET.



	FIN
A	5'-2"
B	5'-7"
C	7'-8"
D	7'-2"

NOTES:

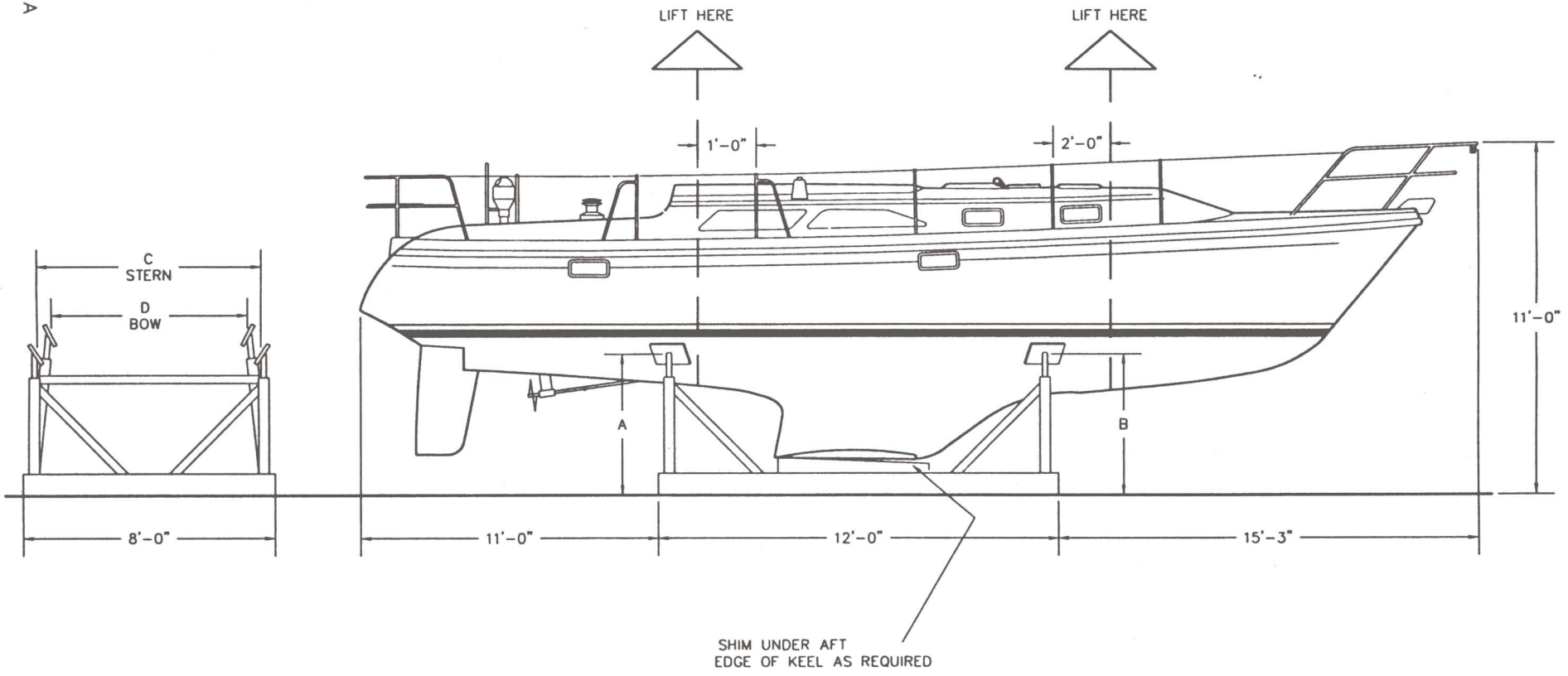
1. STANDARD DRAFT BOAT SHOWN
2. BE CAREFUL NOT TO PUT LIFTING SLING OVER SHAFT. THIS WILL BEND SHAFT AND DAMAGE DRIVE ASSEMBLY

NOTE: ALL MEASUREMENTS ARE APPROXIMATE

Catalina Yachts

LIFTING RECOMMENDATIONS – FIN KEEL

62 A



	WING
A	3'-10"
B	4'-3"
C	7'-2"
D	7'-8"

NOTES:

1. WING/ SHOAL DRAFT BOAT SHOWN
2. BE CAREFUL NOT TO PUT LIFTING SLING OVER SHAFT. THIS WILL BEND SHAFT AND DAMAGE DRIVE ASSEMBLY

NOTE: ALL MEASUREMENTS ARE APPROXIMATE

Catalina Yachts

LIFTING RECOMMENDATIONS – WING KEEL

6.0 OWNER-USER RESPONSIBILITY

6.1 GENERAL SAFETY TIPS:

1. DON'T VENTURE OUT WHEN THE WEATHER CONDITIONS ARE UNFAVORABLE OR ARE PREDICTED TO BECOME SO. LISTEN TO WEATHER FORECASTS, CHECK WITH YOUR HARBOR PATROL OFFICE, AND LOOK OUT FOR SMALL CRAFT STORM WARNINGS.

2. BE ESPECIALLY CAREFUL IN AREAS WHERE THERE MAY BE COMMERCIAL SHIPPING TRAFFIC. KEEP WILL AWAY FROM SHIPPING CHANNELS.

3. LEARN THE RULES OF THE ROAD. ALL OTHER SAILORS WILL EXPECT YOU TO KNOW THEM AND ABIDE BY THEM. THE U.S. COAST GUARD (BBE-2) 400 S. ELEVENTH ST., S.W., WASHINGTON, D.C. 20590, WILL SUPPLY FREE LITERATURE ON THIS. YOUR LOCAL BRANCH OR HARBOR PATROL OFFICE MAY HAVE IT AVAILABLE.

4. IF YOUR BOAT HAS A GENOA SAIL THAT OBSCURES THE HELMSMAN'S VISION, HAVE A DEPENDABLE PERSON IN THE CREW KEEP A SHARP LOOK OUT UNDER THE JIB SAIL FOR ONCOMING TRAFFIC.

5. WHEN SAILING AT NIGHT, PROVIDE SAFETY HARNESSES FOR YOURSELF AND YOUR CREW, AND TIE THESE LINES TO THE BOAT. USE APPROVED HARNESSES.

6. PURCHASE ALL COAST GUARD REQUIRED SAFETY EQUIPMENT AND LEARN HOW TO USE IT.

7. ENROLL IN A C.G. CLASS OR OTHER CERTIFIED BOATING AND SAILING CLASS. YOU WILL LEARN A LOT AND ENJOY SAILING EVEN MORE.

8. DO NOT TAKE MORE THAT A SAFE NUMBER OF PERSONS ABOARD YOUR BOAT WHEN SAILING.

9. MARINE INSURANCE IS WORTH EVERY PENNY YOU PAY FOR IT. TAKE OUT INSURANCE FROM THE START. SEE YOUR DEALER FOR A RECOMMENDED MARINE AGENT IF YOU DO NOT HAVE ONE.

10. KEEP ALL SEAT HATCHES AND MAIN HATCH CLOSED DURING ROUGH WEATHER OR GUSTY WINDS WHICH COULD UNEXPECTEDLY STRIKE THE BOAT AND CAUSE A KNOCK DOWN.

11. CAUTION! THE ALUMINUM MAST, AND THE METAL PARTS CONDUCT ELECTRICITY. COMING IN CONTACT WITH, OR APPROACHING AN ELECTRICAL POWER LINE CAN BE FATAL. STAY AWAY FROM OVERHEAD POWER LINES AND WIRES OF ANY KIND, WHEN LAUNCHING, UNDERWAY, OR WHEN STATIONARY.

6.2 REQUIRED SAFETY EQUIPMENT:

FIRE EXTINGUISHER:

IT IS WISE TO LOCATE A MINIMUM OF TWO, APPROVED FOR MARINE USE, FIRE EXTINGUISHERS, ONE FOR FORWARD OF THE GALLEY AND ONE BEHIND THE GALLEY, PREFERABLY BELOW THE COCKPIT HATCH. SHOULD AN ALCOHOL STOVE OR ENGINE FIRE START, YOU CAN ALWAYS REACH A FIRE EXTINGUISHER.

FOR EXAMPLE, YOU DO NOT WANT TO LOCATE BOTH OF YOUR EXTINQUISHERS IN THE HEAD

AREA BECAUSE IF YOU ARE LOCATED IN THE COCKPIT, YOU WOULD HAVE TO GET BY THE DANGER AREA TO REACH THEM IF THE FIRE IS EITHER IN THE GALLEY OR ENGINE AREA.

DRY CHEMICAL EXTINGUISHERS SHOULD BE INVERTED OCCASIONALLY TO PREVENT THE CONTENTS FROM PACKING. EXTINGUISHERS SHOULD BE RECHARGED YEARLY OR AFTER EACH USE, ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

LIFE VESTS:

KEEP A COAST GUARD APPROVED LIFE VEST ON BOARD FOR EACH CREW MEMBER. WEAR THEM DURING ROUGH WEATHER AND NIGHT SAILING. CHILDREN SHOULD WEAR VESTS AT ALL TIMES NO MATTER HOW MUCH THEY OBJECT.

HORN:

YOUR YACHT SHOULD BE EQUIPPED WITH A HORN CAPABLE OF PRODUCING A BLAST THAT CAN BE HEARD FOR A DISTANCE OF ONE MILE.

FLARES:

THE LAW REQUIRES THAT YOUR YACHT BE EQUIPPED WITH A MINIMUM OF 3 DAY/NIGHT FLARES.

6.3 SUGGESTED SAFETY EQUIPMENT AND SAFETY PACKAGE:

MEDICAL KIT:

A BASIC MEDICAL KIT IS A WISE INVESTMENT FOR ANY BOAT OWNER. SUGGESTED ITEMS INCLUDE: MOTION SICKNESS PILLS, ASPIRIN, BANDAGES, ETC. WE RECOMMEND THAT YOU PERSONALIZE YOUR MEDICAL SUPPLIES FOR YOU AND YOUR CREWS SPECIFIC NEEDS.

TOOL KIT:

A VARIED ARRANGEMENT OF TOOLS IS AGAIN, A WISE INVESTMENT TO HAVE ON YOUR BOAT. TAILOR YOUR TOOL BOX FOR THE CONDITIONS THAT YOU SAIL. FOR LOCAL SAILING, WITH PROFESSIONAL HELP JUST A PHONE CALL AWAY, YOU ONLY NEED A SMALL ARRAY OF TOOLS. HOWEVER, FOR LONG RANGE CRUISING, A MORE EXTENSIVE SUPPLY OF TOOLS WILL BE NEEDED.

6.4 SAFETY PACKAGE, FACTORY OPTION:

PKG. INCL.	DESCRIPTION
1EA	TR- 22 ANCHOR
20'	ACCO 5/16" galv. PC CHAIN
1EA	5/8" x 250' ANCHOR LINE
2EA	3/8" galv. ANCHOR SHACKLES
2EA	8" x 20" BOAT FENDERS
1EA	3/8" x 14' (2 x 7') FENDER LINE
1EA	WHITE THROWABLE CUSHION- C.G. Approved
1EA	ALUMN. FOLDING RADAR REFLECTOR
1EA	METEOR FLARE - 3
1EA	HANDHELD FLARE - 3
1EA	SIGNAL HORN ("nature safe")

PACKAGE INCLUDES	DESCRIPTION
2EA	FIRE EXTINGUISHERS (10BC)
1EA	FIRST AID KIT
1EA	HALOGEN FLASHLIGHT w/ BATTERIES
4EA	LIFE VESTS, FOAM (type 2)
1EA	CHAPMAN'S PILOTING and SMALLBOAT HANDLING
4EA	5/8" x 25' DOCKLINES
1EA	BRASS BELL - 6"
1EA	YACHT LOG BOOK

6.5 ANCHORS, ANCHORING, AND MOORING:

THE MANUFACTURER SUGGESTS AN ANCHOR IN THE 18-25 POUND RANGE TO BE USED AS A BOW ANCHOR IN ORDINARY CONDITIONS. THIS ANCHOR WILL ONLY BE EFFECTIVE WITH AT LEAST 6 FEET OF 5/16 INCH OR HEAVIER GAUGE CHAIN AND AT LEAST 1/2 INCH OR HEAVIER NYLON LINE.

UNDER ADVERSE WEATHER CONDITIONS, A HEAVIER BOW ANCHOR COULD PROVE NECESSARY, AND POSSIBLY A PLOUGH TYPE ANCHOR MIGHT BE REQUIRED.

INQUIRE IN YOUR LOCAL AREA ABOUT ANCHORING PROCEDURES RELATIVE TO THE PLACE YOU PLAN TO VISIT. GET THE OPINIONS OF SEVERAL EXPERIENCED PEOPLE. AND ALWAYS PLAY IT ON THE SAFE SIDE IN "MAKING UP" YOUR ANCHOR AND IN USING IT. DO NOT FORGET TO WIRE ALL SHACKLE PINS SO THEY CANNOT COME LOOSE UNDER WATER.

REMEMBER: LIGHTER ANCHORS ARE MADE MORE EFFECTIVE BY INCREASING THE SCOPE, I.E., THE RATIO OF LENGTH OF LINE AND CHAIN TO DEPTH OF WATER. A 7:1 RATIO IS RECOMMENDED. THIS MEANS USING 7 FEET OF ANCHOR LINE FOR EACH FOOT IN WATER DEPTH.

6.6 LIGHTNING PRECAUTIONS:

YOUR YACHT WAS NOT PROVIDED WITH A LIGHTNING PROTECTION SYSTEM DURING CONSTRUCTION. THE REASONS ARE AS FOLLOWS:

1. THERE IS NOT A PROCEDURE FOR LIGHTNING PROTECTION WHICH IS PROVEN RELIABLE UNDER ALL CONDITIONS. YACHTS WITH ELABORATE LIGHTNING PROTECTION SYSTEMS HAVE SUSTAINED SERIOUS DAMAGE FROM A DIRECT LIGHTNING STRIKE.

2. IF THE BUILDER WERE TO ASSERT THAT THE YACHT WERE LIGHTNING PROTECTED, IT COULD INSTILL A FALSE SENSE OF CONFIDENCE IN THE OWNER OR OPERATOR, LEADING TO LESS THAN PRUDENT ACTIONS WHEN LIGHTNING THREATENED.

3. LIGHTNING SYSTEMS ARE "OUT OF SIGHT, OUT OF MIND", EXCEPT WHEN LIGHTNING THREATENS. GENERALLY, THEY ARE NOT CHECKED AND MAINTAINED ON A REGULAR BASIS. A DEFECT IN THE SYSTEM (I.E., A BREAK IN A GROUND LINE) COULD, IN SOME CASES, INCREASE THE RISK OF PERSONAL HARM AND DAMAGE TO THE YACHT, AS COMPARED TO A YACHT WITH NO PROTECTION. THE REASON FOR THIS IS THAT MANY LIGHTNING PROTECTION SYSTEMS DISTRIBUTE THE HIGH VOLTAGE THROUGHOUT THE YACHT BEFORE ALLOWING IT TO EXIT THROUGH THE GROUND.

4. IT IS IMPOSSIBLE FOR CATALINA YACHTS TO CONTROL CHANGES, YOU THE OWNER, MAY MAKE TO THE YACHT, WHICH COULD AFFECT LIGHTNING PROTECTION SYSTEM.

YOU, THE OWNER, MUST DECIDE WHETHER YOU WISH TO EQUIP YOUR YACHT WITH LIGHTNING PROTECTION, AND IF SO, THE METHOD OF DOING SO. FOR YOUR GUIDANCE, A COPY OF ABYC RECOMMENDATIONS IS ATTACHED. THE FOLLOWING SUGGESTIONS AND COMMENTS ARE ALSO OFFERED:

1. KEEP THE SYSTEM AS SIMPLE AS POSSIBLE. THIS WILL FACILITATE BOTH INSTALLATION AND INSPECTION/MAINTENANCE. PERHAPS A SINGLE OVERSIZE GROUND (BATTERY CABLE) FROM THE MAST BASE TO THE ENGINE, COUPLED WITH EXTERNAL SHROUD GROUNDS (SEE 2 BELOW), WILL MAXIMIZE RELIABILITY.

2. ABYC RECOMMENDS STRAIGHT LINE WIRE RUNS,WHICH IS VIRTUALLY IMPOSSIBLE WITHIN THE YACHT. FOR GROUNDING THE SHROUDS, A BATTERY CABLE, WHICH CLIPS TO EACH SHROUD AND EXTENDS OUTSIDE THE YACHT TO THE WATER, CAN MINIMIZE THE NUMBER OF BENDS REQUIRED. THIS METHOD HAS THE ADDED ADVANTAGE OF KEEPING THE POWER SURGE OUTSIDE THE BOAT AND ALLOWING EASY AND ROUTINE INSPECTION. THE OBVIOUS DISADVANTAGE IS THAT THE CLIP ON CABLES ARE NOT A PERMANENT INSTALLATION AND MAY NOT BE IN PLACE WHEN AN UNEXPECTED LIGHTNING STRIKE OCCURS.

3. USE ONLY TOP QUALITY MATERIALS AND GO OVERSIZE WHERE POSSIBLE.

4. KEEP ALL PERMANENT ATTACHMENT POINTS AND CONNECTIONS WHERE THEY ARE READILY AVAILABLE FOR INSPECTION, YET PROTECTED FROM DAMAGE OR INADVERTENT DISCONNECTION.

FACTORY INSTALLED METAL TANKS, 110 VOLT SYSTEMS AND MAJOR COMPONENTS ARE GROUNDED TO THE ENGINE. THE ENGINE IS GROUNDED VIA THE SHAFT AND PROP TO THE WATER. THE PURPOSE OF THE INTERNAL GROUNDING IS FOR STATIC CHARGE CONTROL AND ACCIDENTAL SHORTS IN THE INTERNAL SYSTEMS--NOT TO PROVIDE LIGHTNING PROTECTION. HOWEVER, YOU CAN INCORPORATE THE GROUND LINES PRESENT IN A LIGHTNING PROTECTION SYSTEM THAT YOU MAY WISH TO ADD.

BY FAR,THE MOST IMPORTANT CONSIDERATION REGARDING LIGHTNING IS OBSERVING COMMON SENSE SAFETY PRECAUTIONS WHEN LIGHTNING THREATENS. THE KEY CONSIDERATIONS ARE LISTED IN THE AMERICAN BOAT AND YACHT COUNCIL(ABYC).

Based on ABYC's assessment of the existing technology, and the problems associated with achieving the goals of this standard, ABYC recommends compliance with this standard for all systems and associated equipment manufactured and/or installed after July 31, 1998.

E-4.1 PURPOSE

These standards and recommended practices are guides for the design, construction, and installation of lightning protection systems on boats.

NOTE: The probability of a lightning strike varies with geographic location and the time of the year, but, when the conditions that create an electrical charge between clouds and the earth exist, there is nothing that can be done to prevent the lightning discharge. A boat can be struck in open water or while tied to the dock.

E-4.2 SCOPE

These standards and recommended practices apply to powerboats and sailboats if a lightning protection system is installed.

NOTES: 1. Complete protection from equipment damage or personal injury is not implied.

2. A lightning protection system offers no protection when the boat is out of water, and is not intended to afford protection if any part of the boat comes in contact with power lines while afloat or ashore.

3. Protection of persons and small craft from lightning is dependent on a combination of design and maintenance of equipment, and on personnel behavior. The basic guides contained in this standard shall be considered and used in designing and installing a lightning protection system. However, in view of the wide variation in structural design of boats, and the unpredictable nature of lightning, specific recommendations cannot be made to cover all cases.

E-4.3 REFERENCED ORGANIZATIONS

ABYC - American Boat and Yacht Council, 3069 Solomon's Island Road, Edgewater, MD 21037-1416. 410-956-1050

NFPA - National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101. 617-770-3000.

E-4.4 DEFINITIONS

Air terminal - A device at the upper most point of the lightning protection system to dissipate the charge or start the lightning ground process.

Equalization bus - A metallic strap, which may be installed on the interior of a boat, substantially parallel to the exterior lightning ground plate, and connected to the lightning ground plate at both ends. Secondary lightning conductors can be connected to the equilization bus. The equalization bus provides a low resistance path to the lightning ground plate.

Lightning bonding conductor - A conductor intended to be used for potential equalization between metal bodies, and the lightning protection system to eliminate the potential for side flashes.

Lightning ground plate (or strip) - A metallic plate, or strip on the hull exterior below the waterline, that serves to efficiently transfer the lightning current from the system of down conductors to the water.

Lightning protective gap (air gap) - A form of lightning arrester wherein a small air space is provided between two metallic plates, with one connected directly to the vessel grounding plate or strip, and the other to an operating electrical system, such as a radio transmitter or receiver.

Lightning protective mast - A conductive structure, or if non-conductive, equipped with a conductive means, and an air terminal.

Parallel path - A path to ground that may be followed by a lightning strike. This path is separate from the path formed by the primary lightning conductor.

Primary lightning conductor - The main vertical electrical path in a lightning protection system formed by a metallic mast, metallic structure, electrical conductors, or other conducting means, to a ground plate, ground strip, or a metallic hull.
Secondary lightning conductor - A conductor used to connect potential parallel paths, such as the rigging on a sailboat, to the primary lightning conductor, or to the lightning ground plate, strip or equalization bus.

Side flash - An arc-over discharge that occurs from the lightning system to any metallic object.

Zone of protection - An essentially cone shaped space below a grounded air terminal, mast, or overhead ground wire, wherein the risk of a direct lightning strike is substantially reduced. See Appendix 1.

E-4.5 REQUIREMENTS - IN GENERAL

E-4.5.1 To provide a conductive path for the adequate discharge of lightning currents, from the air terminal at the top of a lightning mast to the water (ground), the system shall

E-4.5.1.1 be essentially vertical, and

E-4.5.1.2 be essentially straight, and

E-4.5.1.3 have a conductivity not less than that of a #4 AWG (21.2mm^2) copper conductor, and

E-4.5.1.3.1 where the system consists of multiple shrouds, stays and mast, they shall have an aggregate conductivity not less than a #4 AWG (21.2mm^2) copper conductor.

E-4.5.2 Every metallic shroud and stay shall be connected from the chain plate directly to the ground plate or ground strip with a conductor at least #6 AWG (13.3mm^2).

E-4.5.3 No bend of a conductor shall form an included angle of less than 90°, nor

E-4.5.3.1 shall it have a radius of bend less than eight inches (203mm).

E-4.5.4 Large metal objects such as tanks, engines, deck winches, stoves, etc., within six feet (1.8m) of any lightning conductor shall be interconnected by means of a lightning bonding conductor at least equal to #6 AWG (13.3mm^2) copper.

NOTES: 1. To minimize flow of lightning discharge current through engine bearings, it may be preferable to bond engine blocks directly to the ground plate rather than to an intermediate point on the lightning protection system.

2. Large metal bodies on boats include any large masses such as bow and stern pulpits, steering pedestals, horizontal guardrails, handrails on cabin tops, smokestacks from galley stoves, electric winches, davits, metallic hatches, metallic arches, towers, engines, water and fuel tanks, and control rods for steering gear or reversing gear.

3. It is not intended that small metal objects such as compasses, clocks, galley stoves, medicine chests, and other parts of the boat's hardware be grounded.

4. For illustration purposes see Appendix, Ap. Figure 1.

E-4.6 REQUIREMENTS - MATERIALS

E-4.6.1 Corrosion - The material used in a lightning protective system shall be resistant to corrosion.

NOTE: Where it is necessary to join dissimilar metals, the corrosion effects can be reduced by the use of suitable plating or by installing a metal fitting between the two dissimilar metals that is galvanically compatible with both metals.

E-4.6.2 Wire Conductors

E-4.6.2.1 Wire conductors shall be stranded copper.

E-4.6.2.2 Stranding of copper wire shall be Type II stranding in accordance with ABYC E-8, AC Electrical Systems on Boats, and/or ABYC E-9, DC Electrical Systems under 50 Volts.

E-4.6.3 Other Conductive Means

E-4.6.3.1 Conductivity shall be equal to, or greater than, #6 AWG (13.3mm^2) copper wire.

E-4.6.3.2 The thickness of metal ribbon or strip shall be at least 1/32 inch (0.8mm).

E-4.6.3.3.Copper braid shall not be used.

E-4.7 REQUIREMENTS - INSTALLATIONS

E-4.7.1 To minimize side flashes, and the induction of high voltage to the boat's wiring, lightning conductors in proximity to

the boat's wiring shall not be routed in parallel to the boat's wiring.

EXCEPTION: The primary lightning conductor.

E-4.7.2 Conductive Joints - Conductive joints shall be made and supported in accordance with ABYC E-9, DC Electrical Systems Under 50 Volts, and

E-4.7.2.1 shall have an electrical resistance not in excess of that of two feet (0.6m) of the smaller diameter conductor.

E-4.8 LIGHTNING PROTECTIVE MAST

E-4.8.1 The lightning protective mast shall be located so that the cone of protection will cover the entire boat. See Figure 1 and Figure 2.

E-4.8. 2 Additional lightning protective means shall be erected to form overlapping zones of protection, to protect a boat of the size that renders the use of a single mast impracticable.

NOTE: The zone of protection afforded by any configuration of masts, or other elevated, conductive, grounded objects, can readily be determined graphically. Increasing the height of a mast above the striking distance will not increase the zone of protection.

E-4.8.3 Lightning Protective Mast Alternatives

E-4.8.3.1 If the mast is composed of non-metallic material, the associated lightning or grounding conductor shall

E-4.8.3.1.1 be essentially straight, and

E-4.8.3.1.2 be securely fastened to the mast, and

E-4.8.3.1.3 extend at least six inches (150mm) above the mast, and

E-4.8.3.1.4 terminate in an air terminal, and

E-4.8.3.1.5 be led as directly as practicable to the grounding connection. See E-4.5.1.

NOTE: Although partially conductive, carbon fiber materials are regarded as non-conductive (non-metallic) for the purpose of this standard.

E-4.8.3.2 An outrigger that serves as a lightning protective mast shall have conductivity equivalent to #4 AWG (21.2mm^2) copper.

E-4.9 LIGHTNING GROUND

E-4.9.1 Primary and Secondary Lightning Ground - A lightning ground for a boat shall consist of any metal surface which is submerged in the water having an area of at least 1 square foot (0.1m^2) and consist of at least one of the following methods.

E-4.9.1.1 External Ground Plate or Equivalent - The external ground plate shall be located as close to the base of the primary conductor as possible to minimize any horizontal runs in the primary conductor.

NOTE: The boat's rudders, struts, external ballast keel, or other external metallic surfaces may provide an external ground plate equivalent.

E-4.9.1.1.1 If the rudder(s) is used as an external ground plate equivalent, the lightning conductor shall be connected directly to the rudder shaft.

E-4.9.1.2 Grounding strip - An external grounding strip of copper, copper alloy, stainless steel, or aluminum, shall be installed under water to be used as an earth ground connection for the lightning system. This strip shall have a minimum thickness of 3/16 inch (5mm), and a minimum width of 3/4 inch (19mm).

NOTES: 1. The edges of the external ground plate or grounding strip need to be sharp, exposed, and not caulked or faired into the adjoining area.

2. A strip approximately one inch (250mm) wide, and 12 feet (3.7m) long, has nearly six times the amount of edge area exposed to the water, which, compared to the ground plates, will improve the dissipation of charges.

E-4.9.1.2.1 The grounding strip, if used, shall extend from a point directly below the lightning protection mast, towards the aft end of the boat, where a direct connection can be made to the boat's engine.

NOTES: 1. The use of two thru-bolts at each end of the strip will help to prevent the strip from twisting.

2. An equalization bus on the inside of the boat, paralleling the grounding strip on the outside of the boat, may be used as the lightning ground conductor.

E-4.9.2 Seacocks and Thru-Hull Fittings - Seacocks and thru-hull fittings, if connected to the lightning ground system, shall not be connected to the main down conductor. They shall be connected to

E-4.9.2.1 the underwater grounding strip, or

E-4.9.2.2 the lightning ground plate, or

E-4.9.2.3 the internal equalization bus.

E-4.9.3 Multihull boats shall provide a lightning ground connection in accordance with E-4.9.1 for each hull that has items to be grounded, attached, or fitted to it.

E-4.10 REQUIREMENTS - VESSELS WITH METAL HULLS

E-4.10.1 If there is electrical continuity between metal hulls and masts, or other metallic superstructures of adequate height in accordance with E-4.8, then no further protection against lightning is necessary.

E-4.11 REQUIREMENTS - SMALL BOATS

E-4.11.1 Small boats without a permanent mast shall be protected by means of a temporary lightning protective mast that may be erected when lightning conditions are observed.

E-4.11.1.1 The base of the temporary lightning protective mast shall be located as close to the geometric center of the boat as possible, but, if necessary, can be offset, providing the cone of protection will cover the entire boat when the mast is plugged in.

E-4.11.1.2 The location of the mast base shall be such that persons on the boat can avoid physical contact with the mast or the base.

E-4.11.1.3 The base should extend as high as possible, and provision shall be made to plug in the upper section of the lightning mast so that it will not be displaced by the rolling and pitching of the boat in rough water.

E-4.11.1.4 The temporary lightning protective mast shall be all metal, or other material if provided with a conductor, with a conductivity at least equal to a #4 AWG ($21.2mm^2$) conductor.

NOTE: A solid stainless steel whip antenna or equivalent, that has a conductivity less than a #4 AWG ($21.2mm^2$) conductor, may be used, because of its higher melting temperature, but it will not provide as low a resistance path for the lightning.

E-4.11.1.5 The temporary lightning protective mast shall be connected to a submerged ground plate of at least one square foot ($0.1\ m^2$) in area.

E-4.11.2 Open Daysailers - As stainless steel rigging may not provide an adequate conductive path for the discharge of lightning currents, protection will depend on the grounding of all rigging as well as the metal masts, or the continuous metallic tracks on nonmetallic masts. These shall be connected at the lower ends to a lightning grounding plate, or a lightning grounding strip located directly below the mast.

E-4.11.2.1 Metallic rudders at the aft end of the boat shall not be used as the lightning ground for the mast because of the need for a long horizontal conductor to the aft end of the boat.

E-4.11.2.2 The tiller, or other connections to metallic rudders that the operator will contact, shall be non-conductive materials.

E-4.11.2.3 Metallic keels or centerboards shall be directly connected to the lightning grounding plate or strip, and may serve as the lightning grounding means if they have the required one square foot ($0.1\ m^2$) area in contact with the water. If a centerboard is used as the lightning grounding means, a warning sign shall be provided that clearly states that the centerboard must be in the down position to function as a lightning ground.

FIGURE 1 - BOAT WITH MAST NOT EXCEEDING 50 FEET (15M) ABOVE THE WATER

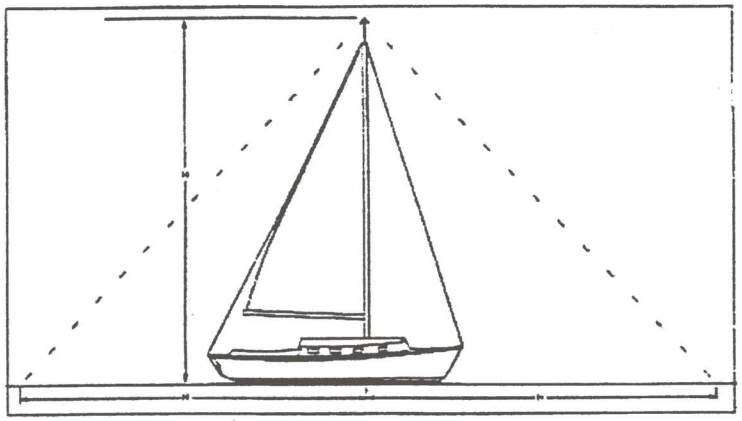


FIGURE 2 - BOAT WITH MAST NOT EXCEEDING 50 FEET (15M) ABOVE THE WATER

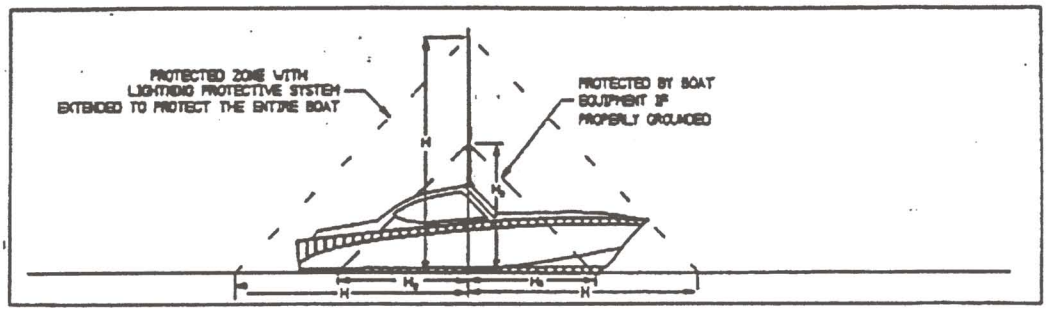
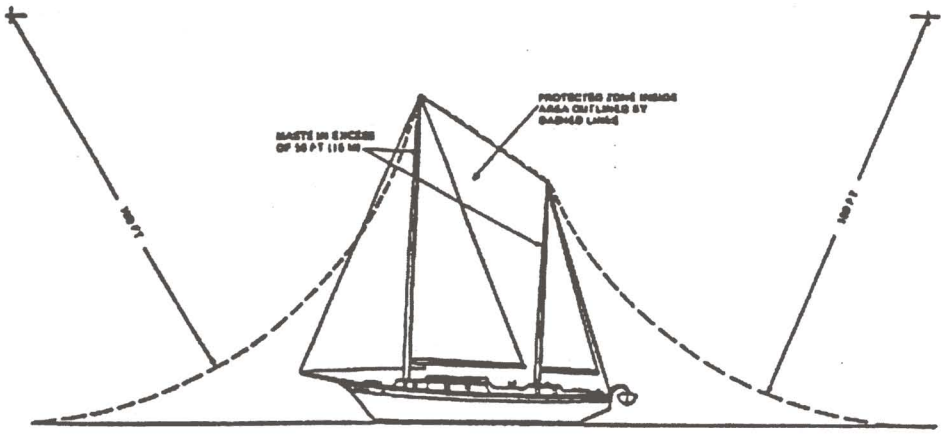


FIGURE 3 - BOAT WITH MASTS IN EXCESS OF 50 FEET (15M) ABOVE THE WATER - PROTECTION BASED ON LIGHTNING STRIKING DISTANCE OF 100 FEET (30M)



APPENDIX - LIGHTNING PROTECTION

This appendix contains additional descriptive information and recommendations pertaining to system maintenance and behavior of personnel.

E-4.Ap.1 Zone of Protection - A grounded conductor, or lightning protective mast, will generally divert to itself a direct strike that might otherwise fall within a cone-shaped space, the apex of which is the top of the conductor of a lightning protective mast, and the base of a circle at the surface of the water having

a radius that is related to the height of the top of the conductor or lightning protective mast.

E-4.Ap.1.2 Boats with ungrounded or non-conductive objects projecting above the metal masts or superstructure may have these objects protected by a lightning ground conductor terminating in an air terminal above the object.

E-4.Ap.1.3 Whip type radio antennas should not be tied down during a lightning storm if they have been designed as a part of the lightning protection system.

E-4.Ap.2 Maintenance - Lightning protection provisions are likely to receive scant attention after installation. Therefore, their composition and assembly should be strong, and materials used should be highly resistant to corrosion.

E-4.Ap.2.1 Grounding of metallic objects for lightning protection may increase the possibility of harmful galvanic corrosion. See ABYC E-2, Cathodic Protection of Boats.

E-4.Ap.2.2 If a boat has been struck by lightning, compasses, electrical, and electronic gear should be checked to determine whether damage or changes in calibration have taken place.

E-4.Ap.2.3 If a boat has been struck by lightning, the lightning protection system should be inspected for physical damage, system integrity, and continuity to ground.

E-4.Ap.2.4 If a boat has been struck by lightning, it should be hauled for inspection of the hull, underwater structures and thru-hull fittings. Lightning can exit from one or numerous locations below the waterline. Subsequent flooding, sinking, or long term hull damage can result from undetected lightning damage.

E-4Ap.3 Precautions for Personnel - The basic purpose of protection against lightning is to ensure the safety of personnel. It is therefore appropriate that during a lightning storm the following precautions be taken:

E-4.Ap.3.1 Personnel should remain inside a closed boat, as far as practical.

E-4.Ap.3.2 Arms and legs should NOT be dangled in the water.

E-4.Ap.3.3 Consistent with safe handling and navigation of the boat, personnel should avoid making contact with any items connected to a lightning protection system, and especially in such a way as to form a bridge between these items. For example, it is undesirable that an operator be in contact with reversing gear levers and a spotlight control handle at the same time.

E-4.Ap.3.4 Personnel should NOT be in the water.

E-4.Ap.3.5 Personnel should avoid contact with metal parts of a sailboat's rigging, spars, fittings, and railings.

E-4.Ap.4 For mast heights in excess of 50 feet (15m), the zone of protection is based on the striking distance of the lightning stroke. Since the lightning stroke may strike any object within the striking distance of the point from which final breakdown to earth ground (the water) occurs, the zone of protection is defined by a circular arc, concave upward. See Figure 2. The radius of the arc is the striking distance, and the arc passes through the tip of the mast, and is tangent to the water. Where more than one mast is used, the arc passes through the tips of adjacent masts. See Figure 3. The striking distance is related to the peak stroke current, and thus to the severity of the lightning stroke. The greater the severity of the stroke, the greater the striking distance. In the vast majority of cases, the striking distance exceeds 100 feet (30m). Accordingly, the zone based on a striking distance of 100 feet (30m) is considered to be adequately protected. The zone of protection afforded by any configuration of masts, or other elevated conductive grounded objects, can readily be determined graphically. Increasing the height of a mast above the striking distance will not increase the zone of protection.

E-4.Ap.5 Materials

E-4.Ap.5.1 The materials used in the lightning protection system should be resistant to corrosion. The use of combinations of metals that form detrimental galvanic couples should be avoided.

E-4.Ap.5.2 In those cases where it is impractical to avoid a junction of dissimilar metals, the corrosion effect can be reduced by the use of suitable plating or special connectors, such as stainless steel connectors used between aluminum and

copper alloys. Except for the use of conducting materials that are part of the structure of the boat, such as aluminum masts, only copper should be used as a lightning conductor system. Where copper is used, it should be of the grade ordinarily required for commercial electrical work, generally designated as being of 95 percent conductivity when annealed.

E-4.Ap.6 External Ground Plate - An exterior grounding plate of copper, copper alloys, stainless steel or aluminum may be provided by means of a plate which has an area of at least one square foot (0.1 m^2) area. The plate should be located as nearly as possible directly below the lightning protection mast. The boat's propeller(s), shaft(s), metallic rudder(s), and other metallic surfaces that have the required area, can be effectively used on small boats only where the lightning protective mast is located at the stern, above the in-water metallic objects to be used as the lightning system ground. The stern mast must be tall enough to provide a cone of protection that extends to the bow of the boat.

E-4.Ap.6.1 Boats that use a lightning grounding plate instead of the lightning grounding strip should ground backstays, or other objects aft, to the engine negative terminal, a metallic rudder, or other external ground at the aft end of the boat. The lightning ground shall not be routed through the boat to the lightning grounding plate forward under the lightning mast.

E-4.Ap.7 Grounding Strip - An external grounding strip of copper, copper alloys, stainless steel, or aluminum, installed under the boat in a fore and aft direction, may be used as the earth ground connection for the lightning system. Except for stainless steel, the strip should have a minimum thickness of 3/16 inch (4.8mm), and a minimum width of 3/4 inch (20mm). Stainless steel should have a minimum thickness of 1/8 inch (3.2mm). The length of the strip should extend from a point directly below the lightning protection mast, to the aft end of the boat, where a direct connection can be made to the boat's engine, but the total length of the strip shall not be less than four feet (1.22m). In a sailing vessel, the backstay and engine should be connected to the aft end of the strip. The strip should be secured to the hull with one, or preferably two, galvanically compatible through bolts at each end. The use of two bolts at each end, spaced one or two inches apart, will help prevent any tendency for the strip to rotate when the electrical connections are made inside the hull The strip must be located so that the external strip is submerged under all operating conditions. If the strip is not located so as to be submerged when a sailboat is heeled to port or starboard, then a strip will be required on both the port and starboard sides. All connections to the strip should be as short and direct as possible. Additional thru-hull bolts may be located along the length of the strip for additional connections, such as on a two masted sailboat. Because of the possibility of stray current corrosion of the securing bolts, the number of thru-hull bolts should be kept to a minimum. To minimize the number of thru-hull bolt connections, an equalization bus can be installed.

E-4.Ap.7.1 The aft end of the lightning grounding strip should be connected directly to the engine negative terminal. This will provide a path inside the hull for any DC stray currents that might be imposed on the thru-hull bolts that attach the lightning grounding strip where those bolts contact bilge water.

E-4.Ap.8 Protection of Equipment - Wherever possible, electronic equipment should be enclosed in metal cabinets that are connected to the lightning grounding system with a minimum #8 AWG (8.39mm^2) conductor. Surge suppression devices should be installed on all wiring entering or leaving electronic equipment.

E-4.Ap.8.1 The grounding of metal rod type radio antennas provides some protection for boats without masts and spars provided that

E-4.Ap.8.1.1 conductors in the grounding circuit of the antenna have a conductivity equivalent to #4 AWG (21.2mm^2) copper in accordance with E-4.5, and

E-4.Ap.8.1.2 the top of the antenna is not more than 50 feet (15m) above the water, and

E-4.Ap.8.1.3 a line drawn from the top of the antenna downward toward the water at an angle of 45 degrees to the vertical does not intercept any part of the boat (see E-4.8), and

E-4.Ap.8.1.4 the antenna loading coil is provided with a suitable protective device for bypassing the lightning current.

NOTES: 1. Because a loading coil presents a high impedance to the flow of lightning current, the portion of an antenna above the bottom of a loading coil is not as effective as a lightning protective mast.

2. Non-conducting antenna masts with spiral wrapped conductors are not considered suitable for lightning protection purposes.

DISCHARGE OF OIL PROHIBITED

THE FEDERAL WATER POLLUTION CONTROL ACT PROHIBITS THE DISCHARGE OF OIL OR OILY WASTE INTO OR UPON THE NAVIGABLE WATERS AND CONTIGUOUS ZONE OF THE UNITED STATES, IF SUCH DISCHARGE CAUSES A FILM OR SHEEN UPON, OR DISCOLORATION OF, THE SURFACE OF THE WATER, OR CAUSES A SLUDGE OR EMULSION BENEATH THE SURFACE OF THE WATER. VIOLATORS ARE SUBJECT TO A PENALTY OF $5,000.

PART # WS8 IN AFT COCKPIT SEAT

It is illegal for any vessel to dump plastic trash anywhere in the ocean or navigable waters of the United States. Annex V of the MARPOL TREATY is an International Law for a cleaner, safer marine environment. Violation of these requirements may result in civil penalty up to $25,000. fine and imprisonment.

U.S. Lakes, Rivers, Bays, Sounds and 3 miles from shore	3 to 12 miles	12 to 25 miles	Outside 25 miles
ILLEGAL TO DUMP Plastic & Garbage Paper Metal Rags Crockery Glass Dunnage Food	ILLEGAL TO DUMP Plastic Dunnage, lining & packing materials that float, also if not ground to less than one inch: Paper Crockery Rags Metal Glass Food	ILLEGAL TO DUMP Plastic Dunnage, lining & packing materials that float.	ILLEGAL TO DUMP Plastic

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

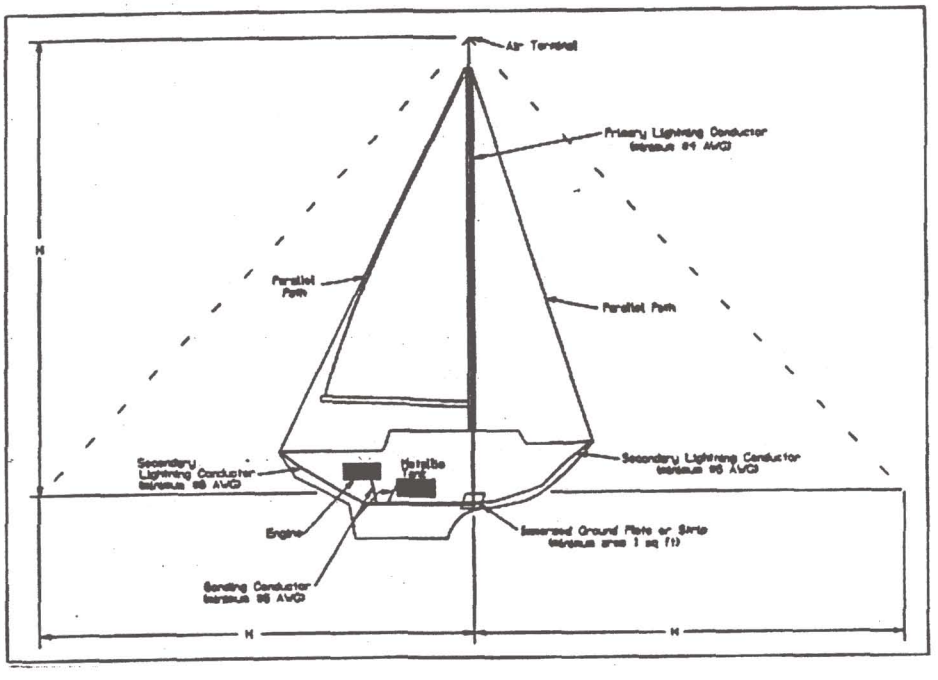
PART # WS9 ON GALLEY FRONT FACE

E-4.Ap.8.2 In order to protect the radio transmitter, antenna feed lines shall be

E-4.Ap.8.2.1 equipped with a means for grounding during electrical storms, or

E-4.Ap.8.2.2 protected by lightning arresters or lightning protective gaps.

Ap. FIGURE 1 - LIGHTNING PROTECTION SYSTEM



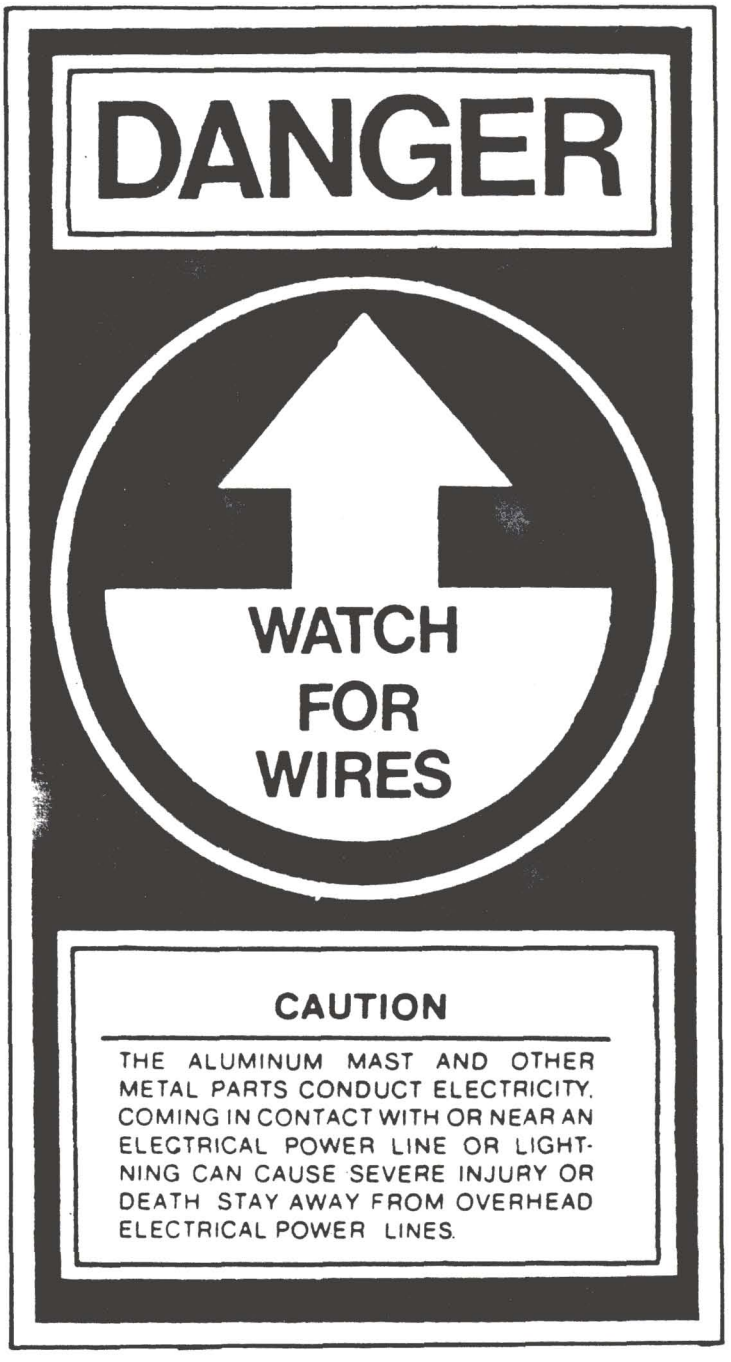
NOTES: 1. An equalization bus is used on the interior of the hull as the termination for secondary conductors and bonding conductors. The primary conductor is connected directly to the immersed ground plate or strip. See E-4.9.

2. All otherwise isolated bare metal objects within six feet (1.8m) of a lightning conductor shall be connected to the lightning protection system with a minimum #6 AWG (13.3mm^2) bonding conductor.

3. The probability of a lightning strike varies with geographic location and the time of the year. When the conditions that create an electrical charge between clouds and the earth exist, there is nothing that can be done to prevent the lightning discharge. A boat can be struck in open water or while tied to the dock.

Warning Labels

These warning labels were applied to your boat at the factory and contain information important for the safe operation of your boat. If any of these labels are missing, or you require replacement or additional labels, please contact the Catalina Yachts parts department.
(818) 884-7700



PART # WS2 ON FORWARD SIDE OF MAST 1'-0" FROM BOTTOM

PART # WS1 BELOW ENGINE INSTRUMENT PANEL

PART # WS3 BELOW ENGINE INSTRUMENT PANEL

WARNING

DO NOT OPEN
WHEN ENGINE IS RUNNING

CONTACT WITH HOT OR
MOVING ENGINE PARTS CAN
CAUSE SERIOUS INJURY

PART # WS4 ON ALL ENGINE ACCESS DOORS AND PANELS

IMPORTANT

READ THE OWNERS MANUAL BEFORE USING THIS VESSEL, ADDITIONAL COPIES OF THE OWNERS MANUAL ARE AVAILABLE FROM:

Catalina Yachts

21200 VICTORY BLVD., WOODLAND HILLS, CA 91367

PART # WS5 IN THE COCKPIT ON DECK

CAUTION

KEEP CURTAINS AWAY FROM STOVE

PART # WS6 IN HEAD NEAR ACCESS DOOR TO VALVES

IMPORTANT! IMPORTANT!
Close through hull valves each time the head is used.

PART # WS7 ON OVERHEAD ABOVE STOVE

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

PART # WS9 ON GALLEY FRONT FACE

Edson

STEERING DATA SHEET

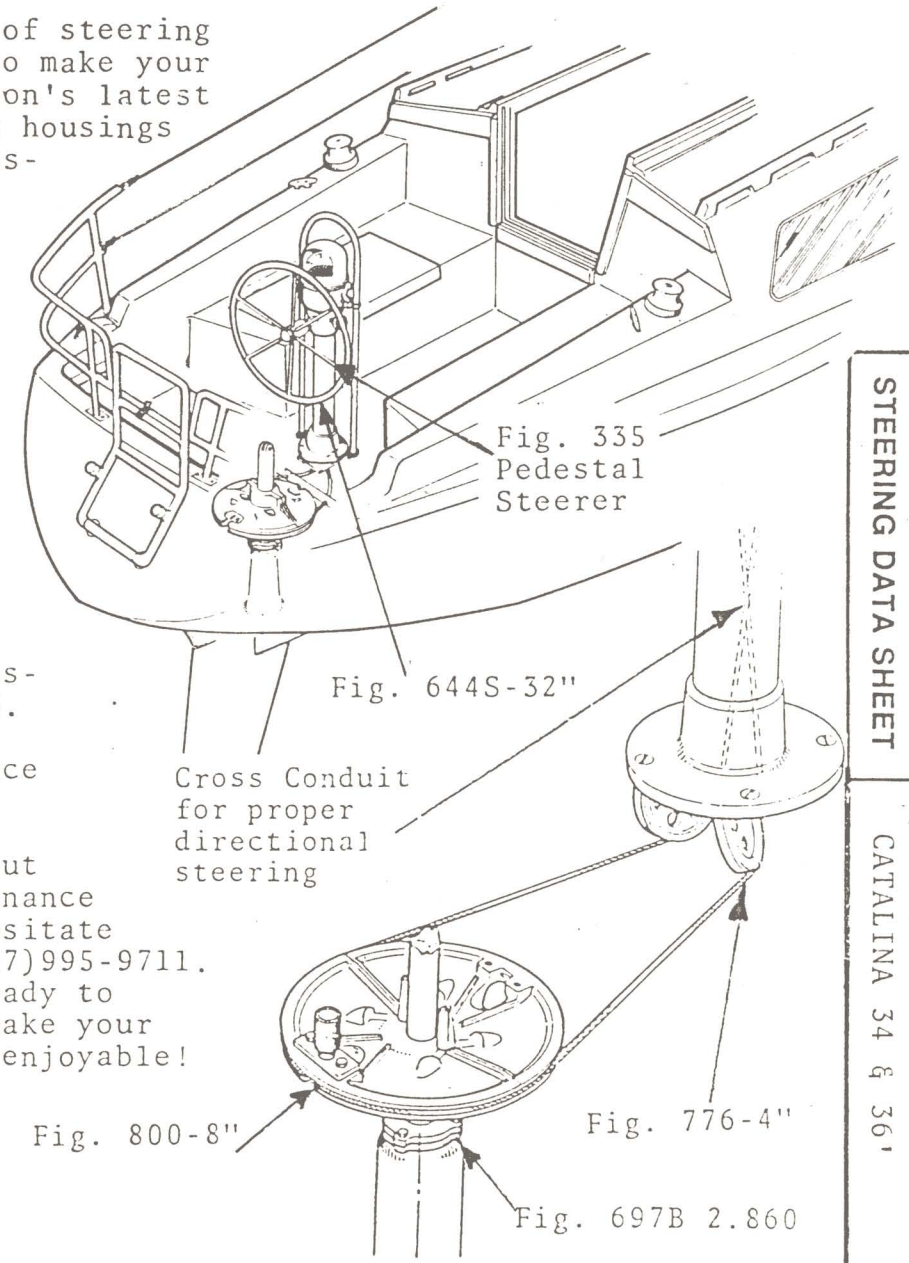
CATALINA 34 & 36'
S-1165-B

EDSON manufactures a variety of steering system accessories designed to make your cockpit more functional. Edson's latest catalog is full of instrument housings cockpit luncheon tables, glass-holders, auto-pilot adapters, and more.

WHEN ordering additional accessories for your Catalina, please note the following size designations. All accessories that fasten to the top of an Edson 335 Pedestal carry the size of 45; this would include items such as instrument housings.

WHEN ordering accessories to fit on your Edson Pedestal Guard, such as tables or glass-holders, please order size 95. All Edson Pedestal Guard are 9½" between pipe centers, hence the 95 size designation.

IF you have any questions about recommended options or maintenance information, please do not hesitate to contact Edson directly (617)995-9711. Our knowledgeable staff is ready to assist you. Edson wants to make your Catalina experience safe and enjoyable!



PARTS LIST

1	Fig. 335C	5-211	Edson Pedestal Steerer with Chrome Nut
1	Fig. 644S	32"	Edson Destroyer Wheel
1	Fig. 775	2S15B9	Chain & Wire Rope Assembly
1	Fig. 776	4"	Adjustable Crossed Wire Idler
1	Fig. 800	8"	Heavy Hub Radial Drive Wheel VERIFY BORE: 2.860 PINNED
2	Fig. 618	#1	Wire Take Up Eyes
4	Fig. 646A	½x4"	Pedestal Mounting Bolts
4	Fig. 665	3/16"	Wire Rope Clamps
1	Fig. 697B	2.860	Rudder Stuffing Box

Leave Tiller fitting for emergency tiller.

FACTORY INSTALLED OPTIONS

1	Fig. 689L	456	Edson Friction Brake
1	Fig. 662	45	Edson Narrow Pedestal Guard
1	Fig. 870	45	Clutch & Throttle Control

STEERING DATA SHEET
CATALINA 34 & 36'
S-1165-B

The Edson Corporation
460 Industrial Park Road
New Bedford, Mass. 02745

Telephone 617-995-9711

WASTE STORAGE AND DISPOSAL

IN ORDER TO PRESERVE OUR MARINE ENVIRONMENT AND TO COMPLY WITH THE MARPOL V TREATY TENANTS, WHICH ARE ENFORCED BY THE U.S.C.G. AS WELL AS OTHER MARINE REGULATORY AND POLICING AGENCIES, CATALINA YACHTS REMINDS YOU THAT YOUR BOAT MUST HAVE THE FOLLOWING ON BOARD. ALL BOATS 26 FEET AND LARGER MUST:

1. DISPLAY IN A PROMINENT PLACE THR MARPOL TREATY PLACARD. ALL CATALINA'S CAPRI'S AND MORGAN'S BUILT AFTER 5/1/91 HAVE PLACARDS WHICH MEET MARPOL STANDARDS INSTALLED AT THE FACTORY SHOULD YOU NEED A REPLACEMENT OR HAVE A BOAT BUILT BEFORE 5/1/91, PLACARDS ARE AVAILABLE THROUGH CATALINA PARTS DEPARTMENT. YOU ARE REQUIRED TO READ, UNDERSTAND AND EDUCATE YOUR CREW AND PASSENGERS OF THESE REGULATIONS.

2. ALL BOATS 42 FEET AND LARGER MUST DISPLAY THE MARPOL PLACARD DESCRIBED ABOVE AND HAVE A WRITTEN WASTE MANAGEMENT PLAN ABOARD A TYPICAL WASTERMANGEMENT PLAN FOLLOWS. THIS IS A WASTE PLAN MODEL ONLY. YOU MAY FILL IT OUT AND USE IT IF IT SUITS YOUR CONDITIONS OR AMEND OR MODIFY AS REQUIRED. YOU MAY BE ASKED TO PRODUCE YOUR WASTE MANAGEMENT PLAN IF BOARDED BY THE U.S.C.G. SO PLEASE TAKE THE TIME TO COMPLETE, MODIFY OR DRAFT A PLAN AS REQUIRED AND KEEP IT ABOARD YOUR BOAT.

WASTE MANAGEMENT PLAN

VESSEL NAME: _____

PERSON IN CHARE: _____

SOLID WASTE MANAGEMENT PROCEDURES:

IF THE VESSEL IS OUTSIDE OF 12 MILES FROM SHORE
ALL THE GARBAGE WITH THE EXCEPTION OF FOOD MATERIALS AND PAPER IS PUT IN GARBAGE BAG TO BE HAULED TO THE DOCKSIDE TRASH RECEPTACLE AT TRIP'S END. FOOD MATERIALS AND PAPER GENERATED IN THE GALLEY ARE COLLECTED IN A BUCKET (OR IN A PAPER BAG OR CARDBOARD BOX) AND THE BUCKET EMPTIED OVER THE SIDE (OR THE FOOD FILLED BAG OR BOX IS THROWN OVERBOARD) BY A CREW MEMBER.

IF THE VESSEL IN WITHIN 12 MILES OF SHORE OR RETURNING TO SHORE
ALL REFUSE MATERIALS ARE PUT IN A GARBAGE BAY AND AT THE END OF THE TRIP ARE HAULED UP TO THE DOCKSIDE TRASH RECEPTACLE BY THE DECK HAND.

CREW EDUCATION : AT THE BEGINNING OF EACH SEASON ALL CREW MEMBERS ARE REMINDED OF THE REFUSE DISCHARGE LAWS AND SHOWN THE MARPOL V PLACARD POSTED IN THE GALLEY. CREW IS TOLD THAT IT IS VESSEL PAPER WHEN THE VESSEL IS OUTSIDE OF 12 MILES. THE CAPTAIN ORIENTS ALL NEW CREW AND PASSENGERS TO THE RULES GOVERNING THE VESSEL INCLUDING REFUSE LAWS AND REFUSE HANDLING.