A.

SOVEREL

PERFORMANCE YACHTS

Dear Owner:

Congratulations on the purchase of your Soverel sailboat.

Many experienced sailors consider Soverel to be the finest auxiliary sailboats manufactured today. With proper maintenance and handling your Soverel should provide memorable and exciting sailing experiences for years to come.

Your sailing enjoyment and safety will be greatly increased if you become thoroughly familiar with the yacht's systems, safety features, and maintenance procedures. This manual provides some of the key information. Your authorized Soverel dealer can help you with other information regarding operation of your yacht. Please get to know him and work with him on your yacht's maintenance program.

Soverel are very sophisticated sailboats and you should not attempt to operate the boat beyond your capabilities as a sailor. If you are unsure of your skills or those of your crew, professional instruction will greatly improve your sailing enjoyment, safety, and peace of mind.

Should you have any questions regarding your new Soverel, please contact your dealer or Tartan Marine Company.

Sincerely yours,

TARTAN MARINE COMPANY

John P. Richards,
President

JPR/bj

The Soverel 27 is a pocket-sized grand-prix machine. It delivers big-league performance without bit-league headaches. Constructed with serious performance sailing in mind, the speed is there and so is the excitement. She permits easy handling so crew size is reasonable. Whether racing or curising, the feel is right, you tune, she responds.

The hardware and systems are top shelf. Her 15/16's double spreader rig is powerful and fully adjustable. You can tighten down her sheeting angles to single digits.

Power or depower your way through puffs with main sheet, vang and back stay systems, which allow ultimate performance with just a finger on the tiller. Blocks, winches and hardware are race-directed and laid out with only that in mind.

Translating force to speed with minimum loss, she exploits core/composite and internal-grid structures for maximum stiffness.

Good stowage, superior quality glass work and intelligent use of space provide a functional interior for comfortable day sailing and overnighting. Craftsmanship and construction techniques adhere to Tartan's proven high standard.

Value retention based on these virtues continues to be one of this company's hallmarks.

It is reassuring to know that the Soverel 27 will be built in Tartan's technically sophisticated facilities under the company's diligent quality-control supervision.

TARTAN MARINE COMPANY

Larry R. Corder
Director of Sales
Soverel Performance Yachts

spy.010 Soverel 27 Construction

Feb 11, 1987

In order to produce a yacht that will withstand the rigors of racing, and maintain a finish that will allow for a reasonable expectation of longevity, Tartan Marine Co. has applied what it believes is the latest and most practical application of technology to produce a yacht that will represent a high value for its owner.

The technology employed has developed over Tartans 26 years of boat building, coupled with techmilogical data made availiable to our industry by manufacturers and suppliers that are striving to perfect the use of materials in industrial and recreational products.

Soverel 27 represents methodology that considers a wide range of variables to produce what we believe to be a premier racer/cruiser.

Lamination of the hull consists of the following methods;

1st

25 mils +/- wet application of NPG/50 gelcoat supplied by Cooks provides us with the finish of the yacht. This neo-penthol glycol gelcoat has been proven to be more flexible (tougher), less prone to fade from environment, very resistent to chalking, and generaly accepted as the best availiable today. It is also the most expensive.

2nd

After spray application of the gel coat the first layer of 1 oz. fiberglas mat is applied. The difference here is that the mat is "backwetted" with vinylester resin to chemically bond to the finish application and give a greater degree of assurance that the first lamination will bond to the gelcoat. After backwetting, we apply a standard application of the mat, and 10 oz. co-fab and saturate with vinylester resin to complete the skin coat.

3rd

Upon completion of the skin coat, and curing time, the next process is the application of our core material. In Soverels the material is end-grain balsa core applied in sheets. With the exception of the keelson , thru hull fittings and centerline, the S-27 is cored from keelson to deck flange. Prior to applying the core material, a composition "putty" is Troweled into the mold. The "putty" is composed of laminating

resin mixed w/ fiberglass strands and micro-spheres. This "putty" provides a barrier that will minimize the potential of core "print through" while establishing a chemical bond to the skin coat. The core material is then applyed after backwetting. The backwetting eliminates the problems of dry core material drawing resin out of the underlying putty. The core material is hand rolled into place.

4th

After application of the core, we apply 1 oz. mat and 10oz. cofab. Again we backwet prior to applying the material to assure bonding the saturation of the glass materials.

Additional lamination is added in areas of stress such as the rudder post, keelson, centerline and chainplate areas of the yacht. This lamination is very dense and maximizes the rigidity of the area that it is applied to.

These methods have proven themselves in the production of Tartan product, and result in a very stiff hull with minimum possibility of problems in the area of finish and laminate bonding.

Fixing the shape of a molded hull is a prime concern for Tartan Marine. If the shape that was designed into the yacht is not held during production, the result can be inconsistent forms from one yacht to the other. In order to assure that every effort has been made to accomplish this, we apply the interior component, which is also designed as a part of the structure, into the hull while it is still in the mold. The process is much more labor intensive and is expensive to accomplish. The end result is consistent high quality in our yachts, and the comfort that comes from knowing the designers form is the same in each vessel.

Deck Hardware is installed in one of two ways;

a) Through Bolted with Backing plates

b) Machine bolts which are tapped into a recessed plate that is molded as part of the deck. This method leaves no unsightly nut on the backside of the installations, and incorporates the backingplate into the lamination of the deck.

Keel Attachment -

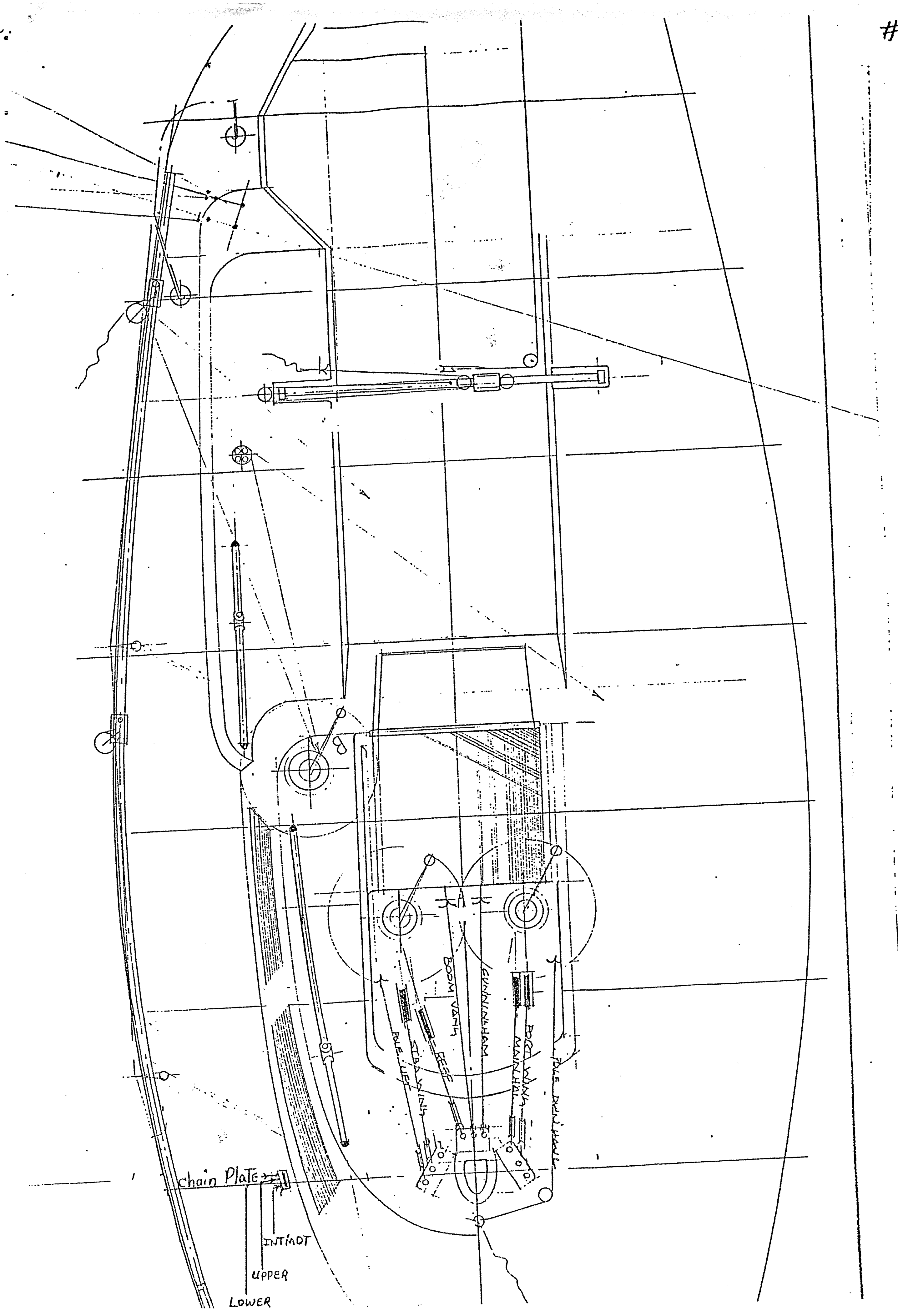
The molded lead keels on Soverels are bolted to a keel interface (keelson) which is integrally molded as part of the hull. The keel is fitted to the yacht with a Thiacol compound which serves as an adhesive/sealant. The installation is filled and faired to achieve maximum hydrodynamic effect. The degree of attention and detail given to the finishing of the underside of your yacht, anticipates an objective of a near race ready bottom, keel and rudder.

Thru-hulls are bronze, and flush mounted into the hull. After mounting they are faired and formed into the surface to eliminate any protrusions on the underwater and waterline areas of the yacht.

Deck to hull joint is accomplished by drilling through the deck into the hull flange and tapping a 10 x 20 ss bolt into an aluminum strip. The aluminum strip is laminated into the hull flange during the layup of the hull. Between the hull flange and deck a chemical bonding utilizing Poly-Sul adhesive creates the watertight joint that Tartans have always been known for. This method has been employed by Tartan for many years and without fail has produced one of the best deck to hull mates within our industry.

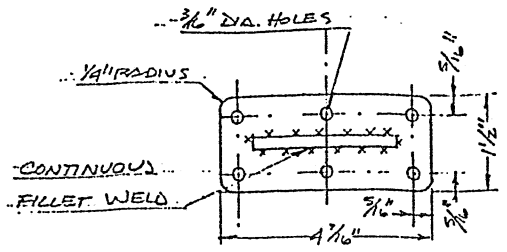
This narrative is intended to give you a more in depth look into how Tartan Marine Co. manufactures your Soverel yacht. All information is believed correct at this writing, however Tartan reserves the right to modify materials and methods on a continuing basis for product improvement.

#2


BOOM VANG
CUNNINGHAM
PORT VANG
MAIN HAL
POLE DWN HAUL
STBD VANG
POLE LIFT
Chain Plate
INTMDT
UPPER
LOWER

3

#1

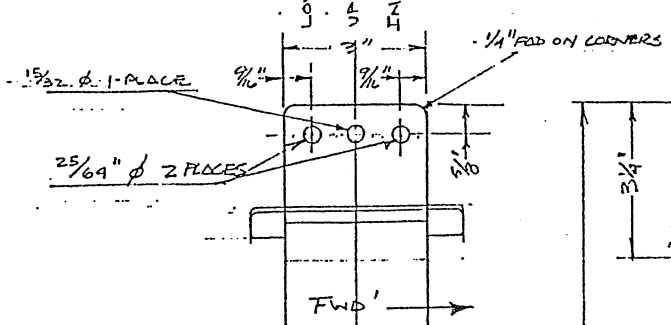


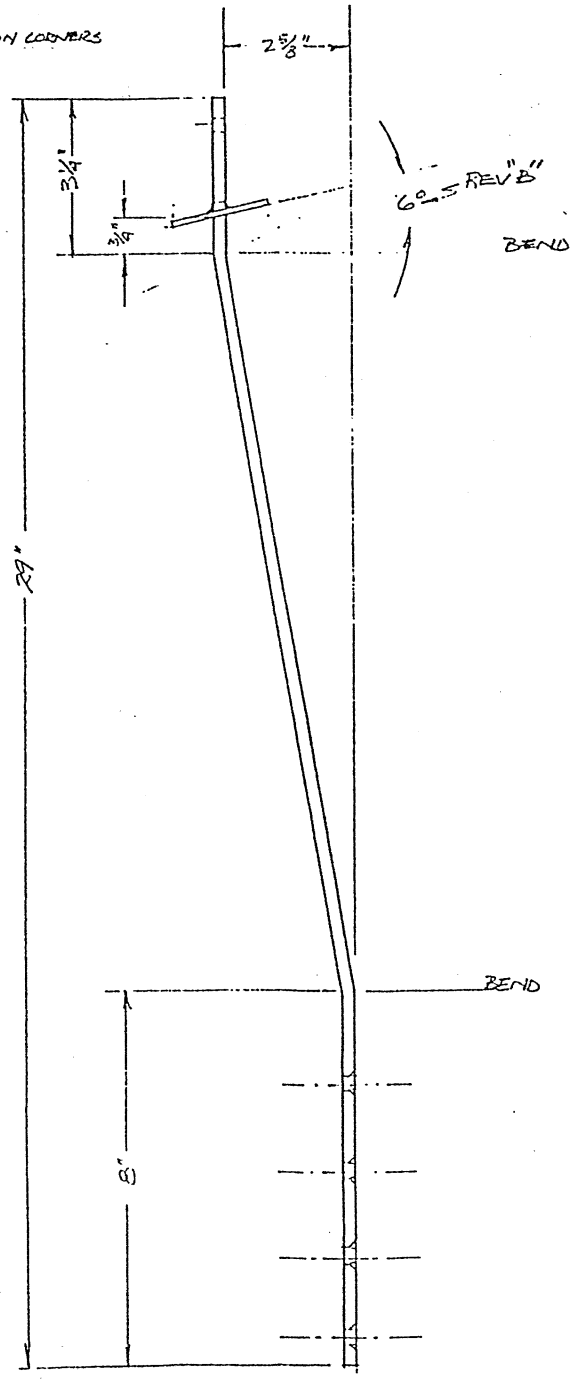
MATERIALS;

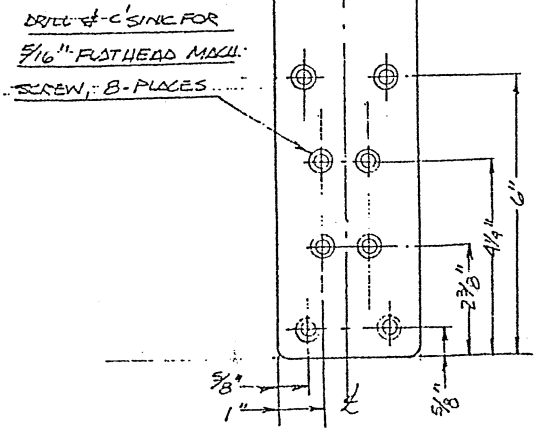
1. STRAP CHAINPLATE, 1/4" x 3" x APROX 29" 316 SS PLATE.
2. DECK PLATE, 1/8" x 2" x 4'-2" 316 SS PLATE.

FINISH;

1. CLEAN ALL WELDS
2. BREAK ALL SHARP EDGES & CORNERS
3. FINE SAND & POLISH TO GLOSS SURFACE







REV	DESCRIPTION	DATE
C	REV DK. PLT TO MATCH TZB DIN.	16 DEC 86
B	REV DECK PLATE & WAS 12½"	16 DEC 86
A	CENTER PIN HOLE INC TO 15/32"	11 JULY 86

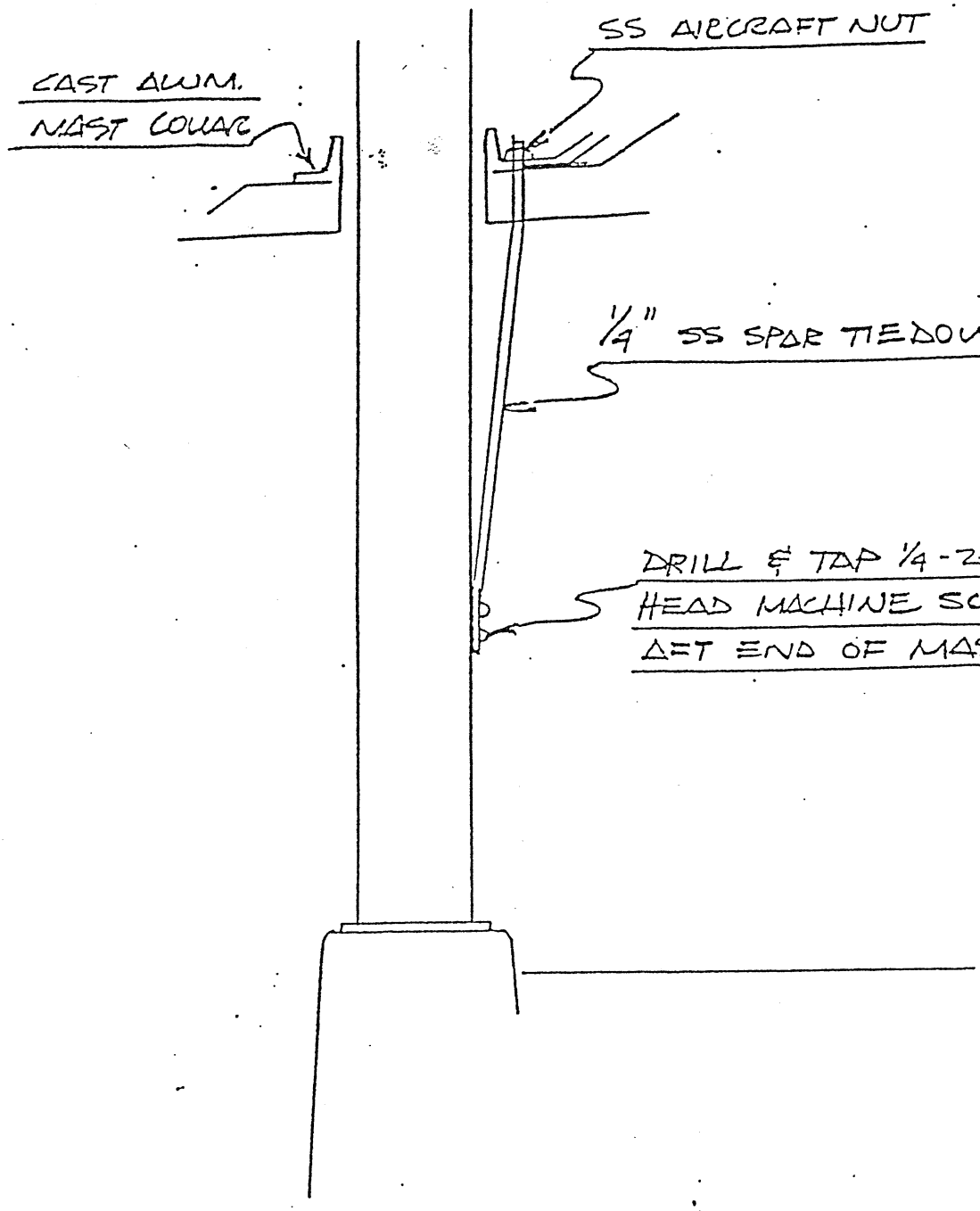
SOVEREL

SS STRAP CHAINPLATE

DRWG NO. 014-76-002 3/8"=1.0" 5-21-86

TARTAN MARINE CO.,

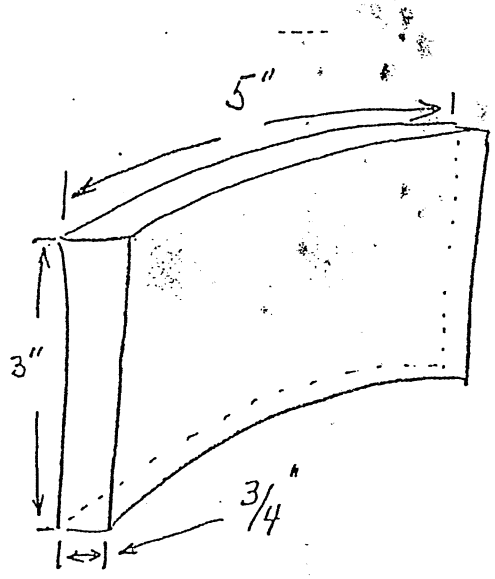
GRAND RIVER, OHIO, 44045

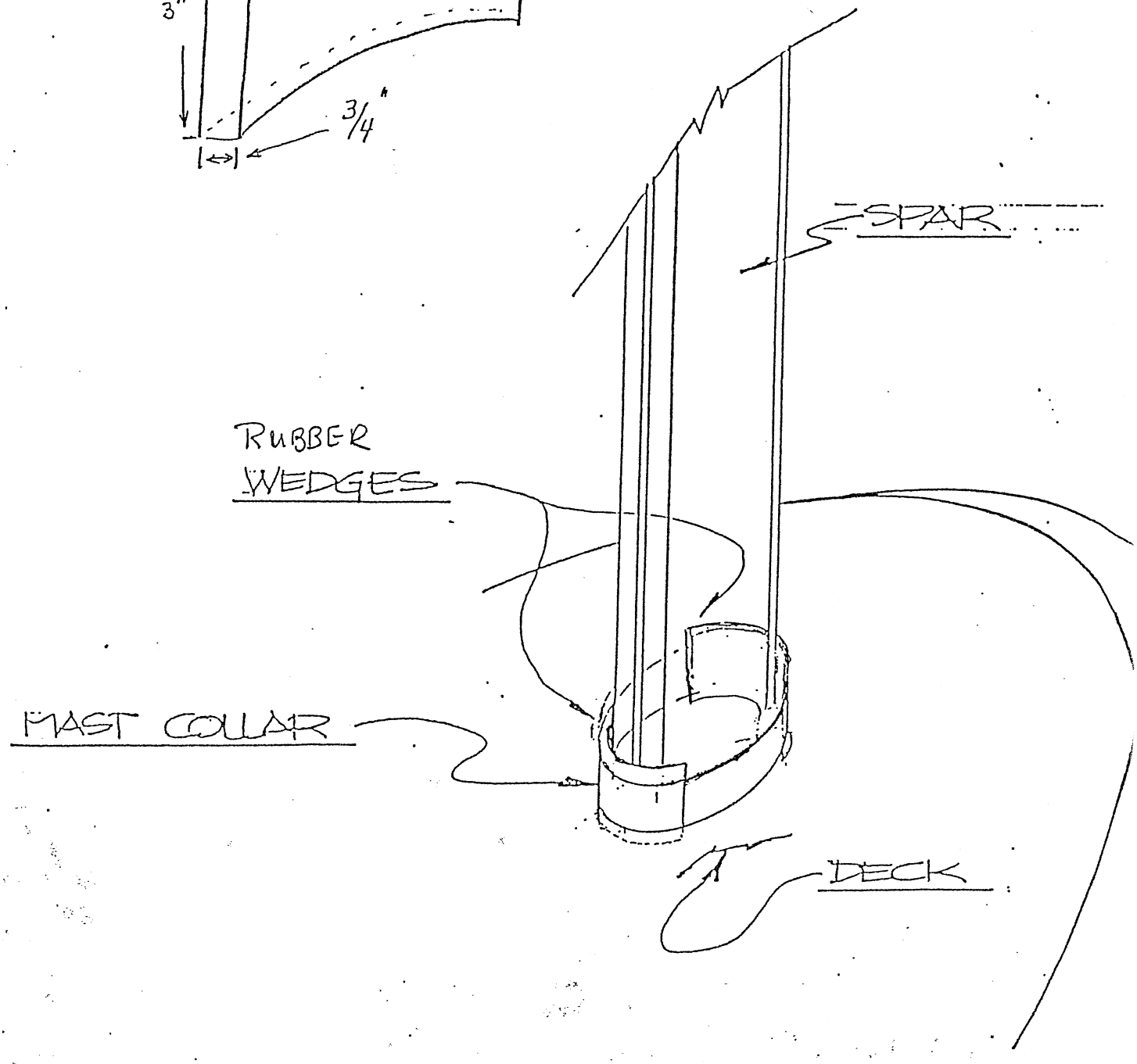


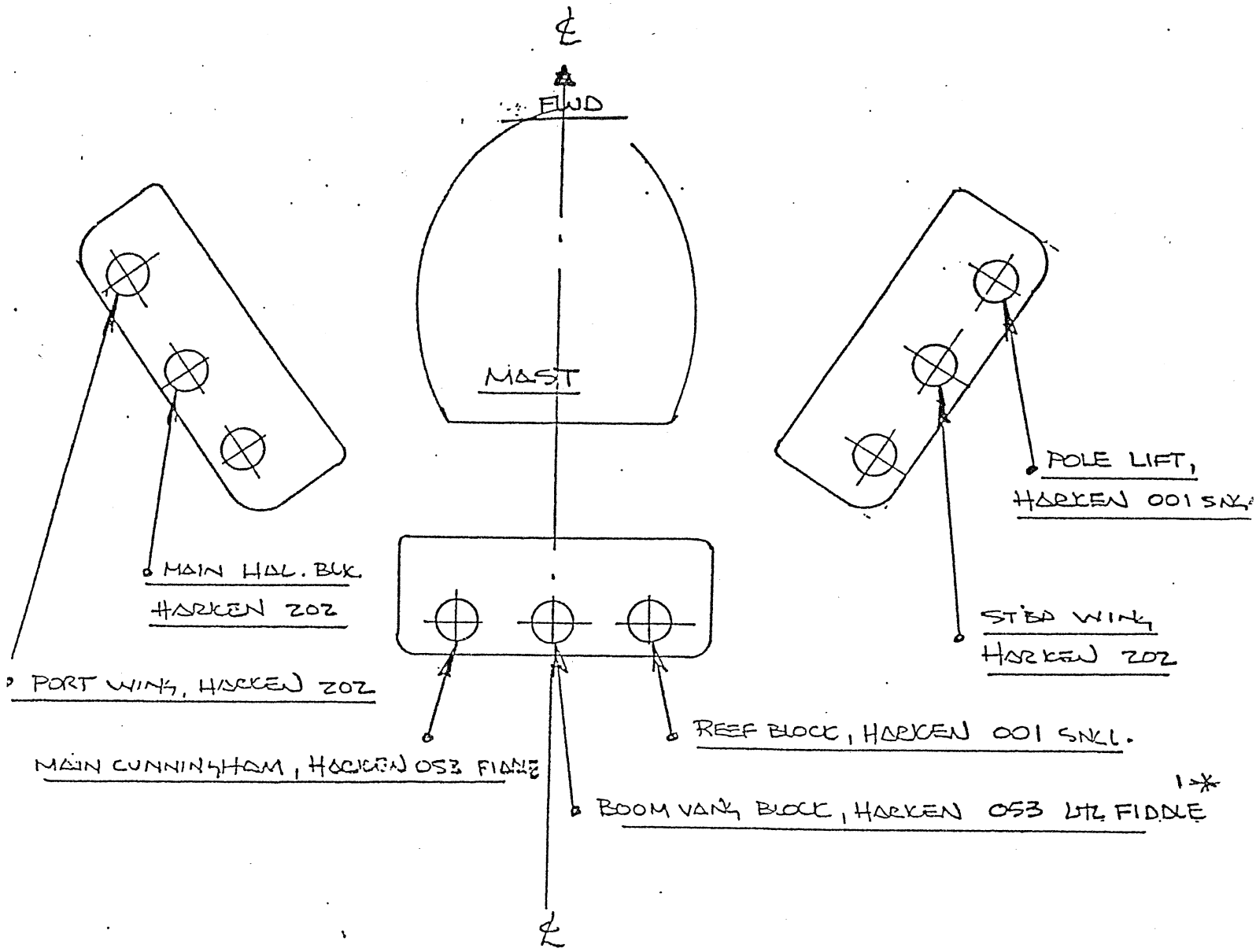
SOVEREL 27
DECK/SPAR TIE-DOWN ROD INST.
5 JULY 86
TARTAN MARINE CO., GRAND RIVER

SOVEREL 27

RUBBER MAST WEDGES







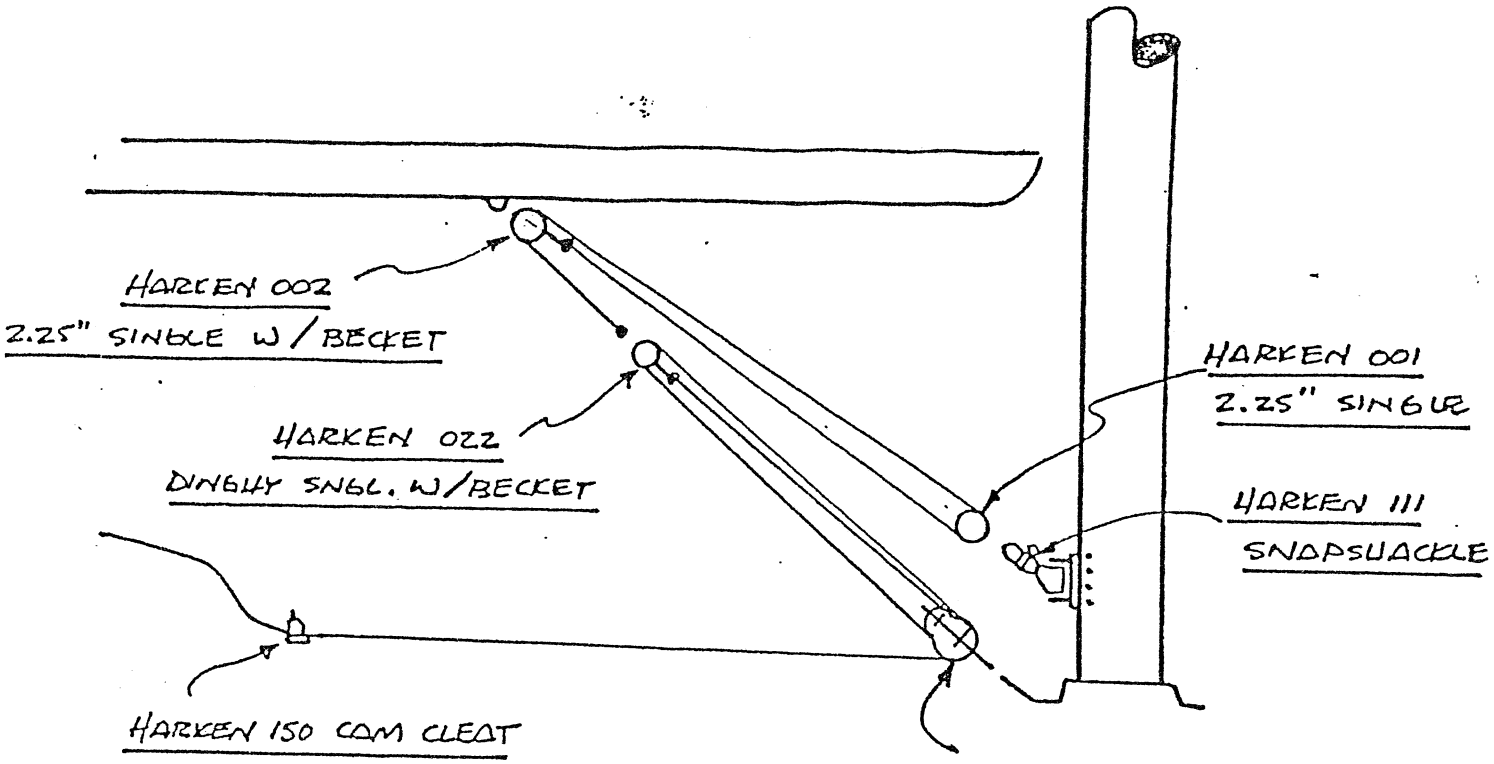
SOVEREL 27

BASE OF MAST BLOCK LAYOUT

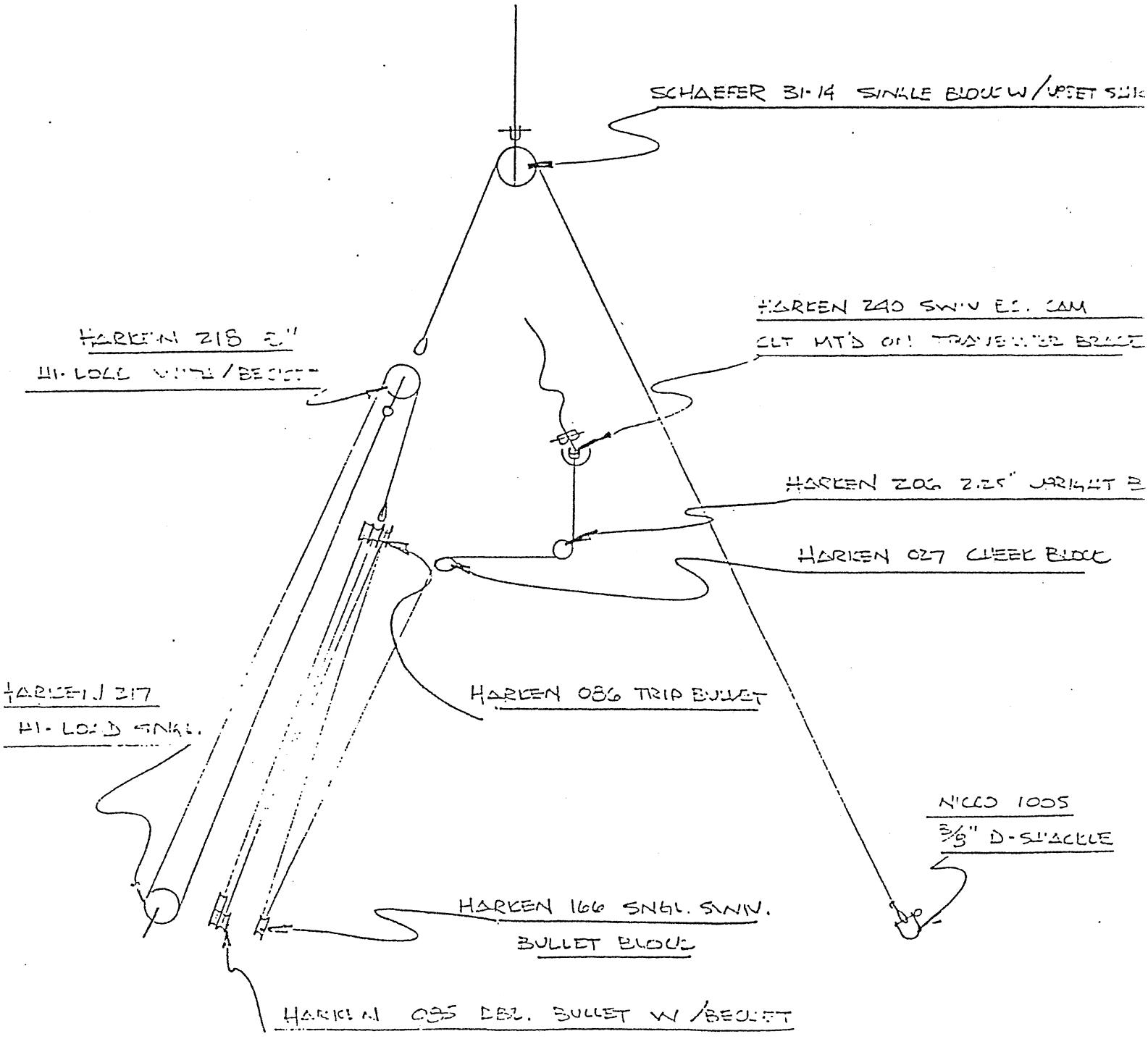
17 SEPTEMBER, 86 D.

TARTAN MARINE CO., GRAND RIVER, OHIO

1* CHG. D 12.16.87 WAS HARKEN 086



SOVEREL 27 (BEG. HULL #23)
BOOM VANG TACKLE
16 DECEMBER 87 T. JACKETT
TARTAN MARINE CO, GRAND RIVER, OHIO

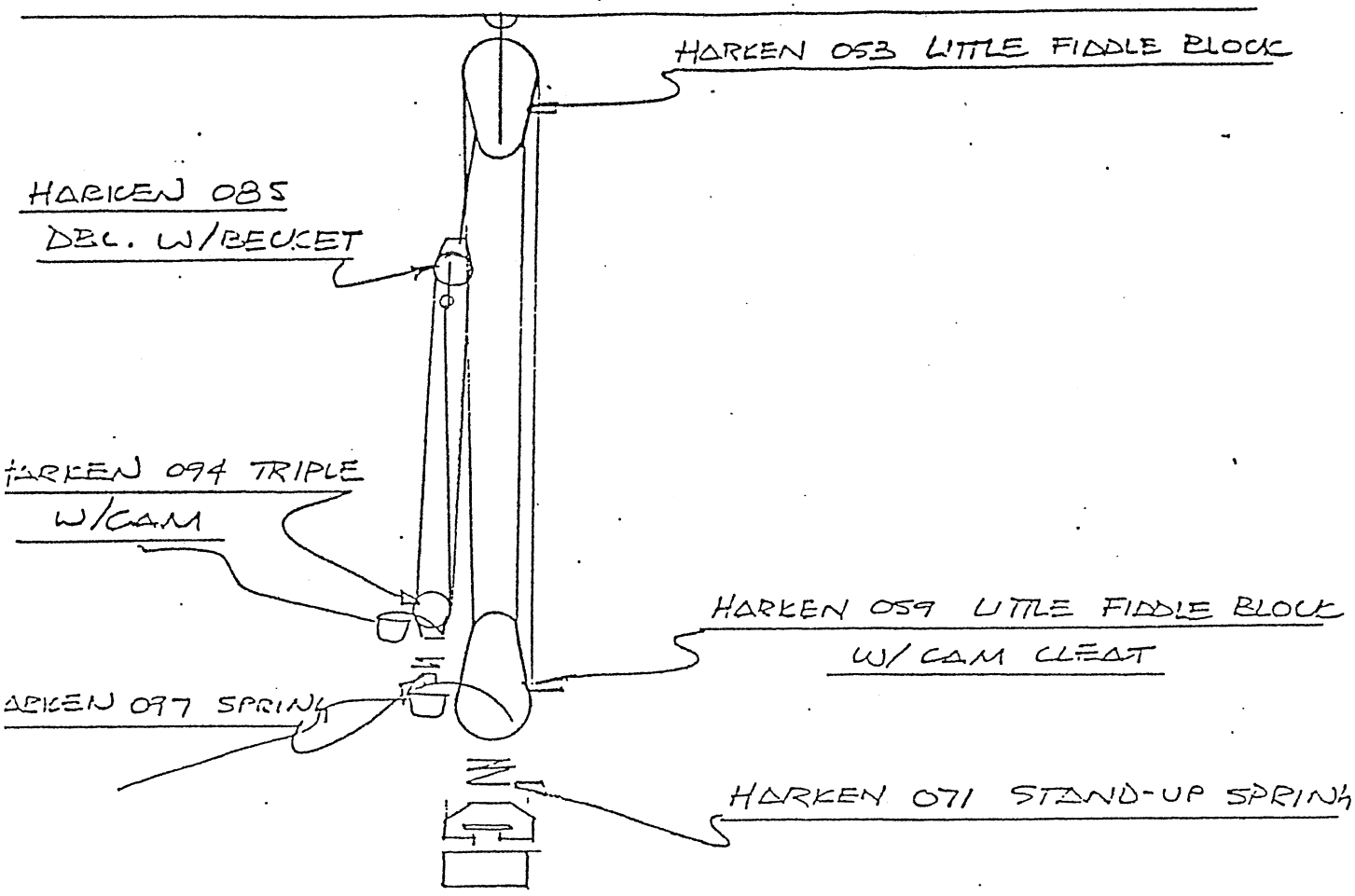


SOVEREL 27

BACKSTAY TACKLE SYSTEM

5 AUGUST 86

TARTAN MARINE CO., GRAND RIVER, OHIO

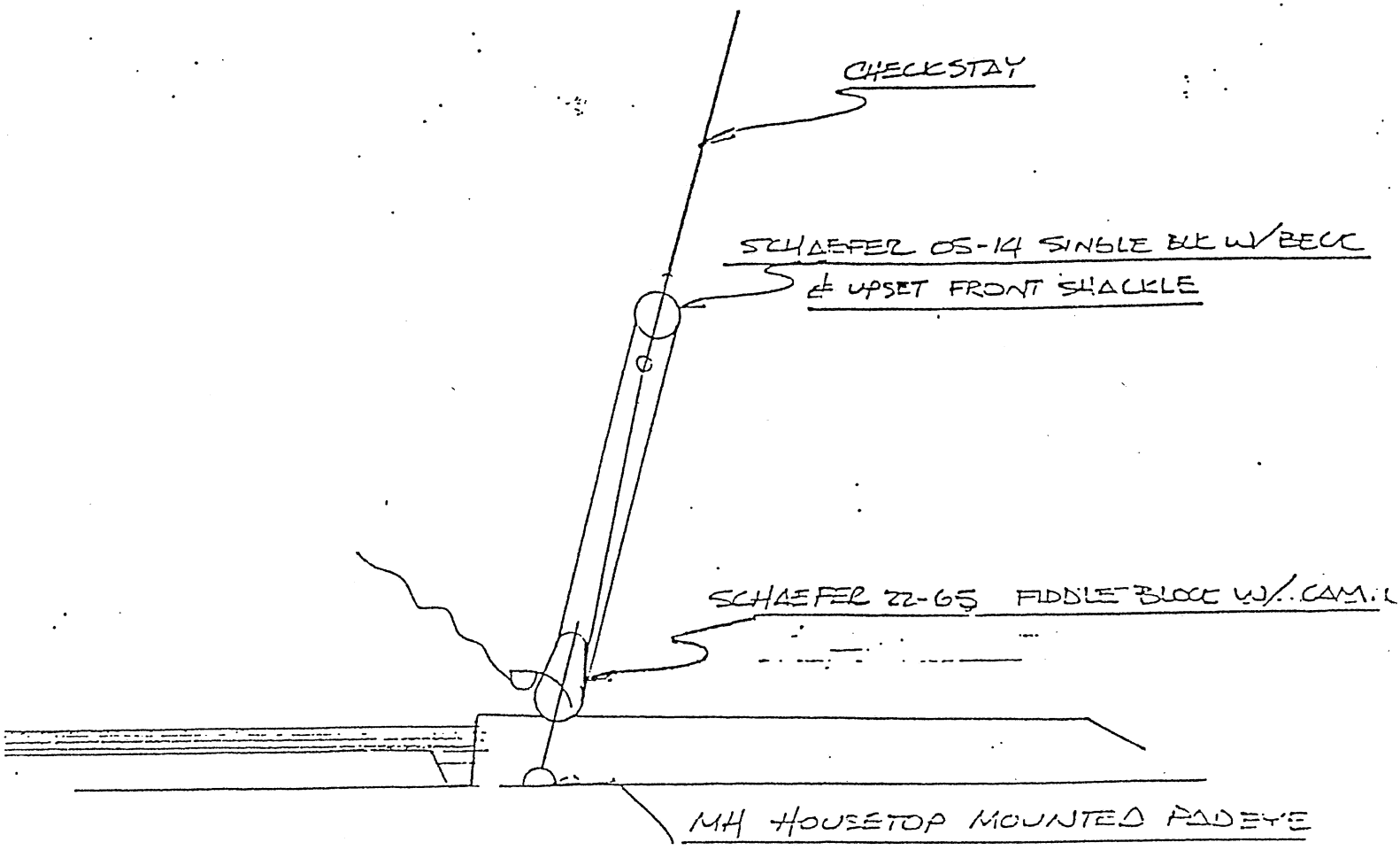


SOVEREL 27

MAINSHEET TACKLE

3 JULY 86

TARTAN MARINE CO., GRAND RIVER, OHIO

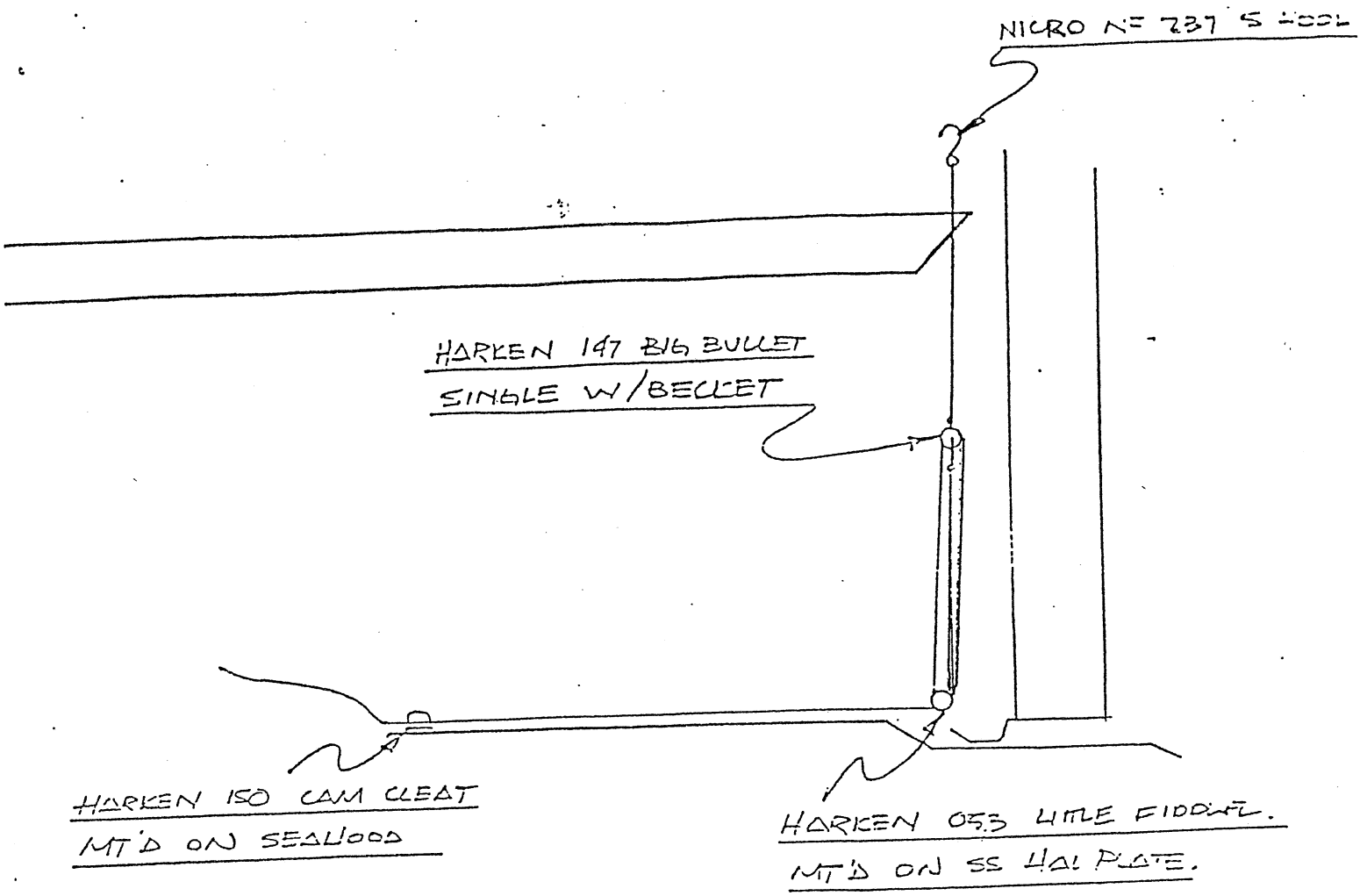


SOVEREL 27

3-PART CHECKSTAY TACKLE

3 JULY 86

TARTAN MARINE CO., GRAND RIVER, OHIO



SOVEREL 27

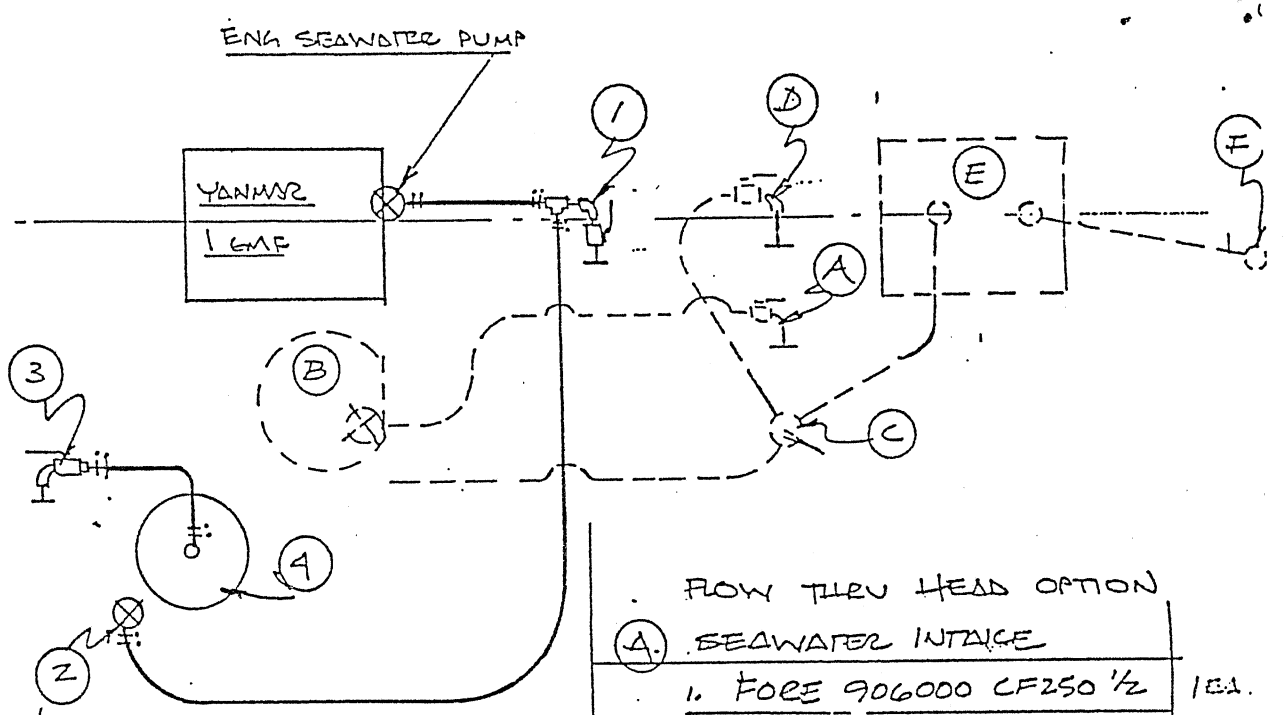
MAIN CUNNINGHAM TACKLE

3 JULY 86

TORTAN MARINE CO., GRAND RIVER, OHIO

ENGINE & SEAWATER PUMP INTAKE

A. FORE 906003 CF2505 3/4	1 EA.
B. FORE 905001 MF850 3/4	1 EA.
C. 3/4 TO 3/8 BRSS. RED. BUSHING	1 EA.
D. 3/8 x 90 BRSS. ST. EL.	1 EA.
E. 3/8 x CLOSE BRSS. NIPPLE	1 EA.
F. 3/8 BRASS TEE	1 EA.
G. 3/8 TO 1/4 BRS. RED. BUSHING	2 EA.
H. 1/4 X 2 BRS. NIPPLE	2 EA.
I. #8 SS HOSE CLAMPS	8 EA.
J. 1600 1/2 10 HEATER HOSE	14 FT.
GP0418 FLIPPER PUMP	1 EA.
SINK DRAIN	
A. FORE 906000 CF250 1/2	1 EA.
B. FORE 905000 MF850 1/2	1 EA.
C. FORE 901000 HELM 8	1 EA.
[illegible]	[illegible]
[illegible]	[illegible]
G. NO. 10 SS HOSE CLAMPS.	4 EA.
H. 1600 5/8 10 HEATER HOSE	3 FT.
SINK	
A. VOLRATH 16075 SS SINK	1 EA.
B. ORE & ORE M-2669 STAINEL	1 EA.



FLOW THRU HEAD OPTION

A	SEAWATER INTAKE	
	1. FORE 906000 CF250 1/2	1 EA.
	2. FORE 905000 MF850 1/2	1 EA.
	3. FORE 901000 HELM 8	1 EA.
	[illegible]	[illegible]
	[illegible]	[illegible]
	6. NO. 10 SS HS. CLAMPS.	4 EA.
	7. 1600 5/8 10 HEATER HS.	8 FT.
B	RARITAN COMPACT STR TAIL	1 EA.
C	Y-VALVE	1 EA.
D	DISCHARGE T-HULL	
	1. FORE 906008 CF250 1 1/2	1 EA.
	2. FORE 905004 MF850 1 1/2	1 EA.
	3. FORE 901004 HELM 24	1 EA.
	[illegible]	1 EA.
	5. SHLOS FLEX 1 1/2 10 HS.	[illegible] F
	6. NO. 24 SS HS. CLAMP	16 EA
E	RARITAN RHT IS FLX TNK	1 EA.
F	WILCOX DK WASTE FITTING	1 EA.

SOVEREL 27

STANDARD PLUMBING W/ OPT HEAD/HOLDING TNK

5 SEPTEMBER 86

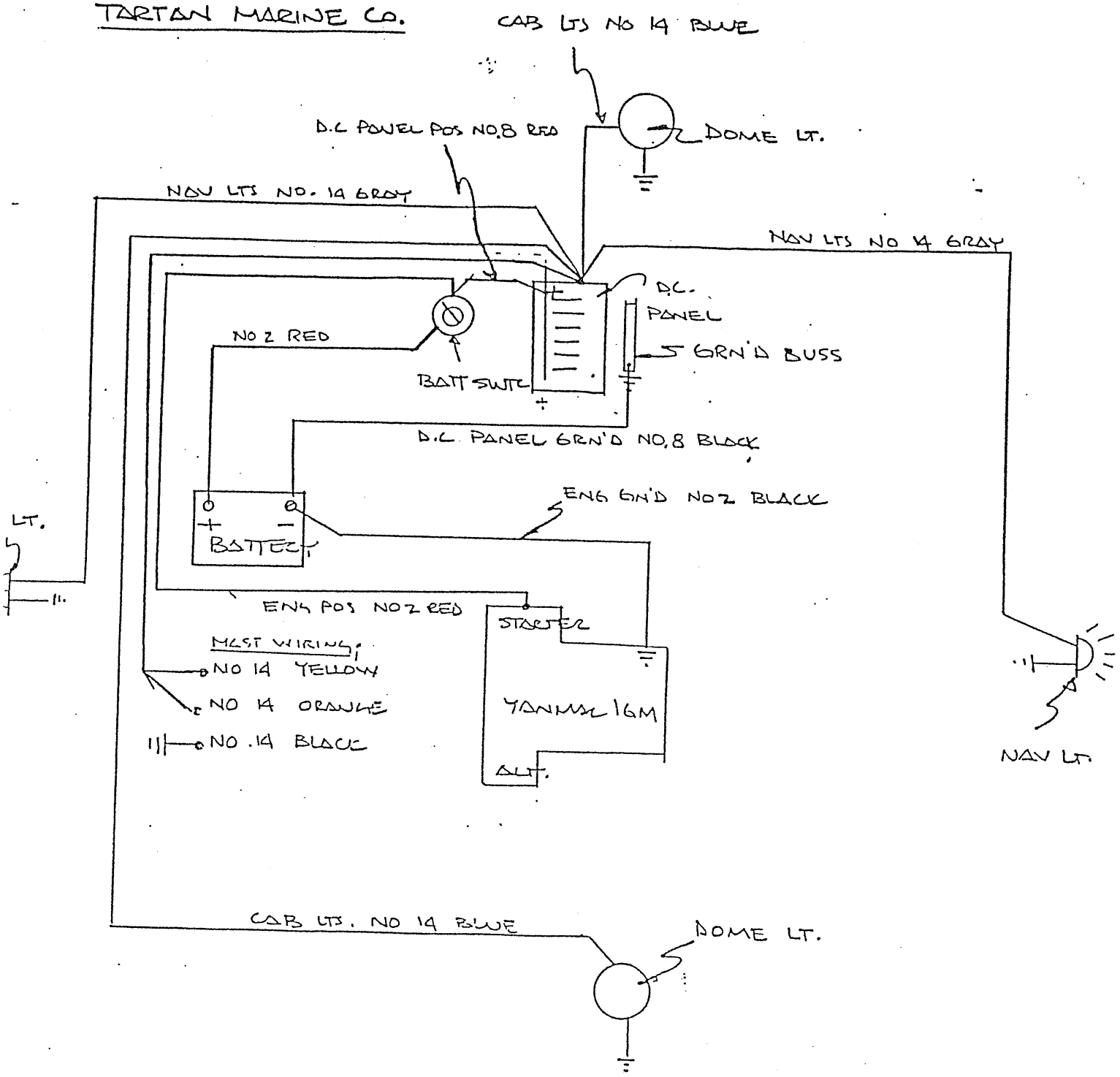
TARTAN MARINE CO., GRAND RIVER, OHIO

SOVEREL 27

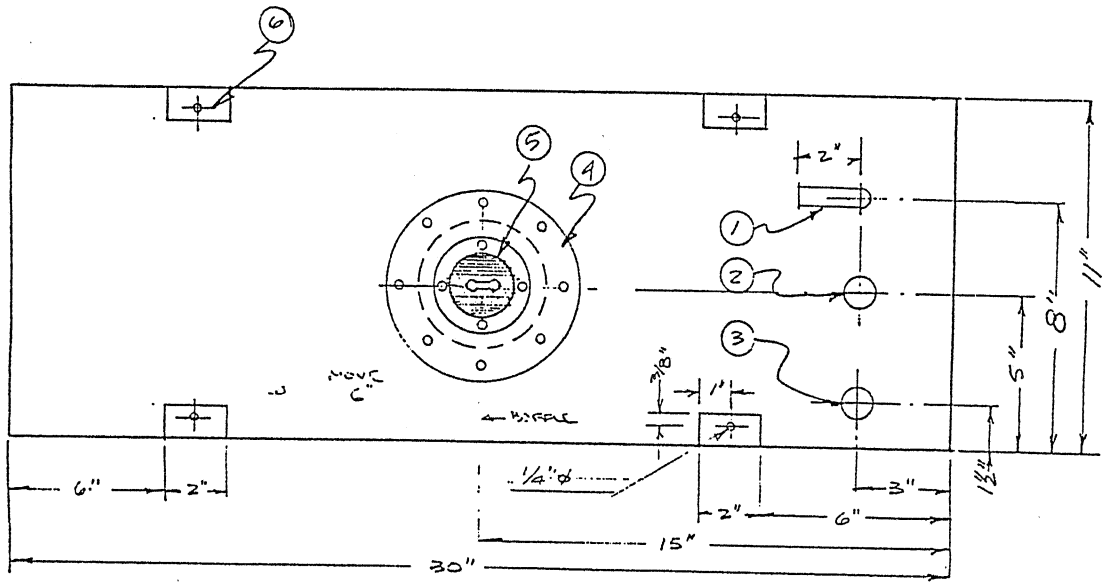
SHIP'S POWER

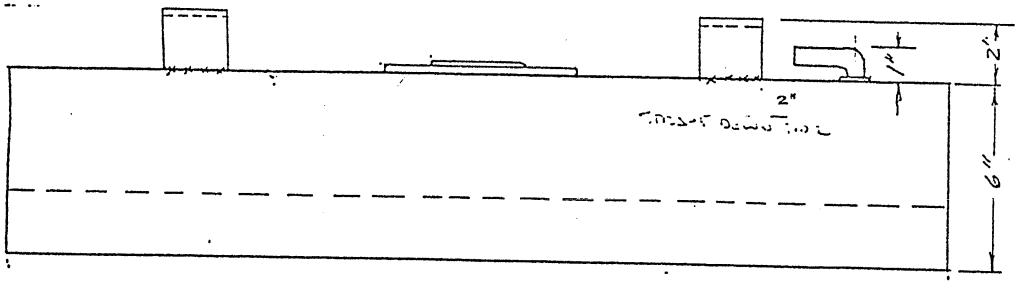
12 DEC. 86

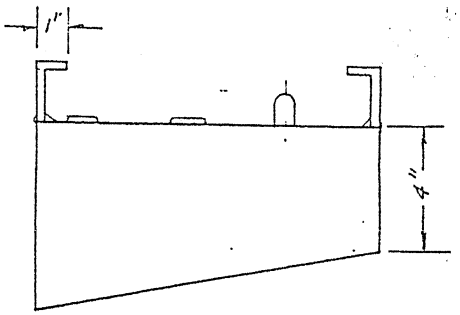
TARTAN MARINE CO.



ALL ACCESS. GRN'DS NO. 14 BLACK







NOTES:

1. 5/8" O.D. x 90° WELDED VENT TUBE.
2. FUEL RETURN, SS BUSH TO 1/4" FPT
3. FUEL PICK-UP, SS BUSH TO 1/4" FPT
4. 6" DIA (4" HOLE) INSPECTION PLATE/CLEANOUT
5. WILCOX 15323 "DIESEL" DECK PLATE
6. 1/4" x 1" x 2" WELDED ALUM. HANGER ANGLE BRACKETS

TANK TO BE FABRICATE FROM ALUMINUM TO MEET ABYC REC. FOR ALUM. FUEL TANK CONST. (ABYC H-33 DIESEL FUEL SY

REV.	DESCRIPTION	DATE

SOVEREL 27

ALUM FUEL TANK - CAP APROX. 45 GAL U.S.

DRWG NO. 009-27-001 5 NOVEMBER 87

1/4"=1.0" TIM JACKETT

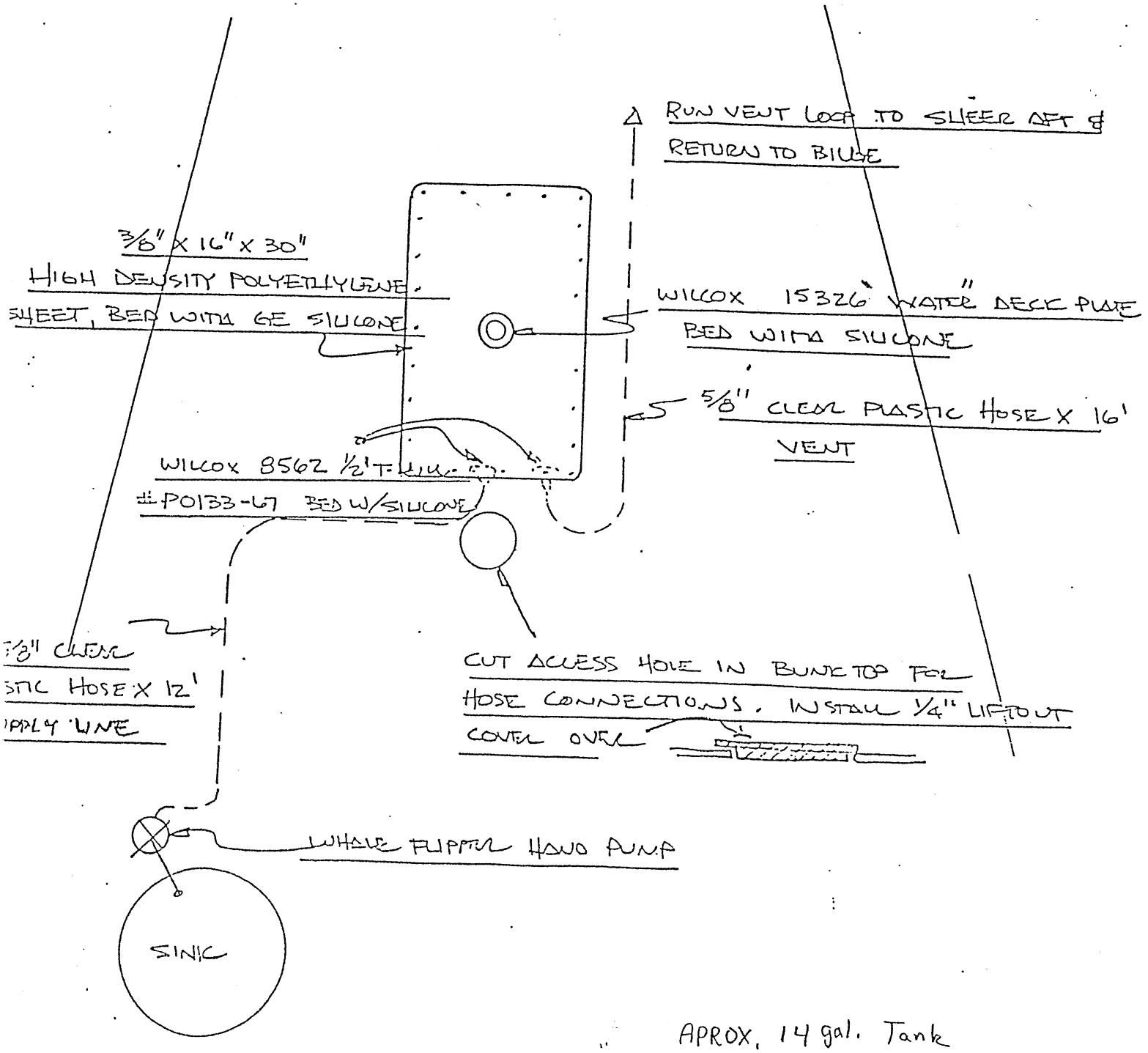
TARTAN MARINE CO., GRAND RIVER, OHIO

SOVEREL 27

OPTIONAL FRESHWATER SYSTEM

10 DEC. 86

TARTAN MARINE CO., GRAND RIVER, OHIO



APROX. 14 gal. Tank

ABLE 8A

SOVEREL 27

STANDING RIGGING (CONTINUOUS)

ITEM:	NO./BOAT	MATERIAL:	LENGTH:	UPPER FITTING:	LOWER FITTING:
FORESTAY	1	~~-6~~ SS ROD	36' 1"	HIGH FATIGUE JAW 7/16" PIN	→
BACKSTAY	1	-4 "	33'6"	MARINE EYE 3/8" PIN	→
BACKSTAY ~~(TACKLE)~~ WIRE	1	5/32" 7x19 SS WIRE	10'6"	NICRO PRESS EYE	→
BACKSTAY TACKLE WIRE ~~(SPIN GEAR)~~	2	1/8" - " " "	9'6"	"	→
LOWER SHROUDS	2	-4 SS ROD	13' 10"	-4 STEMBALL	TWG-04 TURN 3/8" PIN
UPPER SHROUDS	2	-6 "	34' 8"	-6 "	TWG-06 7/16" PIN
INTERMEDIATE SHROUDS	2	-4 "	25' 4½"	-4 "	→
~~BACKSTAY BRIDLE~~ CHECKSTAY	~~2~~ 2	5/32 1x19 SS WIRE	11'6"	5/32 TBALL	5/32 TOGGLE FORK
BOOM TOP. LIFT	1	1/8" VINYL COATED WIRE	34'0"	1/8" TOGGLE FORK	NICRO PRESS EYE
	1	~~1/4" YACHT BRAID~~	8'0"	EYE SPLICE	WITH P
~~BACKSTAY TRI PLATE~~	1	NONE			

~~MUST BE A NARROW MARINE EYE TO FIT THROUGH STEMBALL SEAT.~~

NOTE: ALL TURNBUCKLES ARE DIMENSIONED FOR 1" OF THREAD (TOTAL) SHOWING IN BARREL.

ABLE 8B

SOVEREL 27

RUNNING RIGGING WITH SPINNAKER GEAR

ITEM:	NO./BOAT:	MATERIAL:	DIAMETER:	LENGTH:	TREATMENT ONE END:	TREATMENT OTHER END:
MAIN HALYARD	1	LOW STRETCH	3/8"	88'0"	WHIP	BOWLINE W MH 3900-112 HEADBOARD SHACK
~~GENOA~~ HALYARD	1	YACHT BRAID	3/8"	48'0"	WHIP	SPLICE TO WIRE
FURESAIL 1 RED, 1 GREEN	1	7x7 SS WIRE	5/32"	34'0"	SPLICE TO ROPE	SNAP SHACKLE MH7210-210
~~JIFFY REEF SHORT~~	1	YACHT BRAID (BLUE)	3/8"	33'0"	WHIP	WHIP
~~JIFFY REEF LONG~~ ~~REEFING PENNANTS~~	2	YACHT BRAID BLUE	3/8"	20'0	"	EYE SPLICE
MAIN ~~SHEET~~ CUNNINGHAM	1	YACHT BRAID (GREEN)	5/16"	12'0"	WHIP	WHIP
GENOA SHEETS	2	YACHT BRAID	7/16"	36'0"	"	"
TRAVELER TAG LINES	2	YACHT BRAID (BLUE)	5/16"	15'0"	WHIP	EYE SPLICE
BACKSTAY ADJUSTER	1	LOW STRETCH	3/8"	35'0	"	" "
BOOM VANG	1	LOW STRETCH	7/8"	7'0"	WHIP	EYE SPLICE
—	1	YACHT BRAID (RED)	5/16"	20'0"	"	WHIP
~~BABYSTAY ADJUSTER~~	1					
~~SPINNAKER HALYARD~~	1	TROPHY BRAID	3/8"	56'0"	WHIP	WHIP
MAIN SHEET	1	YACHT BRAID (RED)	5/16"	15'0"	"	"
SPINNAKER SHEETS	2	YACHT BRAID	3/8"	52'0		
SPINNAKER POLE FOREGUY	1	YACHT BRAID GREEN	5/16"	22'0"	WHIP	
SPINNAKER POLE TOPPING LIFT	1	YACHT BRAID	5/16"	55'0"	WHIP	EYE SPLICE W SNAP SHACKLE MH 7210.210
SPINNAKER TWING LINES	2	YACHT BRAID	"	20'0"	"	EYE SPLICE W BIG BULLET HARKEN 125

~~NOTE: THERE IS A FIXED BABYSTAY ON BOATS THAT DO NOT HAVE SPINNAKER GEAR.~~

Date _____

Table 9

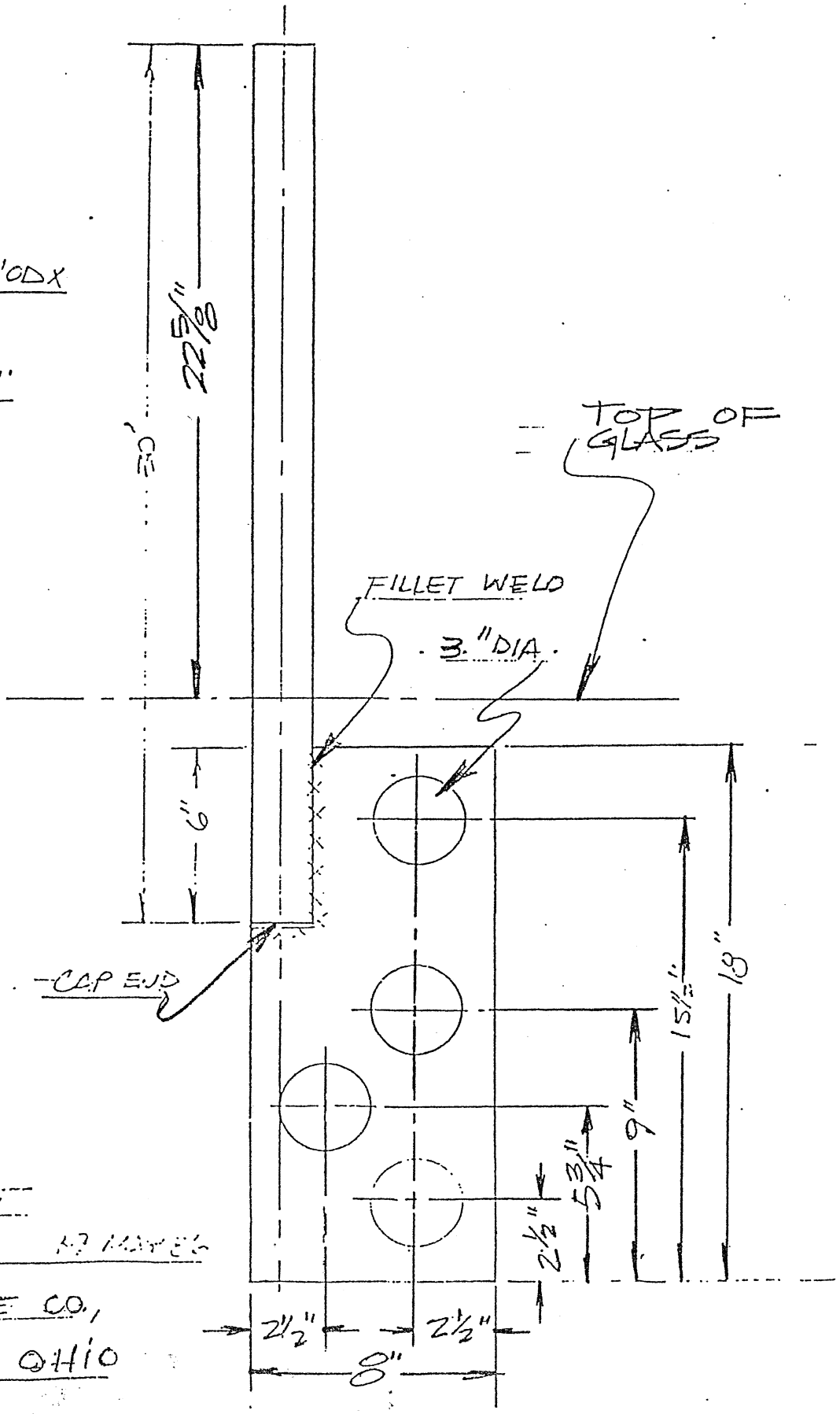
SOVEREL 27

Usage	BLOCK Description ~~(Manufacturer Suggested~~ (Safe Working Load) lbs/kgs.		~~(Quantity~~ →
Mainsheet & TRAVELER SYSTEM	LITTLE FIDDLE	HARKEN 053	500 / 227
	" " W CAM	" 059	500 / "
	DOUBLE BULLET W BECKET	085	400 / 181
	TRIPLE " W CAM	094	600 / 272
	SPRING "	097	—
	SINGLE W BECKET	071	—
	CARR	022	350 / 159
	DINGHY CHEEK 1.75"	215	1250 / 567
		027	350 / 159
TURNING BLOCKS ~~Jib Sheets~~ MAIN GENOA SPIN	SINGLE 3" WIDE/ROPE	HARKEN 202	850 / 386
	" " " "	" "	" "
	" " " "	" "	" "
PEDESTAL LIFT & DOWNHAUL	" 2.25"	" 001	500 / 227
Lead Block	BEARING 3.0"	HARKEN 005	750 / 340
	GENOA EYE SLIDE 1"	MERRIMAN 4470-220	2800 / 1270
	LEAD BLOCK W ALUM SHV.	" 710-120	1600 / 722
	SINGLE FOOTBLOCK 3.0"	511	4950 / 2245
Cunningham	BIG BULLET SINGLE W BECKET	HARKEN 147	300 / 136
	LITTLE FIDDLE ON PLATE	" 053	500 / 227
Backstay Tensioner	SINGLE W UPSET SHACKLE	SCHAEFER 31-14	2250 / 1020
	HI-LOAD 3" W BECKET	HARKEN 218	1000 / 454
	" " " SINGLE	" 217	1000 / 454
	TRIPLE BULLET	036	600 / 272
	DOUBLE " W BECKET	082	400 / 181
	SINGLE SWIVEL BULLET	182	300 / 136
	CHEEK	027	350 / 159
TOPPING ~~Main~~ boom lift	UPRIGHT 2.25"	206	500 / 227
	SWIVEL BASE CAM	240	300 / 136
JIFFY ~~Slab~~ reefing	SINGLE 2.25"	HARKEN 001	500 / 227
Boom Vang	SINGLE 2.25"	HARKEN 001	500 / 227
	" " W BECKET	002	" "
	DINGHY " " "	022	350 / 159
	LITTLE FIDDLE	053	500 / 227
Spinnaker gear	HEXARATCHET W SHACKLES	HARKEN 0095	750 / 340
	GENOA EYE SLIDE 1"	MERRIMAN 4470-220	2800 / 1270
	TWING LINE BLOCKS	HARKEN 125	300 / 136
CHECKSTAYS	SINGLE W BECKET & UPSET FRONT SHACKLE.	SCHAEFER 05-14	1750 / 795
	FIDDLE W CAM	" 22-65	" "

30

MATERIALS;

1. [illegible] 3/16" WALL X 2" OD X 30" 304 SS TUBE
2. PLATE, 1/4" X 8" X 13" CARBON STEEL

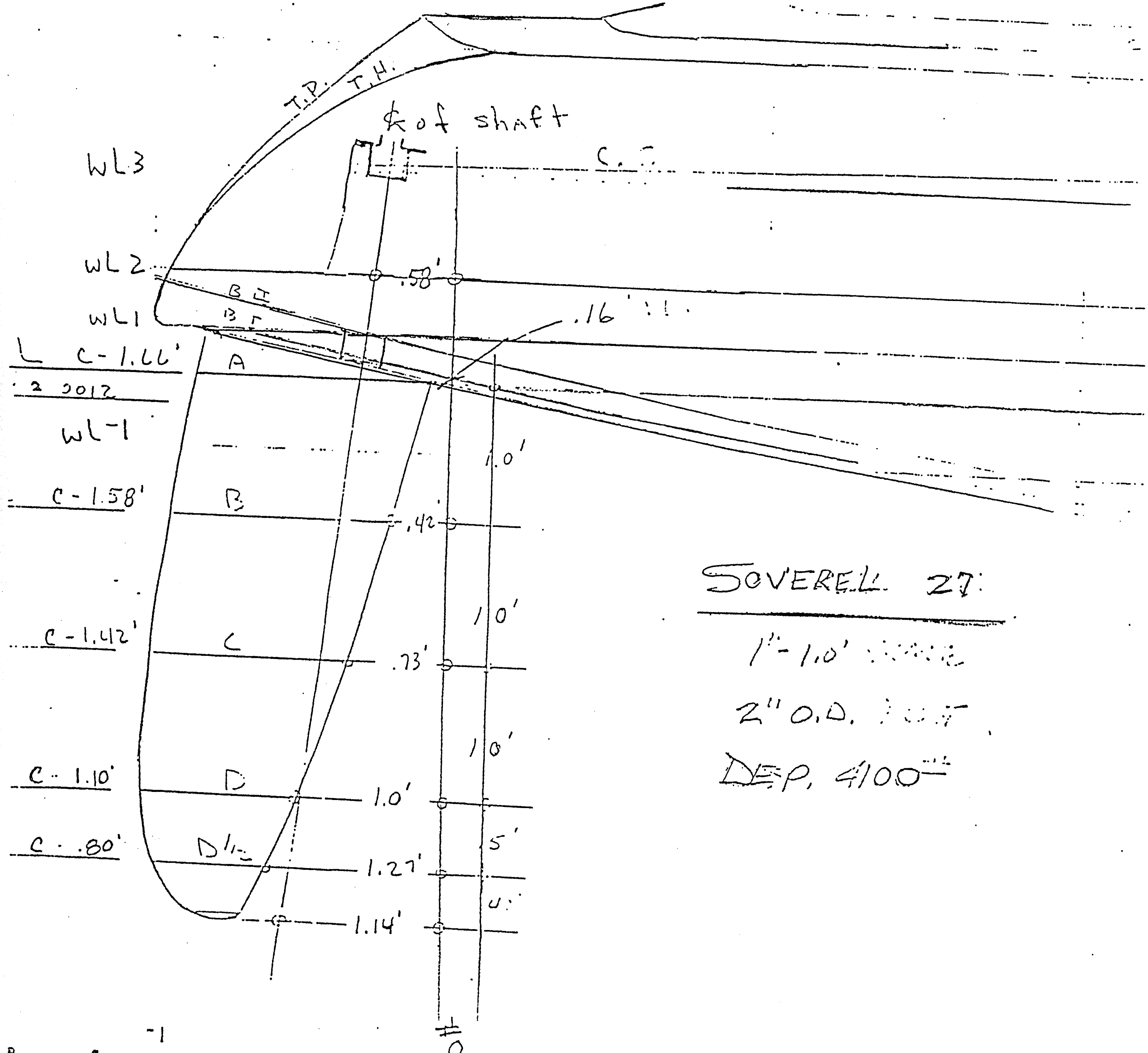


SOVEREL 27

[illegible] RUDDER POST

DRAWING NO. 010-26-001 [illegible]

TARTAN MARINE CO.,
GRAND RIVER, OHIO



SOVEREL 27

1"-1.0'

2" O.D.

DEP. 4100

4. COMMISSIONING

Prior To Launching

1. Check propeller, nut is snug and secured with cotter pin. Mark propeller shaft with fixed prop vertical and folding prop (manually open & close blades) with blades horizontal. For best sailing speed, set shaft to this position while sailing. Never leave transmission out of gear and allow shaft to rotate while sailing. put the transmission into reverse gear for most engine models. Consult your individual engine manual.

3. Inspect all thru-hull openings. Make sure they operate properly and are unobstructed from outside.

4. Note location of Draft Marks on hull. (Refer to "Draft Marks" section.

5. Check the rudder and steering system. It should operate freely with equal travel. Check the cables and quadrant area for wheel steering boats.

6. Close all seacocks; hoses should be secured with double clamps on all thru-hulls below water line.

7. When picking up the boat, note proper location for straps. Note location or mark toerail so that straps can be easily positioned upon haul out.

8. Make sure that the engine has been dewinterized.

After Launching

1. Immediately check bilge for water. Operate the seacocks one at a time. This is a good way to determine the source of leaks if any are present. Also check your stuffing box.

2. Install and secure fully charged battery (batteries). Make sure battery terminals are clean and all electrical connections are securely fastened.

3. Make sure the engine cooling water intake is open prior to starting the engine.

4. Check the fuel tanks and fill with the appropriate fuel. Prime the fuel pump.

5. Start the engine and run until you reach the recommended operating temperature. (Check the manual). Make sure that you have water coming out of your exhaust sytem immediately upon starting.

Shrouds

The upper shrouds will secure to the outboard hole on the chain plates. The lower shrouds will secure to the inboard hole using a toggle at the chain plate. Refer to Drawing #1 or Drawing #2.

Headstay

Attach link plate to the lower end of the headstay with the marine eye in the second hole down from the link plate. The bottom end of the link plate is the portion with the larger spacing between holes.

Stepping/Unstepping The Spar

First, check the spar as she rests horizonatally on saw horses, etc., for blemishes or kinks, appropriate hardware, etc. The halyards must run freely so check the sheaves and pins at that time. Inspect any lights, instruments, antennae, and associated wiring for their run and chafe possibilities and then test their operation with a 12V battery.

Install and check any other running rigging and hardware.

Position and install all of your spreaders and standing rigging, making sure of the proper fit and mate with your clevis pins. Also be sure that your standing rigging is not "snakeballed" at some point. This is the time to make sure your mast boot is in place.

Secure all your running rigging tightly to the spar above the mast collar height. Then secure your standing rigging in the area of the gooseneck fitting being careful not to entangle all the above. At this time, you should remove the cotter pins and clevis pins from all the turnbuckles putting them in a safe but convenient place. The turnbuckles should be adjusted out to the maximum. Now you will need to make a loop (5/8 ϕ line by 10' long approximately) and tie it around the spar. Fasten a tiedown line to the loop and secure near the gooseneck. The loop will be below the spreaders and outside the running rigging. While the standing rigging must be outside the sling, the tiedown line keeps the load of the spar from being carried by the spreaders when the spar is raised. In addition, it helps pull down the sling after the spar is stepped.

Optimally, it takes three people to step a spar. One to operate the crane and help jockey the boat; another to watch the rigging, jockey the boat, and guide the spar; the last to guide the spar at the foot ~~of~~ the partners and down to the mast step taking care of the loose wiring at the same time. Finally after mast is in Place insurt Rubber mast wedges. (See Drawing #3)

Soverel 27 Systems

A. Tankage

The Soverel 27 carries a 14 gallon polyethylene water tank under the starboard aft bunk. Access hole and filler located on top of tank (unless deck filler requested as option). Tank is vented via a line running into aft section and return to bilge (See drawing #___). The water in your tank may develop a taste after a period of time. This will happen to any water tank as it grows flat. The addition of a commercial water preservation agent such as Sudbury Aqua Fresh Crystals will greatly improve the taste of water stored for long periods.

Bilge Pump - Manual

The manual bilge pump is located on the port side of the cockpit.

It is always good seamanship to close the intake and discharge seacock (if installed) for the head when leaving the vessel. Also, be certain, while sailing, that the flush control valve or lever on the head is not left in the flush position to prevent the head from filing with water which will spill as boat heels.

Holding Tank

Your Soverel 27 can be ordered with a Y valve head and holding tank (bladder type). The systems is a no discharge system which we believe will be acceptable in all waters.

Sea water is used to flush the head, and the sea water and effluent is pumped into the holding tank by pumping the toilet. A deck fitting is provided through which the holding tank may be evacuated by a shoreside pump station.

It may be necessary to "precharge" the tank by pumping water into bladder tank before using the system. Be certain that the pump on the toilet is pumped several additional strokes after waste has been evacuated from the bowl to insure that the effluent is pumped through the hoses and into the tank.

If the toilet should become difficult to pump, check that the holding bladder is not overly full. The holding bladder must be pumped out before winter storage and a small amount of recreational vehicle anti-freeze added to the residual water. Holding bladder is located under V berth forward.

Fuel Tank. - See Diagram.
The tank capacity is approximately 6.5 gallons. Since diesel engines require bleeding after they have been deprived of fuel, it is important that the shut-off valve be in the "ON" position (lever parallel to piping) any time the engine is started. You may use standard diesel fuel.

When the fuel tank is nearly empty, motor sailing, especially heeled substantially on the starboard tack, it may result in the fuel leaving the withdrawal tube momentarily, and the engine stopping.

In fueling, the prudent skipper will take the same precautions as with a gasoline engine and close all ports and the companionway hatch. Before opening the fuel inlet cap, extinguish all open flames and smoking materials. Also turn off all electrical circuits and your main breakers. Your Alumni fuel Tank is grounded so keep it in contact with the fuel fill nozzle to ground for static electricity.
Location of your fuel tank is under Port Settee.
Be sure to wash off all spilled diesel fuel, as it makes the Sole very slippery. Diesel fuel will also discolor the gel coat finish.

B. PROPULSION

Diesel Engine.
The most common cause of trouble with a diesel engine is contaminated or dirty fuel. Your boat is equipped with a fuel filter located on the engine. Refer to the engine manual for the changing procedure for the secondary filter on the engine.

Familiarize yourself with the bleeding procedures for the engine and try bleeding it. The procedure only takes five minutes after you are acquainted with what to do but can be exasperating to the uninitiated.

Diesel engines generate considerable heat. Always let the engine idle for a minute or two before shutting down.

Engine Operation.
To Start Engine:

A. Be sure gear shift is in neutral.
B. Battery switch must be "ON".
C. Advance throttle to approximately 1/4 position.
D. Turn key switch "ON". Engine alarm will sound.
E. Press starter button.
F. After engine starts, the engine alarm should stop. Let engine warm up at a fast idle.

To Stop Engine:

A. Slow engine to idle speed. Pull out stop button until engine stops.
B. ONLY AFTER ENGINE HAS STOPPED. Shut off key switch. Turning off the key switch while the engine is operating will NOT stop the engine and may damage the alternator. Be sure to shut off the key switch after the engine has stopped as leaving the key switch on will maintain a flow of current to the alternator.

Exhaust System.
Your boat is equipped with a water lift principle muffler. This system cools the engine exhaust as it exits from the engine, reducing heat build-up, and substantially reduces exhaust noise.

If the flow of cooling water is interrupted and the engine overheats severely, the rubber hose coming from the engine exhaust elbow may melt. Always check this hose after an occurrence of overheating.

There will always be a little water in the bottom of the water lift "pot". In Fall decommissioning, the pot should be drained using the drain plug; or anti-freeze should be added to the pot so that the residual water will not freeze.

If the engine should lose compression from sticking valves, bad piston rings or other causes and is cranked for a prolonged period, engine cooling water may build up in the pot. In this very unlikely situation, the cooling water intake should be shut off to prevent flooding the engine or the drain on the pot opened.

Before engine cooling water is injected into the exhaust elbow, it runs up to a point above waterline where an anti-syphon valve admits air to the line when the engine is off to prevent syphoning. Especially if operating in dirty water, the anti-syphon valve may clog and fail to admit air at engine shutdown. Check the operation of the anti-syphon valve frequently.

ELECTRICAL SYSTEMS

DC (Ships Power)

A 12 volt DC electrical system is used throughout the vessel for lighting and various accessories for any 12 volt current to be delivered, the following criteria must be met:

1. Charge the battery.
2. Master switch in on position.
3. Master circuit breaker on electrical panel (stand-board side next to sink) in on position.
4. Circuit breaker for the individual appliance - (cabin lights, running lights, ect.) on.
5. There is one DC panel; it controls the 12 volt system.
6. Switch on the appliance (if there is one, such as cabin light) on.
7. Soverel has lift two additional vacant curcuit breakers for additional appliances.

Battery will last longer if kept charged. Battery is located directly behind ice chest. This battery is a sealed unit and does not need water. It is important that during winter layup that the battery be placed in a dry warm storage area.

ELECTRONICS

Most problems or difficulties arise in electronic equipment due to three factors: faulty equipment design, poor location, or improper installation. Since all electronics (wiring, etc.) are in a very hostile environment while on a boat, all precautions must be utilized to ensure adequate operation. We recommend installation of all instruments by specialists and, if possible, the use of gear that has been marinized and that has a self-contained battery package.

With the myriad of choices for electronic units and their various thru hull fittings, we can only give generalizations about the location of same. Most thru hulls are forward of the keel and as close to centerline as possible.

The masthead units are extremely sensitive also. Be aware that you have three choices of cable exit locations: above the deck, below the overhead liner, and at the base of the spar. Keep in mind that all connections, junctions, and wiring should be as high as possible to prevent water contact and subsequent corrosion. Separate buss bars for each piece of equipment are ideal.

Any DC accessory that uses high amperage should be wired directly to the boat's battery with the proper fuse installed close to the battery. Separate fusing for all electronic equipment working off the yacht's electric circuits is very important. The correct polarity for your equipment/circuits is of paramount importance also.

Fusing for Add on Components.
Any equipment that is added to the existing standard set of circuits should be fused as close to the power source as possible. Preferably within sight of the battery. This is especially important for circuits that are left on when the boat is unattended.

MINIMUM SAFETY EQUIPMENT LIST.

1. Fire extinguishers to meet government regulations, mounted in accessible locations and properly maintained.

2. An anchor attached to a chain (or equivalent) which shall be attached to a minimum of 150' rope, all of which shall be of suitable size for the yacht.

3. A heavy weather jib of less than 110% fore-triangle area or capable of being reefed to this size and made of suitably heavy material.

4. Reefing equipment capable of reducing mainsail area by at least 25%.

5. A radio receiver capable of receiving government weather broadcasts.

6. A minimum of two flashlights with fresh batteries, spare batteries and spare bulbs, one of which is suitable for signaling.

7. Fog horn, whistle, and bell per government regulations.

8. One government approved personal flotation device for each crew member. Each device equipped with a whistle.

9. A government approved life ring or horseshoe buoy with whistle and automatic water light attached.

10. A man overboard pole, minimum 6 feet over water, attached to the life ring or horseshoe with floating line.

11. Flares per government regulation.

12. A minimum of 50 feet of floating heaving line with floating throwing weight attached.

13. Safety harness for each crew member.

14. A proper first aid kit including instructions.

15. Tools and spare parts.

16. Rigging or cable cutters or other tools suitable for rapidly severing rigging of the sizes found on the yacht.

17. A sharp knife in a safe accessible location.

18. Tapered softwood plugs suitable for closing ~~through~~ thru hull fittings and instruments and shaft apertures. Securing the plugs adjacent to the openings is recommended.

19. Two buckets of sturdy construction suitable for bailing.

20. Navigation equipment including up to date charts, tide tables, current tables appropriate for the region, and tools for positioning plotting. A knotmeter or log for distance measuring.

21. Second marine type compass (may be handbearing type).

22. Lead line or echo sounder.

23. Floatable safety equipment shall be marked with the ship's name.

NOTE: The above are only some of the safety equipment the U.S. Coast Guard requires to be on board. It is imperative that you consult and abide by their regulations. Become familiar with the use and location of your safety gear and practice emergency procedures. Avoid situations beyond your capabilities and your yacht's capabilities.

GENERAL INFORMATION

Hatches.
All hatches are an anodized finish. Non-skid tape is a good idea on the hatch surfaces as they are slippery when wet. The top of the hatches are made of plexiglass and can be easily scratched by ground-in sand, coral, etc.

Do not use solvents when cleaning the plexiglass. Use only mild soap and water.

Lifelines.
As with any boat, do not attach safety harness lines to the lifelines, stanchion posts or stanchion bases.

Keel/Hull Joint. Sovereel 27
The lead keel of the S-27 is bedded to the hull with a flexible Thiokol™ compound, which allows for the divergent expansion and contraction rates of lead and fiberglass. A polyester fairing putty is used over the joint between the hull and keel. This putty is not flexible and will show a crack between the hull and keel in time.

Grounding System- Lighting Protection.
The shrouds and stays are grounded to the keel and engine in accordance with industry practice. In spite of this grounding, there can be no assurance the personnel or the boat will not suffer injury if the vessel is hit by lightning.

The following are adapted from the ABYC safety standards, as suggestions only, and in no way guarantee safety:

1. If possible, remain inside a closed boat during a lightning storm. Do not contact any metallic objects inside the vessel.

2. Avoid making contact with any items connected to a lightning conductive system (the shrouds, turnbuckles, mast step support, etc.) and especially in a way to bridge between two of them.

3. No one should be in the water during a lightning storm.

4. If the boat has been struck by lightning, compasses and electrical gear should be checked to determine that no damage or change in calibration has taken place.

The occurrence of the above mentioned crack is NOT a sign that the keel bolts need to be tightened. Do not tighten keel bolts arbitrarily. Frequently tightening keel bolts will cause the bedding to be dislodged and initiate a leak.

Hull to Deck Joint.
The fasteners which affix the hull to the deck run through the anodized aluminum toerail, the deck and the hull flange. They are tapped into nonferrous metal imbedded in the hull flange. You will see the ends of some of the fasteners and do not be alarmed that nuts are not visible. In addition to the mechanical fasteners, the hull/deck juncture is bedded with highly adhesive bedding.

Battery Chargers.
The use of inexpensive automotive type battery chargers which do not have built-in isolation transformers can cause electrolysis to the vessel.

We strongly recommend that you do not use automotive type battery chargers.

Do not start the engine when a battery charger is operating. Damage to the alternator may result.

Always ventilate the battery compartment when using a battery charger.

7. MAINTENANCE

General.
Regular preventive maintenance is required to keep any boat in "as new" condition. It starts with the day after delivery and continues throughout the year. The heaviest time commitment is, of course, in the spring, but one should always be observant of the condition of such areas as running rigging, finishes, the engine, head and other moving parts of gear and tackle. The following comments are intended to serve as an initial guideline. You will no doubt want to develop a check list of your own.

Finishes. Hull & Deck

Fiberglass.
Even though fiberglass construction has vastly reduced upkeep, some attention to gel coat surfaces is necessary to maintain the appearance of the finish. After a few years exposure with no protection the finish may begin to fade or chalk. The annual application of a good commercially available wax (Johnson, Fuller or equal) containing an ultraviolet shield will preserve the appearance of this finish for many years. Generally, an application at the beginning of the season will suffice. So called "Miracle" waxes and "Non-Wax" waxes contain silicone. These products are very difficult to remove especially when the gel coat has faded to the point that painting is necessary for cosmetic reasons. Abrasive cleaner (cleansers) should not be used for general cleaning.

Gel Coat.
A small quantity of matching gel coat is shipped with each boat. This material should be kept in a cool place (refrigerator) not on board the boat. Generally, the shelf life of gel coat is about 6 months. Even during this period the original gel coat may not perfectly match due to fading. The gel coat is a polyester product, not a paint, and requires mixing a catalyst before use. Patching gel coat is a job requiring some experience, and best results are generally obtained from professional work.

Bottom Prep and Paint.
Described are a few helpful hints on how to prepare your bottom for anti-fouling paint:

1. Scrub the entire bottom with a wax remover and scouring pad to remove the mold release wax.

2. Prep for bottom paint using Interlex no sanding primer or equivalent.

3. Tape off below the boot stripe and apply paint according to the manufacturer's instructions.

NOTE: Avoid sanding the gelcoat as excessive sanding [illegible] blister resistance.

Boot Top and Sheer Stripe.
If touch-up is needed, contact your dealer for the matching paint.

Exterior Teak.
If left untreated, exterior teak will discolor rapidly turning a dull grey color. Teak is a relatively open grain wood and eventually mildew may form in the grain resulting in a very dark color.

If you wish to maintain the warm brown color, the teak must be kept clean and oiled. The grain of the teak will raise as the wood is wetted. The job of keeping up the teak will be much easier if the wood is sanded very smooth. Use sandpaper for this purpose and be careful not to scratch the gel coat. The best routine for bringing back discolored teak is to scrub thoroughly with a teak cleaner and water, allow to dry, sand, then apply multiple coats of a high grade teak oil.

A good applicator for teak oil is a small piece of a sponge, perhaps 1" square, by about 3" long, with one end tapered to allow application close to the deck without touching the gel coat. Most teak oils will stain the gel coat and are difficult to remove so be careful and clean up drips promptly.

Interior Teak.
We are quite proud of our interior finish work and would like to share our process with you. With the exception of the cabin sole and table, all interior teak has been hand wet sanded using "Watco's Danish Oil Finish". The teak has been finished using the following process:

Two coats of "Watco" applied with #320 grit wet-dry sandpaper.

One coat of "Watco" applied with #400 grit wet-dry sandpaper.

One coat of "Watco Wax" or Liquid Gold.

Maintenance of Interior Teak.
If a minor touch-up is needed due to a scratch or nick, wet sand using #400 sandpaper and follow with a coat of wax. When sanding, always use a sanding block to insure an even finish.

Our complete process should never have to be followed. Normally a good coat of wax once a year will maintain a beautiful interior.

Caution: Like most teak oil, Watco Danish Oil finish is extremely flammable. Be sure any rags used to apply teak oil are taken off the boat and disposed in proper containers for rags with flammable substances. Fires have been started through spontaneous combustion of teak oil soaked rags.

Cushions.
The fabric used on your Sovereign is generally purchased from a supplier for the marine industry. Like most upholstery fabrics, the fabric will support combustion if exposed to fire. Therefore, be careful with open flame or high temperatures in proximity to fabrics.

Spilled oil-based and water-based liquids usually bead up and remain on the surface of the fabric. Blot them up as quickly as possible with an absorbent cloth, tissue or sponge. If the material is a solid or semi-solid such as butter, remove the excess by gentle scraping with a table knife. Often blotting will remove all traces of stain; but if the staining agent is not completely removed by blotting, the following techniques are suggested:

- Water based stains such as ketchup, milk, ice cream and coffee should be removed by first wiping the stain with a cloth wet with water containing a detergent or ammonia (1/2 cup ammonia to a gallon of water). If this does not completely remove the stain, reapply and rub gently.

- Oil based stains such as salad dressing, butter, mayonnaise, etc., can be removed by either of the following procedures:

  1. Apply "Texize K2R Spot Remover" by spraying or rubbing into the fabric and let dry. Vacuum off the residual powder. Repeat if necessary.

  2. Wet a cloth with a solvent-type spot cleaner such as "Energine" or "Renuzit" and wipe or gently rub the stained area. Turn cloth and rewet with solvent often. Repeat until stain disappears.

     NOTE: Test the fabric first with the proposed cleaning material on an inconspicuous part of the fabric.

Fabrics treated with "Scotchgard" Fabric Protector with Extra Soil Defense offer remarkable soil resistance. This means that dirt will sit on the fabric surface and can be readily vacuumed off. Frequent vacuuming of loose dirt will prevent its being worked into fabric.

For fabrics which have accumulated significant overall soil, these cleaning methods are suggested:

- Vacuum thoroughly, then apply a cleaner as recommended by the manufacturer. The following cleaners have been found to be suitable: "Fiber Fresh Concentrate", "Bissell Foam Upholstery Cleaner", "Glamorene" and "Ivory Flakes". (NOTE: Here again, it is best to test the cleaner on an inconspicuous portion of the fabric to test for discoloration.)

8. WINTER STORAGE

Sail, Sheets and Lines.
Sails and lines should be removed at the end of each season and stored in a warm, dry place. If it is possible to dry them thoroughly, they should be rinsed with fresh water before storage.

Standing Rigging.
A thorough inspection of all Rigging, swags, splices, pins and fittings should be made prior to winter storage; any necessary replacement or reinforcement should be made before beginning the next sailing season.

Engine and Fuel System.
Check the engine manual for maintenance guidance during the season and for the specific haul-out procedures necessary to winterize the engine.

Head.
As with the engine, the specific procedures for preparation for winter storage and recommissioning are contained in the manual.

Batteries.
Remove from boat and store inside. You will need to recharge periodically and immediately prior to installing in boat. Do not store batteries on a concrete surface - elevate with pieces of wood. A fully charged battery will freeze at well below zero F; a discharged battery freezes at about 20° F.

Fresh Water System.
The water tanks and water lines should be completely emptied in preparation for winter storage and the pressure water pump and sump pump drained. Drain the water heater. Be sure to drain between tank and check valve on cold water inlet. We also suggest tank inspection covers be left off in order to adequately vent the water system.

Winter Cover.
If storing outdoors, a winter cover is recommended. It can be as simple as a rectangular piece of canvas forming a tent over the boat. A ridge pole (formed by 2" x 4"'s along the centerline) several feet above the cabin top, well supported at several places along its length, is sufficient to support the center. Use carpeting to pad any areas of chafe. Lash the cover tightly to the cradle avoiding any metal grommets in contact with the gel coat.

Bilges.
Be sure to pump the bilge completely dry and add a small quantity of anti-freeze.

Cradle.
Make sure that the boat is adequately supported and that any suspected weakness has been reinforced. The keel of the boat must rest solidly on the main beam. Failure to do this could result in indentations in the hull where the vertical risers are located. The vertical risers are not intended to carry the load but merely to stabilize the boat. On boats with fin keels, most of the weight should be on the forward portion of the keel.

Storing Spar for the Winter.
Before unstepping the spar, be sure to remove the chocking at the mast partners. It may be necessary to use the same winching procedure used for installation to remove the forward piece of chocking material. Unhook the mast wiring at the base of the mast. Remove lower shrouds from their chainplates and tie to mast.

In picking up mast, a down haul line must be rigged from the sling so the weight of the mast is taken on the down haul line and not on the spreader bases. The down haul line must be securely affixed to a winch on the mast. Do not rely on a cleat. The sling should pass outside the lower shrouds and inside the upper shrouds.

In storing the spar, do not use masking or filament tape on the spar, as the coating may be damaged. Spars left exposed to sunlight should not be wrapped in polyethelene as moisture will condense on the outside of the plastic and drip on the spar. Painted spars can and will experience blistering if encased in plastic for the winter and allowed to bake in the sun.

WARRANTY NOTIFICATION PROCEDURE

1. Contact your Dealer before any repairs are started.

2. Make sure that all repairs are authorized by Tartan Marine either by documentation or verbal communication. There needs to be proper clarification of labor rates, parts supply and correct procedures before commencement of the repair.

3. Please fill out the claim form that is with the original boat papers. Obviously, if it is not filled out, your claim could be delayed or denied.

4. Save and return any defective parts that are involved in your claim. We will need those parts in processing your claim.

5. Please take photographs (Polaroids, 35mm) of the suspect areas.

6. All claims must be attended by labor and/or parts invoices.

Your Dealer will be your first line of communication if you have any questions. This method will help to ensure prompt and proper responses within a reasonable time period.

NOTES:

All data in our owners manual is subject to change or amendment at our discretion due to vendor difficulties, design changes, etc. We are sorry that advance notice of changes cannot always be obtained or provided.

Due to a rearrangement of the stockroom and our dedicated workforce, we can now offer a replacement parts lead time of four to six weeks.

All interior glass areas subject to water immersion even while sailing should be coated with an epoxy or interior gelcoat.