OWNER'S MANUAL

YAMAHA-30

YAMAHA MOTOR CO., LTD.

YAMAHA MOTOR CO.,LTD.

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YAMAHA-30 (AJ2) OWNER'S MANUAL

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1. GENERAL DESCRIPTION:

1-1. PRINCIPAL DIMENSIONS AND FIGURES:

DESIGNER	:	YAMAHA DESIGN TEAM	
BUILDER	:	YAMAHA MOTOR CO., LTD.	
RIG	:	MAST HEAD SLOOP	
L.O.A.	:	8.97 m	29 ft 5 in
L.W.L.	:	7.20 m	23 ft 7 in
BEAM	:	3.23 m	10 ft 7 in
DRAFT, STANDARD	:	1.75 m	5 ft 9 in
SHOAL (option)	:	1.40 m	4 ft 7 in
TOTAL HEIGHT (Above the waterline)	:	12.47 m	40 ft 11 in
MAST LENGTH	:	10.87 m	35 ft 8 in
HEAD ROOM	:	1.93 m	6 ft 4 in
DISPLACEMENT	:	3,450 kg	7,606 lbs
BALLAST	:	1,300 kg	2,866 lbs
TOTAL SAIL AREA (100% fore △ + main sail)	:	36.27 sq m	390.4 sq ft
BERTHS	:	MAIN CABIN	3
		FO'CSLE	2
		QUARTER BERTH	2
WATER CAPACITY	:	200 liter	52 US gals
ENGINE	:	YANMAR 2GM 4CYCLE 2 CYLINDER DIESEL	
1-HR, RATING OUTPUT	:	15 HP/3,600 rpm	
CONTINUOUS RATING OUTPUT	:	13 HP/3,400 rpm	
REDUCTION RATIO	:	2.62 : 1	
PROPELLER ROTATION	:	CLOCKWISE (viewed from stern)	
CRANKSHAFT ROTATION	:	COUNTER-CLOCKWISE (viewed from stern)	
FUEL CAPACITY	:	60 liters	15.8 US gals
SPEED, MAX	:	abt, 6.5 knots	
SPEED, CRUISING	:	abt. 5 knots	
CRUISING RANGE	:	abt. 250 natutical miles/5 kt	
TALL RIG:			
TOTAL HEIGHT	:	13.42 m	44 ft
MAST LENGTH	:	11.80 m	38 ft 9 in
TOTAL SAIL AREA	:	40.22 sq m	432.9 sq ft

* SPECIFICATION SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

1-2. SAIL PLAN:

1-2-1. SAILS: (standard rig)

	AREA	LUFF	FOOT	LEECH	LPG	WEIGHT	
	sq m (sq ft)	m (ft)	m (ft)	m (ft)	m (ft)	oz	
MAIN	15.00 (161.46)	10.00 (32.81)	3.00 (9.84)	10.40 (34.12)		8	STANDARD
#1 GENOA	32.47 (349.50)	11.70 (38.39)	5.96 (19.55)	11.00 (36.09)	5.55 (18.21)	6	OPTION
#2 GENOA	28.94 (311.51)	11.35 (37.27)	5.58 (18.31)	10.40 (34.12)	5.10 (16.73)	8	OPTION
#1 JIB	23.36 (251.44)	10.50 (34.45)	4.94 (16.21)	9.45 (31.00)	4.45 (14.60)	8	STANDARD
#2 JIB	15.84 (170.50)	8.80 (28.87)	4.13 (13.55)	7.65 (25.10)	3.60 (11.81)	10	OPTION
STORM JIB	6.53 (70.29)	6.70 (21.98)	3.10 (10.17)	4.70 (15.42)	1.95 (6.40)	10	OPTION
SPINNAKER		11.47 (37.63)	6.66 (21.85)	11.47 (37.63)		1.2	OPTION
100% Fore △	21.27 (228.95)						

NOTE: 1) Material: DACRON/TERYLENE except NYLON spinnaker
2) SPINNAKER FOOT: SMW MAX. (I.O.R. measurement)
3) STANDARD SAILS MAY VARY ACCORDING TO REGION.
4) WEIGHT: oz/sq yrd

1-2-2. BATTENS: (standard rig)

TOP	0.600 m	23 in 5/8
MIDDLE (2)	0.660 m	26 in
BOTTOM	0.600 m	23 in 5/8

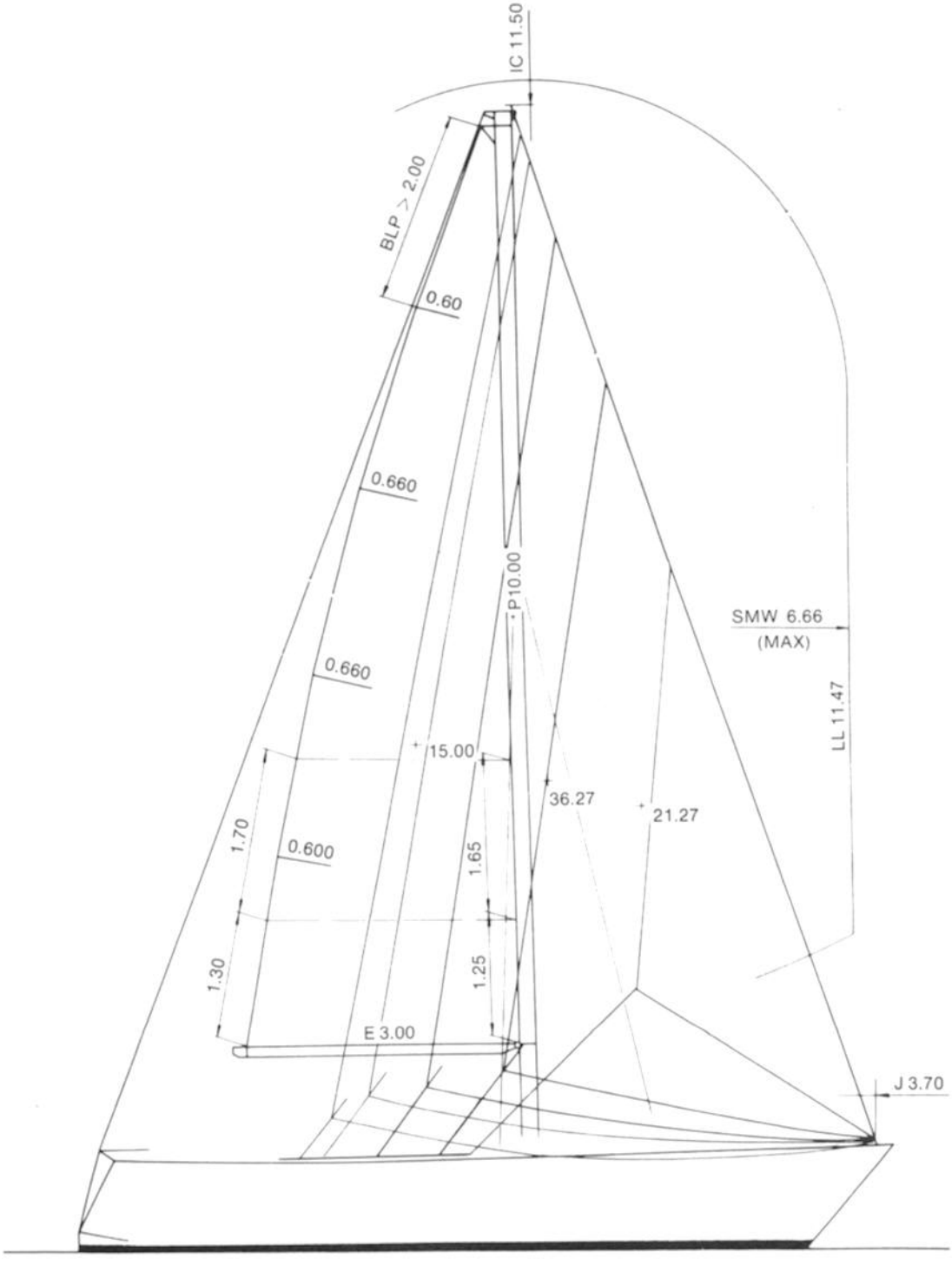


Fig. 1 SAIL PLAN (standard rig)

1-2-3. SAILS: (tall rig)

	AREA	LUFF	FOOT	LEECH	LPG	WEIGHT	
	sq m (sq ft)	m (ft)	m (ft)	m (ft)	m (ft)	oz	
MAIN	17.28 (186.00)	10.80 (35.43)	3.20 (10.50)	11.80 (38.71)		8	STANDARD
#1 GENOA 151%	34.69 (373.40)	12.50 (41.01)	19.4	11.80 (38.71)	5.55 (18.21)	6	OPTION
#2 GENOA 130%	30.25 (325.61)	12.10 (39.70)		11.25 (36.91)	5.00 (16.40)	8	OPTION
#1 JIB 105%	24.12 (259.63)	11.35 (37.24)		10.12 (33.20)	4.25 (13.94)	8	STANDARD
#2 JIB 75%	17.17 (184.82)	10.10 (33.14)		8.55 (28.05)	3.40 (11.15)	10	OPTION
STORM JIB 32%	7.37 (79.33)	6.70 (21.98)		4.90 (16.08)	2.20 (7.22)	10	OPTION
SPINNAKER		12.29 (40.32)	6.66 (21.85)	12.29 (40.32)		1.2	OPTION
100% Fore △	22.94 (246.92)						

1-2-4. BATTENS: (tall rig)

TOP	0.550 m	21 in 5/8
MIDDLE (2)	0.685 m	27 in
BOTTOM	0.620 m	24 in 3/8

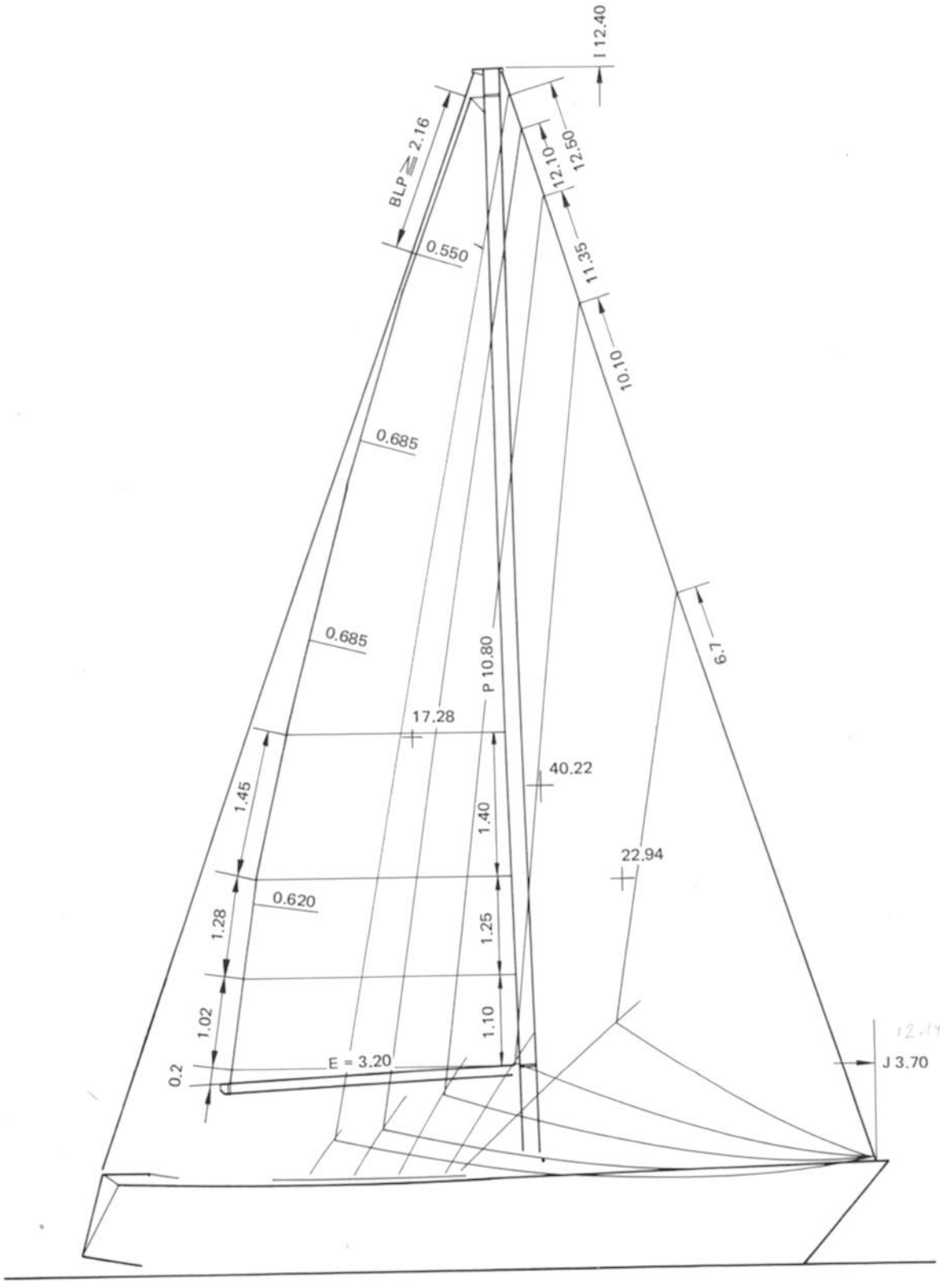


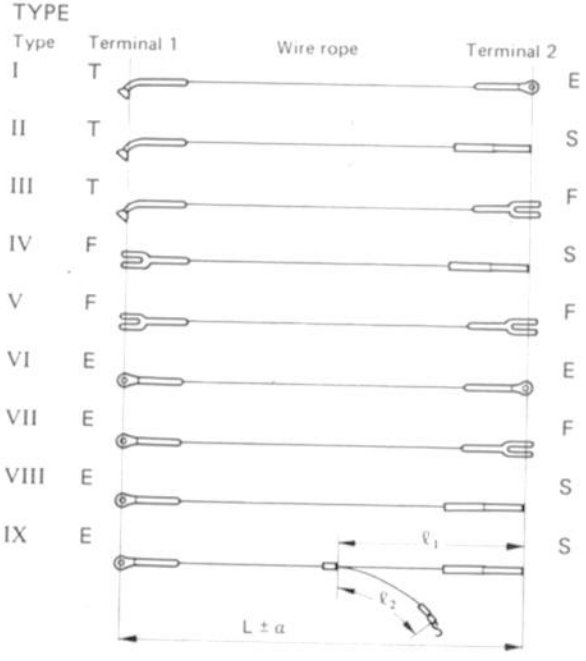
Fig. 2 SAIL PLAN (tall rig)

1-3. RIGGING LIST:

1-3-1. STANDING RIGGING: (standard rig)

	Q'ty	LENGTH	DIA.	TYPE	
		m	mm		
HEAD STAY	1	11.558	6	1 x 19	VIII
BACKSTAY	1	9.983	6	1 x 19	VIII
BACKSTAY (SPLIT PART)	2	1.810	5	1 x 19	VII
MIDSTAY (INNER FORESTAY)	1	5.745	5	1 x 19	II
UPPER SHROUDS	2	10.810	6	1 x 19	II
LOWER SHROUDS	2	5.689	5	1 x 19	II

NOTE: LENGTH OF STANDING RIGGING:



T: T Terminal
E: Eye Terminal
S: Screw Terminal
F: Fork Terminal

1-3-2. STANDING RIGGING: (tall rig)

	O'ty	LENGTH	DIA.	TYPE	
		m	mm		
HEAD STAY	1	12.360	6	1 x 19	VIII
BACKSTAY	1	10.820	6	1 x 19	VIII
BACKSTAY (SPLIT PART)	2	1.810	5	1 x 19	VII
MIDSTAY	1	6.155	5	1 x 19	II
UPPER SHROUDS	2	11.655	6	1 x 19	II
INTERMEDIATE SHROUDS	2	9.085	4	1 x 19	II
LOWER SHROUDS	2	6.110	5	1 x 19	II

1-3-3. RUNNING RIGGING:

		LENGTH	DIA.	COLOR	TYPE	TALL RIG
		m	mm			m
MAIN SHEET	1	16	12	RED 1/4	Braided Polypro-pylene	
JIB SHEET	2	14	12	YELLOW 1/4		
SPIN. SHEET	2	18	12	BLUE 1/4		
SPIN. FORE GUY	1	11.5	10	BLUE 1/8		
MAIN HALYARD (TAIL)	1	16	10	RED 1/4		16.50
JIB HALYARD (TAIL)	1	16	12	YELLOW 1/4		17.00
SPIN. HALYARD	1	29.5	12	BLUE 1/8		32.00
BOOM LIFT (TAIL)	1	13.5	8	RED 1/8		14.30
SPIN. POLE LIFT	1	20	10	BLUE 1/8		
CUNNINGHAM #1	1	1.5	6	RED 1/8		
CUNNINGHAM #2	1	2.0	8	RED 1/8		
MAIN SHEET TRAVELLER ADJUST	1	5	8	RED 1/8		
BOOM VANG LINE	1	8	10	RED 1/4		
REEF POINTS	8	1.2	6	WHITE		
REEF LINE #1	1	7.5	8	RED 1/8		
REEF LINE #2	1	11.0	8	RED 1/8		
SPIN. POLE ADJUST	1	6.5	8	BLUE 1/8		7.00
BACKSTAY TENSIONER	1	8.0	10	BLUE	(option)	
MAIN HALYARD	1	10.60	4	S.S.	7 x 19	11.50
JIB HALYARD	1	11.30	5	S.S.	7 x 19	12.50
BOOM LIFT	1	11.08	2.5	S.S.	1 x 19	13.20
LANYARD (for SETEE BERTH)	2	7	8	BROWN		
LANYARD (for CANVAS LEEBOARD of PILOT BERTH)	4	0.6	8	BROWN		

NOTE: "RED 1/4" rope has 1/4 of strands colored red.

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1-4. DECK PLAN:

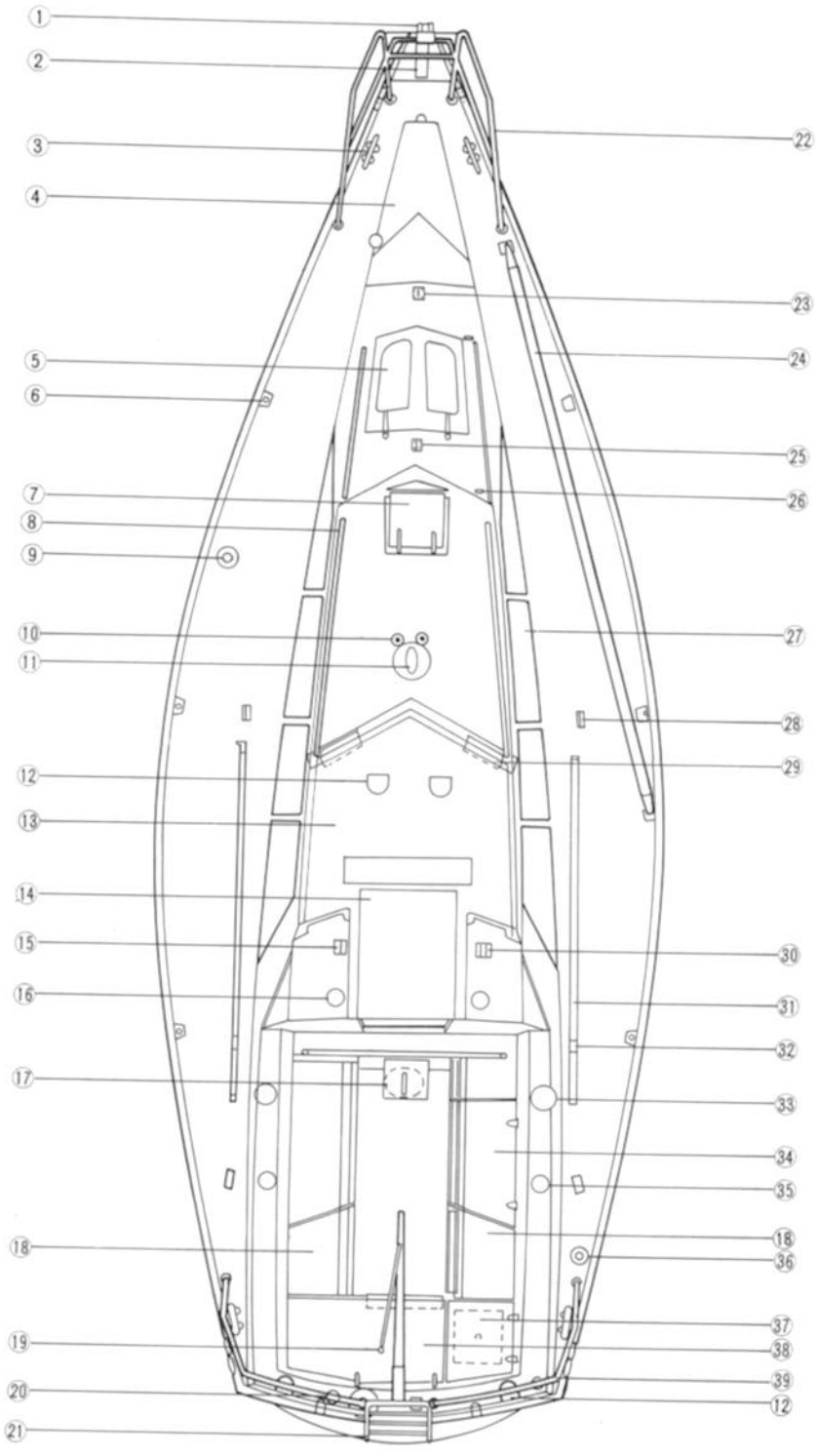

Fig. 3 DECK PLAN (1)

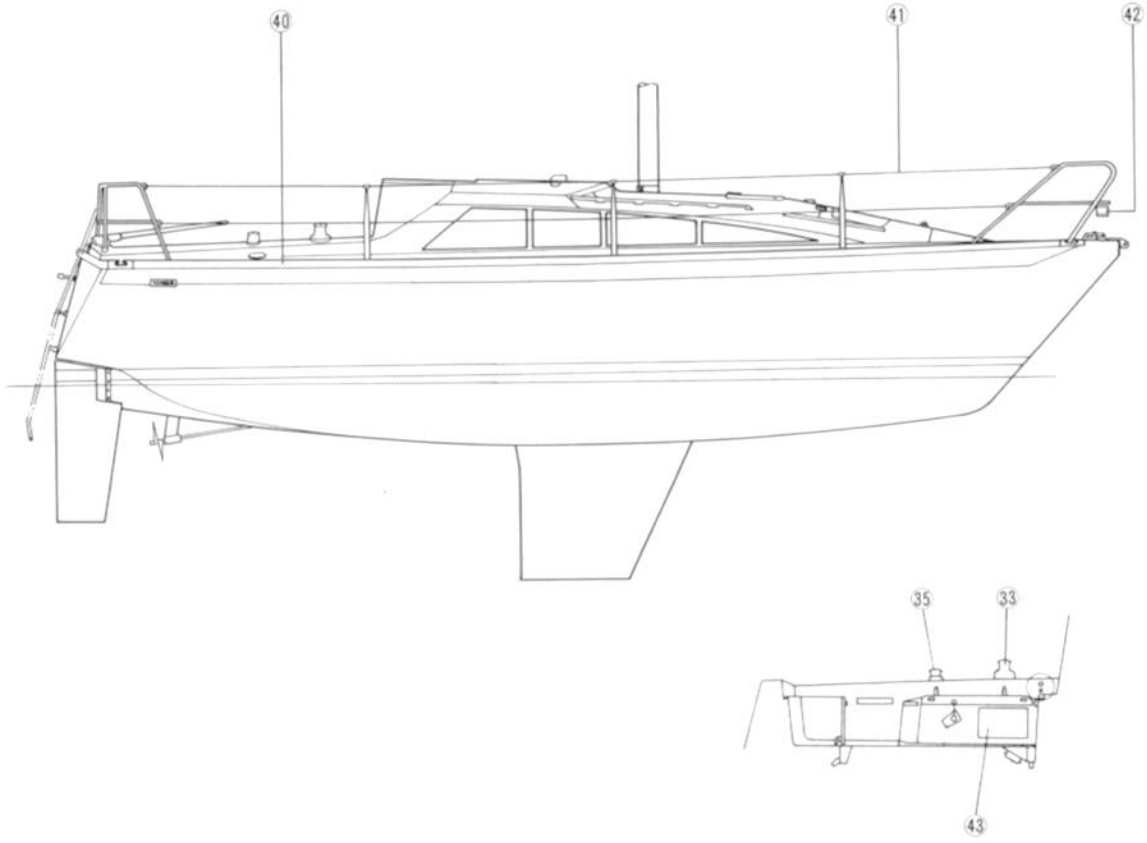

Fig. 3 DECK PLAN (2)

1. BOW ROLLER
2. HEAD STAY FITTING
3. MOORING CLEAT (4)
4. ANCHOR WELL
5. FORWARD HATCH
6. LIFELINE STANCHION (6)
7. SKYLIGHT HATCH
8. HANDRAIL
9. WATER FILLER CAP
10. THRU-DECK (for mast wiring)
11. MAST STEP
12. COWL VENTILATOR (4)
13. SEAHOOD
14. COMPANION HATCH
15. SHEET STOPPER (double)
16. WINCH (2) (for halyard)
17. MANUAL BILGE PUMP
18. REMOVABLE SEAT (2)
19. TILLER EXTENSION
20. STERN LIGHT
21. BOARDING LADDER
22. BOW PULPIT
23. EYE PLATE (for fore guy)
24. SPINNAKER POLE
25. MIDSTAY FITTING
26. FAIRLEAD (for fore guy)
27. PORT
28. CHAIN PLATE (for upper & lower shrouds)
29. QUADRUPLE TURNING BLOCK (2)
30. SHEET STOPPER (triple)
31. JIB SHEET TRACK
32. CAR/BLOCK (2)
33. WINCH (2) (for jib sheet)
34. STOWAGE BEHEATH
35. WINCH (2) (for spin. sheet)
36. FUEL FILLER CAP
37. L.G. CYLINDER STOWAGE
38. LAZARETTE
39. STERN LIGHT
40. TOE RAIL
41. LIFELINE (7)
42. COMBINATION LIGHT
43. PORT

* SPECIFICATION SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

1-5. ACCOMMODATIONS:

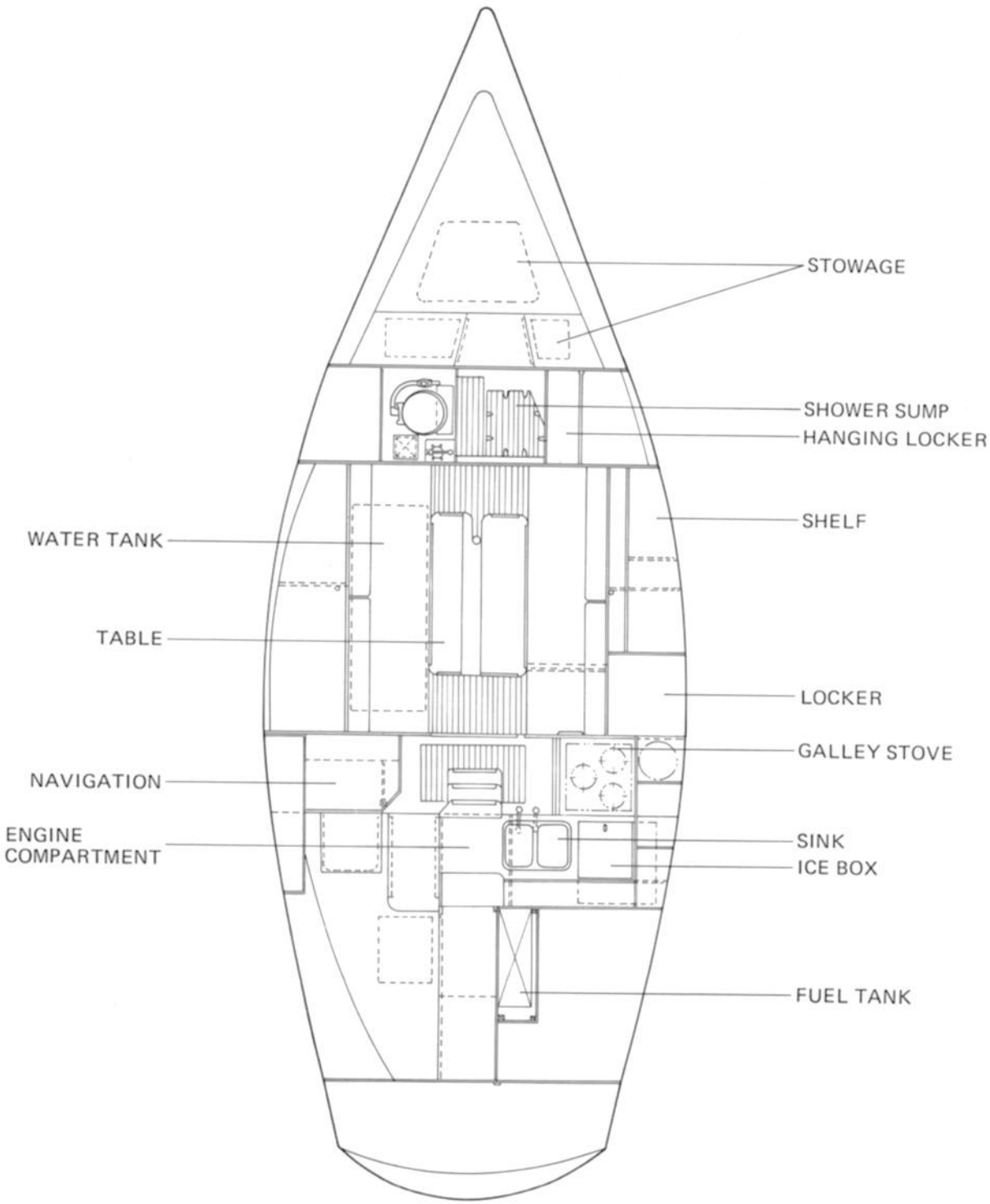

Fig. 4 ACCOMMODATIONS

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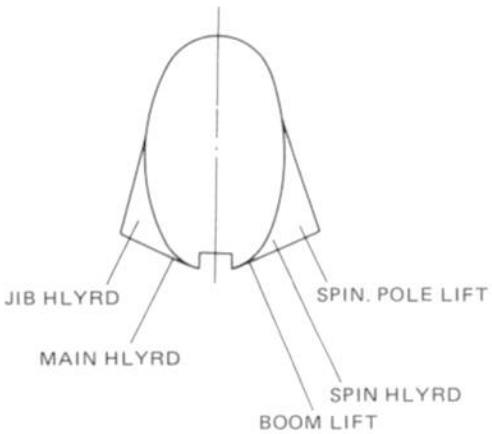
1-6. MAST FITTINGS:



1. UPPER SHROUD TERMINAL
2. FAIRLEAD (for SPIN. HALYARD)
3. SHEAVE BOX (for SPIN. POLE LIFT)
4. MIDSTAY TERMINAL
5. SPREADER BRACKET
6. LOWER SHROUD TERMINAL
7. SPIN. POLE TRACK
8. SPIN. POLE TRACK CAR
9. CLAM CLEAT (for SPIN. POLE ADJUST)
10. BRACKET (for GOOSENECK)
11. CLEAT (for BOOM TOPPING LIFT)
12. EYE PLATE (for CUNNINGHAM)
13. HEEL OF THE MAST with 6 sheaves
14. MAST STEP

NOTE: The tall rig mast has a set of intermediate shrouds.

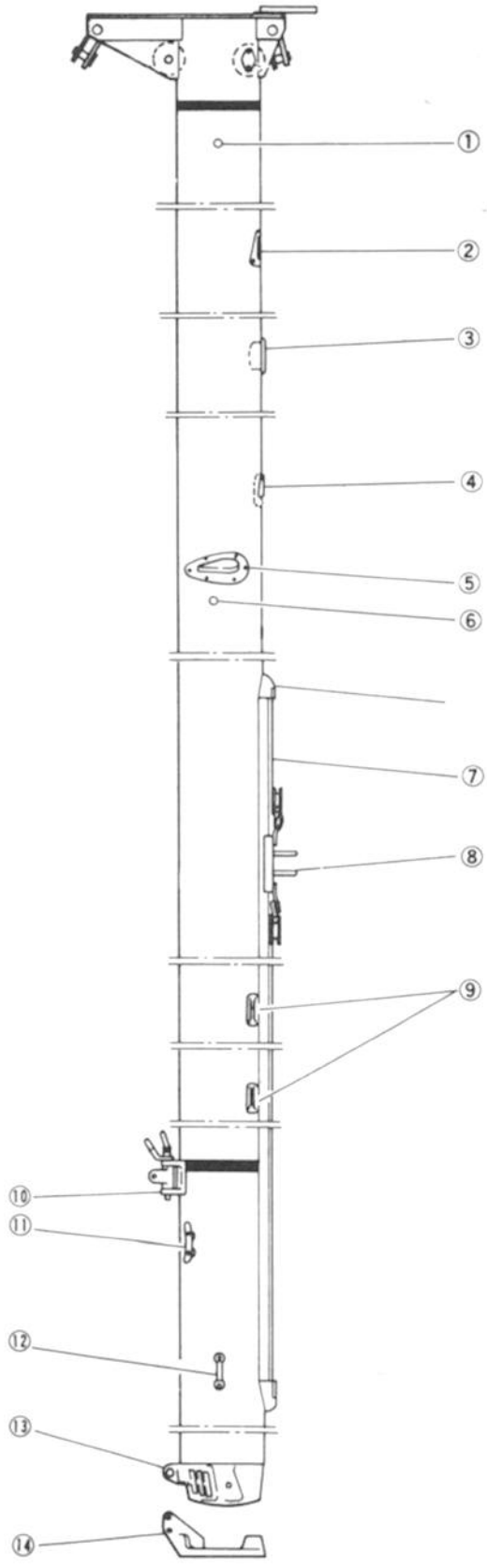


Fig. 5 MAST FITTINGS

1-7. BOOM FITTINGS:

1-7-1. STANDARD BOOM:

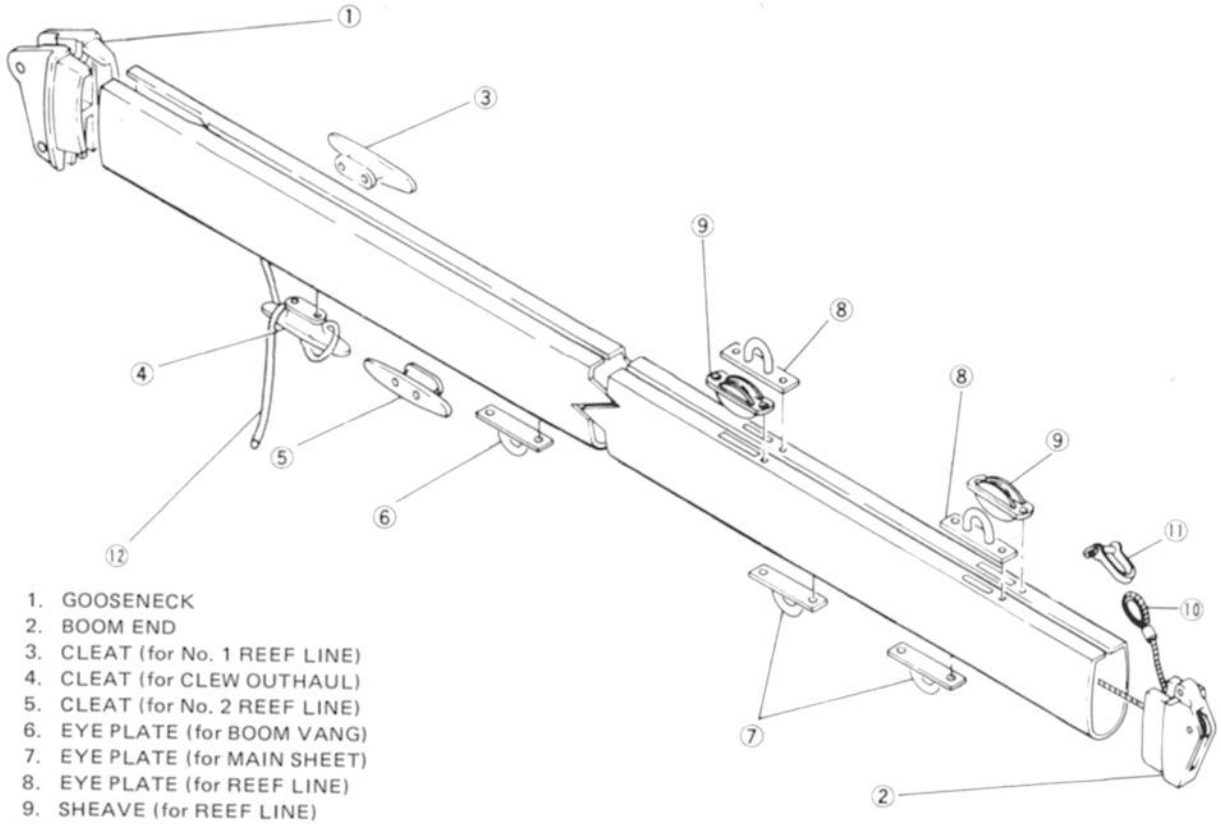
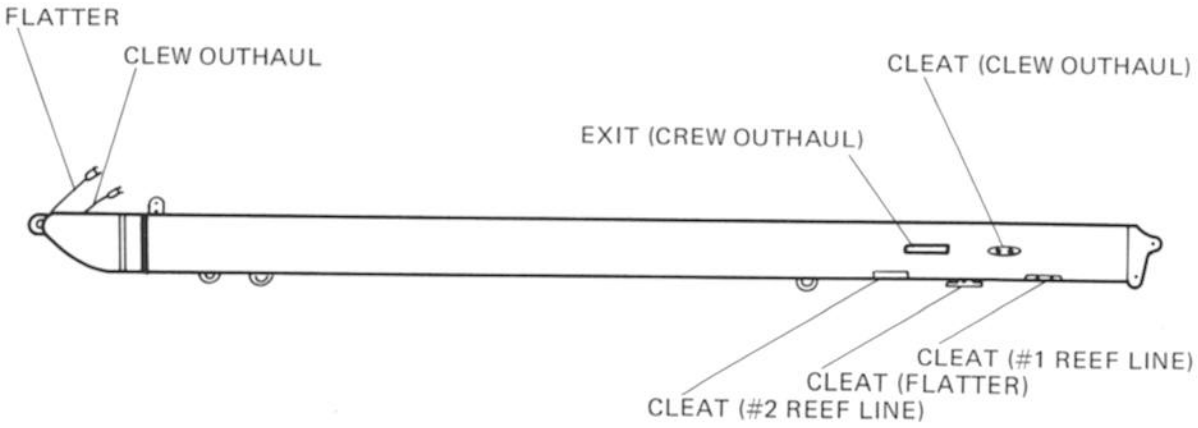


Fig. 6 BOOM FITTINGS (standard)

1-7-2. TALL RIG BOOM:



NOTE: FOR THE THIRD REEF, USE #1 REEF LINE.

Fig. 7 BOOM (tall rig)

1-8. LIST OF STANDARD ITEMS TO BE ON BOARD:

(1)	MAST ASSY.	1 set
(2)	BOOM ASSY.	1 set
(3)	SPINNAKER POLE ASSY.	1 set
(4)	MAIN SAIL (with bag)	1
(5)	JIB SAIL (with bag)	1
(6)	BOW and STERN PULPIT ASSY. (with bolts)	
(7)	LIFE LINE and STANCHION ASSY.	
(8)	MISCELLANEOUS:	

A. LINES:

1)	MAIN SHEET with BLOCKS and SHACKLES	1 set
2)	MAIN SHEET TRAVELLER ADJUSTMENT LINE	1
3)	JIB SHEET	2
4)	REEF LINE	2
5)	REEF POITS	8
6)	SPINNAKER SHEETS with SNAP SHACKLES	2
7)	SPINNAKER FOREGUY with SANP SHACKLE	1
8)	CUNNINGHAM HAULER ASSY.	1 set
9)	BOOM VANG ASSY.	1 set

B. FITTINGS AND GEARS:

1)	BLOCK and SHACKLE (for SPIN. SHEET)	2 sets
2)	BLOCK and SHACKLE (for FOREGUY)	1 set
3)	GENOA CAR ASSY. (RUNNING BLOCK)	2
4)	WINCH HANDLE	2
5)	COWL VENTILATOR	4
6)	BOAT HOOK	1
7)	BILGE PUMP HANDLE	1
8)	BATTENS(4)	1 set

C. ENGINE:

1)	STARTING KEY	2
2)	STARTING HANDLE	1
3)	TOOLS	1 set
4)	OPERATION MANUAL	1
5)	BATTERY (12V x 70A)	1

D. OWNER'S MANUAL

* THE ITEMS MAY VARY IN DIFFERENT COUNTRIES and ACCORDING TO THE ORDER.

2. SPARS AND RIGGING:

2-1. STEPPING MAST:

(1) Preparation:

Keep unnecessary staff out of your way and check all parts carefully. Make sure the standing rigging is not tangled, halyards are properly running and all turnbuckles are slacked.

Spray WD-40 on all turnbuckles.

(2) Setting the Spreaders:

Secure the spreaders to the spreader brackets.

Secure the tips of the spreaders to the upper shrouds (See Fig. 8).

NOTE: 1) A SPREADER SHOULD BE ADJUSTED SO THAT THE ANGLES BETWEEN THE SHROUD AND SPREADER ABOVE AND BELOW ARE EXACTLY EQUAL (see Fig. 8) FAILURE TO DO THIS CAN CAUSE THE SPREADER TO SLIP WHICH COULD RESULT IN THE LOSS OF THE MAST.

2) TAPE THE SPREADER TIPS AND BRACKETS WITH INSULATING TAPE FOR SECURITY.

(3) Stepping the Mast:

By using a crane, step the mast on the mast step. Secure all turnbuckles, but leave the standing rigging snug. Set the upper shroud to the forward hole of chain plate and the lower shroud to the aft hole of the same.

Set the clevis pins so that the cotter pins are inboard.

NOTE: WATCH THE ACTION OF THE TOGGLES THAT THEY DON'T BEND THE TURNBUCKLES.

(4) Secure the Heel of the Mast:

Secure the heel of the mast to the mast step by using the securing bolt and nut.

Fig. 8

(5) Connect Electric Wire:

Through the thru-deck, connect the electric wire(s) to the junction just forward of the mast support in the cabin.

NOTE: WHEN YOU TAKE THE MAST OFF, DON'T FORGET TO DISCONNECT THE ELECTRIC WIRE OF THE MAST FIRST.

2-2. STANDING RIGGING ADJUSTMENT:

Our masts are built to withstand any normal usage, but improper tuning or handling can cause problems. Rigging, as well as tuning, becomes all important when setting up the mast because of the light weight section we use. A knowledgeable person should oversee the rigging and tuning so as to eliminate the possiblity of an eccentric load which might occur with an improperly loaded shroud.

The following article, therefore, is to give you a hint on how to proceed on the adjustment of the standing rigging.

NOTE: SPECIAL ATTENTION SHOULD BE GIVEN TO THE INITIAL STRETCH OF THE UPPER SHROUDS AND A FURTHER GRADUAL STRETCH OF THE WIRE OVER THE FIRST FEW HARD RACES OR HARD WEATHER SAILS.

2-2-1. The Rake of the Mast:

The rake of the mast should be determined according to the helm of the boat under sail. But you may start with our recommended rake – 0 degree.

Adjust the head stay and backstay to bring the mast in the position so that the distance between the lower end of the terminal screw fitting of the backstay and the after most of the deck reaches 2,070 mm (See Fig. 9).

This is a temporary setting. Do not set up the stays too tight, rather start with slack stays.

You will have to check the rake after you have adjusted the tension on the head stay and backstay.

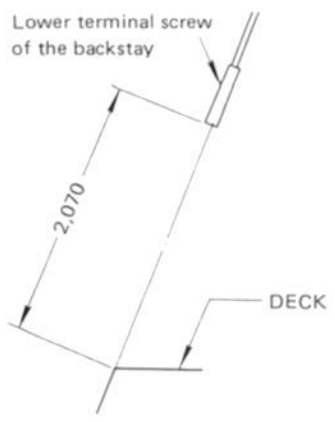


Fig. 9

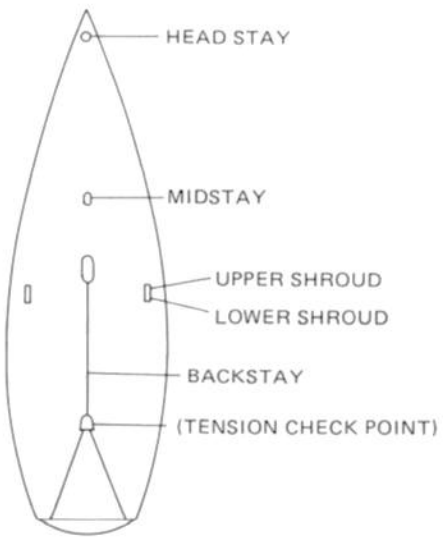


Fig. 10

2-2-2. The Adjustment of the Head Stay and Backstay:

Set up the head stay and backstay taut about evenly, and pull the stays by means of a spring balance at right angles to them at the point of the height of 1 m 500 / 4 ft 11 in from the pins of their deck fittings.

Adjust the turnbuckles so the head stay has 18 mm / 3/4 in of play at 10 kg / 22 lbs load and the backstay has 27 mm / 1 in 1/8 of play at the same load (See Fig. 11).

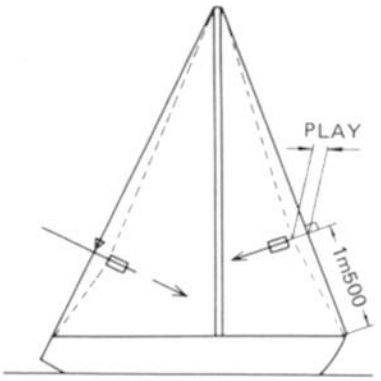


Fig. 11

2-2-3. The Adjustment of the Upper Shrouds:

Adjust the upper shrouds until the masthead is equal distant from each chainplate (See Fig. 12).

Use the main halyard or a steel tape measure to check the athwarship alignment.

Set up the shrouds to have 30 mm / 1 in 1/4 of play (See Fig. 12-2).

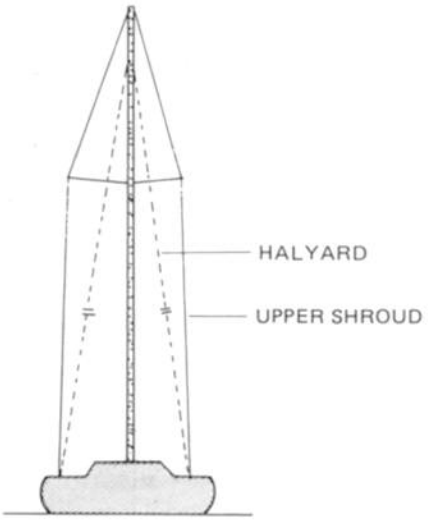


Fig. 12-1

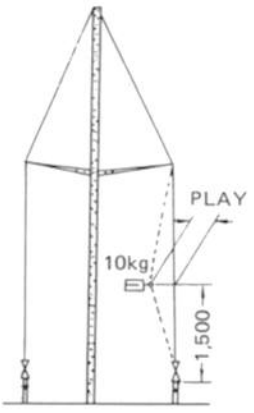


Fig. 12-2

2-2-4. The Adjustment of the Midstay:

Set up the midstay (inner forestay) until it pulls the mast forward 25 mm/1 in at the spreader brackets.

This figure may vary but should be between 20 mm to 40 mm according to the cut of the main sail. The play of the midstay is 70 mm / 2 in 3/4.

2-2-5. The Adjustment of the Lower Shrouds:

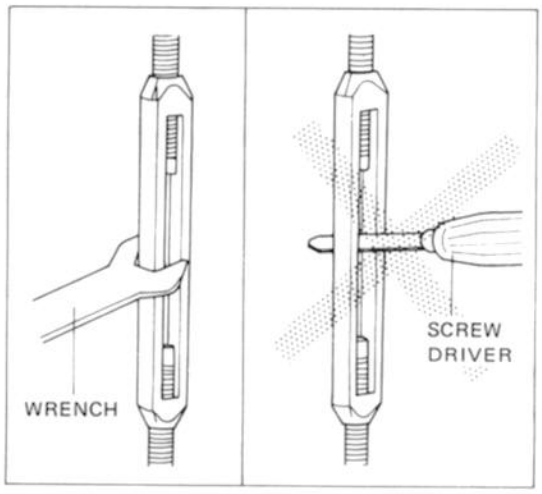
Set up the lower shrouds tight until they start to pull the mast aft.
The play of the lower shrouds will be 32 mm / 1 in 1/4.

2-2-6. The Adjustment of the Intermediate Shrouds: (tall rig)

The intermediate shroud is the least taut of all. The intermediate shroud should be tightened just enough to keep the mast from falling off to leeward when sailing close to the wind. Just take the slack off by turning the turnbuckles by your hand.

NOTE:
1) SIGHT UP THE MAST WHILE THE BOAT IS UNDER WAY.
   IT SHOULD BE STRAIGHT IN ITS GROOVE AND LEEWARD SHROUDS SLACK WHEN ON THE WIND.
2) REMEMBER, DO NOT TIGHTEN THE STANDING RIGGING MORE THAN NECESSARY. OTHERWISE, HULL DAMAGE MAY RESULT.
3) DO NOT ATTEMPT, OR AT LEAST BE VERY CAUTIOUS TO CORRECT MAST CURVATURE UNDER WAY. RIGGING ON THE LEEWARD SIDE IS NORMALLY QUITE SLACK WHEN A BOAT IS HEELED, AND IT IS EASY TO ADJUST IT TOO TIGHT WHICH CAN DESTROY THE PROPER TUNE AND PUT A GREAT STRAIN ON THE BOAT.
4) THE HEAD OF THE MAST SHOULD NOT "HOOK" TO WINDWARD.
   IF NOT STRAIGHT, IT WOULD BE MORE DESIRABLE TO HAVE THE HEAD "FALL-OFF" SLIGHTLY TO LEEWARD. THIS SHOULD GIVE THE MAST A SMOOTH, EVEN CURVE FROM HEAD TO DECK. SIGHTING ALONG THE BACK OF THE MAST ON EACH TACK, FROM DECK LEVEL, WILL GIVE COMPARISON AND INDICATE THE NECESSARY ADJUSTMENT.
5) WHEN RACING, THE BACKSTAY MAY BE TIGHTENED UP TO COMPENSATE FOR THE ADDITIONAL FORWARD LOADING APPLIED BY THE GENOA. AT THE CONCLUSION OF THE RACE IT IS BEST TO "SLACK-OFF" THE AMOUNT YOU "TOOK-UP" ON THE BACKSTAY TURNBUKLE. THIS AVOIDS UNNECESSARY STRAINS ON THE HULL AND RIG. UNDER NO CIRCUMSTANCES SHOULD ANY OF THE RIGGING BE SET UP "BAR-TIGHT".
6) TOO MUCH TENSION ON THE BACKSTAY IS PROBABLY THE PRIME REASON FOR MAST AND RIGGING FAILURE. BE EXTREMELY CAREFUL WITH HYDRAULIC TYPE ADJUSTERS.

7) USE A WRENCH TO ADJUST TURNBUCKLES. DO NOT USE A SCREW DRIVER, WHICH MAY DAMAGE THE BARREL OF THE TURNBUCKLE.



2-3. HALYARD LEADS:

See Fig. 13

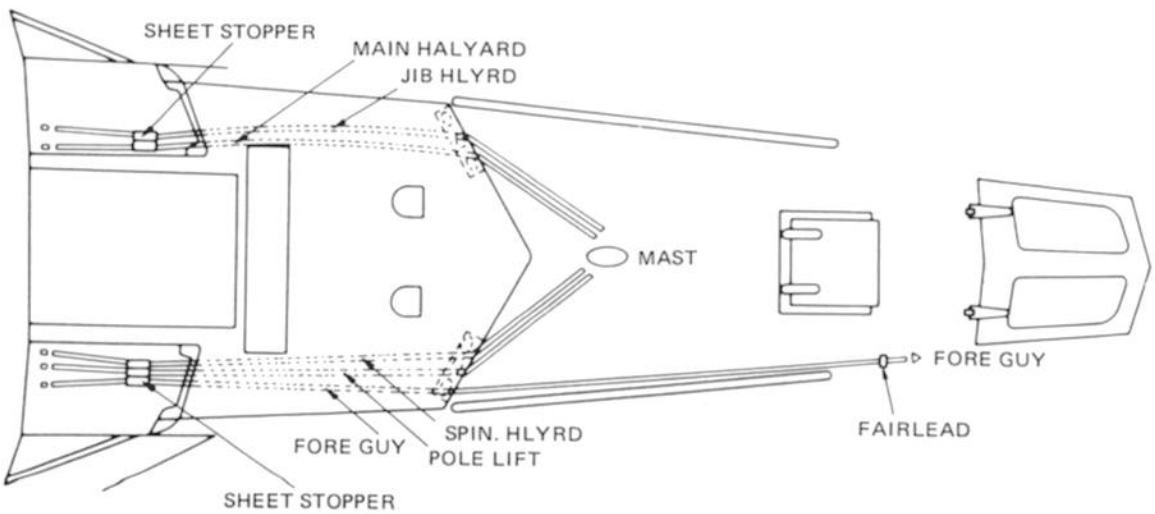


Fig. 13 HALYARD LEAD OF A STANDARD BOAT

2-4. MAIN SHEET LEAD:

See Fig. 14

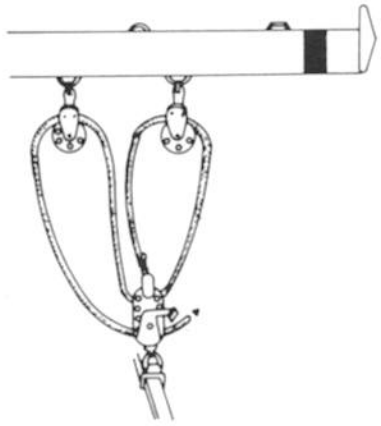


Fig. 14

2-5. MAIN SHEET TRAVELLER ADJUST:

See Fig. 15

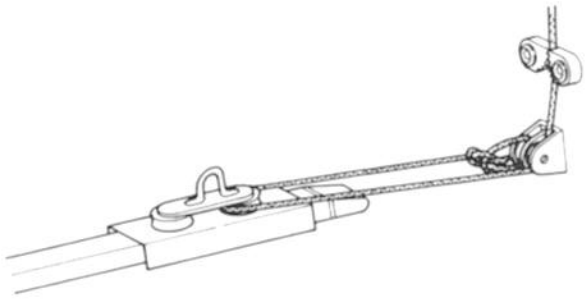


Fig. 15

2-6. JIB SHEET LEAD:

The forward ends of the jib sheets will be secured to the clew of the jib by bowline, or by making "toggle and becket" – "Tabarly knot" (See Fig. 17).
Then the bitter end will be led outside of the shrouds and rove through the sliding block on the track and turning block and led to the winch (See Fig. 16).

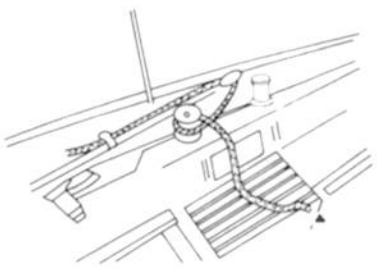


Fig. 16

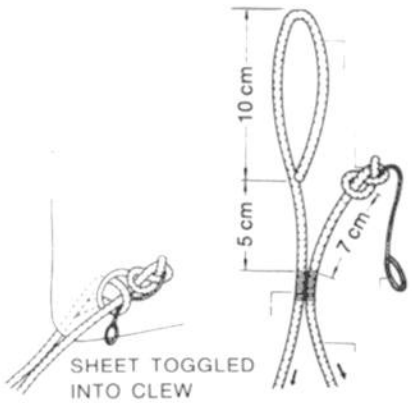


Fig. 17

2-7. CUNNINGHAM:

The gooseneck of the boom does not slide. Therefore, the tension on the luff of the main sail will be adjusted by the cunningham hauler (See Fig. 18).

2-8. BOOM VANG:

The boom vang is sometimes called the kicking strap and illustrated in Fig. 19. This is an important device for shaping and controlling the mainsail. Its fundamental purpose is to pull the boom down, preventing it from riding up when the sheet is eased.

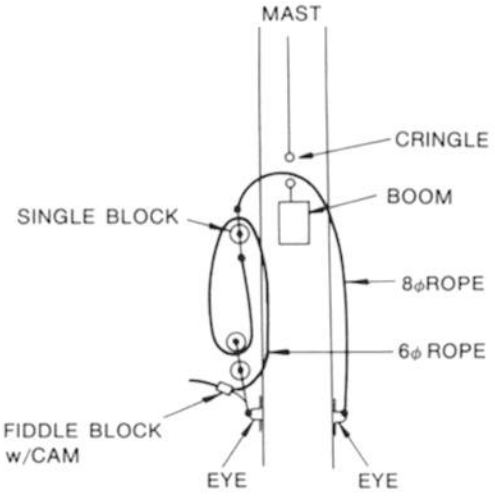


Fig. 18

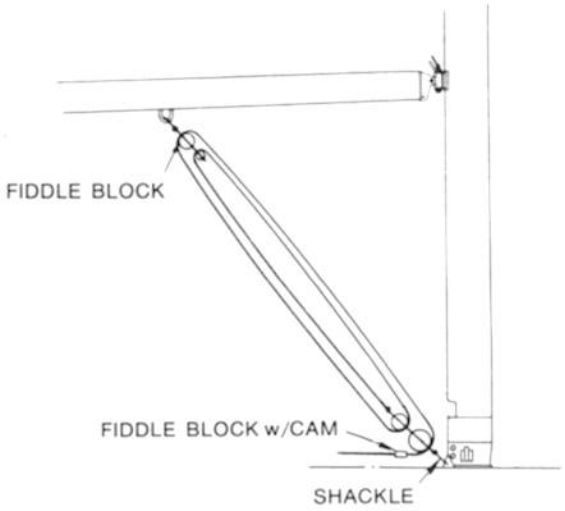


Fig. 19

2-9. MANUAL BACKSTAY TENSIONER: (optional)

A manual backstay tensioner is available as option to prevent the luff of the jib from sagging and to control mast bend.

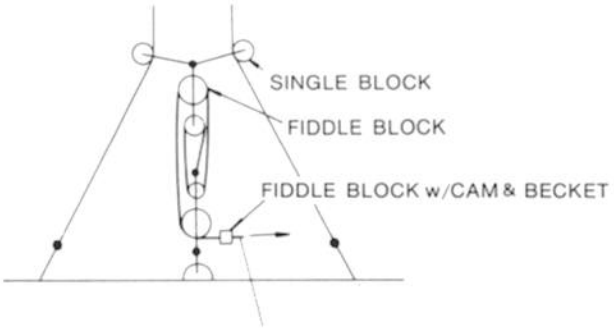


Fig. 20 BACKSTAY TENSIONER (optional)

2-10. REEF LINE AND REEFING:

(1) Rigging the Reef Line:

Two (2) reef lines are rigged onto the boom. The aftermost line is the first reef line (See Fig. 21). Reeve it through the first reef cringle on the leech and secure it to the eye on the top of the boom on the opposite side by a bowline.

The second reef lines will be arranged similarly.

Fig. 21 (standard)

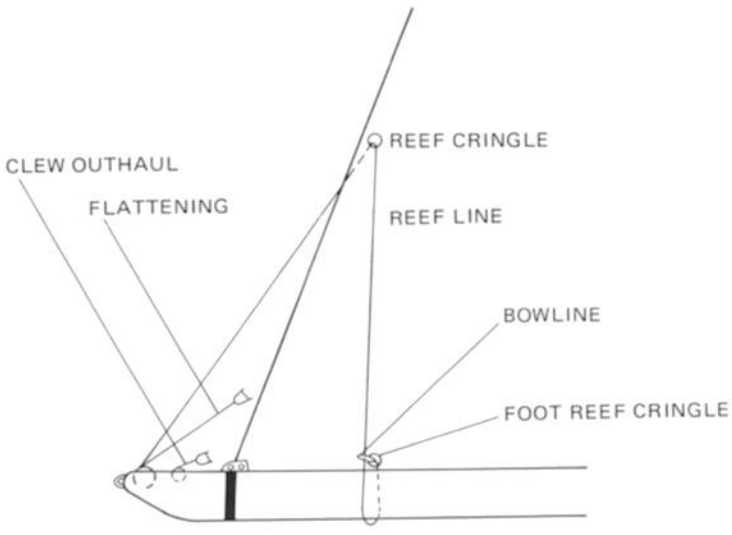


Fig. 22 RIGGING OF THE REEF LINE OF TALL RIG:

NOTE: 1) WHEN YOU UNRIG THE MAIN SAIL, MAKE A FIGURE EIGHT KNOT AT THE AFT BITTER END OF THE REEF LINE TO PREVENT IT FROM RUNNING INTO THE BOOM.

2) THE MAIN OF TALL RIG HAS THREE REEF POINTS. USE THE FIRST REEF LINE FOR THE THIRD REEF.

(2) Reefing:

Most of the sailboats in beating will lose speed and beating angles relatively if the boat heels more than 20 degrees. This is the time to shorten sail by changing the jib to a smaller one and/or by reefing the main accordingly. The following method of reefing is called "Jiffy Reefing" and also "Slab Reefing" derived from the slab line which was used to haul up the foot of square sails.

It is really a jiffy and quick reef permitting the main to be reefed underway without dropping or using roller reef.

1) Stand-by:

Helmsman: to slack the main sheet

No. 1 Crew: to slack the boom vang and main halyard

No. 2 Crew: to haul in the reef line.

2) Go (Reef):

1. Slack boom vang.
2. Slack main sheet.
3. Drop halyard to the mark predetermined and hook the tack reef cringle to the hook on the gooseneck.
4. Haul main halyard and secure.
5. Pull reef line tight and cleat.
6. Sheet in main.
7. Carefully tie reef points or lash down the sail by the buntline in 2 point reefing.

NOTE: THERE IS NO REEF POINT FOR FIRST REEF.

3. ELECTRIC SYSTEM:

3-1. BATTERY:

The power for the lights aboard and engine starting is supplied by 12-volt storage batteries.
The engine is equipped with a 12V-35A alternator with IC regulator made by Hitachi. This system rapidly charges the battery until it reaches capacity and then shuts itself down and provides only a trickle charge to keep the battery full charged.
The stowage for two 70 AH batteries is located under the settee to starboard. Secure the batteries to the hull.

NOTE: INSTALLATION:

1) MAKE SURE THAT THE BATTERY SWITCH IS TURNED OFF.
2) WHEN YOU CONNECT THE CABLES TO THE BATTERY TERMINALS, BE EXTREMELY CAREFUL. FIRST CONNECT THE POSITIVE CABLE (RED) TO THE POSITIVE TERMINAL MARKED (+), THEN THE NEGATIVE.
   FAILURE OF THIS RESULTS THE DAMAGE OF IC REGULATER IN THE ALTERNATOR IN A MOMENT.

3-2. BATTERY SWITCH:

The battery switch is located on the bulkhead between the starboard settee and galley. The basic wiring diagram is shown in Fig. 23.
The battery switch will control;

a) which battery you are going to start the engine with and
b) which battery will be charged.

This is done by switching the battery selector switch from "OFF" to position "1" or "2".

NOTE: 1) WHEN YOU START ENGINE, TURN THE SWITCH TO "1" OR "2" NO MATTER HOW YOU START IT BY HAND OR NOT, EXCEPT THE CASE YOU DISENGAGED THE ALTERNATOR FROM THE ENGINE.
2) THE "BOTH" POSITION SHOULD NOT BE USED UNLESS NEITHER BATTERY HAS SUFFICIENT POWER BY ITSELF TO START THE ENGINE.
3) WHEN YOU SHUT DOWN THE ENGINE AND POWER IS NO LONGER NEEDED, TURN THE BATTERY SWITCH OFF.

3-3. ELECTRICAL SWITCH PANEL:

All control switches and fuses are installed in the electrical switch panel to the port side of the navigator's seat, with the exception of the engine key switch and starter button in the cockpit and the extra switch for the electric bilge pump in the head compartment. The electric bilge pump switches are PUSH ON and automatic stop type and the pump will stop automatically when bilge water is pumped out.

Each cabin light has its own switching system also.

Fuses for the blower, fuel gauge and hour meter are behind the engine instrument panel.

NOTE: The electric bilge pump is OPTIONAL.

3-4. BILGE BLOWER:

The bilge blower is installed under the cowl vent to port quarter deck.

The engine key switch works as the blower switch. A 10 ampere fuse is behind the engine instrument panel.

3-5. ELECTRICAL SYSTEM DIAGRAM: (includes several options)

* SPECIFICATION SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

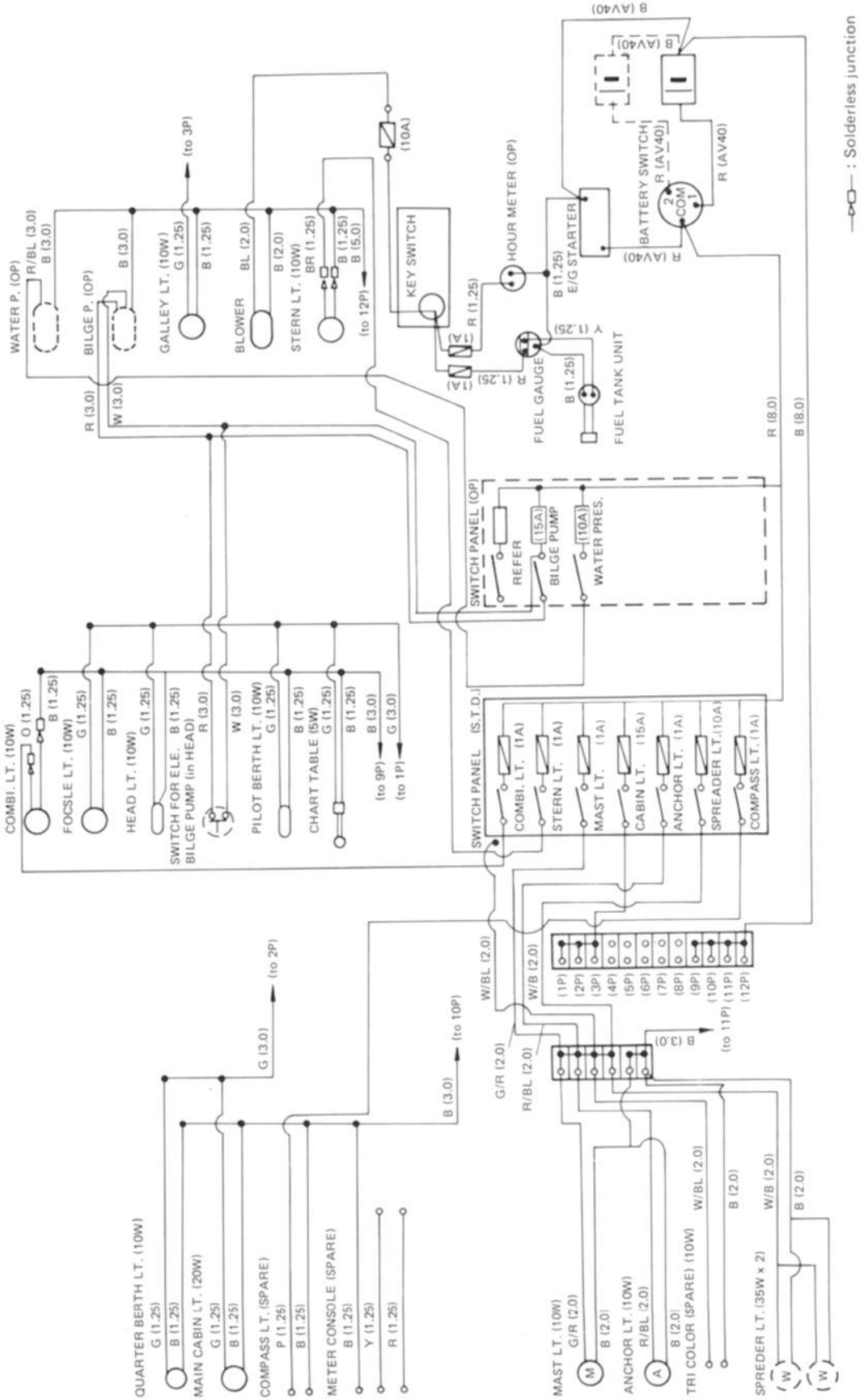


Fig. 23

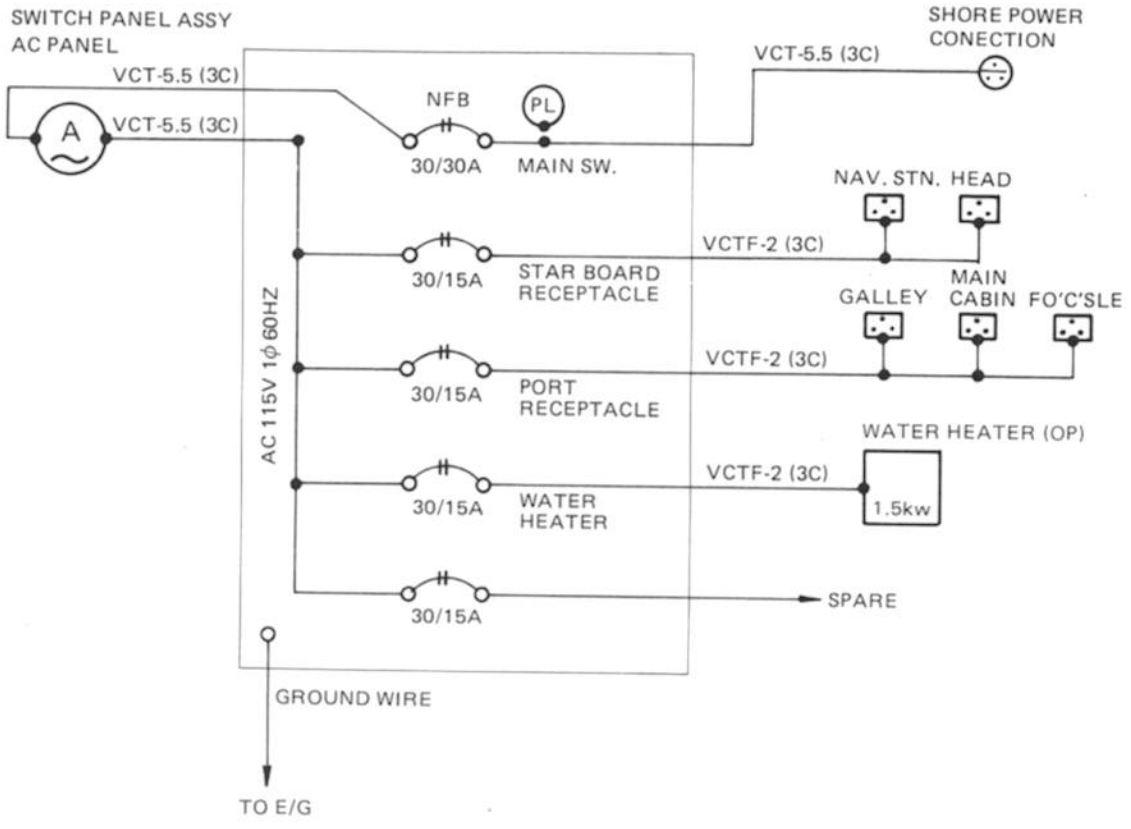


Fig. 24 SHORE POWER

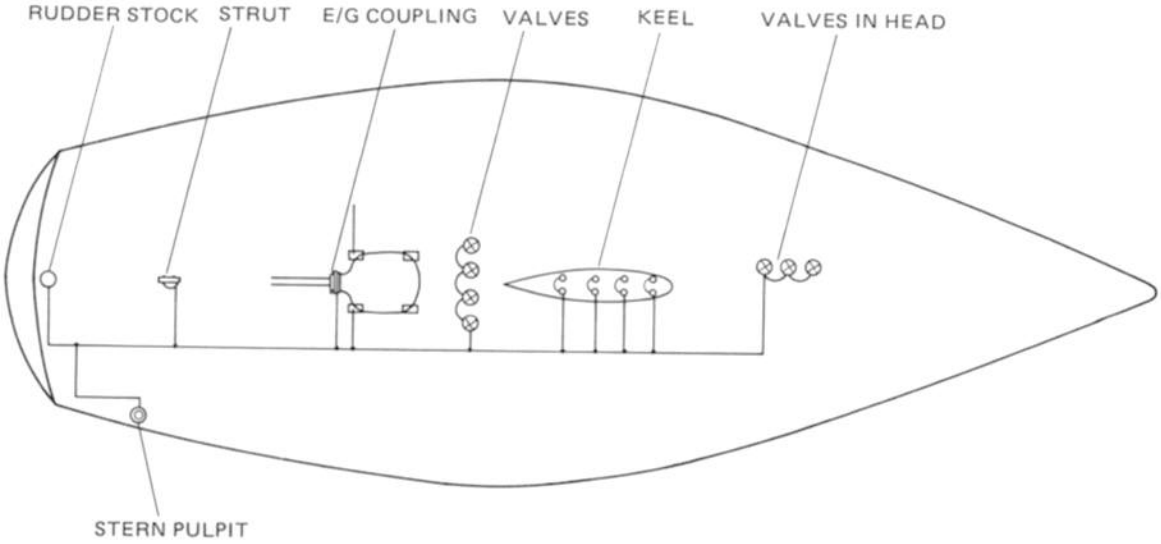


Fig. 25 ANTI-CORROSION WIRING

4. ENGINE:

The YAMAHA-30 (MODEL: AJ2) is equipped with a 4-cycle, two cylinder YANMER Model 2GM diesel engine. These engines have 2.62 : 1 reduction gear in the transmission gear box. The engines are controled from the cockpit by Morse single-lever controls with 33-C Red Jacket Cables.

NOTE: MORSE CONTROLS DIVISION
NORTH AMERICAN ROCKWELL
Hudson, Ohio 44236

These engines are reliable and easy to operate, as are the controls, but there are a number of essential checks that must be made prior to operation in order to ensure continued reliability. Remember, the more you know about the operation of the auxiliary, the less likely it is to give you trouble. THIS SECTION IS SUPPLEMENTARY. THEREFORE, READ "YANMER OPERATION MANUAL" CAREFULLY.
In every case, the fuel supply, cooling system, oil level in engine and oil level in transmission should be checked.

4-1. BEFORE STARTING ENGINE:

4-1-1. FUEL SUPPLY:

(1) Fuel is supplied by one 60 liter (15.8 US gals) tank which is located under the starboard cockpit seat.
(2) The fuel filler cap is located on the starboad side deck (see Fig. 3). The air vent is connected to the stern pulpit.
(3) Open the fuel supply valve on the top of the fuel tank.
(4) Turn on the valve of the fuel filter.

4-1-2. OTHER CHECK POINTS:

(1) Check the oil level in engine, oil level in transmission, the tension on V-belt, each terminal and that the clutch level is NEUTRAL.
(2) Turn the battery switch from "OFF" to position "1" or "2".
(3) Open the sea water cooling sea valve which is under the removable part of cabin sole.

These can be done from below. The rest of the starting operation is conducted from the cockpit.

4-2. STARTING ENGINE:

4-2-1. ELECTRICAL STARTING:

(1) Pull out the engine warm-up knob under the control lever and put the control lever in the "half speed" position.

NOTE: BEFORE STARTING MOTOR, MAKE SURE THIS CONTROL IS IN NEUTRAL POSITION.
With Control in Neutral Position, the knob can be pulled out — This will allow clutch to remain in neutral while control lever can be moved to obtain desired starting throttle.

(2) Turn the switch key to "ON" position. (The warning buzzer will sound.)
(3) Press the starter button to start the engine. As soon as the engine starts, remove your finger from the button.
(4) Move the control lever back to the idle position and left the engine warm up for at least five minutes.

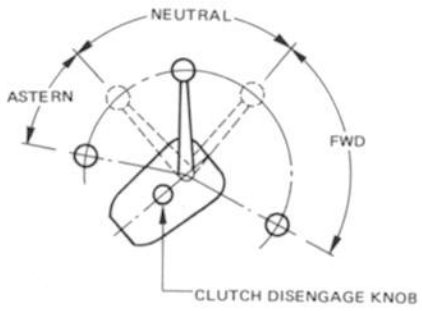


Fig. 26

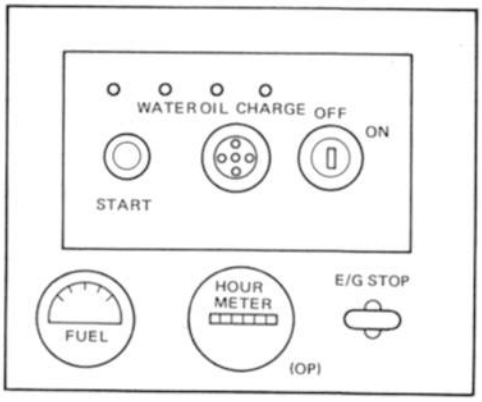


Fig. 27

NOTE: 1) Do not run the starter motor for more than 15 seconds at a time.
Should the engine fail to start, wait for at least one minute before operating the starting motor again.
2) Do not turn the battery switch or key switch off while the engine is running.
3) Be sure to check that the charging light and the oil pressure and cooling water warning lights go off.
4) Check that the cooling water is coming out of the exhaust on the transom.

4-2-2. HAND STARTING:

(1) Turn the battery switch to "1" or "2" position.
(2) Pull out the engine warm up knob and place the control lever in the "HALF" position.
(3) Turn the switch key to "ON" position.
(4) Disengage the decompression lever and turn the starting handle vigorously 5 ~ 6 times.
(5) When sufficient momentum has been obtained, release the decompression lever and turn the starting handle firmly.

4-3. WARMING UP:

(1) Operate the engine at around 750 ~ 800 RPM for at least five minutes to completely warm up the engine.
(2) If the engine is running normally, place the control lever at neutral detent and engage clutch by pushing in the engine warm up knob and then gradually increase speed.

NOTE: WHEN RUNNING THE ENGINE FOR THE FIRST TIME AFTER LAUNCHING, RUN IT FOR 15 ~ 20 MINUTES AT ABOUT 1,000 RPM.

4-4. POINTS TO CHECK DURING OPERATION:

(1) Fuel Oil: Check the fuel gauge.
Be sure to add fuel before the gauge shows empty.

(2) Lubrication Oil: Check that the oil pressure warning light is OFF.

(3) Check occasionally that the cooling water is coming out of the engine exhaust on the transom and that the cooling water temperature warning lamp is OFF.

(4) Check the color of the exhaust. Excessively black exhaust fumes indicate that the load is too great and should be reduced.

(5) Abnormal Sound: If the engine produces unusual noise during operation, stop the engine immediately and check it carefully.

NOTE: PLEASE READ "YANMER OPERATION MANUAL" CAREFULLY.

4-5. SECURING ENGINE:

(1) Gradually reduce the speed to LOW.

(2) Place the control lever at the neutral detent and idle the engine for about 5 minutes.

(3) Disengage the clutch and race the engine at 3,600 rpm before stopping to expel any gas in the cylinder.

(4) Set the engine to the lowest revolution speed (about 750 ~ 800 rpm), cut the fuel, and stop the engine.

NOTE: 1) NEVER USE THE DECOMPRESSION LEVER TO STOP ENGINE.
2) To cut the fuel pull the fuel shut-off knob lightly and hold it until the engine stops completely. It will take several seconds to stop because of its momentum. And also the sound of the engine is very quiet there is a tendency to pull the fuel shut-off knob too strongly to break.

(5) Turn off:
1) Key switch
2) Battery switch
3) Cooling water sea valve
4) Fuel filter cock

(6) While the engine is still warm wipe off any dirt and grime on the engine.

NOTE: When starting and stopping the engine with the key switch "ON", the warning buzzer will sound. This does not indicate engine trouble.

PRACTICAL NOTE:

READ "YANMER OPERATION MANUAL" CAREFULLY.

(1) Breaking In:
The new engine must be carefully broken in during the first 50 hours. Operate below 3,000 rpm.
After the breaking-in period, retighten any important nuts and bolts that are loose.
Change the lubrication oil and the oil filter element or at least clean it.

(2) Heeling Angles Under Sail and Power:
KEEP THE HEELING ANGLE OF THE BOAT LESS THAN 20 DEGREES, OTHERWISE OVERHEATING OR SERIOUS DAMAGE OF THE ENGINE MAY RESULT.

(3) When the battery has not sufficient power by itself to start the engine, it may be started by using the decompression lever.

(4) Bleeding (Air Venting) the Fuel System:
In the event of air entering the fuel system, it will be necessary to bleed the whole fuel system before starting can be effected. Air in the fuel system can be either due to running out of fuel or leakage on the suction side of the fuel supply line.

1) Pull out the knob for engine warm-up and place the control lever in the "half speed" position.
2) Open the fuel supply valve.
3) Loosen the air bleed bolt on the top of the second fuel filter by one and a half turns.
4) Move the priming lever of the fuel feed pump up and down. The fuel feed pump is located on starboard side of the engine.
5) Loosen the high pressure pipe from the fuel injection pump. Turn the engine with the starting motor, and at the same time tighten the cap nut of the high pressure pipe if fuel comes out.
6) Put the decompression lever in the "No Compression" position and turn the starting handle and make sure that the injection sound of the fuel is a strong high pitched "hiss".

(5) Cleaning the Fuel Filter:
Clean the fuel filter periodically. Replace the dirty element. Do not forget to bleed the filter after cleaning.

(6) Cleaning the Bilge of the Fuel Tank:
Clean the bilge of the fuel tank every three months.

(7) Water Trap:
Before the float reaches the red line drain out the water through the drain plug.

(8) Propeller Shaft Packing Gland:
When the engine is running and in gear, there should be a few drops of water coming out of the gland or else the packing locknuts are too tight and will burn up.
A drop of sea water every 10 ~ 20 seconds is standard, so adjust the locknuts.
At moorage, you may tighten the locknuts to stop the leakage BUT DO NOT FORGET TO ADJUST THE LOCKNUTS BEFORE YOU START THE ENGINE.
Replace the packing at least once a year.
Be sure you get SQUARE CUT WAX IMPREGNATED FLAX PACKING, of 6.4 mm and that it is NOT WOUND AROUND THE SHAFT but cut to form three single rings which are "stacked" on the shaft so that the cuts are staggered.

(9) Periodical Replacement:

Every 1 year	Gland packing
Every 2 years	Fuel filter hose
	Fuel supply line
	Fuel return line
	Exhaust rubber hose
	Stern tube rubber hose
Every 3 years	Fuel tank

(10) Fuel Consumption:

It should be noted that for engine RPMs greater than 2,500, fuel consumption goes up much faster than speed.

According to our sea trial;

at 1,000 rpm	2.32 kt	0.56 liter/hour
1,500 rpm	3.66 kt	0.78 liter/hour
2,000 rpm	4.76 kt	0.98 liter/hour
2,500 rpm	5.68 kt	1.43 liter/hour
3,000 rpm	6.21 kt	2.14 liter/hour
3,330 rpm	6.45 kt	3.01 liter/hour

4-6. SHAFTING:

(1) SHAFTING:

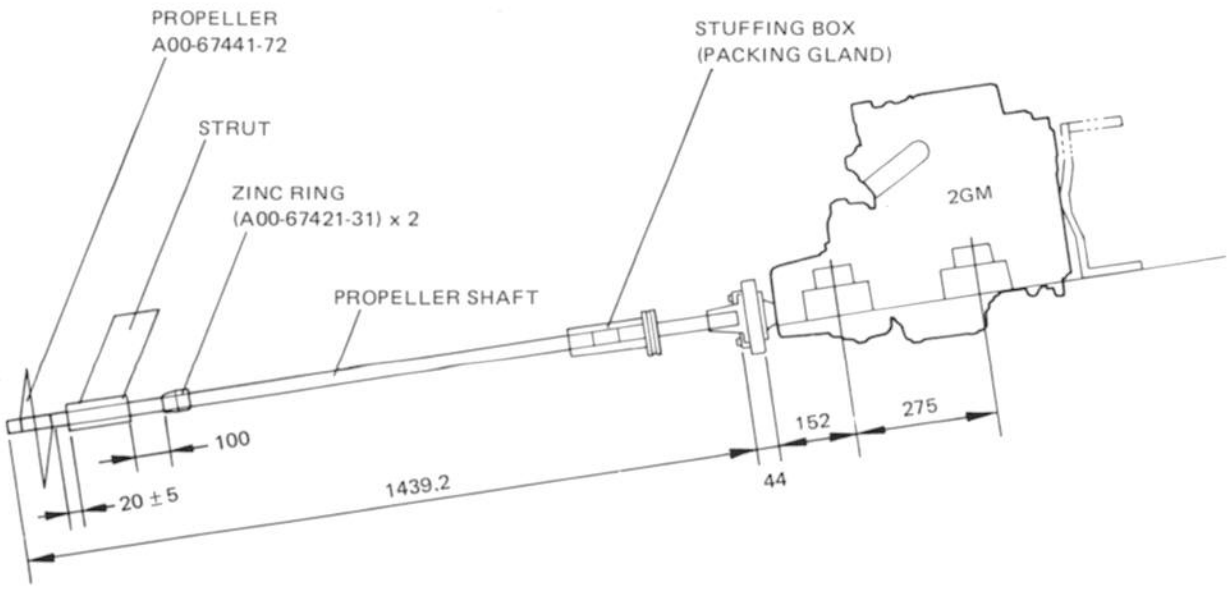
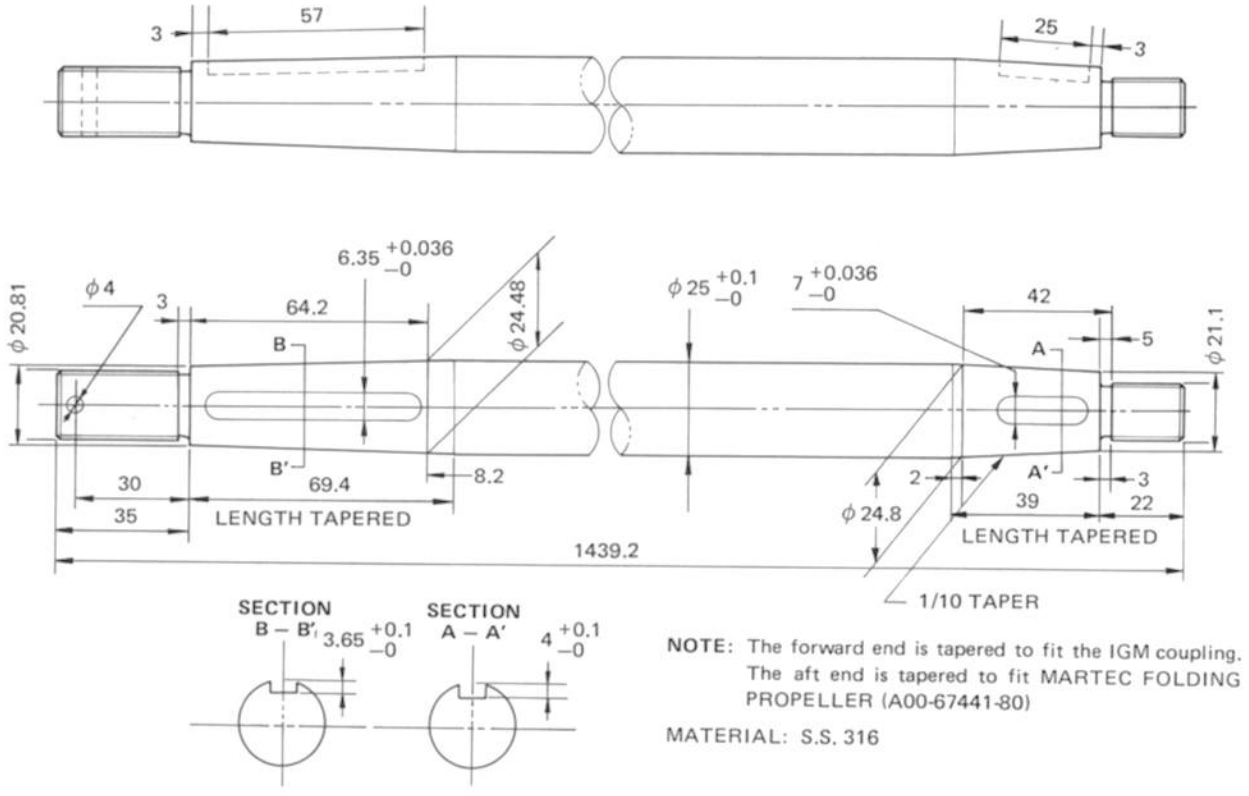


Fig. 28 SHAFTING

(2) PROPELLER SHAFT: (AJ2-67411-00)



NOTE: The forward end is tapered to fit the IGM coupling. The aft end is tapered to fit MARTEC FOLDING PROPELLER (A00-67441-80)

MATERIAL: S.S. 316

Fig. 29 PROPELLER SHAFT

(3) ZINC-RING: (A00-67421-31) x 2

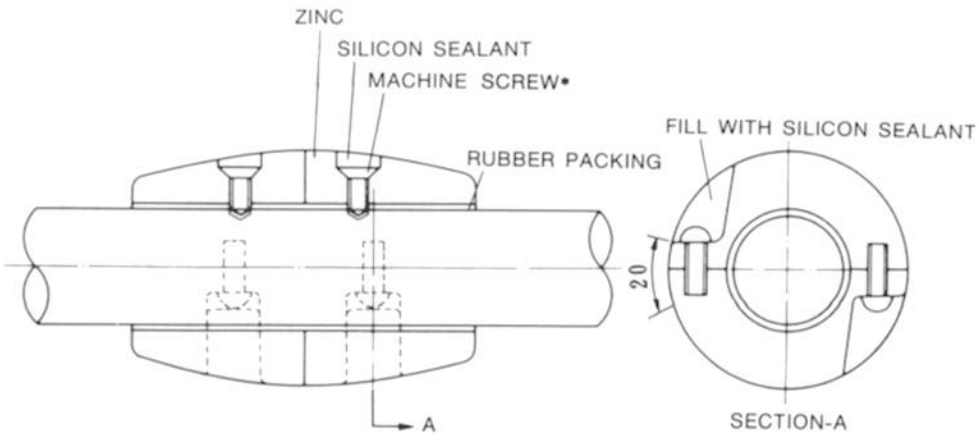


Fig. 30

* THE MACHINE SCREWS SHOULD TOUCH TO THE PROP. SHAFT THRU THE HOLES ON THE RUBBER PACKING.

5. PLUMBING SYSTEM:

5-1. PLUMBING SYSTEM DIAGRAM:

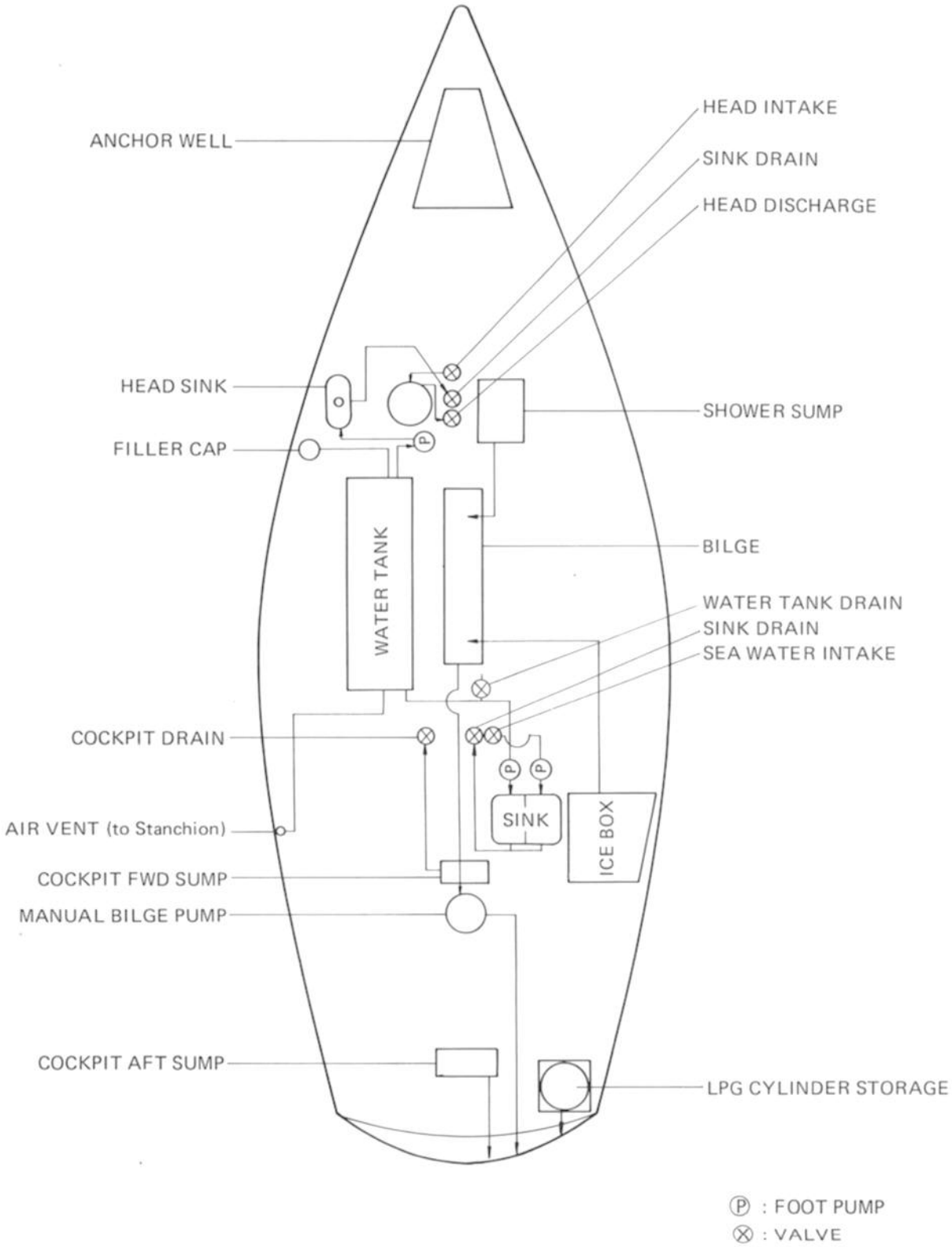


Fig. 31 PLUMBING SYSTEM (STANDARD)

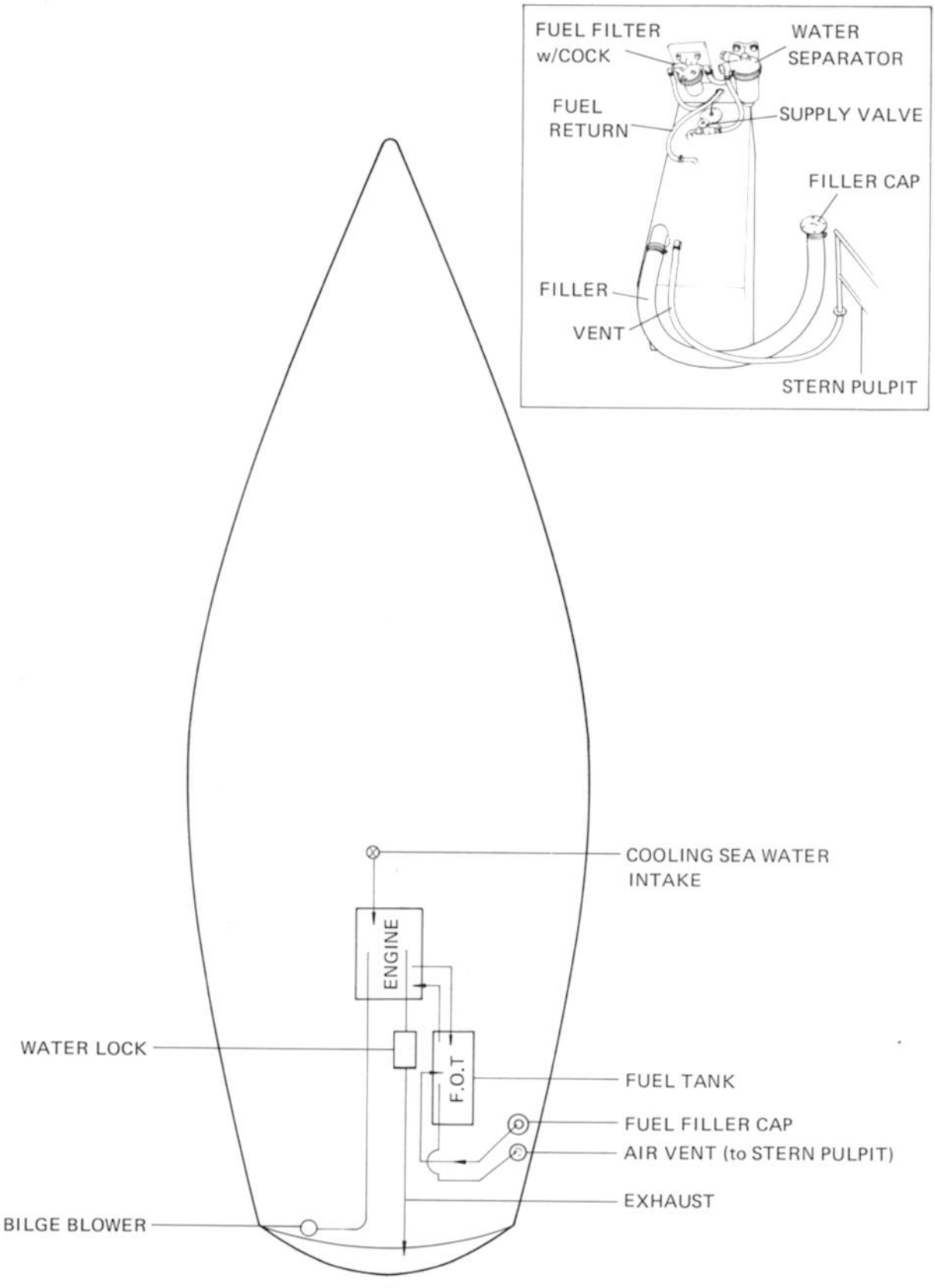


Fig. 32 FUEL AND EXHAUST SYSTEM

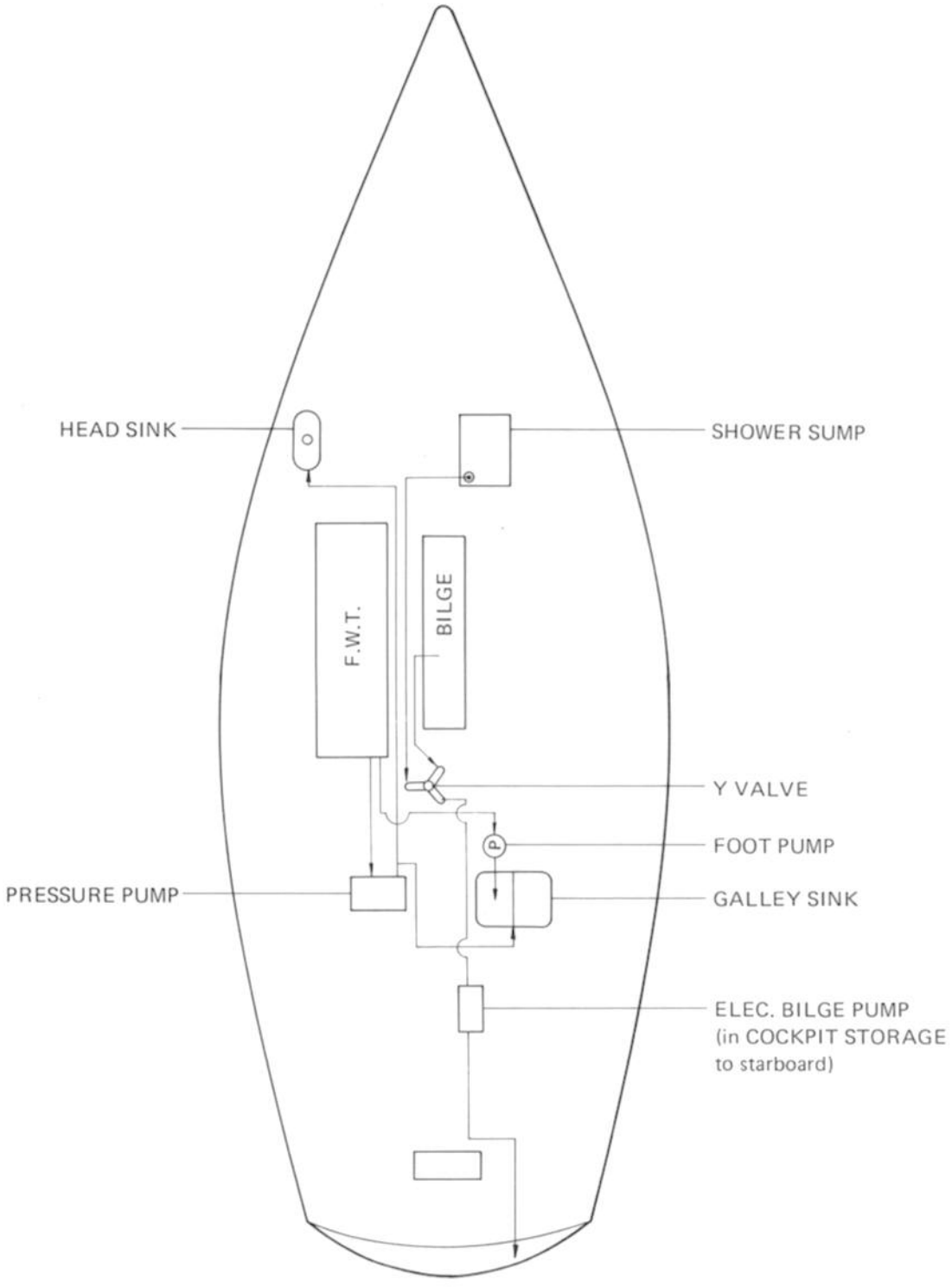


Fig. 33 WATER PRESSURE AND ELECTRIC BILGE PUMP SYSTEM (optional)

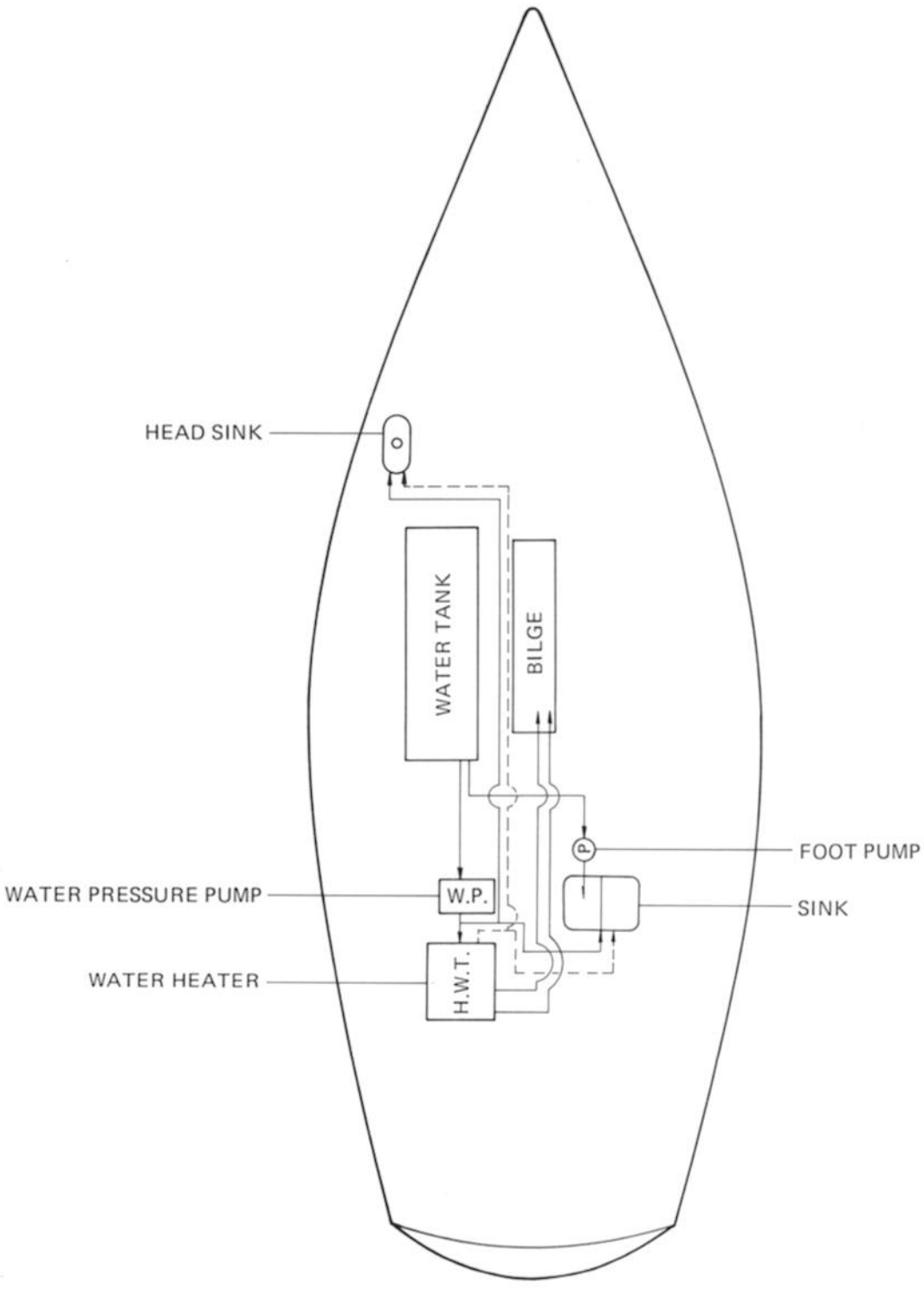


Fig. 34 HOT WATER SYSTEM (optional)

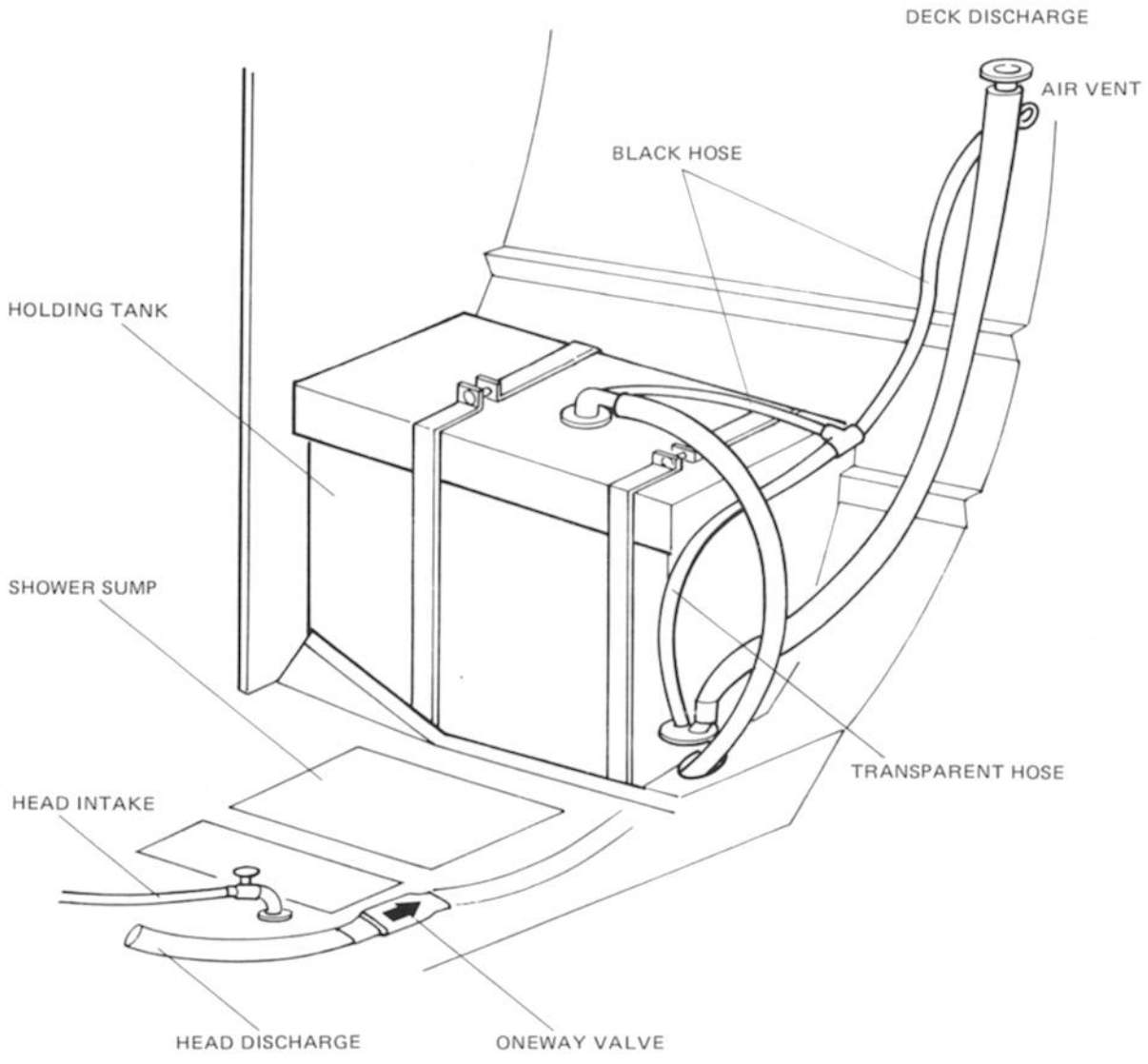


Fig. 35 HOLDING TANK (U.S.)
(UNDER THE HANGING LOCKER)

5-2. FRESH WATER TANK:

A 200 liters (52.8 US gallons) fresh water tank is located under the port settee. The filler cap is on the port side deck. The air vent is connected to the stanchion.
The tank can be drained through the drain valve under the removable part of the cabine sole.

5-3. GALLEY:

5-3-1. Galley Sink and Water Supply:

The sink drain shut-off valve and the sea water intake valve are under the removable part of the cabin sole. When you use the foot pump, please use it gently.

5-3-2. Ice Box:

The total capacity of the ice box is 100 liters. It will hold about 20 kg (40 pounds) of block ice. Please note it drains into the bilge directly.

5-4. HEAD:

5-4-1. Head: (The head is not installed in U.S. Model)

(1) Before operating, ENSURE THAT BOTH INTAKE AND DISCHARGE VALVES ARE OPEN: otherwise, damage may result.
(2) USE ABSORBENT PAPER, and DO NOT PUT PAPER TOWELS, MATCHES, RAGS, ETC. INTO BOWL. THEY WILL PLUG THE VALVES.
(3) And read the "TOILET OPERATING INSTRUCTION".
(4) Turn OFF both seacocks after using.

NOTE: When running in rough seas, it is prudent to pump the bowl dry to prevent splashing and turn off the seacocks.
When the boat is unattended, both seacocks should be turned off.
For your convenience we will repeat the instructions here.
"SL-400", a product of SIMPSON-LAWRENCE LIMITED, 218/228 Edmiston Drive, Glasgow, G51 1YT Scotland.

1. PRESS HANDLE IN TOWARDS BASIN AND MOVE UP AND DOWN (A). This will flush and discharge simultaneously.
2. As basin fills RELEASE PRESSURE from the handle; CONTINUE PUMPING (B). This empties basin.
3. Repeat 1 and 2, as necessary.

IMPORTANT: ENSURE THAT SEACOCKS ARE OPEN before operating; otherwise, damage may result.
USE ABSORBENT PAPER, and do not put anything in basin which may choke valves.
DO NOT FORCE HANDLE below horizontal position.

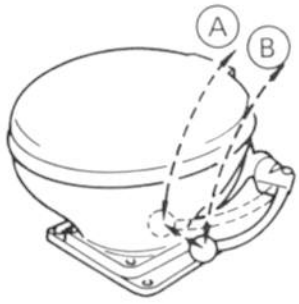


Fig. 36

5-4-2. Head Sink and Shower:

The faucet of the sink is a shower head and is operated by the foot pump.
It is prudent to close the sink drain valve when running in rough seas.
On a standard boat the shower will drain into the bilge directly. It is recommended to rinse the bilge with detergent after shower.

5-5. MANUAL BILGE PUMP:

One manual bilge pump is mounted in the cockpit.
The suction end is in the bilge and it drains through the transom.
Periodically clean the bilge strainer.

5-6. COCKPIT DRAIN:

The forward cockpit drain shut-off valve is under the removable part of the cabin sole. The aft cockpit sump drains to the transom without shut-off valve.

5-7. ANCHOR WELL:

On the foredeck there is a self-draining anchor well.

5-8. ELECTRIC BILGE PUMP: (optional)

An optional electric bilge pump will be installed in cockpit storage to starboard.
There are two switches, one in the head and another on the distribution panel. They are PUSH ON and automatic OFF type. By the "Y" valve which is under the removable part of the cabin sole you may select which part is to be pumped out, bilge or shower sump. The bilge will drain through the transom.
Periodically clean the bilge strainer.

5-9. HOLDING TANK: (optional)

A 95 liter (25 US gallons) holding tank will be installed under the hanging locker to starboard.

5-10. PRESSURE WATER SYSTEM: (optional)

(1) PAR pump a JABSCO product, Model 36955-1000 will be installed.

(2) The foot pump in the head compartment will not be installed.

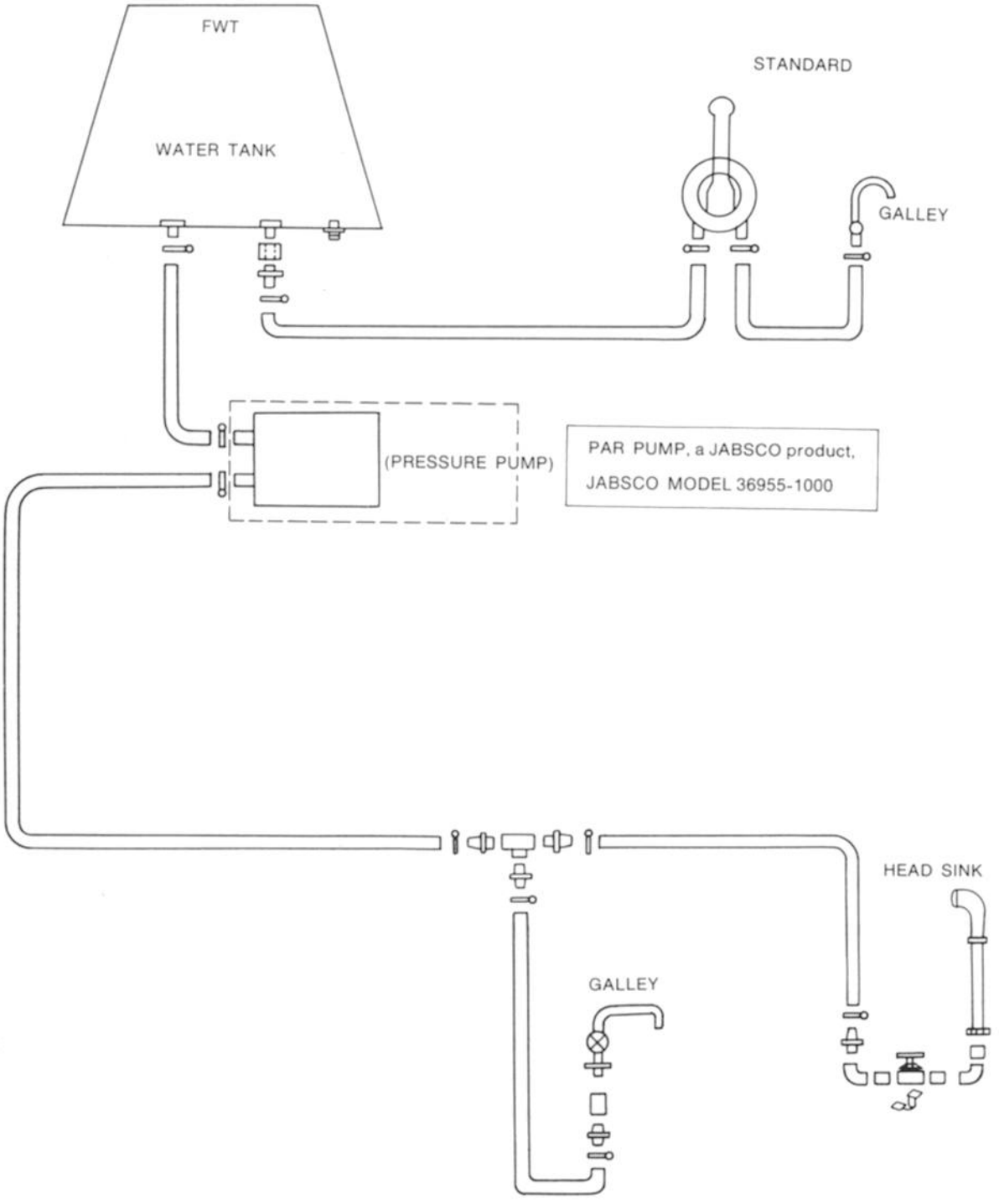


Fig. 37

5-11. HOT WATER SYSTEM: (optional)

An Electric Water Heater, Model EHM6-SM, 6 gal, will be installed.

Atwood Mobile Products
4750 Hiawatha Drive
Rockford 1L 61101
(815) 877-7461

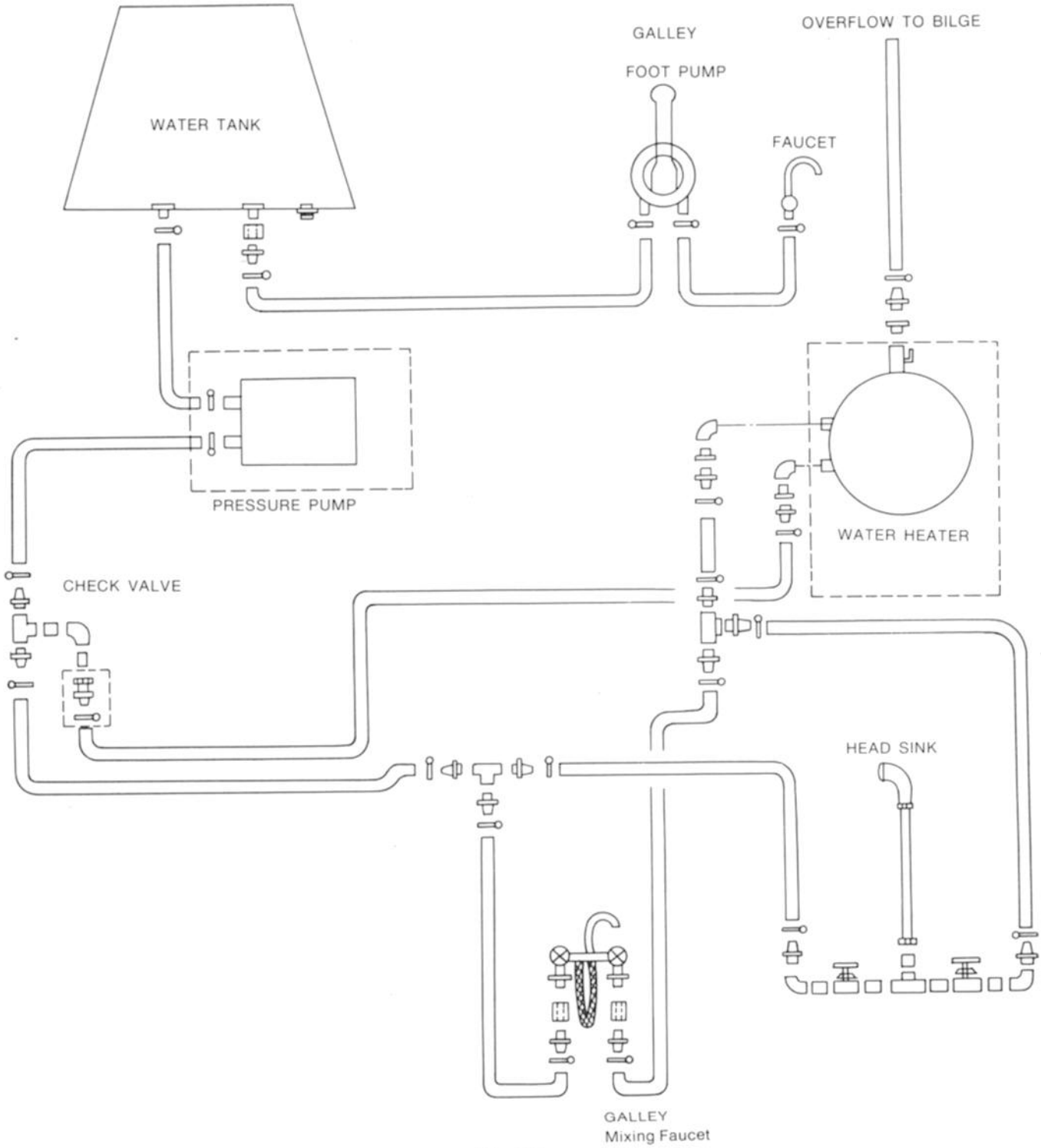


Fig. 38

6. MAINTENANCE TIPS:

Get in the habit of checking fittings for cracks, wear or fatigue. Particularly, check locknuts which often seem to come loose.

6-1. FIBERGLASS SURFACES:

Maintenance of today's fiberglass sailboats is extremely simple when compared with the upkeep necessary to keep boats of other materials in "Shipshape and Bristol Fashion".
The glossy outer surface of your laminated fiberglass boat is known as "gelcoat", a polyester resin into which coloring pigments have been incorporated.
It should be hosed with fresh water after every outing. At least once a year the smooth gelcoat surface should be waxed and pollished with a good automotive wax or a boat wax. A power buffer will make work on the large areas like the hull easier, but care must be taken not to cut through the gelcoat surface, particularly at corners and edges. For power cleaning use a LIGHT abrasive cleaner, while a heavier rubbing compound may be used when polishing by hand.
After buffing, wax and polish all surfaces except the non-skid areas.

NOTE: GELCOAT:

A can of gelcoat is enclosed with your boat for touch up. It is of ISO type and does not include catalyst, promoter or paraffin wax.

At 25 degrees Celsius temperature:

1) Add the promoter – 0.5% by weight and mix throughly.
2) Make a 2% paraffin wax solution in stylene and add this solution 4% by weight to the gelcoat and mix throughly and
3) Add the catalyst – 1% by weight and mix throughly.

YAMAHA uses:

Promoter: Cobalt nafthenate, 6% solution in toluen.

Catalyst: Methyl isobuthyl keton peroxide, 75% solution in Di-methly phthalate or
Methyl ethyl keton peroxide, 55% solution in Di-methyl phthalate.

SAFETY PRECAUTIONS:

(1) ALLOW AMPLE VENTILATION.
(2) KEEP AWAY FROM OPEN FLAMES AND SPARKS.
(3) NEVER MIX JUST PROMOTER AND CATALYST TOGETHER–A VIOLENT EXPLOSION WILL RESULT.

6-2. STANDING RIGGING AND HALYARDS:

Hose down with fresh water to remove salt and dirt. Frequently take a trip aloft to check the entire rig. Check swaged terminals for cracks. Wire rigging must be examined carefully for broken strands and signs of frayed sections. If you find any, replace it. Especially check the places where you applied electric tape. Take the tape away, clean the wire, and then retape.
Particularly close scrutiny should be given to those sections which rest on sheaves.
When not under sail, KEEP THE HALYARDS TIED AWAY FROM THE MAST to prevent the mast from chafing.

NOTE: Periodical Replacement of Standing Rigging:
REPLACE STANDING RIGGING EVERY THREE YEARS.

6-3. SPARS:

Take along a rag and a bucket of fresh water to clean the rigging and mast on your way up. After cleaning the mast and boom with fresh water, lubricate periodically with light grease or spray with a protective film such as WD-40, Secure the boom snugly when your boat is not in use.

6-4. SAILS:

Sails should be folded for storage whenever possible. Periodically hose down sails with fresh water to remove salt. Pay attention to your sails and if any tears, rips or worn spots appear on the corners, or headboard, or stitching begins to chafe, make a note of the damage and its location. And at your convenience, take the sail to a sailmaker for a professional repair job.

6-5. TEAK:

The teak is varnished with Urethane Clear varnish. If it looses its gloss, apply several coats of urethane varnish after sanding with #120 paper.
A good rub with a chamois after hosing down will keep the gloss and also lengthen varnish life.

6-6. HARDWARE:

All blocks, sheaves, turnbuckles, and winches should be lubricated periodically with a light grease or sprayed with a protective film such as "WD-40".

6-7. BATTERY:

Regular care such as for your car battery should be taken. Lash it down on the hull with enclosed lashing strap. Periodically clean the terminals and apply anti-rust grease.

NOTE: 1) ELECTROLYTE LEVEL:
Check battery electrolyte level frequently. If any cell's electrolyte level is below the FULL mark on the battery case, add distilled water as required to bring the electrolyte level up to the mark.
Distilled water is available at any supermarket. It is sold for use in steam irons and is inexpensive.
DO NOT USE SEA WATER.

2) CLEANING:

Corrosion on the battery terminals causes leakage of current.
Clean them with a wire brush and coat with Vaseline.

SAFETY PRECAUTIONS

WHEN YOU WORK WITH BATTERIES, BE EXTREMELY CAREFUL TO AVOID SPILLING OR SPLASHING THE ELECTROLYTE. THE ELECTROLYTE IS SULPHURIC ACID AND CAN DESTROY CLOTHING AND CAUSE SERIOUS CHEMICAL BURNS.
WEAR SAFETY GLASSES. IF ELECTROLYTE IS SPLASHED INTO THE EYE, FLUSH WITH CLEAN WATER FOR APPROXIMATELY 15 MINUTES, AND GET PROMPT MEDICAL ATTENTION.

3) FIRE PREVENTION:

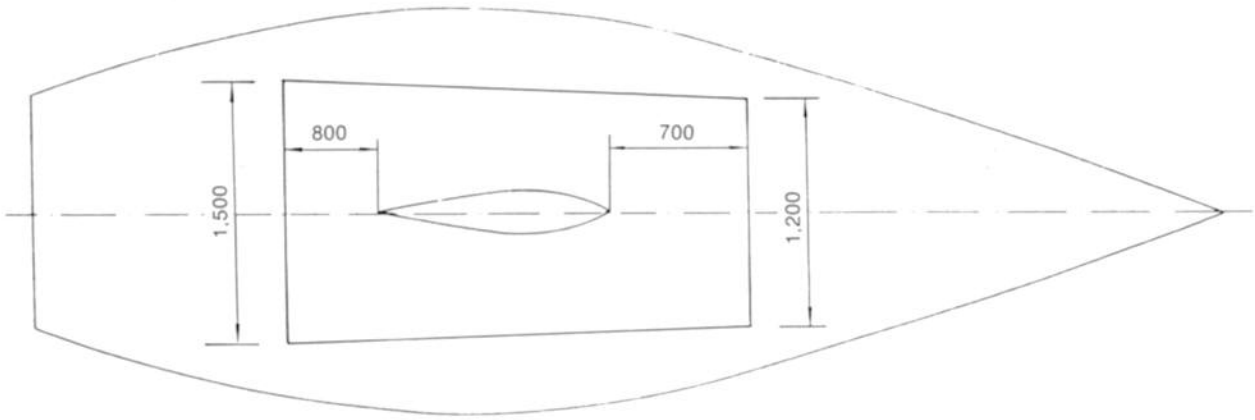
While batteries are being charged, highly explosive hydrogen gas forms in each cell.
DO NOT SMOKE NEAR ANY BATTERY BEING CHARGED OR WHICH HAS BEEN CHARGED RECENTLY.
TURN OFF BATTERY SWITCH BEFORE CONNECTING OR DISCONNECTING ANY ELECTRICAL CONNECTIONS.

6-8. ZINC-RING:

To protect under-water metal from galvanic action, two zinc-rings are attached. Usually they stand for 6 months, but periodically check them and if the volume is reduced to a half of the original size, please replace them.
It is important to keep the surface of the zinc-ring clean. Periodically scrape the surfaces to remove marine growth.

6-9. CRADLE:

The hull support of the cradle should have at least 150 mm / 6 inches of width. Apply felt or rubber sheet on it.



NOTE: CORNER (A) should be rounded.

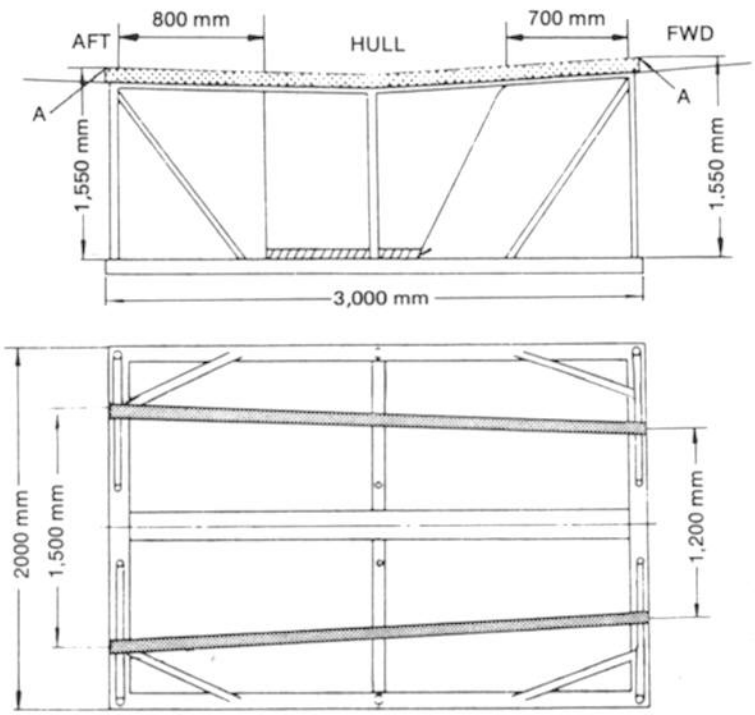
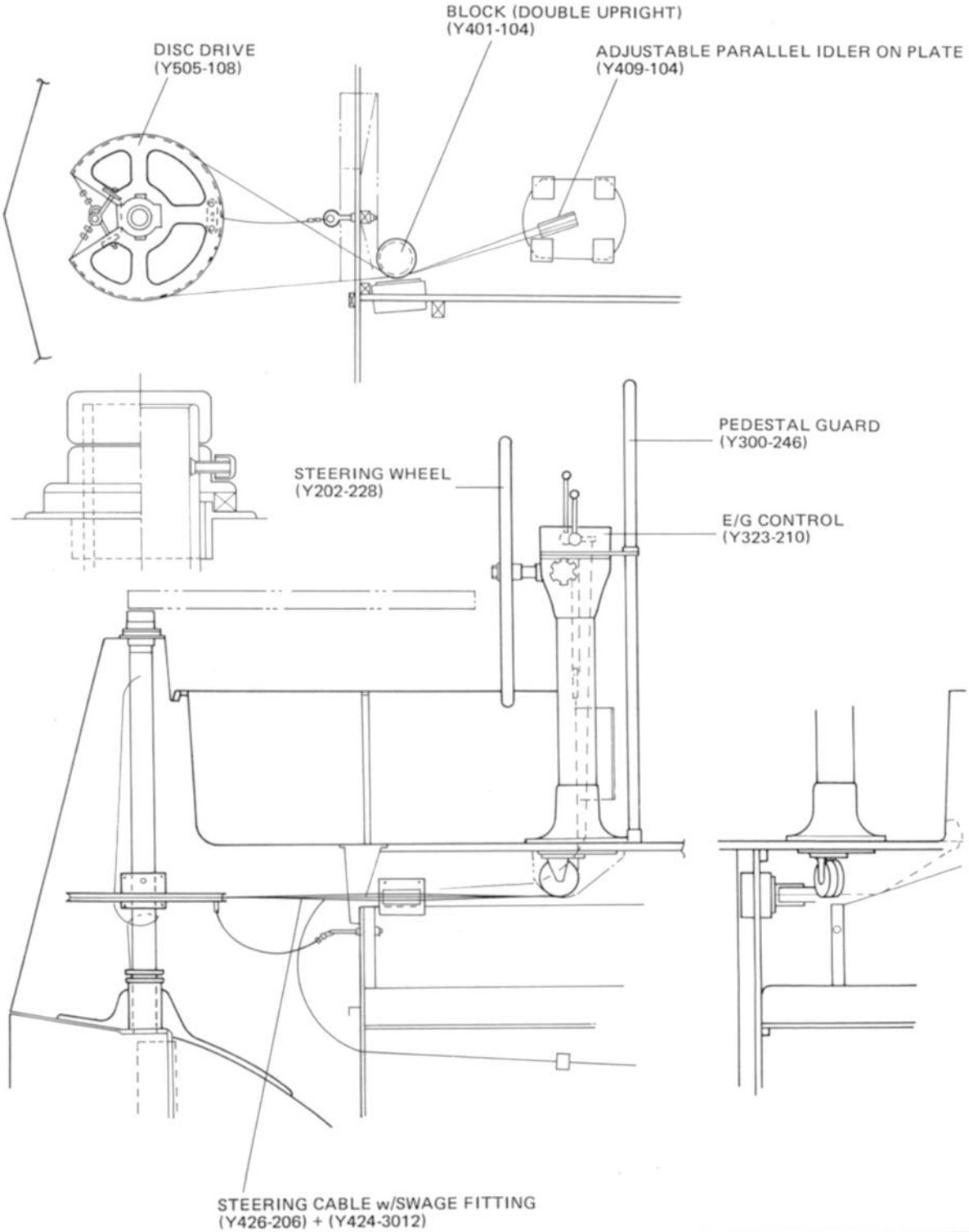


Fig. 39

7. MISCHELLANEOUS:

7-1. PEDESTAL STEERING SYSTEM: (optional)

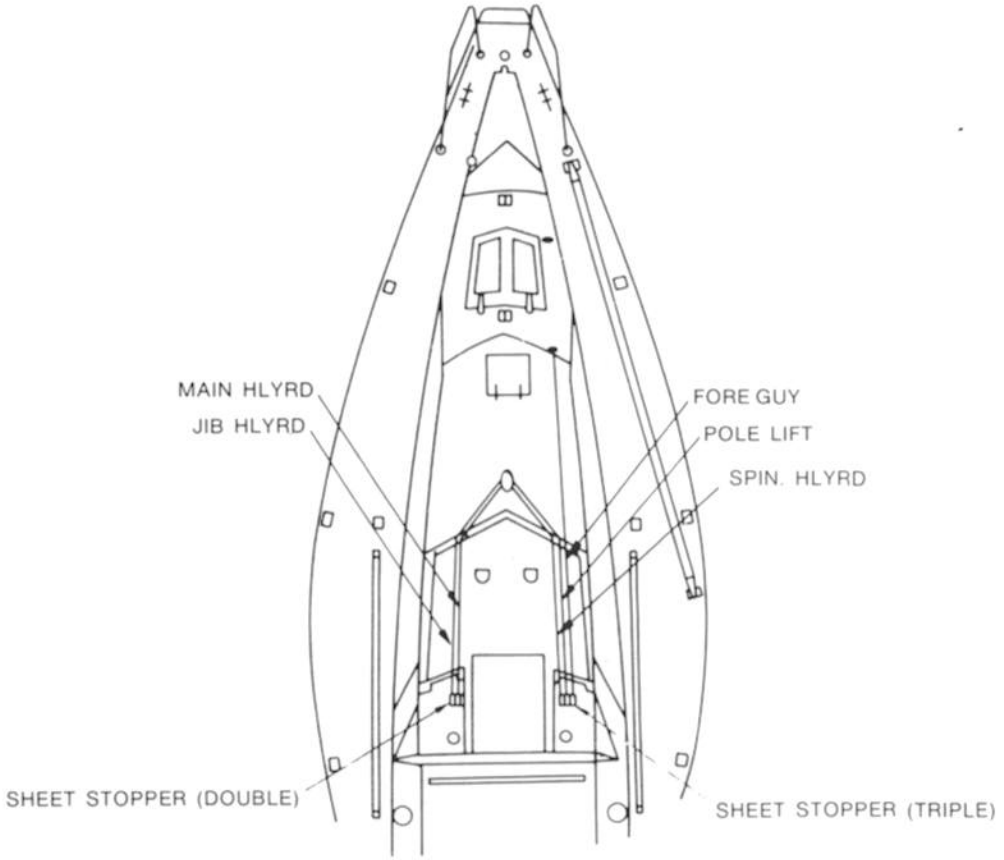


NOTE: ( ) MERIMAN YACHT SPECIALITY Parts No.

Fig. 40

7-2. DOUBLE HALYARD SYSTEM: (optional)

7-2-1. STANDARD: (for reference)



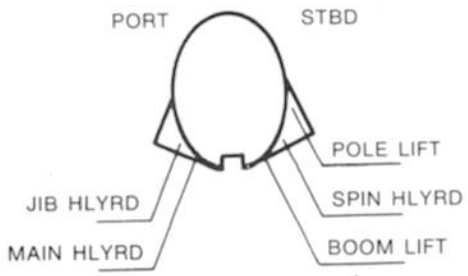
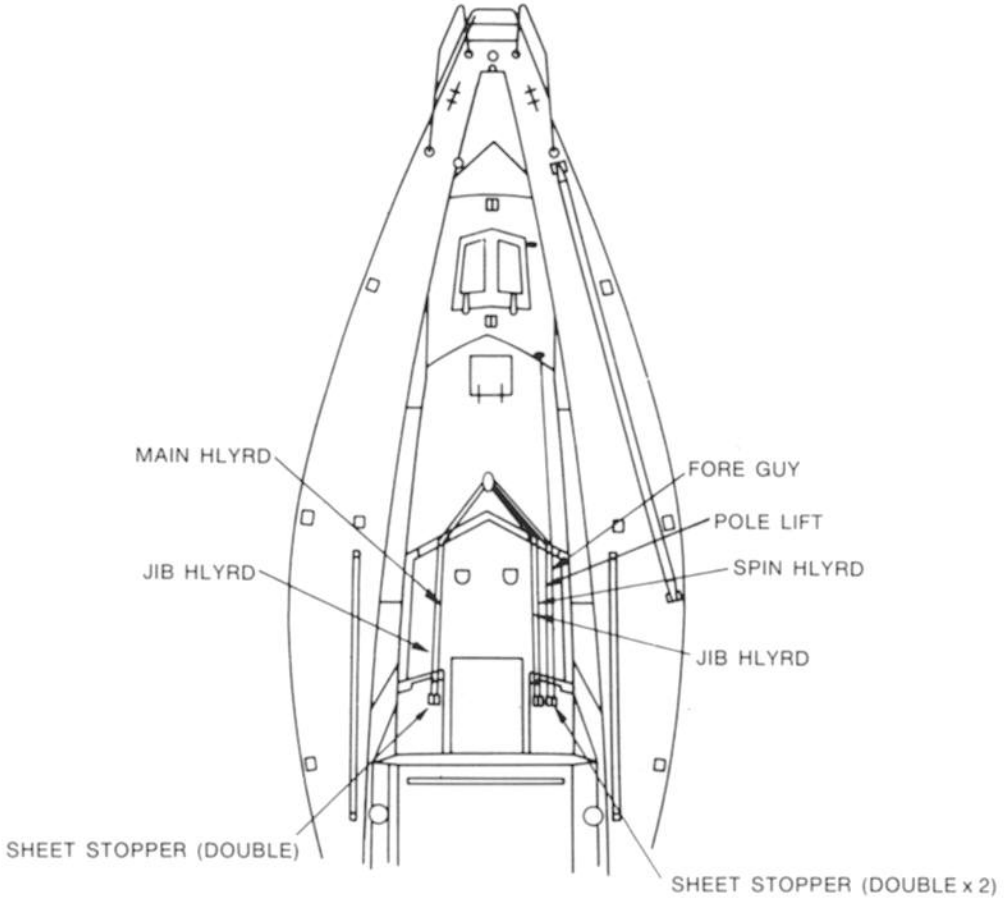
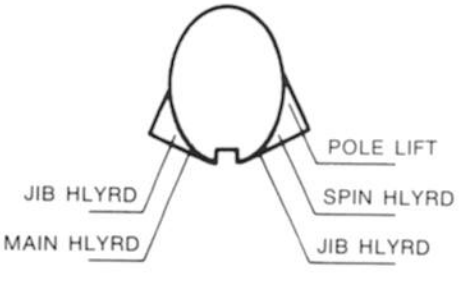


Fig. 41

7-2-2. DOUBLE JIB HALYARD: (TYPE A)





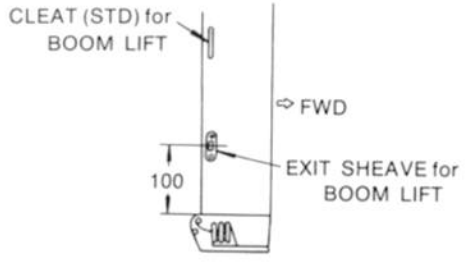
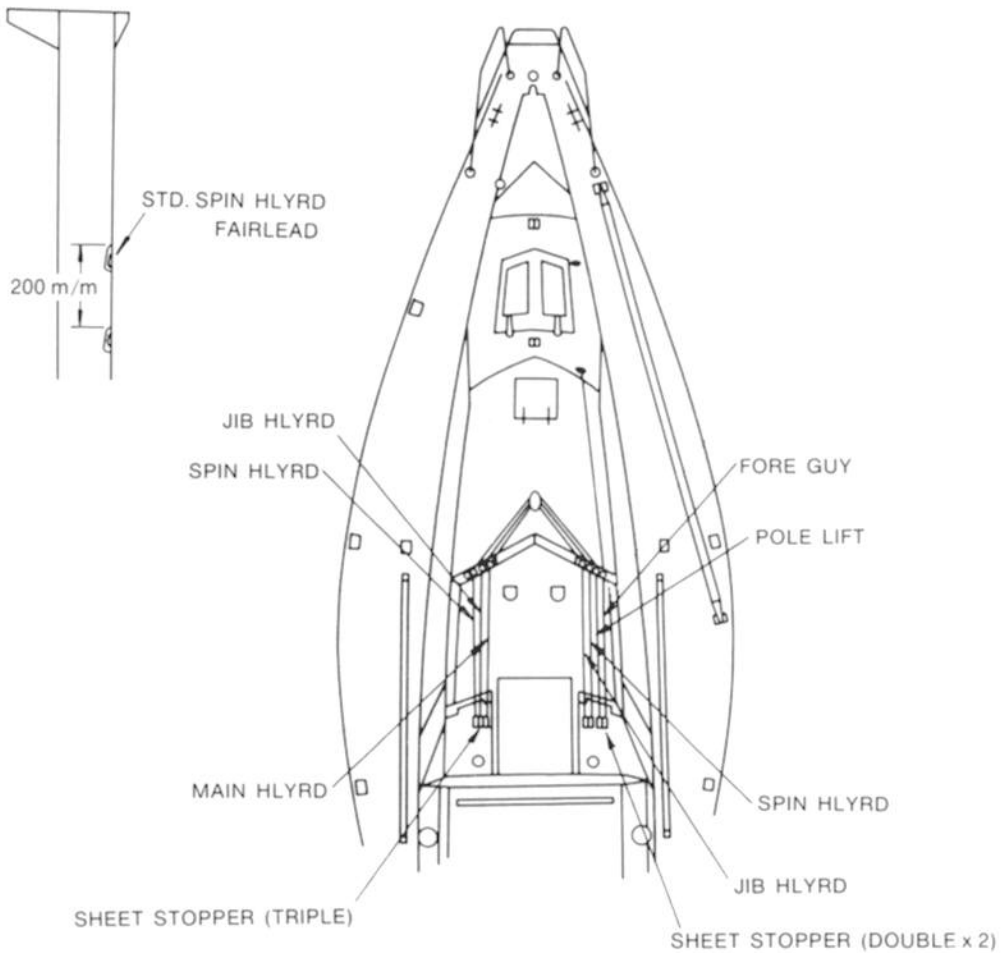
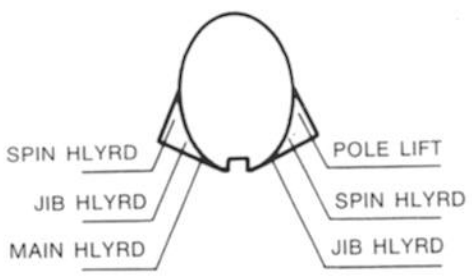
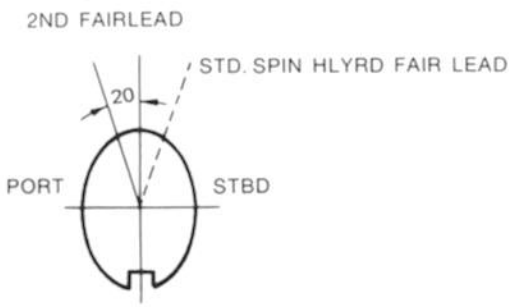


Fig. 42

7-2-3. DOUBLE JIB HALYARD & DOUBLE SPIN HALYARD: (TYPE B)



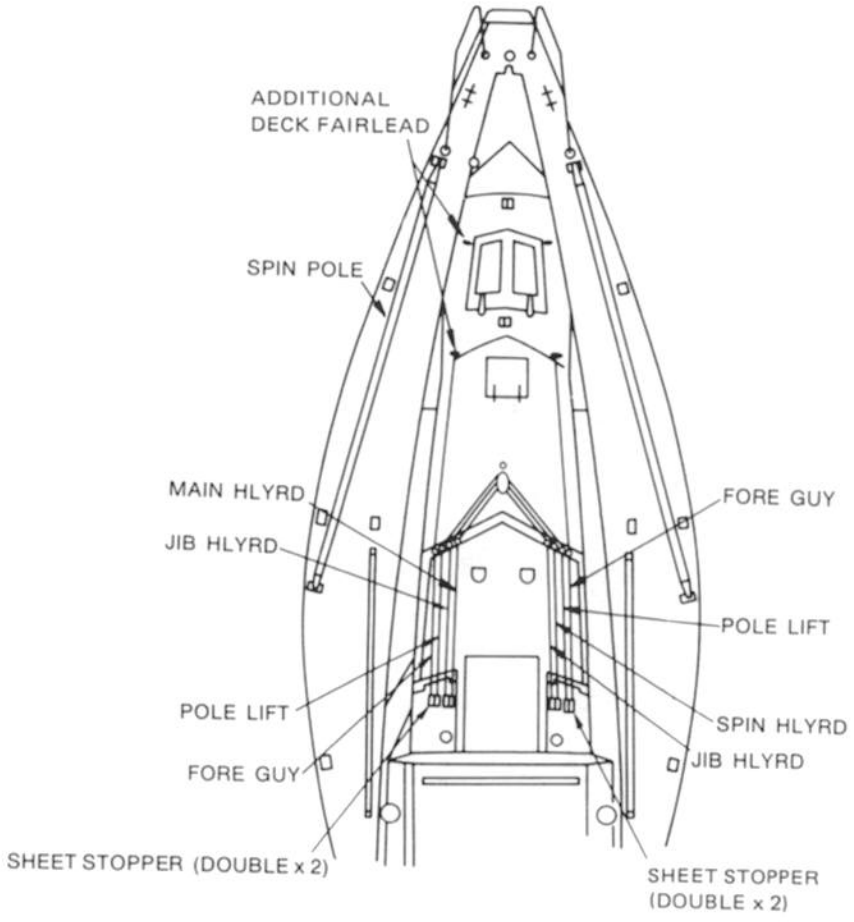


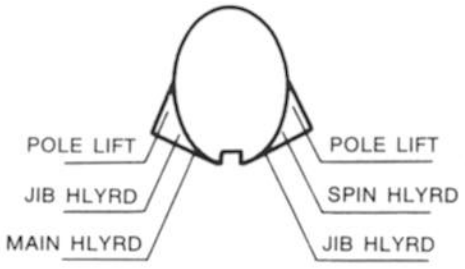


NOTE: EXIT SHEAVE FOR BOOM LIFT is same as TYPE A.

Fig. 43

7-2-4. DOUBLE JIB HALYARD & DUAL SPIN POLE: (TYPE C)





NOTE: EXIT SHEAVE FOR BOOM LIFT is same as TYPE A.

Fig. 44

7-2-5. DOUBLE JIB HALYARD, DOUBLE SPIN HALYARD & DUAL SPIN POLE: (TYPE D)

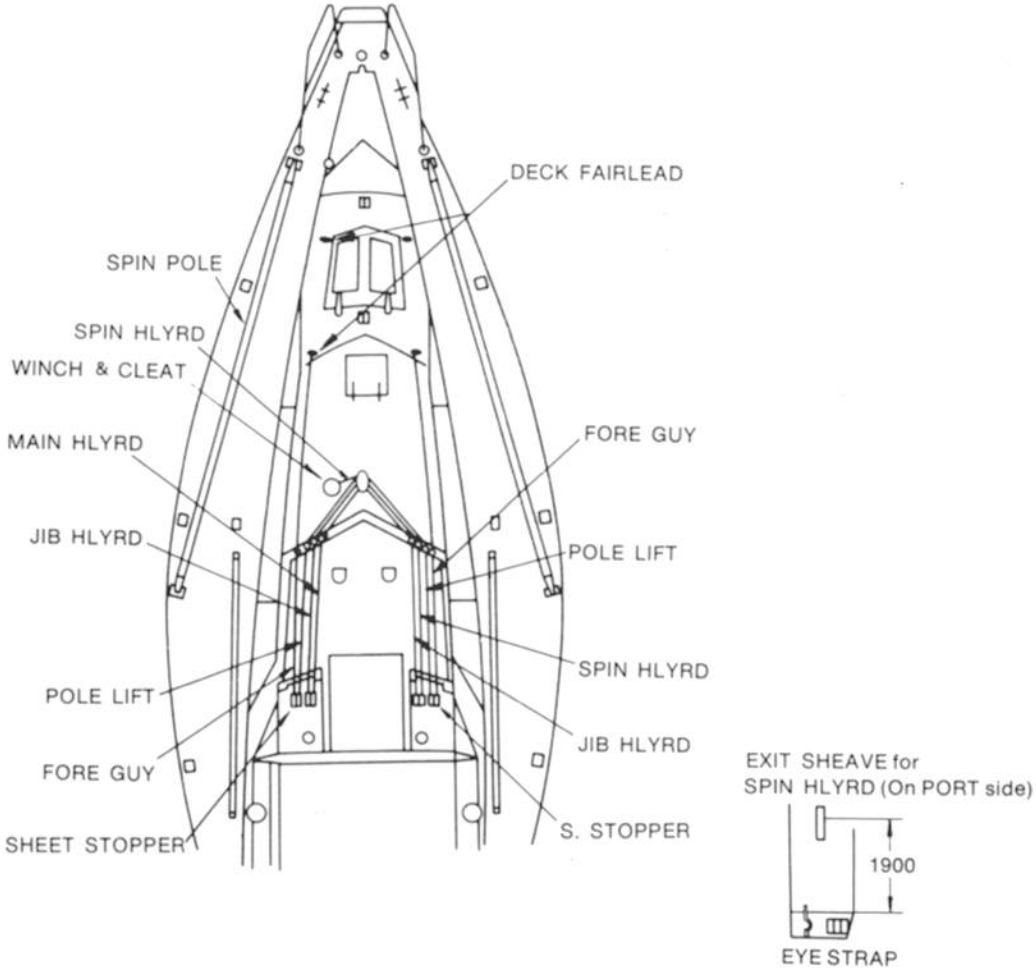


Fig. 45