

# OWNER'S MANUAL

## YAMAHA-33



**YAMAHA MOTOR CO., LTD.**

HEAD OFFICE: 2500 Shingai, Iwata-Shi, Shizuoka-Ken, 438 JAPAN  
BOAT DIVISION: Mukojima, Arai-Cho, Hamana-Gun, Shizuoka-Ken, 431-03 JAPAN

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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.  | : | 10.17 m                                 | 33 ft 4 in  |
| L.W.L.  | : | 8.2 m                                   | 26 ft 11 in |
| BEAM  | : | 3.55 m                                  | 11 ft 0 in  |
| DRAFT   | : | 1.9 m                                   | 6 ft 3 in   |
| TOTAL HEIGHT<br>(Above the water line)              | : | 14.2 m                                  | 46 ft 7 in  |
| MAST LENGTH   | : | 14.55 m                                 | 47 ft 9 in  |
| HEAD ROOM   | : | 2.08 m                                  | 6 ft 10 in  |
| DISPLACEMENT  | : | 4,400 kg                                | 9,700 lbs   |
| BALLAST   | : | 2,000 kg                                | 4,409 lbs   |
| TOTAL SAIL AREA<br>(100% fore $\Delta$ + main sail) | : | 45.7 sq m                               | 492 sq ft   |
| BERTHS  | : | MAIN CABIN                              | 4           |
|   |   | FO'CSLE                                 | 2           |
|   |   | QUARTER BERTH                           | 2           |
| WATER CAPACITY                                      | : | 200 liter                               | 52 US gals  |
| ENGINE  | : | YANMAR YSM-12 4 CYCLE 1 CYLINDER DIESEL |             |
| 1-HR, RATING OUTPUT                                 | : | 12 HP/3,000 rpm                         |             |
| CONTINUOUS RATING<br>OUTPUT                         | : | 10 HP/3,000 rpm                         |             |
| REDUCTION RATIO                                     | : | 2 : 1                                   |             |
| PROPELLER ROTATION                                  | : | COUNTER-CLOCKWISE (viewed from astern)  |             |
| CRANKSHAFT ROTATION                                 | : | COUNTER-CLOCKWISE (viewed from astern)  |             |
| FUEL CAPACITY                                       | : | 75 liter                                | 20 US gals  |
| SPEED, MAX  | : | abt. 6.3 kts                            |             |
| SPEED, CRUISING                                     | : | abt. 5 kts                              |             |
| CRUISING RANGE                                      | : | abt. 238 nautical miles                 |             |

\* SPECIFICATION SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

**1-2. SAIL PLAN:****1-2-1. SAILS:**

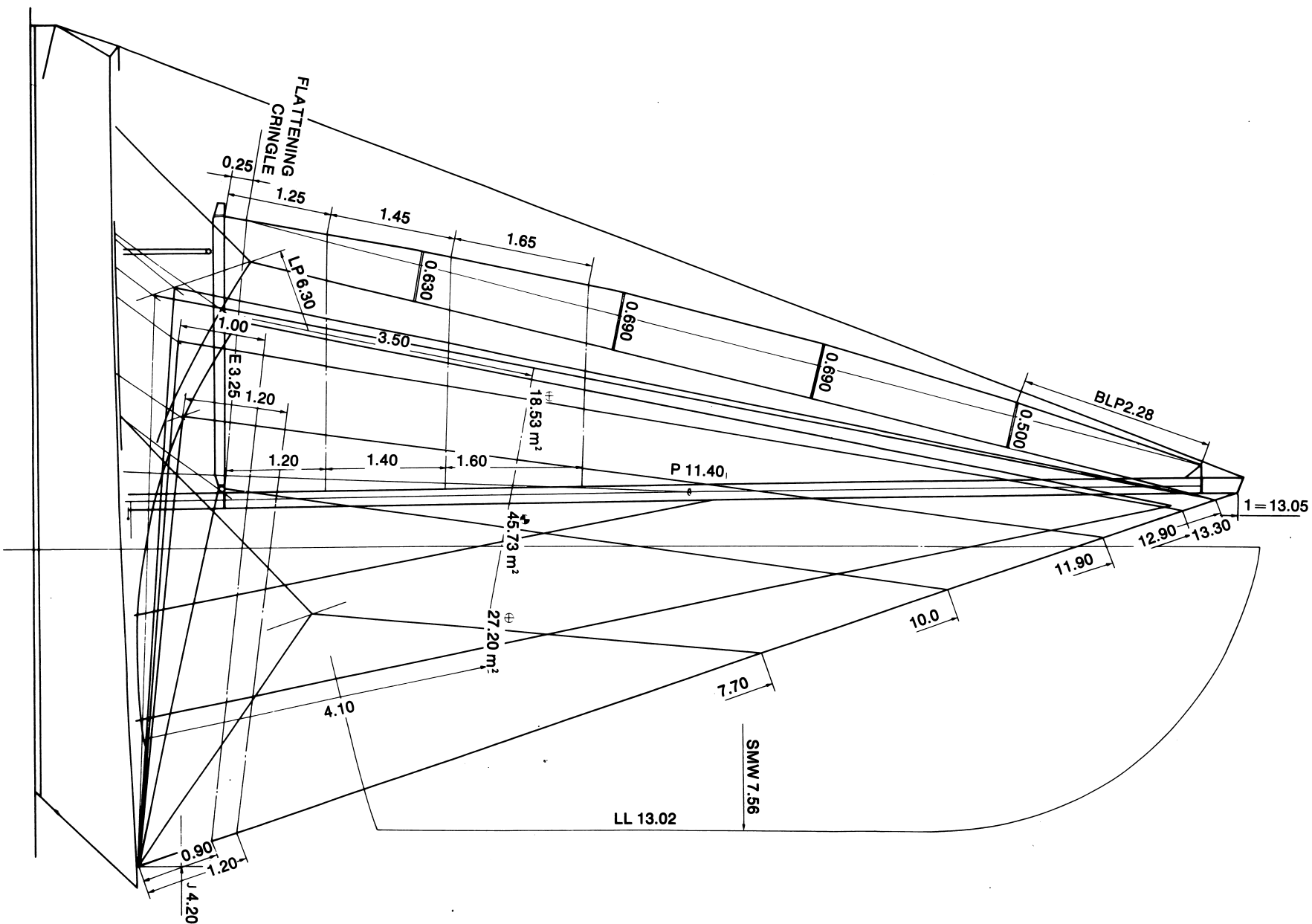
|                | AREA              | LUFF             | FOOT            | LEECH            | LPG             | WEIGHT |               |
|----------------|-------------------|------------------|-----------------|------------------|-----------------|--------|---------------|
|                | sq m<br>(sq ft)   | m<br>(ft)        | m<br>(ft)       | m<br>(ft)        | m<br>(ft)       | oz     |               |
| MAIN           | 18.53<br>(199.46) | 11.40<br>(37.40) | 3.25<br>(10.66) | 11.85<br>(38.88) |                 | 8      | STANDARD      |
| DRIFTER        | 41.90<br>(451.01) | 13.30<br>(43.63) | 7.24<br>(23.75) | 11.60<br>(38.06) | 6.30<br>(20.67) |        |               |
| #1 LIGHT GENOA | 41.90<br>(451.01) | 13.30<br>(43.63) | 6.82<br>(22.38) | 12.40<br>(40.68) | 6.30<br>(20.67) | 5      |               |
| #1 HEAVY GENOA | 41.90<br>(451.01) | 13.30<br>(43.63) | 6.73<br>(22.08) | 12.62<br>(41.40) | 6.30<br>(20.67) | 7      |               |
| #2 GENOA       | 36.77<br>(395.79) | 12.90<br>(42.32) | 6.20<br>(20.34) | 11.90<br>(39.04) | 5.70<br>(18.70) | 7      |               |
| #1 JIB         | 28.86<br>(310.65) | 11.90<br>(39.04) | 5.32<br>(17.45) | 10.85<br>(35.60) | 4.85<br>(15.91) | 8      | STANDARD      |
| #2 JIB         | 19.50<br>(209.90) | 10.00<br>(32.81) | 4.54<br>(14.89) | 8.60<br>(28.21)  | 3.90<br>(12.80) | 8      |               |
| STORM JIB      | 8.28<br>( 89.13)  | 7.70<br>(25.26)  | 3.60<br>(11.81) | 5.25<br>(17.22)  | 2.15<br>( 7.05) | 10     |               |
| STAYSAIL       | 29.80<br>(320.77) | 12.30<br>(40.35) | 4.85<br>(15.91) | 11.10<br>(36.42) | 4.85<br>(15.91) | 8      |               |
| SPINNAKER      |                   | 13.02<br>(42.72) | 7.56<br>(24.80) | 13.02<br>(42.72) |                 |        |               |
| STORM SPIN.    |                   | 12.40<br>(40.68) | 7.56<br>(24.80) |                  |                 |        | 75% MID GIRTH |
| 100% Fore Δ    | 27.2<br>(293)     |                  |                 |                  |                 |        |               |

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

**1-2.3 BATTENS:**

|            |         |             |
|------------|---------|-------------|
| TOP        | 0.500 m | 19 in 11/16 |
| MIDDLE (2) | 0.690 m | 27 in 1/8   |
| BOTTOM     | 0.630 m | 24 in 13/16 |

Fig. 1 SAIL PLAN

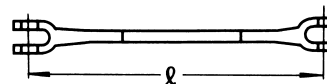
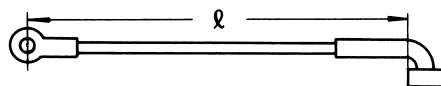
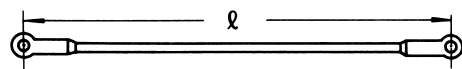
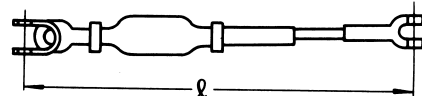
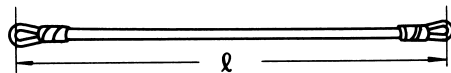
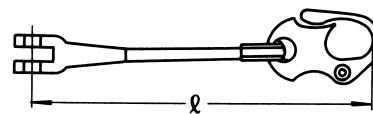
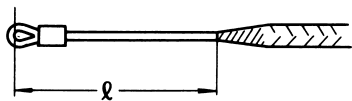


1-3. RIGGING LIST:

1-3-1. STANDING RIGING:

|                           |   | LENGTH | DIA. | TYPE   |
|---------------------------|---|--------|------|--------|
|                           |   | m      | mm   |        |
| HEAD STAY                 | 1 | 13.005 | 8    | 1 x 19 |
| BACKSTAY                  | 1 | 13.430 | 8    | 1 x 19 |
| MIDSTAY (INNER FORE STAY) | 1 | 6.410  | 6    | 1 x 19 |
| UPPER SHROUDS             | 2 | 12.130 | 7    | 1 x 19 |
| LOWER SHROUDS             | 2 | 6.200  | 6    | 1 x 19 |

NOTE: LENGTH

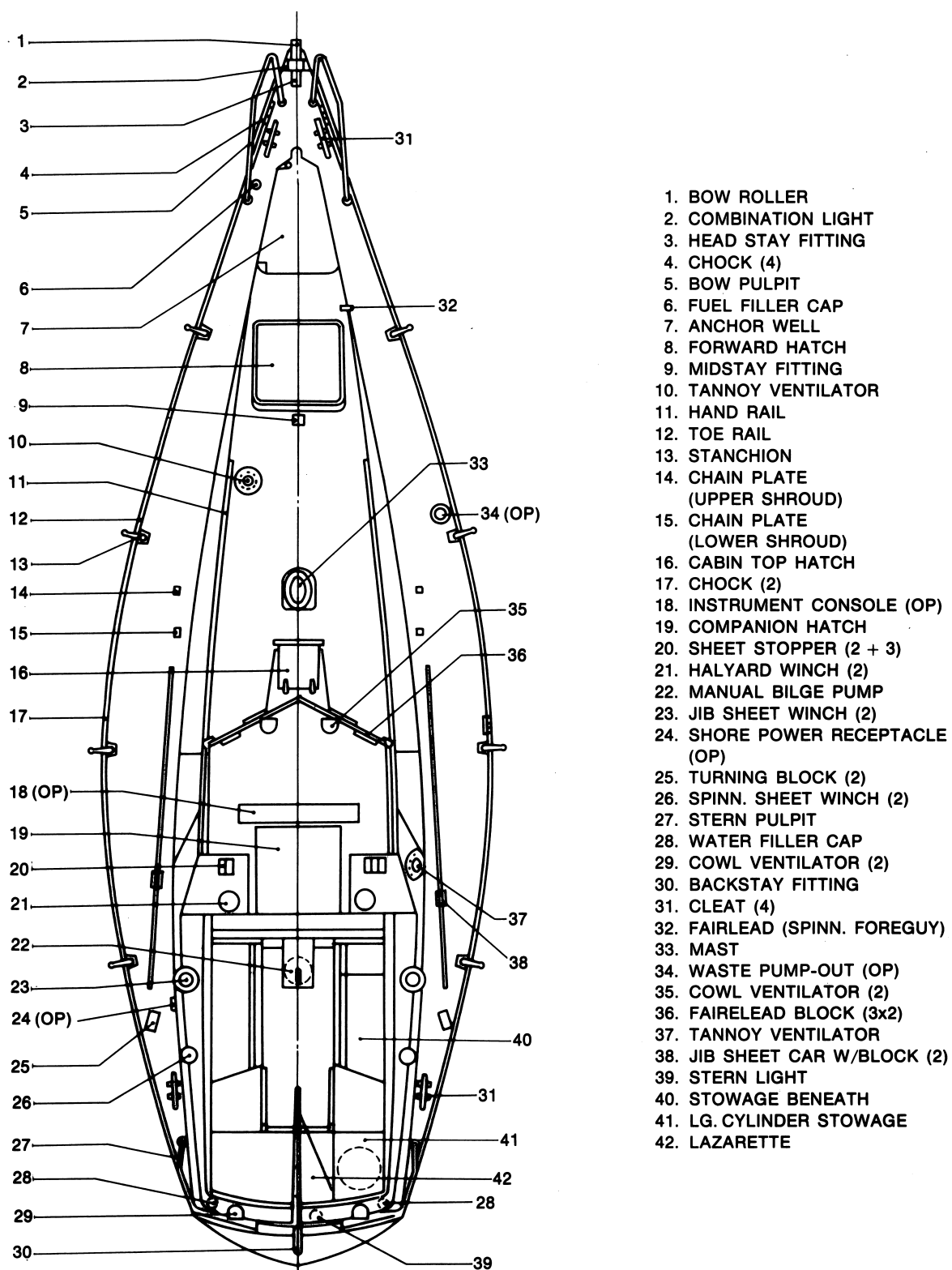


**1-3-2. RUNNING RIGGING**

|                        |    | LENGTH | DIA. | COLOR  | TYPE                      |
|------------------------|----|--------|------|--------|---------------------------|
|                        |    | m      | mm   |        |                           |
| MAIN SHEET             | 1  | 17     | 12   | RED    | 1/4 Braided Polypropylene |
| JIB SHEET              | 2  | 15     | 15   | YELLOW | 1/4                       |
| SPIN. SHEET            | 2  | 20     | 12   | GREEN  | 1/8                       |
| MAIN HALYARD (TAIL)    | 1  | 17     | 12   | RED    | 1/4                       |
| JIB HALYARD (TAIL)     | 1  | 17     | 12   | YELLOW | 1/4                       |
| SPIN. HALYARD          | 1  | 32     | 12   | GREEN  | 1/8                       |
| BOOM LIFT (TAIL)       | 1  | 14     | 8    | WHITE  |                           |
| SPIN. POLE LIFT (TAIL) | 1  | 14     | 10   | GREEN  | 1/8                       |
| CUNNINGHAM #1          | 1  | 2      | 8    | WHITE  |                           |
| CUNNINGHAM #2          | 1  | 3      | 6    | WHITE  |                           |
| REEF POINTS            | 10 | 1.2    | 6    | WHITE  |                           |
| MAIN SHEET TRAVELLER   | 1  | 8      | 8    | RED    | 1/8                       |
| BOOM VANG LINE         | 1  | 8      | 10   | RED    | 1/4                       |
| SPIN. FORE GUY         | 1  | 13     | 10   | GREEN  | 1/8                       |
| REEF LINE #1           | 1  | 7.5    | 10   | WHITE  |                           |
| REEF LINE #2           | 1  | 10.5   | 10   | WHITE  |                           |
| REEF LINE #3           | 1  | 14     | 10   | WHITE  |                           |
| MAIN HALYARD           | 1  | 13     | 5    | S. S.  | 7 x 19                    |
| JIB HALYARD            | 1  | 13     | 5    | S. S.  | 7 x 19                    |
| BOOM LIFT              | 1  | 14.75  | 2.5  | S. S.  | 7 x 19                    |
| SPIN. POLE LIFT        | 1  | 9.34   | 4    | S. S.  | 7 x 19                    |
| BOOM VANG              | 1  | 1.7    | 5    | S. S.  | 7 x 19                    |

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



**1-4. DECK PLAN:****Fig. 2 DECK PLAN****\* SPECIFICATION MAY VARY IN DIFFERENT COUNTRIES;**

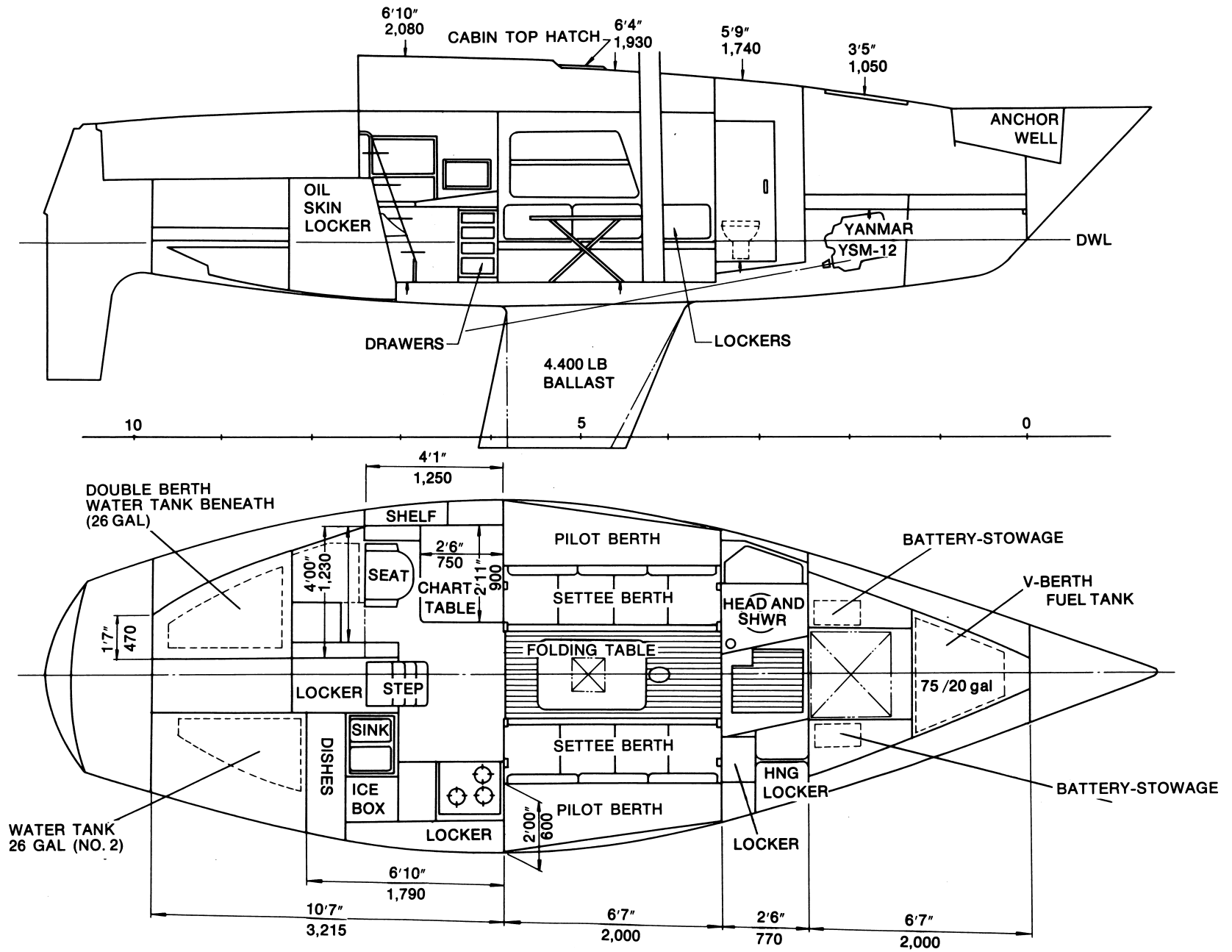


Fig. 3 ACCOMMODATIONS

**1-6. THROUGH-HULL FITTINGS:**

**STARBOARD SIDE:**

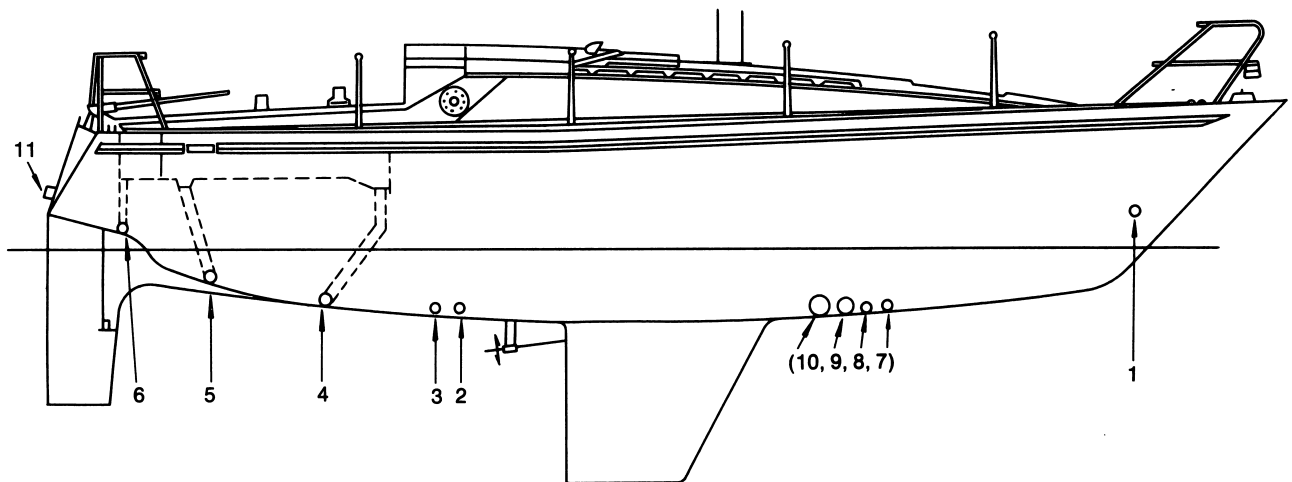
1. Anchor well drain (No shutoff)
2. Sea water intake for galley sink (1/2" valve)
3. Galley sink drain (1" valve)
4. FWD cockpit drain (1" 1/4 valve)
5. AFT cockpit drain (1" 1/4 valve)
6. Propane cylinder stowage drain (No shutoff)

**PORT SIDE:**

7. Head intake (1/2" valve)
8. Engine cooling sea water intake (1/2" valve)
9. Head sink drain (3/4" valve)
10. Head discharge (1" 1/4 valve)\*

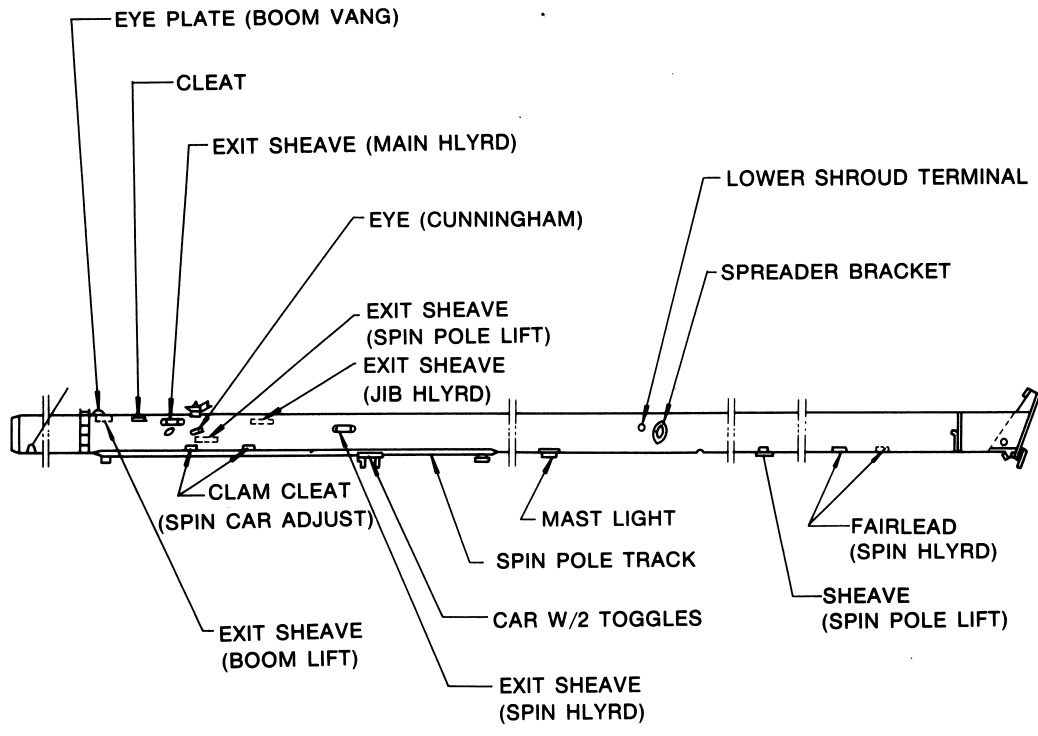
**TRANSOM:**

11. Engine exhaust (No shutoff)



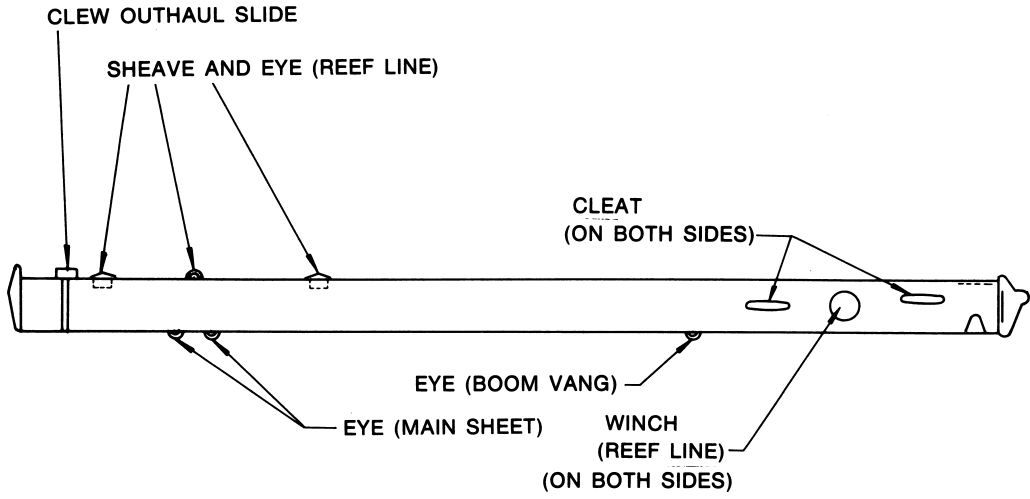
**Fig. 4 THROUGH-HULL FITTINGS**  
**\* EXCLUDE U.S.A. MODEL.**

**1-7. MAST FITTINGS:**



**Fig. 5 MAST FITTINGS**

**1-8. BOOM FITTINGS**



**Fig. 6 BOOM FITTINGS**

**1-9. STANDARD LIST OF ENCLOSED ITEMS:**

|   |        |
|---|--------|
| (1) MAST ASSY.                              | 1 set  |
| (2) BOOM ASSY.                              | 1 set  |
| (3) MAIN SAIL (with bag)                    | 1      |
| (4) JIB SAIL (with bag)                     | 1      |
| (5) BOW and STERN PULPIT ASSY. (with bolts) |        |
| (6) LIFE LINE – STANCHION ASSY.             |        |
| (7) 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                                | 3      |
| 5) REEF POITS                               | 10     |
| 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) FILLER CAP OPENER                        | 1      |
| 7) BOAT HOOK                                | 1      |
| 8) BILGE PUMP HANDLE                        | 1      |
| 9) BATTENS (4)                              | 1 set  |
| 10) RUBBER BUSHING (for MAST HOLE)          | 2      |
| 11) RUBBER MAST BOOT (attached to the mast) | 1      |
| 12) HOSE CLAMP (STEEL)                      | 2      |
| 13) GALLEY STOVE ACCESSORIES                | 1 set  |
| C. ENGINE:                                  |        |
| 1) STARTING KEY                             | 2      |
| 2) STARTING HANDLE                          | 1      |
| 3) TOOLS                                    | 1 set  |
| 4) OPERATION MANUAL                         | 1      |
| D. OWNER'S MANUAL                           | 1      |

\*THE ITEMS MAY VARY IN DIFFERENT COUNTRIES

## 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. Put the rubber boot onto the foot of the mast temporarily.

#### (2) Setting the Spreaders:

Secure the spreaders to the spreader brackets.

Secure the tips of the spreaders to the upper shrouds (see Fig. 7).

**NOTE:** A SPREADER SHOULD BE ADJUSTED SO THAT THE ANGLES BETWEEN THE SHROUD AND SPREADER ABOVE AND BELOW ARE EXACTLY EQUAL (see Fig. 7) FAILURE TO DO THIS CAN CAUSE THE SPREADER TO SLIP WHICH COULD RESULT IN THE LOSS OF THE MAST.

#### (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 clevis pins so that the cotter pins are inboard.

#### (4) Secure the Heel of the Mast:

Secure the heel of the mast to the mast step by using the securing bolts and nuts (see Fig. 8)

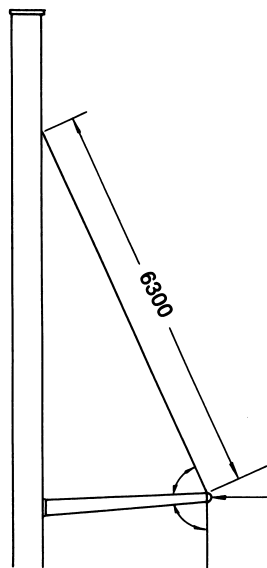


Fig. 7

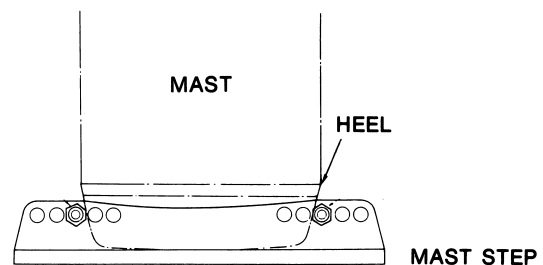


Fig. 8

**NOTE:** BIND UP THE SPREADER TIPS AND BRACKETS WITH INSULATING TAPE FOR SECURITY.

## (5) Around the Mast Hole:

Insert two rubber bushings between the mast and the mast hole. The second bushing may be inserted by pulling the mast to the other side by using a tackle.

Squirt silicone sealer into the groove of the mast and the space between the mast and the hole.

Secure the rubber boot by using two hose clamps. The boot will give with the mast (see Fig. 9).

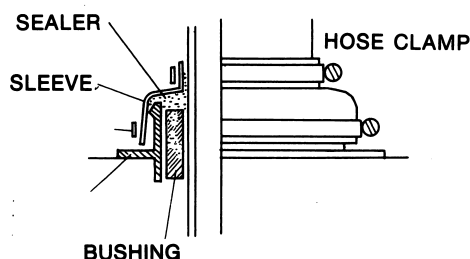


Fig. 9

**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 possibility 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 — 0.5 degrees.

Adjust the head stay and backstay to bring the mast in the position so that the distance between the lower terminal fitting of the backstay and the hole of the backstay fitting reaches 500 mm/19 in 3/4 (see Fig. 10).

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.

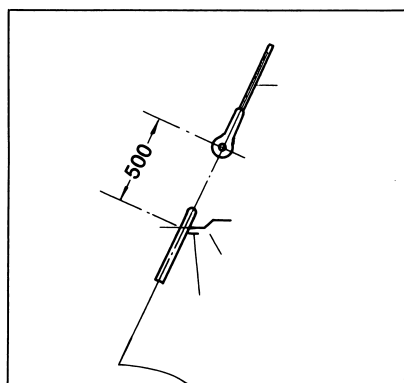


Fig. 10

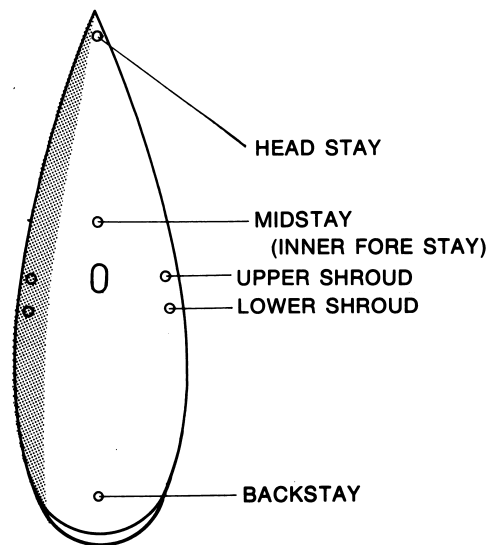


Fig. 11

### 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 25 mm/1 in of play at 20 kg/44 lbs load and the backstay has 35 mm/1 in 3/8 of play at the same load (see Fig. 12).

Secure the turnbuckle locknuts of the head stay and backstay.

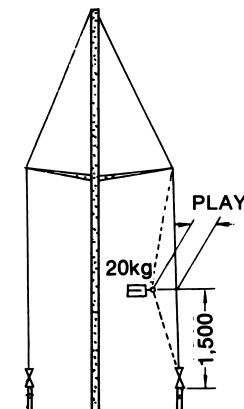


Fig. 12



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

Adjust the upper shrouds until the masthead is equal distant from each chainplate (see Fig. 13).

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

Set up the shrouds to have 50 mm/2 in of play (see Fig. 12).

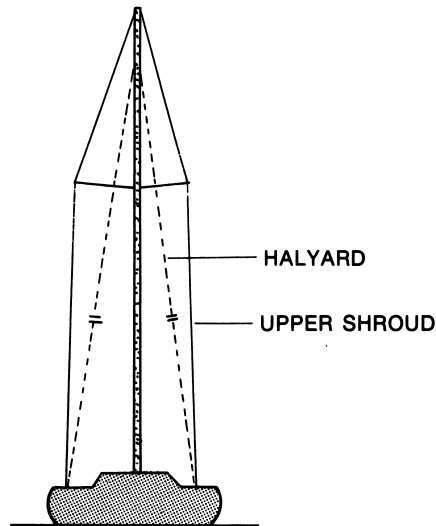


Fig. 13

**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 55 mm/2 in 1/8.

**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 30 mm/1 in 1/8.

**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

## 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. 18).

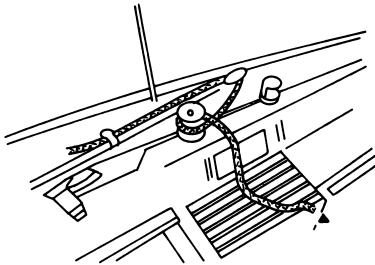


Fig. 18

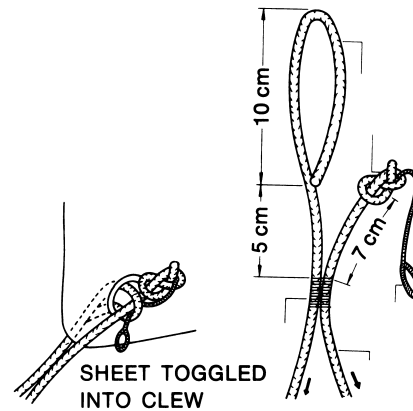


Fig. 17

## 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. 19).

## 2-8. BOOM VANG:

The boom vang is sometimes called the kicking strap and illustrated in Fig. 20. 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.

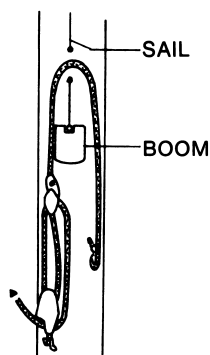


Fig. 19

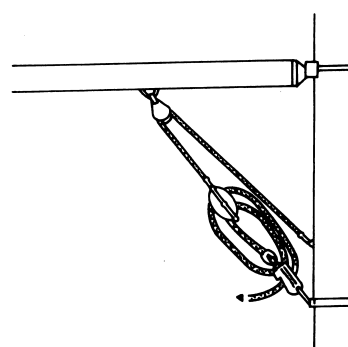


Fig. 20

"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 A 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.

### 2-3. HALYARD LEADS:

See Fig. 14

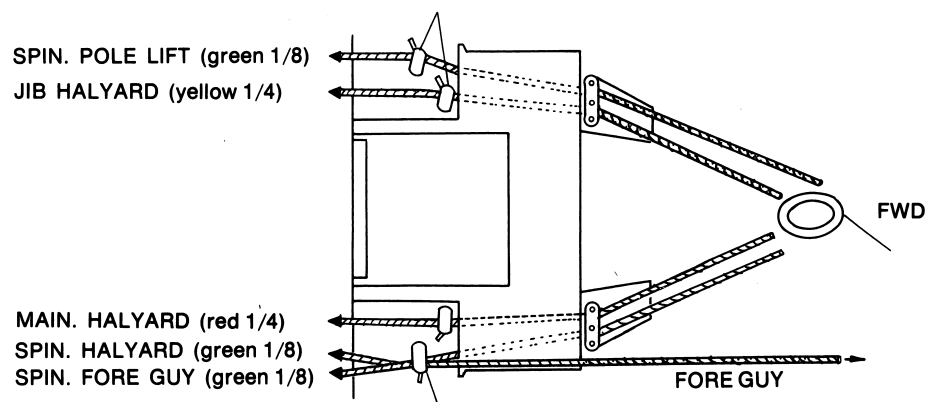


Fig. 14

### 2-4. MAIN SHEET LEAD:

See Fig. 15

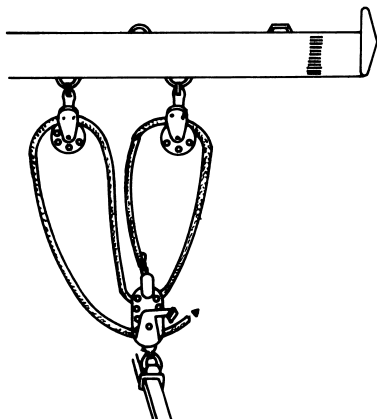


Fig. 15

### 2-5. MAIN SHEET TRAVELLER ADJUST:

See Fig. 16

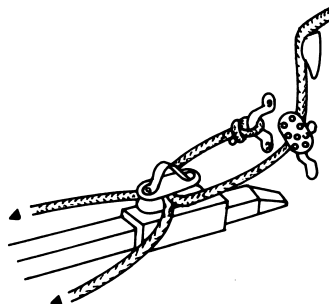


Fig. 16

## 2-9. REEF LINE AND REEFING:

### (1) Rigging the Reef Line:

Three (3) 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 and third reef lines will be arranged similarly.

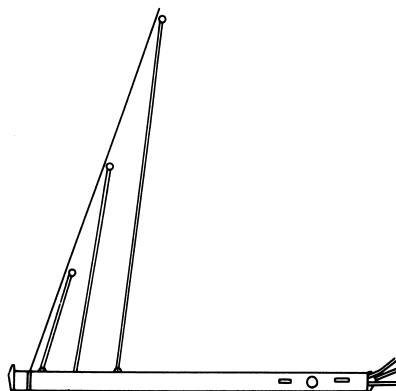


Fig. 21

### (2) Reefing:

Most of the sailboats in beating will lose speed and beating angles relatively if the boat heels more than 30 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: slack the main sheet

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

No. 2 Crew: 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.

### **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 fully charged.

The stowage for two 100 AH batteries is located in the fo'c'sle on the both sides of the engine compartment. Eye-straps are fitted and lashing straps are enclosed for lashing purpose. Lash down the batteries to the hull.

#### **3-2. BATTERY SWITCH:**

The battery switch is located on the bulkhead to starboard in the forecabin. The basic wiring diagram is shown in Fig. 22.

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 DIS-ENGAGED 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) STOP THE ENGINE BEFORE SWITCHING.  
FAILURE OF THESE MAY RESULT THE DAMAGE OF THE ENGINE ALTERNATOR.
  - 4) 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 on the port side of the navigator's seat, with the exception of the engine key switch, starter button and the blower switch in the cockpit and the extra switches for the blower and 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.

**NOTE:** The electric bilge pump is OPTIONAL.

#### **3-4. BILGE BLOWER:**

There are two blower switches, one on the engine instrument panel in the cockpit and another in the head compartment. The switches are PULL ON and PUSH OFF type.

The fuse for the switch on the engine instrument panel is behind the panel and accessible by opening the removable panel behind the companion way ladder.

The fuse for the switch in the head is behind the electrical switch panel.

**NOTE:** DURING ENGINE OPERATION, TURN THE BILGE BLOWER ON PULLING THE BILGE BLOWER SWITCH

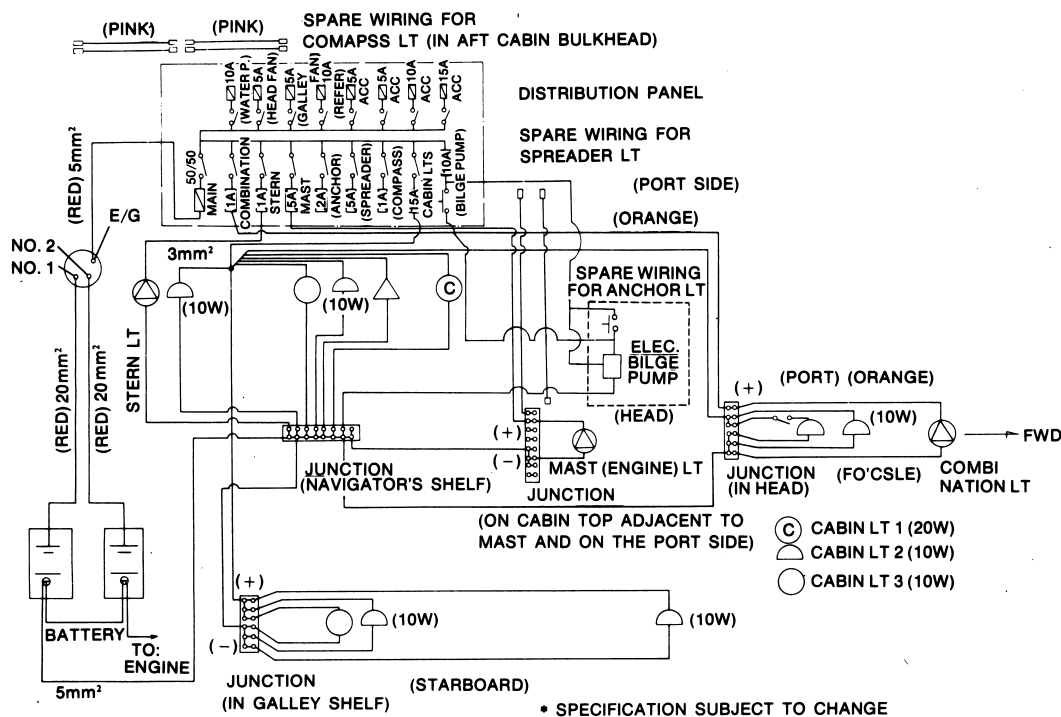


Fig. 22-1 ELECTRIC SYSTEM NO. 1 (DC)

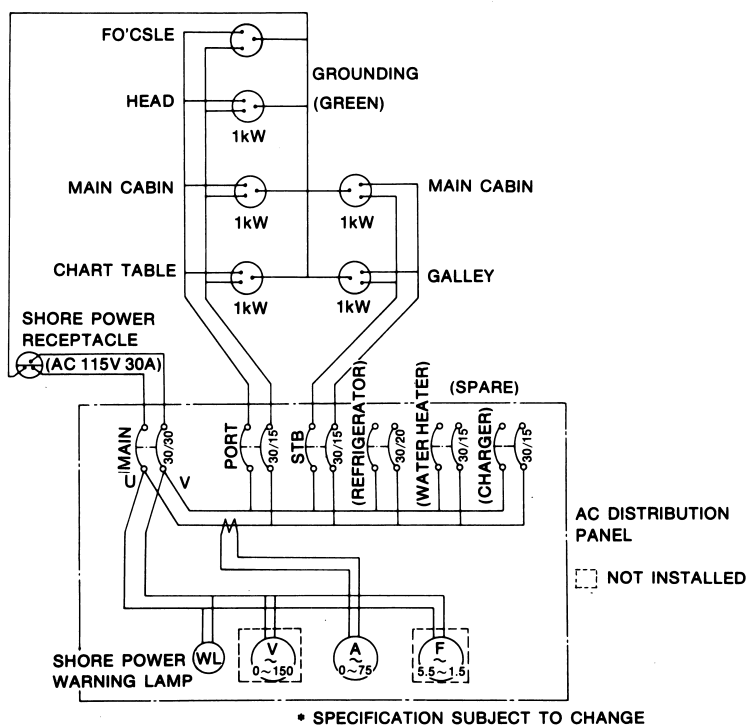


Fig. 22-2 ELECTRIC SYSTEM NO. 2 (SHORE POWER) (OPTIONAL)

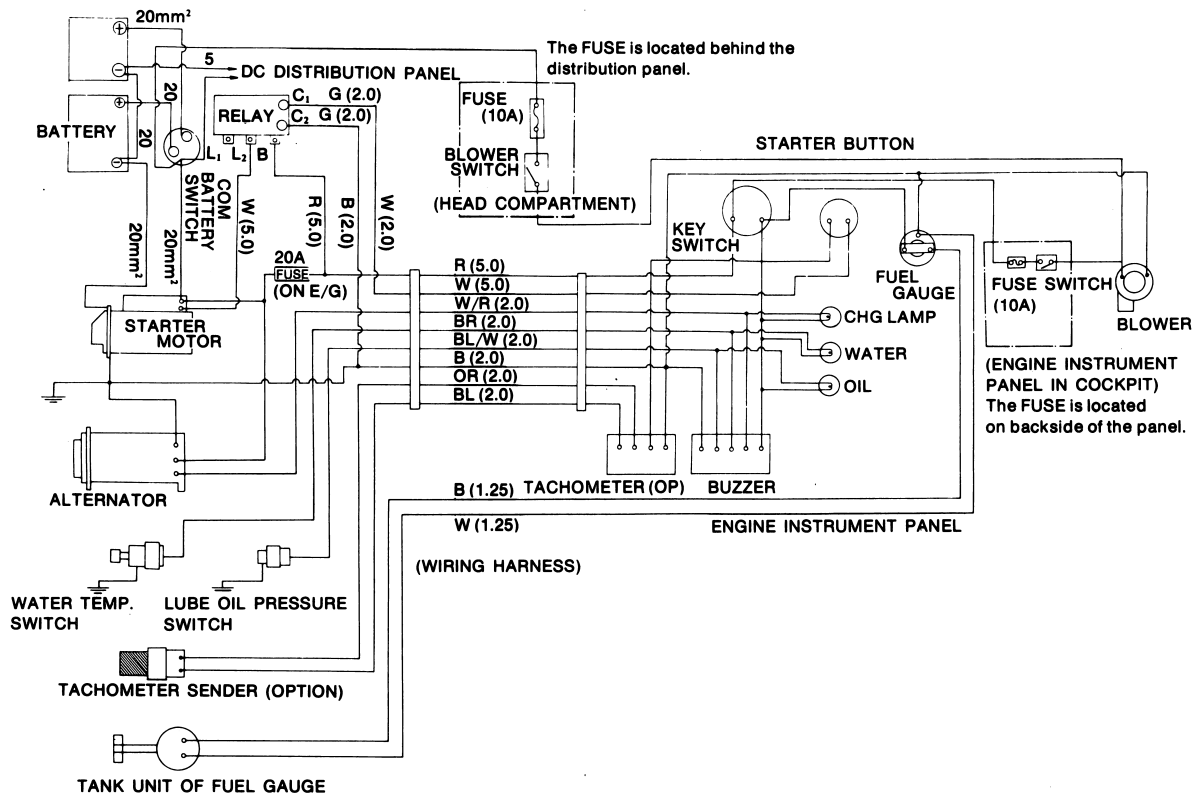


Fig. 22-3 ELECTRIC SYSTEM NO. 3 (ENGINE) (FWD ENGINE MODEL)

## **4. ENGINE:**

The YAMAHA-33 is equipped with a 4-cycle, single cylinder YANMAR Model YSM-12 diesel engine. These engines are direct drive and have a single disk clutch (wet type) and 2 : 1 reduction gear in the transmission gear box. The engines are controlled from the cockpit by Morse single-lever controls, Model "MV" Control head 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 "YANMAR OPERATION MANUAL – YSM" 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 75 liter (20 US gals) tank which is located forward of the engine compartment in the fo'csle.
- (2) The fuel filter cap is located on the foredeck on the port side (see Fig. 2). The air vent runs up into the bow pulpit.
- (3) Open the fuel supply valve under the fuel tank. (On U.S. Model the fuel supply valve is located on the top of the tank).
- (4) Turn on the valve of the fuel filter (see Fig. 23).



## 4-1-2. FUEL SYSTEM DIAGRAM OF STANDARD MODEL:

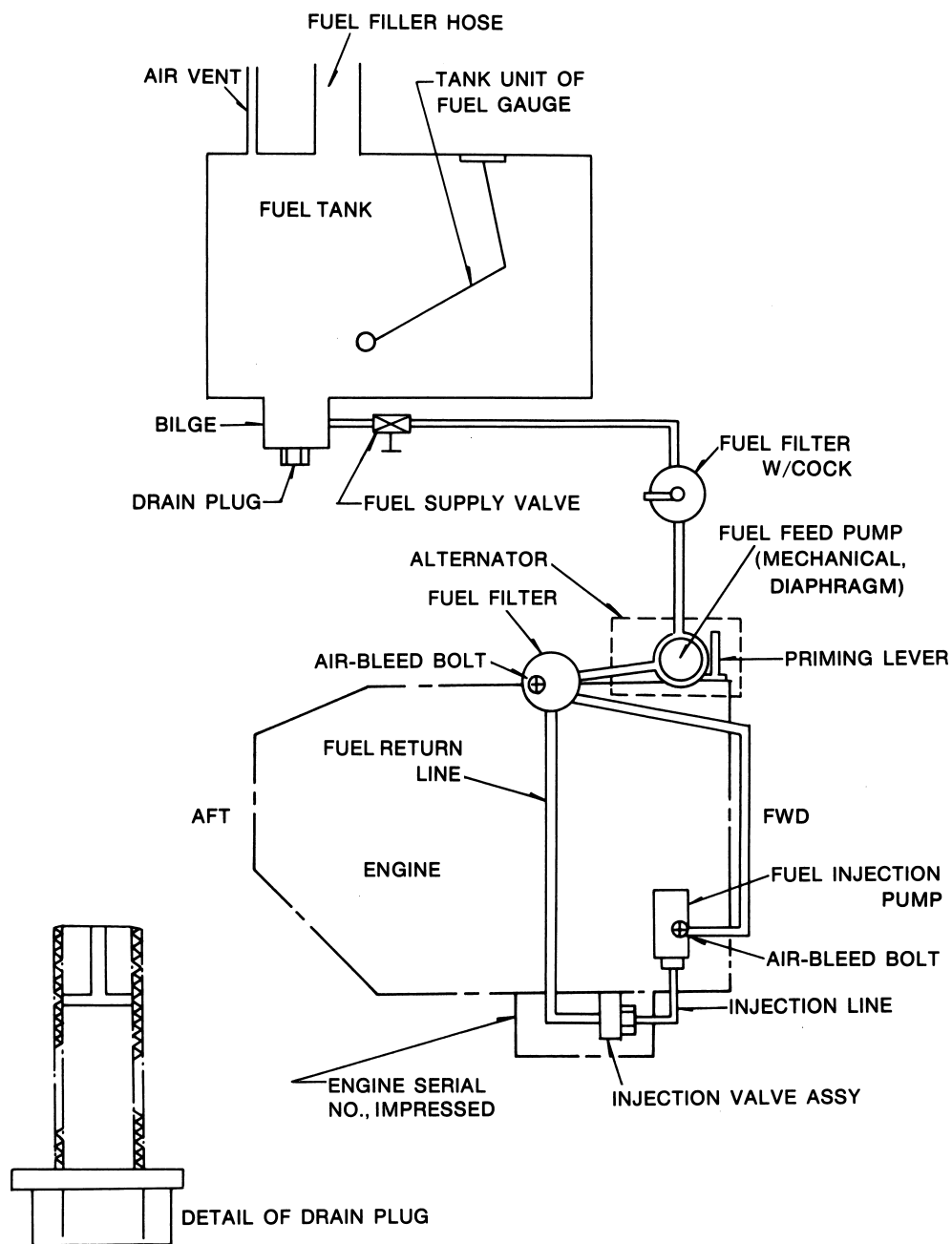


Fig. 23-1



**4-1-4. OTHER CHECK POINTS:**

- (1) Turn the handle which is on the forward lower end of the engine to both left and right several times to remove dirt from the lubricating oil strainer element (see Fig. 24).
- (2) Lubricate:
  - 1) Starter chain
  - 2) Starter chain free gear metal (see Fig. 25)
  - 3) Starter shaft bearing (see Fig. 26).

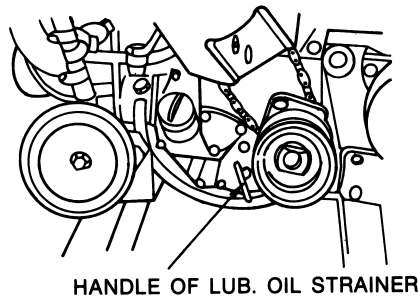


Fig. 24

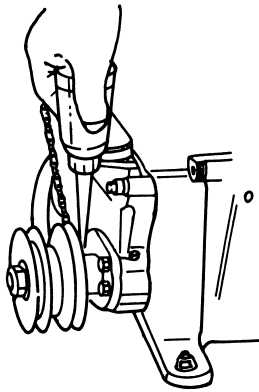


Fig. 25

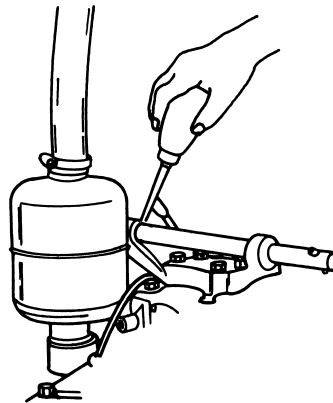


Fig. 26

- (3) Check the oil level in engine, oil level in transmission, the tension on V-belt, each terminal and that the clutch lever is in NEUTRAL.
- (4) Turn the battery switch from "OFF" to position "1" or "2".
- (5) Open the sea water cooling sea valve which is under the removable part of the head compartment 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, 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 let the engine warm up for at least five minutes.

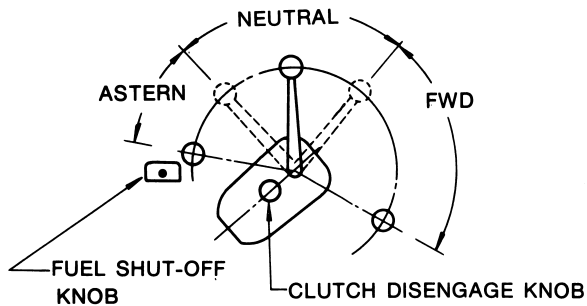


Fig. 27

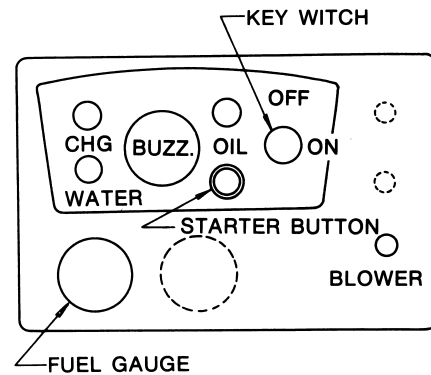


Fig. 28

- NOTE:**
- 1) Do not run the starter motor for more than 10 seconds at a time. Should the engine fail to start, wait for about 30 seconds 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 700 – 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 700 ~ 800 RPMs.

#### **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 "YANMAR 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 2500 rpm before stopping to expel any gas in the cylinder.
- (4) Set the engine to the lowest revolution speed (about 500 rpm), cut the fuel, and stop the engine.

- NOTE:**
- 1) NEVER USE THE DECOMPRESSION LEVER TO STOP THE 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 momentums. And also the sound of 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 "YANMAR OPERATION MANUAL" CAREFULLY.

(1) Breaking In:

The new engine must be carefully broken in during the first 50 hours. Operate below 2,500 rpms.

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 under the alternator forward on the port side of the engine (see Fig. 23)  
When bubbles stop coming out with the fuel, secure the bolt.
- 5) Loosen the air-bleed bolt on the fuel injection pump (see Fig. 23) by one and a half or two turns. Move the priming lever up and down until all the air bubbles out. Secure the bolt.
- 6) Put the control lever at FULL position.

Try to start the engine. In most cases the engine may start.

If not:

- 7) 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.
  - 8) 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 by using the bilge drain plug.
- (7) Water Trap: (U.S.A. Model)  
When 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 4.8 mm/3/16 inch 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) MORSE Single Lever Control, Adjustment of:**

A tag is attached to the control lever and important instructions are printed on it. For your convenience I will repeat these instructions here:

**FOR THE OWNER  
IMPORTANT INSTRUCTIONS**

This control system has been adjusted at the factory. However, due to changes in engine performance it may be necessary to re-adjust it after the break-in period, according to the instruction on the reverse side.

1. Disconnect both control cables at the engine and adjust engine for smooth idle. Set the idle stop for recommended idle speed.
2. Place control head hand lever in Forward Detent. Adjust the terminal on the throttle cable until it aligns with hole in carburetor throttle arm. Replace terminal and lock with cotter pin.
3. Place control head hand lever at neutral detent. Place outdrive or transmission shift lever in neutral position. Adjust the terminal on the shift cable until it aligns exactly with the outdrive shift lever and re-connect the cable.
4. When control is properly adjusted, engine speed will remain at idle when control head hand is moved from Neutral to Forward or Reverse positions.

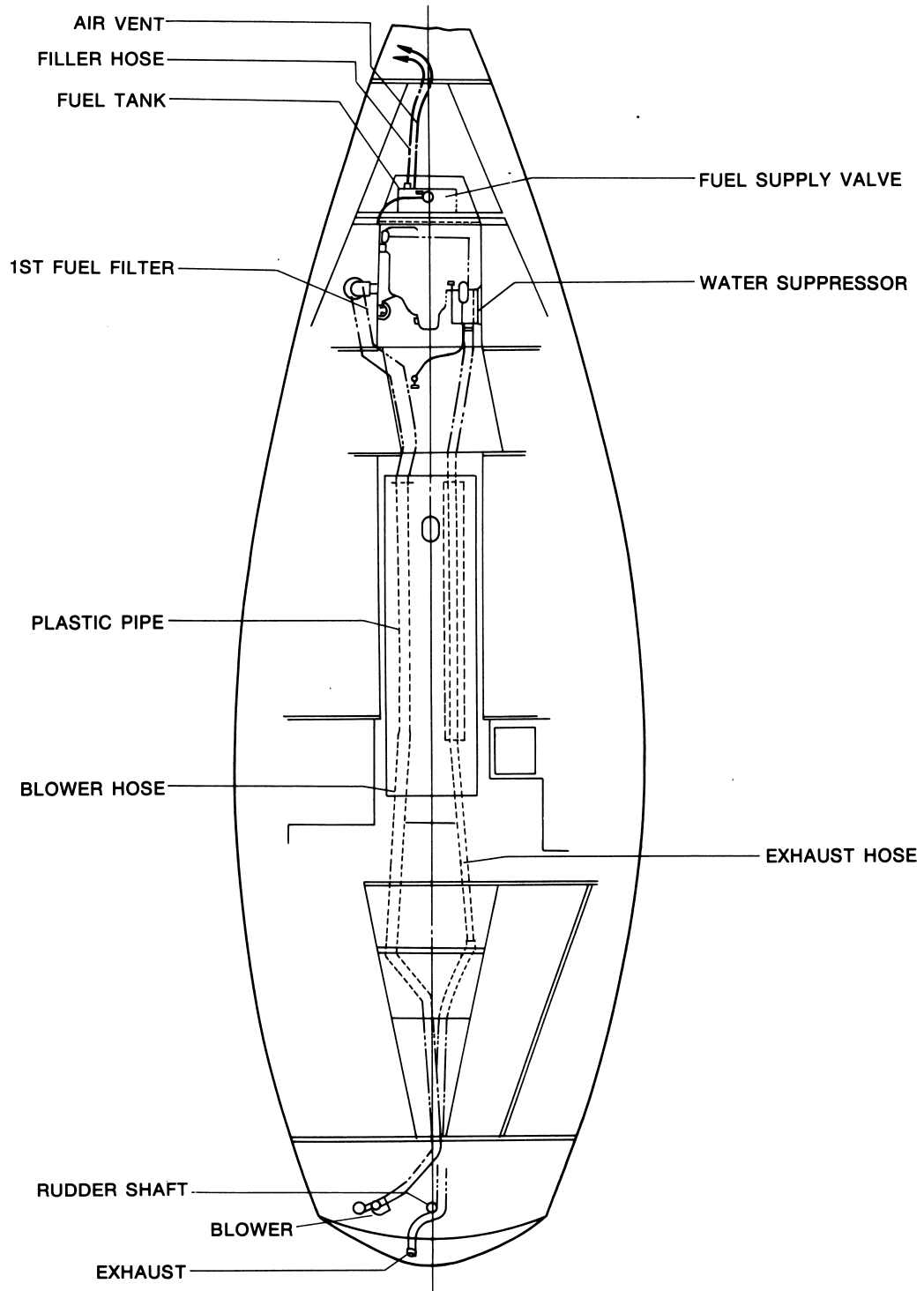


Fig. 29 FUEL AND EXHAUST SYSTEM



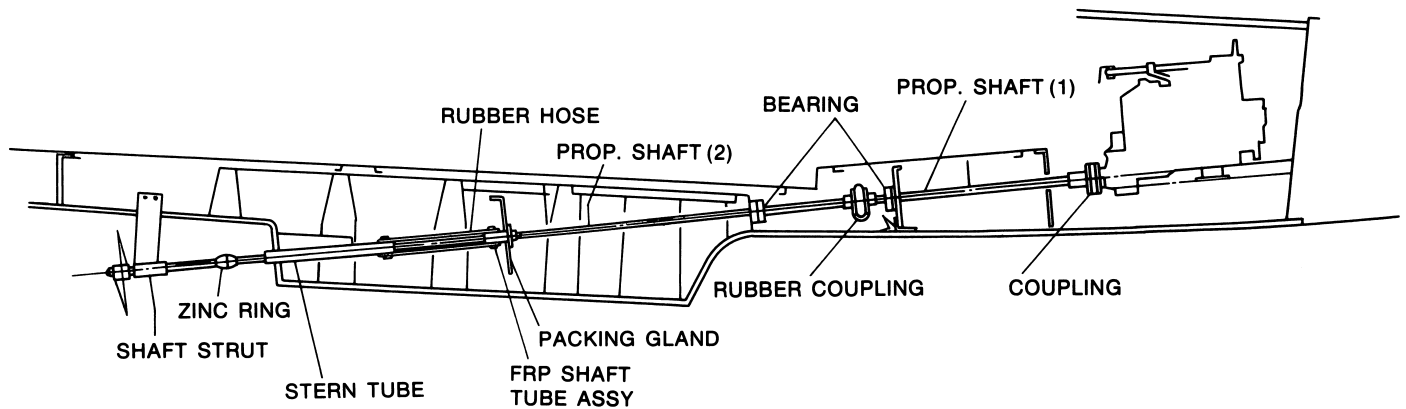
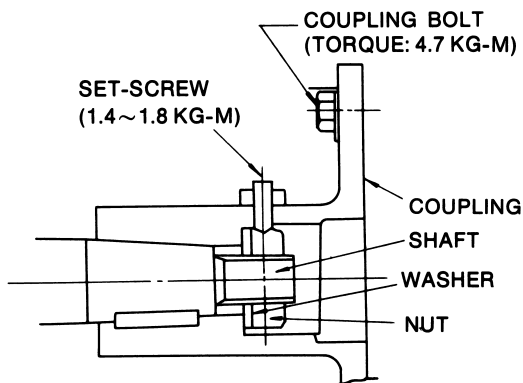
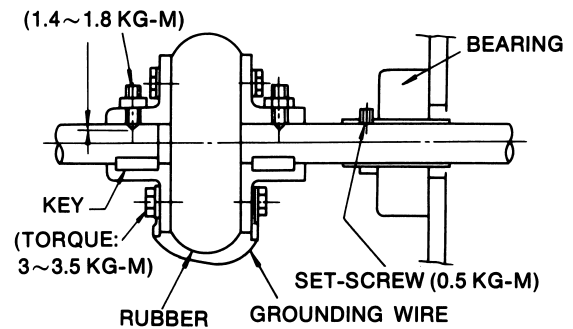


Fig. 30 SHAFTING

FWD END OF PROP. SHAFT



RUBBER COUPLING AND FWD BEARING (NON THRUST)



THRUST BEARING

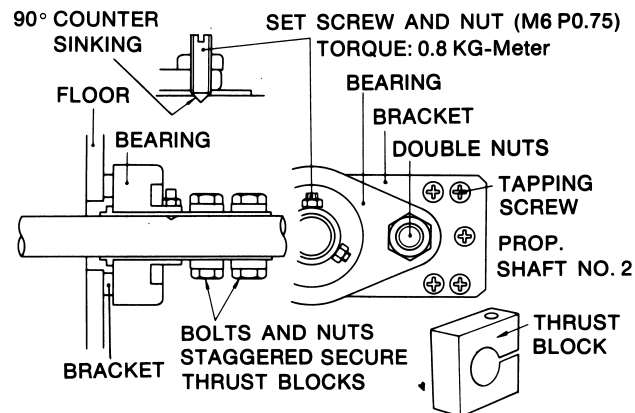
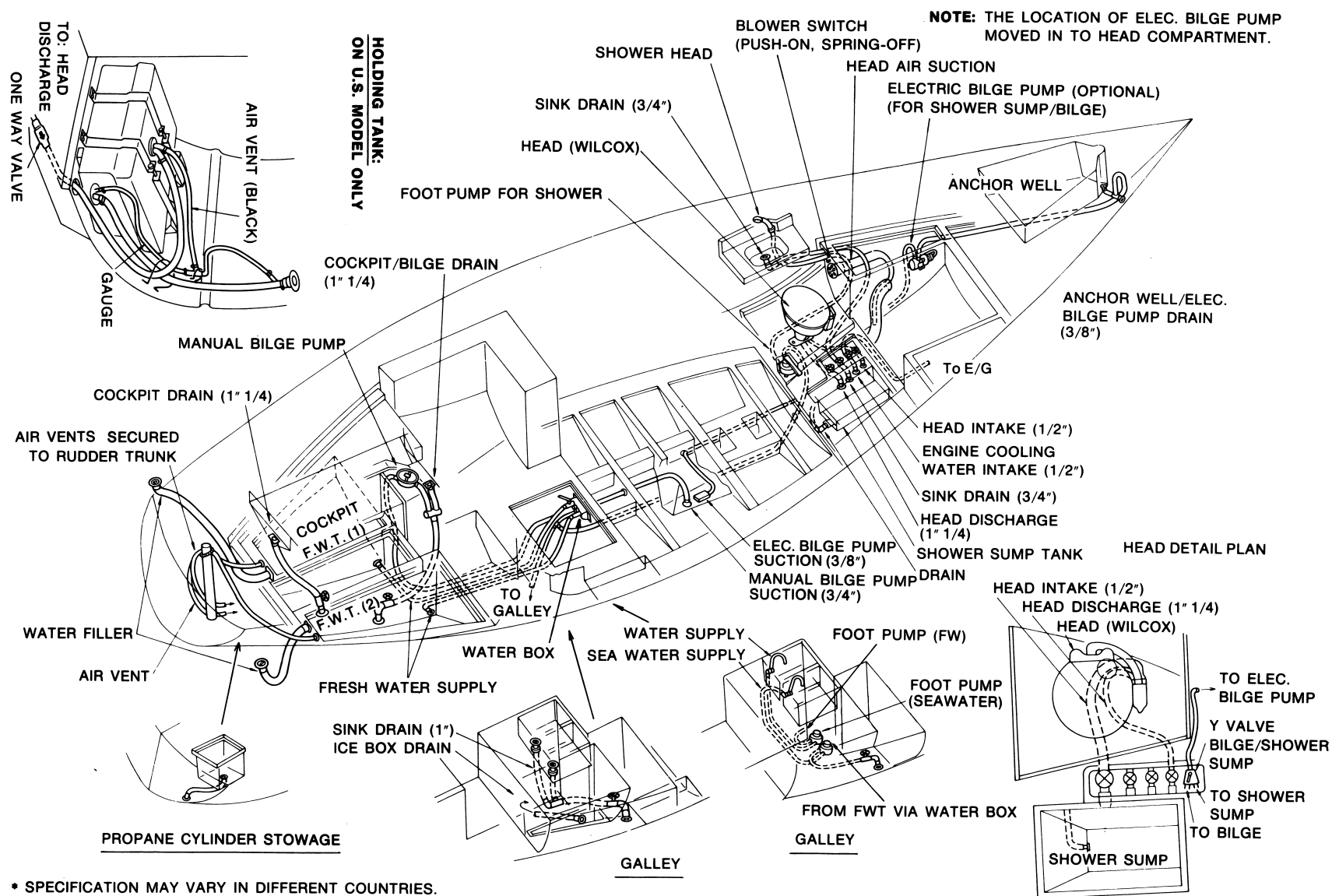


Fig. 31 DETAIL OF SHAFTING

## 5. PLUMBING SYSTEM:

5-1. PLUMBING SYSTEM DIAGRAM:



\* SPECIFICATION MAY VARY IN DIFFERENT COUNTRIES.

## **5-2. FRESH WATER TANK:**

Two 100 liters (26 US gallons) fresh water tanks are located under the cockpit on both sides.

The filler caps are on the top of the cockpit coaming. The air vents are led along the filler hose and over flow will drain to bilge.

The supply cocks are installed to the small water tank under the removable part of the cabin sole forward of the companionway ladder.

Both tanks can be drained through the drain plug installed on the small water tank.

## **5-3. GALLEY:**

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

The sink drain shut-off valve is in the locker under the sink. The sea water intake valve is in the locker under the galley counter.

When you use the foot pump, please use it gently.

### **5-3-2. Ice Box:**

The total capacity of the ice box is 90 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 on the U.S.A. Model)**

**"HEAD-MATE" Seaclos** VILCOX-CRITTENDEN, a Gulf + Wester precision Engineering Company, Middletown, Connecticut 06457, U.S.A. are standard.

- (1) Open both intake and discharge valves.
- (2) And read the "TOILET OPERATING INSTRUCTIONS" mounted on the bulkhead. For your convenience we will repeat these instructions here:

### **TOILET OPERATING INSTRUCTIONS**

**BEFORE USING:** Raise lever and pump slowly to partly fill and wet inside of bowl.

**AFTER USING:** (1) Raise lever, pump until bowl is thoroughly cleaned and continue with several more full strokes to flush discharge lines.

(2) Depress lever and pump slowly until bowl is empty.

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

**DO NOT PUT PAPER TOWELS, MATCHES, RAGS, ETC. INTO BOWL. THEY WILL PLUG THE VALVES.**

**NOTE:** When running in rough seas, or leaving the boat overnight, it is advisable to pump the bowl dry to prevent splashing. When the boat is unattended, it is advisable to close both sea cocks.

**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 forward cockpit drain.

**5-6. COCKPIT DRAIN:**

The cockpit drain shut-off valves are accessible through the opening bottom board of the stowage bin in the quarter berth.

**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 the head compartment.

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 opening part of the head compartment sole you may select which part is to be pumped out, bilge or shower sump. The bilge will drain through the anchor well drain.

Periodically clean the bilge strainer.

## **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. FIBERGLSS 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 polished 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 thoroughly,
- 2) Make a 2% paraffin wax solution in styrene and add this solution 4% by weight to the gelcoat and mix thoroughly and
- 3) Add the catalyst — 1% by weight and mix thoroughly.

YAMAHA uses:

Promoter: Cobalt naphthenate, 6% solution in toluen.

Catalyst: Methyl isobuthyl keton peroxide, 75% solution in  
Di-methyl 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 EXPROSION WILL RESULT.

**6-2. STANDING RIGGING AND HALYARDS:**

Hose down with fresh water to remove salt and dirt. Periodically take a trip aloft to check the entire rig. 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.

**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 loses 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 to the hull with enclosed lashing strap. Periodically clean the terminals and apply anti-rust grease.

**6-8. ZINC-RING:**

To protect under-water metal from galvanic action, one zinc-ring is attached. Usually it stands for 6 months, but periodically check it and if the volume is reduced to a half of the original size, please replace it.

It is important to keep the surface of the zinc-ring clean. Periodically scrape the surface to remove marine growth.

**6-9. CRADLE:**

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

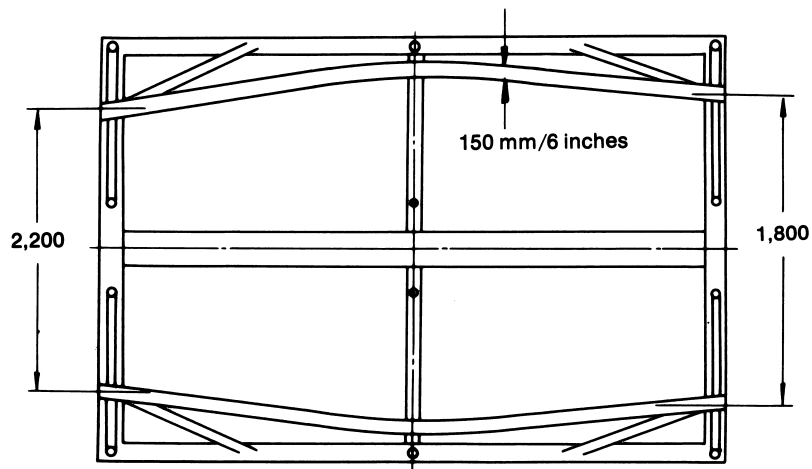
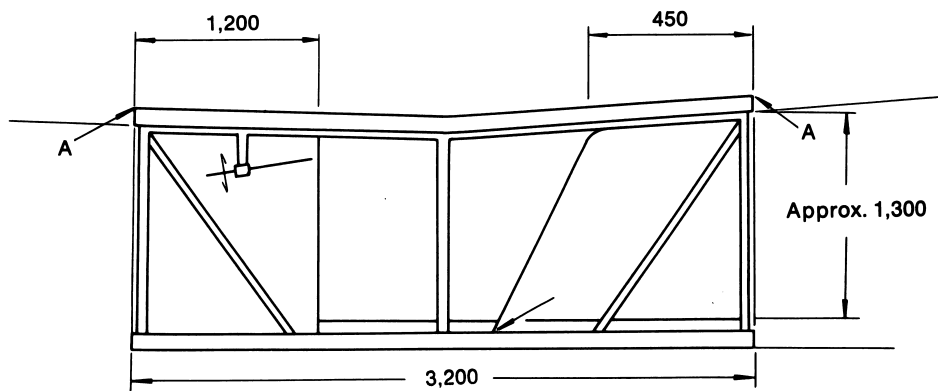
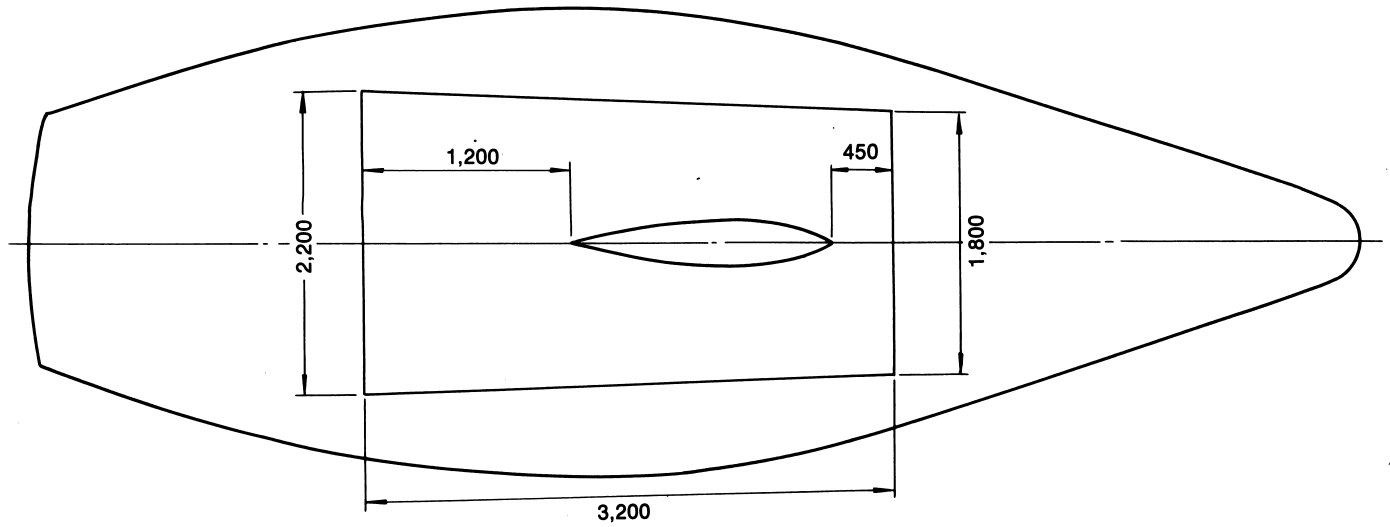


Fig. 33

## 7. MISCELLANEOUS:

### 7-1. HOT WATER SYSTEM (OPTIONAL)

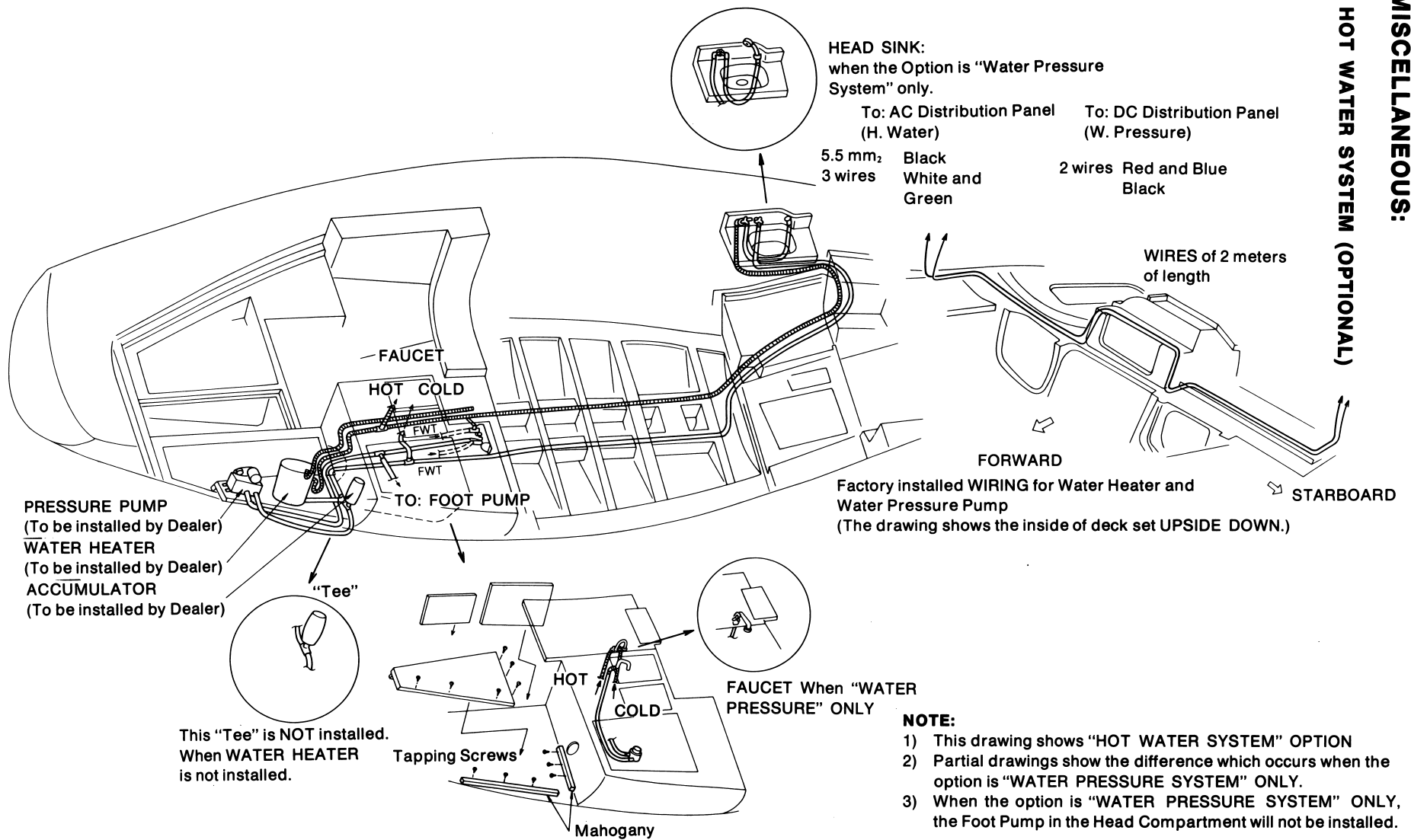
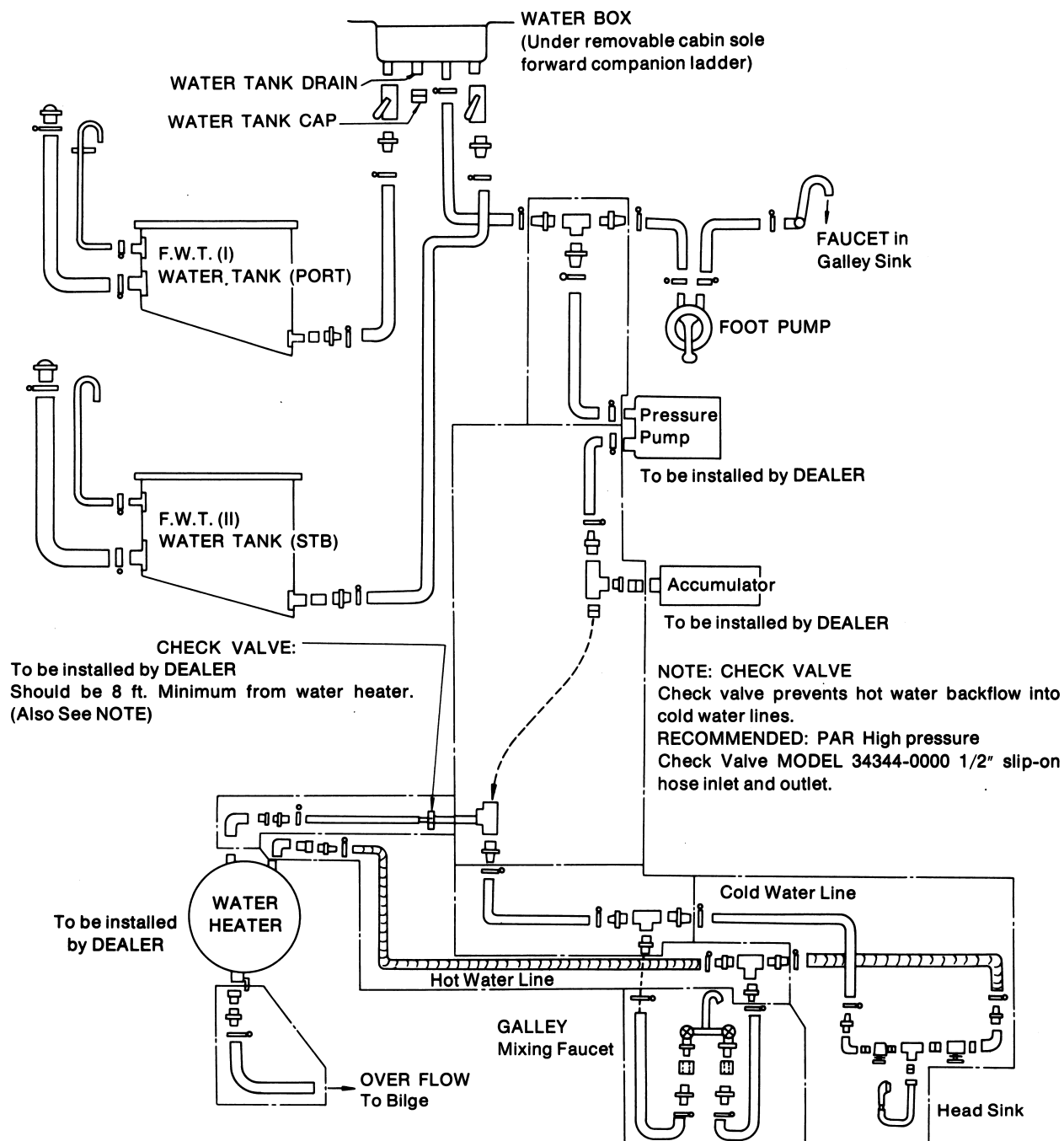


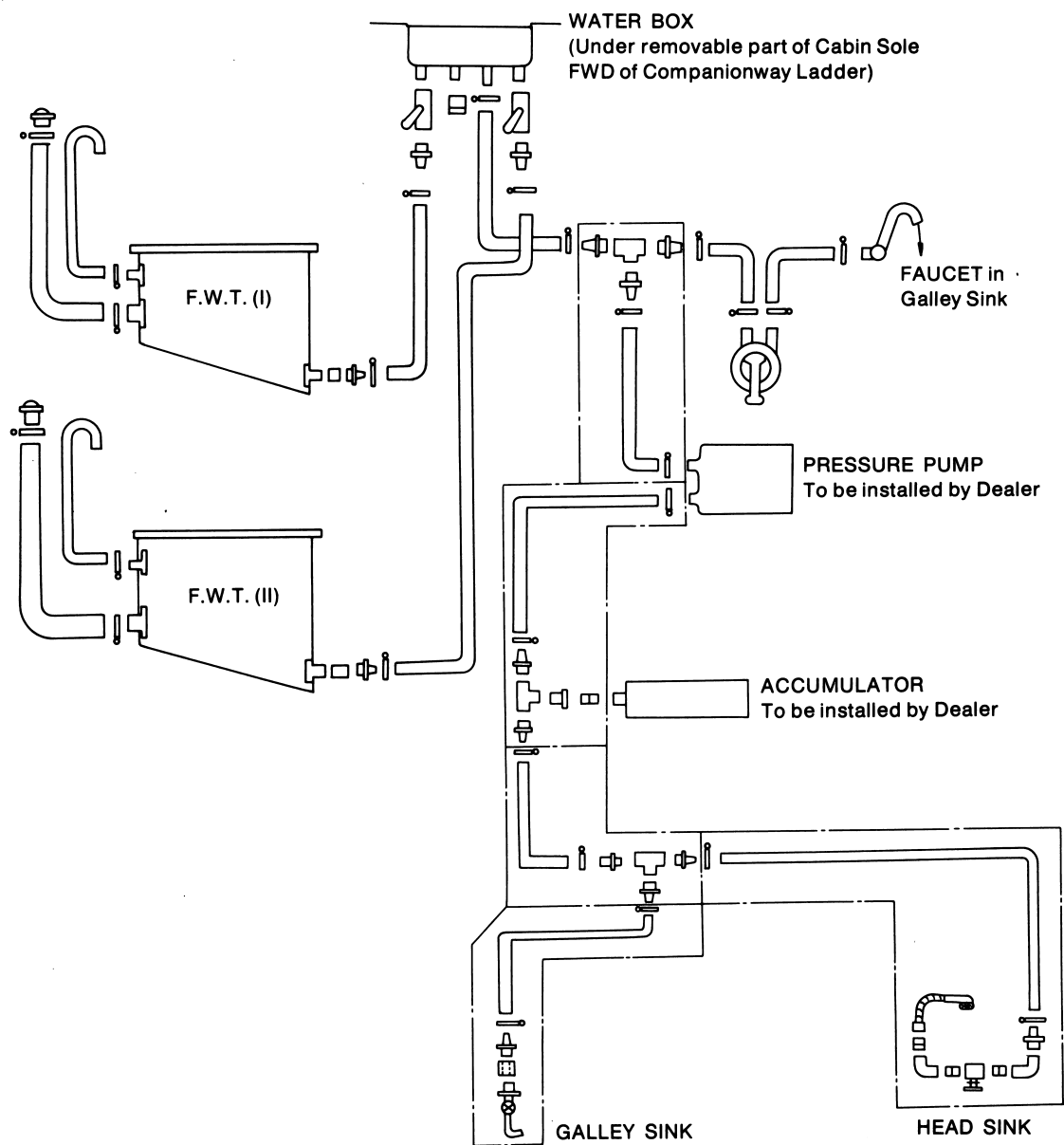
Fig. 34 HOT WATER SYSTEM incl. WATER PRESSURE SYSTEM





\* SPECIFICATION SUBJECT TO CHANGE

Fig. 35 HOT WATER SYSTEM (DETAIL)



\* SPECIFICATION SUBJECT TO CHANGE

Fig. 36 WATER PRESSURE SYSTEM (DETAIL)



YAMAHA MOTOR  
CORPORATION, U. S. A.

# SAILBOAT LIMITED WARRANTY

Yamaha Motor Corporation, U. S. A. hereby warrants that new Yamaha Sailboats purchased from an authorized Yamaha Sailboat dealer will be free from defects in material and workmanship for the time periods stated below, subject to those limitations stated below.

- A. The HULL and DECK components of each new Yamaha boat are hereby warranted against STRUCTURAL FAILURE due to any defect in material or workmanship for a period not to exceed 1 YEAR from commissioning date.
- B. ALL OTHER COMPONENTS either manufactured by or installed by Yamaha are warranted against defects in material and workmanship for a period not to exceed 1 YEAR from commissioning date, subject to the following EXCLUSIONS:

1. Items specified by Yamaha to be the responsibility of the dealer in preparation and launching of the new boat,
2. any failure caused by negligent or abusive operation or maintenance,
3. normal wear,
4. paints, varnishes, gelcoats and plated surfaces,
5. those mechanical or accessory items not manufactured, but installed by Yamaha, such as engine and winches, (although the installation itself is covered by Yamaha warranty),
6. dealer installed optional items such as stoves, toilets, folding propellers and related installation,
7. mast and standing rigging damage or failure due to improper tuning or handling,

- C. DURING THE PERIOD OF WARRANTY, the selling Yamaha dealer will provide:

1. The replacement of any part adjudged defective by Yamaha due to faulty workmanship or material from the factory.
2. Any repairs made necessary by faulty workmanship or material from the factory.

- D. DEALER RESPONSIBILITY includes:

1. to carefully inspect, test and make all adjustments and corrections required for the satisfactory operation of the boat, prior to delivery to purchaser,
2. to furnish guidance and information on matters pertaining to service and maintenance, as well as provide such warranty service as may be necessary.

- E. PURCHASER RESPONSIBILITY includes:

1. to become familiar with the proper operation and maintenance information included with the boat,
2. to operate and maintain the boat in reasonable accordance with said information,
3. to notify the selling dealer within ten days of any problems relating to warranty service.

- F. YAMAHA MOTOR CORPORATION, U. S. A. MAKES NO OTHER WARRANTY OF ANY KIND EXPRESSED OR IMPLIED. WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS AND TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY YAMAHA MOTOR CORPORATION, U. S. A. AND EXCLUDED FROM THIS WARRANTY.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. ALSO EXCLUDED FROM THIS WARRANTY ARE ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF USE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

YAMAHA MOTOR CORPORATION, U. S. A.  
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Effective Date: 1 January 1980