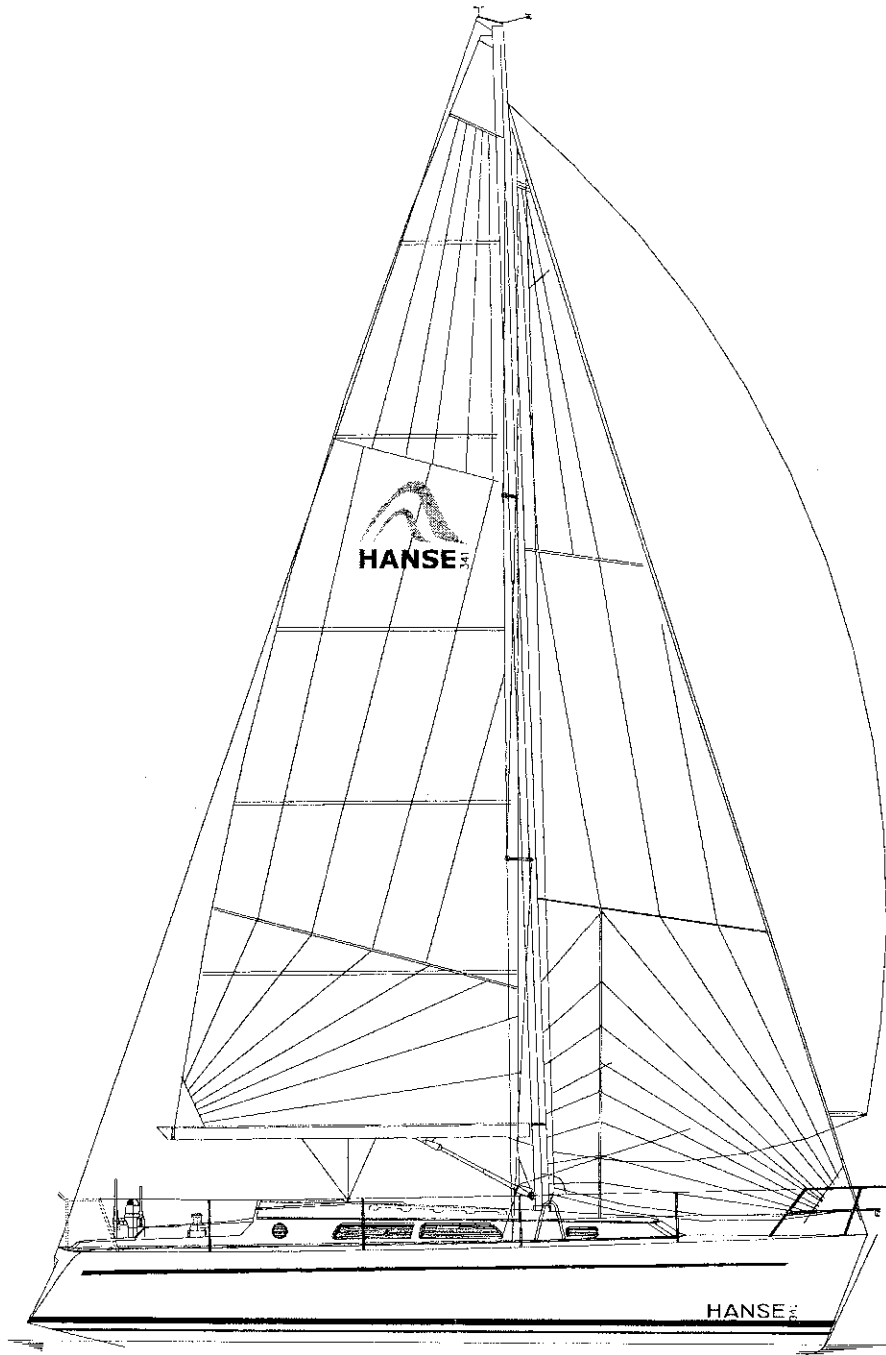


Skipper's Manual



Sailing Yacht "Hanse 341"

[®]
Hanse 
The Quality People in Yachting

Yachtzentrum Greifswald GmbH & Co. KG • Salinenstraße 22 • D-17489 Greifswald
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Proof of Identity

Acknowledgement of Receipt

Introduction

This Manual is to help you handle your sailing yacht safely and with pleasure. The Manual contains information about the yacht, the supplied or built-in accessories and equipment as well as its operation and maintenance. Please acquaint yourself with your yacht by means of this Manual before the first voyage.

We recommend you to keep the Manual on board and use it as a guide for operation or for handling minor emergencies.

For your own safety and convenience, should this be your first sailing yacht or should you not be acquainted with the special characteristics of a keel yacht, please acquaint yourself with the handling and operation of the yacht before steering it. The shipyard will be pleased to inform you of additional training possibilities should you wish to extend or refresh your knowledge.

An Owner's Manual is a technical document, which describes the yacht and its technical systems and which assists the skipper in safely handling the yacht and its systems and in troubleshooting. It also advises the owner on the transportation, maintenance and care of the yacht.

However, an Owner's Manual cannot be a substitute for the knowledge of seamanship required for a Certificate to command a recreational craft.

PLEASE KEEP THIS MANUAL IN A SAFE PLACE AND HAND IT OVER TO THE NEW OWNER WHEN YOU SELL THE YACHT.

Yachtzentrum Greifswald GmbH & Co. KG welcomes you among the **HANSE**-owners and thanks you for the confidence placed in our products by buying this yacht.

Your contractual partner as well as management and staff of **Yachtzentrum Greifswald GmbH & Co. KG** hope you enjoy your new sailing yacht.

Bon Voyage, fair winds and calm seas.

Yachtzentrum Greifswald GmbH & Co. KG
Management

Michael Schmidt

Boat Design Category

It is a requirement of the European Recreational Craft Directive to classify each boat according to a design category.

The sailing yacht Hanse 341 is classified as design Category A.

The Directive describes Design Category A as follows:

Design Category A: Ocean

Designed for extended voyages where conditions may exceed wind force 8 (Beaufort scale) and significant wave heights of 4 m and above, and vessels largely self-sufficient.

Certification

The EC Directive provides for certification module B for yachts of this size. This means the manufacturer himself certifies that construction and equipment comply with the Directive, however stability and flotation need to be verified by a recognized test body.

Therefore, **Lloyd's Register Quality Assurance GmbH – Yacht Services** (a 100 per cent subsidiary of **Lloyd's Register of Shipping, London**) with head office in Hamburg was authorized to be the accredited test body in compliance with the EC Directive (see Declaration of Conformity).

Lloyd's Register Quality Assurance GmbH have also been instructed to fully supervise the serial construction in the interest of the safety of the crew.

Identification

The hull identification number is imbedded into the transom on starboard side. It is a globally unique sequence of numbers and letters.

Another number is imbedded at a hidden place which is only known to the manufacturer. In case of theft it will help to identify your yacht.

The number is:

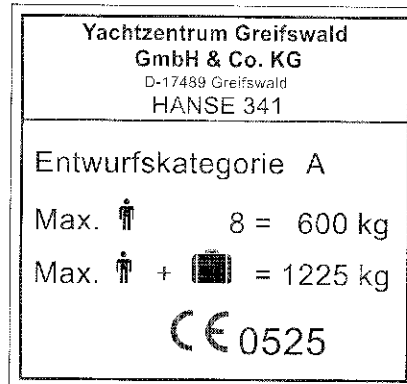
<i>DE-YZG34086A303</i>

This sequence of letters and numbers stands for the following information:




<i>DE</i>	country of manufacture - Germany
<i>YZG</i>	unique manufacturer's code
<i>34086</i>	unique serial number chosen by manufacturer
<i>A</i>	month of production - January
<i>3</i>	year of production 2003
<i>03</i>	last digit of model year 2003

Builder's Plate

The builder's plate is on the front wall of the cockpit (as required by the Directive). It contains safety data which we explain here:



Explanations

- Boat design category A: Ocean
- Max.  = 8: Maximum number of persons recommended by manufacturer if boat is underway in the relevant sea according to its design category. If the boat is underway in non-ocean areas the number of persons may increase taking into consideration the maximum additional loading capacity.
- Max.  +  = 1000 kg: Maximum loading capacity comprising 8 persons, stores, supplies, personal equipment and tank capacities.
- CE 0525: CE-mark to proof conformity of the boat with the provisions of the Directive. The sequence of numbers is the identification number of the certifying body, in this case **Lloyd's Register Quality Assurance GmbH**.

WARNING NOTICES

Many chapters of this Owner's Manual advice on a trouble-free operation and maintenance or warn of dangers. They are placed in boxes with a view to finding them more easily.



DANGER

Stands for the existence of an extreme, real source of danger, which is very likely to cause death or irreparable injury should no appropriate measures be taken.



WARNING

Stands for the existence of a source of danger, which may cause injuries or death should no appropriate measures be taken.




ATTENTION

Stands for a reminder of safety precautions or raises the attention to handlings, which may be uncertain or may lead to personal injuries or damage the craft or its components.

EC- Declaration of Conformity**in compliance with EC Directive 94/25/EC relating to Recreational Craft, Annex XV**

We hereby declare that the boat, thereafter described in more detail complies with the essential safety and health requirements as laid down in the EC Recreational Craft Directive regarding its concept and construction as well as the model placed on the market by us. This statement shall lose its validity in case of any amendments to the boat which affect the "essential safety requirements" and which have not been agreed with us.

Name of boat:	Hanse 341
Type of boat:	Keel yacht
Serial number of hull:	DE-YZG34086A303
Design category:	A (Ocean)
Certification module:	Aa
Applicable Directive:	EC Recreational Craft Directive(94/25/EC)
Applied standards:	see Annex
Certifying body:	Lloyd's Register Quality Assurance GmbH - Yacht Services -
Address:	Mönckebergstr. 27, D-20095 Hamburg
Examination module:	Aa
Certificate of Conformity no.:	HYS 0130079 from 18.10.2001
Date / Signature of Manufacturer	09/12/02 
Position of undersigned	Michael Schmidt Manager

Manufacturer: Yachtzentrum Greifswald GmbH & Co. KG; Salinenstraße 22; D-17489 Greifswald



COPY

EU - Konformitätszertifikat


Lloyd's Register Quality Assurance GmbH, eine Benannte Stelle im Sinne der EG-Richtlinie 94/25/EG für die Sportschifffahrt, hat die Berechnungen des Herstellers und/oder die Kontrollen für die Stabilität und des Auftriebs entsprechend den grundlegenden Sicherheitsanforderungen 3.2 und 3.3 für die Boot-Entwurfskategorie A im Hinblick auf das Boot wie unten beschrieben überprüft, und bestätigt, daß diese grundlegenden Sicherheitsanforderungen in Übereinstimmung mit dem Modul Aa der obigen Richtlinie zufriedenstellend erfüllt wurden.

Die benannte Stelle war nicht in Produktionskontrollen einbezogen wie evtl. angenommen werden könnte, wenn die EU-Kennnummer neben dem CE-Kennzeichen erscheint.

Dieses Zertifikat ist ausgestellt für:

Antragsteller	:	Yachtzentrum Greifswald GmbH & Co. KG Salinenstr. 22 17489 Greifswald
Boostyp	:	Segelyacht mit festem Kiel "Hanse 341"
Modul	:	Aa
Rumpflänge	:	10,35 m
vom Hersteller empf. max. Zuladung	:	1.000 kg (ohne Tankinhalte)
max. Personenzahl	:	8
Hersteller	:	Yachtzentrum Greifswald GmbH & Co. KG Salinenstr. 22 17489 Greifswald
Spezifizierte Normen	:	prEN ISO 12217-1, prEN ISO 14945, prEN ISO 14946, prEN ISO 11812, prEN ISO 15083
Zertifikat-Nr.	:	HYS 0130079
Ausstellungsdatum	:	18. Oktober 2001

LRQA GmbH
EU-Kennnummer: 0525

Name: 
Lloyd's Register Quality Assurance GmbH
W. Scheel



Unstimmigkeiten, die Dienstleistungen der LRQA GmbH betreffen, oder Vertäge, die diese Dienstleistungen zum Inhalt haben, unterliegen deutschem Recht mit Gerichtsstand in Hamburg.
Lloyd's Register Quality Assurance GmbH ist eine Tochtergesellschaft der internationalen Klassifikationsgesellschaft Lloyd's Register of Shipping, registered office: 71 Fenchurch Street, London EC3M 4BS.

Annex to the Declaration of Conformity
Applied harmonized standards and/or draft standards relating to the
paragraphs of Directive 94/25/EC

EC Directive	ISO Standard
1. Main dimensions	8666
2.1. Hull identification	10087
2.2. Builder's plate/number of persons	14945
2.3. Protection from falling overboard	15085
2.4. Owner's Manual	10240 ; 11192
3.1. Structure	12215 part 1
3.2. Stability and freeboard	12217 part 2
3.3. Buoyancy and flotation	12217 part 2
3.4. Openings in hull	12216; 9093
3.5. Flooding	11812; 12217; 12216; 8849 ; 15083
3.6. Maximum recommended load	14946
3.7. Liferaft stowage	Sicherheitsrichtlinie des DSV (Safety Directive of German Sailing Association)
3.8. Escape	9094 part 1, 12216
3.9. Anchoring, mooring and towing	15084
4. Handling characteristics	8665 ; 11592
5.1. Inboard Engines	7840 ; 9094; 10088; 8846 ; 4585 ; 11812; 4566
5.2. Fuel system	7840 ; 8469 ; 9094; 10088
5.3. Electrical system	8846 ; 8849 ; 9097
5.4. Steering system	8847 ; 8848 ; 9775 ; 10592 ; 13929
5.5. Gas system	10239
5.6. Fire protection	9094
5.7. Navigation lights	KVR (International Regulations for Preventing Collisions at Sea)
5.8. Discharge prevention	8099

(e.g. **8847** – harmonized standard)

1. Description of the Boat

1.1 Main Data

1.1.1 Main Dimensions

Length overall	L_{oa}	10.35 m
Length of the hull at the water line	L_{wl}	8.90 m
Beam max.	B_{max}	3.40 m
Draught, normal keel	D_{max}	approx. 1.75 m
Draught flat keel (optional)	D_{max}	approx. 1.55 m
Draught drop keel (optional)	D_{min}	approx. 0.95 m

Sail Area

Being a touring yacht, sailing yacht Hanse 341 is equipped with the following standard sails:

	Standard Rig (m ²)
Mainsail, standard	approx. 34.20
Self tacking jib	approx. 27.30
Storm jib (optional)	approx. 9.00
Genoa (optional)	approx. 36.00
Spinnaker (optional)	approx. 84.00

Headroom upper edge of mast* H_D approx. 16.35 m

*Headroom may be a critical dimension when passing bridges or power transmission lines. It covers the distance between water line and upper edge of mast and is given without any antennas or radar reflectors and does not include the dimension for the masthead lantern or other attachments. Adjust the dimension according to the equipment mounted by you and make a note of it in the Owner's Manual.

1.1.2 Displacement and Masses

		Normal keel
Mass of empty boat (equals LCC) – including safety equipment	M_{empty}	5,150 kg
Mass of fully equipped boat - ready for sea with crew	M_{max}	6,150 kg
Ballast	$M_{Ballast}$	1.820 kg

1.1.3 Maximum Number of Persons plus Additional Loading Capacity

The Directive requires fixing a recommended maximum number of persons on board for each boat, provided that the boat moves within the area for which it is designed. This yacht has been designed for "Ocean", i.e. extended cruises among ports. Therefore, the following recommendation is given:

In case of ocean cruises over several days no more than 8 persons should be on board.



NOTE: Life jackets have to be on board for all persons on board. The inflatable liferaft should have a capacity of 8 persons.

Not more than 12 persons should be on board for day cruises for whom is sufficient room on deck and in the cockpit.

1.1.4 Engine System

Diesel engine	
Manufacturer	Volvo Perkins
Type	MD 202
Output	14.7 kW (approx. 19 HP)
Cooling	indirect (sea/ fresh water)
Reverse-reduction gear	Saildrive MD25S
Reduction ratio	2.48:1

(For further information see operating instructions for engine.)

1.1.5 Electrical System

230 V A.C. System

The yacht is equipped with a battery charger (optional) for recharging the batteries. Also available is a socket for using household appliances and motor-driven tools when in port. For details see 2.5.1.

12 V D.C. System

Standard supply on board is provided by a usual 12 V D.C. system, such as for nautical equipment, pumps, devises and lightings. For details see 2.5.2

Battery Capacities

The yacht is equipped with 2 batteries:

1 x starter battery	12 V 70 Ah, low-maintenance, leak-protected
1 x load battery	12 V 100 Ah, low-maintenance, leak-protected

1.1.6 Tank Capacity

1 fresh water tank approx. 150 l.

The tank is in the forebody of the boat.

1 fuel tank approx. 90 l.

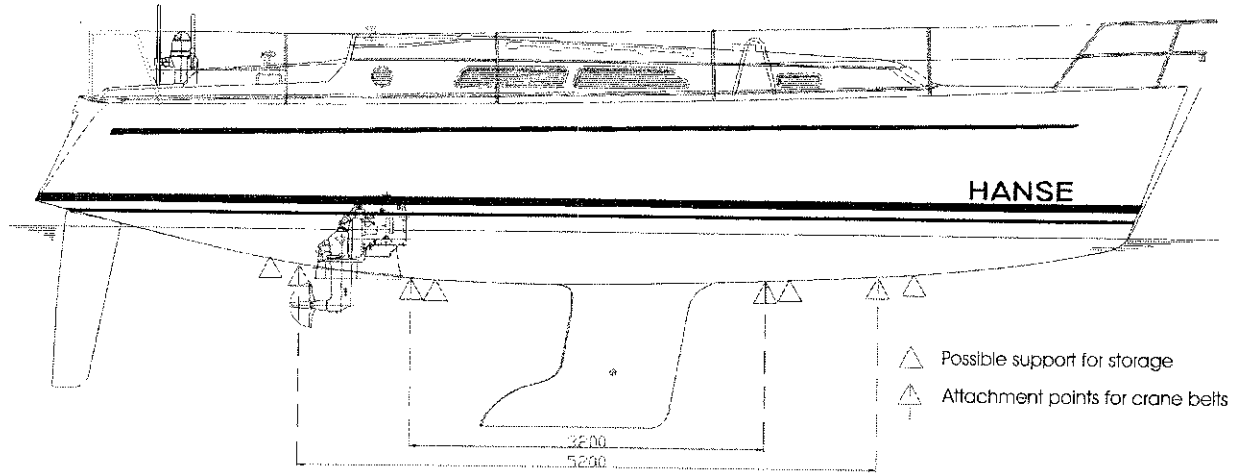
The tank is in the middle body behind the engine beneath the aft cod.

1 sewage tank approx ca. 40 l.

The tank is on port side beneath the berth.

For details on the tanks and the complete installation see section "Equipment and Systems".

1.1.7 Attachment Points for Lifting Gear, Support Points for Transport



Lifting by Crane

Many ports transport the yachts on shore by crane or lift fixture. This requires the belts to be placed in compliance with the stability of the hull and the distribution of weight. You should mark the correct position of the belts with the enclosed stickers below the toe rail. The Saildrive position is generally marked by sticker.



ATTENTION! The rear belt is near the Saildrive engine.

Slipping

If the yacht is transported on shore on a conventional slipway, it can stand on the keel. In this case the position of the yacht is unstable and therefore it has to be protected from tipping over on the sides as well as the front and the back. We therefore recommend to slip the yacht in an appropriate cradle for transport and storage.

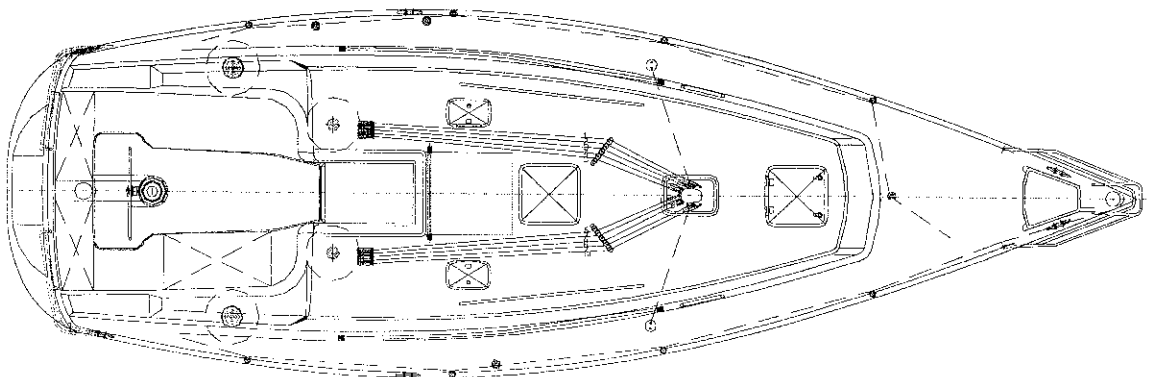
If the yacht is to stand on the keel over a longer period of time, forward and after quarters have to be supported efficiently in order to relieve the structure and to prevent the overhang from subsiding.

At any rate, if the yacht is stored over a longer period of time, we recommend to put it in a transport and storage cradle.

Transport

In most of the cases the same rules apply for transport as noted under the paragraph "Slipping". In addition to that the yacht must be supported at the aft and forward quarters in order to relieve its structure. The yacht must be fastened by at least two suitable belts.

1.2 General Arrangement



1.2.1 Performance-Type Specification

Type

The Hanse 341 sailing yacht is a sloop rigged round-bottom sailing yacht with cut lateral plane, freely suspended profile rudder and a stationary ballast keel with bulb.

Structure

The yacht has a FRP structure. Hull and deck are exclusively hand-laid. The deck is a sandwich construction. The hull is a sandwich construction above the waterline and a solid laminate construction below the water line. It is braced by permanently laminated plywood main bulkheads as well as by FRP components.

Please note that we cannot guarantee colourfastness for blue hulls, unless the transom is permanently covered by a tarpaulin and the hull is polished regularly when in berth.

Preservation

Isophthalic acid gel-coat and resin for the laminate of the hull are a guarantee for the anti-osmosis protection. In addition to that, laminated areas with water exposure are conserved with Topcoat. The underwater hull is preserved against fouling by an underwater coating system (optional).

Ballast

The yacht is equipped with a ballast keel of grey cast iron. The keel is safely bolted and sealed with the hull by a flange connection in both keel versions. This type of connection also withstands highest working loads at waves and storm.

However, we raise your attention to the fact that we are not in the position to take into consideration any collisions with underwater obstacles when calculating the dimensions of these connections.

Deck Sheathing

The treads on deck as well as the cockpit seats are covered with a skid resistant cover (FRP imbedded) or are covered with teak parquetry (optional).

Fittings and Hatches

All fittings and hatches are made of antirust, sea-waterproof materials. They are bolted with the FRP deck and carefully sealed. Plywood or sea-waterproof aluminium re-enforcements are laminated into the deck at the assembly points so that the occurring stress is safely distributed.

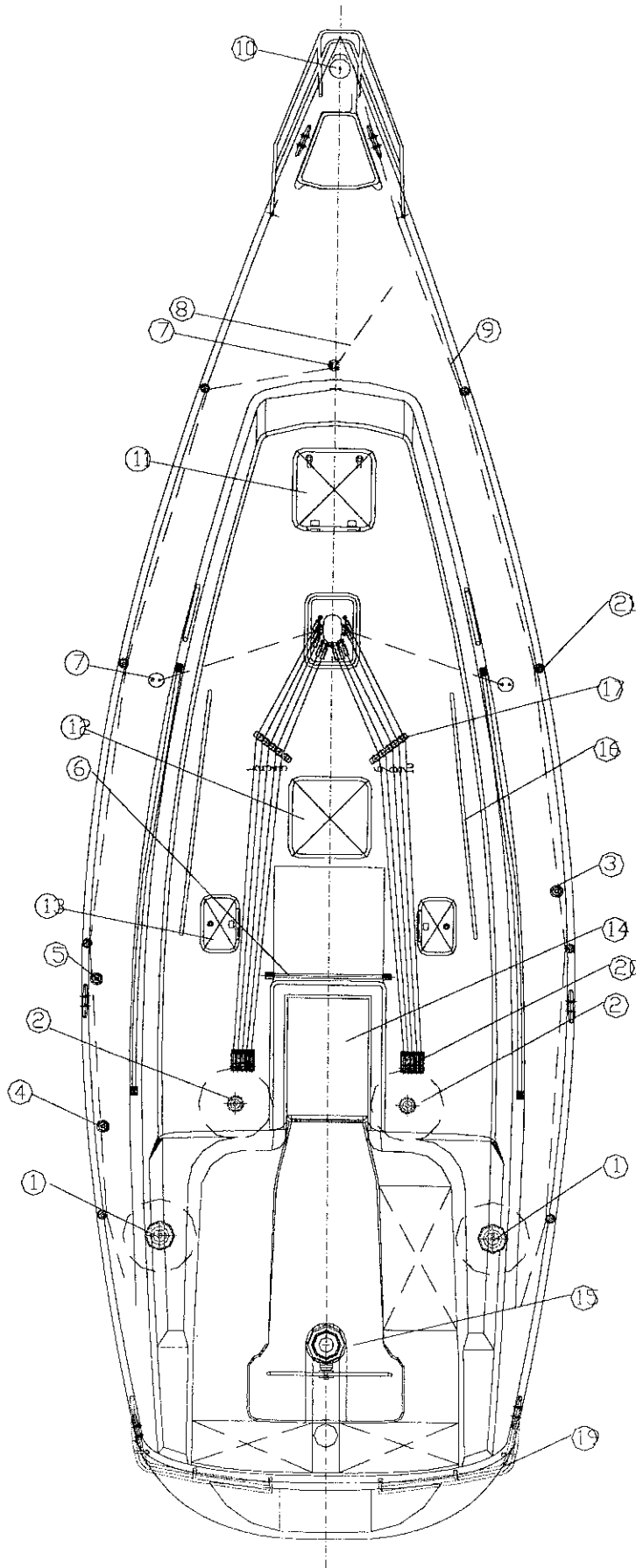
Wooden Parts and other Components

The hand rails on the cabin top are of pure teak. Sliding hatch and sliding bulkhead are made of acrylic glass.

Guardrail

The deck is fitted with stainless steel bow and stern pulpits, which are connected by a guardrail at a height of 610 mm throughout. The hand rail bases are connected with the toe rail and bolted to the deck. The rail stanchions have two Nirosta coated lifelines with stretching screws.

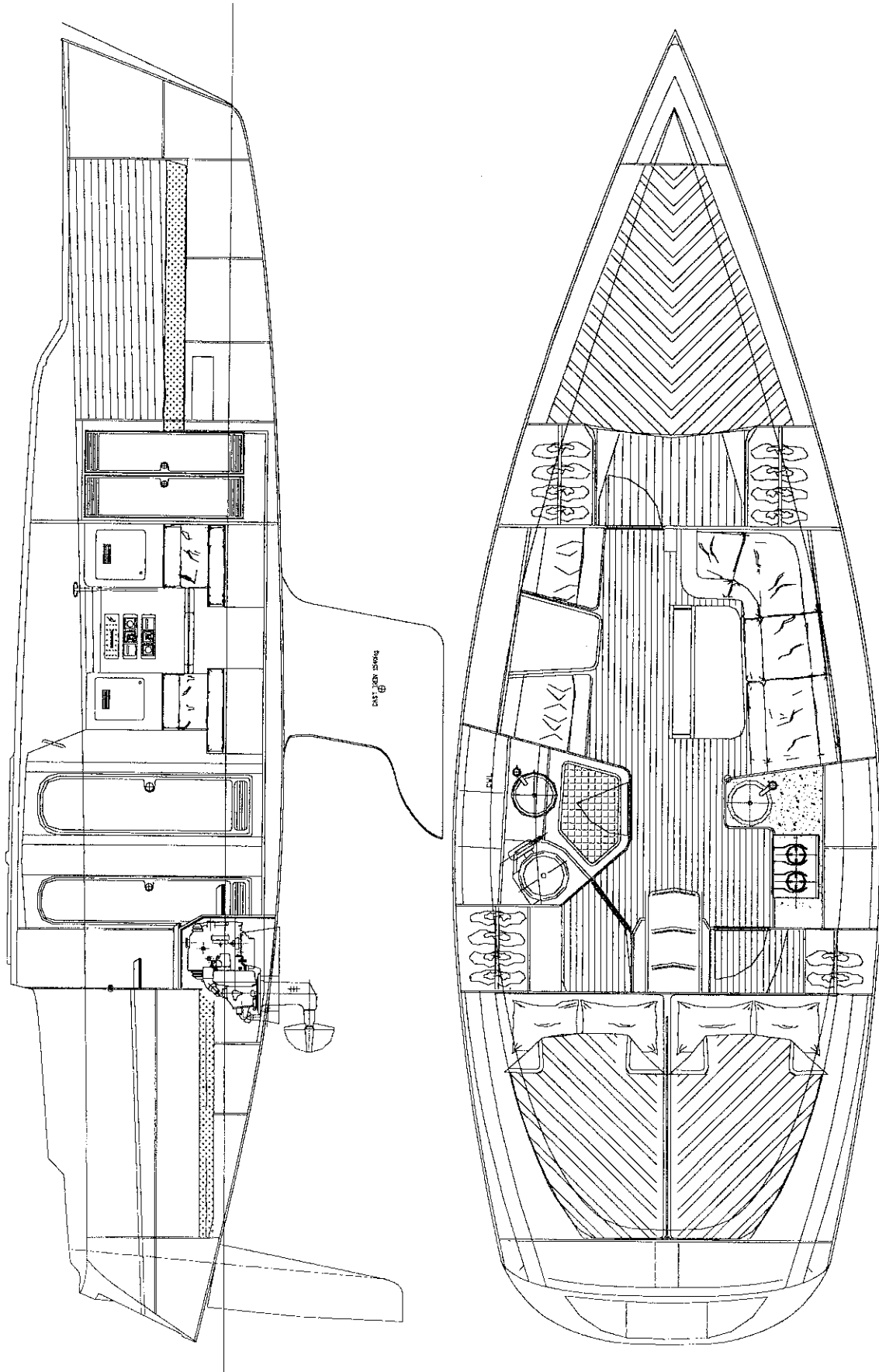
1.2.2 Deck Arrangements



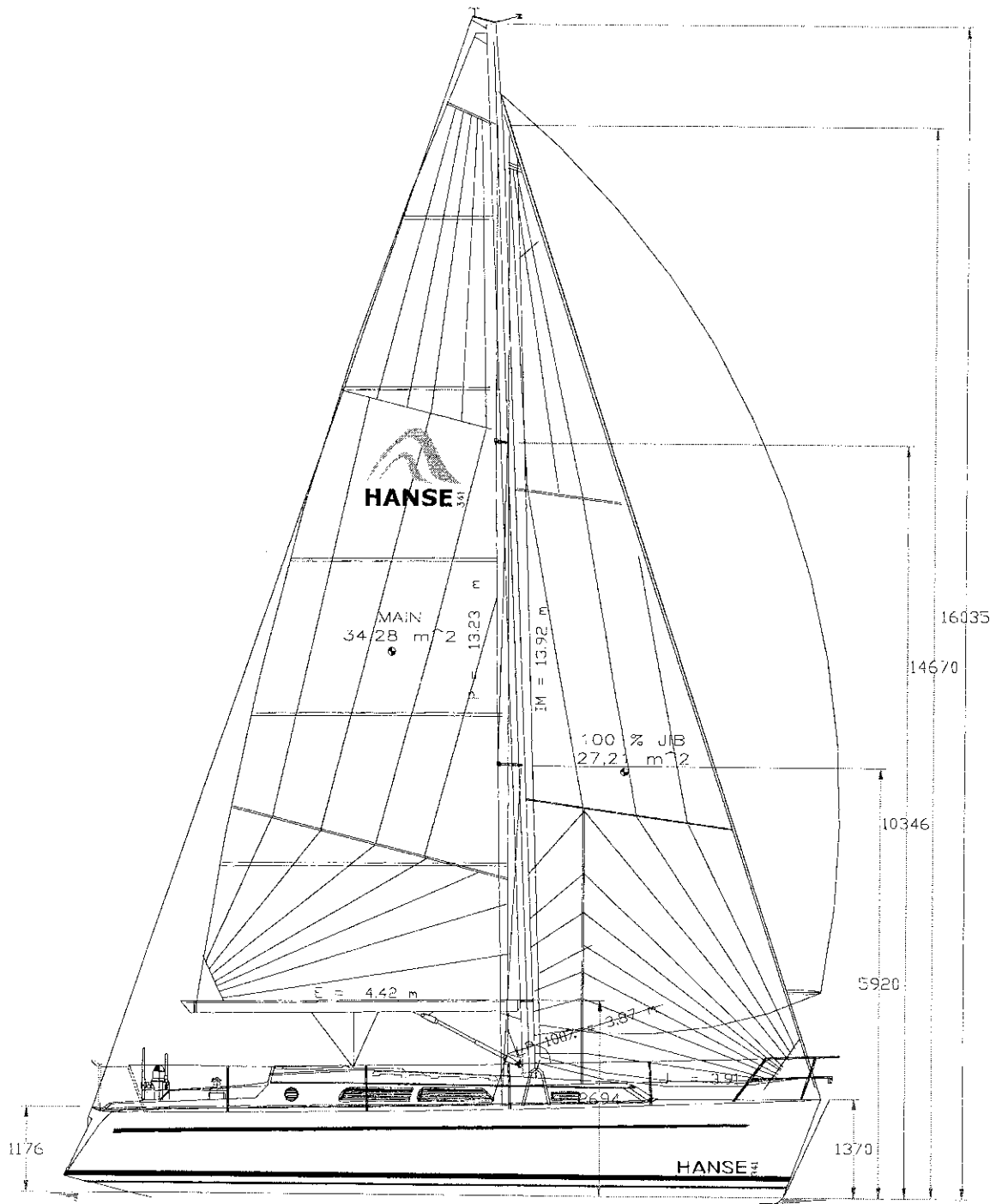
Explanations on the Deck Arrangements:

Hanse 341			
	Description	Beschreibung	Stk
1	Winch Lewmar St44	Schotwinde Lewmar St44	2
2	Winch Lewmar St24	Schotwinde Lewmar St24	2
3	Water inlet	Wassereinfüllstutzen	1
4	Fuel inlet	Dieseleinfüllstutzen	1
5	Grauwasser	Grauwasserstutzen	1
6	Mainsheet track	Großschotschiene	1
7	Pad eye	Augbeschlag	1
8	Spi-Downhout	Spi-Niederholer	1
9	Furling rope	Leine für Rollvorrichtung	1
10	Furler (Harken Size 1,5)	Rollvorrichtung	1
11	Hatch	Luke	1
12	Hatch	Luke	1
13	Opening portlight	Decksfenster	2
14	Sliding hatch	Schiebeluke	1
15	Steering wheel (Option Tiller)	Steuerrad (Option Pinne)	1
16	Hand rail	Handlauf	1
17	Deckorganizer	Umlenkblöcke	2
18	Bow rail	Bugreling	1
19	Taff rail	Heckreling	1
20	Stopper	Stopper	2
21	Rail	Reling	1

1.2.3 Accommodation Plan



1.2.4 Sails and Rigging



1.3 Drive Systems

1.3.1 Sails

The following sails are standard equipment of sailing yacht Hanse 411:

Main sail, standard, fully battened	approx. 34.20 m ² , weight of canvas: 240 g/m ²
Furling Genoa	approx. 36 m ² , weight of canvas: 240 g/m ²
Self tacking jib	approx. 27.30, weight of canvas: 240 g/m ²

1.3.2 Rigging

Mast length: approx. 14.7 m, boom length: approx. 4.6 m,

Mast: Light metal profile, without taper, double spreaders, angular, 2 halyards, topping and boom lifts, downhaul with fittings,

Boom: Light metal profile, main sail foot adjustment, 2 reefing lines, eyes for main sheet, eye for downhaul.

Standing rigging (made of 1 x 19 twisted wire, material 4401), consisting of:

Forestay with excessive footage (foresail reefing system)	1 x	Lower shroud	2 x
Standing backstay with crown	1 x	Upper shroud	2 x
Standing backstay, single	1 x	Intermediate shroud	2 x
Standing backstay tackle	1 x		

Running rigging

Inside the mast

- Main topsail halyard
- Genoa halyard
- Topping lift

Optional: Spinnaker equipment:

- Spinnaker halyard (attached)
- Spinnaker boom uphaul
- Spinnaker boom downhaul

Inside the main boom: 2 reefing lines (battened sail), 1 mainsail foot adjustment

1.3.3 Motorisation, Engine Room, Gear, Propeller

The complete drive system is mounted in the engine room beneath the cockpit and is accessible through hatches. The Saildrive engine requires only little space because of its compact design. All devices are assembled in a unit. The whole drive system has an elastic mount for sound and vibration absorption. The underwater part of the gear cuts through the bottom of the boat. It is sealed with a double rubber diaphragm, which prevents the transmission of vibrations to the bottom of the boat.

Please include this seal into your regular inspections and test this connection for tightness.

You will find the detailed description of the drive system in the operational instructions for the engine.



Note

Please take note of the operational instructions for the engine system and the remarks regarding its operation, maintenance and care.

1.4 Safety Instructions

1.4.1 Flooding, Watertight Integrity

Hanse 341 is a state-of-the art sailing yacht which has been built with great care. However, outside events, faulty operation or other unpredictable events may cause the danger of flooding or sink the yacht. The design of hull stability, its built-in parts and systems is such as to safely withstand the stress when moving within scheduled areas.

The yacht has to be handled and equipped in a seamanlike manner. It may be that the standard equipment provided by the shipyard is not sufficient.



Please take note of the following:

- **Keep order** on board so that the systems are accessible at any time!
- Make the leak test with **outboard openings** and **sea valves**!
- Keep the **bilge system** in stand-by position!
- Keep **leak stopping material** on your boat!
- Stable **buckets** are an efficient aid for emptying the boat.

- Adjust your yacht to the prevailing **weather conditions** (e.g. reef the sails)!
- Close **hatches, windows and air drains** in heavy weather (as far as possible)!
- Do not **change any technical devices** without expert advice from the shipyard!
- Make sure that your boat is repaired by experts after **regular inspections**!
- Beware of the **dangers** of touching ground or of running the ship ashore.

1.4.2 Stability

Stability is the property of a yacht of righting up after getting a heel from wind and/or waves. This is guaranteed when no extreme amounts of water are on board. The yacht gets sufficient stability by its shape, the distribution of weight, the calculation of its dimensions as well as the amount of ballast.

The yacht has a righting arm even at 90 degrees inclination in the critical case.

Only at an angle of 125 degrees the righting moment becomes zero. This is considered the general criterion that a yacht is fit for the ocean.

Such heeling angles can however only occur at heavy weather when several forces are overlapping. But the ingress of water will be limited thanks to the arrangement of the flood outlets.

1.4.3 Fire Protection

Preventive Fire Protection

Fire, in addition to water, is a great hazard for any ship as well as for a sailing yacht. A man-made fibre yacht consists of a flammable material though its flammability is very low.

When designing the yacht we paid much attention to fire hazards. This includes the selection of the materials used as well as their processing.

The engine room has a fire-retardant sound insulation which resists the fire well for a short period of time.

We kept away flammable materials from the cooker, e.g. curtains. Please maintain this condition.

Instruct your crew in the handling of fire extinguishers.



DANGER!

Engine and cooker as well as any naked fire are major sources of fire.

Therefore, the sailing yacht is equipped with two suitable fire extinguishers which allow fighting the fire efficiently from its very beginning.

You will find them:

- **1 fire extinguisher** at the starboard cockpit wall, at least fire class 10A/68B,
- **1 fire extinguisher** at the toilet, at least fire class 10A/68B.

Add a fire blanket to your equipment. It can be most efficient near the cooker, in particular when using hot grease.



NOTE

Observe the inspection periods for fire extinguishers and make sure that they are always ready for use.

Active Fire Fight



DANGER!

Each fire is a direct hazard to you, the crew and the yacht!

You have to fight the fire consequently without delay immediately after having alarmed all person on board.

Any person who cannot actively participate in the firefight has to go on deck using the escape openings.

Fire in the Pantry:

Interrupt gas supply.

Smother the flames with a fire blanket.

Use the fire extinguisher when the fire has spread to the equipment!

Fire in the Engine Room:

Switch off the engine!

Do not open the hatches!

There is a small opening behind the companionway between the stairs of the engine room hatch. Insert the nozzle of the fire extinguisher into this opening and empty it completely into the engine room.

Only open the engine room when you are convinced that the fire is extinguished and the room has cooled down.

Fire in other Areas

Try to fight the fire with the fire blanket or with water unless it is caused by flammable liquids. In such case fight the fire with fire extinguishers.

2. Equipment and Systems

2.1 Water Systems

2.1.1 Drinking Water

The yacht has a water tank with a capacity of approx. 150 l. The filler inlet with the blue screw-cap cover is on the port side deck.

A hydraulic pump pumps the water from the tank to the supply points. When the tap is switched off the pump is stopped by backpressure.

In case the pump continues its work nevertheless the system has to be checked for tightness.

The pump is protected by a filter which needs regular inspection and cleaning.



ATTENTION!

When drinking water is stored over a longer period of time pathogens may develop. Please use appropriate licensed agents against germination!

Exchange the water more often and flush the tank!

2.1.2 Sea Water

Sea water is used for two circuits:

- for toilet flushing
- for the motor system (See section 2.7)



ATTENTION!

The sea water valves have to be closed when the boat is unattended over a longer period of time.

2.1.3 Waste Water (Toilet System)

The toilet system provides the option of either discharging direct overboard or into the waste tank. The overboard outlet can also be sealed shut.

Discharge on shore is carried out through the black screw-cap on the port side deck.

The sea water valves are arranged below the wash-basin in the locker.

**NOTE**

Please note that it must be ensured in certain ports and cruising areas that no human waste can be pumped overboard (e.g. Baltic Sea Convention).
Please instruct your guests and the crew!

When using the pump toilet please follow the symbols. Only open the valves for discharge overboard when using the toilet. This allows you to control the tightness of your yacht. (See section 1.4)

2.1.4 Bilge System

Anchor locker and cockpit are self-draining. Therefore no pumps are required. The openings are to be kept free from blockages.

The yacht is equipped with two manual bilge pumps, one in the cockpit and the second in the saloon. The strum is inside the bilge behind the mess table. The strum is to be kept free of pollution. It is operated by means of a pump lever which is inserted in the relevant opening.

**ATTENTION!**

The total pumping capacity for emptying the bilges of the yacht may not be sufficient if leakage is caused by collision. See section 1.4 Safety Instructions.

2.2 Fuel System**2.2.1 Fuel Main Engine**

The fuel tank with a capacity of approx. 68 l is mounted midships behind the engine beneath the aft berth. It is filled through the inlet on deck with the red screw-cap aft starboard marked "Fuel". The tank is filled by a hose line. The ventilation system of the tank is also on the outboard side of the ship. Please ensure that the ventilation openings are kept clean.

A manually operated shut-off valve is affixed to the tank.

The connections are on the upper side of the tank. Two pipes lead to the engine: for supply and reflux. A coarse filter/water separator, fuel pump and fine filter are integrated in the supply pipe before the engine.

**NOTE**

Only fill with clean fuel (Diesel)! Inspect and clean the filter and water separators regularly!

The boat should be filled with care so that no fuel drops on deck or into the water. Have a cloth ready for excess oil. Open the cap and insert the funnel or the nozzle. Please make sure that the inlet is contacted (grounding)! Now you can start filling.

Do not fill the supply pipe up to the top! Once you hear the sound of rising fuel stop filling.

**ATTENTION!**

Engine, heating and cooker must be switched off during filling.
Smoking and handling of naked flames and light are forbidden!

2.2.2 Heating

If your yacht has a heating system (optional) this is also supplied from the fuel tank. There is a supply pipe for it.

A built-in filter provides for clean fuel.

The heating must be switched off prior to filling. Beware of after-heat.

2.3 Rudder System

The rudder is a balanced rudder supported wholly inboard. It is a profiled FRP rudder. The shaft is of sea water resistant aluminium alloy and rests in two special bearings.

A clamp ring with pin lock keeps the rudder in the port.

The rudder is operated by a steering wheel. The controlling torques are transmitted by rope pull from the steering wheel and the control column.

The steering wheel can be locked by a clamping device.

Please note that the clamping device should be unlocked when the autopilot (optional) is used. Otherwise the controlling torques may become too strong for the servomotor and the motor be damaged.

In case of breakdown of the rudder system (not the rudder) an **emergency tiller** may be put on the rudder head shaft.



NOTE

Please ensure that your rudder system is backlash-free and can be operated easily. You may adjust the bearings of the rudder and the strain of rope pull.

The clamping device allows you to adjust the rudder so that it does not alter course immediately at minor rudder forces, e.g. pressure from a slight weather helm, and that you also may let go off the rudder for a while.

2.4 Electric Systems

2.4.1 D.C. System

The D.C. system is responsible for starting the engine and the electric supply of the navigational instruments on board as well as the lights.

Therefore, two batteries are on board

1 starter battery 12 V 70 Ah and
1 load battery 12 V 100 Ah.

They may be disconnected from the grid by two main switches. The main switch is in the starboard locker.



ATTENTION! The main switch must not be switched off during engine operation as this will destroy the diodes of the dynamo.

The batteries are connected by diodes so that they are charged whilst the engine is running. Users, however, draw only from the load battery. This guarantees that a sufficiently charged battery is always available for the engine under normal circumstances.

The batteries may also be charged from the shore connection and built-in charge controller.

The electricity is distributed from the switchboard above the chart table. The circuits are connected with switches and automatic fuses so that the users may be connected from a central point. The fuses indicate whether there is a defect in the system.

The separate circuits are marked specifically. Some are stand-by switches.



ATTENTION!

Please open the switchboard only when switched off because you may get into contact with live elements that are not protected by fuses.

Please note: Energy from the battery is only available for a limited time. The voltmeter at the

switchboard shows you the state of load. A drop in the voltage to less than 10.5 V requires recharging, either by starting the engine or by using the charger.

Should it not be possible for certain reasons to recharge the batteries whilst at sea, you should save electric energy.

We recommend switching on the users according to their importance:

- only position lights at night,
- lights at the chart table only when it is used,
- navigation instruments may be in stand-by position,
- VHF radio only in critical situations.

The general lights should also be switched on only when directly required. You should turn off the refrigerating box, radio, autopilot or other users that require a lot of energy.

The starter battery is at your disposal in an absolute emergency, in case you cannot restart the engine because of a defect.

2.4.2 A.C. System

If the yacht has a shore supply socket, you can use a voltage of 230 V which enables you to use a voltage of 220V through a shore supply cable, shore supply socket and shore supply unit. The plug is a standard CEE three-pin plug.

Not only does the shore supply provide for most of the battery load, the 220 V socket may also be used for equipment on board.

Please note: The capacity is mostly limited on shore. Therefore, shore electricity **cannot** be used for heating.



DANGER!

Please connect the shore supply by first plugging in on board and thereafter on shore. By doing this you can use the electricity immediately.

To cut off the connection you start by unplugging the connection on shore.

Do not allow the cable to lay in the water and plug connections should be protected from water or be watertight (rain).

For your own **safety**, the shore connection is equipped with a fault-current protective switch (FI-protective circuit breaker) which switches the unit off within a split second.

The operativeness of the switch should be tested regularly by pressing the release button beneath the seat at the chart table.

2.4.3 Battery

The yacht is equipped with 2 batteries:

- | | |
|---------------------|---|
| 1 x starter battery | 12 V 70 Ah, low maintenance, leak protected, |
| 1 x load battery | 12 V 100 Ah, low maintenance, leak protected. |

The batteries are installed as described in section 2.4.1. Low maintenance means that the batteries must only be well charged all the time. As they are leak-protected it is hardly to be expected that the electrolyte needs refilling with distilled water if mounted correctly. Please check this regularly.

The battery needs to be well charged and kept at a dry and frost-free place over the winter season.

Please ensure that the poles are clean and protected against corrosion by battery grease.

2.4.4 Chargers, Shore Supply

If a shore supply unit is built-in a charger is connected by a stationary cable. This charger is adjusted to the built-in batteries and starts charging the batteries automatically when it is switched on and the shore connection is established (see also 2.4.2), preferably first the starter battery and after that the load battery. This guarantees at the same time that the 12 V unit on board is supplied with electricity.

2.4.5 Navigation Systems

Navigations systems are optional. The switchboard is readily prepared for a later installation of a few instruments.

The navigation lights to indicate positions are stationary. They include port and starboard lights, stern, masthead and anchor lights.

Keep a range of the relevant spare lights!

STERN 10W. BOW 25 W
DAYMARKET DAYMARKET.

2.5 Liquefied Petroleum Gas Unit

2.5.1 Description

The gas unit for the cooker is installed in compliance with European standard EN10239 and requires a special test certificate which is attached to the boat documents.



NOTE

It is your obligation as owner to have this unit checked regularly every two years by an acknowledged expert of Verband der Gas- und Wasserinstallateure in Germany.

The gas system is installed in such a way that escaping gas is ventilated to the outside. The gas cylinder, a 3 kg cylinder by standard, is installed separately in a box in the back of the cockpit. The gas pipe is installed as a stationary 8 mm copper pipe. Hose lines are used at the junctions from the bottle and/or to the cooker. Such hose lines are specially designed for gas units and must not be used after their date of expiry.

A shut-off valve is in front of the cooker.

The pressure reducing valve at the gas cylinder has an inlet pressure of 30 mbar. A flow of 1 kg is metered per hour. No other pressure reducing valve must be installed!

2.5.2 Operation

A gas system has to be operated with care.



ATTENTION!

Leaking gas is more heavy than air and is compiling in the hull.

DANGER OF SUFFOCATION and **DANGER OF EXPLOSION!** Do not use fire or naked light and/or do not use electric appliances whenever you smell gas!

Close the cylinder valve and ventilate the boat intensively. Prevailing gas can be detected with gas detectors.

The source of the leak has to be removed by an expert immediately.

When using the gas system, please observe the following order:

- Check whether the cooker valve is closed.
- Open the cylinder valve.
- Open the valve in front of the cooker. It is in the locker next to the oven.
- Open one of the burner valves, keep it pressed (ignition lock) and light the gas.
- Keep the valve pressed down until the flame is stable!

When switching off you should observe the following order, in particular for a longer interruption:

- Close the valve on the gas cylinder.
- Thereafter close the valve at the cooker and the burner valve.

General Notes for Operating the Gas System

- Do not use the cooker for heating!
- Do not block the access to the liquefied petroleum system!
- Always store the gas cylinders with protecting cap!
- Do not store any other parts in the cylinder box!
- Make the leak test only with an ammonia free soap solution and not with a naked flame!
- Do not smoke and do not use a naked flame when handling the gas cylinder!

2.6 Anchoring, Towing and Mooring

2.6.1 Anchoring

The head anchor is a ploughshare anchor of approx. 14 kg (optional), rests in the bow sheave and is secured by a bolt. The anchor rope has a length of 50 m. It is belayed to the bow chock.

As a rule, the length of the anchor rope allows anchoring at up to a depth of the water of 5 m.

ATTENTION!



Please mind that the holding power may not be sufficient at bad holding grounds, rough weather, waves and strong wind and that you have to take special seamanlike precautions to increase the holding power or to leave the anchoring place in time.

2.6.2 Towing

The anchor rope may be used for towing. It is however better to use a special towing rope of the same thickness. For towing you fix the towing rope at the two bow chocks like a bridle and/or if the towing distances are longer, you put an equally thick rope around the whole boat in order to distribute the strong forces. Other places are not suitable for towing, e.g. the mast base.

NOTE!



Please mind that when towing the speed must be less than what is called the hull speed. Otherwise the towing forces may damage the boat. The hull speed for this boat is approx. 7.2 Kn (=13.4 km/h).

2.6.3 Mooring

For mooring the boat belaying cleats are attached at the bow and stern which are sufficiently strong to withstand normal forces in a protected port. The mooring lines should be as thick as the anchor rope. Protect the mooring lines against chafing and unintended loosening when the boat is unattended over a longer period of time.

2.7 Engine System

2.7.1 Cooling System

The engine has a dual circuit cooling system.

The internal system is a closed circuit with a frost resistant mixture of cooling water. The temperature is thermostat controlled. The cooling water need not be removed at the winter quarters, as it is frost safe.

The outer system takes in the sea water through the Saildrive. The cooling water is injected into the exhaust gas system below the exhaust manifold through the heat exchanger. This cools down the exhaust

gases and silences their sound.

The sea water filter needs regular cleaning.



NOTE

After you have started the engine, please check whether the exhaust also ejects water besides exhaust gas, also intermittently.

If not, the cooling water supply has to be checked and repaired.

A thermostat with optical and acoustic alarm reports superheating of the engine. In such case switch off the engine and check the cooling water circuits!

2.7.2 Exhaust Gas System

The exhaust gas system consists of an only relatively heat-resistant material and is operated on the principle of internal water cooling. The sea water cooling circuit also includes the exhaust gas system. The water is inserted in the exhaust system below the elbow and flows out together with the exhaust gases. It cools the exhaust gases. Sound is absorbed at the same time.

It is most important that the cooling system is kept in operation. As was noted for the cooling system, check the ejection of water from the exhaust while the engine is running.

The hose connections at the exhaust unit have double damp clamp fittings for safety reasons.

2.7.3 Lubrication

The engine system is lubricated according to the operational instructions for the Saildrive and the other systems.

Please make sure that oil-renewal is carried out by a pump. You should use an oil absorbing cloth for pollution prevention when changing the filter.

Other mobile parts of the rudder system and the rigging should be treated with water-resistant fats during winter overhaul.

2.7.4 Gear

Engine, gear and shaft system form a unit with the Saildrive drive system.

The operational instructions of Saildrive apply also to the gear system.

With regard to its stressability the gear is designed to fulfil the requirements for manoeuvrability. Even so, do not try to change gear abruptly from full speed ahead to full speed astern.

2.7.5 Shaft System

The Saildrive does not have the classical drive system. A through-hull diaphragm sealed underwater device is flanged to the gear.

This underwater device transports the driving force to the propeller via an angular gear.

The intact diaphragm seal is of importance for the tightness of the boot. It is of twin-type design.

NOTE

Check the diaphragm seal regularly for tightness!



2.8 Ventilation and Heating

Ventilation

Ventilation is possible through existing openings, i.e. hatches and doors. In addition to that, the closed boat contains a flat ventilator on the cabin top and a venting grid in the sliding bulkhead.

The engine room is vented through an opening in the aft of the cockpit.

The opening for sucking the engine air is near the entrance to the saloon.

**NOTE**

For your personal well being, ventilate the boat as often and as well as possible. Air humidity and changing temperatures may cause precipitation of moisture.

Heating

The boat may be optionally fitted with a heating system.

It is a Diesel heater which is to be operated by observing exactly the operating instructions.

The heater is mounted in the starboard transom seat. The control panel is at the bulkhead above the chart table.

The warm air is distributed in the boat via air pipes. The openings of two out of the three air outlets may be controlled. The heating is infinitely variable.

**ATTENTION!**

Do not block or close the openings! Otherwise there is the danger of fire.
Keep the warm air pipes free of any equipment.

The combustion air for heating is sucked from the transom seat. The exhaust gases are transported to the transom through an insulated exhaust pipe where they escape.

**ATTENTION!**

The exhaust pipe and the escaping exhaust gases are warm and/or hot. Danger of burning!
Be sure to keep the exhaust pipe free of any objects.

2.9 Openings on Board, Sea Valves

Openings in the hull are potential dangers for ingress of water. They require your special attention.

They have been selected and installed in compliance with the acknowledged rules of engineering. However, as they are manually operated, their condition needs regular checking.

All underwater through-hull fittings may be closed with a sea valve. You should always close them if you leave the boat unattended for a longer period of time.

The hose connections are always twin-designs in this area for safety reasons. Do not change it!

Through-hull openings for instruments, e.g. echo sounding gear, are special designs and cannot be closed by a sea valve.

**ATTENTION!**

If possible, keep sea valves closed when not in use!

You can recognize the meaning of their position as follows:

Closed – lever is crosswise to hose or pipe

Open – lever points towards hose or pipe

You should keep on board different sizes of **leak stoppers** with a view to preventing danger. In case of damages you can quickly and efficiently close the openings with them.

2.10 Protection against Corrosion, Coating Systems

High-quality materials have been used for the construction of the boat. They are corrosion proof to a large extent.

The maritime climate is very aggressive, therefore a rust film may develop on metal parts, particularly

when rusting metal parts are nearby. This is only a surface corrosion. It can be removed with appropriate metal polish.

Pay attention that components and equipment of aluminium alloys as well as stainless and acid-proof steels (Nirosta) do not have permanent contact with other metals.

FRP and wooden parts do not need a special protection. Their care has been described in section 5. The underwater hull should be treated with an underwater coating system in order to reduce water absorption by the FRP hull and to prevent fouling, in particular.

3. Commissioning

3.1 Transport, Lifting by Crane, Slipping

Transport by sea should be preferred to transport over land.

If the yacht is transported over land, it is a special transport as the dimensions of the boat exceed the normal dimensions for transport on road and by rail.

Please make sure that the carrier transports your boat only with a special vehicle designed for boat transport.

Nowadays boats are lifted with a crane or other special lifting gear, e.g. a travel lift. You can learn from the picture where to fix the crane belts. If possible, a cross-beam should be used so that the boat is not compressed by any forces. It is however also possible to slip the boat, i.e. the boat is taken out of the water by a carriage.

As the keel of the boat is short it has to be lowered down carefully on the keel and be secured at the stanchions. It is however better to have a fitting rack in which the boat can be floated into the correct position.

Potential chafing points have to be protected for any kind of transport.

ATTENTION!

Secure the boat for lifting, possibly with a head and stern line. Secure the belts to prevent them from slipping.



It is not allowed to stand under suspended loads!

3.2 Underwater Coating

Unless the boat is underwater coated by the shipyard or the dealer you should coat the boat in an expert manner or have it done by a specialist company before the first launch. By doing so you extend the lifetime of your boat.

3.3 Masts, Rigging, Sails

If the boat is to be transported on water please arrange with us how it is to be transported, either with upright or with lowered mast.

For transport on land the mast is packed with the boat. The rigging is dismantled.

You should only rig up the mast yourself if you feel competent enough from the technical point of view.

Use the services of the shipyard or of a specialist. We will instruct you, if required.

3.4 Engine, Propeller

The boat is supplied with a built-in drive unit which is ready for operation. Please make sure that the batteries are connected and the tank is filled.

You must only start the engine after the boat has been launched into water and the sea water valve opened. Start-up the engine according to the operational instructions of the drive unit.

Please check after starting the engine that cooling water is ejected from the exhaust.

Follow the operating instructions whilst running in the engine. Do not drive the engine at too high a speed

and follow the set schedule for oil-renewal.

3.5 Equipment

The boat is supplied with basic marine equipment which makes the boat ready to drive. Normally further equipment is necessary and sensible for a seamanlike handling of the boat depending on the area of the voyage.

Equip your boat according to the area of voyage.

The boat may be equipped with additional equipment listed in your supply contract, in addition to the standard version.

3.6 First Voyage

Before starting your voyage you should take your time and acquaint yourself with the system, the rigging and the drive unit, even if it is not your first boat.

You may arrange an instruction tour with us.

Begin by driving the engine under power and acquaint yourself with the manoeuvring behaviour of the boat with engine on. Pay attention to the propellers when moving the boat forwards and astern. The propeller rotates **anticlockwise**.

For sailing you have to bend the sails to the yards. Take your time also in this case and acquaint yourself with their functioning in the port as each boat has its own characteristics.

Only after that should you learn the sailing properties outside the port with a slight breeze.

3.7 Manoeuvring under Power

Take note of the remarks in the operational instructions for the engine before starting it.

- Close the master switch.
- Check whether the single lever control is on start position.
- Start up the engine.
- If the engine does not start running repeat starting after a break.
- If the engine does not start running after 3 attempts find the reason for it.

When the motor has started running and you have checked the functioning of all systems, particularly the cooling water system, you can leave for your first tour. Watch the turns of the propeller and manoeuvre with care.

When on the open sea, you should practise turning to port and starboard from running straight. Observe the behaviour of the boat, when you have to stop it at full speed. Take a buoy or a life belt to determine the stopping distance.

Use this manoeuvring tour for practising the man-over-board-manoevre and getting more acquainted with the behaviour of the boat in such a situation.

3.8 Manoeuvring under Sail

A precondition for manoeuvring under sail is to have basic sailing knowledge. You may ask an experienced sailor who is in the position to teach you such knowledge and skills.



ATTENTION!

During sailing, visibility ahead and to port and starboard is limited by the sails and the heeling of the boat. Make sure that you have sufficient visibility!

Prior to setting sail you should first acquaint yourself at the berth with rigging, fitting and setting sails. Wind conditions permitting, bring the boat into the wind, then you also can set sails as a test.

For sailing, first drive the boat by engine to open waters and set sails there.

There you carry out the most important manoeuvres, i.e. turning and tacking, shooting up and stopping, the **man-over-board-manoeuve** and heaving to and reefing.

The training programme should also include anchoring without engine support.

Once you have sufficient sailing knowledge you should also carry out berthing and shoving off under sail. For this purpose you choose a berthing point which you can approach against the wind in order to stop the boat efficiently.

3.9 Checking of the Systems

The boat is handed over in a functioning condition as a matter of principle unless otherwise agreed.

When handing over the boat, we try to impart to you the relevant knowledge and inform you of special features. You should check all systems on board step by step before first putting it in operation. Use this Manual for this purpose. You acquaint yourself with the arrangement and functioning of the systems at the same time.

Carry out such checks when the boat has not been used after a longer period of time and at the beginning of the water sports season.

4. Environmental Protection

During the development and construction of our boats we paid a lot of attention to ensure that the materials used do not harm the environment if used correctly. There are a number of rules regarding environmental protection. Please follow them when using your boat. Here are some special guidelines regarding an environmentally acceptable use of your boat.

Please pay also attention to international treaties relating to marine pollution.

4.1 Fuels and Oils

Fuels and oils are an environmental hazard because they pollute, impair and damage nature for a longer period of time.

Handle these substances with care on board so that nothing of them is drained overboard during filling or emptying.

Take special care before emptying the boat so that the bilge water does not contain oil.

Use special oil absorbers for cleaning the bilge water or pump the bilge water in special canisters, which you dispose of according to rule once you are on shore.

4.2 Wastes

Wastes of all kind have to be disposed of according to environmental rules. For this purpose you should separate the wastes on board and take them to the relevant waste containers on shore, in the ports. Reduce the amount of waste, in particular by reducing packaging! Use packages which you can reduce in volume after they have been used!

Glass packaging also does not belong into the water!

4.3 Sound

Noise is also an environmental burden. When designing the boats we implemented sound control measures which reduce the sound to below the legally admissible value, in particular for the engine. You maintain the sound insulation in the engine room by keeping it clean and not covering it with paint.

Otherwise you should choose an engine speed which keeps noise within bearable limits.

4.4 Swell

Swell develops in particular by driving the boat near hull speed. Bow and stern wave are especially

distinct at this speed.

Reduce speed when driving in narrow waters and within protective maritime belts.

Pay attention to speed limitations on water and observe them.

4.5 Exhaust Gases

Exhaust gases are an unavoidable environmental burden. We selected the engine according to the most suitable exhaust gas values. Pay attention to the colour of the exhaust gas as this can be an indication of a faulty adjustment of the engine! Blue or sooty colour points to a serious faulty adjustment. Have it repaired.

Do not run the engine as an "auxiliary device" for loading the battery when in port but use the shore supply unit.

4.6 Antifouling, Coating

Underwater coating is used to prevent fouling on the hull. Different coating systems exist. We recommend the use of antifouling agents which are not based on poisonous, but on antifouling properties, if possible.

In this context we point out that certain coatings are not permitted.

You should lay underneath a foil when working, grinding etc. and/or use an efficient sucking device in order to dispose of the grinding dust according to the manufacturer's instructions.

4.7 Remover of Coatings

Apply mechanical methods, if possible, for removing layers of coating. Removers of varnishes and paints are very aggressive and mostly have to be treated as hazardous waste.

4.8 Waste Water

The toilet produces most of the waste water on board. You should collect it in the tank and dispose of it on shore. It makes sense, when in port, to use always the facilities available in the ports.

Please note the existence of treaties which prohibit the discharge of human waste, e.g. for the Baltic Sea. Some countries have adopted rules prescribing sealed shut discharge devices on board.

4.9 Nature Conservation

Sailing is a quiet sport. Handle your boat with responsibility and render your contribution to not impairing nature more than inevitable.

Please follow the notices on nature reserves, national parks and other protected areas!

Navigate your boat with care to keep away from such areas and do not endanger yourself unnecessarily when in difficult sea areas.

5. Cleaning

5.1 Care and Cleaning

The boat should only be cleaned with fresh water, if possible. Environmentally compatible cleaning agents suitable for FRP and varnished surfaces may be used for persistent dirt.

Special agents are offered for further treatment such as refurbishing and sealing of FRP surfaces. Only use agents suitable for it!

Metallic parts may be cleaned with metal polish. Please note that aluminium parts are anodised and must

not be treated with scratching or polishing agents.

5.2 Coatings

Only the underwater hull is coated and has to be refurbished or renewed in regular intervals. It depends on the stress how often this needs to be done. Do not change the coating system if you are not aware of the compatibility of the systems.

Dispose of the grinding dust according to manufacturer's instructions.

Varnishes inside the boat should only be refurbished or renewed when damaged. You may use normal boat varnishes for this purpose.

5.3 Wearing and Replacement Parts

Should damages occur on the boat when in use, please use only parts supplied by the manufacturer or parts equal to them, if possible. This applies mainly to parts which have to stand certain stresses, e.g. parts of the rigging, deck equipment etc.

Our shipyard will assist you.

5.4 Repair

Repairs on the hull, drive system, rigging and sails should be left to a specialised company as they have the relevant equipment and special knowledge of how to return to you a high quality boat after a repair. This applies to damages of the structure, in particular.

Our shipyard will support you and recommend the name of a specialised company, if required who is in the position to carry out the repair in an expert manner.

5.5 Winter Storage

Winter storage is the time when your boat is unattended for a longer period. It must rest safely during this time and should be stored in such a way that it is protected from atmospheric effects.

Pay attention to section 3.1. Transport, Lifting by Crane, Slipping!

Empty the drinking and waste water tanks! It is best to fill the Diesel tank in order to reduce the formation of condensed moisture.

Remove all wastes.

Clear the boat of valuables. Cushions and sails should be stored in a dry, ventilated and frost-free place.

If the boat is covered by a tarpaulin, you should ensure good ventilation under the tarpaulin. The ventilation openings of the boat should be kept open as far as possible.

The tarpaulin should be well secured so as to prevent chafing on the hull, in particular the FRP.

The sea water circuit of the engine system must be drained, including the exhaust system. The inner cooling circuit contains an antifreeze and does not need to be drained.

The batteries must be removed from board and stored well charged in a dry and frost-free place. If they remain on board, they should be recharged regularly, approx. every month.

6. Closing Remarks and Notes

We have tried in the previous chapters to give you some advice on how to handle the boat.

You may have gained your own experience with boats. Our advice can only be supplementary and does not replace your own personal seamanlike diligence as owner or skipper.

We, the shipyard, have handed over a safe and reliable sailing yacht which will withstand stress when used, according to the acknowledged rules of engineering and in compliance with the European Recreational Craft Directive.

Naturally, damage to the boat cannot be excluded under extreme stress such as striking the ground,

collisions etc.

The owner and skipper is responsible for personal safety equipment, i.e. life vests which should be available for all persons aboard. This also includes the procurement and maintenance of a liferaft, distress signal, first-aid box, tools, major replacement and spare parts and others.

As the European Recreational Craft Directive pays special attention to safety and fire protection you should acquaint your crew with the safety devices and fire extinguishers and instruct them in how to handle them.

We are permanently striving to improve our sailing yachts. Please understand that we have to reserve the right of any changes in design, equipment and technical equipment. Therefore, the data, pictures and descriptions in this Manual shall not be made the basis for any claims.

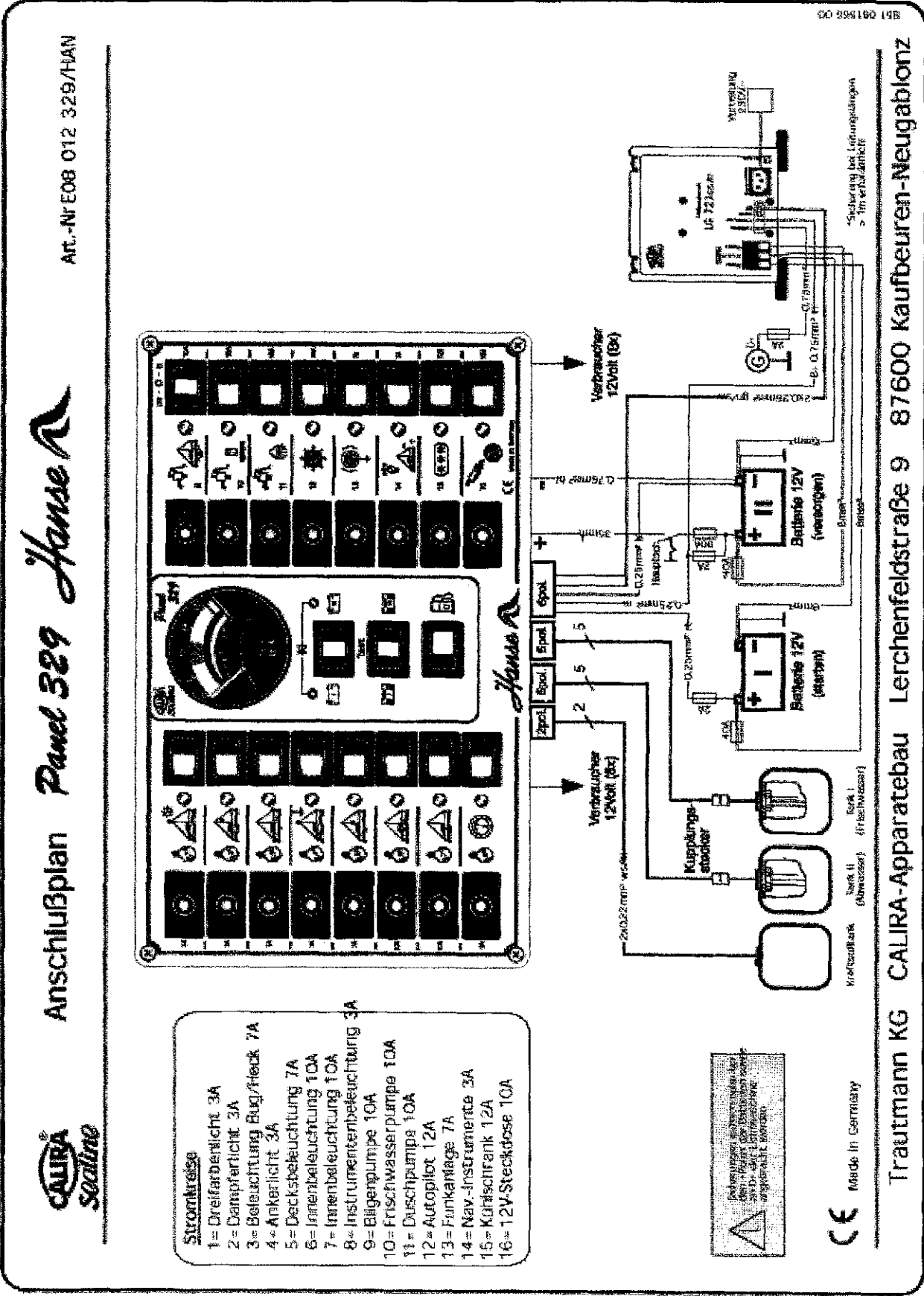
Should your sailing yacht be equipped with parts that are not described in the Manual and/or no description is attached to the Owner's File, your contract dealer will inform you about the correct handling and care.

Yachtzentrum Greifswald GmbH & Co. KG is the distributor of the yachts, as a matter of principle. Warranty claims should be directed to the shipyard.

In case of yachts distributed by specialised dealers, no direct contractual relationship exists between shipyard and customer. In such a case **Yachtzentrum Greifswald GmbH & Co. KG** does not know the details of such a contract and it is not absolutely necessary for the specialised dealers to fully take on our warranty terms. Please contact your specialized dealer in case of a warranty claim.

7. List of supplied Manuals, Plans, Operating Instructions

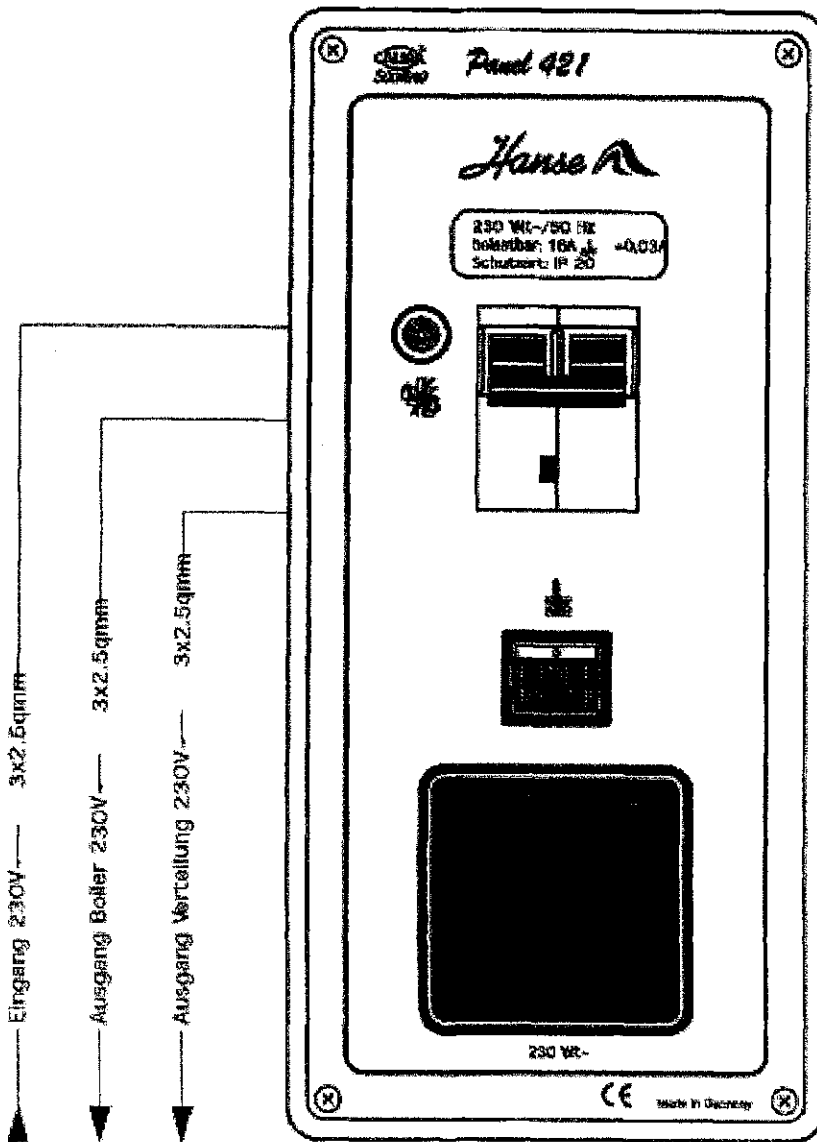
Deck fittings	Pfeifer
Hydraulic water pump	Shurflo
Echo sounder Speedo	Simrad
Electrical system plans	Trautmann KG
Halyard stoppers	Easylock
Halyard turning blocks	Spinlock
Furling system	Facnor
Oven	Triton Format
Indoor lighting	Baatsystem/Sweden
Compass Hanse 301 + 311 With tiller-type steering gear	Plastimo
Compass Hanse 311, 341, 371, 411 With wheel steering	Whitlock
Bilge pumps	Jabsco
Engine	Volvo Penta
Navigation lights	Aqua Signal
Porta Potti (optional)	Thetford
Rigging	Z-Spar
Hull, deck, FRP parts	TTS
Swivel arm lights	Cabin Lights/ Danmark
Sails	Sail Service
Steering column	Whitlock
Toilet	Allpa
Warm water heater (optional)	Allpa
Winches and cranks	Harken





Anschlußplan Panel 421 Hanse A

Art.-Nr EOB 230 421/HAN



CE Made in Germany

Trautmann KG

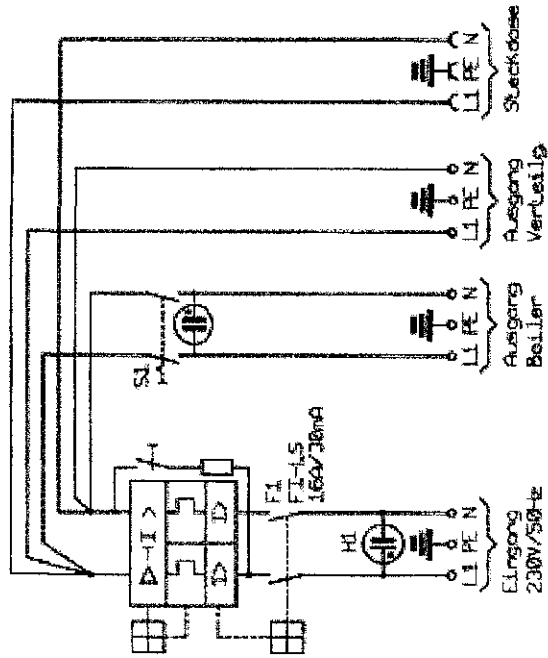
CALIRA

-Apparatebau

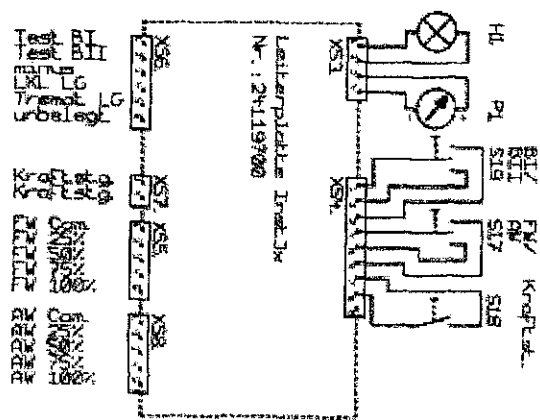
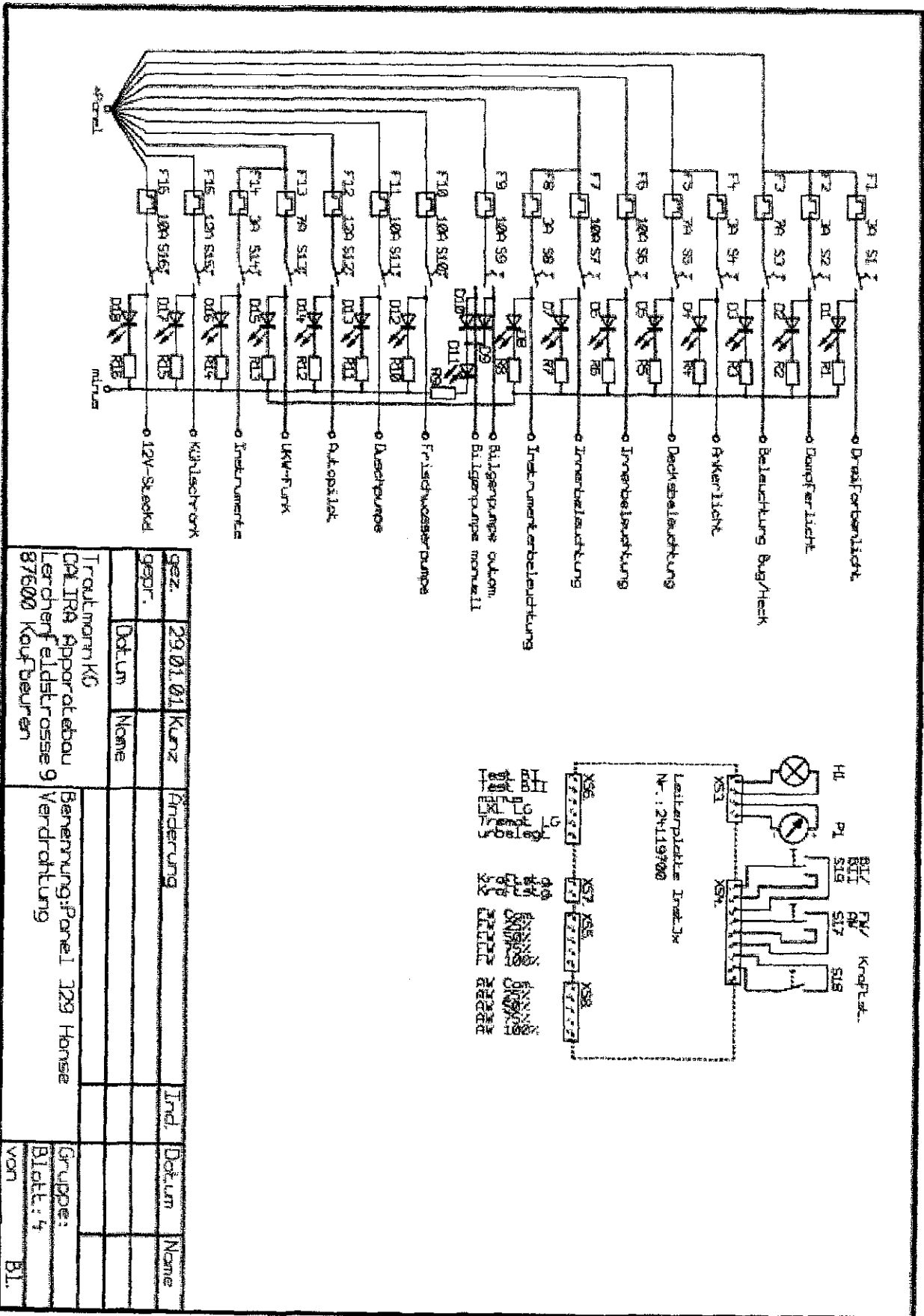
Lerchenfeldstraße 9

57600 Kaufbeuren-Neugablonz

BBT 081789 DO



gez.	10.07.01	Kunz	Aenderung	Ind.	Datum	Name
gepr.						
Trautmann KG			Benennung: Panel 421 Hanse			
CALIRA Apparatebau			Schaltplan			
Lerchenfeldstrasse 9			Gruppe:			
87600 Kaufbeuren			Blatt: 4			
			von			
			Bl.			



gez.	29.01.01	Kunz	Aenderung	Ind.			
gepr.		None					
Tralmarm KD DL IRA Apparatbau Lerchenfeldstrasse 9 87600 Kaufbeuren				Benennung: Panel 329 Hanse Verdrahtung			
				Gruppe:			
				Blatt:	4		
				von			Bl.