

Yacht Preparation

MITNA

9 January 2014

Matthew Wall, Scott Dynes

Yacht Preparation Distilled

- Know what 'normal' is
- Check for wear
- Bring spares
- Bring the right tools

Yacht Preparation Distilled

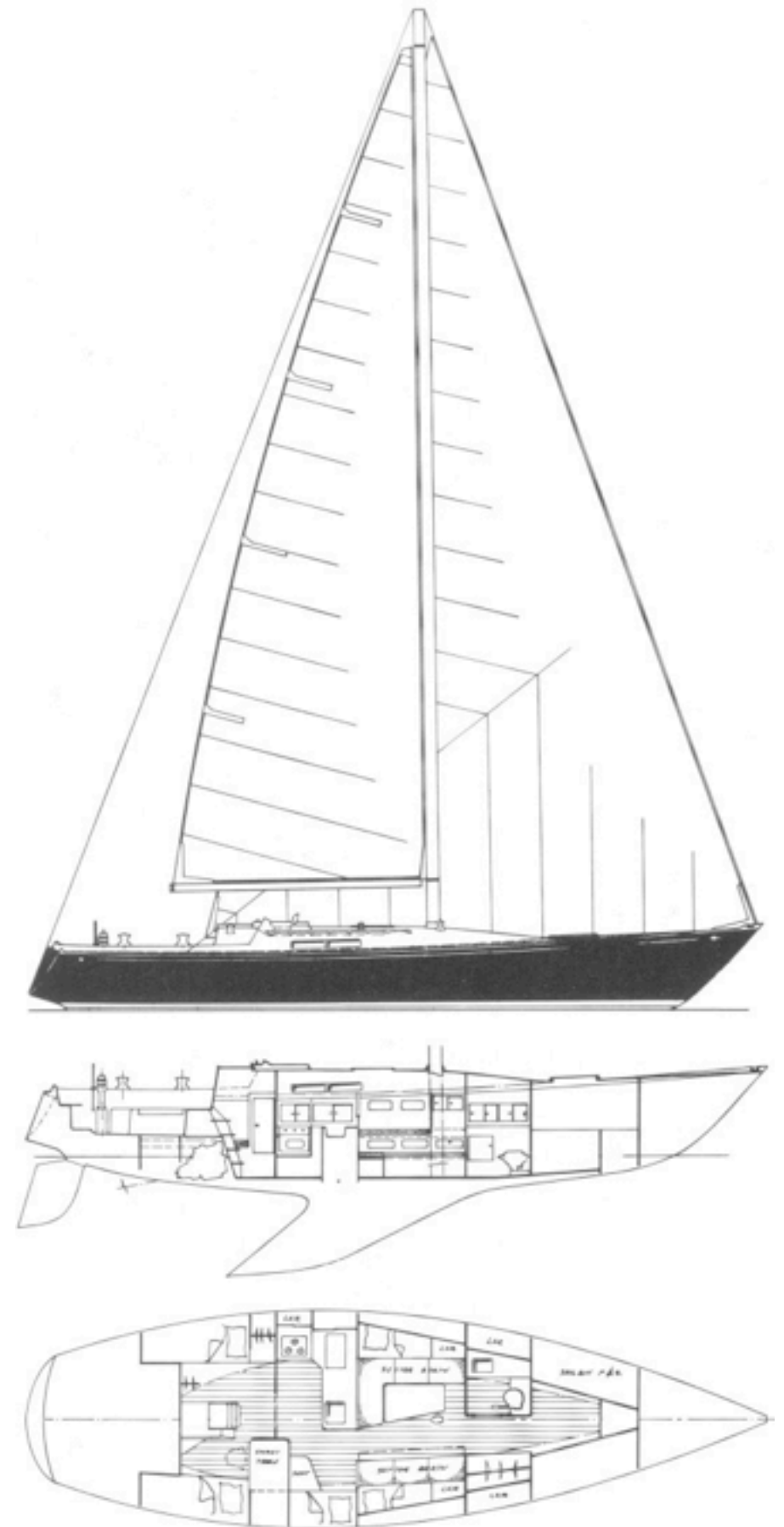
- Know what 'normal' is
- Check for wear
- Bring spares
- Bring the right tools

Why does this matter?

- Your friend asks you to crew
- Trips on X-Dimension or other club boat
- You want to charter a boat
- Day trip
- Overnight trip
- Winterizing/Dewinterizing

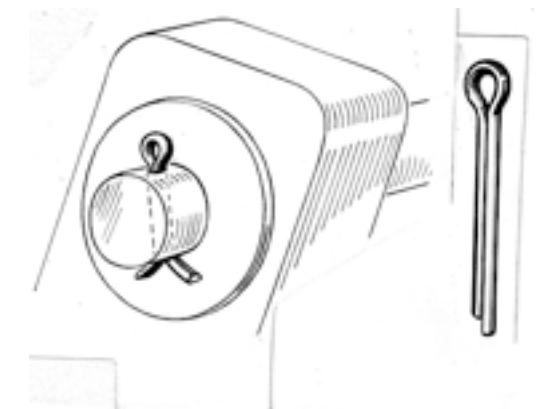
Yacht Systems

- Standing Rigging
- Running Rigging
- Hardware
- Power-Train
- Steering
- Bilge
- Freshwater
- Blackwater
- Electrical
- Electronics



Standing Rigging

- Mast and Boom
- Shrouds
- Backstay
- Forestay and Roller Furler



Halyards

Boom vang

Reefing lines

Boom topping lift

Getting to top of mast

Check for wear on halyards

Check pins and ringdings

Check for electrolysis

Check interface between hardware and hull/deck

Standing Rigging

- Mast and Boom
- Shrouds
- Backstay
- Forestay and Roller Furler



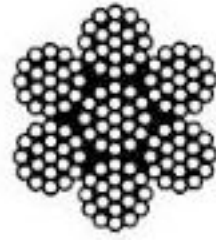
Standing Rigging

- Mast and Boom
- Shrouds
- Backstay
- Forestay and Roller Furler



Standing Rigging

- Mast and Boom
- Shrouds
- Backstay
- Forestay and Roller Furler



Solid vs Stranded
Turnbuckles
Clevis and Pin

Check interface between hardware and hull/deck
Check for corrosion at fittings
Check for missing/bent ringdings
Check chainplates

Standing Rigging

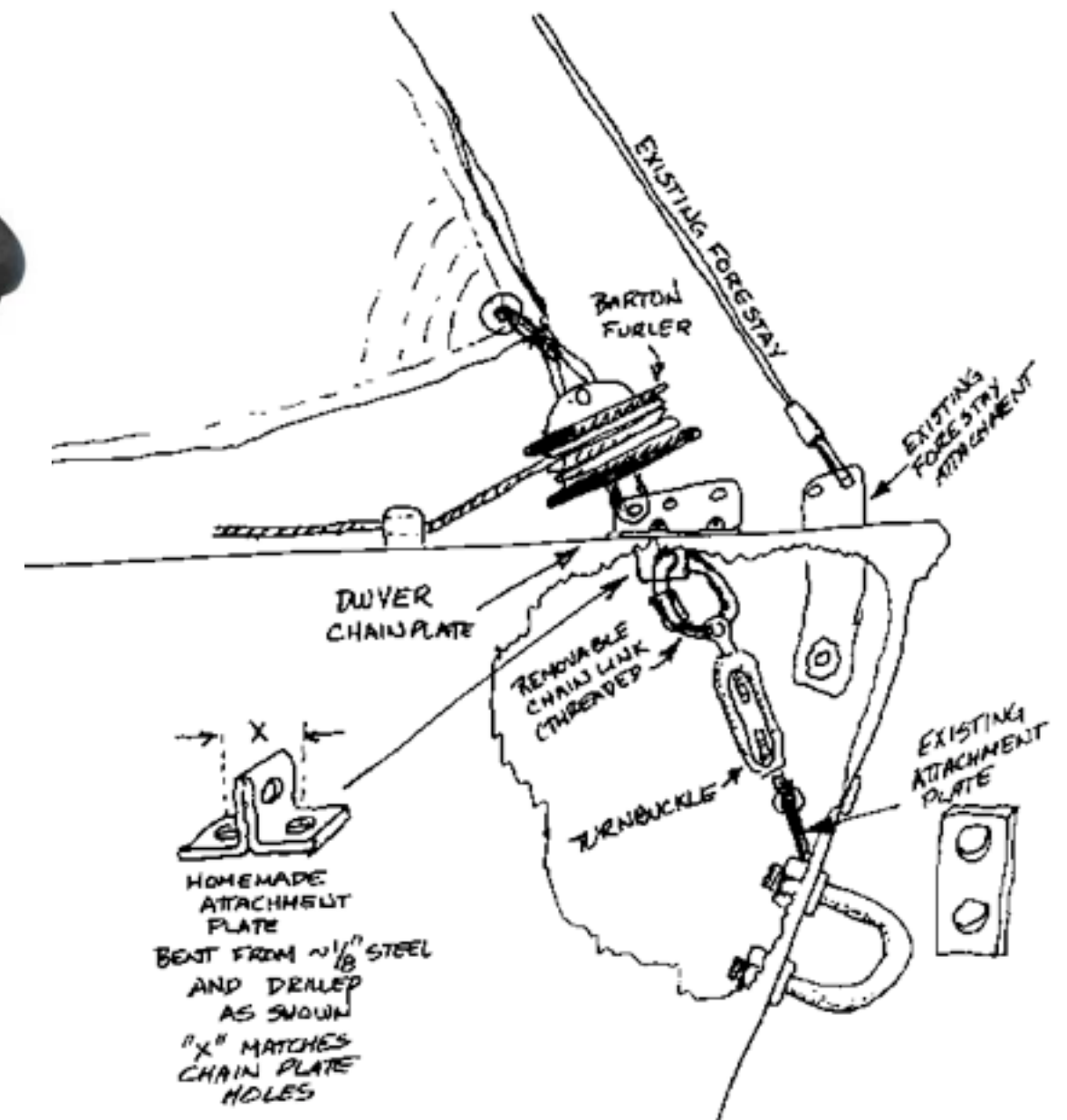
- Mast and Boom
- Shrouds
- **Backstay**
- Forestay and Roller Furler

Blocks
Hydraulic



Standing Rigging

- Mast and Boom
- Shrouds
- Backstay
- Forestay and Roller Furler



Forestay tuning
Furler geometry
Sail mounting



Check for missing screws
Check for missing ringdings

Standing Rigging



Structure

- Windows
- Deck
- Hull
- Topsides



Check for leaks with hose at dock
Check for cracks
Look for signs of rot (wet or dry)

Structure

- Windows
- Deck
- Hull
- Topsides



Stanchion bases

Toerail

Coamings

Wood/Glass interfaces

Check for leaks with hose at dock
Check for cracks
Check for signs of hidden cracks
Watch for rust stains
Look for persistent mildew

Structure

- Windows
- Deck
- Hull
- Topsides



Stanchion bases
Toerail
Coamings
Wood/Glass interfaces

Check for leaks with hose at dock
Check for cracks
Check for signs of hidden cracks
Watch for rust stains
Look for persistent mildew



Structure

- Windows
- Deck
- Hull
- Topsides



Check base of mast
Check wood/steel/glass interfaces

Structure

- Windows
- Deck
- Hull
- Topsides



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Waterline

Below waterline

Inside and outside

Integrity of prop skeg

Structure

- Windows
- Deck
- Hull
- Topsides

Watch for blisters

Look for extreme critter growth

Look for signs of leaks/seeps



Structure

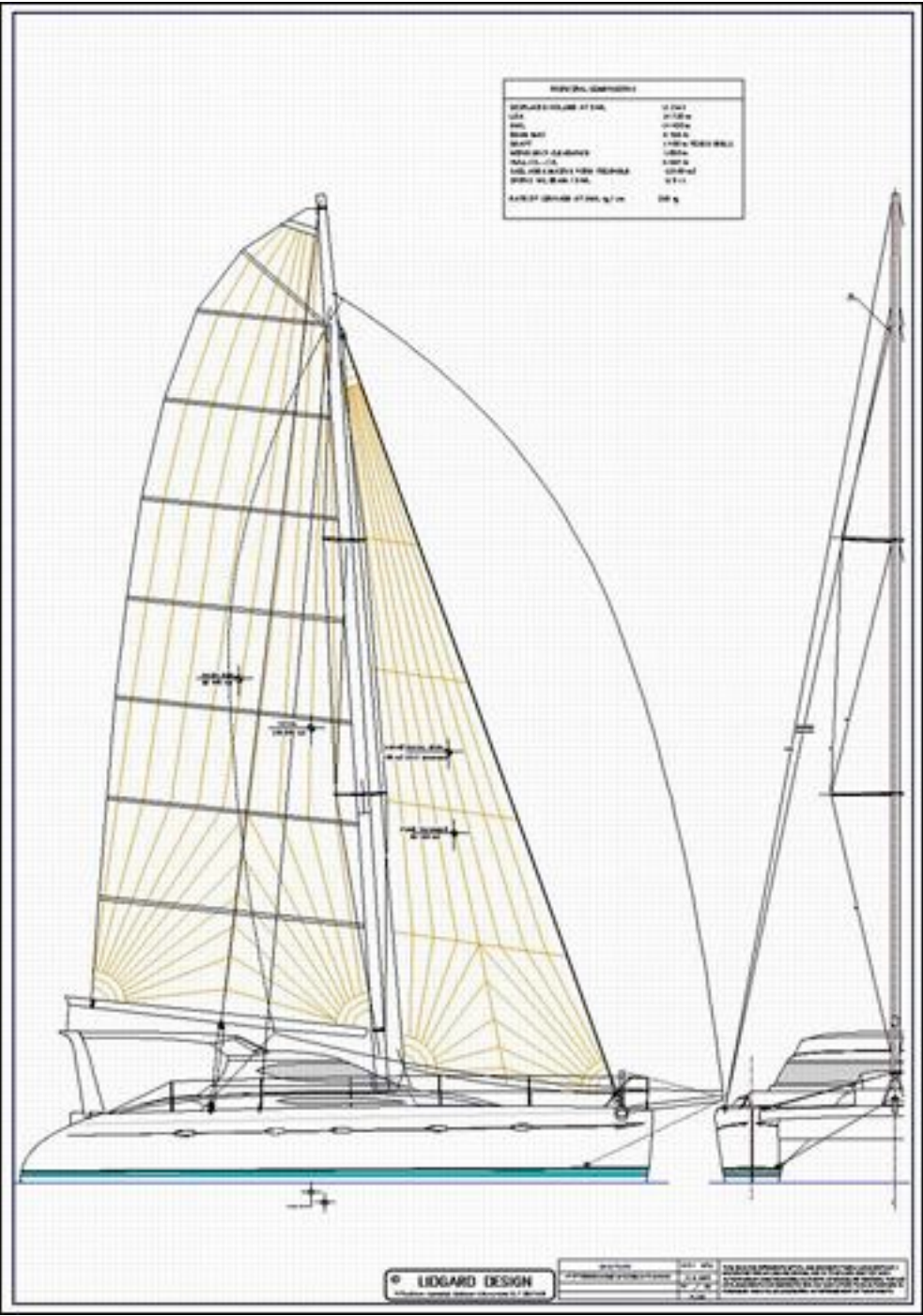
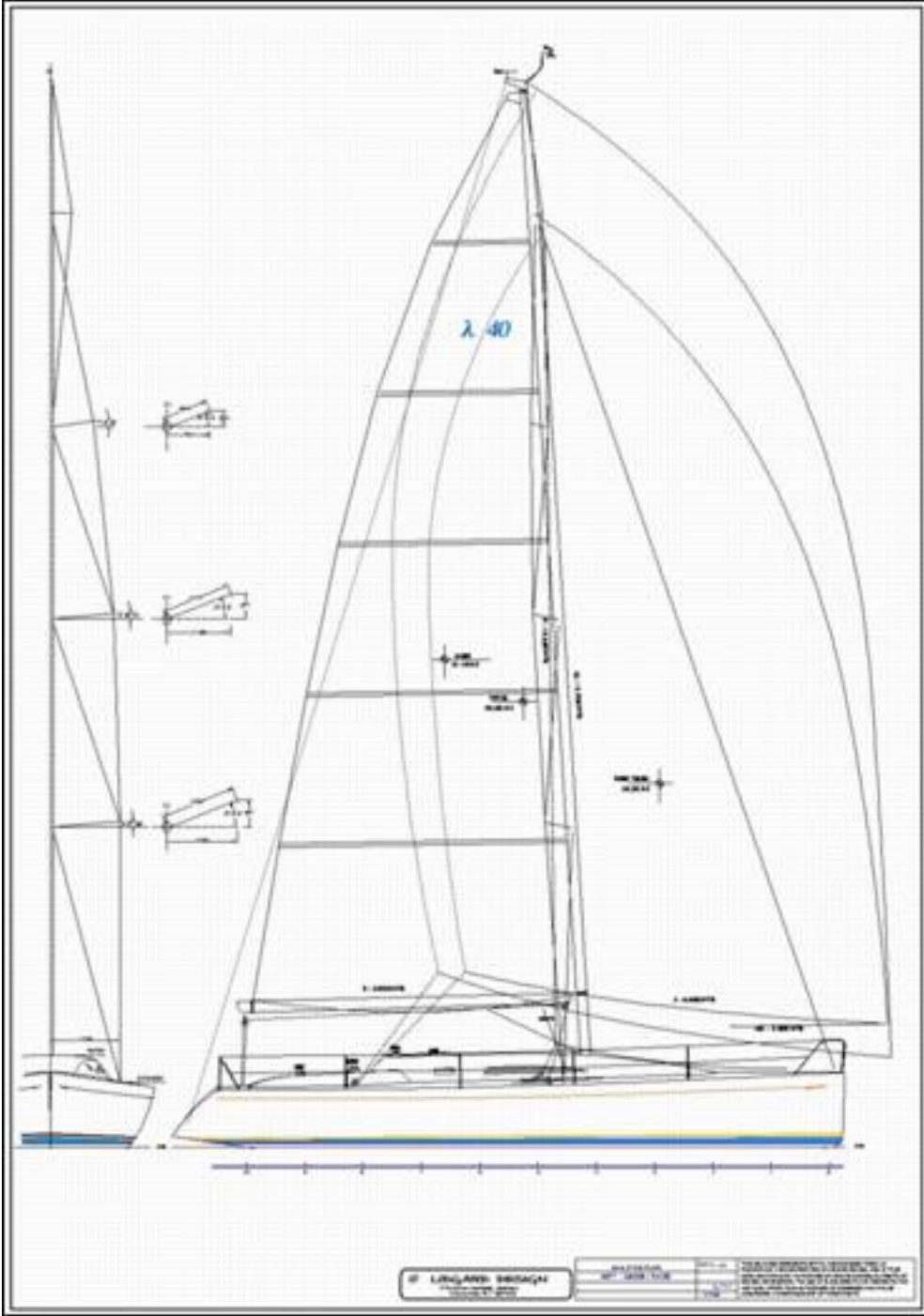
- Windows
- Deck
- Hull
- Topsides



Running Rigging

- Sails
- Sheets
- Blocks
- Winches
- Traveler
- Preventer

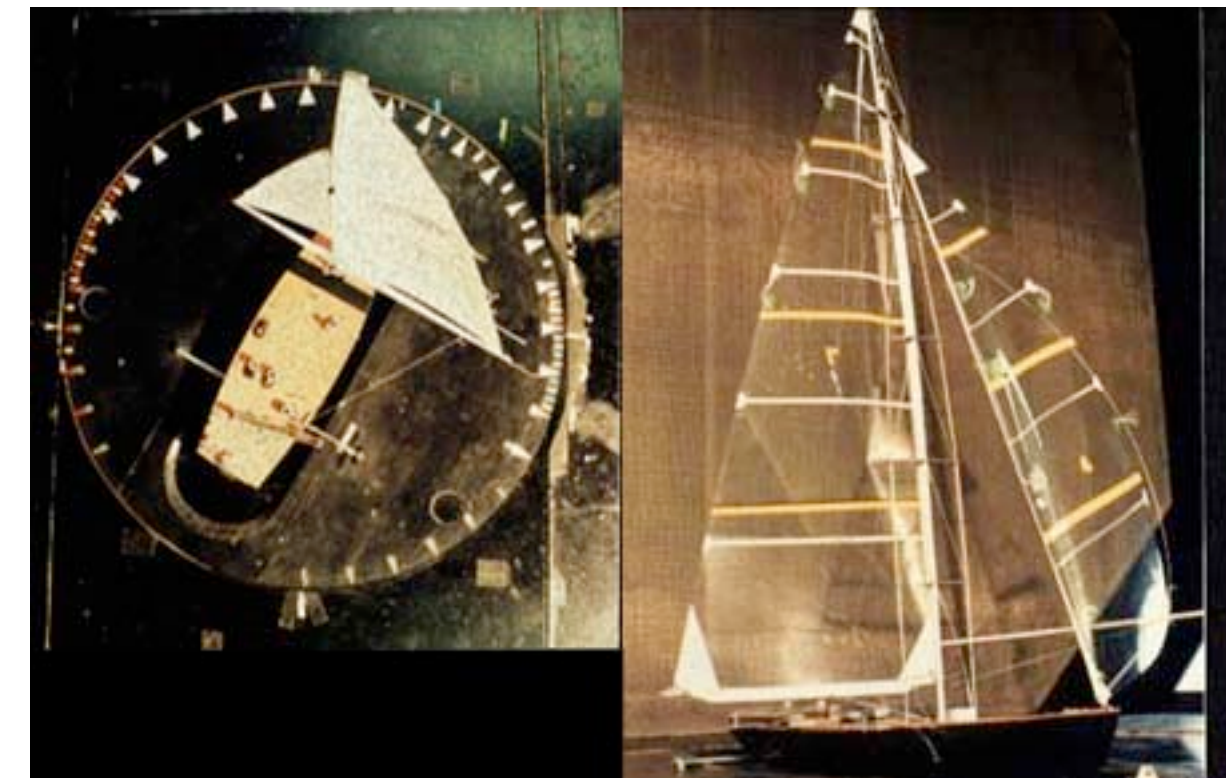
Main Sail
Jib/Genoa
Spinnaker
Sail attachment
Sail controls



Running Rigging

- Sails
- Sheets
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Main Sail
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Running Rigging

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Main Sail

Jib/Genoa

Spinnaker

Sail attachment

Sail controls

Check for sail wear

Tape tears/wear until proper repair



Running Rigging

- Sails
- Sheets
- Blocks
- Winches
- Traveler
- Preventer

Single vs Split for Jib
Direct vs blocks



Running Rigging

- Sails
- Sheets
- **Blocks**
- Winches
- Traveler
- Preventer



Stand-up Cheek Floating



Check for jammed bearings
Check for wear on shiv

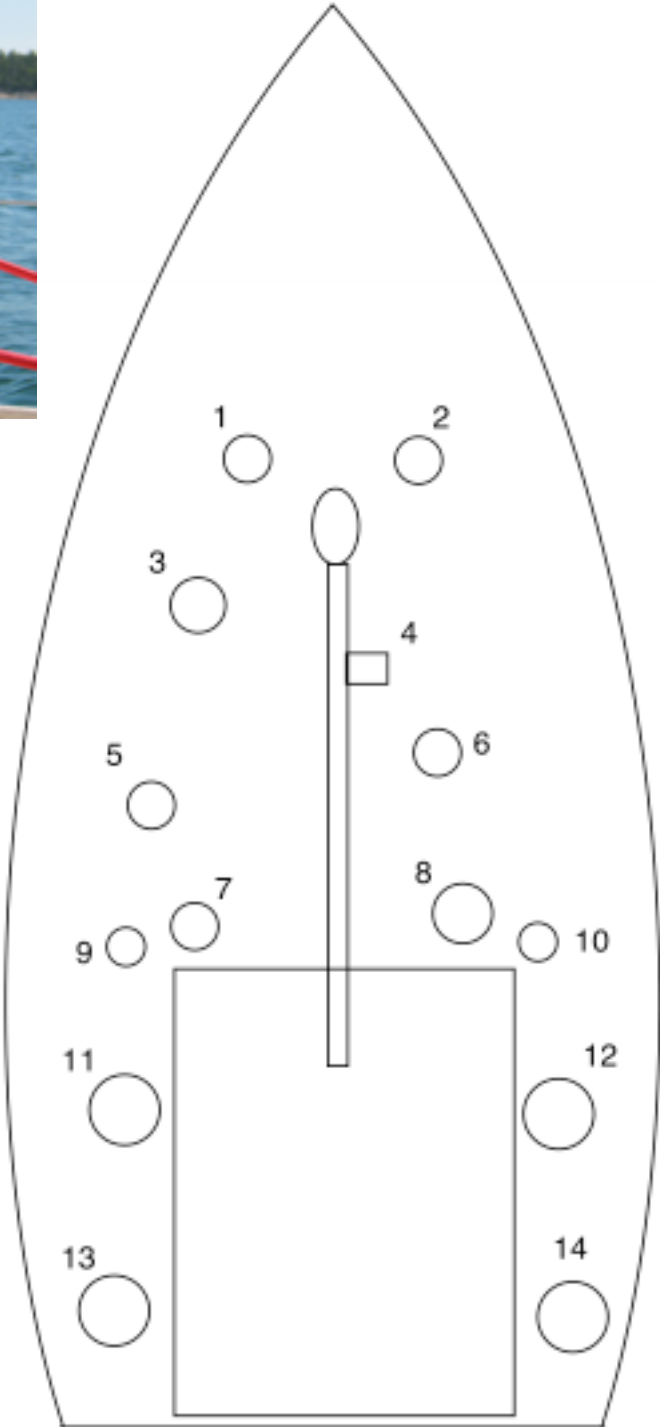
Running Rigging

- Sails
- Sheets
- Blocks
- **Winches**
- Traveler
- Preventer

Mast/Boom vs Deck
Size, Speed
Rachets, Self-tailing
Winch Handles



Clean annually
Check for wear
Check tailer feed
Dispose of worn winch handles



Running Rigging

- Sails
- Sheets
- Blocks
- Winches
- Traveler
- Preventer



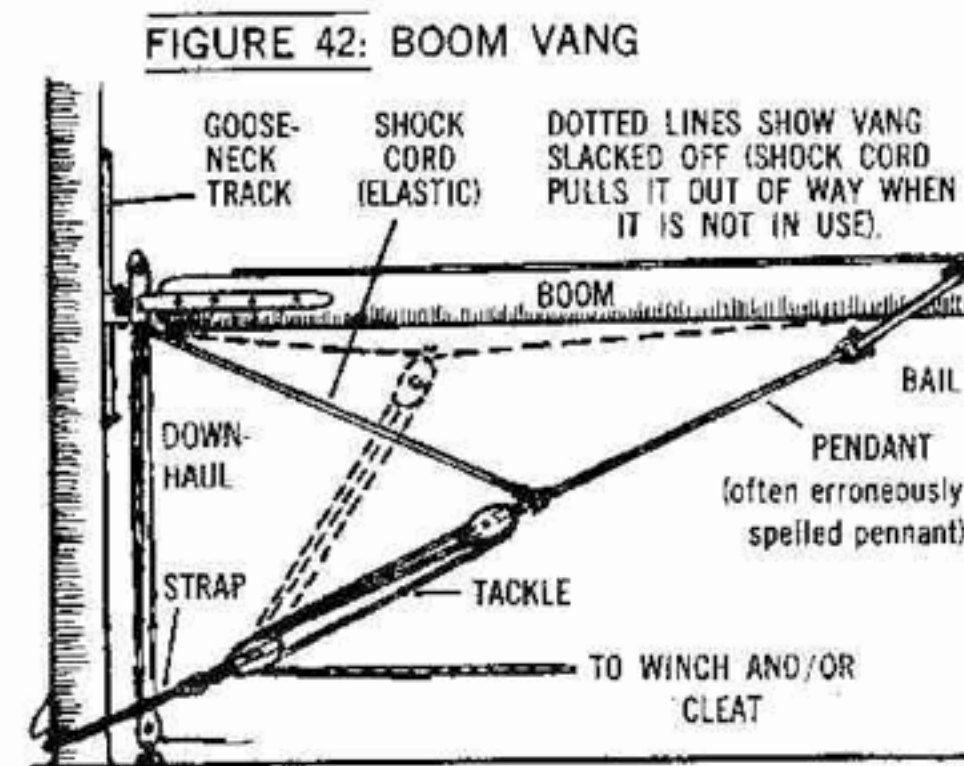
Cockpit bench
Transom
Companionway

Check for worn cleats
Check blocks and line
Check mounting points



Running Rigging

- Sails
- Sheets
- Blocks
- Winches
- Traveler
- Preventer



Preventer
Vang
Come-Along



Check for wear
Check for bent cheeks
Check for broken springs and worn grips

Rigging Howto

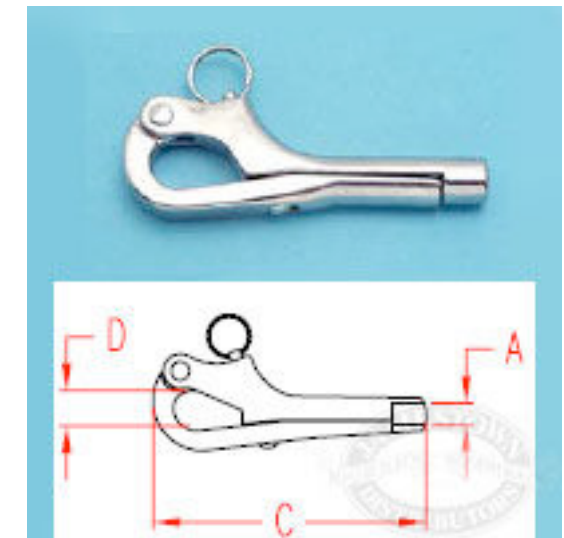
- Trim the sails
- Tune the sails
- Tune the rig
- Reef the main
- Adjust the backstay
- Adjust the boom vang

Hardware

- Stanchions and Life Lines
- Hatches
- Companionway Boards
- Anchor
- Shackles
- Cleats



Solid vs Stranded
Coated vs Bare
Thu-hull vs Toe-Rail
Aluminum vs Stainless
Gate hardware
Turnbuckles
Tethers



Check for missing ring-dings
Check tension
Check stanchion bases

Hardware

- Stanchions and Life Lines
- **Hatches**
- Companionway Boards
- Anchor
- Shackles
- Cleats



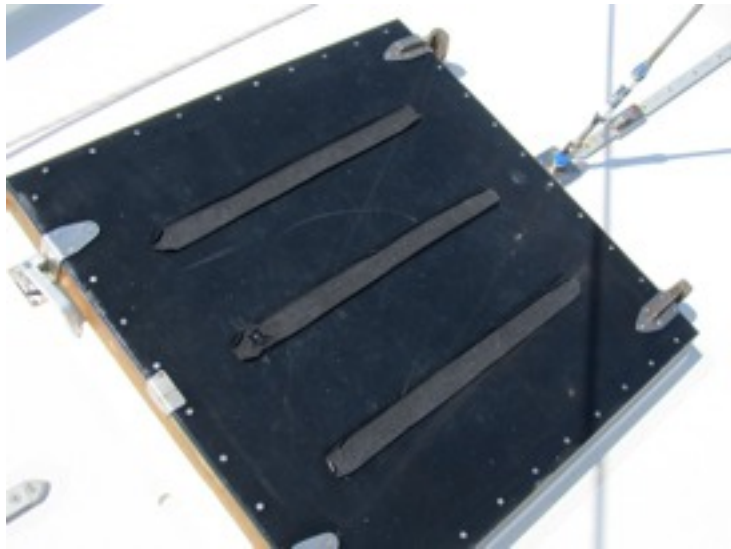
Closures

Props

Seals

Screen attachment

Locking mechanism



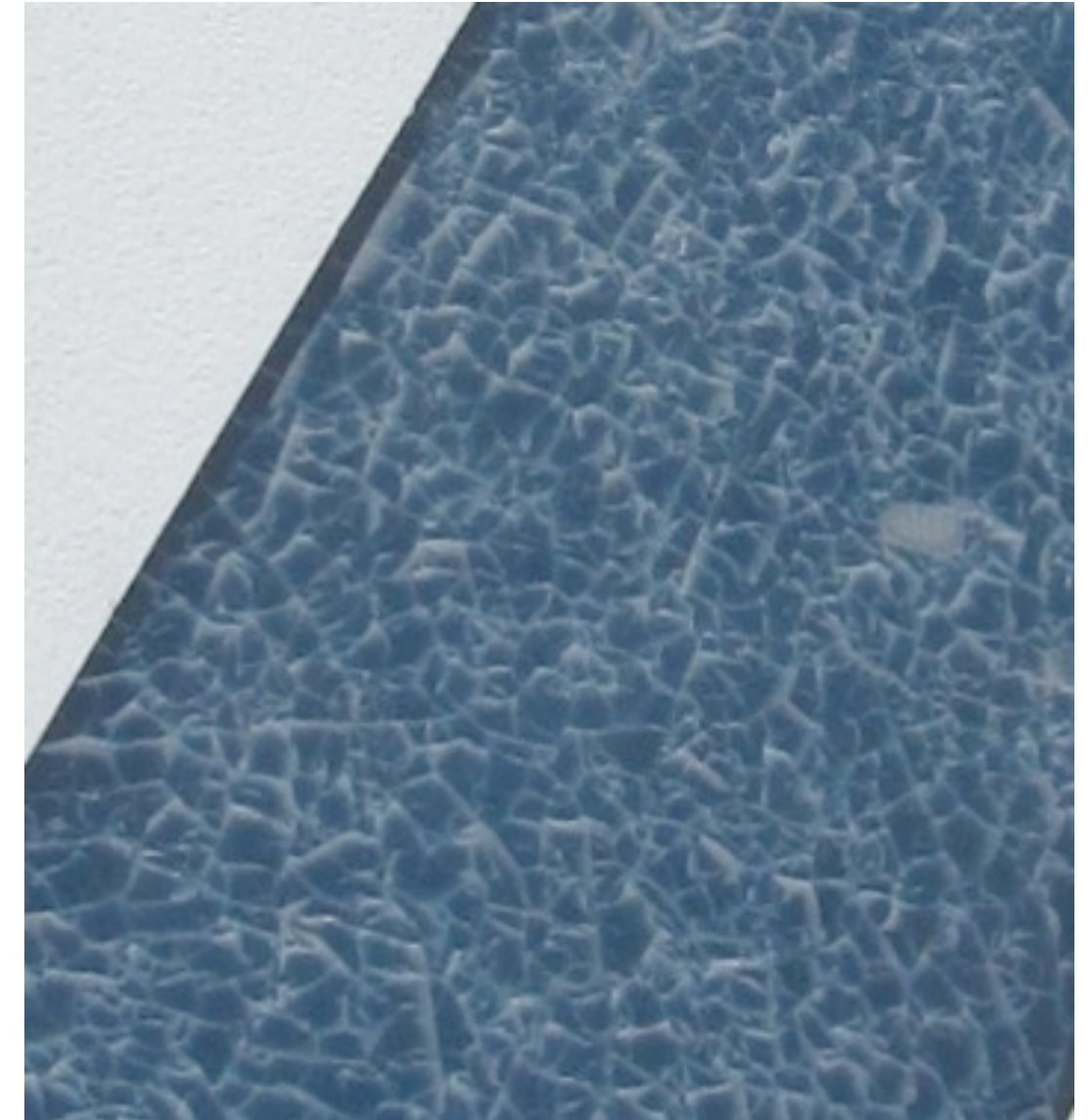
Check for wear
Check seals
Crackle

Hardware

- Stanchions and Life Lines
- Hatches
- **Companionway Boards**
- Anchor
- Shackles
- Cleats

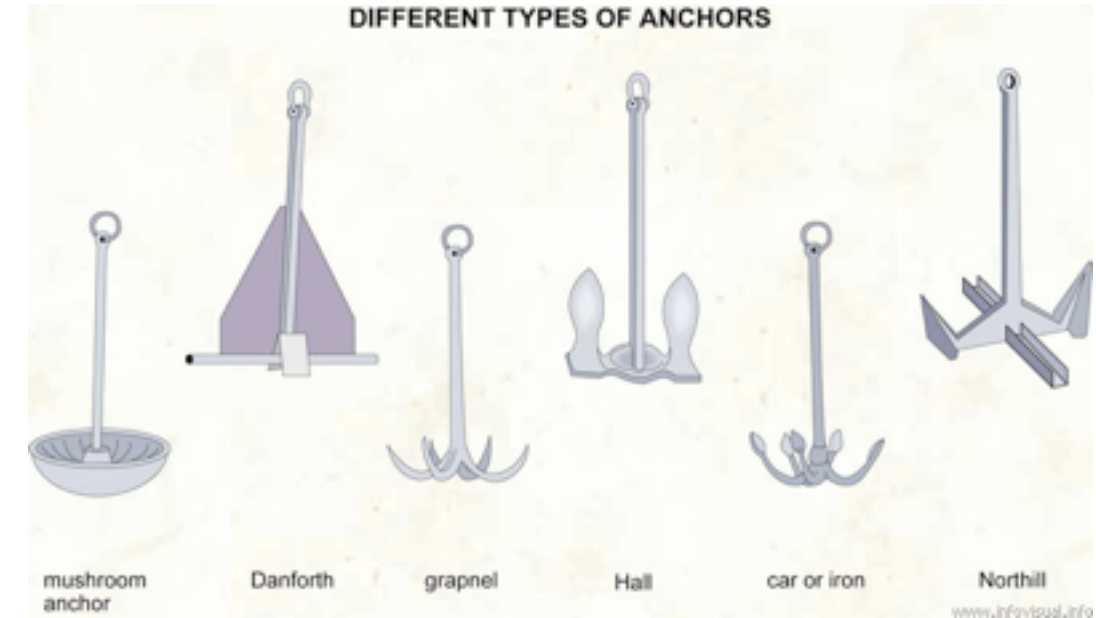
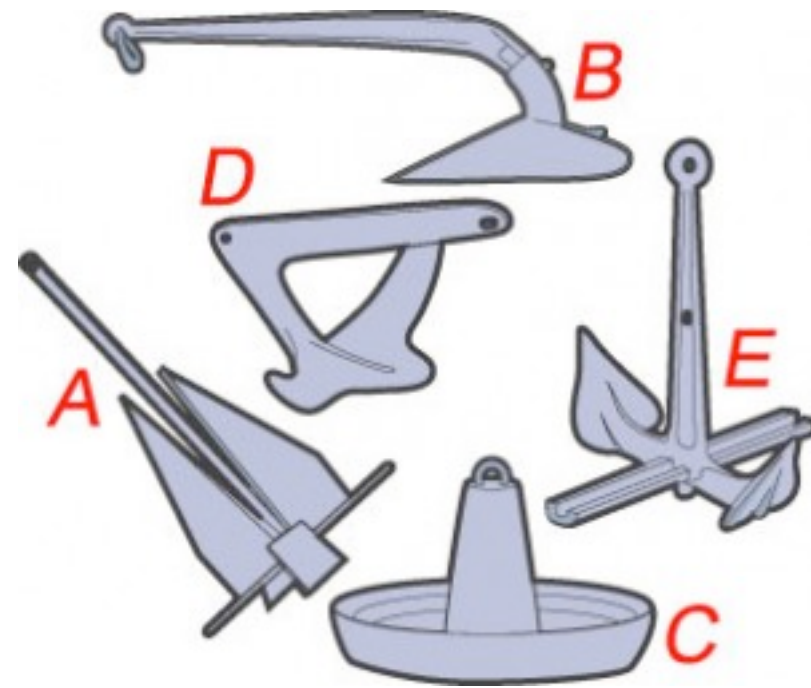
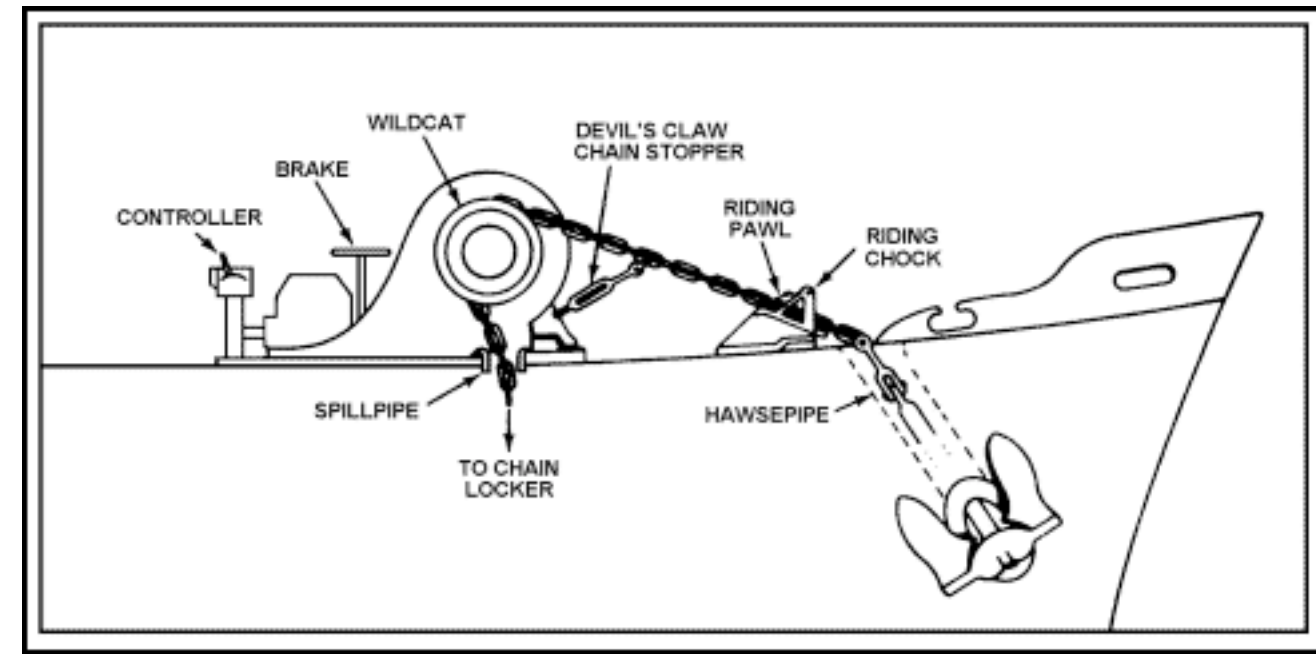


Screen
Locking



Hardware

- Stanchions and Life Lines
- Hatches
- Companionway Boards
- **Anchor**
- Shackles
- Cleats



Types

Location

Deployment

Configurations

Windlass

Service shackles

Ensure rode is attached

Ensure marks along rode

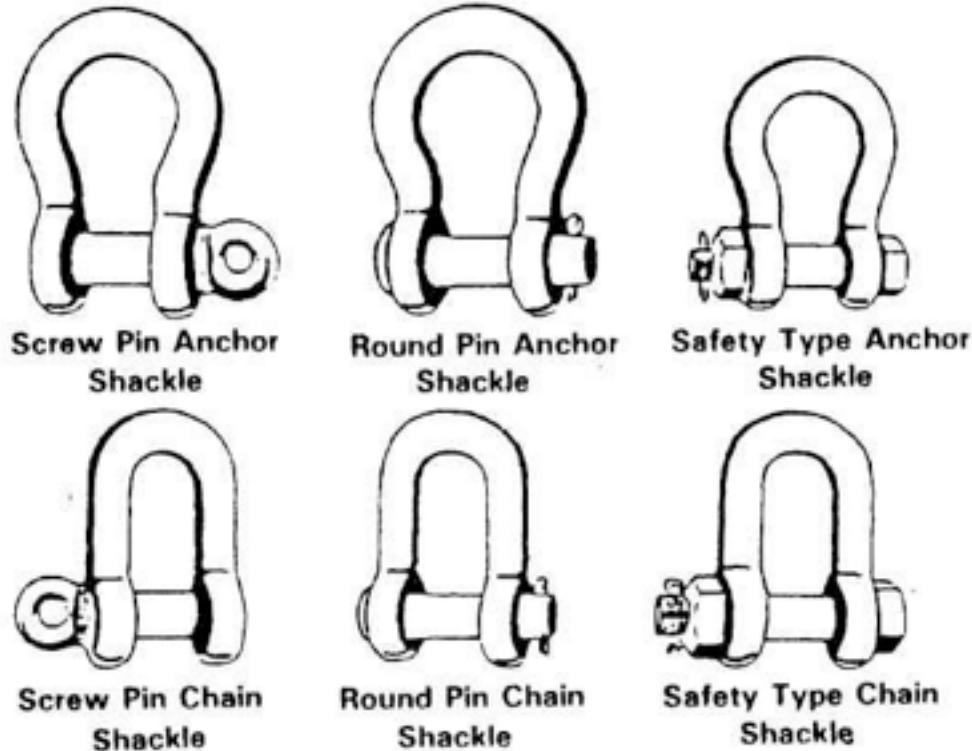
Ensure multiple anchors

Windlass breaker and location

Hardware

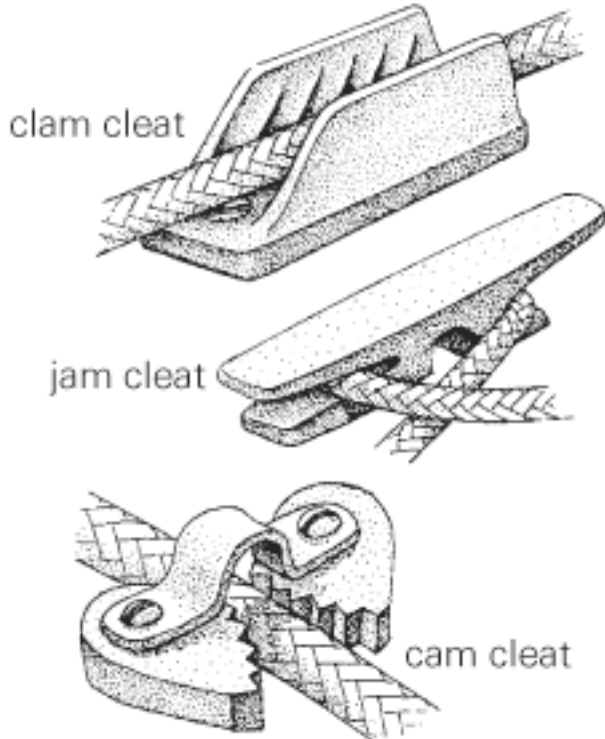
- Stanchions and Life Lines
- Hatches
- Companionway Boards
- Anchor
- Shackles
- Cleats

Screw-in
Snap Shackle
180 degree turn
Pin and Ringding



Hardware

- Stanchions and Life Lines
- Hatches
- Companionway Boards
- Anchor
- Shackles
- Cleats



Horn
Cam
Clam
Jam
Chocks

Check cam cleat springs
Check cam/jam grips

Hardware

- Thru-hulls



Types
Locations



Ensure that thru-hull valves work
Ensure wood plugs near each thru-hull
Ensure mallet/hammer is aboard

Hardware Howto

- Tune life lines
- Deploy fenders
- Deploy tethers
- Deploy anchor - single, double, bow-stern
- Splice eye in rode end
- Rebuild cam cleat

Power-train Schematic

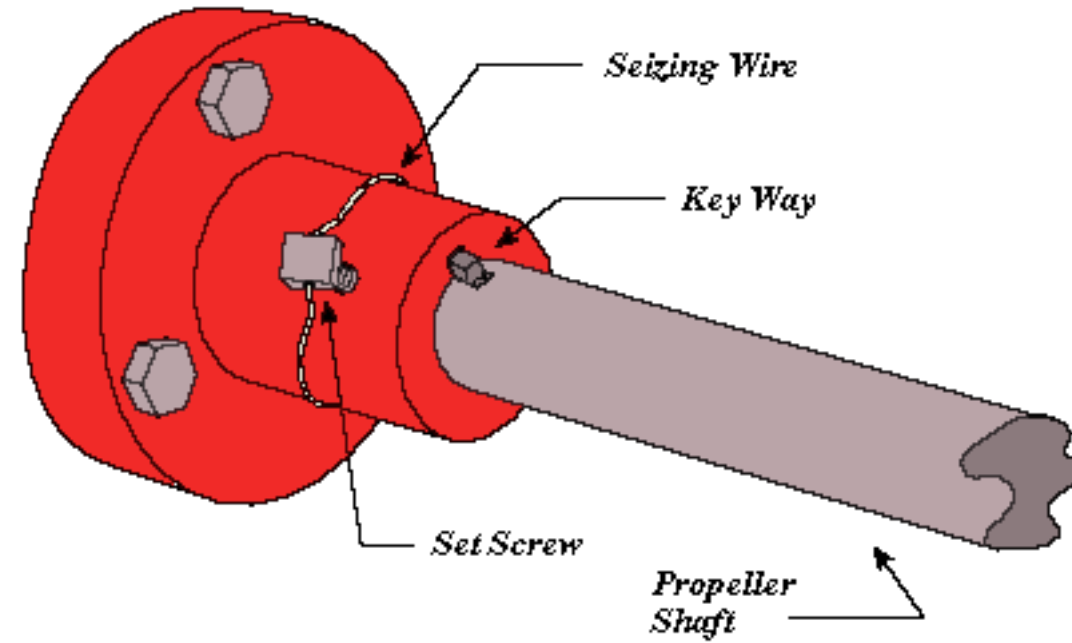
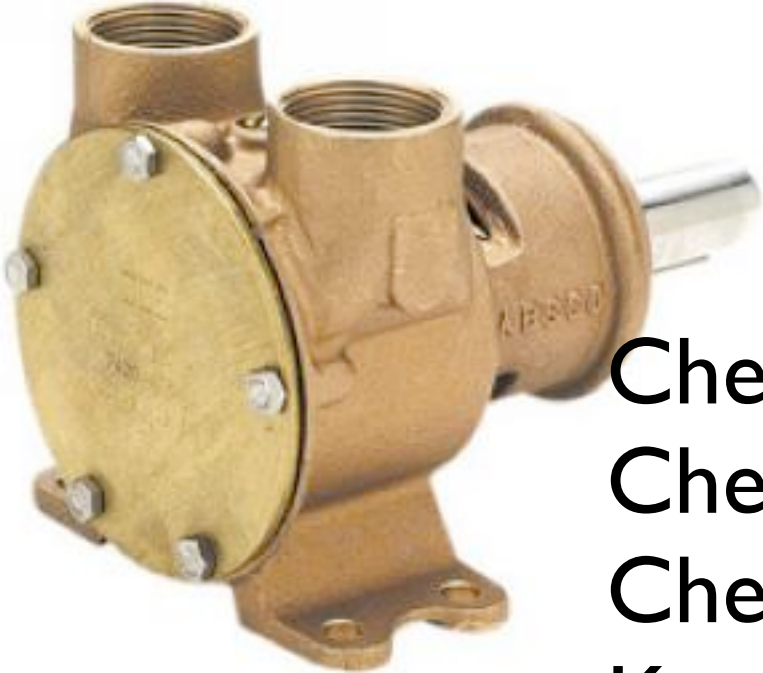


Fig. 1 The coupler is attached to the rear of the transmission

Power-train

- Engine
- Transmission
- Exhaust
- Alternator
- Batteries

- Coolant
- Oil
- Fuel
- Stop Cable
- Seawater Strainer
- Oil Filter
- Water Separator
- Fuel Filter



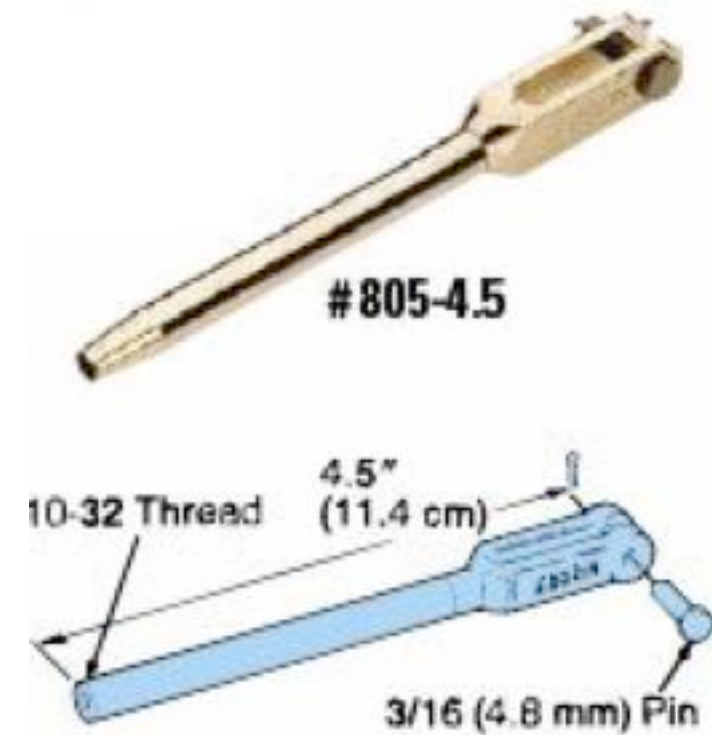
Check coolant levels
Check oil before starting
Check strainers
Keep a service log
Spare parts - impeller, belts,
wire, clamps, filters, strainers

Power-train

- Engine
- Transmission
- Exhaust
- Alternator
- Batteries



- Coupling
- Stuffing Box
- Cutlass Bearing
- Propeller
- Transmission Fluid
- Control Cable

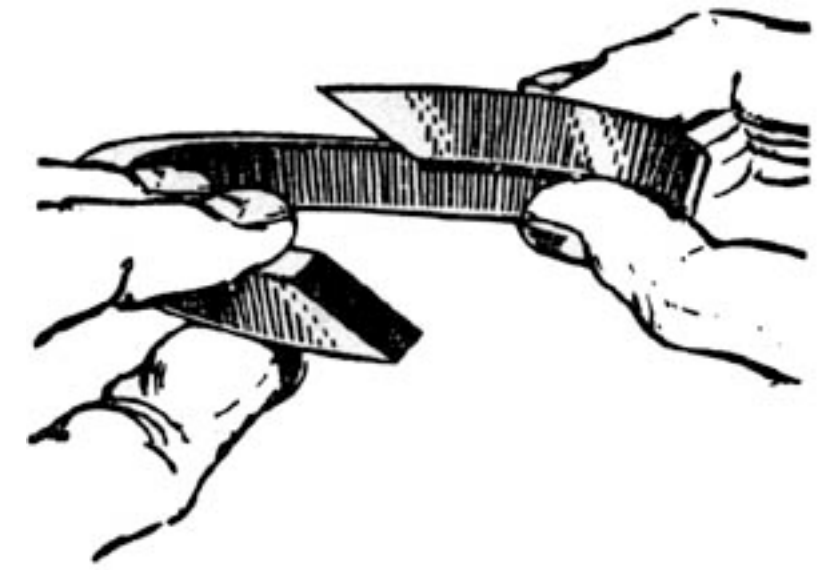


One drip per minute when idle is ok
Less than 1/32" shaft play at cutlass
Antifouling for prop
Feathering props

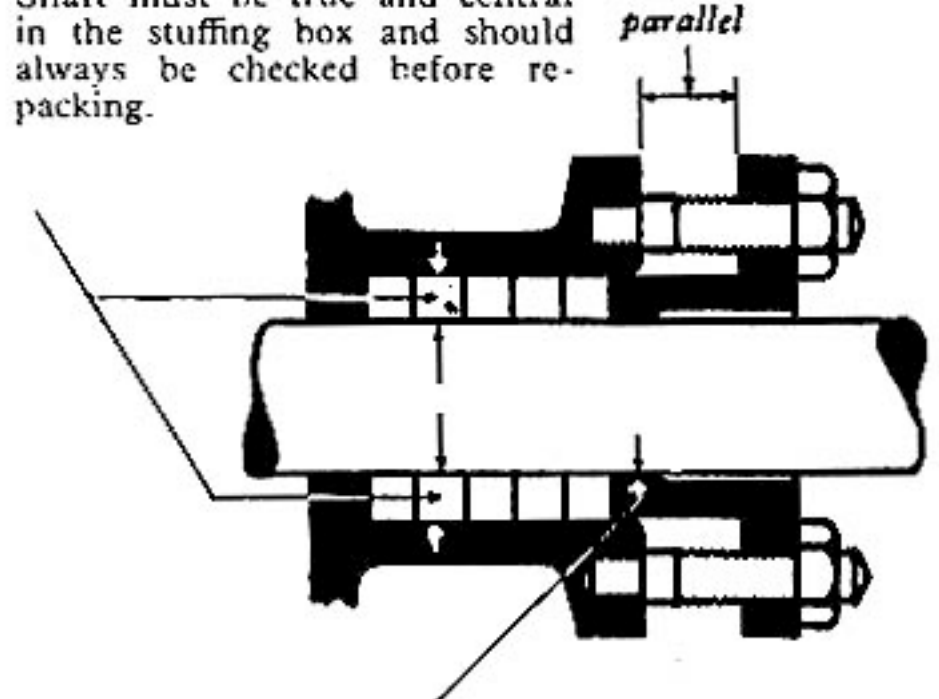
Power-train

- Engine
- Transmission
- Exhaust
- Alternator
- Batteries

Coupling
Stuffing Box
Cutlass Bearing
Propeller
Transmission Fluid
Control Cable



Shaft must be true and central in the stuffing box and should always be checked before re-packing.

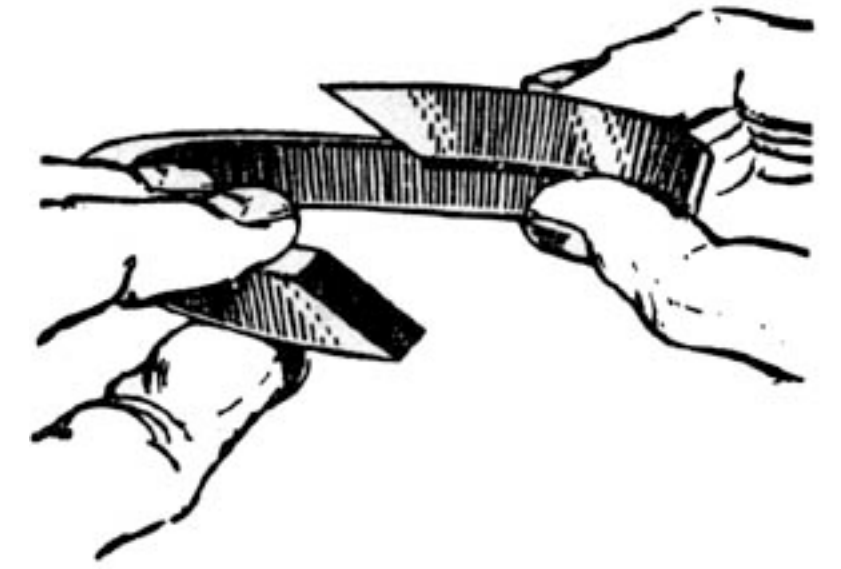


Equal clearance all round the shaft should be checked with feelers. The diametrical clearance in the gland bore should be not less than 1/32" (1/64" all round).

Power-train

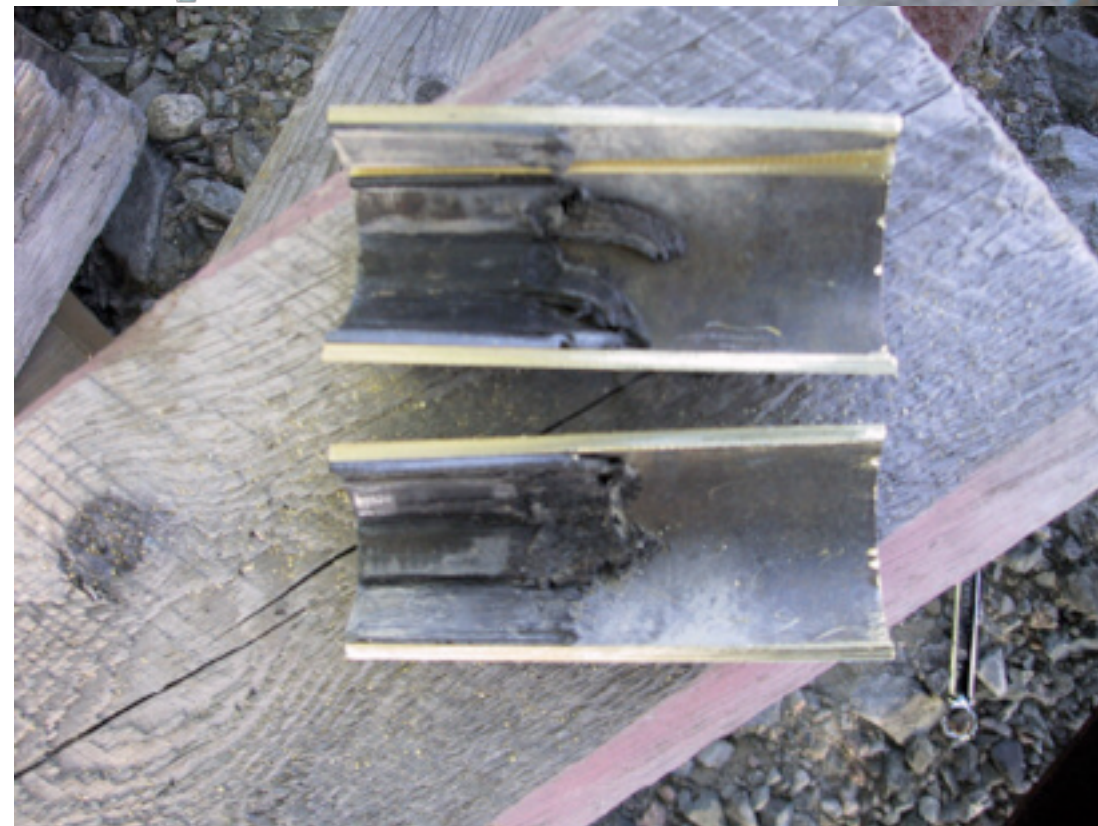
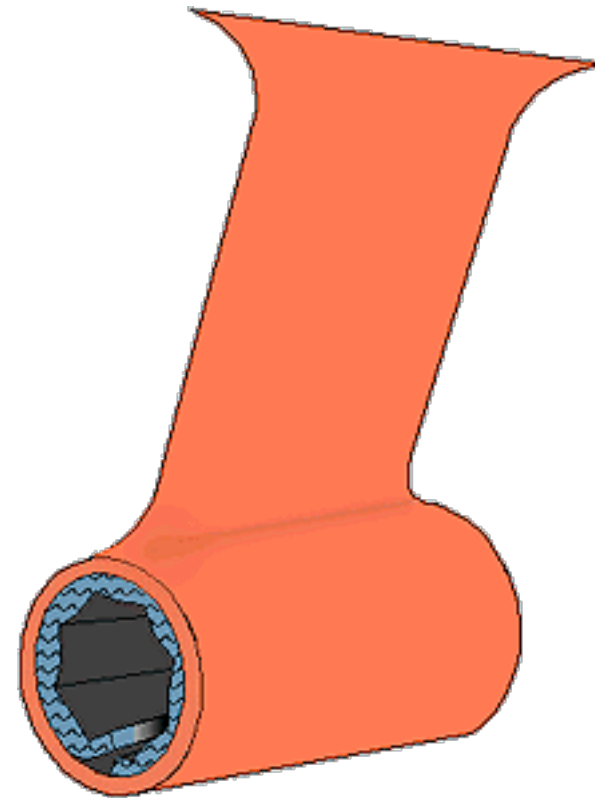
- Engine
- **Transmission**
- Exhaust
- Alternator
- Batteries

Coupling
Stuffing Box
Cutlass Bearing
Propeller
Transmission Fluid
Control Cable



Power-train

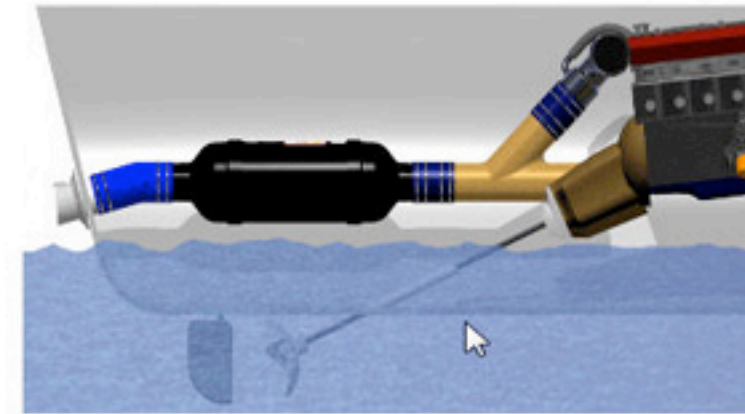
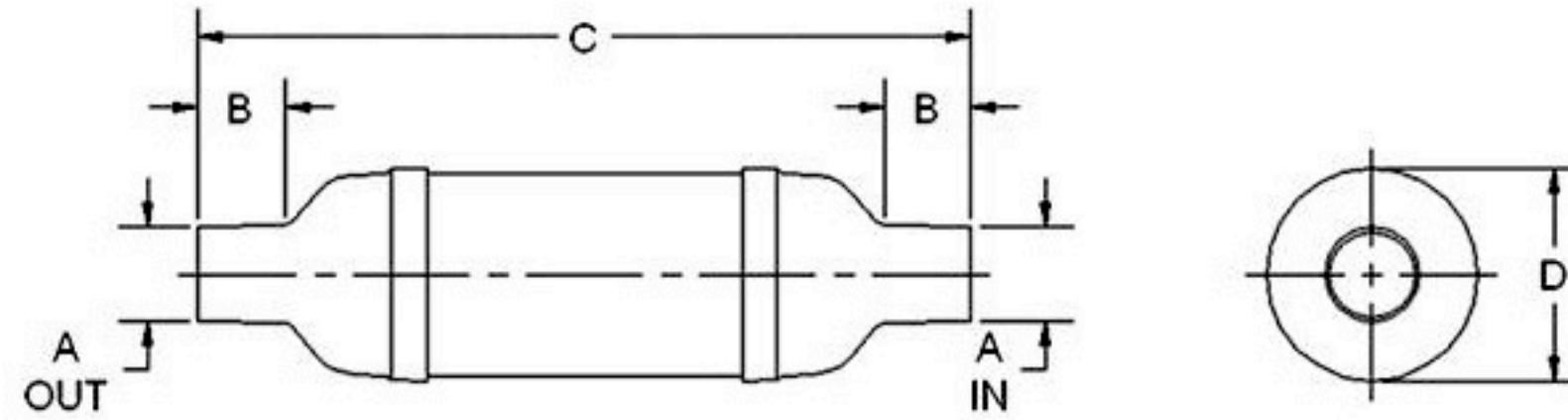
- Engine
- Transmission
- Exhaust
- Alternator
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Coupling
Stuffing Box
Cutlass Bearing
Propeller
Transmission Fluid
Control Cable

Power-train

- Engine
- Transmission
- **Exhaust**
- Alternator
- Batteries



Thru-Hulls
Seacocks
Insulation
Obstructions
Backpressure

Check thru-hulls (in and out)
Check for water at engine startup
When engine does not start, do not keep trying

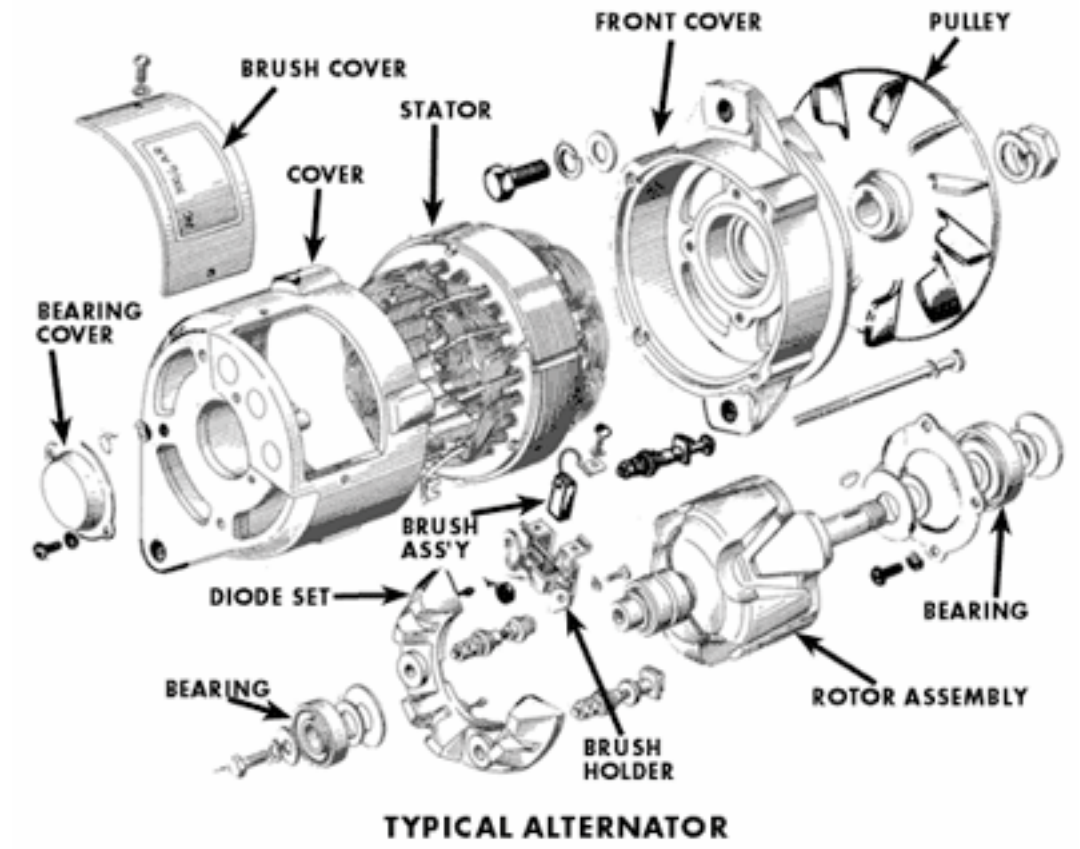
Power-train

- Engine
- Transmission
- **Exhaust**
- Alternator
- Batteries



Power-train

- Engine
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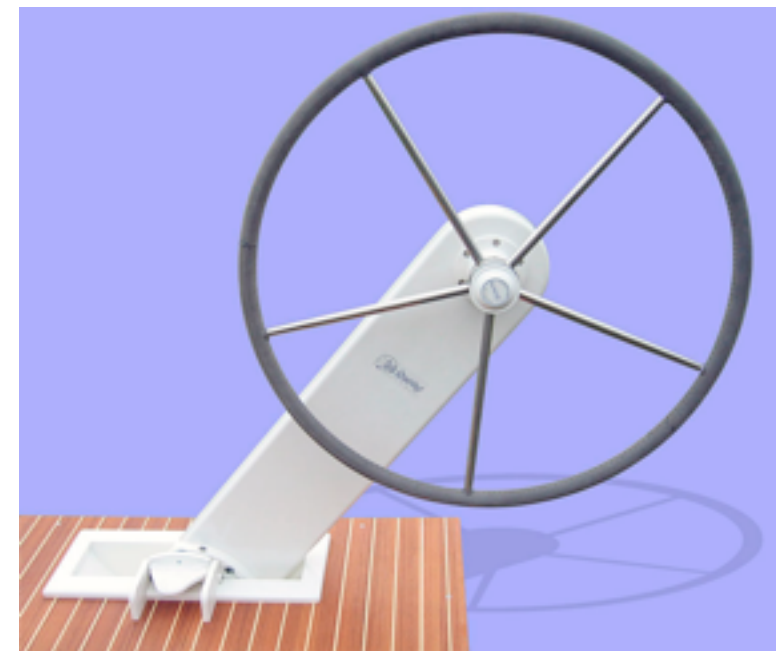
Power-train

- Engine
- Transmission
- Exhaust
- Alternator
- **Batteries**

Wiring
Temperatures
Types

Steering

- Helm
- Rudder
- Auto-pilot



Wheel
Tiller
Dual Wheel



Test for backlash
On catamarans check tie bar and rod-ends

Steering

- Helm
- Rudder
- Auto-pilot



Look for broken wires
Check for improper wear on pulleys

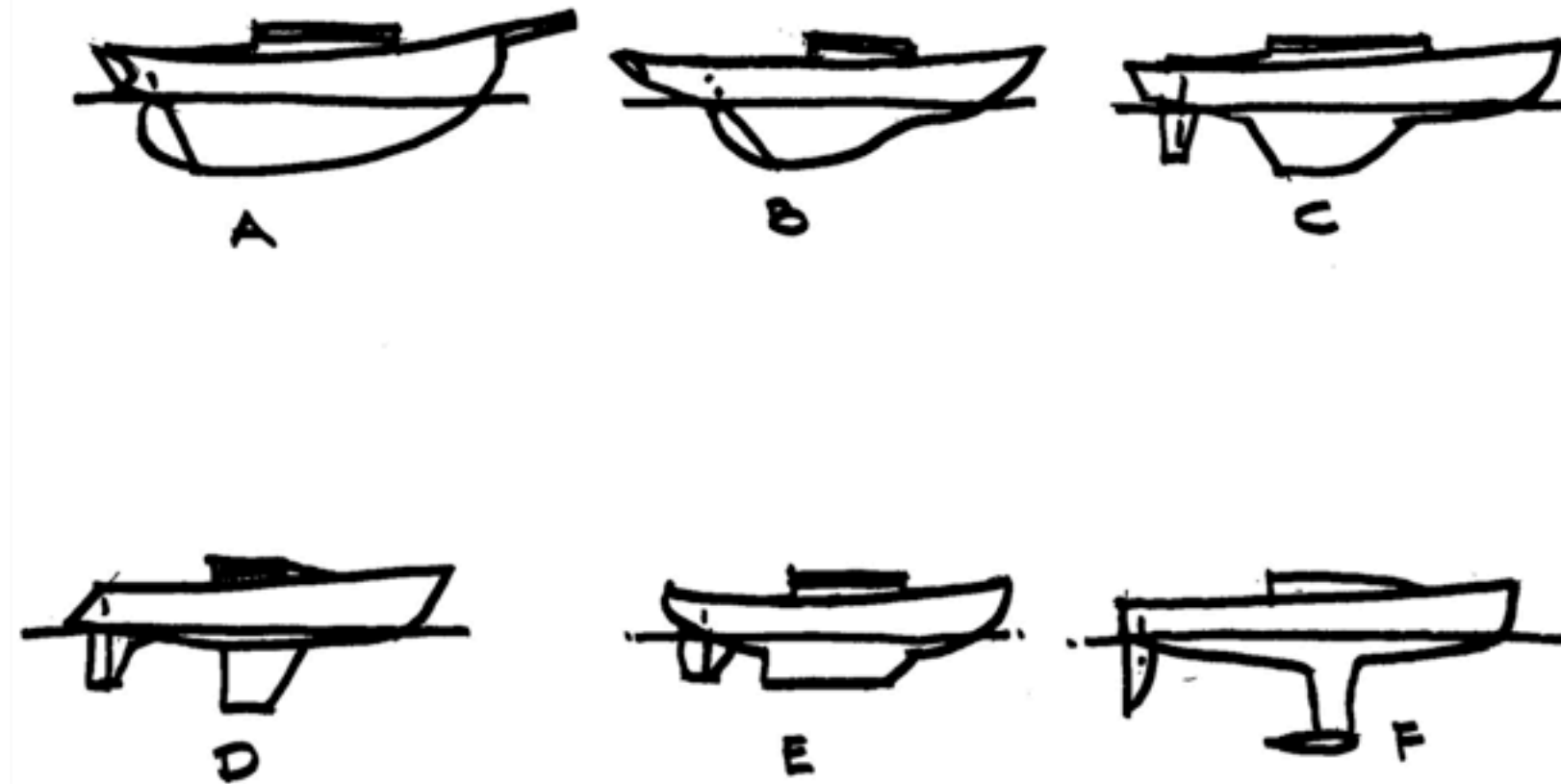
Steering

- Helm
- Rudder
- Auto-pilot

Fin

Fin-with-strut

Keel



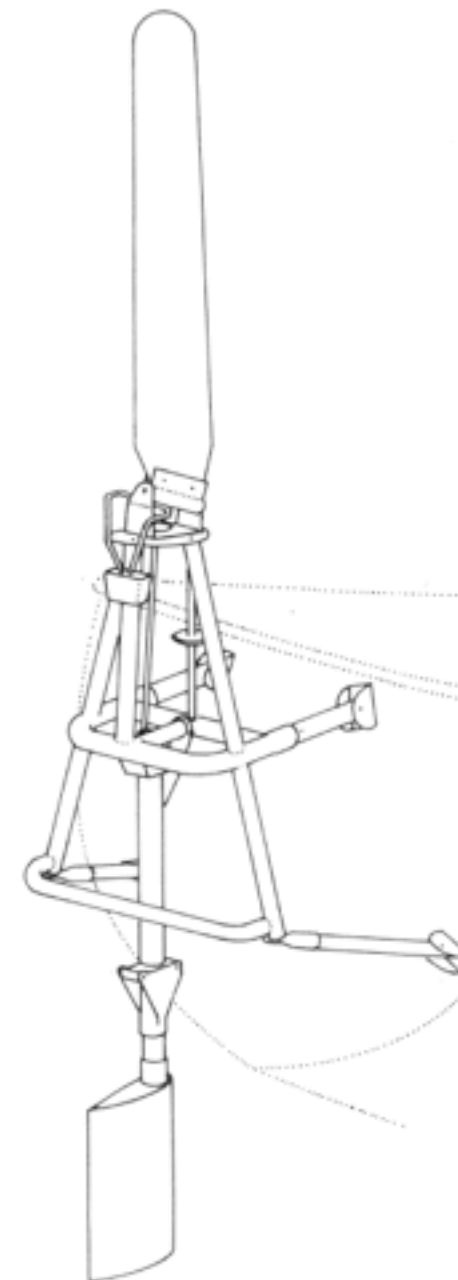
Know what is below the waterline

Practice driving backwards

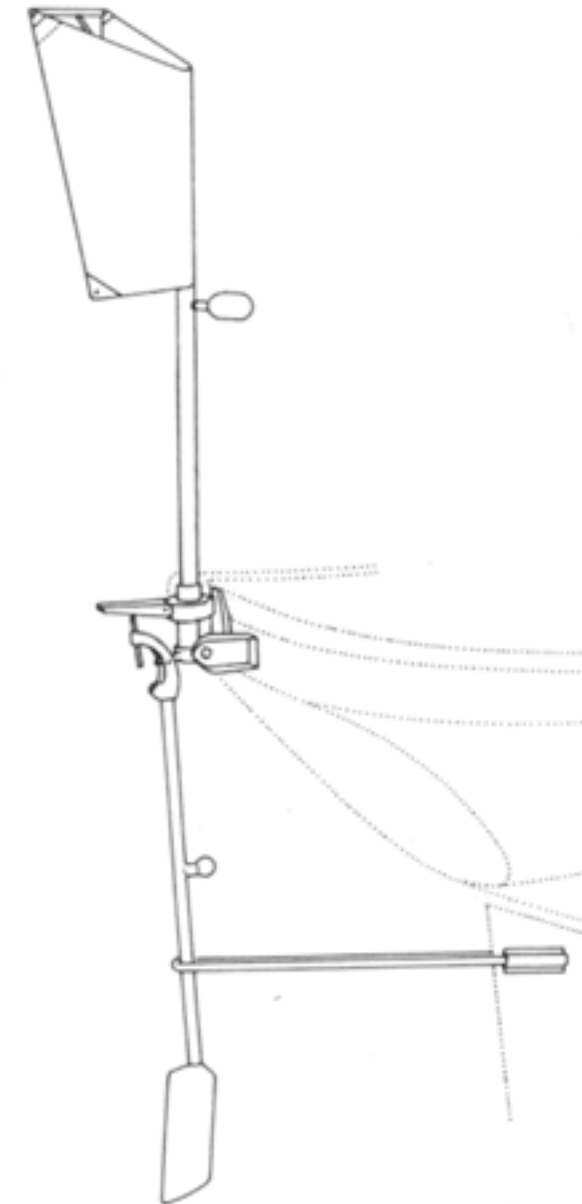
Practice maneuvering at low speeds clear of obstructions

Steering

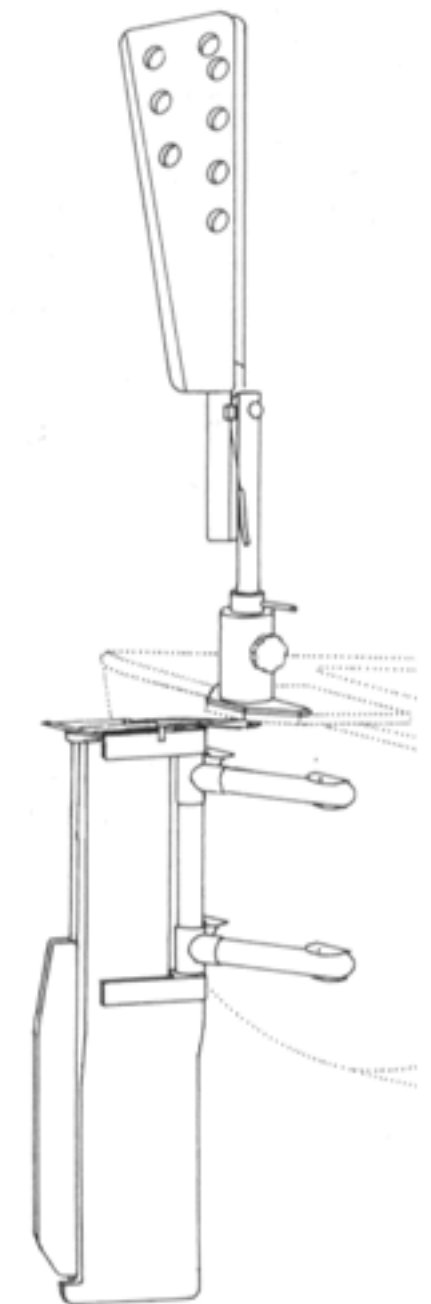
- Helm
- Rudder
- **Auto-pilot**



Servopendulum to Main Rudder



Pendulum/Trim Tab on Main Rudder

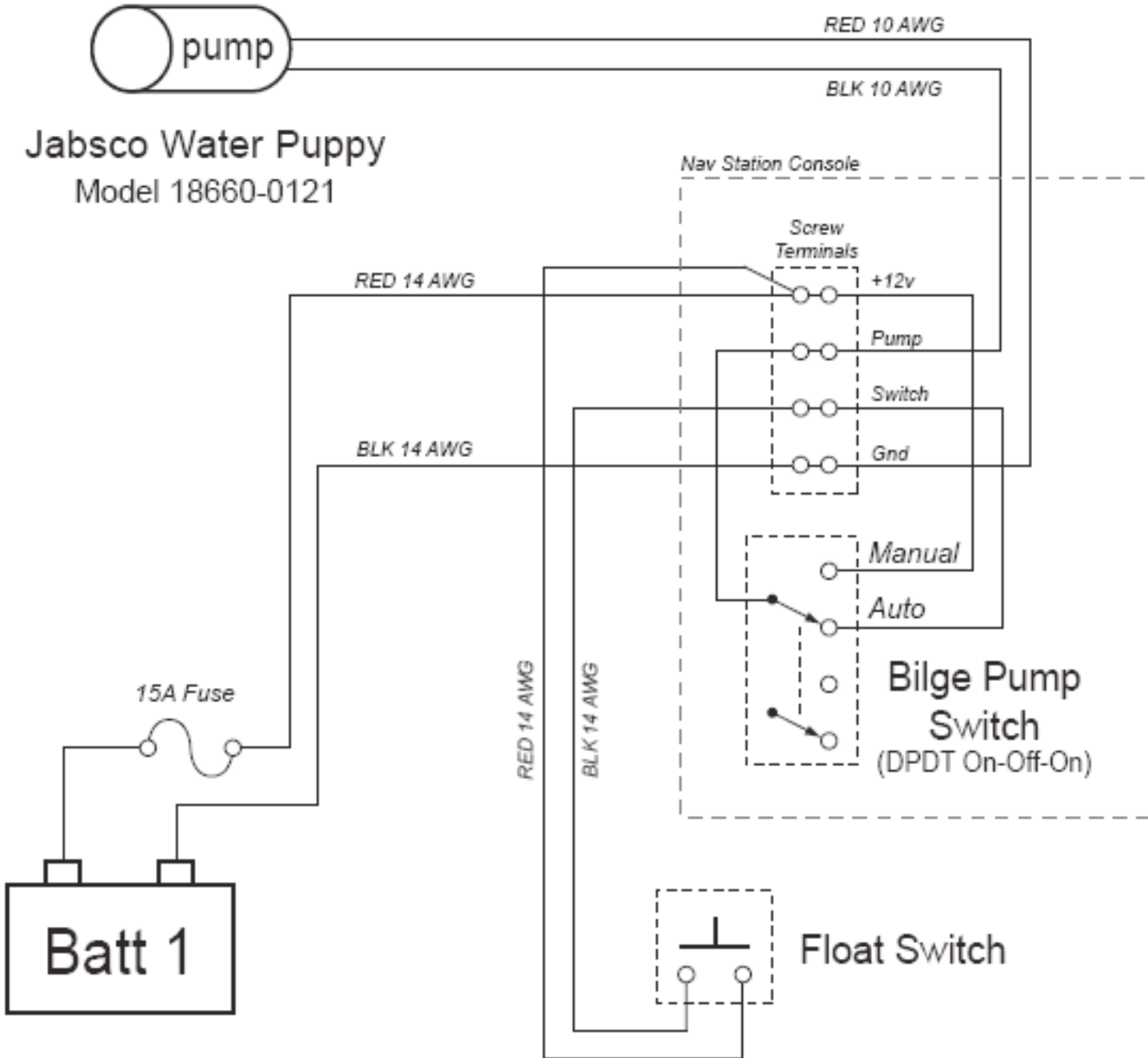


Trim Tab on Auxiliary Rudder

Electro-mechanical
Mechanical

Keep backup hardware aboard
Breaker and location
Know the wave/wind limits

Bilge Schematic



Nevermore Bilge Pump Circuit

Sep 17 2007

Bilge

- Electric Pumps
- Manual Pumps
- Plumbing

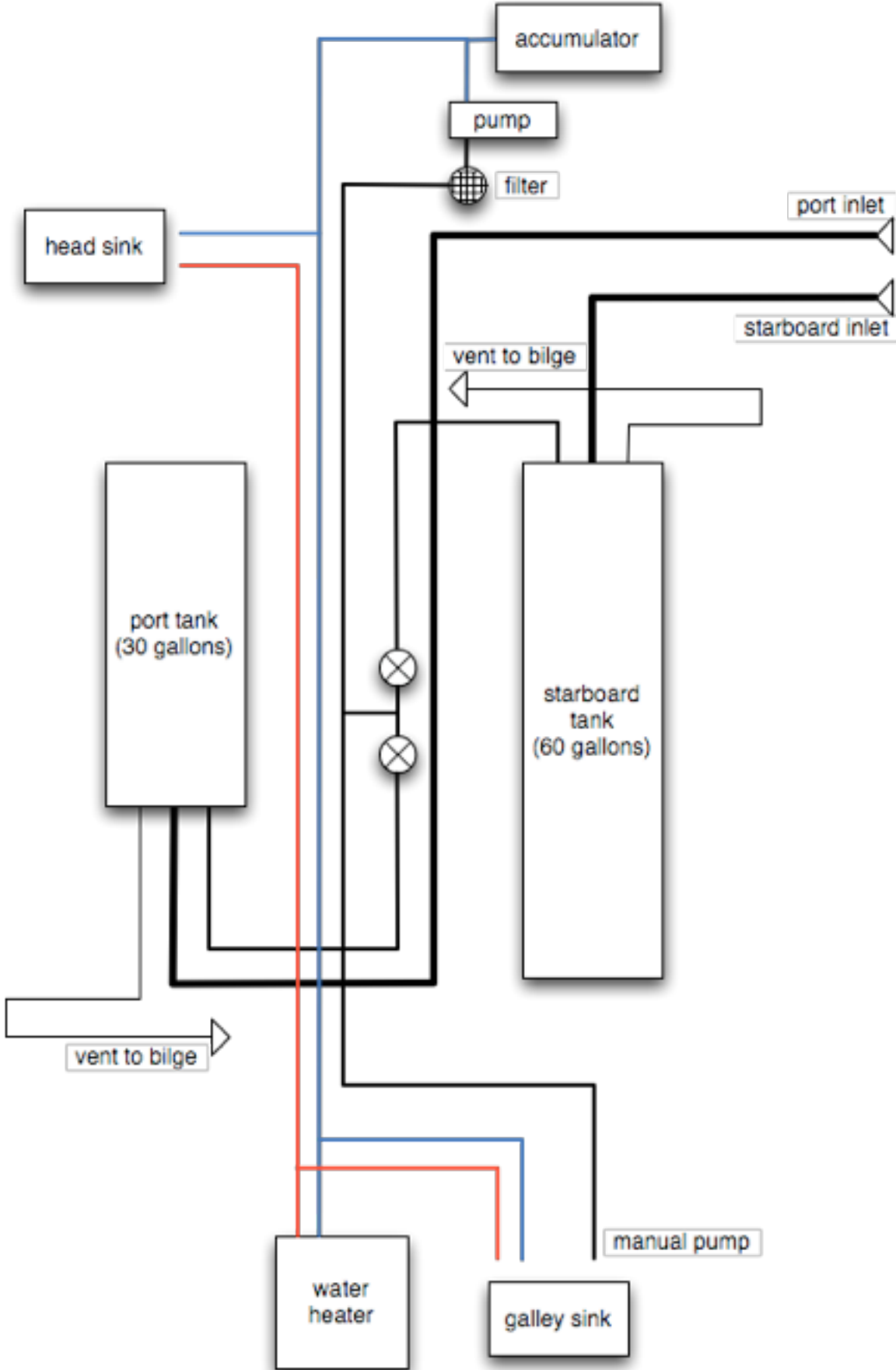


Bilge

- Electric Pumps
- Manual Pumps
- Plumbing



Freshwater Schematic



Freshwater

- Strainer
- Pump
- Accumulator
- Tank
- Fixtures



Freshwater

- Strainer
- Pump
- Accumulator
- Tank
- Fixtures



Freshwater

- Strainer
- Pump
- **Accumulator**
- Tank
- Fixtures



Freshwater

- Strainer
- Pump
- Accumulator
- Tank
- Fixtures



Freshwater

- Strainer
- Pump
- Accumulator
- Tank
- **Fixtures**



Freshwater

- Strainer
- Pump
- Accumulator
- Tank
- Fixtures
- Watermaker



Blackwater Schematic

Blackwater

- Strainer
- Toilet
- Holding Tank
- Pump
- Macerator

Blackwater

- Strainer
- Toilet
- Holding Tank
- Pump
- Macerator



Blackwater

- Strainer
- Toilet
- **Holding Tank**
- Pump
- Macerator



Blackwater

- Strainer
- Toilet
- Holding Tank
- **Pump**
- Macerator

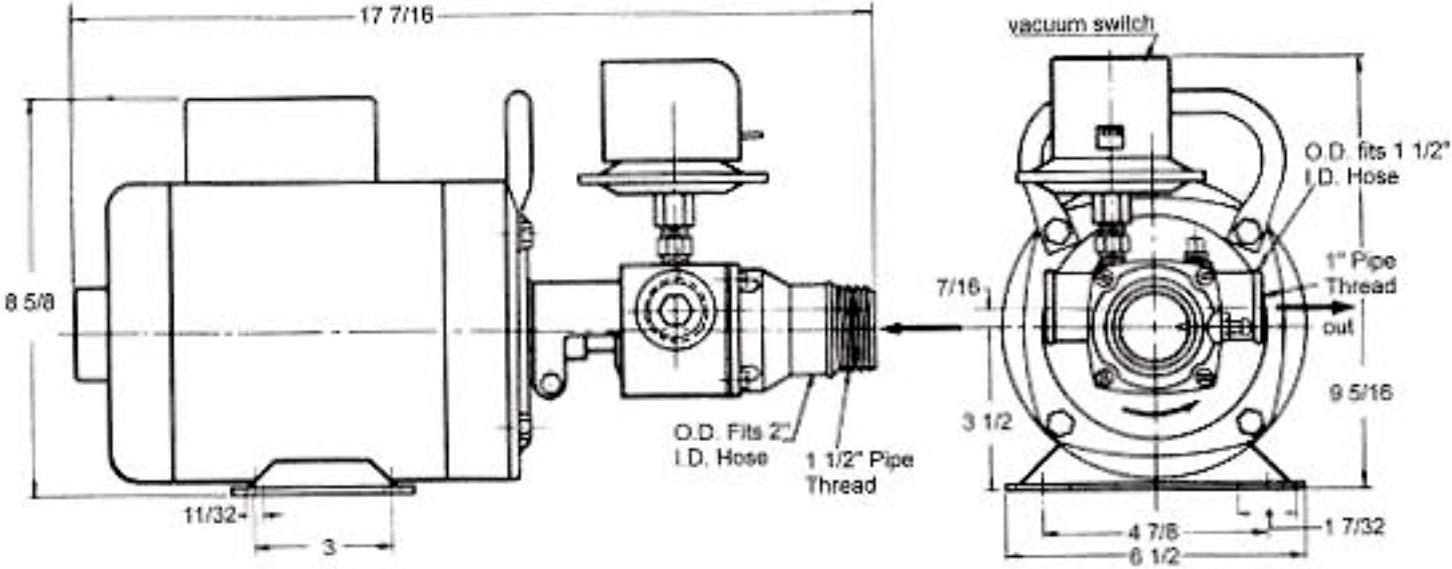


Blackwater

- Strainer
- Toilet
- Holding Tank
- Pump
- Macerator

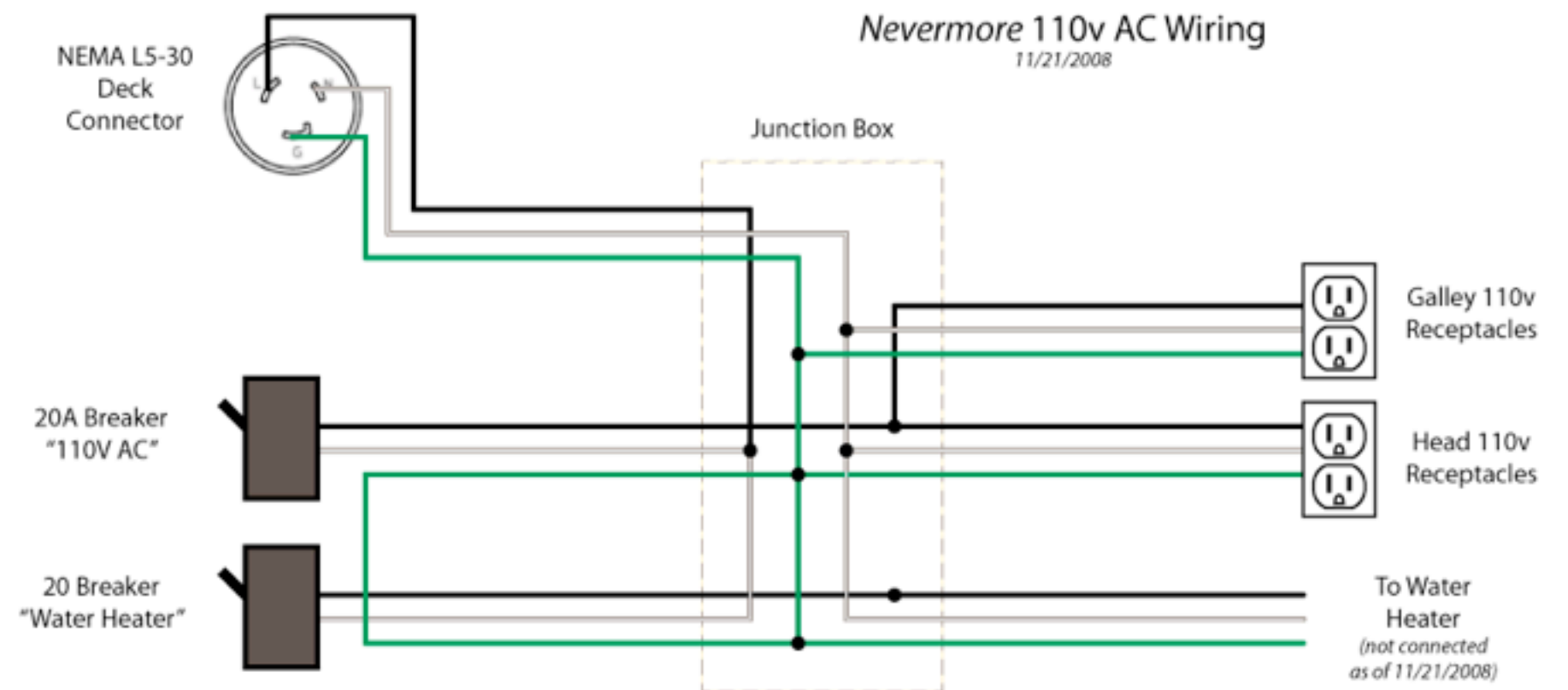


Pump in photo is shown with pressure switch that is not included



Electrical

- 12v vs 110v
- Breakers
- Batteries
- Navigation Lights, Cabin Lights, Blower
- Anti-Electrolysis
- Lightning Dissipation



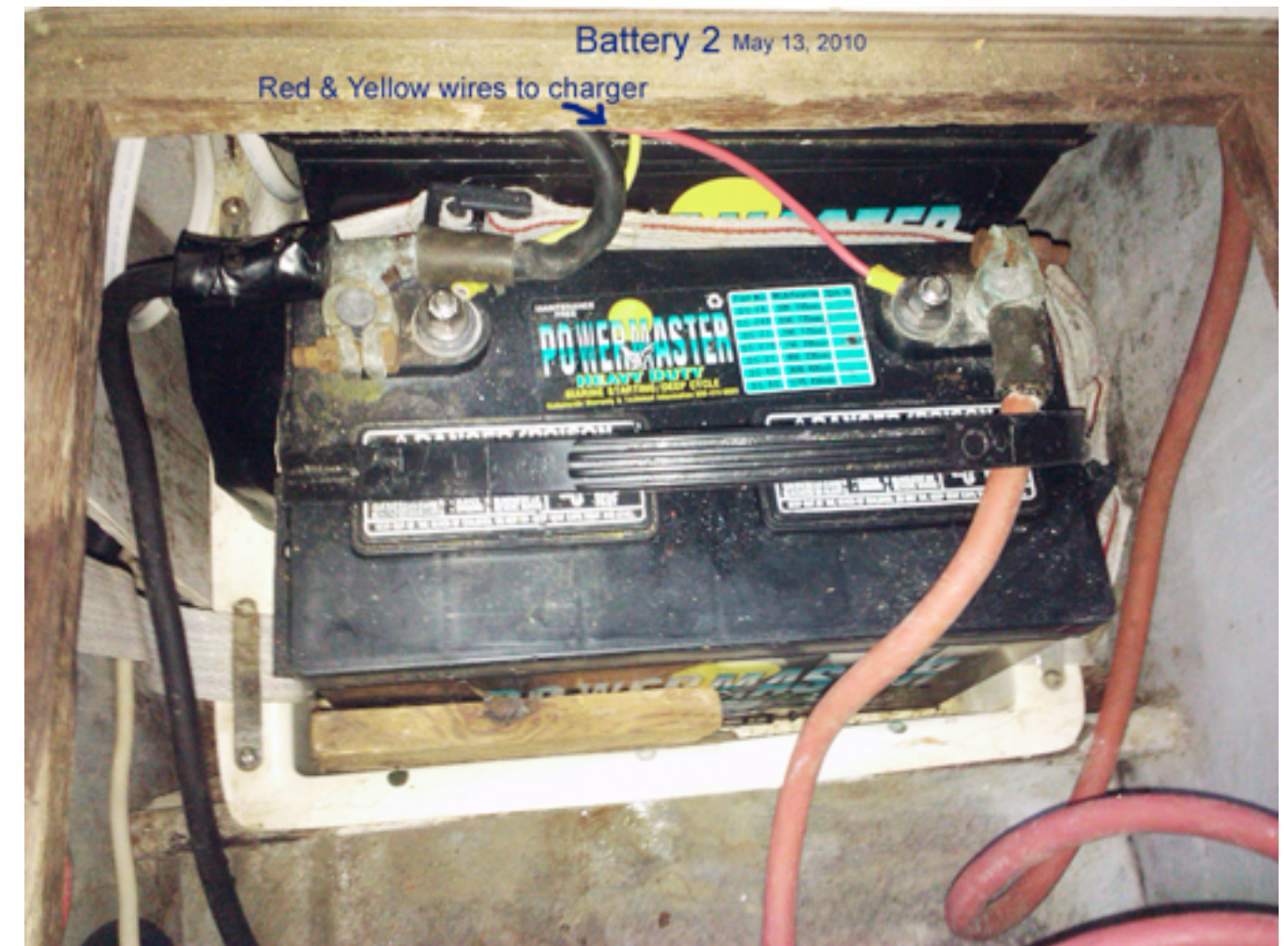
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Electrical

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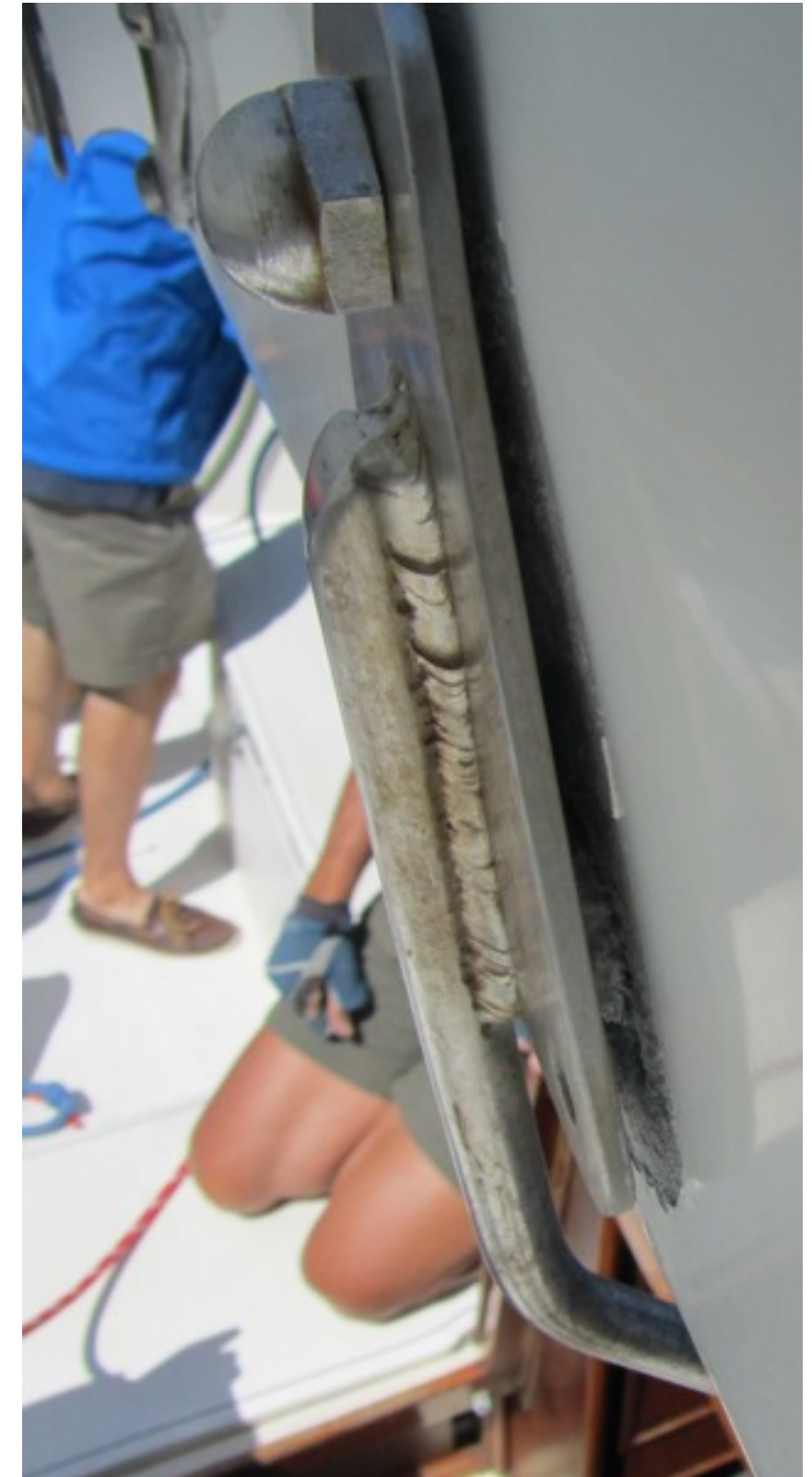
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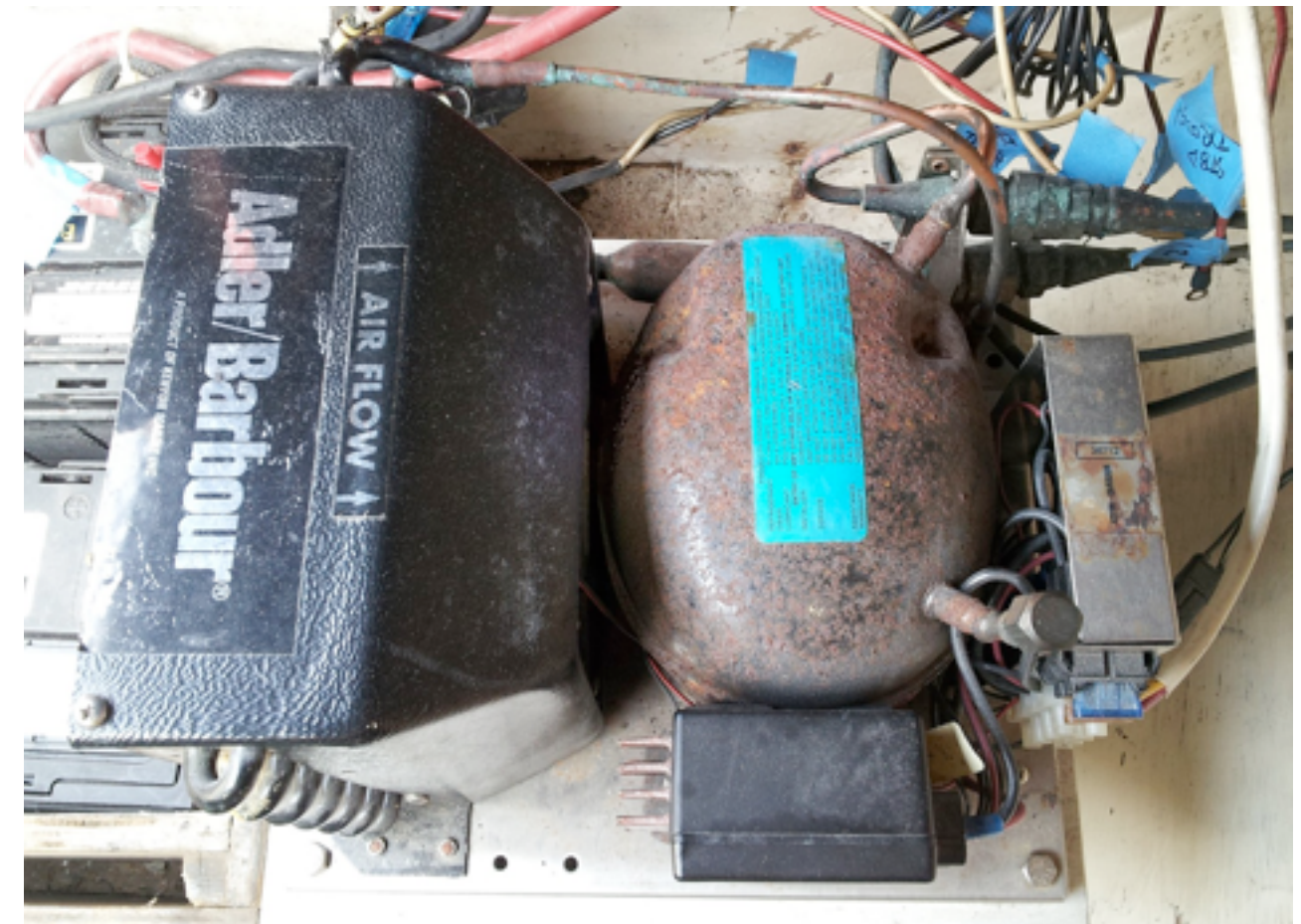
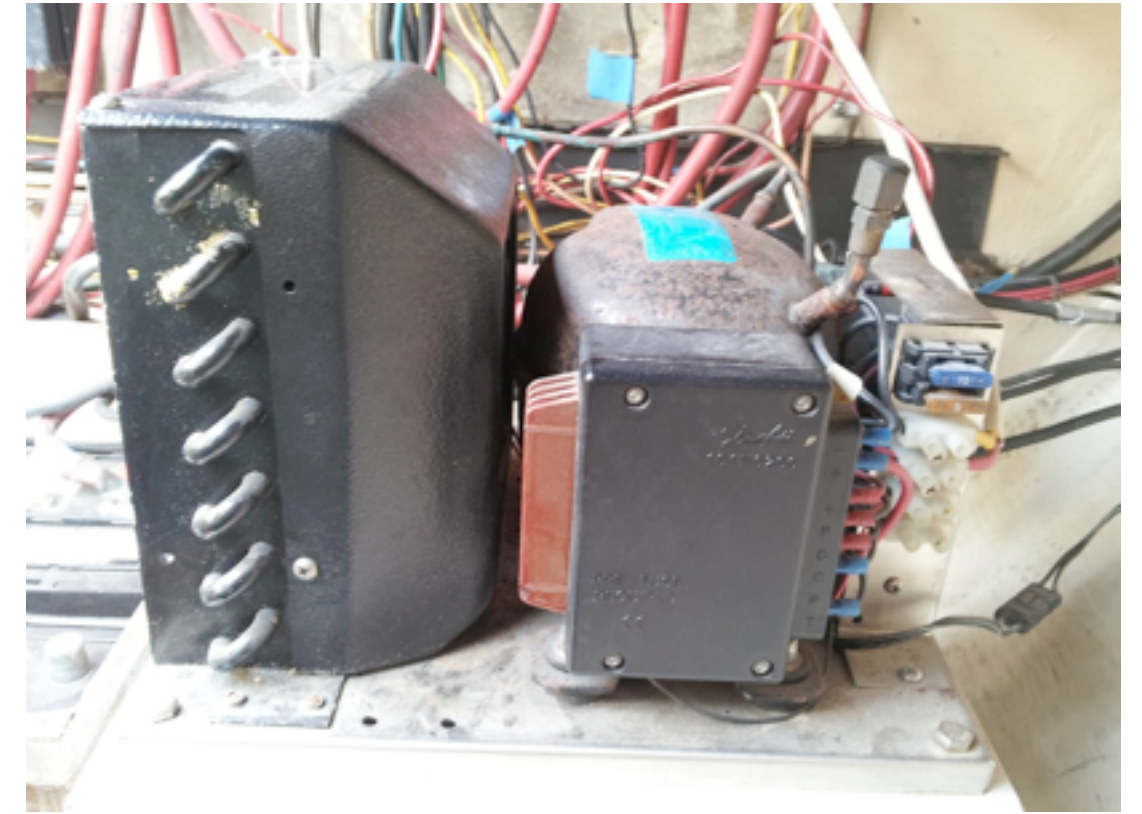
Electrical

- 12v vs 110v
- Breakers
- Batteries
- Navigation Lights, Cabin Lights, Blower
- **Anti-Electrolysis**
- Lightning Dissipation



Galley

- Stove
- Ice Box
- Refrigerator



Electronics

- Wind Sensors
- Depth Sensors
- GPS
- Radar
- Radio



Safety Equipment

- PFDs
- Foulies
- Tether/Harness
- Life Raft
- Knife
- Strobe/Smoke/Flares
- First Aid Kit
- Sunblock

Tools

Quality Multi-tool (e.g. leatherman)

Mirror on a Stick

Magnet on a Stick

Head Lamp with Red Filter

Lighter / Butane Torch

Ballpoint Pen

Log Book

Socket Set

Wrench Set

Adjustable Wrenches

Vise Grips

Allen Wrenches

Screw Drivers - Slot and Phillips

Pliers - Needle-Nose and Regular

Pipe Wrench

Hammer, Rubber Mallet

Manual Drill + Bits

12v/110v Light

Sail Tape

Needles and Waxed String

Yacht Preparation Distilled

- Know what 'normal' is
- Check for wear
- Bring spares
- Bring the right tools

Why does this matter?

- Your friend asks you to crew
- Trips on X-Dimension or other club boat
- You want to charter a boat
- Day trip
- Overnight trip
- Winterizing/Dewinterizing

Yacht Preparation Distilled

	Club Sail Day or Overnight	Charter Days to Week	Delivery Days or Weeks
Responsibility	low (?)	medium (?)	high
Risk	low	medium	high
What to Check	sunblock	dive mask	everything
What to Bring	lunch	camera	tools
Responsibility for Others	high	high	low

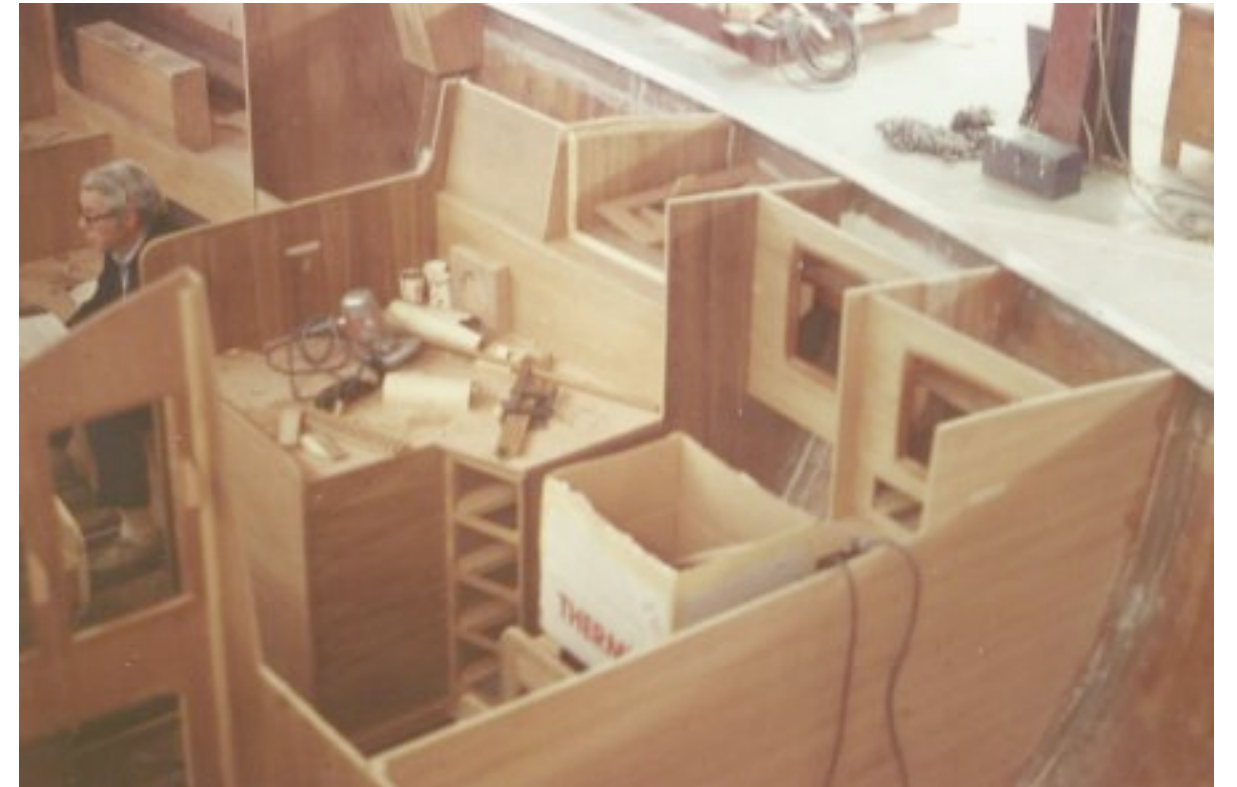
X-Dimension Projects 2014

- Replace holding tank
- Fix engine oil and fuel leaks
- Design and implement a battery charging system
- Repair leak in freshwater tank
- Design electronic navigation system
- Install LED lighting in cabin and lockers

- Replace rudder post bushing
- Install new main sheet blocks
- Fair keel
- Build dams at companionway
- Recore deck under radar mast
- Recore deck over head
- Restitch steering wheel leather
- Repair sail cover

- Install indicator lamps for propane and pumps
- Rebuild winches
- Install hardware for anchor under boom
- Design checks for aft docklines
- Counterbore motor mount bolts
- Repair floor stringers
- Re-refinish binnacle table
- Repair binnacle table fittings
- Re-bed chain plates
- Install new companionway latch mechanism
- Fabricate plastic labels for all electronics
- Strip and refinish teak

X-Dimension Construction



Before/After



Before/After



Keels



Spinnaker Pole

