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Clio 32B Bayfield sailboat, Disp. 9,600 lbs.

Hull Identification Number ZBY320380376

Manufacturer: ZBY

Serial number: 32038

Month/year of production: 0376

YW# 75589-2793700, 1976

Re-power with a 3YM30AE with KM2P-1 Ratio 2.62:1, 350lbs; 14"x 14' x 3.5" prop; 1-1/4" shaft;

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Date of engine purchase: December 1, 2018

Boat name: Clio

Hull Number: ZBY320380376

Boat Type: Model: Bayfield 32B

Transmission model: KM2P 2.62-1 Parallel Gear

Serial # E14847-45886

Location of vessel: Port Clinton, Ohio

Is the vessel for recreational usage? Yes

3YM30AE-E14847 KM2P-049806

Yanmar 29HP @ 3200 RPM

Michigan Dyna Jet Propeller 14" x 14" R 1-1/4", Michigan Wheel Corp 1501 Buchanan Ave SW Grand Rapids MI 49507

Brands Sales Slip

w/KM2P 2.62-1 Parallel Gear

KM2P-045886

Ser# E14847-45886

Standard Package Includes

Yanmar Flex Mounts

Electric Stop Solenoid

12V Electric Start

3 Meter Harness

2" U Type Elbow

125 Amp Alternator

Keyless B20 Panel

Engine Operation Manual

Primary Fuel/Water separator

Engine Number E14847

Engine Family JYDXN1.27P3N

Mag. Date Mar 2018

BSP Exhaust Gas Type Test

Engine Family RCD-3YM30X2

Engine Family Name RCD2-3YM30X1

Certification No. M140131459  
Order Number 1323246  
Sales Rep GL1/GL2  
Order Date 10/31/18  
Written By Loida Dorfner  
Jody Waite  
Warranty Administrator  
245 BELMONT DRIVE  
SOMERSET, NJ 08873  
T 908 964 0700 ext. 259

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To ask Tom

Are there pencil zincs?

210729 Spoke to Tom. Order another panel. B-20-Type Medallion Panel Looks like it is on a segment check,

210721 Spoke to Tom, start engine with kill switch pushed no water for 10 seconds then prime water pump and start.

190730 Spoke to

Tom Motta 910-632-4216 of Yanmar

200730 Called about starting procedure, tank position,

200706 Called about other two pieces for the exhaust and he said you did not have to do this as long as the hose goes up then down like the old system.

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What is the water inlet diameter? 19.5mm listed on drawing = 0.7677165"

What water stop should be used inline the exhaust hose? 3YM30AE with KM2P 2.62:1  
2" exhaust

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[Tmotta@mackboring.com](mailto:Tmotta@mackboring.com)

Tom Motta 910-632-4216

Mack Boring & Parts Company  
245 Belmont Dr, Somerset, NJ 08873  
(908) 964-0700

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<https://yanmar.microsoftcrmportals.com/service-request-edit-cs/?id=a34f5c43-10f2-eb11-ba5e-00155d809965>

File trouble ticket for panel

Case # CAS-07013-H4S6F4 filed July 31, 2021

Case Title:

B-20 Medallion Panel in LCD segment lock

Customer  
Sunderland, Willard  
Propulsion Package  
Prop  
Main Engine / Drive  
Engine / Drive  
Description

A new install with the B-20 Medallion Panel # 164100-2100 only working in LCD segment lock mode. All cells are in full darkness. You can barely see it cycle through the display. No sunlight issues. Does the same thing at night. Tach does jump up when turning on. Warnings lights cycle through when turning on. Panel has not been exposed to weather. No hours on engine.

Question

Images:

Of the tag

Of display at night

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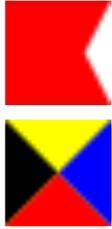
<https://yanmar.microsoftcrmportals.com/service-request-insert-cs/>

Call Tom Motta about what the engine speed pulse value is. Threw away the box.  
Either Hitachi 10.29 or Valeo 12.10

Alternator shows  
Made in Poland  
Alt SG10S078  
Bar code C639773A77957  
Mfg. 2018-01-15



<https://www.mscdirect.com/product/details/48755276>



i

From Bruce Sunderland

Nautical flag and used verbally, naval message: BRAVO ZULU, "well done". Understated but highest form of naval praise.

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Friday, August 6, 2021

Bought 3 O-rings & 1 strainer

Explore Yanmar doc

Order blower

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Thursday, August 5, 2021

To do:

Relax. Well done.

Called Defender. Sending a mounting ring.

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Wednesday, August 4, 2021

After a solid month of her crew finishing the installation, Clio is breaking in her new engine. 26.2 nm at 6.5 kts 2800 rpm for 4 hours to achieve proper break in. 8.5hrs on engine. 1.5 more hrs. at 2800 rpm to reach 1st 10 hr break in period then a different pattern.

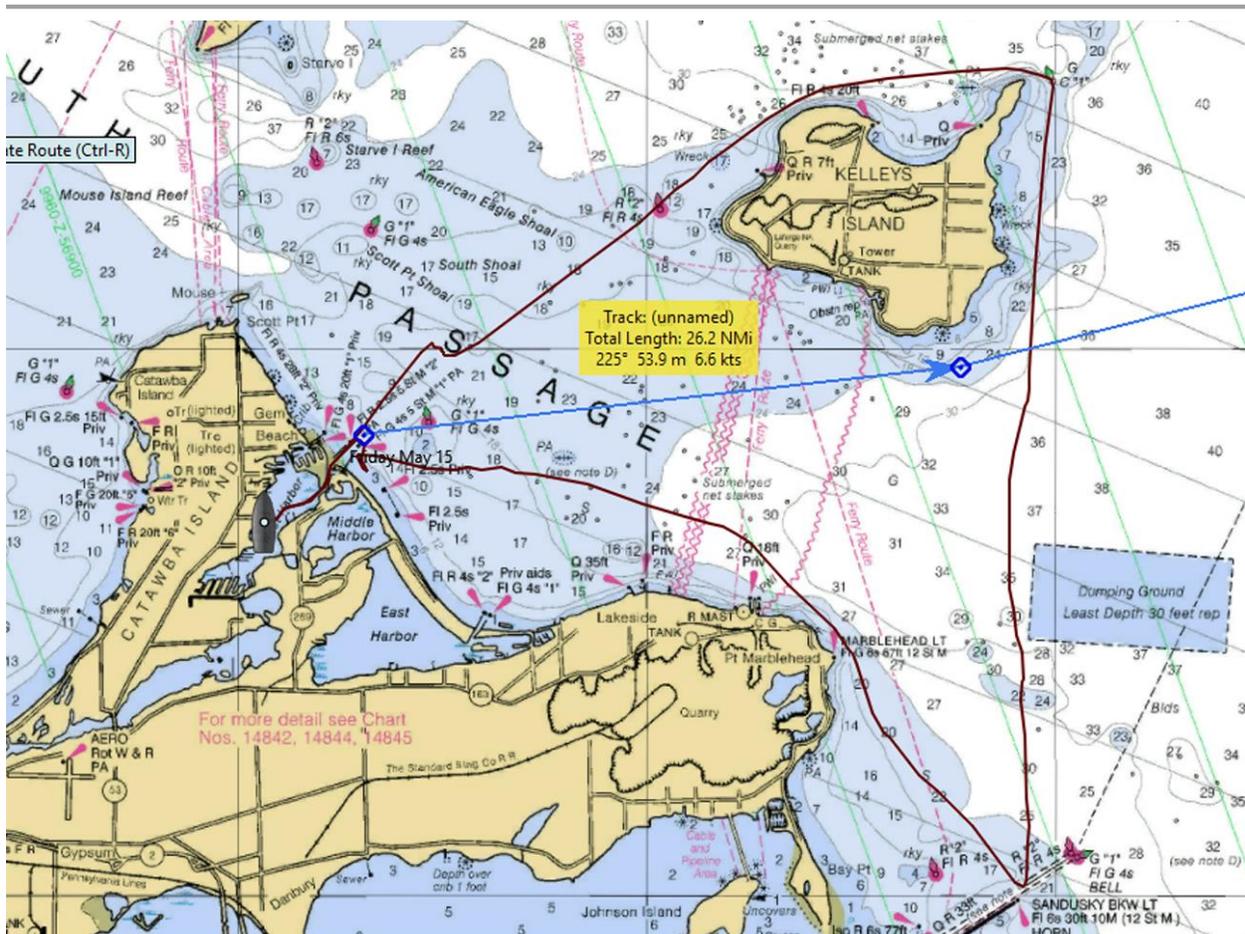
Transferred Clio from Brands, Port Clinton, Lake Erie to Herl's on Catawba Island, Lake Erie. After a rousing sail with 25 kts we fell downwind of our entrance. All boats gone. 35 kt head wind with the normal chop of 2.5 ft waves 75' fetch, challenged the engine to 2500 rpms sometimes making no progress. On smooth water 2500 rpm delivers 6.5 kts. Lake Erie delivered everything the watery world has to give. A great sea trial.

Hull speed 6.46 kts

Draft 3.75'

Height from water 45 ft.

Breaking in 30 Yanmar engine. 10hrs of 70 to 80%. 2900 rpm giving 6.6 kts on smooth water.  
Maximum rpm under load 3400 at 7.2 kts  
14" x 14 pitch prop.



26.2 nm at 6.5 kts 2800 rpm for 4 hours to achieve proper break in. 8.5hrs on engine. 1.5 more at 2800 rpm to reach 10 hr breakin.

Tuesday, August 3, 2021

Hull speed 6.46 kts

Draft 3.75'

Height from water 45 ft.

Breaking in engine. 10hrs of 70 to 80%. 2900 rpm giving 6.6 kts

Maximum rpm under load 3400 at 7.2 kts

Spoke to Jody Waite, Warranty Administrator, 908 964 0700 ext. 25, sent sea trial checklist.  
Tom Motta on vacation till Monday  
Made engine start checklist.  
Made engine shut down list.  
Made close boat list.  
Apply break in procedure to engine  
Wire turnbuckles  
Screened engine.  
Attached servo pendulum  
Cleaned peel & seal

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Monday, August 2, 2021

Breakfast of coffee & fruit. Lunch of turkey sandwiches. Dinner of surprise.

Worked on the panel. Disconnected and connected and it worked.

3.1 hours on the engine.

Checked standing rigging.

Installed wind scoop.

Put hold down on water feed hose. Was starting to chaf. Re-lead shifter control wire under exhaust hose.

Posted on Facebook

Cannot get new B-20 Medallion Panel # 164100-210 on new 3YM30AE-E14847 install to read water temp and oil pressure.

Ran continuity test on water and oil pressure sensors and they are good.

Reply from Robert Richard

I am assuming that your panel came with the implied two gauges and sensors or senders on the engine. Both sensors/senders are variable resistors. Sensors provide values (in ohms) that vary with temp or pressure. These would be checked with a digital ohm meter. Continuity testing is what you want to do with your harness. A wiring diagram is helpful but not necessary. A sensor type gauge generally has four connections, not counting lighting. An ignition supplied positive and a connection to ground and the two wires connected to the sensor. This is for new style sensors that have two terminals and have two corresponding terminals at the gauge. Older style senders (as opposed to sensors) have only one terminal, thus the gauge will only have three. In this case, the gauge is measuring voltage on the output as it is affected by the variable resistor. In all cases. The continuity of these circuits must be established. There may be an error in the assembly of the harness. This is where the correct diagram is helpful.

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Still cannot get oil pressure and water temperature to work. Wanted to go out after the panel started to work but when the oil pressure and water temperature to work. Soldered meter wire and replaced battery. Started to reset aft stanchions.

Discovered we used 92 minutes on the sat phone. Disputing the charge.

<https://www.bluecosmo.com/services/airtimeplans/>

Steve Peebles, Happy Birthday. Before too long we'll visit. Sending good vibrations for a fine day.

Yesterday we took Clio out for sea trials after two & half years of rebuilding. New engine, head, stove, bunks, wind vane self steering. Next year we will take her to Europe.

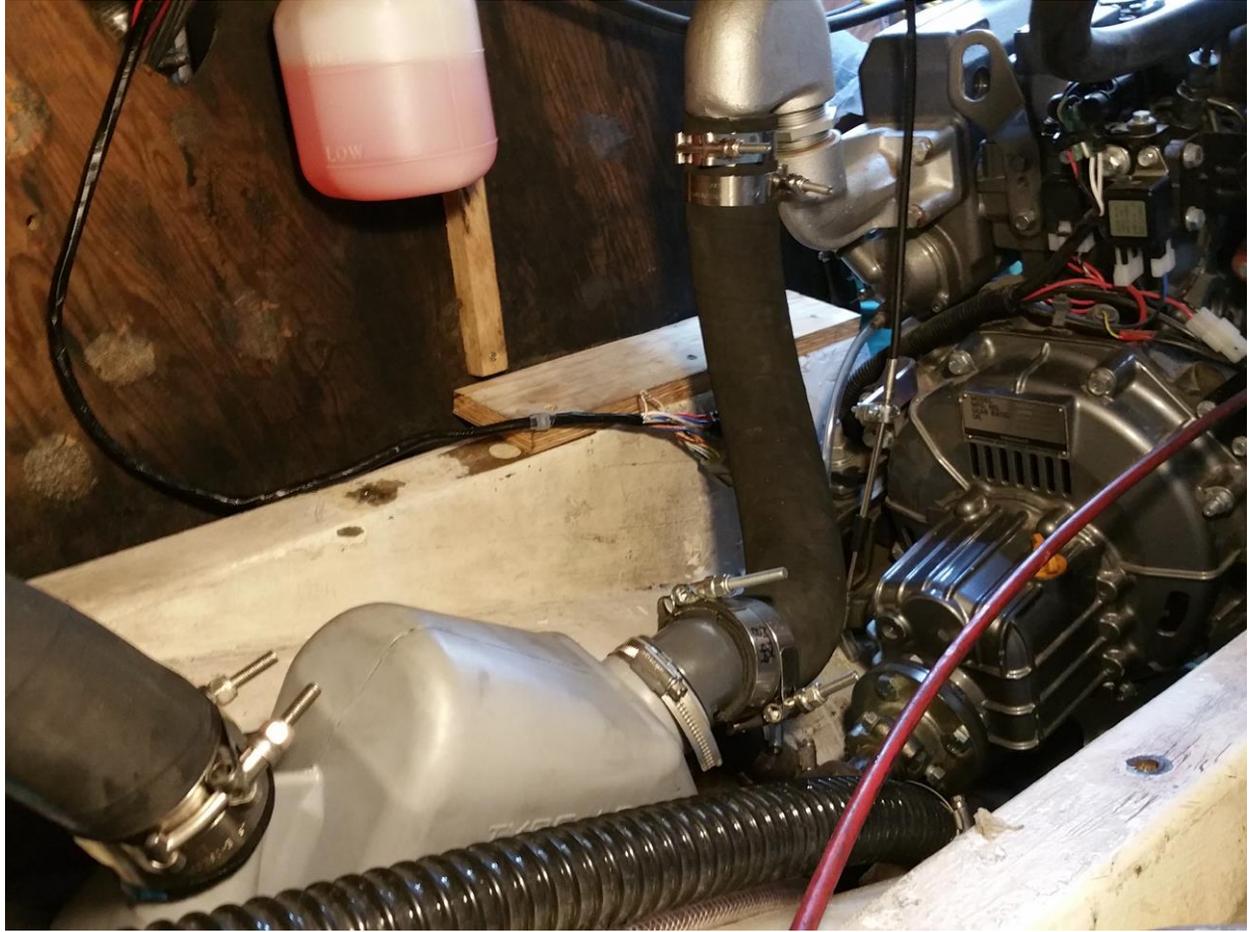
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Transferred Clio to Herl's. 35 kt head wind challenged the engine to 2500 rpms. 2 p.m. under the bridge. Arriving at 7 p.m. Lake Erie delivered everything the watery world has to give. A great sea trial. Hull speed 6.46 kts



Steps done. Now on to changing the fluids.



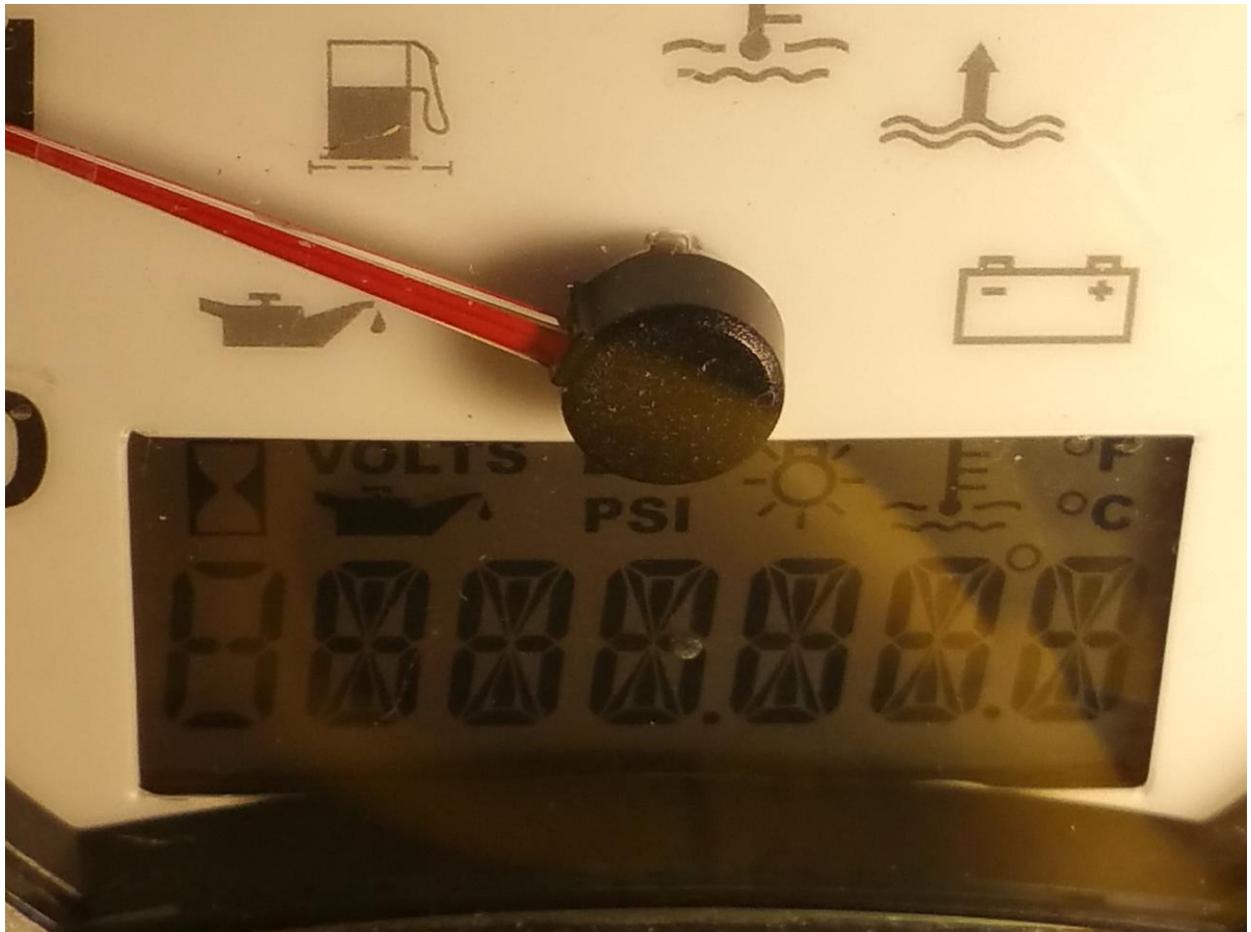
WARRANTY VOID IF HARNESS ALTERED WITHOUT  
MEDALLION APPROVAL

YANMAR #164100-21100

MEDALLION PART #7057-54029-02

REVISION #H

DATE CODE# 082517



Installed marine grade overflow hose  
Moved water lift.  
Hose clamps on coolant overflow.  
Filed trouble ticket for panel.



Friday, July 30, 2021  
Registered engine with Yanmar.  
Ordered Vetus muffler. On back order.  
Installed sea water service.  
Installed fresh water service. Need to order a locking ring that did not come with it.  
Made wooden deck plate remover for fuel.  
Cut pipe to connect exhaust.

Looking for a shut off valve on Napa website.

Sea trial to determine if prop is right, if so then start engine break in, If not right, take out and switch it with another

Install autopilot

Engage self steering

Polish soul around engine and match color.

Install engine ventilation fan in lazarette

Buy extra prop

Buy diving tank and regulator for use with immersion suit

October Take boat out of water

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LTWFITTING 5/16 in. ID Hose Barb x 3/8 in. MIP Brass Adapter

Got pipe to splice exhaust until the muffler comes in after two trips to Menards and Bassett's. Found out from Kim at Brands that the engine does not have a warranty because we installed it. Tom Motta says this is bullshit. All they need to do is have their man go out on a sea trial, run the engine up to max and make notes on a 15 page form.

Started the process of registering the engine with Yanmar to begin the warranty process.

Looking for shut off valve on Napa web site.

Torqued fore engine M14 bolts

Got lock washers for throttle.

Got a price of \$97 for lift for exhaust water feed.

New instrument panel is \$750.

Wednesday, July 28, 2021

Launched.

15.447 gallons taken aboard, marking 5 gallons increments on gauge. Moved to slip E26 directly across from our old space of two and a half years.

Ordered overnight Vetus muffler \$153.71 to put in the space where the water lift was. It'll be quieter. Moving the water lift to under the exhaust. Will be going in the hold when it arrives tomorrow. Then we'll be ready for the lake. Motoring to slip seemed fine.

Tuesday, July 27, 2021

9 a.m. inspection by David Fuerstenberg, Brands' head mechanic.

Started engine, broke down the site, rove dock lines.

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Launched after 2-1/2 years on the hard. All systems updated for European tour next year. Wish we had her aboard, it's just us men crew.

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6-Napa Auto map lights. Old school incandescent. \$6 each compared to \$30 for the LED.

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Monday, July 26, 2021

Breakfast of eggs, sausage links, orange slices, bread, coffee.

Lunch of half sandwich, beer, pretzels

Dinner of snacks

Done

Torqued M14 engine mount bolts.  
Tighten the shifter nut.  
Installed guides for shifter and wiring harness.



Installed coolant overflow



Connect major battery terminals.



Attached throttle.



Torque flange, shaft, engine lag bolts and M14 engine mount bolts.

Torque

M10 34-38.34 ft-lb

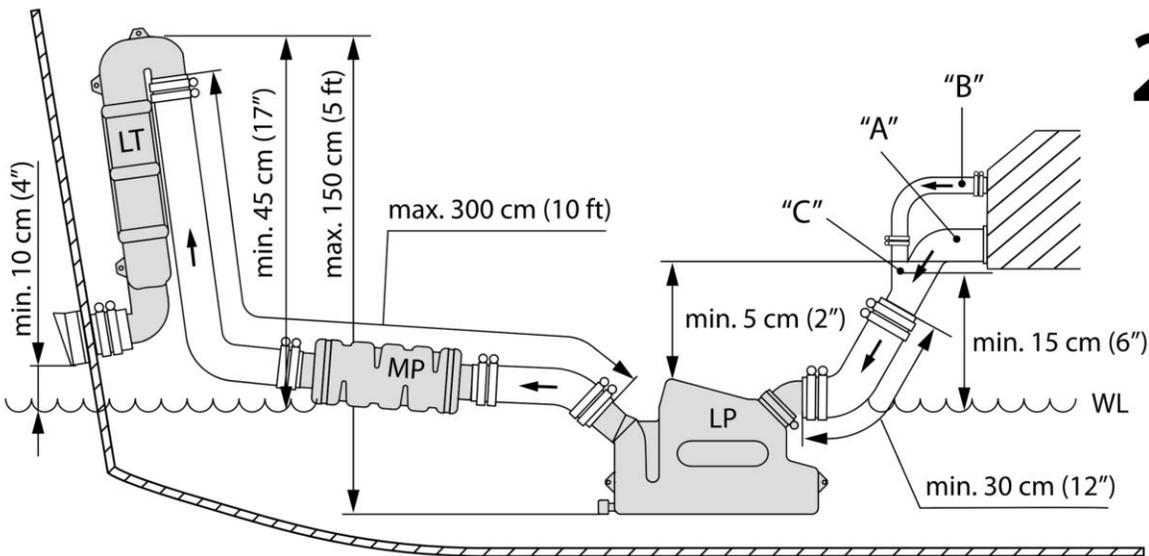
M12 61.49-68.72 ft-lb

M14 86.89-94.03 ft-lb



Moving lift closer and more below. Also adding trap on the water inlet. This image is for the mature only. Full install pdf soon. Thanks for a great group. Engine started on the hard, going in tomorrow. 2-½ years on the hard to rebuild.

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<https://www.vetus.com/en/exhaust-systems/waterlocks/vetus-plastic-waterlock-type-lp50-with-rotating-inlet-51-mm.html>

Attached exhaust.



Vetus LP-50

<https://www.vetus-shop.com/vetus-waterlock-lp50-50mm-with-rotating-inlet-p-621.html>

For exhaust hose with internal diameters of 50mm I.D. Provided with a plug for draining during winter time. The inlet connection of this models will revolve through 360°, which greatly facilitates the installation of the exhaust assembly.

A Vetus Waterlock will collect the cooling water present in the system when the engine is stopped. In addition, a Vetus Waterlock has great sound-deadening capabilities and acts as a very efficient muffler. The size of the water lock is not only determined by the diameter of the exhaust hose, but also by the quantity of water that must be collected.

[https://www.boatersland.com/vtswlockl50r.html?gclid=Cj0KCQjw-j1BRDkARIsAJcfmTFdR7NbIYwhTdjdT\\_ZoRF\\_DbWdwugZCaBd9AfQUSUdRqGNBZAB\\_uQo\\_aAjePEALw\\_wcB](https://www.boatersland.com/vtswlockl50r.html?gclid=Cj0KCQjw-j1BRDkARIsAJcfmTFdR7NbIYwhTdjdT_ZoRF_DbWdwugZCaBd9AfQUSUdRqGNBZAB_uQo_aAjePEALw_wcB)

Vetus WLOCKL50R 2" Plastic Waterlock Muffler With Water Injection  
Item #: VTSWLOCKL50R

Sale Price: \$122.73

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#### VETUS PLASTIC MUFFLER DEMPMP50

This muffler creates additional mixing of the water inside the exhaust line which results in even better noise reduction. For 51 mm exhaust hose.

<https://www.boatersland.com/vtsdempmp50.html>

Order number 455891

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Sunday, July 25, 2021

Found leak in fuel. Fixing now. 90° in the cabin.

When we're ready to start the engine we'll ask Brands' mechanic to come over and witness it and okay our installation to maintain our warranty.

Added our time on the hard to time spent on the boat and it comes to \$36.43 per hour. Total expenses \$56,897.99. Cost per mile sailed \$65.78.

We have a fuel system. Tracked leak to one connection.

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Saturday, July 24, 2021

Turns out it may be best to have Brands Yanmar man check our install before starting. Even the battery connections are not very clear. Thank god for the Internet. Accepted on Yanmar Facebook page. They confirmed the placement of the negative to the block.

Tried various steps on the fuel lines. Will try to pressurize lines and see where the air leak is without taking the whole thing apart.

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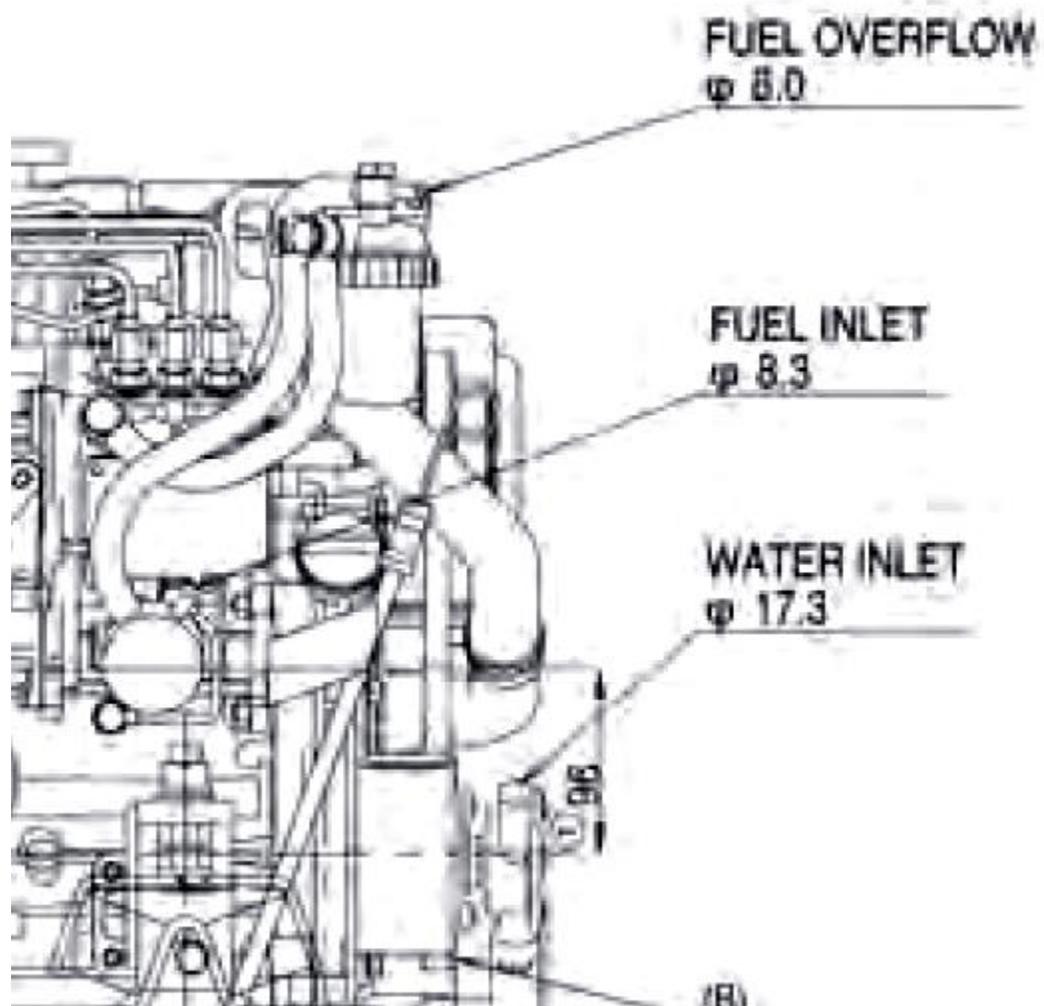
Friday, July 23, 2021

Brought flanges to .002 tolerance.

Connected shifter control. Will work with slight modification.

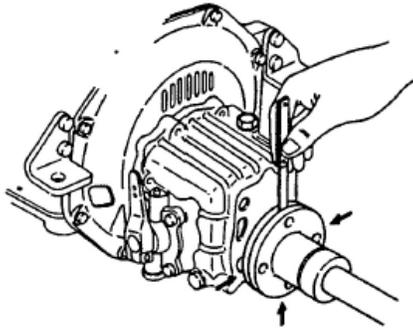


Bleeding the fuel system. Had the overflow and input switched.



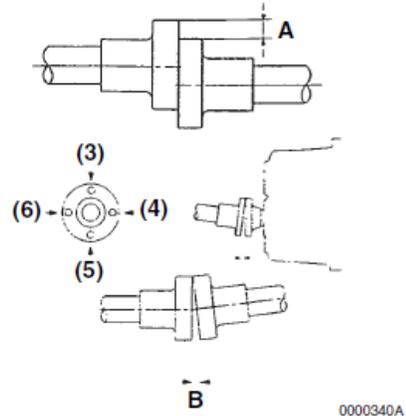


Aline engine/shaft flanges to where you could get a .002 feeler gauge hardly in the space mostly evenly around. Subtly changes but considered okay.



**Figure 4-36**

4. Using a dial gauge (Figure 4-37, (2)) turn the propeller shaft (Figure 4-37, (4)) and measure the outside run-out. Adjust to minimize run-out as needed (Figure 4-38).



- 1 – Vertical Error Eccentricity (A)
- 2 – Horizontal Error Eccentricity (A)
- 3 – First Bolt Axial Alignment (B)
- 4 – Second Bolt Axial Alignment (B)
- 5 – Third Bolt Axial Alignment (B)
- 6 – Fourth Bolt Axial Alignment (B)

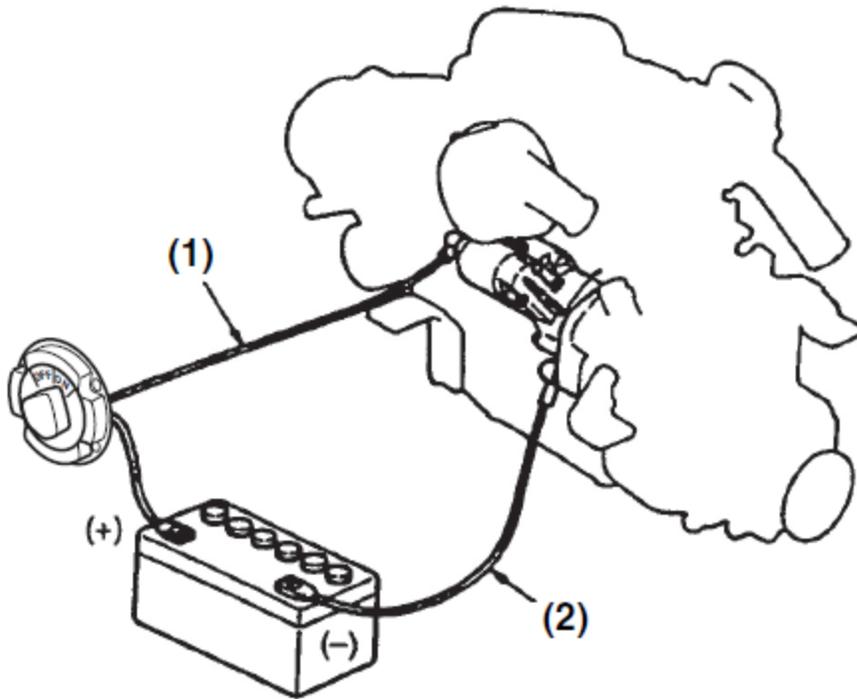
**Figure 4-38**

Measuring Point	Limit
Coupling alignment, A	0.1 - 0.3 mm (0.004 - 0.012 in.)
Coupling face run-out, B	0.0 - 0.2 mm (0.0 - 0.008 in.)

Battery terminal question on 3YM30AE Yanmar install. Pretty sure the positive goes to the terminal pointed to. Imagine I will try to stick it through the rubber cover. The nut was loose.

The negative is a little more mysterious. Should it be where the red arrow is pointed? Thanks for a great group.

14"x 14" x 3.5" prop; 1-1/4" shaft; Installed in Clio 32B Bayfield sailboat, Disp. 9,600 lbs



0000419A

**1 – Positive (+)  
Battery Cable**

**2 – Negative (-)  
Battery Cable**

## Two-Pole Wiring

The Yanmar 12V two-pole wiring system is a semi-two pole system that becomes an earth float system during engine operation, but not when starting. This helps to prevent electrolytic corrosion.

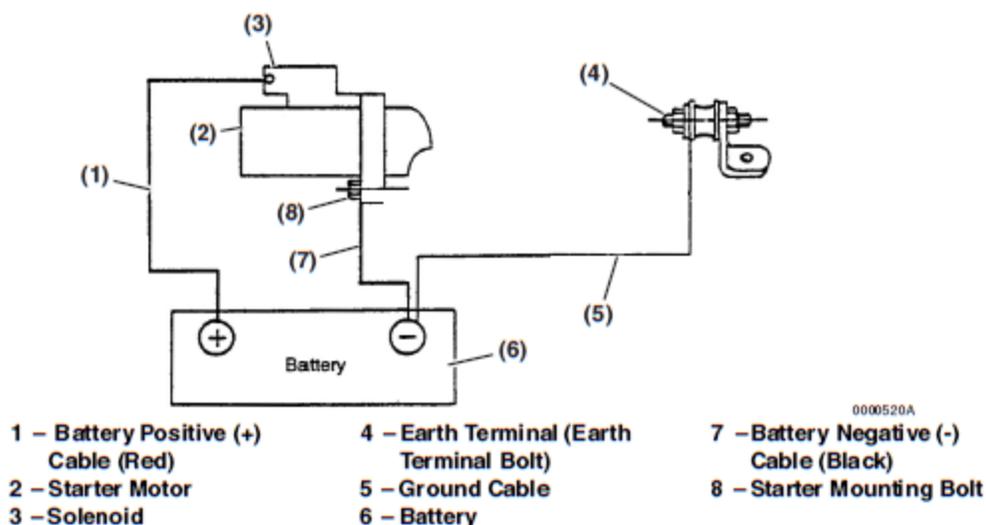


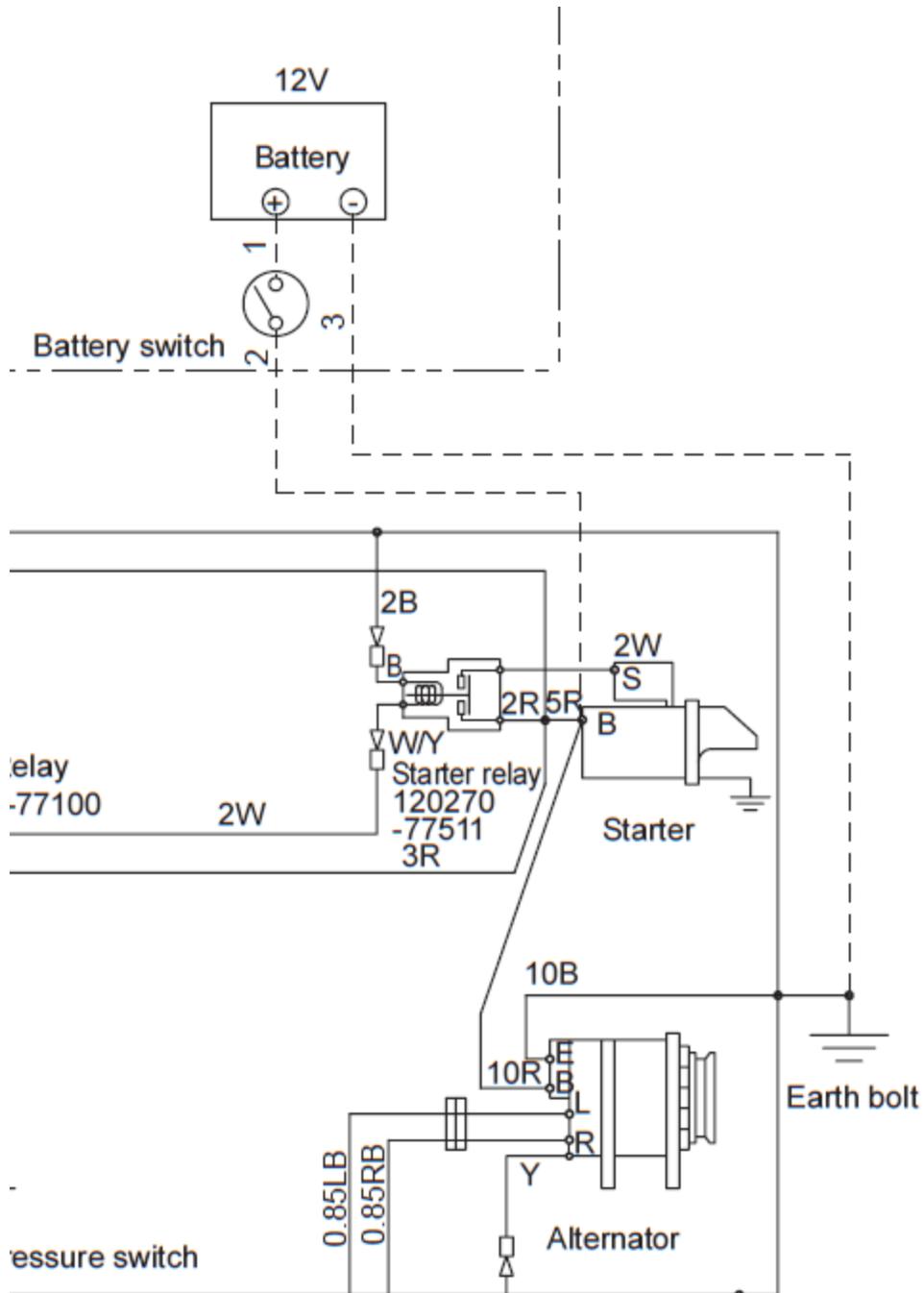
Figure 6-24

Battery positive (+) cable (Figure 6-24, (1)) and connection on the solenoid (Figure 6-24, (3)): Use a battery cable with the recommended diameter for each model.

Starter motor (Figure 6-24, (2)) and battery negative (-) cable (Figure 6-24, (7)): Starter current flows only when the engine is started. Connect the battery negative (-) cable to starter mounting bolt to minimize the leakage of current to the engine and hull. Use a battery cable with the recommended diameter for each model.

Earth terminal (Figure 6-24, (4)) and battery negative (-) cable (Figure 6-24, (7)): Attach the engine operation earth line between the earth terminal and battery (-). DO NOT connect the earth terminal to starter earth.

Note: Not applicable to meter sensor assembly for dual instrument panel type New C+C and New C+D combinations.



Did

Checked fluids, all good.

Check batteries. Water low on some cells of the starter battery. Same as last time checked about a week ago.



Willard takes the place of the engine the last time.



Hoses are ready. 5/16 bit used for 3/8 lag bolts.

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Wednesday, July 21, 2021

Trace wires above the engine.

Put the engine in.

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Thursday, July 22, 2021

Cut bolts for flange.

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Marine Gear Oil KM2P-1 (S), (G) or (GG)

API Service CD or higher

SAE #20 or #30 **#30 less than a quart**

SAE 90 Napa

Engine Oil

API Service CD, CF, CF-4, CI and CI-4

SAE 10W-30, 15W-40 **15W-40 2.6 quarts**

Change after first 50 hours then every 150

Engine Coolant

Texaco Long Life Coolant 7997 & 7998

Havoline Extended Life 7994 **6 quarts 1.2 gallons pre mixed**

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Re-power

Hull number ZBY320380376

Boat Name was SELAH, YW# 75589-2793700, 1976

with a 3YM30AE with KM2P-1 Ratio 2.62:1.

3YM30AE Yanmar, 350lbs; 14"x 14' x 3.5" prop; 1-1/4" shaft; Installed in Clio 32B Bayfield sailboat, Disp. 9,600 lbs

3YM30AE with KM2P 2.62:1

Questions for our Yanmar rep:

Synthetic oil?

Manual kill switch.

1. Okay to use 3/8" stainless lag bolts with brass slave to fill 12mm engine mount holes?

4. Does the engine have a decompression button? Is the kill switch the decompressor?

Install Stop Switch with instrument panel?

Does the Vetus water lock muffler need to be flat?

On Fri, Mar 29, 2019 at 1:29 PM David Winskowicz <[dwinskowicz@mackboring.com](mailto:dwinskowicz@mackboring.com)> wrote:  
Tom,

Thanks for the call today. Below are links to a shared drop box which will have a general install manual as well as the YM install manual – click and save the downloads...  
Engine install Manual

[https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual\\_Vol\\_1\\_01JUN06.pdf?dl=0](https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual_Vol_1_01JUN06.pdf?dl=0)

<https://www.dropbox.com/s/2wjcfxl5pvugbo/Installation%20manual.pdf?dl=0>

Pg 82 wiring

Pg 140 control cables

Pg 161 sea cock

Pg 182 Exhaust

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Tom Motta 910-632-4216

Mack Boring & Parts Company

245 Belmont Dr, Somerset, NJ 08873

(908) 964-0700

200803 called

Controls

Stop cable

Instrument panel extension

Instrument panel waterproof

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What water stop should be used inline the exhaust hose?

2" exhaust

Need to find out what K is for the 3YM30AE

<https://www.yanmarmarine.com/Products/Sailboat-and-small-craft-engines/3YM30AE-426/>

Note: For details about wiring, refer to the wiring diagrams for the specific engine model in Volume 2 or 3.

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[https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual\\_Vol\\_1\\_01JUN06.pdf?dl=0](https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual_Vol_1_01JUN06.pdf?dl=0)

Pg 42

Pg 82 wiring

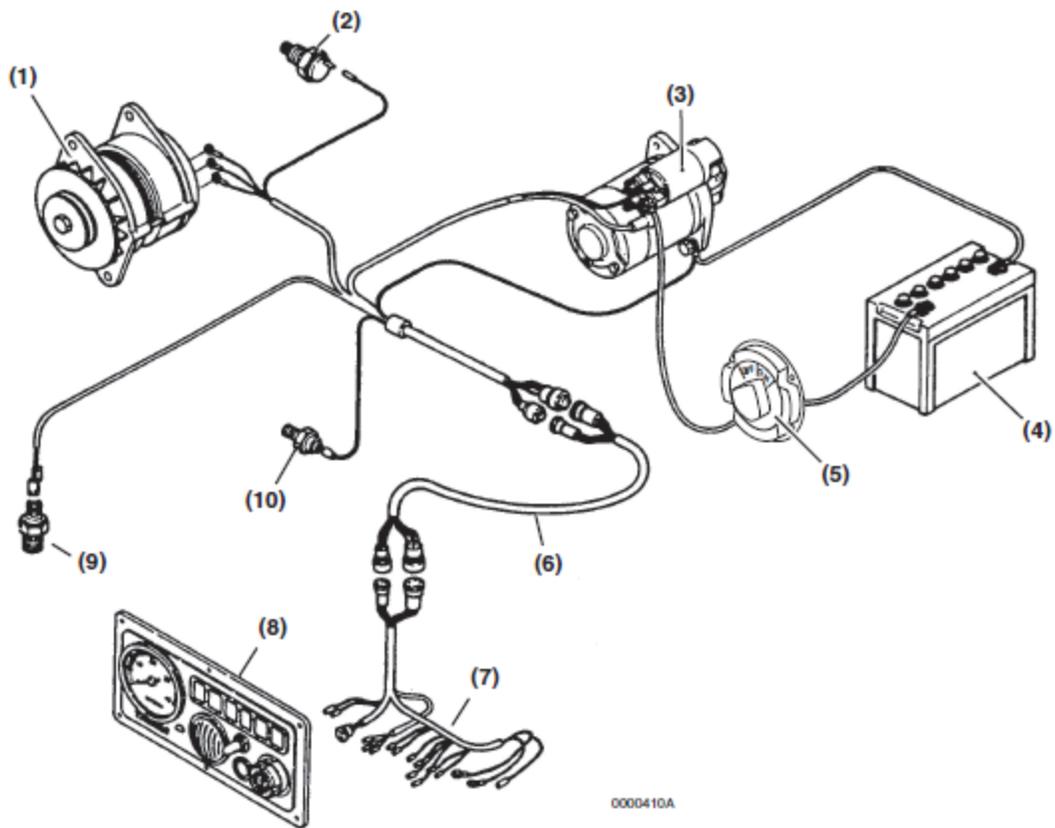
Pg 140 control cables

Pg 161 sea cock

Pg 182 Exhaust

Pg 53

Flange connecting

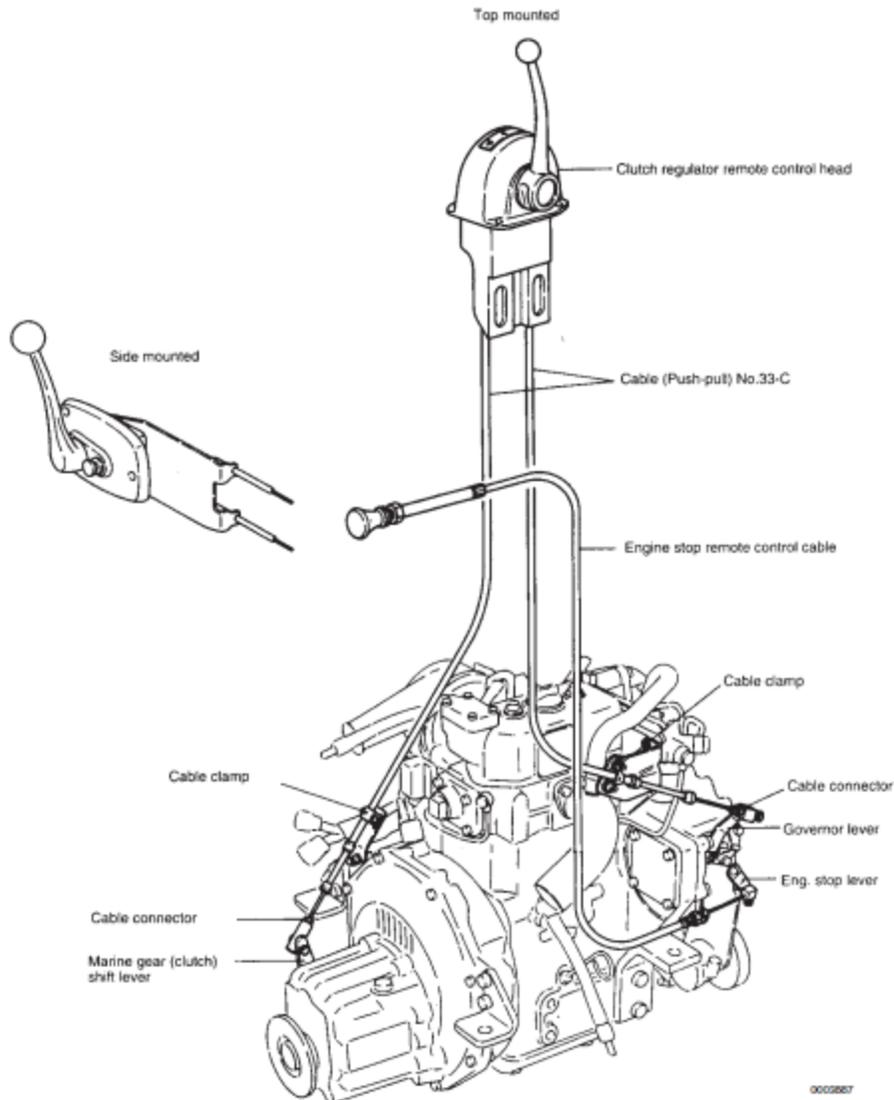


0000410A

- 1 - Alternator
- 2 - Cooling Water Temperature Switch
- 3 - Starter Motor
- 4 - Battery

- 5 - Battery Switch
- 6 - Extension Wire Harness
- 7 - Wire Harness
- 8 - Instrument Panel

- 9 - Tachometer Sender
- 10 - Lubrication Oil Pressure Switch



Pg 140 control cables

Pg 161 sea cock

Pg 168 Coolant Recovery

Mack Boring & Parts Company  
 245 Belmont Dr, Somerset, NJ 08873  
 (908) 964-0700

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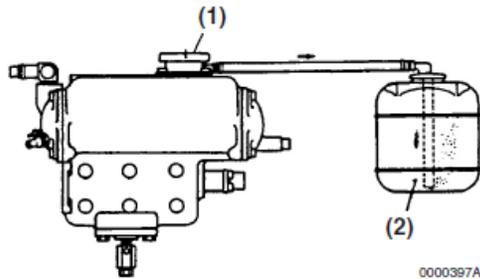
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[https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual\\_Vol\\_1\\_01JUN06.pdf?dl=0](https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual_Vol_1_01JUN06.pdf?dl=0)

### Coolant Recovery Tank Function:

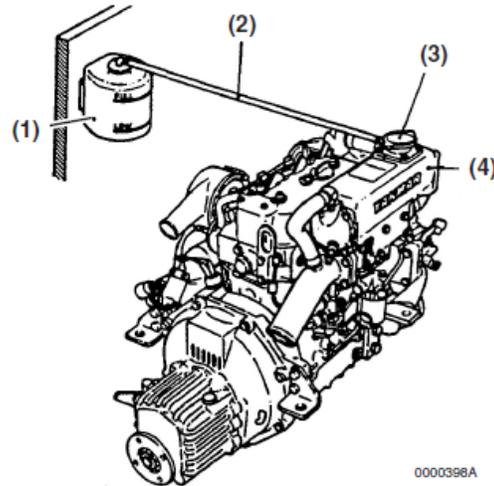
When the cooling system pressure rises above the 0.9 kgf-cm<sup>2</sup> (12.8 psi), the pressure valve opens and vapor is released, reducing the amount of coolant in the cooling system. The coolant recovery tank collects this vapor as it condenses. When the cooling system pressure falls below atmospheric pressure, the coolant in the coolant recovery tank is siphoned back to the main tank on the heat exchanger. Install a coolant recovery tank to allow the engine to be operated for longer periods and eliminate the need to open the filler cap on the heat exchanger.



- 1 – Filler Cap
- 2 – Coolant Recovery Tank

*Figure 6-134*

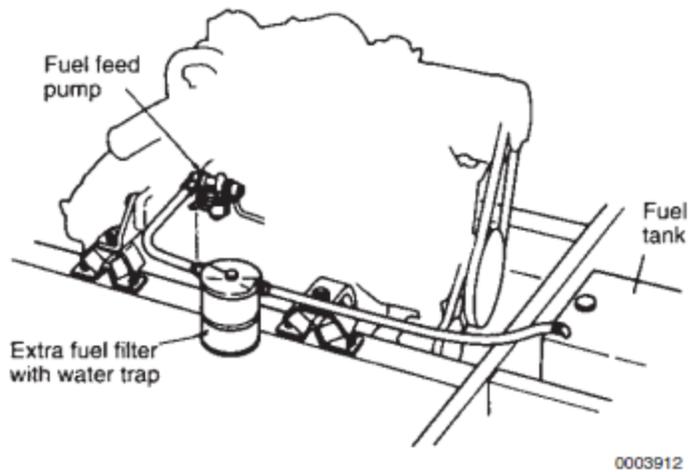
### Coolant Recovery Tank Installation



- 1 – Coolant Recovery Tank
- 2 – Overflow Pipe
- 3 – Filler Cap
- 4 – Heat Exchanger Tank

*Figure 6-135*

1. Mount the coolant recovery tank at the same height as the heat exchanger.
2. Ensure that the overflow pipe is not damaged or leaking and the holes are not obstructed.



**Figure 6-113**

---

Attach exhaust.  
 Attach controls  
 Connect wiring  
 Connect major battery terminals  
 Bend carter pins on castle nut.  
 Bolt lighting plate  
 Install fresh water pump

Marine Gear Oil KM2P-1 (S), (G) or (GG)  
 API Service CD or higher  
 SAE #20 or #30 **#30 less than a quart**

SAE 90 Napa

Engine Oil  
 API Service CD, CF, CF-4, CI and CI-4  
 SAE 10W-30, 15W-40 **15W-40 2.6 quarts**

Change after first 50 hours then every 150

Engine Coolant  
 Texaco Long Life Coolant 7997 & 7998  
 Havoline Extended Life 7994 **6 quarts 1.2 pre mixed**

Add oil  
Add transmission oil  
Add coolant  
Prime fuel system

Page 28 Bleeding system

Prime oil in system

---

1. Open seacock.
2. Open fuel cock.
3. Put remote control shift lever in NEUTRAL. *See Starting the Engine on page 39.*
4. Turn on the battery switch (if equipped).
5. Crank the engine.

1- Push the power switch on the instrument panel and turn on the power.

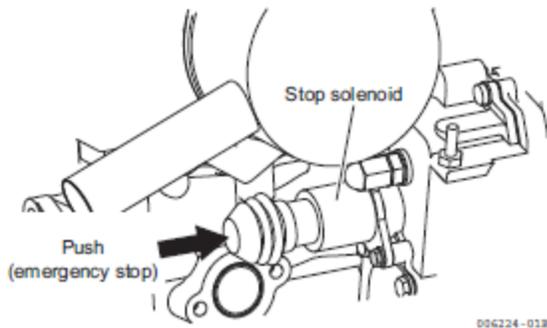
2- Operate the starter while pushing in the emergency stop button (**Figure 13**) on the back of the fuel pump. This stops the fuel supply.

When you push the start switch on the instrument panel while the emergency button is pushed in, the starter operates and the engine cranks.

Crank the engine 5 seconds.

## BEFORE YOU OPERATE

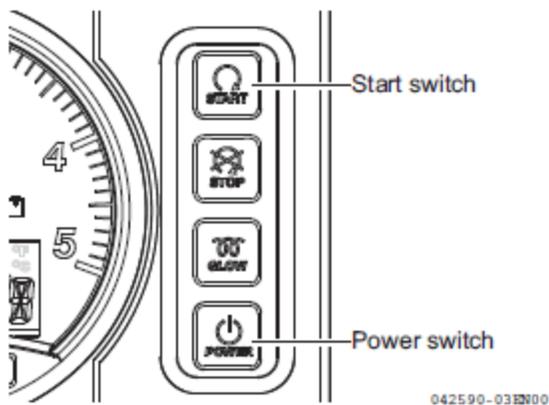
---



**Figure 13**

6. Continue cranking the engine for about 5 seconds, checking for abnormal sounds.

If you cannot find any abnormal sounds, push the power switch and turn off the engine.



Start engine

Launch

Sea trial to determine if prop is right, if so then start engine break in, If not right, take out and switch it with another

Install autopilot

Engage self steering

Polish soul around engine and match color.

Install ratlines

Install lee cloths

Install engine ventilation fan in lazarette

---

## PRODUCT OVERVIEW

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### New Engine Break-In

As with all reciprocating engines, the way your engine is operated during its first 50 hours of operation plays a very significant role in determining how long it will last and how well the engine will perform over its lifetime.

A new Yanmar diesel engine must be operated at suitable speeds and power settings during the break-in period to make the sliding parts, such as piston rings, break-in properly and to stabilize engine combustion.

During the break-in period, the engine coolant temperature gauge should be monitored; temperature should be between 71° and 87°C (160° and 190°F).

During the first 10 hours of operation, the engine should be run at maximum engine speed minus 400 to 500 min<sup>-1</sup> (approximately 60 to 70% of load) most of the time. This will ensure the sliding parts break in properly. During this period, avoid operating at maximum engine speed and load to avoid damaging or scoring sliding parts.

### NOTICE

Do not operate at WOT (wide open throttle) for more than a minute at a time during the first 10 hours of operation.

---

Do not operate the engine at low idle or at low speed and light load for more than 30 minutes at a time. Since unburned fuel and engine oil will adhere to the piston rings when operating at low speeds for long periods, this will interfere with proper movement of the rings and the engine oil consumption may increase. Low idle speed does not allow break-in of sliding parts.

If operating engine at low speed and light load, you must race the engine to clean the carbon from the cylinders and fuel injection valve.

Perform this procedure in open waters:

- With the clutch in NEUTRAL, accelerate from the low-speed position to the high-speed position briefly.
- Repeat this process five times.

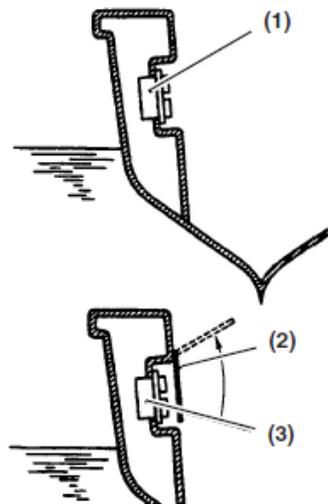
Once past the initial 10 hours until 50 hours, the engine should be used over its full operating range, with special emphasis on running at relatively high power settings. This is not the time for an extended cruise at idle or low speed. The boat should be run at maximum speed minus 400 min<sup>-1</sup> most of the time (approximately 70% load), with a 10 minute run at maximum minus 200 min<sup>-1</sup> (approximately 80% load) every 30 minutes and a 4 to 5 minute period of operation at WOT (wide open throttle) once each 30 minutes. During this period, be sure not to operate your engine at low speed and light load for more than 30 minutes. If operating engine at low speed and light load by necessity, just after the low idle operation, be sure to race the engine.

To complete engine break-in, perform *After Initial 50 Hours of Operation* maintenance procedures. After Initial 50 Hours of Operation on page 58.

## Proper Positioning of the Instrument Panel

Locate panel in a protected area. Install the instrument panel in the cabin if possible. If it must be installed outside, consider the following precautions:

1. Install in a location where there is no danger of the panel being splashed by seawater or rain.
2. If the instrument panel must be installed where it may be splashed by seawater, install it in a recessed position and add a cover (Figure 6-48).
3. Install the instrument panel in a place with little vibration.



Since the gauges on the instrument panel work within a fixed range of the installation angle, ensure that the panel is attached at a permissible angle.

Note: Allowable angle: within 45 - 75°  
(Instrument panel manufactured by Yanmar)

## Procedures for Installing the Instrument Panel

1. Drill the mounting holes in accordance with the instrument panel mounting hole.
2. The instrument panel comes with packing. When attaching the instrument panel outside the cabin, apply an auxiliary packing agent to the packing to protect the rear terminal of the panel. Point the extruded parts toward the hull.

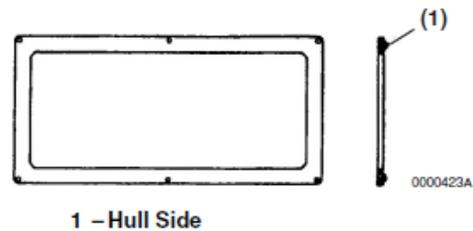


Figure 6-49



Recessing the instrument panel was easy.



Sea water service will come straight up to the strainer. Engine input and pump input is at the same level as the "T". Also gluing a 3" board to the hull to prevent stepping on the sea water valve.

Sunday, July 11, 2021

Monday, July 12, 2021

Recessing instrument panel. Whale pump working. Glued oak blocks for exhaust hose.

Positioning name. Willard arrived. Dinner of chicken sausage, corn, salad. Walked to Grist Mill.

Tuesday, July 13, 2021

Attached exhaust hose to hose clamps to create the upper curve and avoid self steering lines.

Cut muffler hose for water lift.

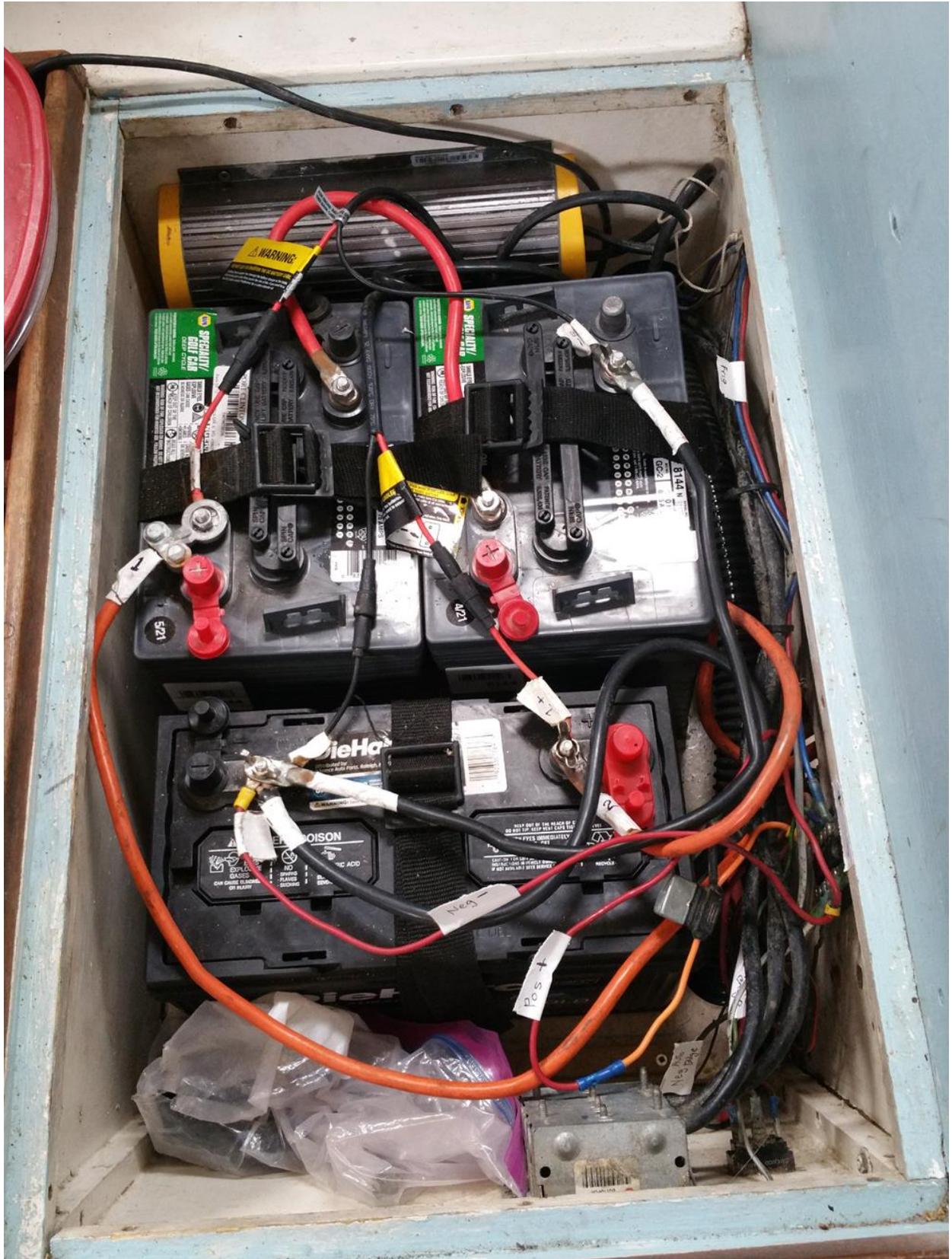
Fiber glassed in the Instrument mounting board.

Cleaned instrument covers.

Wednesday, July 14, 2021

Installed sea water service

Installed recess for engine instrument



Thursday, July 15, 2021

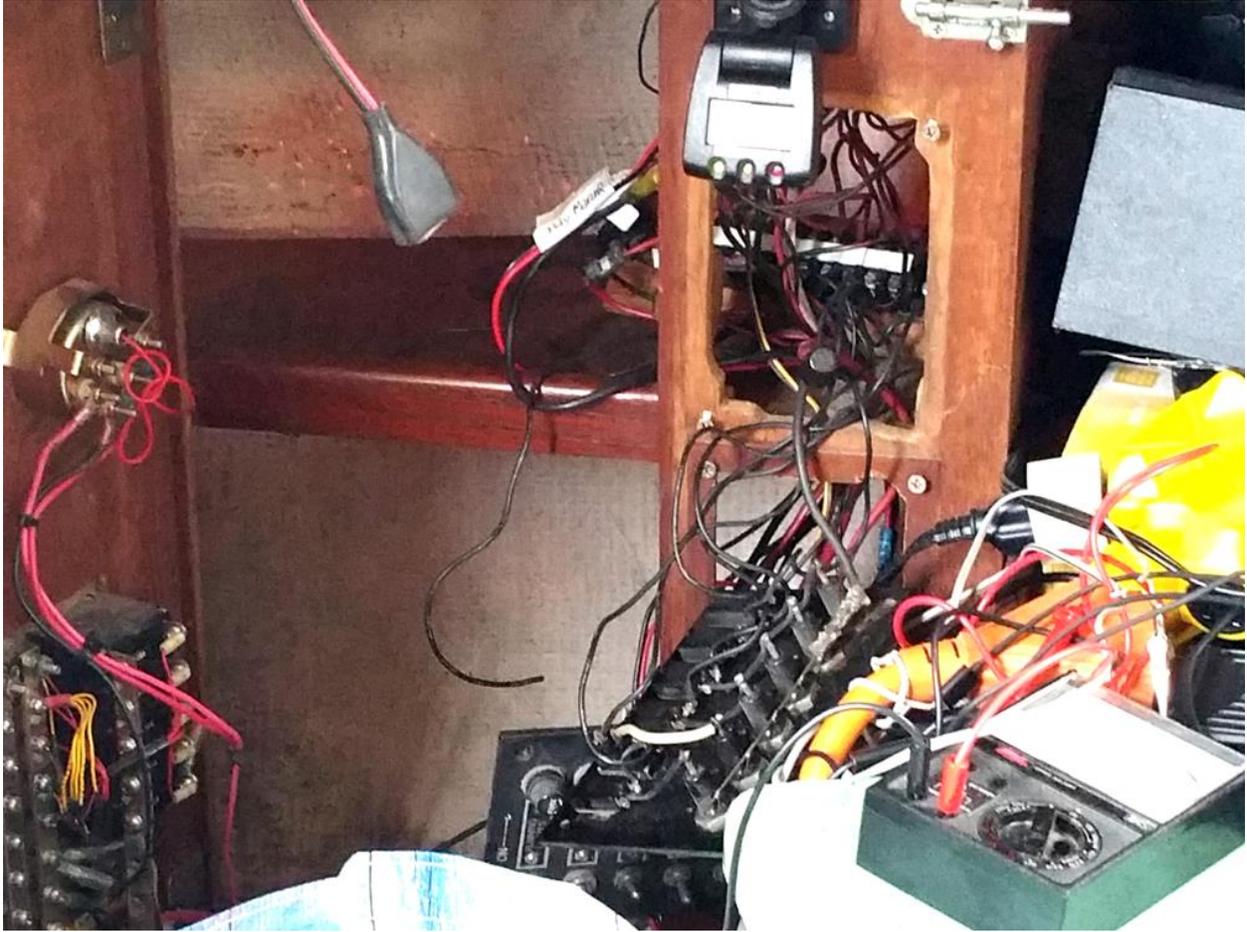
Worked on fuel system, electrifying the boat with the batteries, tracing wires to Raymarine and fuel gauge. Auto bilge pump working.

Fuel gauge and Ray Marine display not working.





Opening to 1-1/2"



Friday, July 16, 2021

Fixed Ray Marine instruments, negative wire from battery disconnected.  
Working on fuel gauge. Sensor may be faulty.

Saturday, July 17, 2021

Breakfast at the airfield cafe. Saw the Ford tri-motor take off.



Fuel sensor working. Could not discover why it was not working. Put old fuel in 8- 2 gallon gas cans that go in the lazarette shelves. Strained 16 gals through the special funnel. Got a thimble full of water and a thimble of orange stuff. Funnel said not to wipe the strainer, which I did. Suppose you should blow it out the small end. Have to get new hoses and cap adapters for the fuel pump so fuel can be easily transferred without spilling fuel.



5.392 gallons



Pump 5 gallons in 5 minutes.

Sunday, July 18, 2021

Transferred 5.392 gallons to the fuel tank with a reconfigured pump set up. Put hose clamps on fuel filler & overflow on the tank. Re-installed fuel sensor, working. Built gimbaled stove hold down.



Monday, July 19, 2021

Installed fuel filters after gouging out the through hole under the rails. Picked up the screen for the pot holder and a 45° fitting for the garden fire hose for the sea water service to the sink. Then on to bolting the angles on the rails and reaming out the holes to accept the stud bolts without putting too much strain on them. Lunch of turkey sandwich with peanut butter celery, blueberries. Filled the bilge with water trying to get a dish brush that floats out but only exceeded in floating the fuel tank. Under the center garboard plug to drain the fifty gallons of water.

Tuesday, July 20, 2021

Traced the second set of wires under the engine, atop the fuel tank to the mast. Removed drawers and cut the box off. Made cover for hull sensors, cleaned water tank. Ordered coolant.

Monday, July 19, 2021 \$158.97 Defender Order #2633617, WHALE PUMPS–Gusher 10 Mk2 & Mk3 Service Kit, Nitrile Parts & WHALE PUMPS–Gusher 10 Mk2 & Mk3 Service Kit, Nitrile Parts 210805 called to get ring for pump  
[CustomerService@defender.com](mailto:CustomerService@defender.com)



Service for the Whale pump is convoluted but not under stress. The yellow striped hose split so we used a piece of the exhaust hose.



Shortening all the parts from the throughput and using the male/female 90° allowed us to just miss the self steering quadrant.

Monday, June 28, 2021

Cut the starboard doghouse board so it can be removed with the engine in, epoxy a block to attach the sea water filter, trim and clamp the exhaust hose to throughput, replacing bilge pump hose with leftover exhaust

Tuesday, June 29, 2021

Installed sink drain and reworked the line from the whale pump to the throughput. Sweated copper pipes.

Next trip:

Recess Instrument panel. Install: kill switch, fuel filter, coolant reservoir, zincs, fresh water line, muffler, sea water strainer. Replace seals in Whale Pump. Troubleshoot depth & speed sensor. Power up electric panel.

---

Re-power

Hull number ZBY320380376  
Boat Name was SELAH, YW# 75589-2793700, 1976  
with a 3YM30AE with KM2P-1 Ratio 2.62:1.

3YM30AE Yanmar, 350lbs; 14"x 14' x 3.5" prop; 1-1/4" shaft; Installed in Clio 32B Bayfield sailboat, Disp. 9,600 lbs

3YM30AE with KM2P 2.62:1  
Questions for our Yanmar rep:  
Synthetic oil?  
Manual kill switch.

1. Okay to use  $\frac{3}{8}$ " stainless lag bolts with brass slave to fill 12mm engine mount holes?
4. Does the engine have a decompression button? Is the kill switch the decompressor?  
Install Stop Switch with instrument panel?

Does the Vetus water lock muffler need to be flat?

On Fri, Mar 29, 2019 at 1:29 PM David Winskowicz <[dwinzkowicz@mackboring.com](mailto:dwinzkowicz@mackboring.com)> wrote:  
Tom,

Thanks for the call today. Below are links to a shared drop box which will have a general install manual as well as the YM install manual – click and save the downloads...

Engine install Manual

[https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual\\_Vol\\_1\\_01JUN06.pdf?dl=0](https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual_Vol_1_01JUN06.pdf?dl=0)

<https://www.dropbox.com/s/2wjcfxl5pvugbo/Installation%20manual.pdf?dl=0>

Pg 82 wiring

Pg 140 control cables

Pg 161 sea cock

Pg 182 Exhaust

210721 Spoke to Tom, start engine with kill switch pushed no water for 10 seconds then prime water pump and start.

190730 Spoke to

Tom Motta 910-632-4216 of Yanmar

200730 Called about starting procedure, tank position,

200706 Called about other two pieces for the exhaust and he said you did not have to do this as long as the hose goes up then down like the old system.

200515 Called with questions

What is the water inlet diameter? 19.5mm listed on drawing = 0.7677165"

What water stop should be used inline the exhaust hose? 3YM30AE with KM2P 2.62:1  
2" exhaust

190731 sent text to get email address.

[Tmotta@mackboring.com](mailto:Tmotta@mackboring.com)

Tom Motta 910-632-4216

Mack Boring & Parts Company  
245 Belmont Dr, Somerset, NJ 08873  
(908) 964-0700

200803 called  
Controls  
Stop cable  
Instrument panel extension  
Instrument panel waterproof

190730 Spoke to  
Tom Motta 910-632-4216 of Yanmar  
200730 Called about starting procedure, tank position,  
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What is the water inlet diameter? 19.5mm listed on drawing = 0.7677165"  
What water stop should be used inline the exhaust hose?  
2" exhaust  
Need to find out what K is for the 3YM30AE  
<https://www.yanmarmarine.com/Products/Sailboat-and-small-craft-engines/3YM30AE-426/>

Note: For details about wiring, refer to the wiring diagrams for the specific engine model in Volume 2 or 3.

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Here are the links to the

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Pg 42

Pg 82 wiring

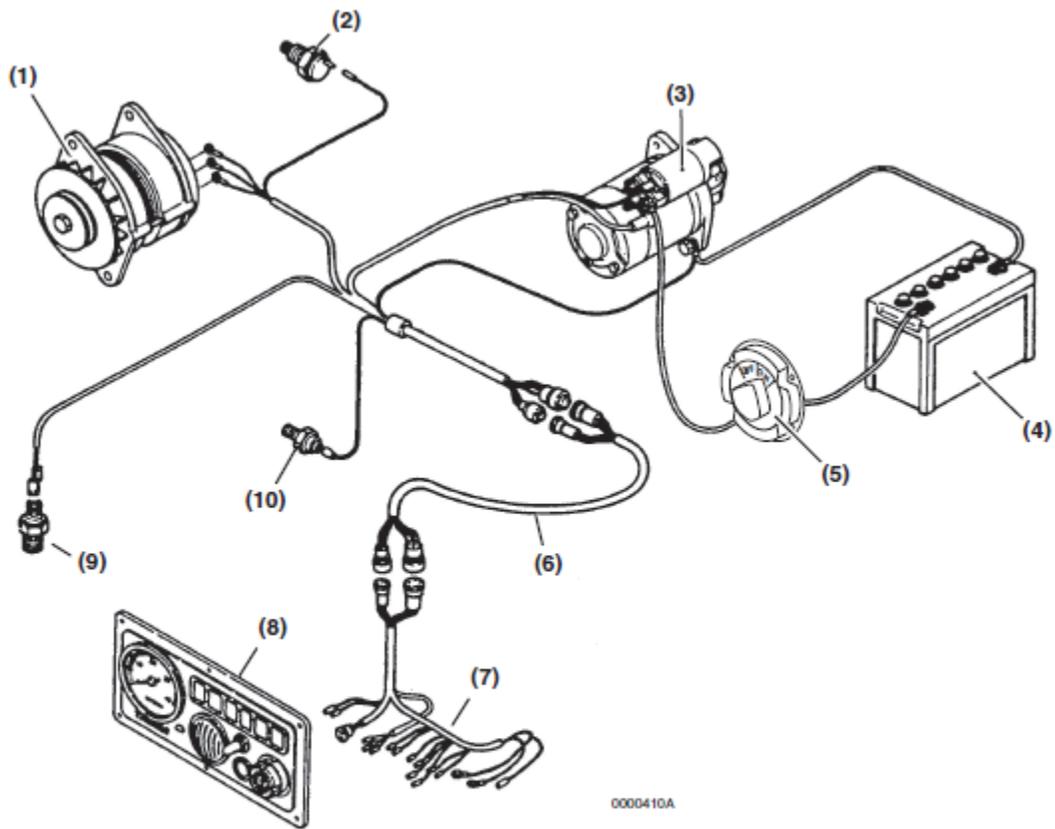
Pg 140 control cables

Pg 161 sea cock

Pg 182 Exhaust

Pg 53

Flange connecting



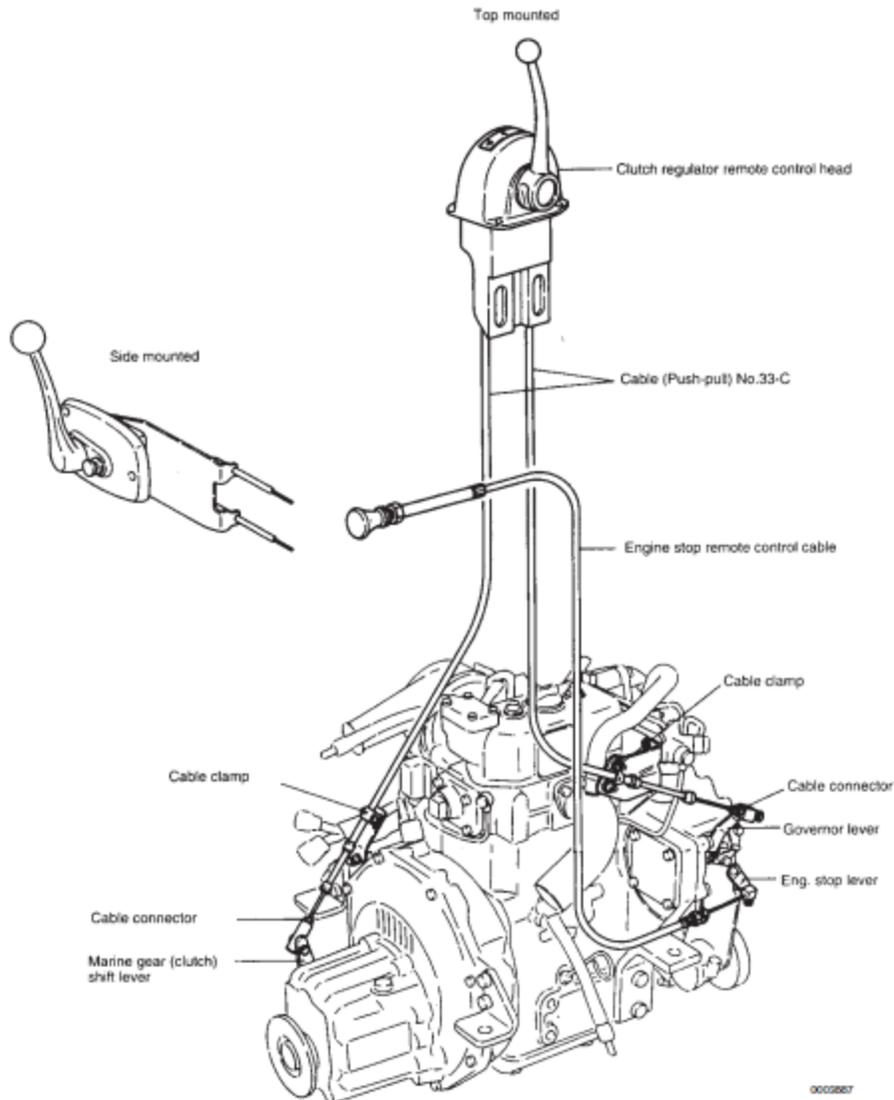
0000410A

- 1 - Alternator
- 2 - Cooling Water Temperature Switch
- 3 - Starter Motor
- 4 - Battery

- 5 - Battery Switch
- 6 - Extension Wire Harness
- 7 - Wire Harness
- 8 - Instrument Panel

- 9 - Tachometer Sender
- 10 - Lubrication Oil Pressure Switch

Pg 82 wiring



Pg 140 control cables

Pg 161 sea cock

Pg 168 Coolant Recovery

Mack Boring & Parts Company  
 245 Belmont Dr, Somerset, NJ 08873  
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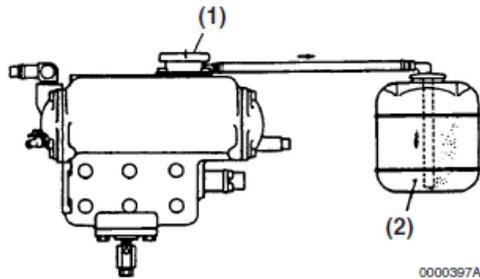
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### Coolant Recovery Tank Function:

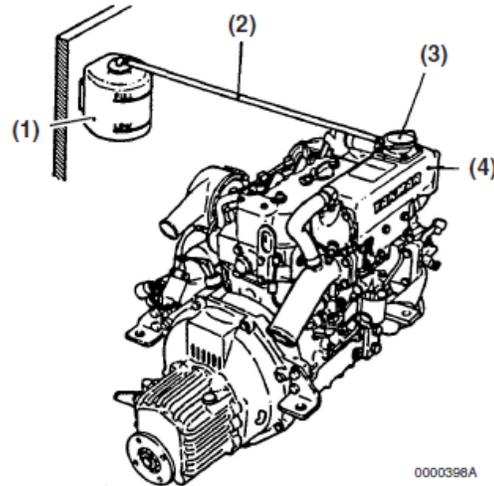
When the cooling system pressure rises above the 0.9 kgf-cm<sup>2</sup> (12.8 psi), the pressure valve opens and vapor is released, reducing the amount of coolant in the cooling system. The coolant recovery tank collects this vapor as it condenses. When the cooling system pressure falls below atmospheric pressure, the coolant in the coolant recovery tank is siphoned back to the main tank on the heat exchanger. Install a coolant recovery tank to allow the engine to be operated for longer periods and eliminate the need to open the filler cap on the heat exchanger.



- 1 – Filler Cap
- 2 – Coolant Recovery Tank

*Figure 6-134*

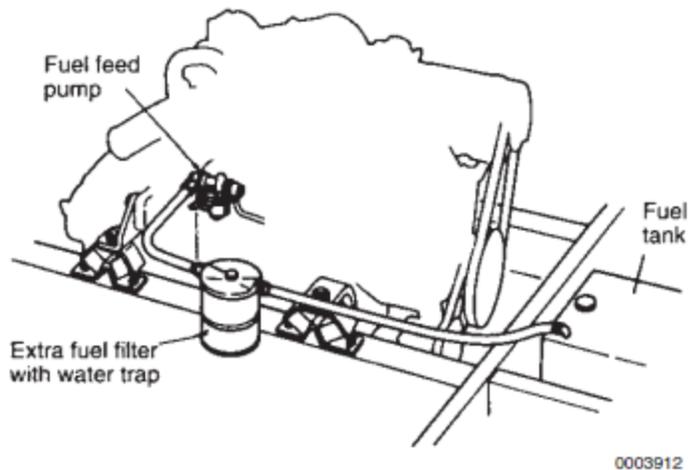
### Coolant Recovery Tank Installation



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*Figure 6-135*

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**Figure 6-113**

- 
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Page 28 Bleeding system

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---

1. Open seacock.
2. Open fuel cock.
3. Put remote control shift lever in NEUTRAL. *See Starting the Engine on page 39.*
4. Turn on the battery switch (if equipped).
5. Crank the engine.

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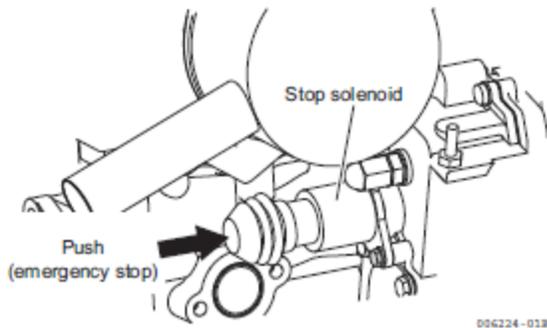
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## BEFORE YOU OPERATE

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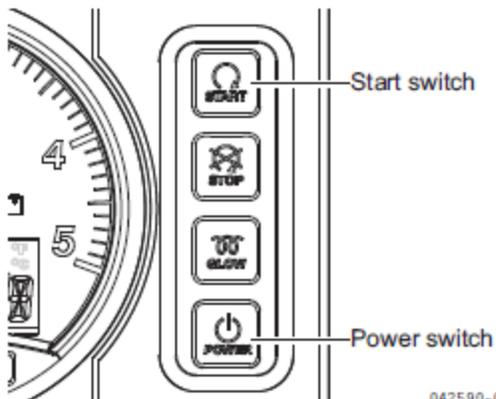


004224-01E

**Figure 13**

6. Continue cranking the engine for about 5 seconds, checking for abnormal sounds.

If you cannot find any abnormal sounds, push the power switch and turn off the engine.



042590-03E000

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## PRODUCT OVERVIEW

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### New Engine Break-In

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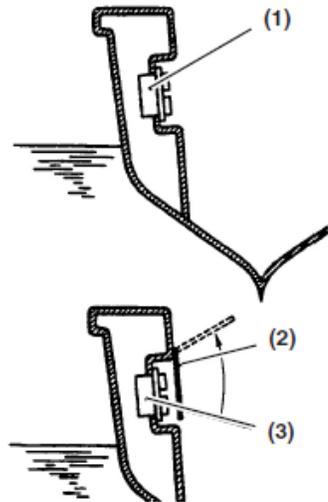
To complete engine break-in, perform *After Initial 50 Hours of Operation* maintenance procedures. After Initial 50 Hours of Operation on page 58.

Cover for sink.

### Proper Positioning of the Instrument Panel

Locate panel in a protected area. Install the instrument panel in the cabin if possible. If it must be installed outside, consider the following precautions:

1. Install in a location where there is no danger of the panel being splashed by seawater or rain.
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3. Install the instrument panel in a place with little vibration.

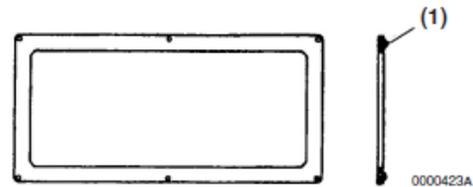


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(Instrument panel manufactured by Yanmar)

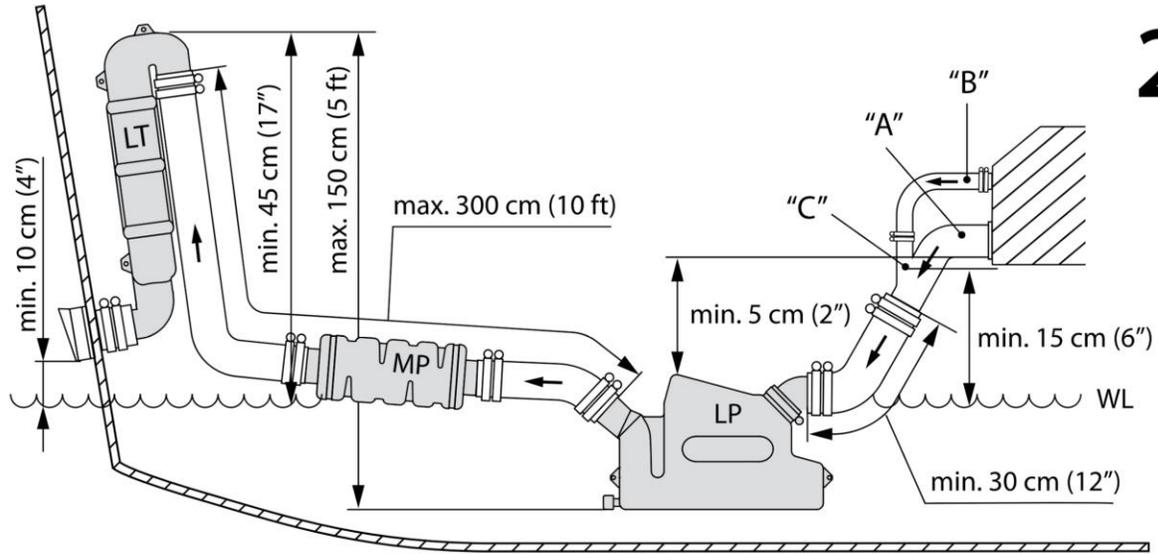
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2. The instrument panel comes with packing. When attaching the instrument panel outside the cabin, apply an auxiliary packing agent to the packing to protect the rear terminal of the panel. Point the extruded parts toward the hull.



1 - Hull Side

Figure 6-49



<https://www.vetus.com/en/exhaust-systems/waterlocks/vetus-plastic-waterlock-type-lp50-with-rotating-inlet-51-mm.html>



Lots of pipe sweating.



Putting the engine in and out is a breeze, one man job.



One final check of alignment until we put her in for the last time. Hoses pass by the flange with plenty of clearance. Accessing the space is easy laying on your belly on cushions over the seawater inlet and starboard throughput.



Doghouse size is finalized. A lot smaller than speculated, thanks to Chuck.

---



Vetus LP-50

<https://www.vetus-shop.com/vetus-waterlock-lp50-50mm-with-rotating-inlet-p-621.html>

For exhaust hose with internal diameters of 50mm I.D. Provided with a plug for draining during winter time. The inlet connection of this models will revolve through 360°, which greatly facilitates the installation of the exhaust assembly.

A Vetus Waterlock will collect the cooling water present in the system when the engine is stopped. In addition, a Vetus Waterlock has great sound-deadening capabilities and acts as a very efficient muffler. The size of the water lock is not only determined by the diameter of the exhaust hose, but also by the quantity of water that must be collected.

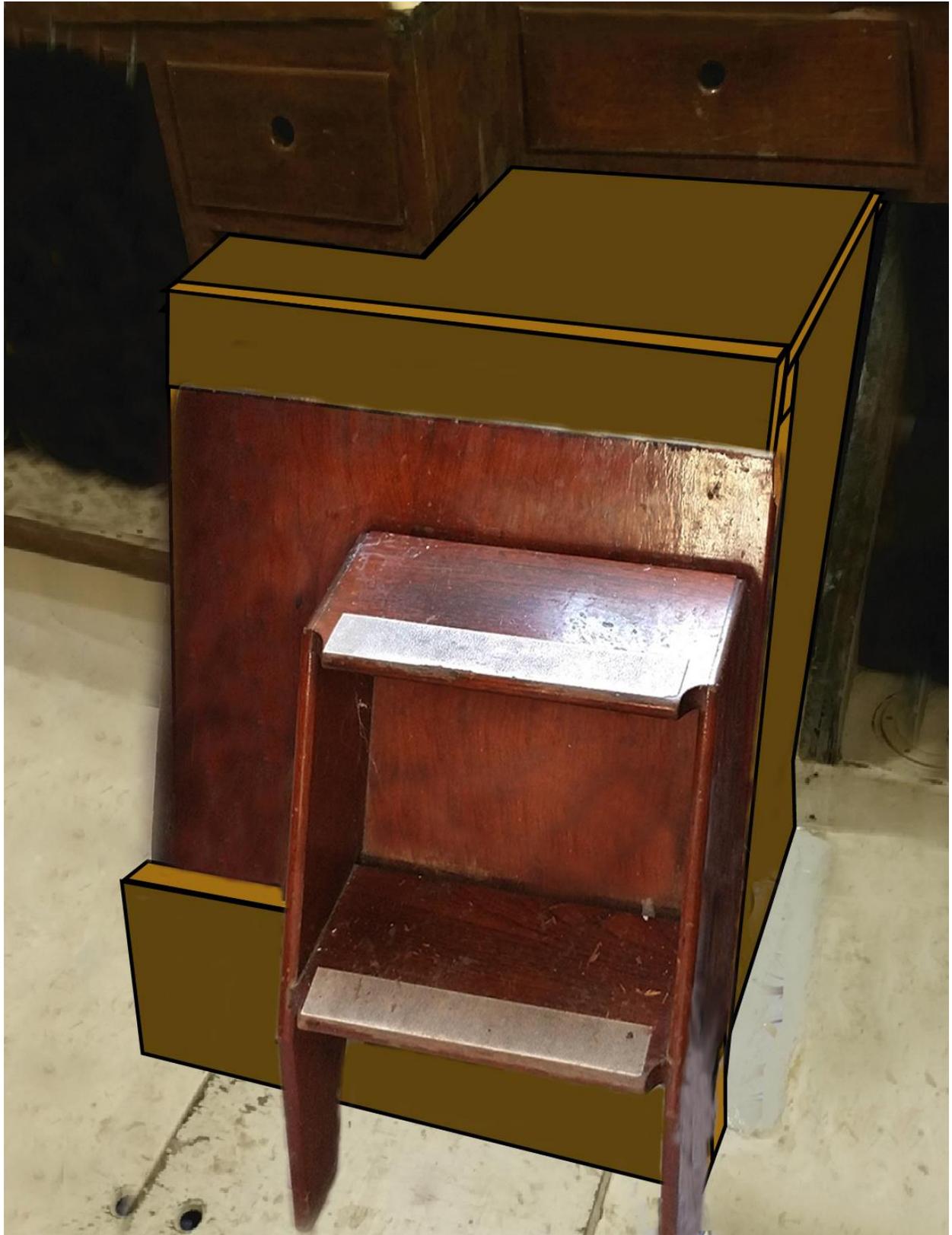
[https://www.boatersland.com/vtswlockl50r.html?gclid=Cj0KCQjw-\\_j1BRDkARIsAJcfmTFdR7NblYwhTdjdT\\_ZoRF\\_DbWdwugZCaBd9AfQUSUdRgGNBZAB\\_uQoaAjePEALw\\_wcB](https://www.boatersland.com/vtswlockl50r.html?gclid=Cj0KCQjw-_j1BRDkARIsAJcfmTFdR7NblYwhTdjdT_ZoRF_DbWdwugZCaBd9AfQUSUdRgGNBZAB_uQoaAjePEALw_wcB)

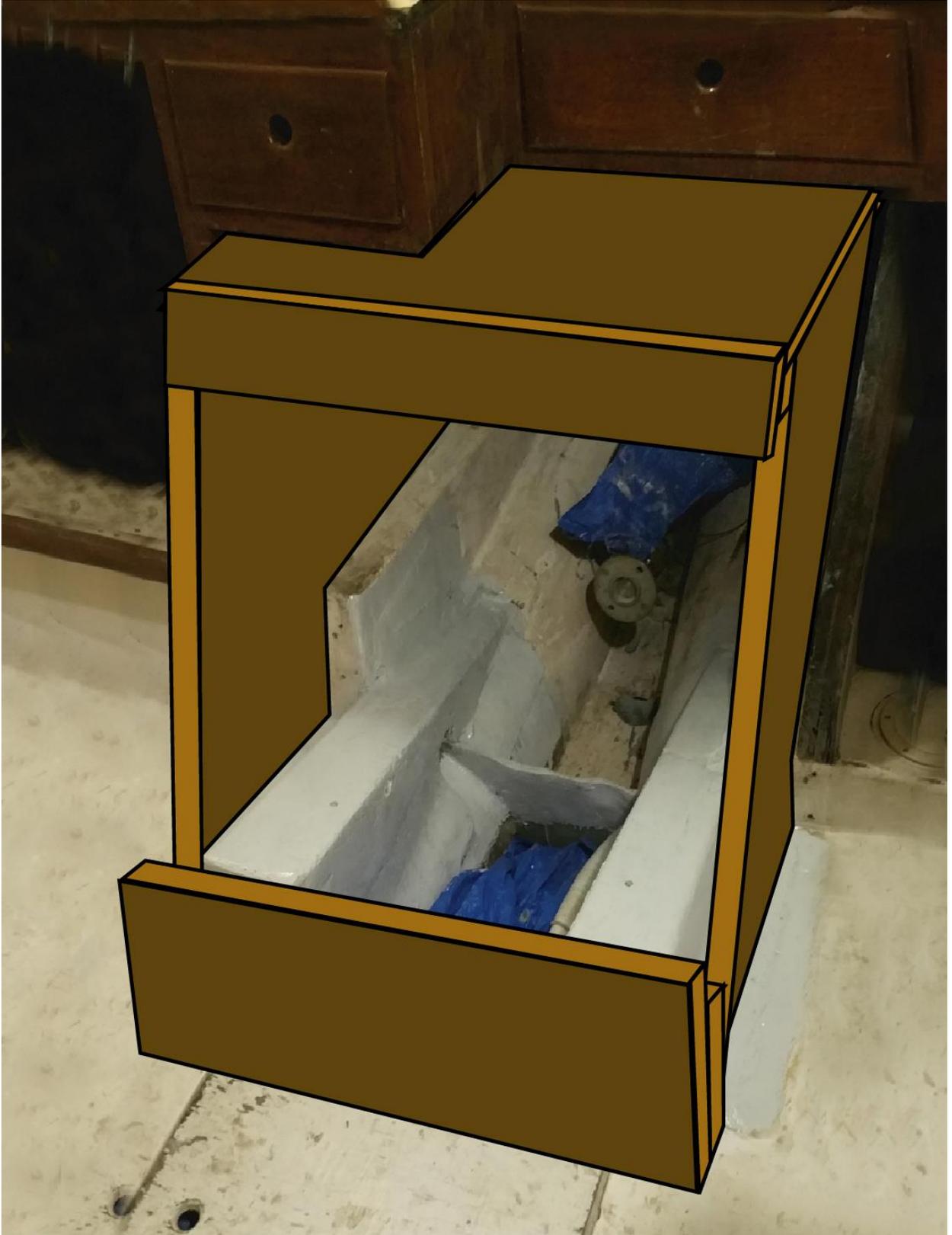
Vetus WLOCKL50R 2" Plastic Waterlock Muffler With Water Injection

Item #: VTSWLOCKL50R

Sale Price: \$122.73

---





Been dreaming about engineering while trying to get to sleep at 4 a.m.

Thursday, June 4

Cut Port side board for doghouse

Wednesday, June 3

Drill drain hole in old muffler space.

Put top in dog house

Fix battery box

Charging batteries

Took out center drawer exposing depth and speed sensors, may remove all drawers and just mount faces

Took out propane switch

Replaced screws in pilot berth and anchored wires

Tuesday, June 2, 2021 Tom & Willard drive up

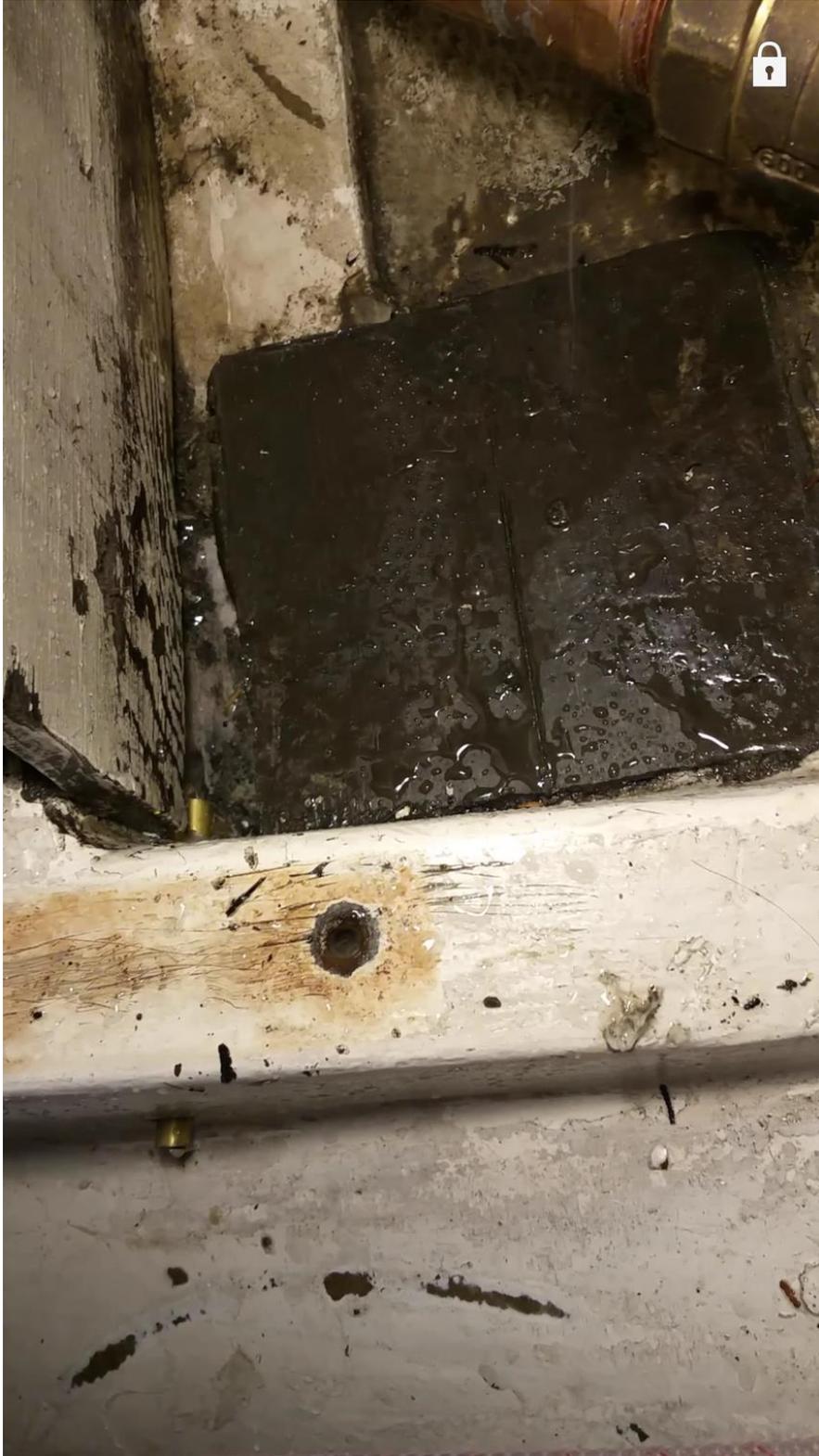
# Clio

CINCINNATI

**Times New Roman**

Futura

Finalizing the name.



Water will never collect here again. Drilled a drain hole and inserted a brass tube.



Four on each side gives us 16 gallons extra fuel in the rear lazarettes. Will install a holding strap.



Set the top board of the doghouse first. Will be shorter once we put the engine in and determine how much shorter.



Installed wood for the side of the doghouse to rest on and against.





After making a paper form the port sideboard was cut and carefully fitted.





Had a dream where I was building an enclosure for the front of an airplane where I would be the one enclosed. Found myself flying around and moving around in narrow alleys all the while trying to stay in the enclosure.  
Using the old steps. Will bring it home next time and update by refinishing. Will be assembled so it can be taken apart.

---



This is a nice set up. Will be finding the source of mahogany Formica this week and replacing the center panels of the head door.

Working hard to finish rebuilding a sailboat to take to Europe next year. Engine, electronics, plumbing, galley, berths, sails, furlers, dinghy, self steering all new.

Itinerary

2021 July 10 to August 10: Great Lakes 24/7 2600nm

2022 May 15 to August 15: Lake Erie to Russia 4143nm

2023 July to August: Finland to Falmouth 1330nm

2024 June to July: Falmouth, Azores, Lake Erie via 3718nm

But we take time for a walk and a sea shanty.

Willard, our fearless leader who is in his 11th year of studying to be a sailor.

Tom, our captain with a 25 ton rating and four crossings.

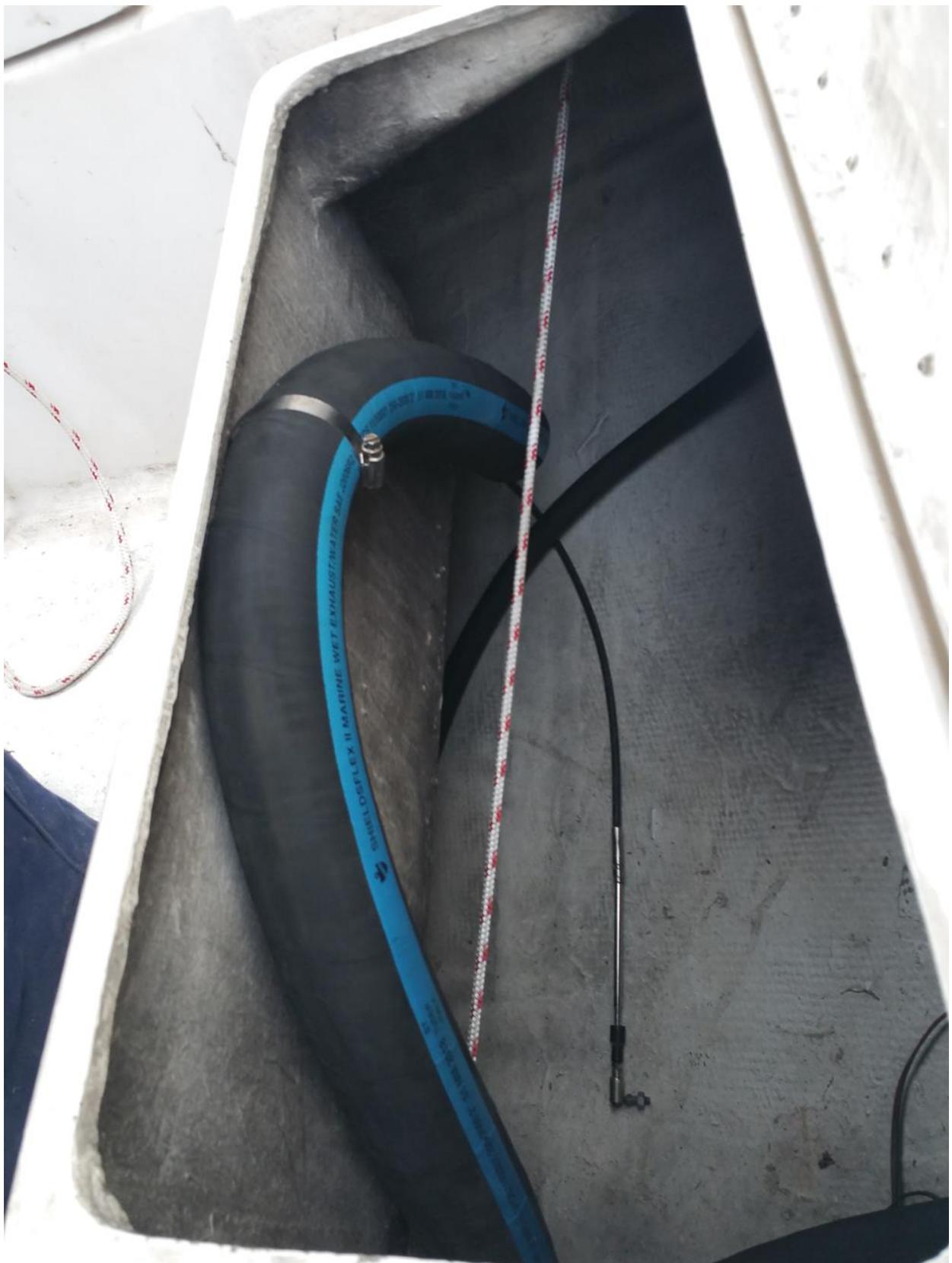
Chuck, his twin, who can do anything, took the video.

Willard in the background as we pause to sing a shanty bearing the load.

Friday, May 20, 2021

Chuck installed the alcohol stove. Broke the work site down and went home.

Tom & Willard began installing batteries

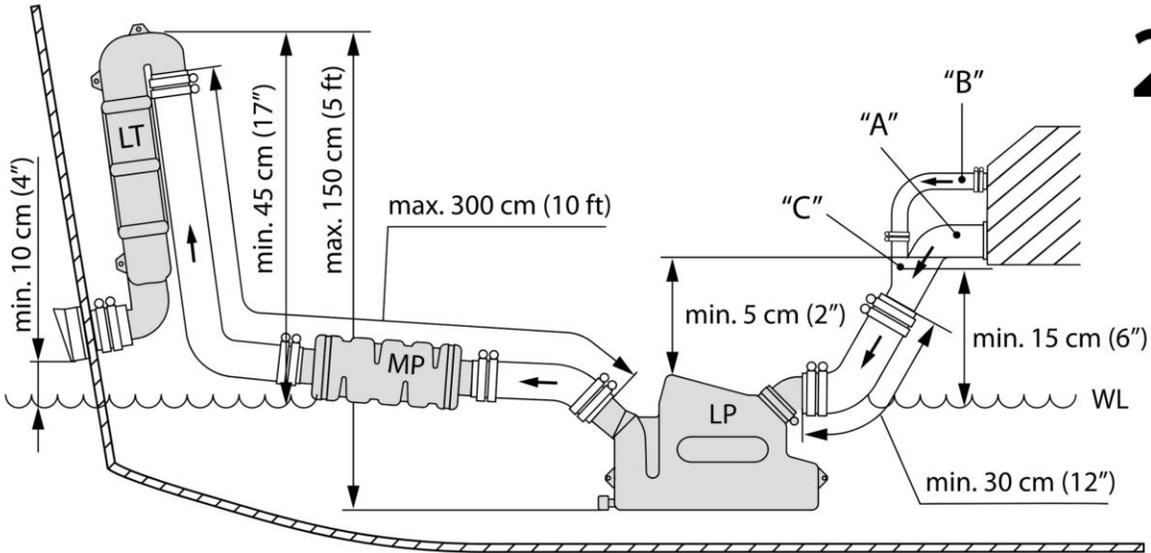




Tom & Chuck fiber glassed horizontal self-steering tube.

Thursday, May 19, 2021

Tom & Willard started installing exhaust hose. Bought ½' of 2" spiral hose from LakeCraft.



<https://www.vetus.com/en/exhaust-systems/waterlocks/vetus-plastic-waterlock-type-lp50-with-rotating-inlet-51-mm.html>



Chuck made instrument mounting plate out of fiberglass,



Chuck installed instrument panel.

Tuesday, May 18, 2021

Tom, Chuck & Willard drive up.

Wednesday put enclosure top up, installed a/c, wrapped rest of enclosure around 2 fenders



Wednesday,

Tom and Chuck prepared and sweated pipes.





Tom filleted hose hold downs  
made hose hold downs around stuffing box

---

Sunday May 9, 2021 Will & Tom drive up

Monday: Took off cover, ordered 1' of 2" hose from LakeCraft

Tuesday: ordered fuel fill adapter from Stewart at Mindermen, 1' -2" spiral yellow hose from Lake Craft, purchased 12'-½" water overflow hose from Brands, 9'-1-½" braided vinyl from Basset's

Wednesday: Picked up filler adapter from Mindermen, purchased copper fittings for drains from Menards, removed scupper underside fitting

Thursday: Installed water overflow, fuel overflow, fuel filler, purchased fuel overflow fixture; tested exhaust configuration (okay)

Friday: Installed scupper drain, fitted elbows and valves on water and drain throughputs.



Water service and sink, cockpit and scupper drain throughput installed.



Installed scupper drain, hose just passes by water service pump and refrigerator lines.



Used 4200 3M for thru-hull sealant, built up hull to make it at least  $\frac{3}{4}$ " instead of a plywood square.



Installed water overflow with  $\frac{1}{2}$ " to  $\frac{5}{8}$ " adapter. Runs right pass the control lines of the Cape Horn self steering device



Sewart at Mindermen's brazed a pipe to the old front head throughput, cutting off the fitting leaving the thread making the  $1\text{-}\frac{1}{2}$ " to  $1\text{-}\frac{3}{8}$ " fuel fill adapter.



The exhaust hose just clears the Cape Horn self-steering quadrant.



order # 1000183808.

5/8" to 1/2" Inch Hose Barb Splice

\$5.99

<https://www.ictbillet.com/5-8-to-1-2-inch-hose-barb-splice-coupler-repair-connector-fitting-adapter.html>



Order number: 134863500; Date:5/5/21, 2:43 pm  
1-1/2 x 1-1/2 x 3/4" Barb, Multiple Barbed Tube Reducing Tee  
PVC, Male  
MSC Part #: 01992676

<https://www.mscdirect.com/product/details/01992676?fromRR=Y>

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Bruce Jones Boat Repair  
4829 E Muggy Rd, Port Clinton, OH 43452  
(419) 656-0360  
<https://www.facebook.com/Bruce-Jones-Boat-Repair-1088794427952002/>

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Cockpit, scupper and sink can drain at full diameter of throughput 1-1/2"



Sea water throughput

Have to determine if it is okay to use pipe thread with straight thread.

---

Things to get

Red & blue locktight

Filtrate Panasonic U, U3, U6

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ICT Billet 1-3/8" to 1-1/2" Inch Hose Barb Splice Coupler

<https://www.ictbillet.com/1-1-2-to-1-3-4-inch-hose-barb-splice-coupler-repair-reducer-fitting-adapter.html>

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<https://www.replacementboatparts.com/hosebarbtohosebarbadapters.aspx>

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<https://www.industrialspec.com/about-us/blog/category/hose-barb-connectors/7>

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Ordered 210510 Your order # is 93587094

2" x 1-1/2" PVC Reducer Insert Coupling (Insert x Insert)

\$2.60 each

<https://www.supplyhouse.com/Spears-1429-251-2-x-1-1-2-PVC-Reducer-Insert-Coupling-Insert->  
[X-](#)

[Insert?gclid=Cj0KCQjwvr6EBhDOARIsAPpgUPE1F2nIoVcMo1Mm9oidk6cX7obj7BV7u7DPk2xtTXydxecfiU3r0-MaAmp-EALw\\_wcB](https://www.pvcfittingsonline.com/2-x-1-1-2-pvc-reducing-coupling-insert-x-insert-1429-251.html)



2" x 1-1/2" PVC Reducing Coupling Insert x Insert 1429-251

\$3.47

Hope they have barbed 1-1/2" to barbed 1-3/8"

<https://www.pvcfittingsonline.com/2-x-1-1-2-pvc-reducing-coupling-insert-x-insert-1429-251.html>



Need 2" barbed to 1-1/2" barbed.

White adapters funnel sink, scupper & cockpit through the Triple Y to throughput.

Black Y joins Whale and auto Blige with grey adapter to 3/4" Blige hose.

Threaded black goes into the fuel fill deck plate. Hopefully we can stretch the 1-3/8" fuel fill hose fit.

200716 Ordered delivered 200718

Outside diameter of stern tube 1-3/4"



Buck Algonquin Packing Box Hose

Heavy duty multi ply marine hose from Buck Algonquin is designed for self aligning packing boxes. 5 ply packing box hose

BUC-80HO175 -- 1-3/4 inch ID x 2-3/8 inch OD

\$25.15

Part Number	Hose I.D. (inches)	Hose O.D. (inches)	Overall Length (inches)
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BUC-80HO175	1-3/4	2-3/8	4-1/2
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[https://www.jamestowndistributors.com/userportal/show\\_product.do?pid=14313](https://www.jamestowndistributors.com/userportal/show_product.do?pid=14313)



Flax turned bright green. Replaced with Teflon from Brands.

Flax Packing is used for shaft packing, and for leaky stuffing boxes. Flax Packing is braided from strong rovings and lubrication material. This combination offers higher performance and longer packing life. Flax packing ensures a drip-free stuffing box and leak-free propeller shaft. Sold per pack, each pack contains one 2-ft. length of shaft packing.

WPT-10003 -- 2 ft x 1/4 in Coil

\$6.59 / pk

[https://www.jamestowndistributors.com/userportal/show\\_product.do?pid=8545&familyName=Flax+Packing](https://www.jamestowndistributors.com/userportal/show_product.do?pid=8545&familyName=Flax+Packing)

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Whaler Pump & Engine Exhaust



Groco Stainless Steel Thru-Hull Fittings

Groco Stainless Steel Thru-Hull Fittings are have straight NPS barbed male pipe designed to be used with hose. Their stainless steel construction offers the ultimate in corrosion resistance and protection.

It is recommended that Groco SS thru-hull fittings only be used in low pressure applications. Stainless Steel thru-hulls are the best choice for below-the-waterline use. They are supplied complete with a stainless steel locknut with bonding screw

GRO-HTH-2000-S -- 2 inch hose

\$61.84 / ea

[https://www.jamestowndistributors.com/userportal/show\\_product.do?pid=12263#QAHeader](https://www.jamestowndistributors.com/userportal/show_product.do?pid=12263#QAHeader)

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[https://www.westmarine.com/buy/seafit--bronze-90-degree-street-elbows--P011\\_332\\_001\\_008?recordNum=4](https://www.westmarine.com/buy/seafit--bronze-90-degree-street-elbows--P011_332_001_008?recordNum=4)



SEAFIT

Bronze 90-Degree Street Elbow 3/4" NPT

\$19.49 (Qty. 1)

Bronze Ball Valve with Stainless Steel Lever, 3/4" IPS

APOLLO VALVES

Bronze Ball Valve with Stainless Steel Lever, 3/4" IPS

\$44.99 (Qty. 1)

WM Confirmation Number: S3853JGSJS1, 7/18/2020, Bronze 90-Degree Street Elbow 3/4" NPT SEAFIT Bronze 90-Degree Street Elbow 3/4" NPT Model # 1857747, \$19.49, Bronze Ball Valve with Stainless Steel Lever, 3/4" IPS, APOLLO VALVES, Bronze Ball Valve with Stainless Steel Lever, 3/4" IPS, Model # 4755021, \$44.99 Total \$68.99

**Ordered 200718**

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[https://www.westmarine.com/buy/groco--1-1-4-bronze-intake-strainer-for-3-max-thru-hull--P011\\_332\\_001\\_507?pCode=1841378&cm\\_sp=Onsite-Recs--DY--PDP](https://www.westmarine.com/buy/groco--1-1-4-bronze-intake-strainer-for-3-max-thru-hull--P011_332_001_507?pCode=1841378&cm_sp=Onsite-Recs--DY--PDP)

¾" GROCO–Bronze Thru-Hull Intake Strainers \$69.99

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22" old rail mounts length

22" width between center of old rails

13.25" space between rails? 14.5" space between old rail and end of boards? Should be the same

Width between inside engine mounts 11.4173"

Angle 24" long from rear of engine mount to front of mount.

22" old rail mounts length

22" width between center of old rails

---

1 (one) - Bronze male 1 1/2" threaded adapter to 1-3/8" barbed for deck fill fitting  
Will have to find a way to take 1-3/8" hose to 1-1/2" fitting



CF 252 1.5" Tailpipe

Item Number: 905010

TAILPIPE, STRAIGHT, 1-1/2" MALE THREADS TO 1-1/2" ID HOSE BARBS - CF 252 1-1/2"  
\$9.95

<https://www.forespar.com/product528.html>

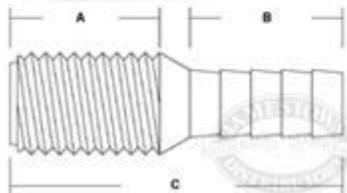
or

FORESPAR–Marelon® Tailpieces

Marelon Tailpiece, 1 1/2" Male NPS, 1 1/2" Hose ID \$11.49

<https://www.westmarine.com/buy/forespar--marelon-tailpieces--P0161877>

210423 ordered



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Forespar Marelon Male Tailpipe Hose Connectors

\$8.24

Out of Stock

FOR-905010 -1-1/2"- 1-7/16" in

<https://www.jamestowndistributors.com/product/product-detail/16825>

Could use this but the item above is better.

SEAFIT–Nylon Hose Tees Barbed

(6)5 stars, 6 Reviews, skips to reviews

Prices from \$3.79 - To\$5.29

Select Product:

Barbed Nylon Hose Tee 1 1/2" \$4.29

\$4.29

[https://www.westmarine.com/buy/seafit--barbed-nylon-hose-tee-1-2--](https://www.westmarine.com/buy/seafit--barbed-nylon-hose-tee-1-2--P011_332_002_517?pCode=1856152&cm_sp=Onsite-Recs--DY--PDP)

[P011\\_332\\_002\\_517?pCode=1856152&cm\\_sp=Onsite-Recs--DY--PDP](https://www.westmarine.com/buy/seafit--barbed-nylon-hose-tee-1-2--P011_332_002_517?pCode=1856152&cm_sp=Onsite-Recs--DY--PDP)

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1 (one) - 1-1/2" barbed to 3/4" barbed adapter for connection from Y to auto bilge hose



210423 ordered Web Order #: 490000

Reducer Coupler, Barbed (Insert x Insert)

490165 1 1/2-3/4 - Inch Reducer Coupler\$6.99

[https://www.thepondguy.com/product/reducer-coupler-barbed-insert-x-](https://www.thepondguy.com/product/reducer-coupler-barbed-insert-x-insert?p=PPCGOOGA&gclid=Cj0KCQjwvYSEBhDjARIsAJMn0ljgWfmu02jAVkEWKVnIFtkLy9eerwerDrhtn72uw3IFzQ67shW6GsgaAkQHEALw_wcB)

[insert?p=PPCGOOGA&gclid=Cj0KCQjwvYSEBhDjARIsAJMn0ljgWfmu02jAVkEWKVnIFtkLy9eerwerDrhtn72uw3IFzQ67shW6GsgaAkQHEALw\\_wcB](https://www.thepondguy.com/product/reducer-coupler-barbed-insert-x-insert?p=PPCGOOGA&gclid=Cj0KCQjwvYSEBhDjARIsAJMn0ljgWfmu02jAVkEWKVnIFtkLy9eerwerDrhtn72uw3IFzQ67shW6GsgaAkQHEALw_wcB)

12' Fresh water overflow and service tube take 1/2" hose

13'- Bilge 3/4" ID hose

1 1/2" fill hose (SAE Type A-2)

Two 1 3/4"-2 5/8" hose clamp

5/8" vent hose (SAE Type A-2)

210310 Bought fuel vent NBH H-200 \$62.86/14' & exhaust hose MMD  
116225020001 \$123.86/11' from Napa

Two 3/4"-1 1/2" hose clamps

1-3/8" feed hose (SAE Type A-1)

1-3/8" Inch (SOFT WALL) Gas, Oil, Diesel Fuel Filler Hose (SOLD PER INCH),  
\$212.04 USD, Mar 16th 2021 order #152773 <https://www.fillernecksupply.com/>

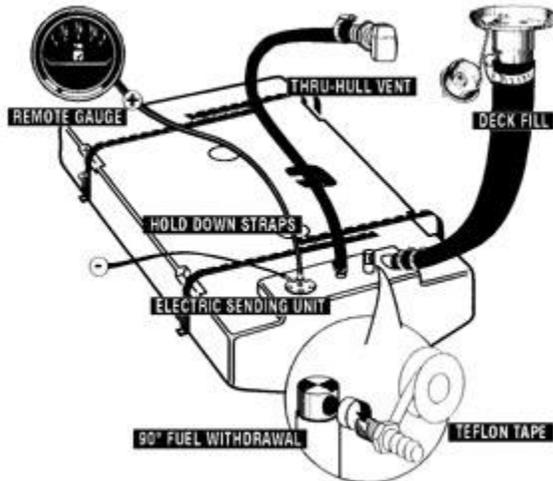
Two 1/2"-1 1/8" hose clamps

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Typical Permanent Gasoline Tank

The ABYC specifies that permanent tanks must be grounded, vented to the outside, and accessible for inspection and testing. All components must meet certain standards for mechanical strength, burst pressure, and fire retardance.



Tank hold-down straps

Teflon tape (to seal threaded connections)

<https://www.westmarine.com/WestAdvisor/Fuel-System-Installation-Checklist>

210324 Purchased from Napa 11' Wet Exhaust Hose MMD 11625020001 - 2" ID  
 \$11.26/\$123.86

<https://www.fillernecksupply.com/1-3-8-inch-soft-wall-gas-oil-diesel-fuel-filler-hose-sold-per-inch/>

Fuel Fill Line 13' (156") 1-3/8, 1.375 or 35 mm Overflow + 3'

Your order number is 152773

Subtotal \$171.60

3.00% off each item -\$5.15

FILL

Shipping \$30.25

Tax \$15.34

Total (USD) \$212.04

1-3/8" Inch (SOFT WALL) Gas, Oil, Diesel Fuel Filler Hose (SOLD PER INCH)

Part# D138SX

Automotive Applications- were wire reinforcement is NOT required.

Length: Sold By The Inch. (ENTER DESIRED LENGTH IN QUANTITY BOX). (QTY OF 12 Is A 12" Inches Long Piece)  
Inner Diameter: 1-3/8" or 1.37" Inch or 35mm  
Applications: Automotive Fuel Filler, Oil Transfer, Marine  
Outer Diameter: 1-7/8"  
Wall Thickness: 1/4"  
Wall Reinforcement: Spiral Nylon Cord.  
Min Order Length: 12" Or 1ft  
Max Order Length: 600" or 50ft  
Fuel Types: Leaded, Unleaded / Petrol / Diesel And Oil. (Not for Use With E85 Or Pure Ethanol)  
Cover Material: CR (Chloroprene Rubber)  
Inner Tube Material: NBR (Nitrile Buna Rubber)  
Rating: Coast Guard Approved - Built to meet or exceed SAEJ1527 Spec  
Temperature Rating: -34F to +257F  
Country Of Manufacture: United States  
Notes: Bends 90 Degrees in 11.5 Inches.  
Returns: Not Accepted

---

Purchased from Napa 14' Marine FL Hose NBH H-200 \$4.49/\$62.86

Fuel Overflow Line length + 4'

Was: Trident Marine fuel hose #365-0580 barrier lined SAE J1527- USC6 Type A1 ISO 7840-A1 - NMMA Type accepted. CE 5/8" ID - DE1 10 15 01

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Once the temperature is around 50°

1st visit

Glue boards while pressed against rails and sole.

2nd visit

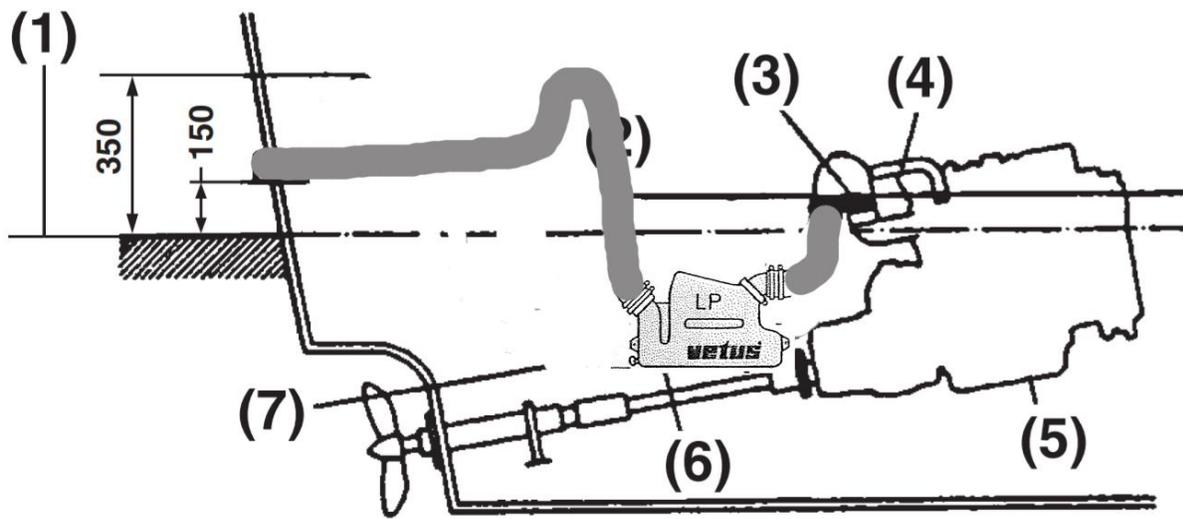
Cut wood to angle. Plane square

Epoxy wood to rail, sole and hull

Fill gap under wood with epoxy filler

3rd visit

Fiberglass wood to rails, sole and hull



0000370A

<https://safetyworks.com/products/respiratory-protection/toxic-dust-respirator-replacement-cartridges/>

Multi-Purpose Respirator Replacement Cartridges  
SKU: SWX00325



Final Zinc



Friday, November 20, 2020

Painted with tinted epoxy. Will polish more tomorrow and paint again.

---

---

Drove up Tuesday, Nov 3 arriving at 8 p.m. after leaving at 3:45.

Wednesday, Nov 4, 2020

Specified holes for angles and delivered to Lake Craft Metals for Friday afternoon pick-up.

Purchased screws to mount head. Ground down current bolts

Thursday November 5, 2020

Lake Craft

(404) 346-7000

1010 W Lakeshore Dr, Port Clinton, OH 43452

Picked up angles this afternoon.

Went with a brass sleeve to make a 3/8" lag bolt work. Put engine back in to mark 6 holes for the lag bolts then back in to confirm inside 4 lag bolts. Back to Lake Craft to have them drilled. Next time up will pick up: finish rails by smoothing and painting with beige gel coat. Then place engine back in, mark last four lag bolt holes, take out, drill holes, then finally place engine in place. Will be coming back up next warm weather window.

---

Questions for our Yanmar rep:

1. Okay to use 3/8" stainless lag bolts with brass sleeve to fill 12mm engine mount holes?
2. Gentle curve of exhaust hose okay.
3. Best way to attach muffler. Hard or soft attach to hull? Have 3/8" rubber from holding tank to have it sit on
4. Does the engine have a decompression button?
5. Can get flanges to meet, but what about shaft sag? Been using insert in stern tube to center shaft.
6. Voltage distributor.
7. Install manual hard copy

190730 Spoke to

Tom Motta 910-632-4216 of Yanmar

200730 Called about starting procedure, tank position,

200706 Called about other two pieces for the exhaust and he said you did not have to do this as long as the hose goes up then down like the old system.

200515 Called with questions

What is the water inlet diameter? 19.5mm listed on drawing = 0.7677165"

What water stop should be used inline the exhaust hose? 3YM30AE with KM2P 2.62:1

2" exhaust

---

Return prop nut zinc. Design is not for us, castle nut does not fit into, it's the exact size of the nut.

Need to draw up suggestion and talk to their engineer.

Shaft nut flat OD 1- $\frac{3}{8}$ ", threaded diameter  $\frac{7}{8}$ ",

See if something can be made for us.

Donut taken off shaft is magnesium. Will cut to fit.

---

Nearing the end of our second year in the yard putting in a Cape Horn self-steering and Yanmar 30 in a 32' Bayfield. Had to build new rails. Very close to bolting the engine in as the tolerance goes to .002 at the flange.

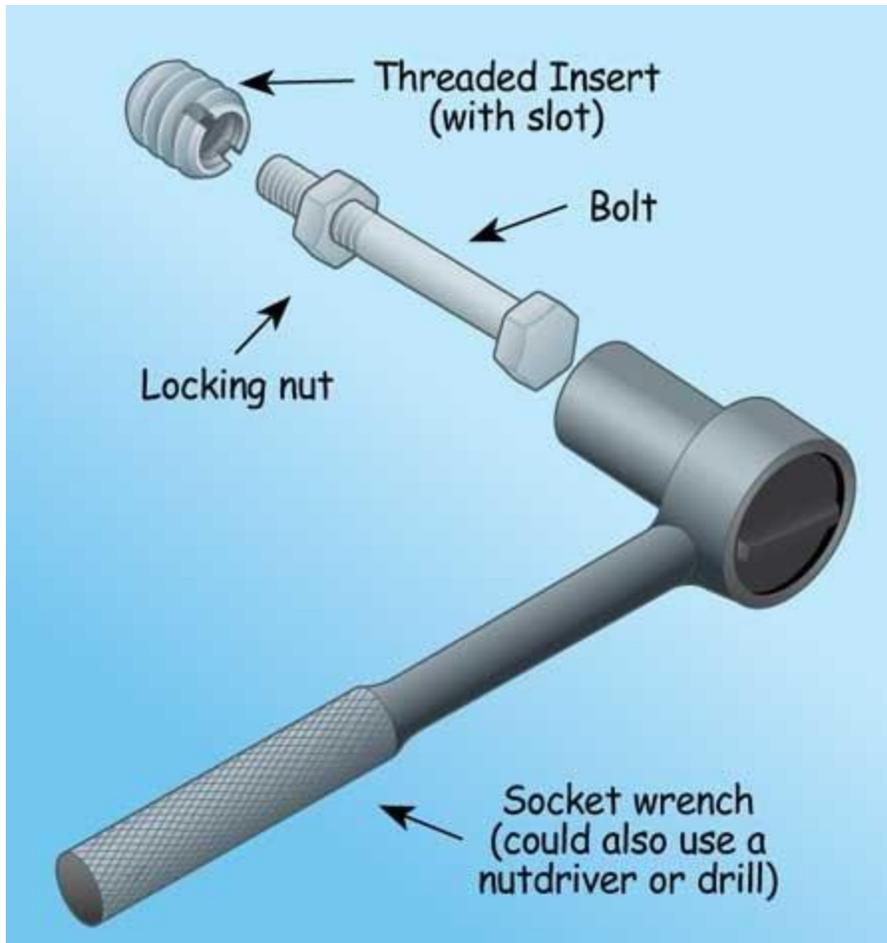
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E-Z Coil™ inserts — also known as wire or helical threaded inserts — quickly repair or reinforce tapped holes in soft metals.

<https://www.ezlok.com/e-z-coil-threaded-inserts-for-metal>



<https://www.boatus.com/magazine/2014/april/installing-threaded-inserts.asp>

## Composite Or Fiberglass

The usual procedure for thick or cored composite is to epoxy a knurled insert into a snug-fit hole. An alternative is to tap the hole in the composite and install an STI, coating both hole and insert with epoxy. With either type, the insert should be mounted on a well-greased screw to protect the internal threads from the epoxy. A bonded insert will be both stronger and more durable than a sheet-metal screw driven directly into the fiberglass, but it is not a suitable substitute for a thru-bolt with a backing plate.

The well nut is yet another type of threaded insert — a rubber bushing with a flange at one end and a nut imbedded in the other. Tightening the screw compresses the bushing, causing it to swell. Only as strong as the rubber, well nuts are light-duty

fasteners, but ideal for some marine applications because they seal, insulate, cushion, and can be installed without rear access.

To get a full sense of the vast array of available inserts, search the Internet for "screw thread inserts" and select "images." And the next time you think "bigger screw," consider a threaded insert instead.

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[https://www.rockler.com/e-z-knife-threaded-insert-for-hard-wood-303-stainless-pack-of-10?country=US&sid=V91040&promo=shopping&utm\\_source=google&utm\\_medium=cpc&utm\\_term=&utm\\_content=pla&utm\\_campaign=PL&tid=pla&qclid=CjwKCAjwz6\\_8BRBkEiwA3p02VWcZDrBxW9ZaQGeFUtlyf1BtAg-1ZI87bx\\_RD1-uOvBaBliuqmlaEhoCGi0QAvD\\_BwE](https://www.rockler.com/e-z-knife-threaded-insert-for-hard-wood-303-stainless-pack-of-10?country=US&sid=V91040&promo=shopping&utm_source=google&utm_medium=cpc&utm_term=&utm_content=pla&utm_campaign=PL&tid=pla&qclid=CjwKCAjwz6_8BRBkEiwA3p02VWcZDrBxW9ZaQGeFUtlyf1BtAg-1ZI87bx_RD1-uOvBaBliuqmlaEhoCGi0QAvD_BwE)

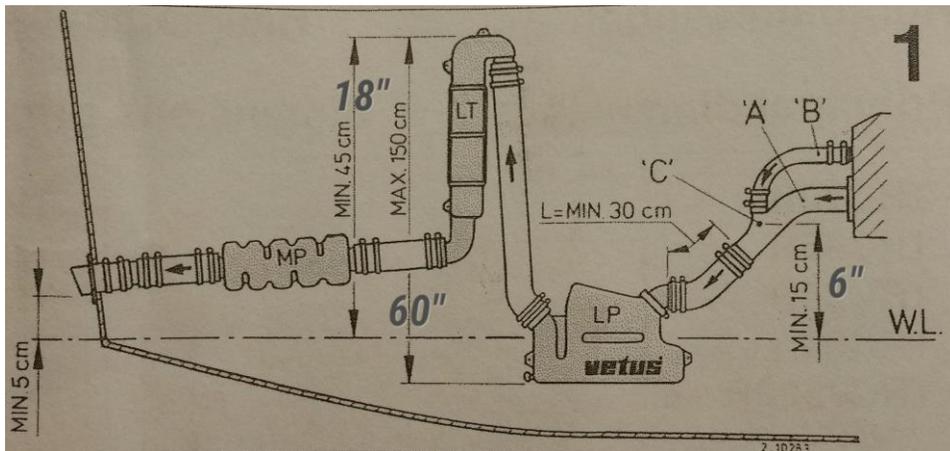
Engine Install Manual (We do not have a hard copy of this.)

[https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual\\_Vol\\_1\\_01JUN06.pdf?dl=0](https://www.dropbox.com/s/jd23qa4pk26256m/InstallationManual_Vol_1_01JUN06.pdf?dl=0)

Pg 49 Mounting

9. With the mounting hole locations positively identified and marked, drill the holes.

Precise drilling reduces stresses across the mounts. If no jig is available, the holes can be drilled after the engine is set on the stringers. This method allows the engine with mounts attached to be used as a hole-marking template. If the holes are drilled before the engine is installed, the hole pattern must be accurate to within 1.5 mm (0.06 in.) on all the dimensions.



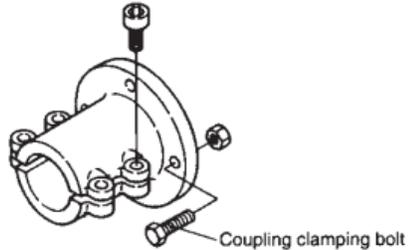
Pg 182 Exhaust

## PROPELLER SHAFT COUPLING

There are three types of propeller shaft coupling: taper bore, slit and straight bore.

Both the slit and the straight bore types are rough-bored, so it is necessary to provide finishing when matching with the propeller shaft.

### Slit type



0003969

## Tightening Torque of Coupling Clamping Bolts

Bolt Size	Tightening Torque
M10	4.7 - 5.3 kgf-m 44.1 - 52.0 N·m 34.0 - 38.3 ft-lb
M12	8.5 - 9.5 kgf-m 83.4 - 93.2 N·m 61.5 - 69.0 ft-lb
M14	12.0 - 13.0 kgf-m 118 - 127.5 N·m 87.0 - 94.0 ft-lb

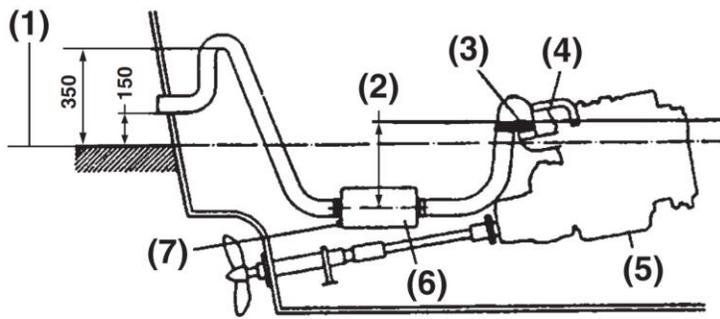
Pg 202 Shaft Coupling

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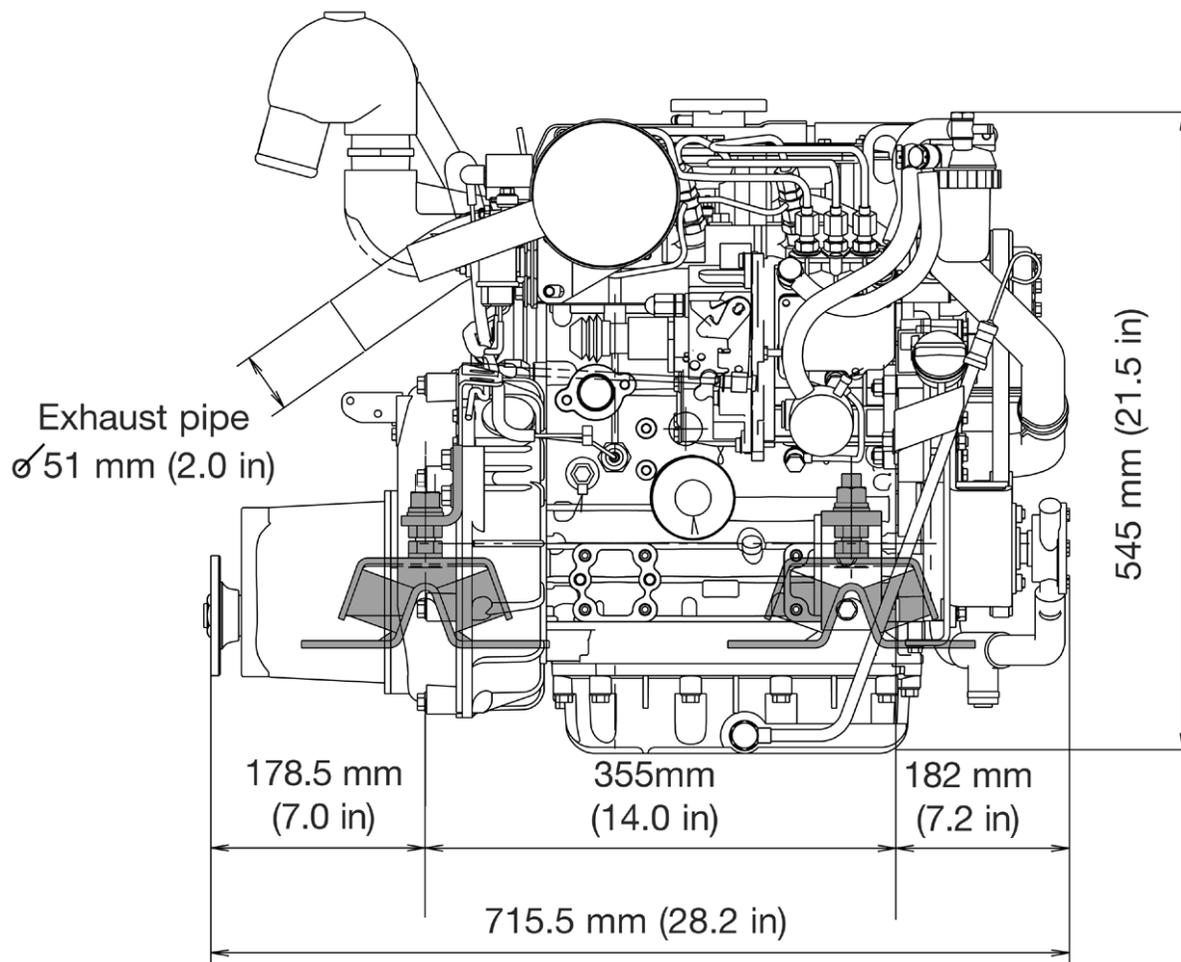
I think we will be making a dummy  $\frac{3}{4}$ " piece of wood that will go into the engine compartment on both sides coming out and down to the deck acting as a stop for the fiberglass blanket created by the wrapping of the oak boards.

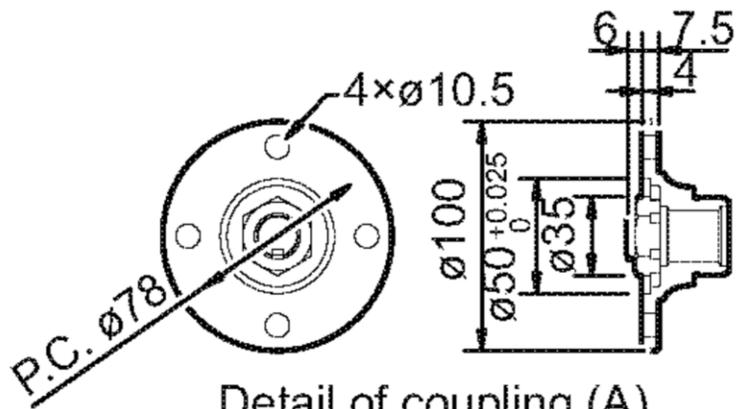
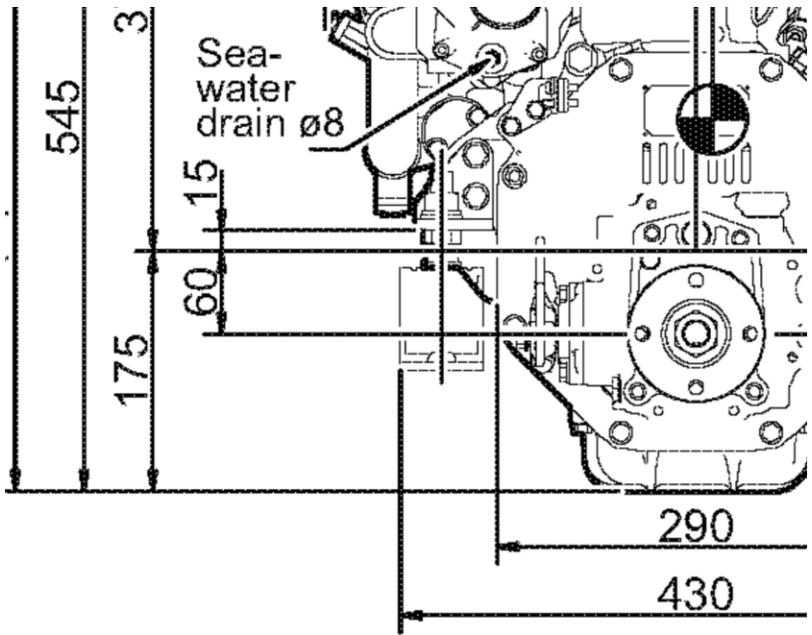
Will make patterns for dog house sides, top and front. But the most important is the sides since the fiberglass blanket will make the stop for the sides.



0000370A

- 1 – Waterline
  - 2 – Engine Side Cooling Water Outlet Height
  - 3 – Exhaust Pipe (High-Port Type)
  - 4 – Cooling Water Pipe
  - 5 – Engine
  - 6 – Water Lock
  - 7 – Drain Cock
-





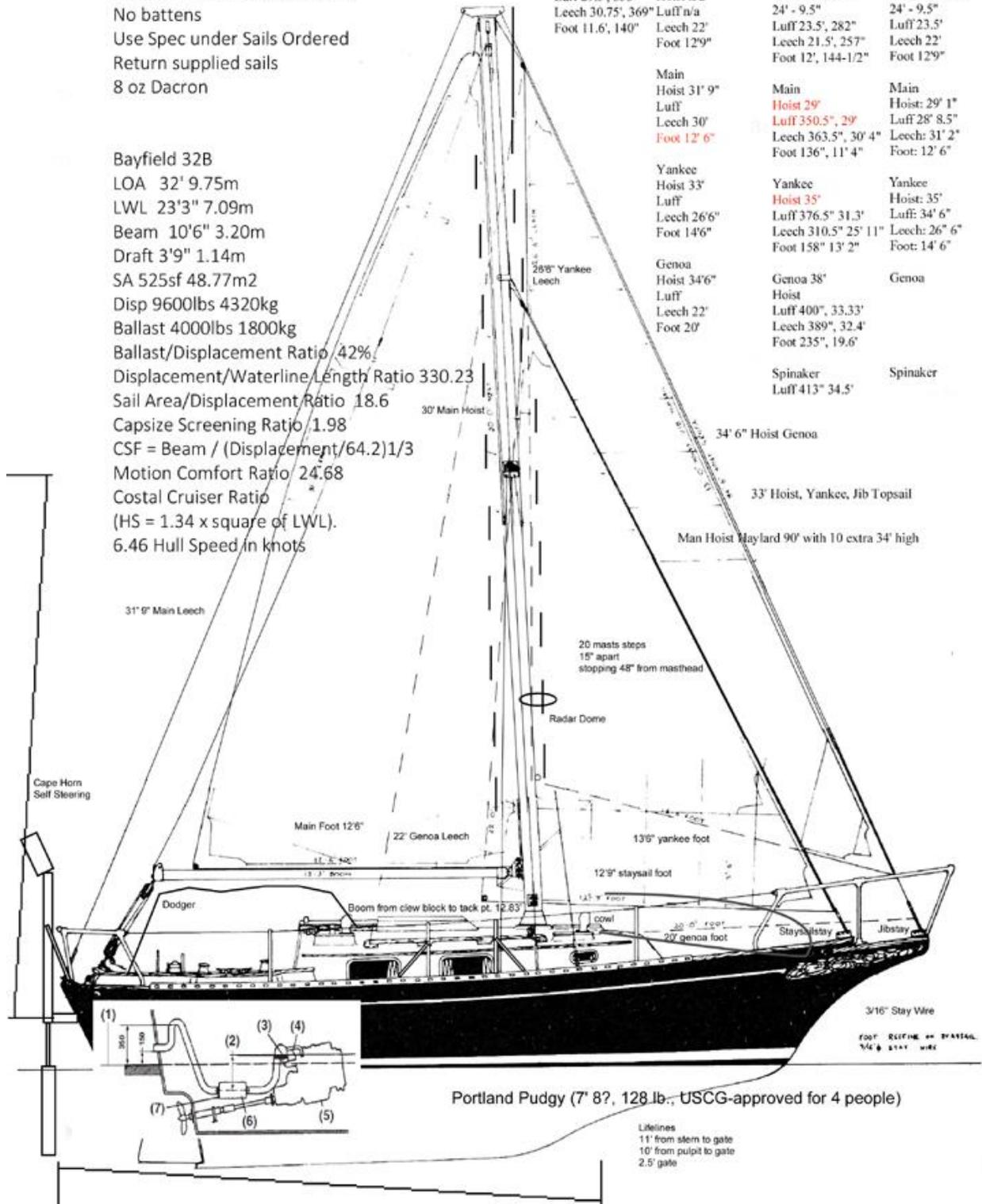
Detail of coupling (A)  
(Scale 1:3)

In

Sunderland Sail Order  
 UV cover matches wheel cover  
 No battens  
 Use Spec under Sails Ordered  
 Return supplied sails  
 8 oz Dacron

Bayfield 32B  
 LOA 32' 9.75m  
 LWL 23'3" 7.09m  
 Beam 10'6" 3.20m  
 Draft 3'9" 1.14m  
 SA 525sf 48.77m<sup>2</sup>  
 Disp 9600lbs 4320kg  
 Ballast 4000lbs 1800kg  
 Ballast/Displacement Ratio 42%  
 Displacement/Waterline Length Ratio 330.23  
 Sail Area/Displacement Ratio 18.6  
 Capsize Screening Ratio 1.98  
 CSF = Beam / (Displacement/64.2)<sup>1/3</sup>  
 Motion Comfort Ratio 24.68  
 Costal Cruiser Ratio  
 (HS = 1.34 x square of LWL).  
 6.46 Hull Speed in knots

Spare Sails	Sails per Drawing	Sails per Boat	Sails Ordered
Main Luff 29.5', 353" Leech 30.75', 369" Foot 11.6', 140"	Staysail Hoist n/a Luff n/a Leech 22' Foot 12'9"	Staysail Hoist 297-5/8" 24' - 9.5" Luff 23.5', 282" Leech 21.5', 257" Foot 12', 144-1/2"	Staysail Hoist 297-5/8" 24' - 9.5" Luff 23.5' Leech 22' Foot 12'9"
	Main Hoist 31' 9" Luff Leech 30' Foot 12' 6"	Main Hoist 29' Luff 350.5", 29' Leech 363.5", 30' 4" Foot 136", 11' 4"	Main Hoist: 29' 1" Luff 28' 8.5" Leech: 31' 2" Foot: 12' 6"
	Yankee Hoist 33' Luff Leech 26'6" Foot 14'6"	Yankee Hoist 35' Luff 376.5" 31.3' Leech 310.5" 25' 11" Foot 158" 13' 2"	Yankee Hoist: 35' Luff: 34' 6" Leech: 26' 6" Foot: 14' 6"
	Genoa Hoist 34'6" Luff Leech 22' Foot 20'	Genoa 38' Hoist Luff 400", 33.33' Leech 389", 32.4' Foot 235", 19.6'	Genoa
		Spinnaker Luff 413" 34.5'	Spinnaker



Boat: Bayfield 32' 1976

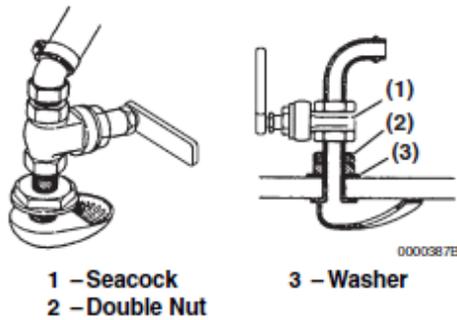
Displacement 9600 lbs.

Engine: Diesel Yanmar 3YM30AE with KM2P 2.62:1

Wide open throttle RPM/Speed: 3500rpm

Prop from another install in the same boat with the same engine: 14" diameter 14 pitch, 3 blades

## Seacock



1 - Seacock  
2 - Double Nut

3 - Washer

Figure 6-121

## Dimensions

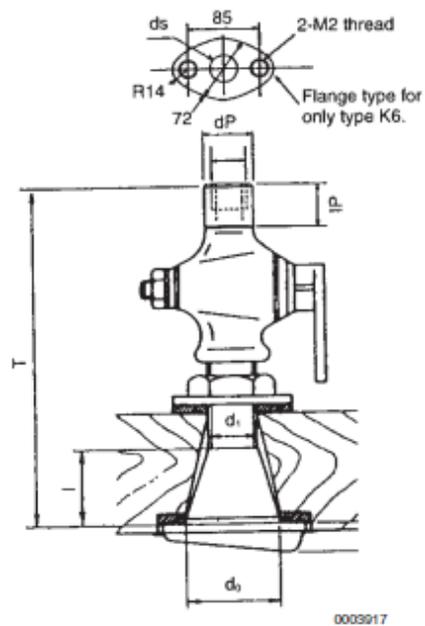
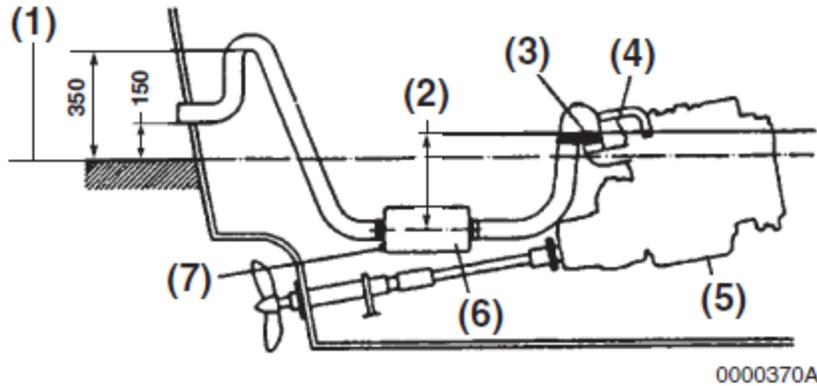


Figure 6-122

Type	Yanmar Part Number	dp (mm)	ds (mm)	IP (mm)	d <sub>1</sub> (mm)	d <sub>0</sub> (mm)	l (mm)	T (mm)
K1	D04214-48501	φ14	-	13	M16	φ31	34	103
K2	D24770-48101	φ18	-	13	M22	φ50	42	120
K3	D29795-48100	φ26	-	28	M32	φ79	33	190
K4	D24411-48100	φ32	-	35	M32	φ79	33	195
K5	D27610-48201	-	PT1-1/4	-	M39	φ86	-	179
K6	D28610-48100	-	φ40	-	M50	φ112	-	204

3. If the height of the cooling water outlet at the engine side is lower than the waterline, use a high-port exhaust / water mixing elbow.



- 1 – Waterline
- 2 – Engine Side Cooling Water Outlet Height
- 3 – Exhaust Pipe (High-Port Type)
- 4 – Cooling Water Pipe
- 5 – Engine
- 6 – Water Lock
- 7 – Drain Cock

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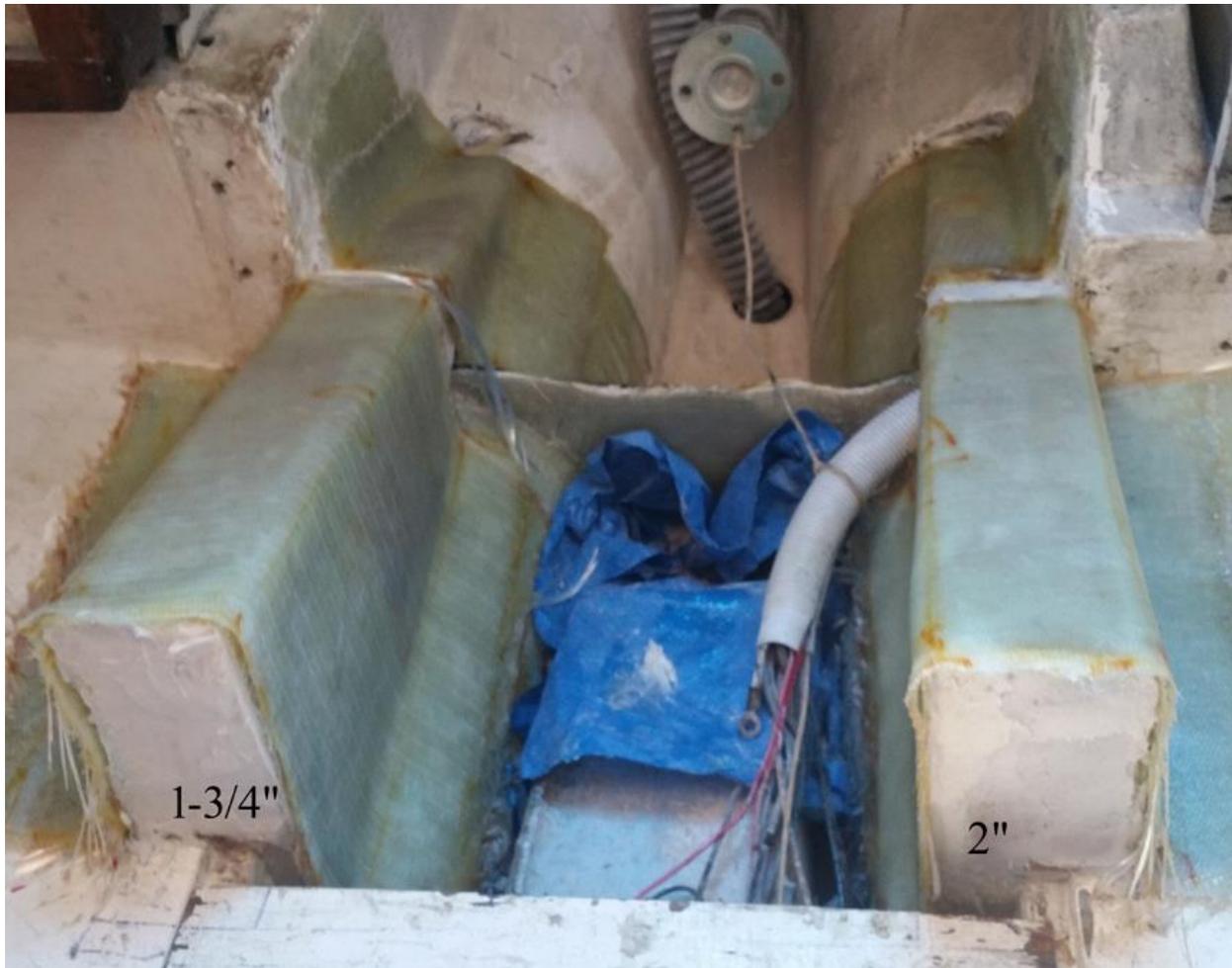
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Questions for Tom Motta, Yanmar Rep

Can you use lags bolts for attaching the engine into 1/2" fiberglass then white oak.

How long"





You can see on the left side where the rail meets the deck the space less. We need to build up that to match the other side



You can see the blue plastic and new 3" angles. We got the up and down and the angle right, working now on the side to side.

Got new 3"x1/4" stainless angles and had them trimmed. The old 2" angles were not wide enough to firmly have the engine set on the rails. Trimmed the fiberglass slightly to make them fit, applied epoxy paste where they would sit, covered with blue plastic tarp and laid in new stainless angles placing the engine on top. Created perfect base for engine but discovered that the side to side alignment is off.

This job is a lot of engineering. Nothing gets done until it's well researched, then fitting all the pieces together while correcting mistakes.

Taking a break till the end of September to sail up the New England coast with the 88 year old who I crossed three times with, Eric Forsyth. I told him I got my masters credentials for 25 tons, he said we will be over qualified. My identical twin, Chuck, is the second mate and will get his sea legs ready for the big trip.



2-7/8"

3/4"

MICHIGAN  
SILVER



Glued white oak shims to rails. Then milled down to  $\frac{1}{8}$ " from where the rails are supposed to be taken up by the fiberglass. Notice the extra wood on the right compared to the deck locker cover.

**REDUCING ELBOWS**  
 Bronze and 90°.  
**NOT TO BE USED IN POTABLE WATER SYSTEMS**

Item#	Size	List
38-44124 (K)	$\frac{1}{2}$ " x $\frac{3}{8}$ "	11.19 EA
38-44127 (KW)	$\frac{3}{4}$ " x $\frac{1}{2}$ "	15.19 EA
38-44131 (LK)	1" x $\frac{3}{4}$ "	26.69 EA
38-44134 (K)	1 $\frac{1}{4}$ " x 1"	41.49 EA
38-44137 (LW)	1 $\frac{1}{2}$ " x 1"	52.29 EA

Ordered from Brands'



Sunday, August 2, 2020

Tapered wedges are done to fill the top and inner sides of rails to match the engine.

August 1, 2020 Chuck Lohre passed his commercial glider pilot exam. Now to run a Long Distance Soaring Camp next week at the gliderport. Here's the link to the Google Drive. Just didn't want any one to think both Lohre's don't over plan things.

<https://drive.google.com/drive/folders/1foi-xZs5u7dp9HHHIOA4SqlGw9mpcJtP?usp=sharing>

---

200801 Purchased some scraps of coosa board for \$20

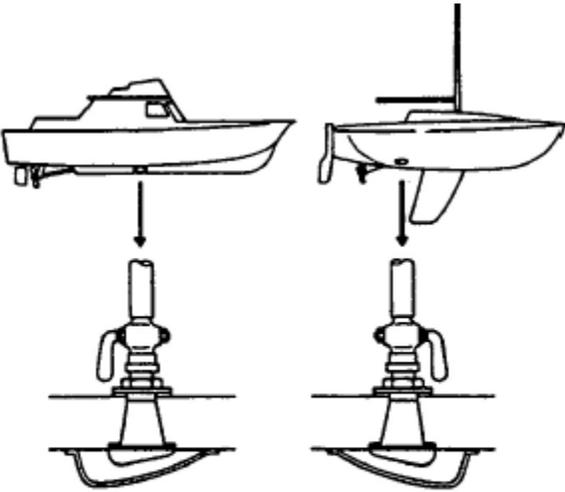
Bruce Jones Boat Repair

Boat repair shop in the Ottawa County, Ohio

4829 E Muggy Rd, Port Clinton, OH 43452

(419) 656-0360

Cockpit, scupper and sink can drain at full diameter of throughput 1-1/2"



0000389

Figure 6-124



Sea water throughput

Have to determine if it is okay to use pipe thread with straight thread.

---



Glued two oak boards together with GFlex epoxy to make shims for engine mounts.



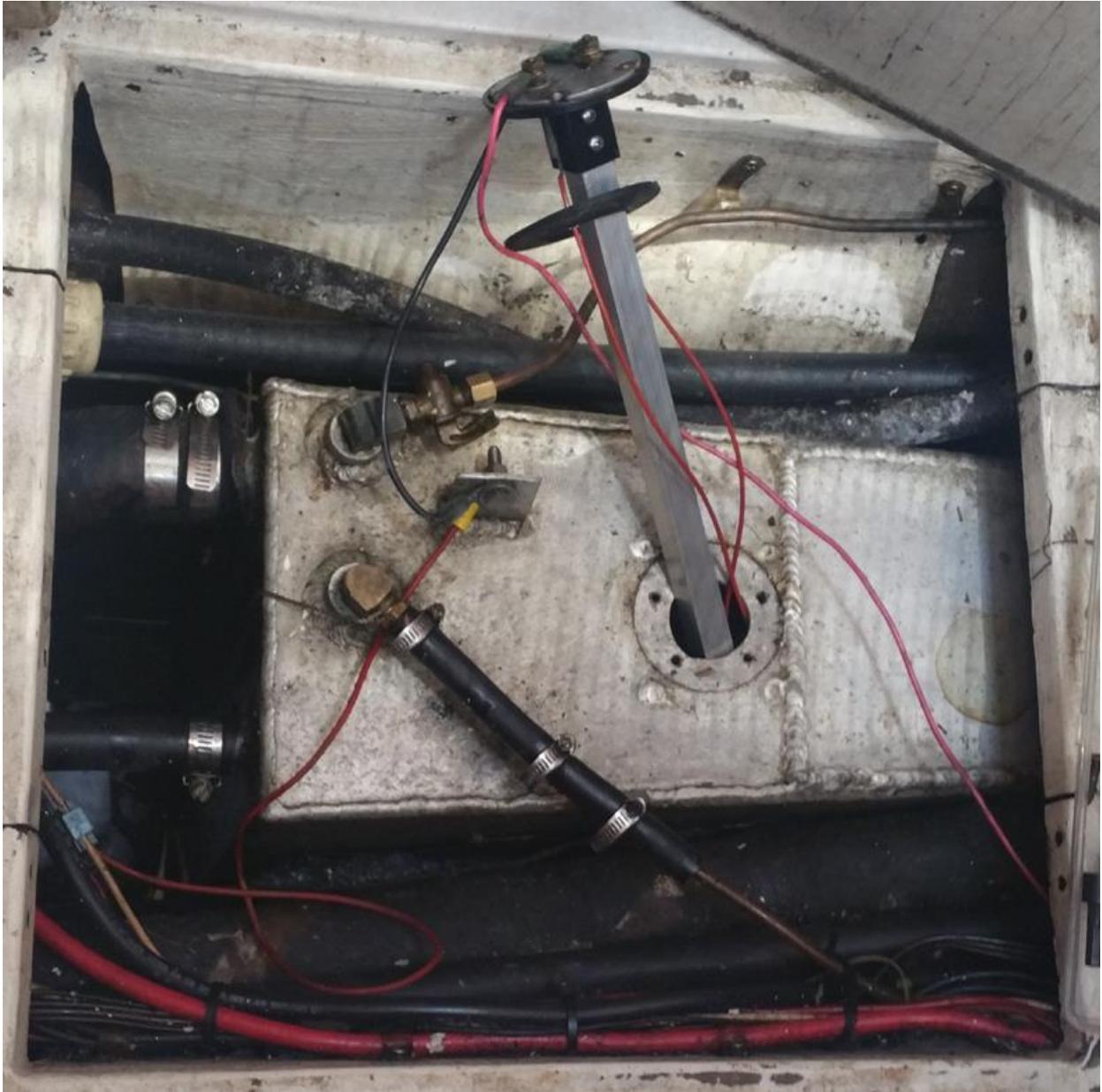
The engine suspended from the boom was bolted to the shaft. We injected epoxy paste into the void between the engine mounts and the existing rails. Will make oak slivers to fill the gap and encase in fiberglass. The engine did meet exactly at one point but in three other places about 1/2" needs to be filled. Should have glued a stick in four places where the epoxy paste markers are now and used them to built the first wood block the right size the first time.



Sleeping with the engine



The old starboard cockpit, scupper and sink connections. The new system will take a right angle at the hull and run up along the bulkhead to allow easy access to the stuffing box.



The old fuel filler hose and fuel overflow hose



Old bilge, water overflow, fuel filler and fuel overflow hose with one we do not know what is was.

---

Micro by Shop vac 87765-37 Filters out of stock TYPE A - 9066700 - SHOP-VAC® 1-1.5 GALLON\* DISPOSABLE FILTER BAGS (3 PACK)

<https://www.shopvacstore.com/type-a---9066700----shop-vac-1-1-5-gallon-disposable-filter-bags--3-pack-details.aspx>

<https://www.homedepot.com/p/Think-Crucial-Type-A-Bags-Replacements-for-Shop-Vac-1-5-Gal-Wet-and-Dry-Vacs-Part-SV-9066700-9-Pack-SV-9066700/305846512>

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Shields 141 Series, Multiflex Bilge Hose

\$1.95

INSIDE DIAMETER : 1-1/4"

<https://www.go2marine.com/Shields-141-Series-Multiflex-Bilge-Hose?quantity=1&inside-diameter=21>

Order #: 51808

Order Date: 7/30/2020

Order Total: 30.69

Sunflower along the Cypress tree line on the west side of Brands' Marina.



Three layers everywhere. Now to finish the edges and build up the area between the rails and top to fit the stainless angles to a very close fit then apply a paste of epoxy cover it with blue tarp for a release and set the engine in again to fill in the tiny gaps and make the final bed for the engine.



July 26, 2020  
Main blocks covered.



Oak boards glued and bolted in place, fiberglass on hull built up to match deck.



Paper patterns for fiberglass



Through puts opened up for larger ones. Sealed up the three throughputs in the bow.

<https://marinehowto.com/replacing-thru-hulls-and-seacocks/>

Use fiberglass build up to bring hull to a least  $\frac{5}{8}$ " in place of blocking boards



Dog house sides. Closely studying the various parts of the engine to determine if we need to have access ports on the doghouse sides to attend to the engine.



Next fiberglass blanket in the cabin

Celebrating another hard day.



Cut away deck, filled area between deck and hull with epoxy paste. Laid in three layers in engine compartment.

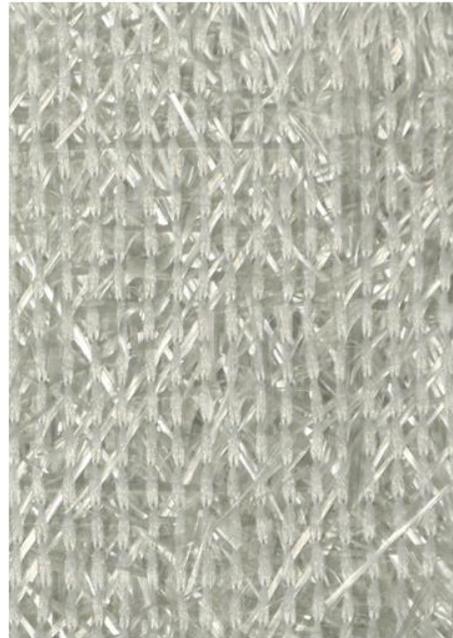
---

Ordered 2 G-Flex to coat the deck and hull for next fiberglassing. Also hardener for epoxy. When they arrive we can go back up. Could be as early as Wednesday of next week.

---

purchased gallon of epoxy, ordered hardener Order # 19013456 | Ordered: Jul 15, 2020 WEST SYSTEM #206-B Slow Hardener \$53.49 \$50 rewards Total \$3.49

---



## Fiberglass Cloth - 35 oz Quadraxial

This 35 oz. quadraxial fiberglass cloth made by Vectorply (part number E-QX 3500) has a total weight of 35.96 oz/sq. yd (1220 g/sq. m). The quadraxial weave features fiberglass tows running in 0, 90, +/-45 degree directions. The fabric provides excellent longitudinal, transverse, and shear strength, while providing a good amount of build-up per sheet. This will result in added strength with less layers of fiberglass needed.

The weave is retained by a thin polyester stitching which holds the 0, 90, +/-45 degree fiberglass tows into place without affecting structural integrity. The cloth impregnates easily and is excellent for medium to large size glassing jobs. Experience fantastic results when used during wet lay-up, vacuum bagging, or infusion. Sold in pre-cut packages of 1, 3, 5, and 10 yards.

COM-535132-3YD -- 3 yard package

IN STOCK

\$64.88 / pk

[https://www.jamestowndistributors.com/userportal/show\\_product.do?pid=97544&familyName=Fiberglass+Cloth+-+35+oz+Quadraxial](https://www.jamestowndistributors.com/userportal/show_product.do?pid=97544&familyName=Fiberglass+Cloth+-+35+oz+Quadraxial)

---

Always a fine Willard breakfast, lunch and dinner with snacks.

July 15, 2020

The fish is our flag



June 27, 2020 bolted the flange to the engine. Determined shaft length, having Minderman cut, mount the flange and true it to get a definitive alignment so to whittle down the white oak blocks to fit and have enough room for the three layers of fiberglass.



Since the engine sits on the hull aft, it is bolted to a  $\frac{3}{8}$ " stainless steel 2" angle. Forward the engine is bolted through the angle and into the white oak block under the fiberglass. The block end at the beginning of the doghouse front. Also the angle is bolted through the old rails horizontally and the deck vertically.

## Per Bruce Jones:

Fill the gap between the hull and sole with stiff paste made of 404 West System Epoxy. Use 404 filler with micro balloons and follow directions.

Polyester resin fiber-glassing over wood to sole, rail and hull.

3 layers of 2408 fiberglass cloth

[https://www.usfiberglasssupply.com/store/p14/E-LTM\\_2408\\_Cloth\\_50\\_in\\_Wide\\_Per\\_Lineal\\_Foot.html](https://www.usfiberglasssupply.com/store/p14/E-LTM_2408_Cloth_50_in_Wide_Per_Lineal_Foot.html)

E-LTM 2408 Cloth, 50in Wide, per lineal foot.

Fiberglass cloth is woven from threads and is considered a high strength fiberglass reinforcement. Its dense, flat weave can have the best resin to glass ratio but also makes it difficult when trying to conform to complex shapes. Cloth is used to cover and protect substrates or as a base laminate in thin or light objects. 0°/90° Biaxial.

---

I enjoy working as much as sailing. Into our second year in the yard installing self steering and engine. It'll get done. They say, "It always takes longer." When I get down, I relax and enjoy the beautiful boats in the harbor. We're doing it ourselves and ask everyone for advice. I'm an engineer but the owner is learning on the job. His enthusiasm is contagious. I tend to measure 20X and still make mistakes.

Now at five days here over the first two summer visits, slowly getting the engine in. Soon she will have new rails, then the laborious process of connecting her. In the meantime, we took out the holding tank and stove. Replacing with composting head and passive alcohol stove. You can't find passive alcohol stoves anymore. The last one available is by Kenyon and it has an 120v electric component for shore use. I just hope it will fit in the space. In the meantime looking for a Cookmate 3100 Double Burner Portable Alcohol Stove or Dometic Origo 3000 Double Burner Alcohol Boat Marine Gimbal Stove.

New lifelines. Good thing I like working on a boat just as much as sailing.

3- ¼" +2.5" Starboard + Port distance to angle under mount from deck

Purchased stainless angle. Bolts go through them about midway. Boards back up against front of doghouse.

July 13, 2020



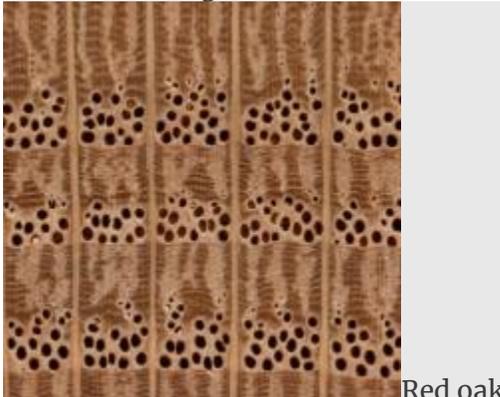


July 13, 2020

Optimal finished board size 6-½" high, 25" long, 5 wide

<https://www.wood-database.com/wood-articles/distinguishing-red-oak-from-white-oak/>

White oak (endgrain 1x)



Red oak



White oak (endgrain 10x)

The pores found in the growth rings on red oak are very open and porous, and should be easily identifiable. White oak, however, has its

pores plugged with tyloses, which help make white oak suitable for water-tight vessels, and give it increased resistance to rot and decay. The presence of tyloses is perhaps the best and most reliable way to distinguish the two oaks, but it comes with a few caveats:



Red oak (*Quercus rubra*)



White oak (Quercus alba)

Width between inside engine mounts 11.4173"

Width of wood block needed 5

19.5" inside space between original rails fore minus  $11\frac{1}{2}" = 8 / 2 = 4" + 1$  for extra

18.5" inside space between original rails aft

Distance between rear blocks  $12\frac{3}{8}"$  or  $1\frac{3}{8}"$  or  $11/16"$  more on each side

Distance between front blocks  $13\frac{3}{4}"$  or  $2\frac{3}{4}"$  or  $1\frac{3}{8}"$  more on each side

Angle 24" long from rear of engine mount to front of mount.

Fore edge of mounts 6" from floor.

2.75" mount width

22" old rail mounts length

22" width between center of old rails

7.5" height of rail side at highest point forward

20" Stern tube to lip between the engine space and the deck of the cabin

13" stern tube to transmission shifter

5.5" distance needed from engine center line to hull to accommodate transmission shifter

15" from the lip between the engine space and the deck of the cabin and the forward end of the engine

3.25" space between top of lip between the engine space and the deck of the cabin



Once dry top will cut to create a wedge going from 6" fore to nothing in the aft and planned square. Epoxying to hull, sole and old rails. Bolt will go through new rails through old rails, using an inspection hole to attach the nut. Two bolts will also go through wood rails to sole.

Per Bruce Jones:

3 layers of 2408 fiberglass cloth

---

Wow, thank you. I need them badly.

Thought I sent you a note to take the boards back to Josh. Two of them need more planing. You can clearly see a gap of 1/16 on two faces. One in each stack.

I don't why Josh did not notice this. I can use 1/64 but not any more. Please stress that each board faces its own partner.

The epoxy guy said they should be slightly pressured together when gluing. I agree. The strength is dependant on the glue not being stressed. White oak is rock hard and should not be glued with pressure. He also said to wipe the faces with acetone before gluing.

The gallon of epoxy arrived today. Last of the order.

Getting the used head paper holder tomorrow.

Calling Tom Motta at Yanmar tomorrow to ask what water inlet diameter and what water block for exhaust.

Thanks for the locker cover. I wish we could find plywood like this. The plywood I ordered is just like the wood that was used to replace the wood in Emma Lou.

Save the cut off rub rail. I'll use it to get the replacement piece.

---

WEST MARINE Store# 00070

4036 East Harbor Rd; Port Clinton, OH 43452

419-734-9122

Total \$415.31

Confirmation Number: S385316G3G1

Order Date: 05/04/2020 02:17 PM

1-GROCO–Bronze Thru-Hull Intake Strainers \$69.99

1-STAR BRITE–Tropical Teak Oil Sealer, Classic Teak, Quart \$44.99

Model # 539205 | Mfg # 088032

1-WEST SYSTEM–#206-B Slow Hardener \$37.49

2-WEST SYSTEM–#404 High-Density Filler, 43 oz. \$29.99

1- WEST MARINE–2 1/2"W Resin Spreaders, 3-Pack \$8.24

1- WEST SYSTEM–#105-B Epoxy Resin gal \$74.99

1- WEST SYSTEM–300 Mini Pump Kit for group size A, B or C \$14.99

2-WEST SYSTEM–G/flex 650-8 Liquid Epoxy, Resin and Hardener \$32.99

July 6, 2020

July 4, 2020

<https://www.westsystem.com/contact/need-help/>

<https://www.westmarine.com/buy/west-system---206-b-slow-hardener--318394?recordNum=1>

Slow Hardener, mixed at a 3:1 ratio with #105 Resin, results in a pot life of 20-25 minutes at 72°F, with 10-15 hours required for a solid cure.

WEST SYSTEM–#206-B Slow Hardener

\$37.49

<https://www.westmarine.com/buy/west-system---404-high-density-filler-43-oz--382895?recordNum=77>

404 High-Density Filler is a thickening additive for WEST SYSTEM Epoxy. Developed for maximum physical properties in hardware bonding where high-cyclic loads are anticipated. It can also be used for filleting and gap filling and where maximum strength is necessary. Off-white. 43 ounces.

WEST SYSTEM–#404 High-Density Filler, 43 oz.

\$29.99

[https://www.westmarine.com/buy/west-marine--2-1-2-w-resin-spreaders-3-pack--147637?cm\\_sp=Onsite-Recs-\\_-Related-Items-\\_-Desktop](https://www.westmarine.com/buy/west-marine--2-1-2-w-resin-spreaders-3-pack--147637?cm_sp=Onsite-Recs-_-Related-Items-_-Desktop)

WEST MARINE–2 1/2"W Resin Spreaders, 3-Pack

(7)5 stars, 7 Reviews, skips to reviews

\$8.24

<https://www.westmarine.com/buy/west-system---105-b-epoxy-resin--318352?recordNum=17>

WEST SYSTEM–#105-B Epoxy Resin gal

\$74.99

[https://www.westmarine.com/buy/west-system--300-mini-pump-kit-for-group-size-a-b-or-c--3405669?cm\\_sp=Onsite-Recs-\\_-Related-Items-\\_-Desktop](https://www.westmarine.com/buy/west-system--300-mini-pump-kit-for-group-size-a-b-or-c--3405669?cm_sp=Onsite-Recs-_-Related-Items-_-Desktop)

300 Mini Pumps are designed for convenient and accurate metering of group sizes A, B and C WEST SYSTEM resins and hardeners. The set contains one resin pump and two hardener pumps. Pumps mount directly onto the resin and hardener containers and eliminate the mess involved with measuring by weight or volume. 300 Mini Pumps are calibrated to deliver the proper working ratio with one full pump stroke of resin for each one full pump stroke of hardener. 105/205 and 105/206 pumps deliver approximately 0.8 fluid ounces of resin/hardener with one full stroke of each pump. 105/207 and 105/209 pumps deliver approximately 0.9 fluid ounces of resin/hardener with one full stroke of each pump. Made of durable polypropylene, the pumps give years of dependable service.

As packaged, the pumps are ready to install on Group Size B containers. A package of extension tubes for Group Size A containers is included with the set. Group Size C extension tubes are included in the 105-C Resin and in the 207-SC or 209-SC packages.

WEST SYSTEM–300 Mini Pump Kit for group size A, B or C

\$14.99

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<https://www.westmarine.com/buy/west-system--g-flex-650-8-liquid-epoxy-resin-and-hardener--9223132?recordNum=4>

WEST SYSTEM–G/flex 650-8 Liquid Epoxy, Resin and Hardener

(66)4.5 stars, 66 Reviews, skips to reviews

\$32.99

Technical Staff toll-free: 866-937-8797 (Weekdays 9:00 AM to 5:00 PM EST)

Select your hardener to give you the pot life you want at the temperature and conditions in which you will work. #205 Fast Hardener, mixed at a 5:1 ratio with #105 Resin, results in a pot life of 9-12 minutes at 72°F, with solid cure in 6-8 hours. It has a minimum recommended working temperature of 40°F. #206 Slow Hardener, mixed at the standard 5:1 ratio with #105 Resin, has a 20-25 minute pot life at 72°F with 12-18 hours required for solid cure. It has a

minimum recommended working of temperature of 60°F. 209 Extra Slow Hardener, mixed at a 3:1 ratio with #105 Resin, results in a pot life of 20-25 minutes at 72°F, with 10-15 hours required for a solid cure.

#### G-Flex

Toughened, versatile, liquid epoxy resin for permanent bonding of fiberglass, ceramics, metals, plastics, damp and difficult-to-bond woods.

G/flex 650 is a bit more flexible than standard epoxies and polyester, but much stiffer than adhesive sealants. This gives G/flex 650 the ability to make structural bonds that can absorb the stress of expansion, contraction, shock and vibration. It is ideal for bonding dissimilar materials. It can be modified with WEST SYSTEM fillers and additives, and used to wet-out fiberglass tapes and fabrics. Mixed at a 1:1 ratio, G/flex 650 gives you 45 minutes of working time at 72°F. It reaches an initial cure in 7 to 10 hours and full cure in 24 hours. 650 G/flex Resins should be paired with comparable size 650 G/flex Hardeners. Includes 4 ounces of resin and 4 ounces of hardener.

4 ounces resin; 4 ounces hardener

#### Key Features

More flexible than standard epoxy or polyester resins

Structural bonds absorb stress of expansion, contraction, shock and vibration

Good for bonding dissimilar materials

Can be modified with WEST SYSTEM fillers and additives

#### Specifications

Formulation: Two-part epoxy

Mix Ratio: 1 : 1

Working Time: 46min. @ room temperature

Drying Time: Initial cure: 6-10hrs.; Full cure: 24hrs.



June 16, 2020  
Gluing the boards



June 14, 2020  
Sustained high winds from the east mean high water on the west side of Lake Erie. Sometimes 11" above the ground.



Electric line with distress flag attached.

---

200504 called West System for advice

Don at West System

Use G Flex laminating white oak. Also coat the edge with G Flex when bonding it to the hull.

Use acetone to wipe the surface before laminating and bonding to the hull.

Sand hull and deck.

Big can of 404 will make two quarts of peanut butter paste.

---

Johnson cutless bearings

Duramax marine

Bird  $1\frac{1}{4} \times 1\frac{3}{4} = 1\frac{12}{16} \times 5$

Machined to  $1.6210$ ,  $1\frac{27}{64}$ ,  $1\frac{14}{32}$ ,  $1\frac{7}{16}$



Fill the gap between the hull and sole with stiff paste made of 404 West System Epoxy. Use 404 filler with micro balloons and follow directions.

Polyester resin fiber-glassing over wood to sole, rail and hull.

3 layers of 2408 fiberglass cloth

<https://www.usfiberglasssupply.com/store/p14/E->

[LTM 2408 Cloth 50 in Wide Per Lineal Foot.html](https://www.usfiberglasssupply.com/store/p14/E-LTM_2408_Cloth_50_in_Wide_Per_Lineal_Foot.html)

E-LTM 2408 Cloth, 50in Wide, per lineal foot.

Fiberglass cloth is woven from threads and is considered a high strength fiberglass reinforcement. Its dense, flat weave can have the best resin to glass ratio but also makes it difficult when trying to conform to complex shapes. Cloth is used to cover and protect substrates or as a base laminate in thin or light objects. 0°/90° Biaxial.

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<https://www.defender.com/product3.jsp?path=-1|7504|2290180|2290183&id=1120928>

Sea-Dog Snap-in Deck Plate For Vent

Dimensions: 3" ID, Cutout: 3-3/4", Overall Diameter: 4-15/16"

Type: Snap-On Lid, Color : White

Designed for 3" Cowl Vent

Item #: 901315Brand: Sea-DogModel #:

727139

Price:\$5.39

I call Wes before I ordered the resorcinal glue, to glue laminated white oak. He said you can just use West System epoxy to laminate and glue the boards to the hull even though the instructions say not to. He thought with bolting the boards to the old rails and deck it would be good enough without fiber-glassing in the board. We can always

fiberglass them in if we get better advice. You can get the boards planned at Homestead hardwood in Port Clinton. I have the inspection covers but I think I will order a smaller set. I can always return the bigger ones. They were only \$10 for both.





Nuova Rade Screw Out Deck Plate / Inspection Hatch

Dimensions: 170 mm OD = 6.19" x 130 mm ID = 5.12", Cutout: 142 mm

Type: Screw Out Smooth Lid, Color: White

Item #: 456600 Brand: Nuova Rade Model #: 43918

<https://www.defender.com/product3.jsp?path=-1|7504|2290180|2290183&id=2732543>

Price:\$4.99

---

Dear Wes,

Having fun watching your trials on Sandusky Bay.

As soon as we can have non-essential travel, my partner will let me go to Brand's to continue working on the engine install.

We would so appreciate your thoughts on our project.

Using G-1131 Resorcinol Structural Adhesive #201-201 to glue the white oak boards together.

Then cutting them to an angle to make the engine rail. Bolting them to the existing rails using inspection holes on the right and left to get access to the bolt for the nut.

Bolting the boards to the deck also and filling the space under the deck with a paste made from West System epoxy. Then epoxy the rails to the hull, exiting rails and deck.

Looking forward to visiting your boat house.

Thank you,

---

Distance from sole to bottom of fore engine mount is 6-1/4" with fore mounts centered in mounting bolt. Wood is 6" high and will be covered with 3 layers of 2408 fiberglass cloth. On top will be a 3/8" stainless steel angle iron 3" wide cut to fit aft space.



Aft mounting bolts are all the way down. When the engine is set on mounts it will depress the rubber in the mounts 4.5mm. Bolts will be adjusted to match the depressing.

Use 404 filler with microballoons and follow directions.



Filling the space under the sole and the curvature of the hull with West System epoxy. Pushing the epoxy through the small space between the floor and the curve of the hull to fill the area between the floor and the hull.

Monday and Tuesday before Thanksgiving

Closed down the boat for the winter bringing back heater, cleaning supplies, caulking, medicine anything that would freeze, best advice for the engine is not to winterize since it has not been run, needed 55° to glue boards, set engine in space and looks good to go ahead with the plan to rest the aft engine mount on hull with 3/8's stainless steel plate under it, tapped to hold the bolt, may do the same with the second to aft bolt if not enough wood under it to set a lag bolt, strung hemp line through starboard stanchions to support cover, stowed all gear in cradle, nothing on ground,

Visited Bruce Jones to get more advice on install

Polyester for fiberglass. West System 404 epoxy to glue wood to sole and hull.

To: Michel Lacasse, supplied our engine configuration from his same install.

Working on making the white oak rails that will be bolted to the old rails and fiber-glassed in. It's taking longer than expected but I hear that is to be expected. We did get the self steering in and the old holding tank and head taken out. My brother Chuck is helping bring the gel coat up to snuff. He is a glider pilot and knows all about gel coat.

We must keep focused on getting it in exhaust, wiring and fuel system in, in hopes of an early July trials. Then we sail Lake Erie trying to stay offshore for a week. Working on getting the crew, including me, to take their captains license. We leave for Russia May 2021.

191122 called Rob and Spring Grove Metals

Stainless Steel strip to be fiberglassed in allowing for the aft engine mount bolt to be tapped into it for it is too close to the hull to use a carriage bolt

2-1/2" x 22-1/8"x 3/8"

Rob Elfers

513-200-9745

Spring Grove Sheet Metal

Scott

2428 Spring Grove Ave

(513) 621-5584

1st Prepare the boards and glue them together wedging them in the space to dry.

2nd Cut the angle on the boards to fit and resin them into the hull, filling the space underneath.

Doing it in one day and leaving the heater on while we go to the hotel.

3rd Fiberglass in the boards also leaving the heater on overnight.



Used a Dremel drill to cut through 2nd fiberglass shell to exposed the hull where far aft engine mounts holes are. Lowered engine on the rear engine mount bolt as much as possible allowing engine to go back 1-½" more. Fiber glassing a nut to the hull receive the aft engine mount bolt. The rest will be lag bolts in white oak. We'll be lucky to get our 32' Bayfield in the water by July 2020. If I lived aboard it would happen a lot faster. Just can't talk my partner into it.

Used a Dremel drill to cut through 2nd fiberglass shell to exposed hull where rear engine mounts are. Lowered engine on the rear engine mount bolt as much as possible allowing engine to go back 1-1/2".

Stewart at Minderman let us borrow a 25" long shaft stock. Ours is too long and will be cut when we know how long.

Brought up white oak plank for rails and rat lines and new platform for scaffolding.

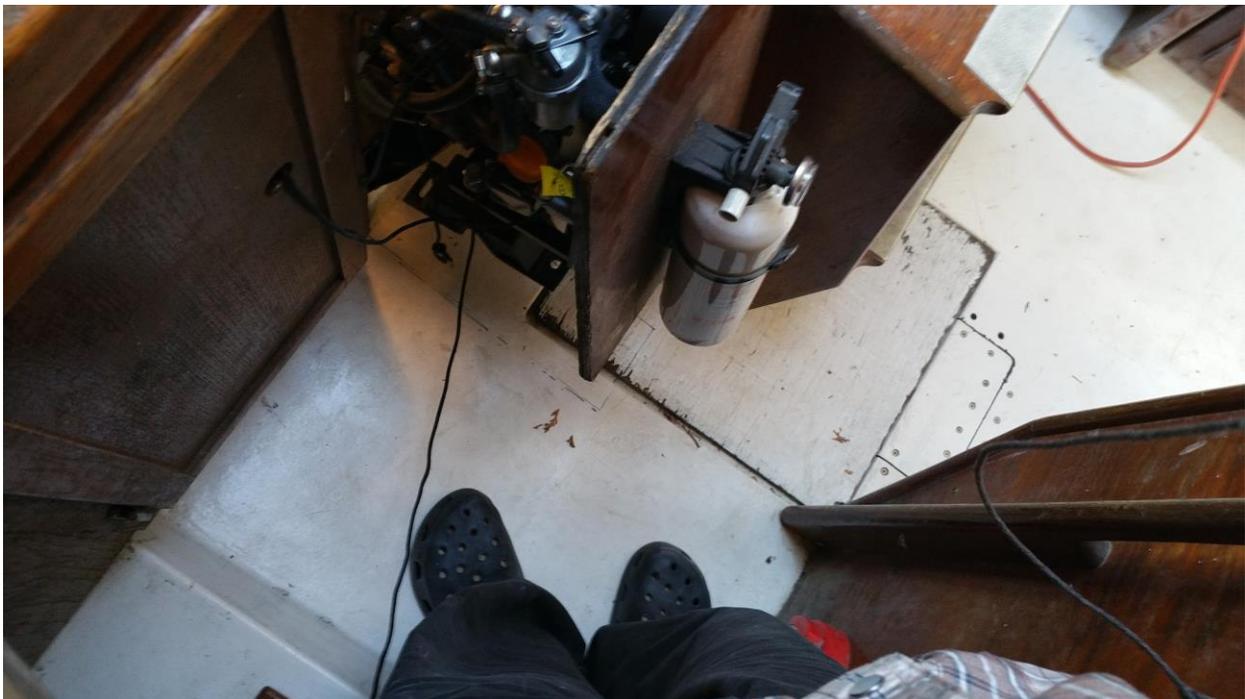


The bottom black line was where the engine was. Now it's 1-½" further back.



Tentative position of steps.

26" width of steps and width between engine space. Just extend out sides with ¾" marine plywood and steps can be used.



(908) 964-0700

Epoxy System

<https://www.westsystem.com>

Questions for David

1. Okay to fiberglass a threaded plate to the hull for the far rear engine mount?
2. ZipOther engine mounts lag bolted to white oak fiberglassed onto hull.
3. Space under floor filled with West System Epoxy. What type of epoxy is appropriate
4. Wood rails bolted to floor.
5. Do you think the floor is resined to the hull?
6. Should we add boards under the keel to allow forward stand to just stabilized the boat.

Tom Motta 910-632-4216 [Tmotta@mackboring.com](mailto:Tmotta@mackboring.com)

Mack Boring & Parts Company

245 Belmont Dr, Somerset, NJ 08873

Questions for Yanmar

7. Can you turn off the instrument panel light? No
8. Should I winterize the engine? Yes
9. Okay rear engine mounted directly to the hull to a nut fiberglassed into it.
10. Where should the wide mounting slot be? In the drawings it is forward. Why is this?
11. Single hole in center of mounts slotted forward and aft
12. Can you rest the engine on the crankcase? No

---

<https://abycinc.org/page/standards>

Bryan Shrock

Hi Tom,

Looks like you have a good game plan and are using quality materials.

If you are seeking some structural advice concerning fiberglass and composites, I would recommend Kevin from Coastal Marine or Kevin from Ship Shape.

I charge a minimum of \$ 150 for structural inspections and consulting.

My last yacht delivery takes me south to the Ft. Lauderdale area in early November.

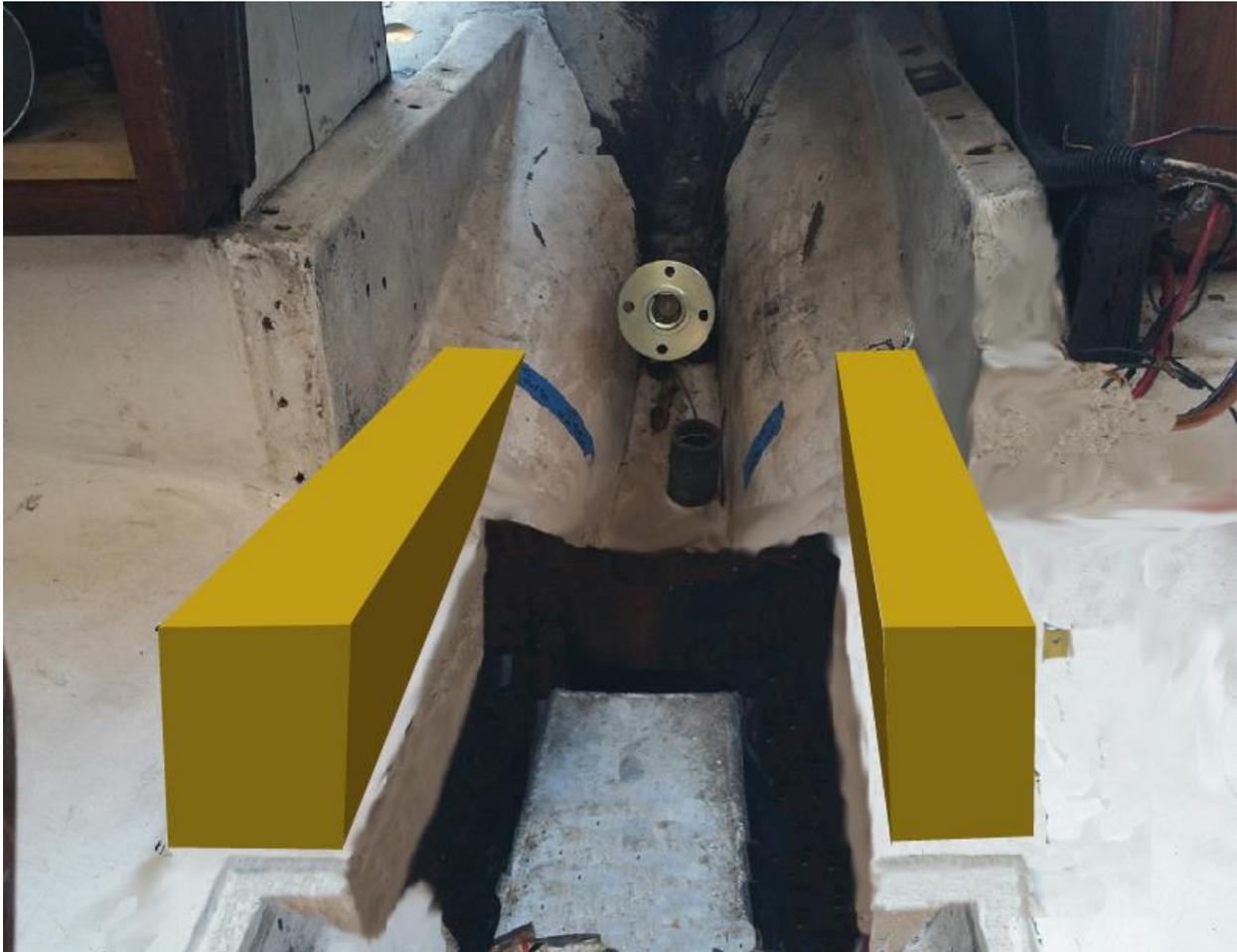
I have family there and really no time table for when I return to Ohio.

Thanks Tom,

Bryan

Bryan Shrock Marine Surveying

336 Lighthouse Oval  
Marblehead, Ohio 43440419-656-2925  
[www.bryanshrocksurvey.com](http://www.bryanshrocksurvey.com)  
SAMS Surveyor Assosicate  
ABYC Certified Standards Technician  
100 Ton Masters License



**Anarchy Thread**

<http://forums.sailinganarchy.com/index.php?/topic/210449-boat-buying-advice-boats-that-need-a-repower-boats-that-have-been-recently-repowered/&tab=comments#comment-6709500>



24" from rear engine mount to front mount.  
Fore edge of mounts 6" from the floor.

Our current plan is filling the space under the floor and the curvature of the hull with West System epoxy. Pushing the epoxy through the small space between the floor and the curve of the hull to fill the area between the floor and the hull.

With the floor stabilized, epoxy white oak rails on the floor, bolting them into the epoxy fillets and fiber-glassing them to the floor and hull. The Yanmar mounts touch the hull in the back and we need at least a 1" to put in a lag bolt in the far rear mount.

With the floor stabilized, epoxy white oak rails on the floor. The Yanmar mounts touch the hull in the back and we need at least a 1" to put in a lag bolt in the far rear mount.

Using half inch sheet of fiberglass board to fill the area where the current fuel tank cover was in the area where the wood rail will sit. May use the fiberglass board to make sides where the epoxy fillet ends.

Angle 24" long from rear of engine mount to front of mount.  
Fore edge of mounts 6" from floor.

191014 419-659-2925 Left VM replied with text booked for next 3 weeks

Bryan Shrock

<https://bryanshrocksurvey.com/>

[bryanshrockboats@gmail.com](mailto:bryanshrockboats@gmail.com)

191014 called LM

Bache Marine Consulting

4701 Lima Sandusky Rd

191012 called Brian LM

191011 LVM Brittany called back,

Brian McGullnery, marine surveyor, 419-707-7010

Called

190925 emailed

<http://www.greenesmarine.com/>

145 SE Catawba Road

Port Clinton, Ohio 43452

Phone: (419) 734-1903

[Robert@GreenesMarine.com](mailto:Robert@GreenesMarine.com)

Called 191011&12 LM

Ed Bennett 419-656-8554

191011 Called John recommended Ed Bennett 419-656-8554

Anna and Eric

West Marine

4036 E Harbor Rd, Port Clinton, OH 43452

(419) 734-9122

### Complicated Gobble Guk

State of the white oak mounts epoxied to the hull and fiber glassed in with removable white oak braces, one in front and one aft. Looking into getting aft tabs that support the engine mounts that are higher up so the engine can go back further into the engine room. The limiting factor is the distance from the rear lag bolt from the hull. We never got on the lake this year but the engine is one step further installed.

Here it is suspended while we size up the mounts.

Have a source for the 5" wide x 14" high x 8' long white oak to carve the mounts.



Using various straps the engine aligned with the shaft.



Chain hoist allowed easy moving the engine into the cabin for good. Will place on flat dolly and roll it forward in the cabin when working on white oak rails carving.

---

Mac Boring Contact  
Tue, Jul 23, 7:33 PM  
[Jclore@mackboring.com](mailto:Jclore@mackboring.com)  
Jordan  
908 964 0700  
Ext 253

Willard and I met with a re-power specialist in Port Clinton. He gave us great advice. We're going to lower the engine into the engine room and connect it to the shaft flange while suspended to determine where the stainless-steel angle gets thru bolted into the old rails. The front mounts are going to be white Oak epoxied to the hull using the West system. By connecting the engine directly to the shaft flange while suspended, it's a lot easier to get accurate connections. I'm hoping I can get a good piece of stainless-steel angle from Robbie. 513-200-9745

Met with a specialist who gave great advice, that we are going to take. We ordered the flange for the shaft. We're basically going to stick the engine in and hook it up to the shaft while suspended and then size up where the mounts go. This is going to deliver an accurate installation.

Looking for Engine Install Specialist

Re-powering a 32 Bayfield sailboat with 30hp Yanmar. Need new rails. Looking for engine install specialist to advise on new rails scarfed to hull. Call 513-236-1704. Will be working on her all day Wed.

---

## Specialists Requests

191011 Called LM

Portage River Marina  
204 Rose Ln, Port Clinton, OH 43452  
(419) 734-4783

Called 191011 Will pass the info along to estimators

Ship Shape Marine Services  
410 W Perry St, Port Clinton, OH 43452  
(419) 734-1554

191011 Called Spoke to Sect took number and will call when she thinks of someone

Catawba Moorings, Inc.  
2313 NE Catawba Rd, Port Clinton, OH 43452  
(419) 797-4775

191011 Called Dave LM

Lakeland Auto and Marine  
2305 E State Rd, Port Clinton, OH 43452  
(419) 734-1300

190925 sent form mail

Replied Hi Tom, Unfortunately, our service department does not work on Sailboats. Please let me know, if we can help with anything else. Thank you.

Have a wonderful day!

<https://www.marinemax.com/connect/contact-us>

191011 Called Jim, said they were tied up with winterization but check back in the spring

190925 sent form mail

<https://www.happydaysboating.com/>

Happy Days Boating

4151 Fremont Road

Port Clinton, Ohio

43452

419-732-2116

419-734-5339

191011 Kevin gave number of specialist, Johnathan 419-217-6513 called VM not set up

190925 sent email

<http://www.treasurecovemarina.net/>

904 S.E. Catawba Road, Port Clinton, Ohio 43452

[bethann@treasurecovemarina.net](mailto:bethann@treasurecovemarina.net)

419-797-1111

419-341-0700

419-266-2243

191011 disconnected

No email or web site

CATAWBA MARINE REPAIR

4789 School House Road

Port Clinton, OH 43452

419-797-4373

191011 Justin answered, sent to service got message LM

190925 sent form mail

<https://www.pier53marine.com/contact-us/>

Pier 53 Marine

2555 NE Catawba Rd

Port Clinton, Ohio

43452

(419) 797-2300

191011 Recommended Brand's, Do not do that kind of work

190925 sent email

<https://www.drawbridgemarina.com/>

Drawbridge Marina  
247 W Lakeshore Dr  
Port Clinton, OH 43452  
(419) 734-4422  
Steve Krynock  
John Schiewe

skrynock@drawbridgemarina.com

johns@drawbridgemarina.com

190925 sent email

Replied You might try brands marina in port Clinton.

<http://www.mikesdockside.com/>

419-734-5951, Service, Parts and Outboards... [rory@mikesdockside.com](mailto:rory@mikesdockside.com)

<https://www.facebook.com/groups/TheTalkofPortClinton/>

190924 joined 22,000 The Talk of Port Clinton (uncensored)

<https://www.facebook.com/groups/1484179425156876/>

190925 requested 2,000 The Talk of Port Clinton {uncensored} II

<https://www.facebook.com/groups/talkofportclinton/>

190925 requested 10,000 The Talk of Port Clinton (Original)

<https://www.facebook.com/blazerwes/>

Weatherly Boat Works, (386) 416-9034 **does not do engines**. Suggested

190923 spoke to sect, man at Herl's Wed may get him to come over

\$150 1st hr, \$30 every 15 minutes after that

<https://greatlakesdieselmachine.com/>

Great Lakes Diesel 505 River Rd, Huron, OH 44839

(419) 433-9898

Will call Tuesday about Wed meeting

191011 Called

190923 Kevin called booked solid for 2 weeks

Coastal Marine II, Treasure Cove

537 W Lakeshore Dr, Port Clinton, OH 43452

419-732-2150

<http://coastalmarine.com/>

Gave lead to Bruce Jones fiberglass

190922 Called spoke to Bruce call him Tuesday when we arrive

190925 Stopped by and gave great advice

Bruce Jones Boat Repair

Boat repair shop in the Ottawa County, Ohio

4829 E Muggy Rd, Port Clinton, OH 43452

(419) 656-0360

<https://www.dubbertsoutdrive.com/>

190924 called said they do bigger engines

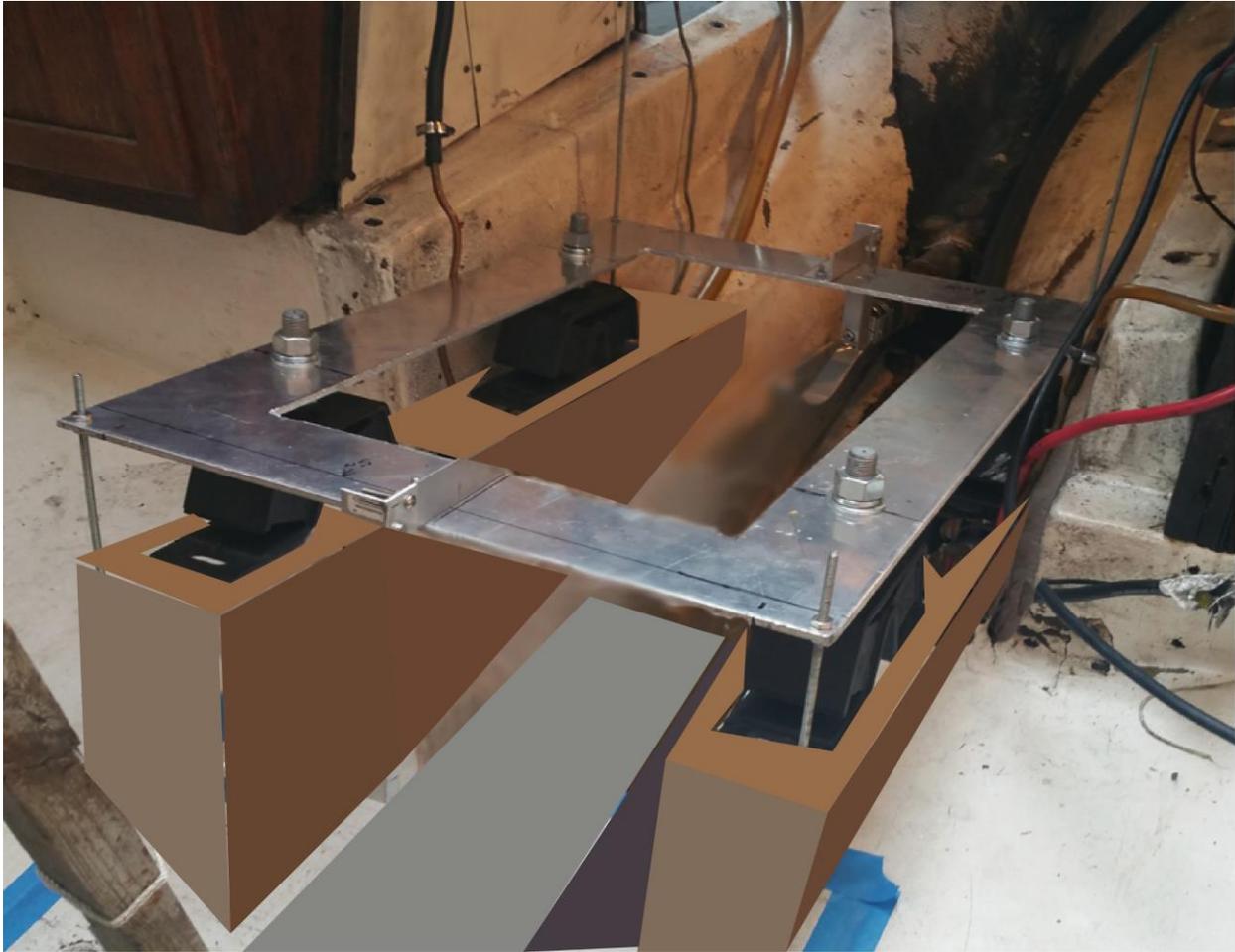
Dubberts Company

2344 East Harbor Rd

Port Clinton, OH 43452

2344 E Harbor Rd, Port Clinton, OH 43452

419-732-1777



More and more it looks like we will be building fiberglass enclosed wood along the curvature sides of the keel for engine mounts.



<https://vivasanpatricio.wordpress.com/tag/modifying-engine-beds/>

Engine bed mods ready for fiberglass cloth and resin



<https://marinehowto.com/contact-2/>

PAID CONSULT – No matter how simple the question, we can no longer afford to answer any direct one-on-one questions for free. A consult that takes less than 10 minutes is billed at \$20.00. A consult more than 10 minutes, but less than 30 minutes, is billed at \$45.00. A consult longer than 30 minutes is billed at \$75.00, then billed in 15 minute increments once beyond the first hour. The hourly consult rate is \$75.00. Minimum charge for electrical drawings/schematics, up to two hours, is \$200.00. Starting at hour two custom drawings are then billed at \$75.00 an hour. awings/schematics, up to two hours, is \$200.00. Starting at hour two custom drawings are then billed at \$75.00 an hour.



Slowly moving engine aft.

Re-power with a 3YM30AE KM2P-1 Ratio 2.62:1

Hull number ZBY320380376

Boat Name was Selah out of Port Dover CA, YW# 75589-2793700, 1976, New engine 350lbs; 14"x 14' x 3.5" prop; 1-1/4" shaft; Installed in Clio 32B Bayfield sailboat, Disp. 9,600 lbs

Was 25 HP, Farymann, 400 lb., Diesel, Direct Hydraulic Drive, Sundstrand Sauer Hydraulic Pump and Drive

Old rails will be adapted using  $\frac{5}{8}$ " stainless steel angle or press broken bends. Gussets welded where possible.

Thank you,

Michel L. Bayfield 32C Repower

Yanmar 3YM30

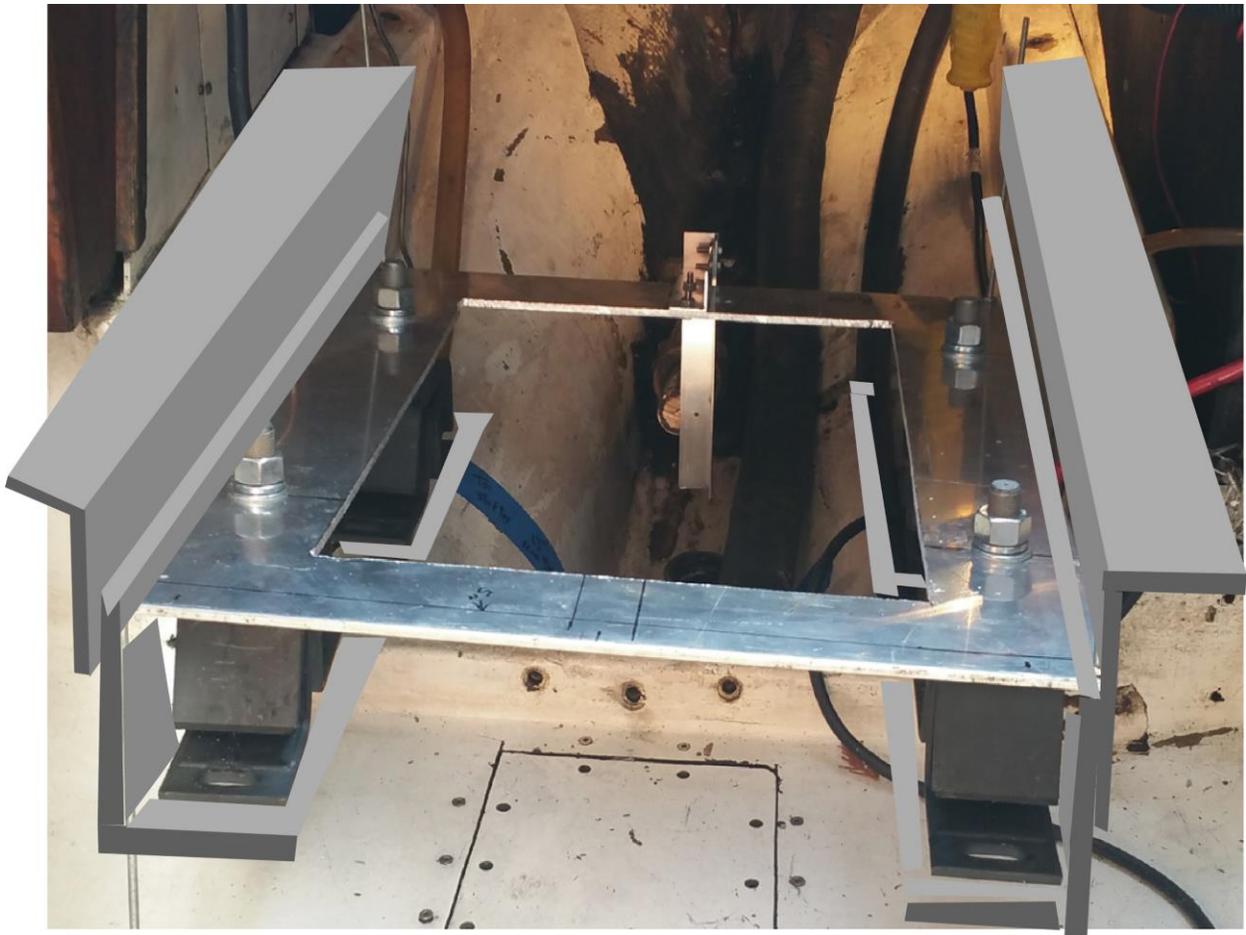
Gear Ratio: 2.62

14" 14 Pitch Prop, 3 Blade

for giving an example.

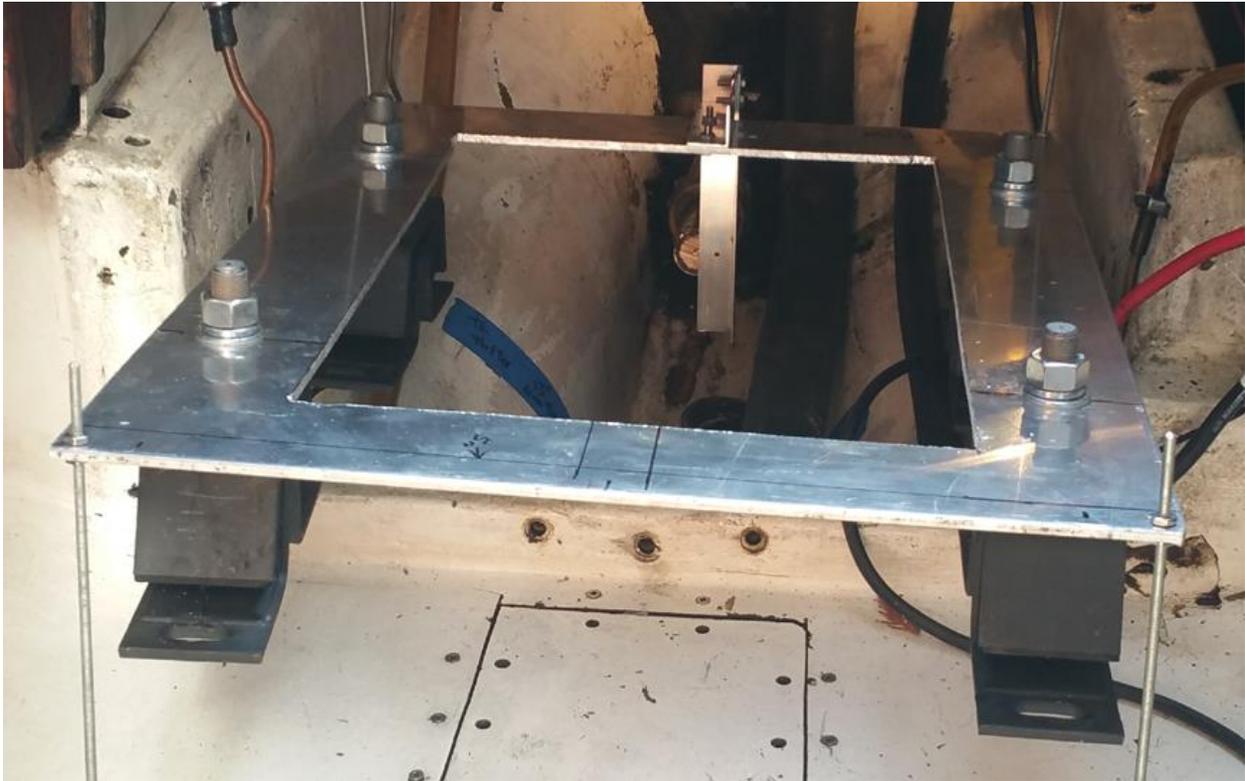
His rails were a little more in line with the new rails. You can see our old rails are quite high.

Maybe we get in the water by June 2020. Spent the year on the hard in Port Clinton, OH.



Double up aluminum angles are going pinch the space, making for better transfer.





190913

Jig displays placement of new rails. Shafts runs 2.5 " under jig.

Questions for Yanmar

Can you look at the drawings for the engine you shipped us? Confirming the mounts shipped compress 4.5mm?

1 I lifted the engine off the mounts. Placed aluminum sheet on top of the mounting bolts, traced around them and drilled them so the plate sat cleanly on top.

Why is the diagonal from the bolt heads different?

1a. Making jig to be centered in the 27-42 adjustable mounting bolts. Is this okay?

2. What part # is a 1-¼" tapered shaft flange for 30hp?

3. Is back and front distance down from mounts to center of drive shaft the same?

4. Is the distance from the center of the engine flange to the mounting bolts the same?

The distance from the bottom of the jig and engine flanges to the center line of the engine flange is 75mm

5. The oblong holes on the mounts are in the front . Can you switch them to the rear?

6. What is the space between the stern tube and stuffing box.

Can you. U

David Fuerstenberg, head mechanic

Brian O'Neal  
General Manager  
[brian@brandsmarina.com](mailto:brian@brandsmarina.com)  
(419)734-4212

David Filliater [david@brandsmarina.com](mailto:david@brandsmarina.com)

#### Things to Check

- 1.
2. Check clearance of engine against old rail walls.  
55mm needed on starboard side.
3. Adjust the 75mm down from mounts to distance change centering engine flanges on mount bolts

Mike's dockside service  
419-734-5951  
Clayton  
Al sent me  
5530 E Harbor Rd, Lakeside Marblehead, OH 43440

190913 called LM  
Rob Morley  
Riverfront Yacht Sales and Service  
1890 Carter Road Cleveland OHuh  
216-861-7393

290913 Spoke to, verified matching engine not drawings  
Mike  
W.W. Williams - Cleveland  
1176 Industrial Parkway Brunswick OH  
800-321-0459

Get fuel hose at  
Vita-Plate Battery Inc  
Rec by Dave Goff  
304 Buckeye Blvd, Port Clinton, OH 43452  
419-732-3181

Met Dave Goff of ship shape marine at boat. He is expert in gel coat repair.

419-307-7319

Use 3M 52000 to caulk stringer, make sure the wood is not rotten.

## Stuffing box

190920

Emailed <https://www.generalpropeller.com>

<https://www.go2marine.com>

<https://www.fisherliessupply.com>

Stuffing box hose

1-7/8" keeping ring outside diameter on stuffing box

1-3/4" outside of stuffing box after keeping ring

Stern tube outside inside boat is 1-3/4"

Looking for rubber stuffing box hose that will fit these specs.

Thank you.

1-7/8" keeping ring outside diameter

1-5/8" inside stern tube inside the boat

Stern tube outside inside boat is 1-3/4"

Aluminum Source

Shuman aluminum bone yard, recommended by Stewart.

The inside of the stern tube is 1-5/8" from inside the boat.

The outside strut bearing inside is 1-11/16"

Attempting to move engine back as far as possible. As is now, with first fit, forward engine mounts are on top of fuel tank locker cover.

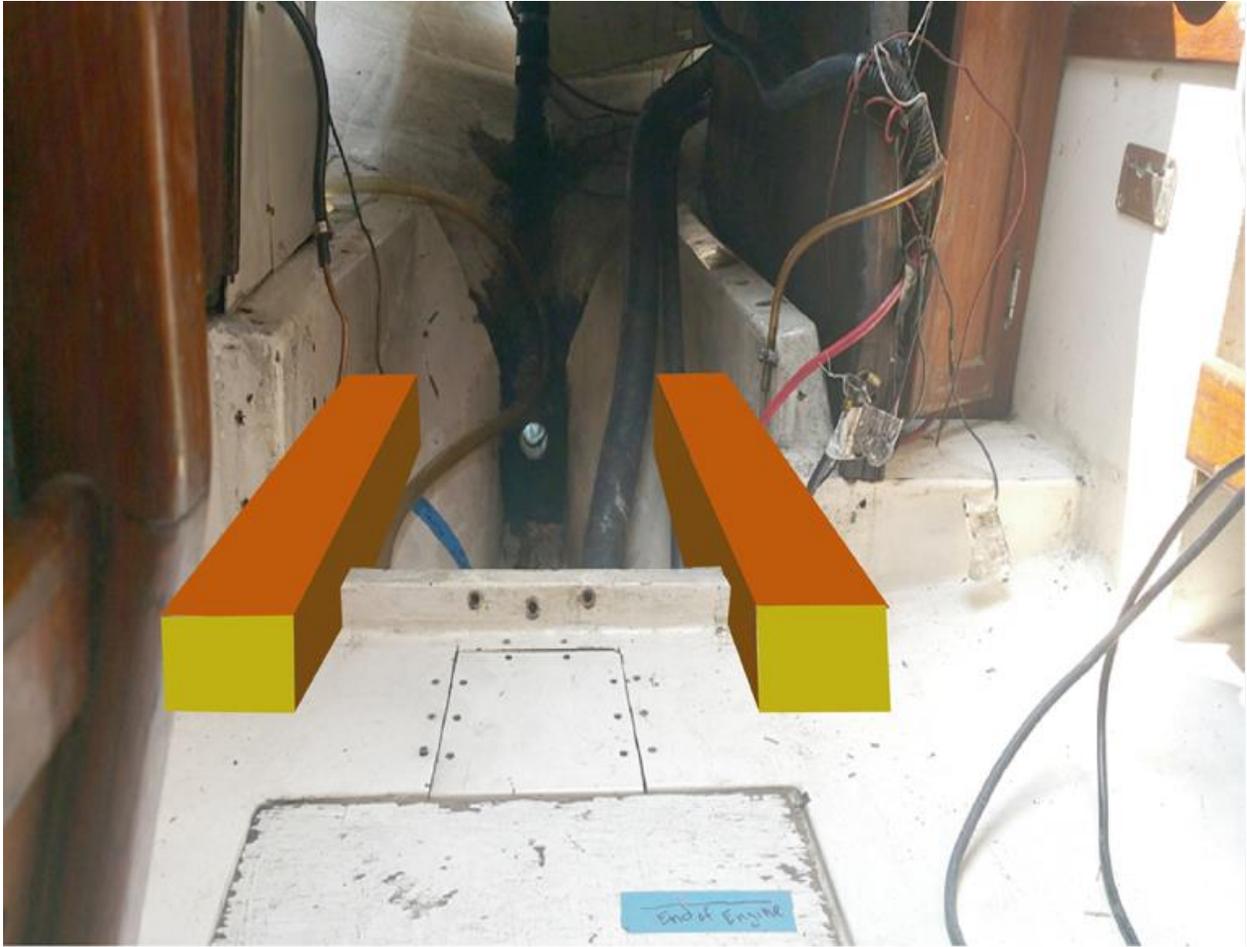


Engine hoisted to cockpit for safe keeping. Better than leaving along side the boat. May take weeks to get installed. Chuck Lohre, the third crew member on long voyages is helping with the re-power.

Spent long time removing fuel intake hose. Best time to replace is now. The large intake fuel hose and large whale pump hose will flank stern tube and stuffing box as one goes to the bilge and the other goes to the fuel tank.



Stern tube installed, though loose by .001. Will have to be installed with a filler. Red or blue locktight, maybe silicone or epoxy. Bronze sleeve of strut bearing will be dimpled at the point where the holding bolt meets the bearing on both sides of the hull. The bronze bolt and bronze bearing meeting in a cone. The bronze 5/16" bolt will be held in place with a garboard plug base. The plug will be epoxied in place and a 5/16 tapped in it's center for the bolt. A nut will lock the bolt at the base of the garboard plug.



Wood Mounts



From Messenger: Michel Laccasse This is his installation. [michel.laccasse@cgocable.ca](mailto:michel.laccasse@cgocable.ca)

Spoke to

[https://www.mniboats.com/strut-bearing-1-1-8-in-id-x-1-1-2-in-od-x-3-lon-p/4074.htm?gclid=CjwKCAjw8NfrBRA7EiwAfiVJpcDNMgJaQOEe8EwjTjRzs6-Ew0nJKetgdXmosxz37lcWtX8siygC8RoC3i8QAvD\\_BwE](https://www.mniboats.com/strut-bearing-1-1-8-in-id-x-1-1-2-in-od-x-3-lon-p/4074.htm?gclid=CjwKCAjw8NfrBRA7EiwAfiVJpcDNMgJaQOEe8EwjTjRzs6-Ew0nJKetgdXmosxz37lcWtX8siygC8RoC3i8QAvD_BwE)

He said using a garboard plug to hold the bolt against the strut bearing was a good idea.

---

Thank you for a first class forum. I have been researching rail extensions and see you have the same issues we have:

From Anarchy

<http://forums.sailinganarchy.com/index.php?/topic/210449-boat-buying-advice-boats-that-need-a-repower-boats-that-have-been-recently-repowered/&tab=comments#comment-6705025>  
#3

New mounts

What did you make them out of? Can you send me an image?

thoslohre49@gmail.com

The extensions I am working up cover the length of the old rail 23" and go into the cabin 7".

Yanmar suggested aluminum with as many gaskets as possible. Another marine engineer suggest bolting two extruded angle irons to make up the new mount. In my case the angle iron would have to be 3" x 3".

I like the angle iron idea. Gaskets could be welded where they can but the integrity of angle iron is pretty solid.

Thank you for your kind attention,

Tom Lohre

---

190910 from Razor

Hi Tom, I should have pics next week, late. We start work (or the mechanic does) Monday. He mentioned very heavy angle aluminum across the existing rails, said he's been doing similar for a couple decades now. I'm a bit lucky I guess in that the engine will easily fit inside the existing box and rails.

Tom's reply

Wow, this is perfect. Since my engine will stick out into the cabin, part of it being free from being supported below I may build up the cabin floor to add support to the new rails.

I hope you do not mind keeping me informed. I do not have a specialist to rely on, just many engineers that have boats and are willing to listen. The yard wanted to put the engine in and since we want to do it our selves they do not want to advise. The Yanmar dealer in New Jersey where the engine came from is trying to help but so far I have not connected with sympathetic install specialists.

I think very heavy angle aluminum is the trick. We can add welded gaskets but the corners will be solid extruded.

190904 Sent to Raz'd

Thank you for a first class forum. I have been researching rail extensions and see you have the same issues we have:

From Anarchy

<http://forums.sailinganarchy.com/index.php?/topic/210449-boat-buying-advice-boats-that-need-a-repower-boats-that-have-been-recently-repowered/&tab=comments#comment-6705025>  
#4

"The new engine has narrower mounts than the old, so the rails are fine, we just need to build extensions."

What did you make them out of? Can you send me an image?

thoslohre49@gmail.com

The extensions I am working up cover the length of the old rail 23" and go into the cabin 7".

Yanmar suggested aluminum with as many gaskets as possible. Another marine engineer suggest bolting two extruded angle irons to make up the new mount. In my case the angle iron would have to be 3" x 3".

I like the angle iron idea. Gaskets could be welded where they can but the integrity of angle iron is pretty solid.

Thank you for your kind attention,

Tom Lohre

---

From Anarchy

<http://forums.sailinganarchy.com/index.php?/topic/210449-boat-buying-advice-boats-that-need-a-repower-boats-that-have-been-recently-repowered/&tab=comments#comment-6705025>

#3

Repowered a 41 a few years ago -- engine was a 25 yo Yanmar diesel 30. The overall cost was around 20k -- about 10k for the new engine, 10k (believe it or not) for the new prop, shaft, drop rudder to install shaft, new motor mount, exhaust, new controls, instruments, even mods to the engine box as the new engine was slightly different. Also needed a custom welded SS exhaust loop. New engine was quieter and nice. Was a shaft and strut not sail drive installation.

Bayshore in Annapolis did the work at Jabins. There were some yard charges (crane in and out). It was kind of messy and they did a nice job.

I'd be reluctant to buy an engine that was over 20 years old in an otherwise top dollar program.

#4

"The new engine has narrower mounts than the old, so the rails are fine, we just need to build extensions"

#6

A good estimate for a repower is 50% engine and parts and 50% instal. So a 15k new crate engine and transmission will cost in the neighborhood of 30k out the door. I would only factor repower when boat shopping as something that could be negotiated with a purchase. IE you find the perfect boat and the auxiliary is the only hang up but they will drop asking to cover repower cost. There are lots of hidden costs and logistics and vender myopia outside of a full service yard. Wrench Turner's don't worry about how much cranes cost or moorage is etc

---

From Cruisers

### **How To Engine Alignment**

#18

If you have a shop and lots of tools, you could go through all the steps and make a jig and look top notch whilst doing the job. Or you could set the engine in with the probable mounts and check the hight on the out put shaft to the prop shaft. adjust up with shims if needed...up to half inch. if you need more then make stringer higher...remembering that a metal backing will need to be accessible inside the stringer...ie...add one if needed. the same applies if you need to lower the stringer. be reminded that you can get different **mounting** brackets for the engine to change width and hight of tabs that sit on motor mounts. Once the shafts are with in a 1/4 inch or so up and down you can adjust the rest ...up and down and side to side with the motor mounts. mark the bolt holes when aligned and slide the engine to make room to drill and tap the **mounting** holes into the stringer.

<http://www.cruisersforum.com/forums/f54/how-to-engine-alignment-149617-2.html>

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### **After market engine mounts and polymer mounts**

#23

Hi Guys,

Can anyone help with some advice. The attached drawing is of my engine. I had a devil of a job aligning my engine yesterday.

Would it help if I changed the footings around such as in the drawing? you will notice that each foot has a hole and a slot for side ways motion. At the moment each slot is in the forward position. Is this how it should be or should I have say the rear ones with the slots at the rear instead?

<http://www.cruisersforum.com/forums/f54/after-market-engine-mounts-and-polymer-mounts-139829-2.html>

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#### **Yanmar Engine Mounts**

#13

I recently had work done on my 4JHTE and the motor mounts will need to be changed soon. The mechanic stated that all 4 of the mounts ARE NOT the same size (port vs starboard). The reason he said was because of the torque of the engine displacing more force to one side than the other. Is this reasoning correct?

<http://www.cruisersforum.com/forums/f54/yanmar-engine-mounts-39898.html>

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#### **Engine/Shaft Alignment Tool???**

#4

Engine alignment tool I'm a Yanmar dealer I have never heard nor seen such a thing. Yanmar did make a engine installation tool. It is a tool that used by the builder or engine installer to bed the engine in the boat. It is not sold with the engine it can be bought through a Yanmar dealer. Yanmar makes soft engine engine mounts that settle after run in. Disconnect the shaft from the marine gearthen adjust mount nuts till the shaft coupling and the gear coupling are within .005 all the way around the coupling lock everything down and bolt the shaft coupling back together and your done... Good Luck

<http://www.cruisersforum.com/forums/f54/engine-shaft-alignment-tool-91978.html>

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#### **Engine Alignment**

I've done two alignments - small Yanmar and large John Deere.

Both worked out well, though I'm not sure how much was due to good luck.

It must, of course, be done in the water.

The more time you spend preparing the better. In particular measure, measure, measure, then check your measurements and measure again.

<http://www.cruisersforum.com/forums/f54/engine-alignment-73562.html>

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#### **Engine Mount Installation (replied to)**

#2

When I installed my new engine I bolted the mounts to heavy angle bars on the longitudinal stringers that ran parallel to the engine at the same angle as the engine/shaft about 3.75%...this puts the **mounting** plates on the engine in the same plane as well. this is the only way I have ever seen these done.

<http://www.cruisersforum.com/forums/f54/engine-mount-installation-29102.html>

My reply:

Images of the engine space, jig and rail extensions. Making them out of aluminum, 3/16" for the jig, 3/8" for rail extensions.

About half the engine sticks out into the cabin and the rail extensions (that are being made with 3/8" aluminum with as many gussets as possible) attach to the complete length of the original rail 23" and then goes into the cabin 7"

An old mariner suggested using angle iron to reconfigure the old rails into the new rails. A Yanmar install specialist recommended making the "L" bracket out of aluminum for salt water. I am waiting for him to approve my drawing. "Just use as many gussets as you can." he said.

Any ideas?

This is my first install so be easy.

<http://www.cruisersforum.com/forums/showthread.php?p=2963536#post2963536>

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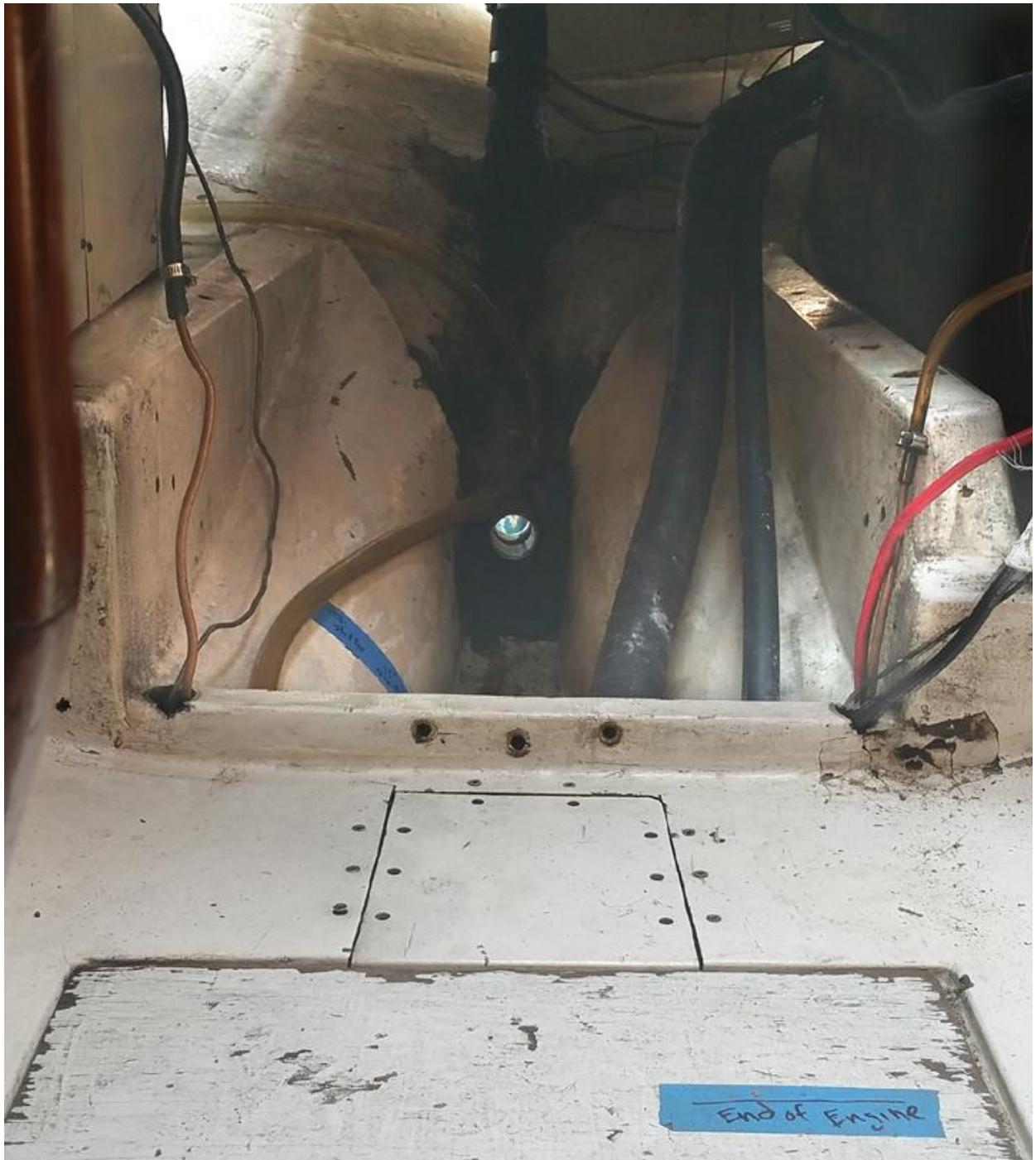
**Engine room insulation?**

**#2**

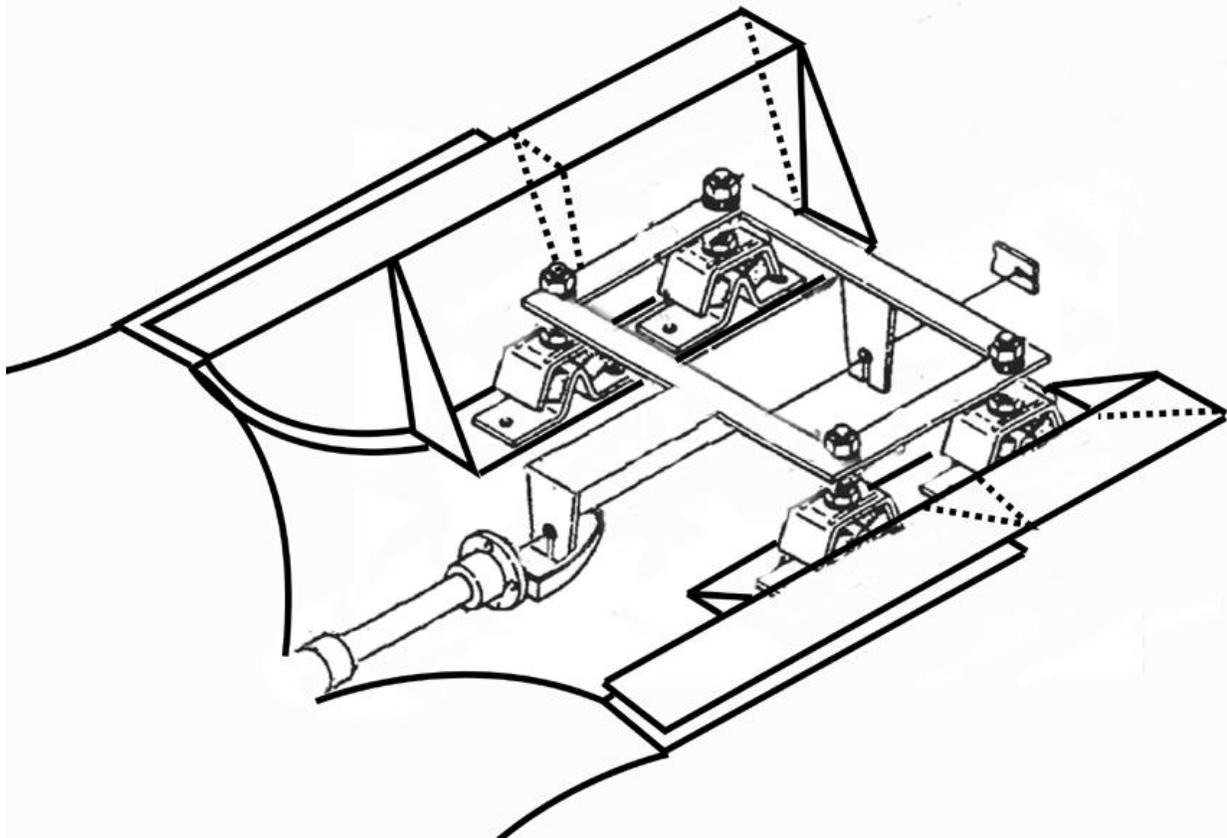
**I used the 1" vinyl/foam for my 50 HP diesel. Does a good job!**

<http://www.cruisersforum.com/forums/f54/engine-room-insulation-1427.html>

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Re-power

Hull number ZBY320380376

Boat Name was SELAH, YW# 75589-2793700, 1976

with a 3YM30AE with KM2P-1 Ratio 2.62:1.

3YM30AE Yanmar, 350lbs; 14"x 14' x 3.5" prop; 1-1/4" shaft; Installed in Clio 32B Bayfield sailboat, Disp. 9,600 lbs

Was 25 HP, Farymann, Inboard, Diesel, Direct Hydraulic Drive

Old rails will be adapted using 5/8" stainless steel angle or press broken bends with gussets welded.

Thank you,

Michel Lacasse Bayfield 32C Repower

Yanmar 3YM30

Gear Ratio: 2.62

14" 14 Pitch Prop, 3 Blade

For giving an example.

His rails were a little more in line with the new rails.

Images of the engine space, jig and rail extensions. Making them out of aluminum, 3/16" for the jig, 3/8" for rail extensions.

About half the engine sticks out into the cabin and the rail extensions (that are being made with 3/8" aluminum with as many gussets as possible) attach to the complete length of the original rail 23" and then goes into the cabin 7"

Hope to get at least 1/4" to 1/8" circular alignment with the jig. What is the adjustment range in the Yanmar mounts?

3YM30AE Install in Clio 32' Bayfield sailboat

Dear Tom,

Please advise us on this install.

Attached are images of the engine space, jig and rail extensions. Making them out of aluminum, 3/16" for the jig, 3/8" for rail extensions.

About half the engine sticks out into the cabin and the rail extensions (that are being made with 3/8" aluminum with as many gussets as possible) attach to the complete length of the original rail 23" and then goes into the cabin 7"

Hope to get at least 1/4" to 1/8" circular alignment with the jig. What is the adjustment range in the Yanmar mounts?

14" distance between Yanmar engine mounts lengthwise

Aug 23 replied with text

Sent Mon, Aug 19, 2019 from [thoslohre49@gmail.com](mailto:thoslohre49@gmail.com) in new email / no reply

Sent Wed, Aug 21, 2019 from [thoslohre49@gmail.com](mailto:thoslohre49@gmail.com) in reply to Tom Motta's email / no reply

Sent Thurs, Aug 22, 2019 from [tom@tomlohre.com](mailto:tom@tomlohre.com)

Received text Fri, Aug 23, 2019 he's on the road for the next two weeks. Replied we were getting back to the yard in September.

Tom Motta 910-632-4216 [Tmotta@mackboring.com](mailto:Tmotta@mackboring.com)

Mack Boring & Parts Company

245 Belmont Dr, Somerset, NJ 08873  
(908) 964-0700

Hope to get at least  $\frac{1}{4}$ " to  $\frac{1}{8}$ " circular alignment with the jig. What is the adjustment range in the Yanmar mounts?

I am making a wire mesh dummy of the engine that will attached to the jig to confirm the engine does not interfere with the rail extension.











## Engine re-power

Re-power from a hydraulic pump. The new engine is 3YM30AE with KM2P 2.62:1. The rail distance on the new engine is 8" shorter. My challenge is to make rail extensions. Making a 1/4" wood dummy for the machine shop to follow. Would you bend 1/4" plate?

Also the jig will be at the bottom of the mounts instead of at the top as it shows in the Yanmar installation manual image. I will not put the mounts on the jig. The jig will be made out of 1/8" aluminum. The flaps for the center-line will go up instead of down.

3YM30AE with KM2P 2.62:1

Prop: 14" diameter 14 pitch, 3 blades

This is new repower with a new configuration. The old engine was drove a hydraulic pump and drive. The prop information is from another repower with the same engine and gear ratio.

Boat: Bayfield 32' monohull sailboat 1976  
Displacement 9600 lbs.

Engine: Diesel Yanmar 3YM30AE with KM2P 2.62:1 Clockwise from stern

Wide open throttle RPM/Speed: 3500rpm

Prop from another install in the same boat with the same engine: 14" diameter 14 pitch, 3 blades  
Shaft is probably 1-1/4" where I was measuring close to where it entered the boat maybe be the beginning of taper.

<http://www.cruisersforum.com/forums/f54/how-to-remove-and-replace-your-sailboat-engine-184729.html>

Here are some tips and lessons I learned from removing and reinstalling my Universal 5424, O-Day 34, which I recently finished. Putting this out as a sort-of checklist to hopefully help someone else considering it.

- Before you do anything, take lots of pictures – and video too. If you think one picture of a particular view is enough, take 10 slightly different ones, with good light. Videos are good too because they show things you don't necessarily see in the pictures. If you think you will remember where something goes, you're wrong.
- Buy a chain hoist. They're not that expensive. It's worth it if you only use it for one engine change. Get a one-ton for most small engines, consider a two-ton for the bigger ones to have a margin of safety (the Chinese tend to overstate the ratings). A come-along will work, but not well. A block and tackle will work, but not well. A chain hoist is safe, easily reversible, and handy. I would even consider taking one with me on extended trips (just in case).
- Drain the fluids as much as you can.
- As you disconnect and remove, label everything. If a wire disconnects from a terminal somewhere, use tape and mark the wire and what it came off of. Take pictures of the label on the engine part (in context) before you send the engine off or do the overhaul yourself because that label will disappear.
- As you remove hardware, place everything in marked baggies, or jars, or boxes, or something. Those little plastic tubs lunchmeat comes in work great. Start hoarding them 6 months prior. Again, if you think you will remember where something goes, you're wrong.
- Build a compact cradle out of wood to fasten your engine to as soon as you remove it from the boat mounting rails. This will make your job safer and easier and help protect your boat.
- Measure the height of each of your engine mounts and mark them down somewhere. Draw an outline of where the mounts are. This is so you can get them back pretty close to where they were to minimize your efforts for re-alignment.
- Bring your boat right up next to the dock and tie it off. Tie a rope from a piling DOWN to the boat deck to keep the boat from rolling as the weight of the engine is swung over to the dock.
- Run your main halyard to the boom at a point above the companionway (CW) and wrap it around several times to tie it off. Use a good-quality webbing strap (rated at least double the weight of your engine) and wrap it around your boom several times right above the CW closest to the engine. Hang your chain hoist from this strap. Raise your boom to a height

above the CW entrance floor equal to the height of the engine (in the cradle) plus your engine strap/chain, plus the distance the hoist and hang strap take up when the hoist is at the fully raised position, plus a foot (it will sag).

- Leave the engine mounts on the engine and remove the hardware holding the mounts to the rails. This will facilitate sliding the engine forward and allow you to fasten the mounts to the cradle you built. In my case the front bolts were built into the mounting rail (a single front and center mount) but I was able to lift the front of the engine up so that the mount cleared the bolts.

- Connect your hoist to your engine and start hoisting. This will pull it forward along the mounting rails. Rest the front of the engine on your wooden cradle or another piece of wood with the back mounts still on the front of the rails. This will allow you to shift your hang strap on the boom a little more forward. You will want the hoist at a spot where you have to pull the engine forward a little to clear the CW, and then back a little to get it through the CW. Hoist the engine completely out of the bay, and set it in your cradle on the floor of the boat.

- If you haven't already done so, remove the transmission at this point. You should be able to raise the engine up and swing it around so the transmission is to the front, making it easier to remove. It will make clearing the CW much easier. I couldn't get mine off (severely corroded bolt) and I was still able to get it out that way – I just had the neighbor come over and pull on a rope to clear the CW, although I really could have done it without him.

- Hoist the engine. NEVER get underneath it. Pull it forward to clear the CW, and once above the deck, change your position to the deck. Then pull the engine back as you lower to rest the engine/cradle on the deck, just outside the CW (part of the engine can still protrude into the CW – just make sure it's not going to fall back in. I used a hardy rope to tie it off just in case). You also may need to re-inforce your deck with some sturdy lumber if you think your deck can't take the weight. Chances are it will. Another option is to place some sturdy lumber across the seats to rest the engine on, but make sure you take this extra height into consideration.

- Let your hoist out and raise the boom some more. The purpose of this is because your hoist travel distance may not have been enough to bring the engine all the way from the cabin floor to a height that will clear the sides of the boat. If your hoist is long enough, just have the boom at a height to begin with that will give you the necessary clearance.

- Measure from your mast to the spot on your dock where you need to set the engine. Hopefully it's close to the distance from the mast to where your engine is sitting in the CW. It may be a little more. Shift your hang strap back on the boom to the necessary spot you just measured. If it's a big distance back, shift your halyard back too.

- Make sure your mainsheet is let out enough that the boom will swing as far over as needed. You may need to release it from its shackle.

- Hoist the engine again and carefully swing it out over the dock. If you have others around and haven't tied your boat well, have them counterbalance the weight on the other side of the boat.

- Congratulations, it's not that hard to do!

#### REINSTALLING

- For getting the engine back in the boat, pretty much all of the above, in reverse.

Additionally:

- Buy new engine mounts if your old ones were corroded. The rubber goes bad too.

- Splurge a little and buy some stainless steel hardware to replace those rusted bolts. The next person to remove the engine or work on it will thank you (and it may well be you).

- Accomplish all those things not easily done with the engine installed – replace your fuel tubing, clean out the water separator, clean the engine bay, etc. Consider replacing your bearing box packing and hose, especially if you are on the hard. It's a whole lot easier without the engine there!

- Set your engine mounts to the height they were before you removed the engine (and the left and right should be pretty close to even). I installed a new and different transmission so had to add the additional drop to the height of the engine mounts (1 cm in my case).
- Find the center of your prop shaft travel by grabbing it and gently moving around in a circle. The ideal position for alignment is going to be pretty close to the center of that circle. Use pieces of wood to prop/wedge/clamp it into position. A woodworker's parallel clamp works well for this too.
- Once you have lowered the engine back on to the rails, it should slide back into position (with some persuasion) as you continue to lower the hoist.
- Reinstall the engine mounting bolts to the rails. Don't tighten just yet.
- Check the alignment of the shaft plates. They should be close to being parallel. If way off, adjust the up-and-down mounting nuts and slide the engine around to get them close. Once they look close to parallel, the next step is to get the two plates precisely aligned left and right, with the distance between the two equal at the 3 and 9 o'clock position. If the left and right edges are even, but there is more space on the left side than the right, then you have to shift the front of the engine to the left. Of course, you will still have to shift the back of the engine slightly too, because it will pivot about the aft engine mounts and throw the edges out of alignment. Do this repeatedly, until the edges of the plates are even, and the distance between the two plates at the 3 and 9 o'clock positions are exactly parallel (or at least pretty darn close - use feeler gauges or a dial caliper - I've heard .001" is the tolerance).
- Once the left/right alignment is good, snug down the engine mounting bolts. Now check the L/R alignment again. It will be off. When you tighten the bolts, it will mess up your alignment that you worked so painfully at getting just perfect. Repeat above process again (and again).
- Once the left and right alignment is good, AND the mounting bolts are tight, work on getting the up and down alignment. So, if the top and bottom edges are even, but there is a wider gap at the top, then you raise the front of the engine. Again, you will also have to raise the back mounting nuts a smaller amount than the front to keep the edges aligned. You can even calculate it out - a direct ratio. If the rear mounts are halfway between the front mount and the drive plates, then the distance you change the aft mounts is half the amount you change the front mount(s). Repeat and fine-tune until the space at the top and bottom of the plates are exactly equal. Plan on this whole alignment process taking a while unless you are really lucky or good.
- Cuss at the sailboat builders whose designs require you to crawl back into tight spaces on your side and repeatedly contort your body into uncomfortable positions to accomplish simple maintenance tasks on the engine. Ask God why he didn't bless you with a third arm. Be prepared to have a sore hip and shoulder for days. (The best design I ever saw was a Hunter 33 with an aft side cabin that allowed the engine to be completely exposed to be worked on).
- Now your plates should be perfectly aligned. Bolt together.
- The rest is easy.
- Re-connect all those wires you marked well.
- Reconnect fuel lines and bleed
- Re-install/replace hoses with new if it's been a while.
- Re-connect control cables. Take extra care to get shifter cable adjustment correctly so you get the full throw.
- Add oil/coolant/transmission fluid.
- Crank it up and go!

I did it all myself, so it's possible to do alone, and not really that difficult. Every boat owner should consider this - you become intimately familiar with your engine and its surroundings and will have a much better understanding of your systems and confidence that you can fix most anything if need be.

Repower

[http://www.goodoldboat.com/reader\\_services/articles/repower1.php](http://www.goodoldboat.com/reader_services/articles/repower1.php)

sept/oct 2002

[http://l-36.com/rebuild\\_joe.php](http://l-36.com/rebuild_joe.php)

<http://seamarineco.com/repowering-your-boat-or-yacht-10-things-you-should-know/>

Minderman Marine



Jayssbayfield32c

A55\_mk2

<https://www.facebook.com/michel.lacasse>

Lacasse.michel

Michel Lacasse Bayfield 32C Repower

Yanmar 3YM30

Gear Ratio: 2.62  
14" 14 Pitch Prop, 3 Blade

This is the template i made from the old motor , it was fine.it was very tight at the shifter arm .it needed a 25 inch drive shaft or a 1 inch Spacer and finally added 2 inches to the stairway. I removed the old from the boat with a chain fall tied to the boom and I had 2 halyards to back up the boom. All the way to the back of my van. Same way to put the new motor in. It was easy and no cost.

As told in july 2016, i used a 25 inches shaft which is 1 inch longer and about the same prince than à spacer. They calculated for the propeller and it was a 14r14 three pal.

I was very satisfied of the ratio.

This picture is all i have for the trans

It is very tight where the shifter fit in the bottom

Good Luck

Direinsme

It is direct, as it was.

Repowered with a Yanmar 3ym30 .

It was used, only 220 Hours.

Model: I cannot make out what the number is. Maybe you can get Yanmar to tell you from the Mfg. No. 25552

Gear Ratio: 2.62  
Oil SAE 20/30HD  
Mfg. No. 25552

As told in july 2016, I used a 25 inch shaft which is 1 inch longer.

They calculated for the propeller and it was a 14r14 three pal.

I was very satisfied of the ratio.

It is very tight where the shifter fits in the bottom

Good Luck

I changed from 2 qm15 to 3ym30.

30 hp is the best and I get the Hull speed .

After réflexion, I decided to install the new motor as it was .

I bought 4 new motor mounts from Torresen Online and did not used the Yanmar mounts.

Yanmar mounts are better but seemed to difficult to fit in the boat for me.

I hard to modify the motor brackets in a way to meet the mounts in the boat.

After it was 2 inches longer under the steps.

I added a new propeller 14 x 14 and shaft 1 inch longer and exhaust 2 inches all the way.

It shakes a little in idle, at 800 and 1100 rpm.

It is very narrow and tight in the back , somebody else might be able to do better ???

In fact I did what Yanmar recommend not to do.

Other Bayfield 32C

Lacasse.michel [https://www.facebook.com/michel.lacasse?ref=br\\_rs](https://www.facebook.com/michel.lacasse?ref=br_rs)

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Don's Bayfield Repower  
3GM30F-KH3P  
Gear Ratio: 2.01  
No# 21425  
Prop: '14 R 12'.

I have wondered about having the prop re-pitched to reduce the prop walk and to allow me to get the motor to run at its full 3500rpm. Right now I top out at about 3200 in forward. I get 3500 rpm in reverse.

---

Marcel & Colette Prince Bayfield 32  
Marcel's Original Bayfield Engine  
2QM15  
13-10 3-Blade Prop

<https://www.facebook.com/lovingseagull>

Colette & Marcel's Tricked out 32B

<https://youtu.be/PKIUdSMNEs>

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181215 Dear frayedsheet,  
I noticed in your post you had a 3YM30.  
We are using the same engine and was wondering what is your gear ratio and prop specs.  
What is your displacement and prop dia, pitch and diameter?

Bayfield 32' Repower  
3YM30AE with KM2P 2.62:1  
Displacement 9600 lbs.  
Prop from another install in the same boat with the same engine: 14" diameter 14 pitch, 3 blades  
Thank you,  
Click here for beer.  
Tom lohre's Sailing Page  
<http://tomlohre.com/sailing.htm>

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181216 Dear Copacabana,  
I noticed in your post you had a Yanmar 30hp  
We are re powering with the same engine and was wondering what your gear ratio and prop specs.  
What is your gear ratio, displacement, prop dia, pitch and diameter?

Bayfield 32'  
3YM30AE with KM2P 2.62:1  
Displacement 9600 lbs.  
Prop from another install in the same boat with the same engine used: 14" diameter 14 pitch, 3 blades

Thank you,  
Click here for beer.  
Tom Lohre's Sailing Page  
<http://tomlohre.com/sailing.htm>

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nospamformeSVP@gmail.com  
nospamformeSVP@yahoo.com

160821 It is Don

The 3GM30F was installed before we bought the boat - I do not know what was in there before the upgrade. I think it was done about 12 years ago.

The boat is in Iroquois, Ontario at the very eastern end of Lake Ontario about 70-80kms south of Ottawa. You are welcome to visit.

I will take some pics in the next few days and email them to you directly.

I will try my best to answer questions, but my knowledge of diesel engines is quite limited.

We do not use the engine much and when we do we are content with 4 knots and a quieter engine - we usually run it at about 2000 rpm. I know we should drive it harder and more often.

Don.

160812 emailed

We have a 3GM30F that was retrofitted to our 1976 B32, not a B32C.

It is a very tight fit height wise, they had to rout away the underside of the engine cover/companion way steps to make it fit. I imagine there was some swearing involved.

I do not have any photos to hand but I will try to take some soon.

The engine drives the boat well - I thought a 2GM would have been sufficient, but it is nice to have the extra few horses.

Don.

This is on a B32?

If so, then yes we have a crack in the same place.

I have looked underneath with one of those remote inspection cameras and concluded that it is not a structural problem. There is a reinforcing beam/rib athwartships at this point and the fibreglass pan flexes on each side of it. Over time this has cracked.

One day, when I get a round tuit, I intend to fashion a thin strip of teak to cover the crack.

Don.

Thank you for a great group. As we prepare this boat for ocean voyaging we will need all the advice we can get. I am especially interested in how to harden the rig while negotiating heavy weather with preventer, boom vang, poled out high cut yankee and maybe boomed staysail.

<https://groups.yahoo.com/neo/groups/bayfielddyachts/conversations/topics/21170>

This is on a B32?

If so, then yes we have a crack in the same place.

I have looked underneath with one of those remote inspection cameras and concluded that it is not a structural problem. There is a reinforcing beam/rib athwartships at this point and the fibreglass pan flexes on each side of it. Over time this has cracked.

One day, when I get a round tuit, I intend to fashion a thin strip of teak to cover the crack.

Don.

nospam forme May 19, 2016

It was my earlier thread.

Just a bit more info about what we found.

The quadrant is made out of cast bronze and the edges are an L shape. When we first looked at it the stop was hitting the leading edge, the lip, of the bottom of the L. We loosened the set screws on the aft end of the quadrant where it is attached to the rudder stock and dropped the quadrant down just a bit so that the stop hits the inside vertical edge of the quadrant instead of the lip. It is hard to explain, but should be obvious once you get up close and personal with the quadrant and the rudder stock.

The other problem we had was that steering cables were too short and to compensate the fitter used really long eyebolts and no thimbles in the cable ends. This arrangement also limited how far the quadrant could travel. We had new, longer cables made, cut the eyebolts down and used thimbles.

The net result of all of this is that we now have 3/4 turn in each direction, but we do get maybe another 1/8 turn more to port. This seems to be because the key way in the rudder stock is not cut exactly on the centre line. Nothing we can do about that, but I am happy with what we now have. Our B32 is a 1976.

---

181214 sent private message to  
Dear endoftheroad,

Bayfield 32 Repower  
3YM30AE with KM2P 2.62:1

This is new repower with a new configuration. The old engine was drove a hydraulic pump and drive. The prop information is from another repower with the same engine and gear ratio.

Our new specs:

Boat: Bayfield 32' monohull sailboat 1976  
Displacement 9600 lbs.  
Engine: Diesel Yanmar 3YM30AE with KM2P 2.62:1  
Wide open throttle RPM/Speed: 3500rpm  
Prop from another install in the same boat with the same engine: 14" diameter 14 pitch, 3 blades

I am writing to see if you know the displacement, length, gear ratio and prop specs. I am trying to verify the new specs.

Thank you for a great group.  
Tom Lohre  
513-236-1704  
Tom's Sailing Page

<http://tomlohre.com/sailing.htm>

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181214 sent to somaspack Yahoo Moderator

I love the images of your re-power. Keeping my fingers crossed it is a 32'.

The old engine was drove a hydraulic pump and drive.

Our new specs:

Boat: Bayfield 32' 1976  
Displacement 9600 lbs.  
Engine: Diesel Yanmar 3YM30AE with KM2P 2.62:1  
Wide open throttle RPM/Speed: 3500rpm  
Prop from another install in the same boat with the same engine: 14" diameter 14 pitch, 3 blades

I am trying to verify the new specs.  
Thank you for a great group.  
Tom Lohre

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Bayfield Images

<https://groups.yahoo.com/neo/groups/bayfielDYachts/photos/photostream>

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Sent to Brand's

Mike's dockside service  
Clayton  
Al sent me

180914 Sent to corporate

Does Yanmar have a jig for the 3JH40 - KM35A

That can be used to see if the engine can fit. Otherwise I'll have to make one to make sure the engine will fit in the space and make adjustments to the mounts. It weighs 430 pounds so I just can't move it around. What is the price for the 7° angle engine.

I get terrible service from my two dealers around western Lake Erie, Brand's especially. I need someone who is excited about buying an engine and willing to help make it a pleasurable experience.

Engine Compartment 19-1/2" inside, 20" top of rail to top, 25-1/2" edge to edge, 23" to packing from forward box,

Replacing our 1976 Hydraulic Pump and Drive in our 32 Bayfield but cannot find out what the gear ratio would be for hydraulic.

What was the next power system Bayfield used that was traditional engine, transmission and what is the gear ratio, prop size and pitch?

Thank you ahead of time.

Looking to put in a Yanmar 3YM30AE.

We would like to have a constant velocity joint between the shaft and transmission.

I see the length of the engine is 28". We may not have enough room to install this engine unless we build a new step cover. The space now from the prop shaft at the hull to the forward bulkhead where the step sits is 30". With the constant velocity joint and stuffing box the engine may stick out 10" into the cabin which is okay.

I cannot find the ratio for the hydraulic drive if there is one.

Old Specifications:

Engine 25 HP, Farymann, Inboard, Diesel, Direct Hydraulic Drive

Engine R 30, 20/24 Hp, Rpm 2500, Torque 38, No. of Cyl 2, Cubic capacity cm<sup>3</sup> 1160, cu in 72

Drive and Pump

Sundstrand Sauer 18 Series

Pump Disp.: 0-2.3 In<sup>3</sup>/REV.

Pump Input Speed: Up to 3900 RPM

Motor Disp.: 2.3 in<sup>3</sup>/REV

Motor Output Speed: 0-3900 RPM

Max. Operating Pressure: 3500 PSI

Charge Relief Setting: 100 PSI Min. @1800 RPM

Max. Continuous Inlet Vacuum: 5 in. Hg.

Max. Case Pressure: 25 PSI

Inlet Filtration: 25 Micron (Nominal)

Charge Pump Displacement: Optional at: .5, .7 or 1.04 IN<sup>3</sup>/REV

Boatowner's Mechanical & Electrical Manual: How to Maintain, Repair, and Improve Your Boat's Essential Systems

Calder, Nigel

Sold by: hippo\_books

\$5.91

Repairs at Sea (Seamanship Series)

Calder, Nigel

Sold by: ravenbooksonline

\$3.94

Marine Diesel Engines: Maintenance, Troubleshooting, and Repair

Calder, Nigel

Sold by: blowout books

\$3.99

## Props & Shafts

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Minderman Marine Port Clinton

Recommended by Brand's

Minderman Marine Products 129 Buckeye Blvd.; P.O. Box 269; Port Clinton, Ohio 43452

190505 spoke to Jeff Called back 6 weeks lead time

**Bronze 3 blade 14" dia, 14 pitch, 1-7/32" shaft, 2.75" hub length, right hand**

Week to make shaft.

Phone: (419) 732-2626

<https://www.mindermanmarine.com/>

190507 Called Jeff, returned call, no prop, 6 weeks deliver, sent e-mail  
[contactus@mindermanmarine.com](mailto:contactus@mindermanmarine.com)

190507 Dear Jeff,

We spoke yesterday and wanted to make sure we are connecting.  
3YM30AE with KM2P 2.62:1

This is new repower with a new configuration. The old engine drove a hydraulic pump and drive. The prop information is from another repower with the same engine and gear ratio and prop.

Boat: Bayfield 32' monohull sailboat 1976

Displacement 9600 lbs.

Engine: Diesel Yanmar 3YM30AE with KM2P 2.62:1 Clockwise from stern

Wide open throttle RPM/Speed: 3500rpm

Prop from another install in the same boat with the same engine: 14" diameter 14 pitch, 3 blades  
Shaft is probably 1-1/4" where I was measuring close to where it entered the boat maybe be the beginning of taper.

I have to remove the old engine, make a jig to determine the shaft length but the prop is set.

Confirm hub length **2.75"hub**

**See attached file.**

**Fitting a 14" prop is going to be tight to make sure 2.75" are free to remove the prop without removing the rudder. Zinc will have to be around the castle nut. Taper, key, and threads will have to be compacted.**

Maybe you can come to Brands to take a look once we have to shaft free.

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<https://www.deepblueyachtsupply.com/12-sailer3-3-blade-bronze>

3 week lead time

954-444-6259

190506 Called LM

Sent form mail for

<https://www.deltaprop.com/shopquestion.asp?id=2201>

Thinking of using this prop on a 32" Bayfield sailboat displacement 9600 with a Yanmar 3YM20\_KM2P1 or 3YM30AE\_KM2P1. What would the gear reduction for this prop be and what would the pitch be?

513-467-0601

sales@deltaprop.com

877-238-8214

190506 LM

190507 received

SAE US shaft sizes are 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2" .....

If you shaft is measuring 1 7/32" it may be a metric shaft not SAE US

Regards,  
Gary Liggett  
[www.deltaprop.com](http://www.deltaprop.com)  
(877)238-8214 Toll Free  
(513)467-0601 Local

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<https://www.miwheel.com/inboard-propellers/prop-it-now/>

Prop Puller

<https://www.deltaprop.com/shopdisplayproducts.asp?id=37&cat=Pullers+%26++Kits>

Prop Pick Program

<https://www.deepblueyachtsupply.com/michigan-djx-props>

181112 Submitted form mail

<https://www.deltaprop.com/shopquestion.asp?id=2201>

<https://www.deltaprop.com/boat-props/manufacture/michigan-wheel-sailboat-propellers/mw-sail-boat-propellers-3-blade-bronze.asp>

181112 sent form mail

<https://www.generalpropeller.com/inboard-propellers>

181112 sent form mail

<https://www.miwheel.com>

Michigan Wheel

1501 BUCHANAN AVE SW

GRAND RAPIDS, MI 49507

800.369.4335

**190506 Called Corp spoke to Lee 190506 Called 14" 14 hub length 2.75, three blade sailor  
Bronze 3 blade 14" dia, 14 pitch, 1" shaft, 2.75" hub length, \$722, delivery time 8 weeks  
Johnny propeller, Jason, 313-885-7446, Detroit, 2.75, 8 weeks, \$722**

<https://www.miwheel.com/inboard-propellers/prop-it-now/>

FAQ

<https://www.miwheel.com/resources/faq/inboard/#2.7533688>

Instructions

<https://www.miwheel.com/resources/downloads/>

## Repower Yanmar

Brian O'Neal, Operations Manager: [brian@brandsmarina.com](mailto:brian@brandsmarina.com)

Dave Filiater, Service Manager: [david@brandsmarina.com](mailto:david@brandsmarina.com)

451 W. Lakeshore Dr.

Port Clinton, Ohio 43452

dockage, storage, parts  
419-734-4212  
rack storage, fishing  
[drydock@brandsmarina.com](mailto:drydock@brandsmarina.com)  
419-734-9753

161111 Called Dave about engine code, no answer will get back next week. May be 3YM30AE

David Filiater <david@brandsmarina.com>

We are a Yanmar dealer, we do repowering, I have a full staff that can do it from start to finish. We can provide you with an estimate, We charge \$84.00 per hour for an estimate. The charge will come off of the job once you approve our estimate.

<http://www.cruisersforum.com/forums/f54/beta-38-or-yanmar-3jh5e-90137.html>

If your engine is running fine it is foolish, IMHO, to change it out. Diesel engines, properly maintained, will run for a very long time. If you are concerned then have a certified engine surveyor have a look at your engine and give you his expert opinion. Better I think to spend your time making sure the fuel tanks are clean, the fuel lines are in good shape and inspect and buy a spare fuel lift pump. Also clean the heat exchanger and inspect/clean/replace the mixing elbow. Change oil in engine and transmission and you should be good to go.

Edit: If you do change engines my choice would be the beta.

<https://staugustine.craigslist.org/bpd/5835087112.html>

**Yanmar Marine Engine 3GM30F - \$6500 (Green Cove Springs) Jacksonville**

**William (904) 284-7311 ext. 904**

**Called and spoke to boss, getting back about angle gear.**

like a new engine, providing many years of dependable service. Installation available and proper installation will be a condition of warranty. This is a 29HP Engine with many new accessories! Price is firm! If you need one, you had better hurry. This one won't last long!

Do not make a down angle gear, can angle the engine just have to mark the right height for the dip stick.

## Beta 38 Marine Engine

Beta Marine US Ltd.  
PO Box 5  
11702 Highway 306 S  
Minnesott Beach, NC 28510  
TEL: (252) 249-2473  
FAX: (252) 249-0049  
Toll Free: (877) 227 2473  
Satellite Location: (800) 682 8003  
Stanley Feigenbaum  
Farron Pepper

