
Diagnosing Yanmar warning horn failure

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M

mbsl98 Discussion starter

113 posts · Joined 2010

#1 · Jul 26, 2012

I have a 3GMD with low hours, and all new Yanmar engine wiring harnesses, new tach & new Type B panel installed within past year as preventive maintenance after 25 years. I reused the horn, key switch, check switch and start button. This past weekend, when I turned the key to ON, there were no warning horns. Normal is for the warning horn to start immediately, and go off as soon as the engine fires. The engine then fired perfectly, seemed to run fine with no hints of poor charging, low oil or overheating. When I shut the engine down, after crossing my fingers and running it for a while, the horn stuttered a couple of times and then came on constant until I turned the key to OFF, just as normal except for the brief stutter before horn on constantly. After sitting a little while, I tried starting again, and the routine was just as the first time above - no horn at all when ON, or until after shutting the engine off, when it stuttered and came on full again. For clarification, this panel has three alarms: water temp, oil pressure and charging. Only the charging and oil pressure should trigger alarms when first starting, and both should start instantly when key is turned ON.

I did a brief check of all wires to see if anything appeared loose, found nothing. All grounds, etc. were renewed when I replaced the 3 wire harnesses. From the wiring diagram, the only common element seems to be where the positive power runs from the key switch to the horn (buzzer) on the panel. Each of the separate warnings is separately wired (positive and ground) after that. My initial sense is that the actual horn (buzzer in diagram) may be failing, but I'd be interested to hear if this seems to be a familiar problem to anyone, or any hints to further diagnose on my next trip. An alternative common point is the key switch, but the same switch contact that has the wire to horn also has a wire to

alternator that works perfectly.

Thanks in advance

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#2 · Jul 26, 2012

I'd check the voltage at the horn. If that checks out, bypass the switch to see if it comes on without stuttering. It may be that when you start the engine the starter is drawing so much current the horn does not sound. That could be as simply as dirty terminals or connections.

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That's a good idea about bypassing the switch. It's not related to starter draw because it should sound off as soon as the key is turned to on, before you press the start button to engage the starter. Now, no horn at all until after it starts, runs and gets shut down by pulling the fuel stop. Then the stutter followed by the steady horn until you turn the key to off.

When you shut down the motor, before turning off the key, the horn stutters once or twice, then comes on steady. This suggests that it is receiving a signal from the oil pressure sender (and not from the alternator) and the stutter is just as the pressure is dropping, then constant as the pressure gets lower. That would mean the offending sensor would be alternator, but only if it did it on start as well as on stop. With no horn at all on start, it seems to be something more common to both alternator and oil pressure, thus focus on the key or the horn itself??

Just to confirm, am I correct in thinking that the horn should sound if I ground the wire at the oil pressure sender to the block? That would be easy enough to do with the key on but engine not started, to see if the horn would come on by bypassing that sender.

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#5 · Jul 26, 2012 (Edited)

mbsl98 said:

Just to confirm, am I correct in thinking that the horn should sound if I ground the wire at the oil pressure sender to the block? That would be easy enough to do with the key on but engine not started, to see if the horn would come on by bypassing that sender.

Yes you should be able to ground the oil sender switch to confirm horn operation. If any alarm light is on, the same power to the lamp should be going to the horn. You could ground the water temp to check that.

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#4 · Jul 26, 2012 (Edited)

I have the same engine Yanmar 3gmd.

When I bought my boat 2 years ago the warning horn was missing. The yanmar replacement was expensive so I made my own. Got a 12 volt buzzer and two diodes (one for each of the alarmed points- oil press and temp, charge lamp is not connected to buzzer) .

The original yanmar buzzer has the diodes built into the unit. But if you replace with a after market buzzer you must install a diode on the inputs to the buzzer.

I suspect one on the buzzers internal diodes has failed. The reason you need the diodes is that one buzzer is used for two alarm points. The diodes are on the 12 volt negative feed to the buzzer. Without the diodes, if you had one alarm (say low oil pressure) the buzzer would go off plus back feed to you other alarm point (water temp). Now you would have a buzzer with all lights lit- you would not know which of the two alarm lights was valid.

If your alarm lights are working, 99% sure the buzzer and or its diodes is a fault.

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#6 · Jul 26, 2012

I just check the Yanmar B panel wiring diagram. Only the oil pressure and water temp sender go to the buzzer (Batter Charge does not go to buzzer). So by grounding these one at a time you should be able to test your buzzer. You can do this with engine off and key in the run position.

Let us know what you find.

Regards

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mbsl98 Discussion starter

#7 · Jul 26, 2012

Thanks for all of the suggestions. I won't be back to the boat for a week or so, but will update my solution. I remember not buying a new horn when I got the new panel because it seemed pretty expensive for preventive maintenance - so much for a year's difference in attitude.

Casey - thanks for checking the wiring. you are clearly correct now that I look again. However that changes the potential trouble sources. I assume that the water temp will not trigger the horn on first start, since everything is cold. Therefore, only the oil pressure sender should be triggering the horn when the key is first turned on. That means that it could be a failing pressure sender as well as a failing horn. That might help explain why there is that little stutter when the horn does turn on at the shut down (before, horn came on full, almost immediately, when motor shut down with fuel shut-off). Once it gets going, the horn sounds perfectly normal (which happens only when the engine is turned off after a run, not on cold start). If it is the oil pressure sender, there should be a similar fault with the warning light, so I will have to check for that as well. The way my panel is installed, it is almost impossible to see the warning lights, except down on all fours in the cockpit. That's why the horn is very significant for me. In any case, i can get down on all fours for the checking

Thanks again

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#9 · Jul 26, 2012

mbsl98 said:

The way my panel is installed, it is almost impossible to see the warning lights, except down on all fours in the cockpit. That's why the horn is very significant for me. In any case, i can get down on all fours for the checking

Thanks again

Yea, my panel is actually inside the boat. I also need the buzzer. Lucky PO did not kill the engine with no buzzer. As I say I fitted an after market buzzer but had to install diodes- required quite a bit of wiring. In the end I should probably just bought the yanmar buzzer with built in diodes.

Good luck- I think you are right, either pressure switch or buzzer. I actually bought a spare press and temp switch- pretty cheap so you may want to just change it out as they can be tepermental. Had one on my truck that work at times and other times did not- installed new and that one soon failed.

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#8 · Jul 26, 2012

Just a note. Not sure if you have a maintenance manual (or wiring diagram) for the engine, but if you look at the wiring diagram for the Panel "B" it will show the buzzer (alarm). It will show 4 wires going to the buzzer. One for sail drive leak (not used unless you have a sail drive), one for the oil pressure switch (-) and one from the water temp switch (-). The fourth wire is for the 12 + connection. You could pull the buzzer and test by connection to 12 volt battery to see if it works. Note the yanmar diagram shows the buzzer but not the diodes which are included inside the buzzer housing. So if you add an after market buzzer, you need to install a diode (and in the correct direction) on each of the negative leads.

Color code should be as follows for wires going to buzzer:

red/black: 12 volt +

White/black: Water Temp alarm (12 volt neg -)

Yellow/white: Oil Pressure (12 volt neg -)

White/Red: Sail Drive (12 Volt neg-) NOT USED

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#10 · Aug 6, 2012

Just to close this thread, the final answer was a slowly failing oil pressure switch. Just grounding the sender contact to block sounds the horn, as it should when the pressure is very low. The key was being reminded that only the oil pressure should turn on the horn when first starting, since the only signals that sound the horn are the oil and temp, and the temp only activates when hot, not at cold start. Thanks to Casey and everyone else.

Mike sullivan
1985 Marshall 22 catboat

Reactions:casey1999

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S34

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#11 · Feb 15, 2017

My buzzer sounds on 3GM30 if the alternator loses its belt.
Is that not normal?