For particularly troublesome technical issues, Furuno's tech support reps can turn for advice to experts like (l-r) Light Marine Technical Manager Junki Sasamoto, Deep Sea Service Manager Shane Ryan and Deep Sea Product Manager Bill Haynes.

Tech support hotlines have become more important as electronics and network installations grow in complexity. We wondered what the representatives who staff those hotlines hear on a daily basis from the industry's installers and technicians. What we learned in the process of talking to tech reps at several manufacturers and distributors is the serious need for improved technical training in many areas of the marine electronics industry.

Tech Support

Helping electronics work as advertised

Any time you take a bunch of complex electronics and wire them into a vessel that exists in a corrosive saltwater environment, then smack them repeatedly with vibrations measured in g-forces, and hand them over to an operator who may have little to no training—problems are guaranteed to arise. Those problems may be understandable but, unfortunately, installers, techs, and servicing dealers commonly run into technical issues long before any of this ever occurs, often during installation.

When technical questions or confusion complicate the process, manufacturer and distributor tech support from competent reps can be a lifeline. All manufacturers and distributors want their customers and end-users to be happy with their products, and that means being prepared to offer support to service techs in the field. But considering that many onboard systems incorporate products from multiple players and that every boat and installation job are different, the person crimping the connectors may have to call several different manufacturers and/or distributors to solve a single challenge. What's more, some companies offer excellent tech support, some may be sub-par, and others may bounce a tech from person to person as they try to figure out who—if anyone—has the answers they're looking for.

Hardware or software?

In talking to distributors and manufacturers about the types of calls they receive and what information callers typically ask about, we discovered that some reported receiving calls in need of support for software issues 80% of the time versus just 20% for hardware and physical installations—yet others reported the opposite. And still others reported a 50-50 split. This dichotomy seemed to be directly related to specific brands (in the interest of gathering accurate intel on the topic, we agreed not to name any names). But it also exposed the fact that in many cases, systems have become so advanced that software and hardware really can't be addressed separately. Commonly, the problems aren't related to one or the other, but rather are related to getting them to work seamlessly with each other. Sure, occasionally units arrive DOA. Yes, faulty wiring connections happen. But more often than not, the issues are much more subtle.

Brian Gifford, Product Support Manager-Americas for FLIR Systems, notes that often problems that appear to be hardware-related aren't always so much an issue with the installation as they are with other onboard systems and equipment. "Dirty power is a big problem," he says. "Today's MFDs are more like marinized computers. They don't like dirty power or low power. And when that's what they're getting, issues cascade. People who make an investment in a new electronics system often don't make the investment in the new electrical system that they need to match it."

That squares with the sentiments of many other industry players, several of whom said they regularly try to remotely track down problems that aren't necessarily related to the electronics so much as they're related to wiring, bad grounds, or systems that weren't thought out properly in the first place. And while that may be the cause, it can appear to be a software problem.

NMEA 2000 challenges

"A lot of the problems we see are caused by [NMEA 2000®] backbones that aren't laid out properly," says Andrew Fairchild, Senior Manager of Product Support for Garmin. "They might have a number of extra Ts, no terminators, you just never know. And that can result in really odd behavior. The system might seem to work fine one day, then not the next. This is often the toughest type of problem for us to track down."

Speaking of NMEA 2000, Jeff Lantz, Light Marine Technical Service Manager for Furuno USA, says, "Thanks to NMEA establishing standards, mixing and matching between brands isn't as much of a problem as you might imagine. Problems normally occur when companies don't certify their products with NMEA and a problem is encountered with their data, but in a few cases certified products will have a problem based on how each company views the guidance set forth. And sometimes customers have expectations that simply go beyond product design. For example, we often get asked 'can XYZ radar connect with this Furuno MFD?' That type of complex mixing just doesn't happen."

Gifford finds that unrealistic expectations of NMEA 2000 are a common issue. "Sometimes people seem to think it's like magic," he says, "and that they'll just plug everything together and the system will work perfectly. We may get asked why a NMEA 2000 device isn't working when in reality it's working perfectly fine, but the other devices on the system simply don't know to source its data."

Zach Floyd, Technical Sales at Gemeco, says their team gets similar questions on a regular basis. "We regularly field questions relating to NMEA 2000 installations and applications as well as with different product capabilities and how they compare to other types of the same product family. NMEA products ranging through monitoring, control, and security are some of the main areas of interest and where some of the most technically challenging questions come from."

He also notes that this isn't necessarily NMEA 2000's fault, and is often related to someone else's software. "For example, one time we were troubleshooting a sensor that an OEM couldn't get dialed in because it wasn't showing in the device list," he explains. "It wasn't clear if the problem was in the sensor or the network, so we started testing different nodes and also the sensor itself. We determined that everything was working properly—even though the problem was still present."

Floyd adds that, "After some additional troubleshooting we contacted the company that made the sensor, which was just released, as well as the display builder, and described the issue with reps of both. We were informed that the sensor being used was very new and while it would work, there may be some functionality issues that haven't been resolved yet. The builder of the sensor provided a beta software solution that would allow the customer to program the required offsets directly to the probe. It was a great experience being able to provide the solution to an issue that no one knew about prior to the sale of the equipment, and has subsequently been addressed with a software update."

Then there are the calls for help with NMEA 2000 systems that are related to a basic lack of setup. Several of those we queried said that installers regularly get the mounting and wiring right, yet everything still doesn't work because they haven't been set up properly. The dealer support team at Consolidated Electronic Distributors (CED), which answered our questions as a group, fingered this as one of the most common problems they field calls for: "Most of the issues are setup problems where an installer installs everything, but they need help getting it all to talk to each other. We hear, 'I've connected everything but I don't see my X, Y, or Z on the display."

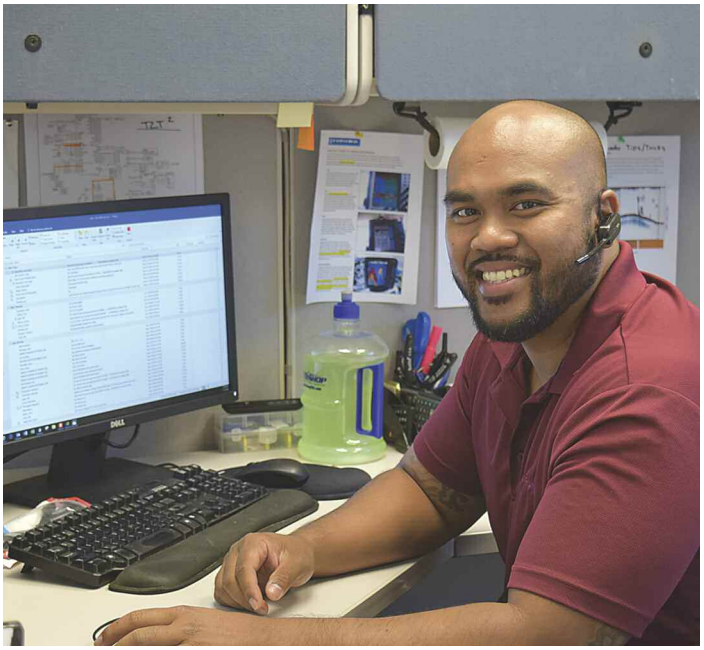
Autopilot issues

Another setup issue that they and others say is common relates to autopilots. In fact, over half the companies we polled said that autopilot sea trial and setup questions were among the top three most common problems they received calls about. "We hear 'after installing the autopilot how do I set it up,' and we've had a few 'makes hard-over turns for no apparent reason," says CED.

Lantz notes that one of the wildest technical assistance calls he's ever had also related to an autopilot. "You're sometimes blinded by the limitations of not being on the boat yourself. You have to ask the right questions and be a skilled detective," he says. "One example is an autopilot case I will never forget. The gentleman is a great customer and loves to do his own work. I was discussing the finer points of how a fluxgate compass works and its proper

Master Dealers
How to reach the right rep

At a roundtable discussion of NMEA Master Dealers a few years ago, several attendees expressed their frustration that many of the tech support reps were of limited to no help in resolving technical issues due to a lack of product knowledge. "Having the right technical information when you need it is vital in the field," they said. As a solution, the Master Dealers suggested that NMEA help establish a system to identify the reps at companies that were best equipped to answer specific questions about marine electronics and not just anyone who answers the phone.



John Kourn is one of Furuno's Light Marine Field Technicians, who assist technical support, conduct training for dealers and OEMs and investigate unexplained problems in the field. Light Marine Technical Service Manager Jeff Lantz says many issues are caused by installers simply not reading the installation manual and lacking proper training.

placement. As an example to him on troubleshooting, I had the customer unmount the compass and try calibrating it by turning it in place.

"During the process he says, 'Hold on Jeff, my wife is sunning up on deck and screaming bloody murder, I need to see what the heck she wants.' He comes back to the phone and says, 'Oh my God, I left the autopilot engaged. As I was moving the compass, we were going all over the bay. I'm lucky I didn't kill someone.' For me, that was enough to reinforce the need to ask even the simplest of questions and not assume anything."

An elusive trail

Among all the different possibilities for what's causing the problems brought to tech support, quite often the culprit isn't the product produced by the company that hired the person on the other end of the help line.

"Our MFD is where someone can see that there's a problem," explains Garmin's Fairchild. "Something isn't on screen, or isn't working on the screen, so the person calls Garmin because they're standing there looking at the Garmin MFD. But it might not have anything to do with our gear."

He says they still try to help resolve the issue, because like most industry players they want the end user's experience to be positive. But it can be quite difficult since many third parties can be involved, and often it's tough to determine who else should be brought into the conversation. "OEMs can be helpful," he notes, "because they will sometimes identify a problem and then act as an intermediary. But beyond that, communication between different companies is difficult. Much of the time, we just don't know who to talk to."

Gifford says that even when the gear is playing nice, calibration of third-party devices can be particularly problematic. "Tank senders are a good example. It may be part of the system and functioning properly but in need of calibration—and it can't be accessed through our MFD. You may need that company's MFD or a computer and the appropriate software. Trim tabs are another example. You may be getting accurate data for part of the throw, but not for all of it. And although it's part of the NMEA 2000 system, again, calibrating it can be a real source of angst."

Better training is key

Throughout the range of issues that arose in our conversations with tech support reps, distributors, and manufacturers, one common theme was dominant: a need for more training. Everyone we spoke with raised this issue, bar none.

Lantz says that many installation mistakes come from installers simply not reading the installation manual and not having proper training in the first place.

"The old adage that you get what you paid for applies," he says. "Techs who attend training and have the needed skills are in very high demand nationwide. But techs that don't have training are out there, and they're picking up jobs due to market demand. They make the skilled techs more appreciated by customers when things go south, but there are way too many working the market without a good knowledge of NMEA 0400 [Installation Standard] guidelines. Walking down the docks I cringe when I see antennas too close to one another, or sensitive GPS or satellite antennas being blasted by radars and cellular or WiFI boosters. Manufacturers and customers alike value a skilled technician—it's just sad that we don't have enough to go around."

The CED team also points to training issues as central to the calls they receive. "Manufacturers need to teach troubleshooting," they say, "but how do we get installers trained in a booming economy? The most common thing we hear is, 'I'm too busy to go to class."

However, they also note that the problem goes both ways. At times, the people offering tech support appear to be a bit short on training, themselves. CED says that, "Sometimes we have to contact a manufacturer, and the issue is who you talk to. We've received some information from manufacturers that was really wrong, because we were talking with a new tech who thought they knew the answers, but did not. It's very frustrating to call a manufacturer and have a tech tell you something you know isn't true, or to get switched to two or three techs in a call to get someone who has the knowledge you need."

Factory training a big need

"The biggest gap is factory training," according to CED. "Classes are too far apart, and dealers claim to be too busy for the classes that are available. And this needs to be real training, not sales pitches. Actual connecting, hands-on tutorials on system building, and on troubleshooting. Each manufacturer has its own troubleshooting issues and they need to teach for their own products."

Gifford agrees—and sees some potential solutions. "Installers should really take NMEA's Advanced NMEA 2000 class," he says. "And they should also take advantage of our training. But on top of that, I think they should be exposed to other manufacturers' training, too. Different manufacturers have different ways of doing things, and different people have different approaches. Learning how to troubleshoot from different angles would help anyone become better at their trade. But we hear the same thing: installers don't have time."

The current COVID pandemic, however, has in at least one strange way provided some insight into how a tech's time can be better utilized. "COVID forced us to look at different platforms to present remotely," Gifford explains. "We've always had our 'traveling road show,' for training, but now we've really expanded with live, interactive presentations.

There's still a challenge in making sure people have gear for the hands-on experience, but it's only five or 10% different than having in-person seminars."

He points out that online web packages provide a third option for training, as well, and when problems are repetitive, they get out the information in a multitude of ways. "We have FAQ pages we put online so people can find the information," he says, "and we send out emails. It's imperfect; some people tune out emails and sometimes the address we have is for a buyer not a tech. Or someone left the company and the address is no good. It's a challenge to get the information to the appropriate person."

The bottom line? Tech support is needed more today than ever before. But tech support needs some support of its own, in the form of better technical training in every direction. **END**