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Consumer Electronics Service In The 21st Century

"Let's Get Really Small!"

(~~~ Part 2 ~~~)

by C.J. Huss

In this issue, directly following up from the previous one, (KEY-NOTES #242, December 2020) I want to get into exactly, and truthfully, what electronic service (and sales) personnel have to deal with in the here and now. But first and foremost, it is essential to realize that, on average, modern electronic products do far more for far less money than ever before in history. This is generally a wonderful thing, but it can also lead to certain largely intractable problems, which are worth going over in some additional detail. So, first off...

Modern mass production techniques, for all their advanced technology, can build a product, but they can't repair one. You can't yet get a robot to fix your robot-or your stereo or TV. To do so still requires a human brain, human hands, and often lots of test equipment and a generous stock of common parts. This means that a repair shop has lots of overhead costs often coupled with a very slow inventory turnover for often ridiculous numbers of tiny parts. Those costs must be re-flected in the prices that are charged for the repair work.

Following through on the logic from the last paragraph, realize that a factory may be able to physically build, say, a home theater receiver in a matter of 20 or 30 minutes, but a human technician likely can't even disassemble it in that time, let alone diagnose the problem and repair it.

Next, part of the drive by engineers to make products available at lower retail prices involves finding ways for the factory to cut production costs. One way to do so is to reduce the assembly time required, such as by using snap fittings instead of screws, or fitting all circuitry and mechanisms on a single PC board. Doing these things nearly always reduces serviceability, and can even make it impossible. Coupled with that is that service information necessary for a technician to repair a product is often minimal or very crudely presented compared to the service manuals typical of 30 or 40 years ago.

Manufacturers also work to lower their overhead by reducing secondary expenses. To achieve this, a company may decide to farm out all of its warranty service to third parties, or do the same with replacement parts. They may refuse to have defective merchandise returned to the factory-- that is, it must be repaired by a service agency and not replaced, even if defective on arrival. This means if you are a dealer, and the customer returns a unit that is defective on arrival, or fails in a short period of time, it becomes the dealer's responsibility- if they wish to take it- to spend their money up front by supplying the customer with a new unit, and then have the repaired unit that was sent out and returned to them sold as a "refurbished", not new item- and so yet another financial loss.

You might think that a company that persists in doing things "the old way" would gain a competitive advantage in the marketplace, but sadly the opposite is usually true. The cost differential between making serviceable products and non-serviceable ones has gotten so high that people nearly always vote with their dollars and buy the less expensive offering.

Short detour:

Despite all this, there are some companies that put reliability and serviceability ahead of other things. If you can afford these products, please buy them. It does send a clear and welcome message that you appreciate the extra effort. At the same time, don't blindly presume that more expensive automatically means better. One reason to consider buying from an independent specialist dealer is that your odds of purchasing a quality product that they will back up improves immensely over buying from most chain stores or discounters.

Main road once again:

Getting back to the difficulties servicers have to face, the single largest one is that electronics repair is nothing like appliance or automotive repair, products which are largely mechanical in nature.



For example, if your washer starts leaking oil, the only place that oil can come from is the transmission. If your air conditioner loses its cool, there are only so many parts that can cause the problem. While we are simplifying here, the fact is that by comparison, even something as common as a surround sound receiver can contain literally thousands of parts, and when one of them fails, tracking down the faulty one can be a nightmare.

Largely, this is because unlike most mechanical products-- as with the washer leaking oil-- there is rarely an external sign that the part has failed. Locating the fault must be determined experimentally, using test equipment and deductive logic. Making matters more difficult in current components is the widespread use of integrated circuits and microprocessors where the operation of one 'chip' is dependent upon one or more others. A failure of one circuit can effectively shut down many other circuits, and the only way to diagnose the fault is by replacing parts (in the most likely order) until proper function is restored.



This is the real killer for the service tech. There is extremely little longer-term standardization in the world of solid-state parts, and no service department could possibly stock all those tens of thousands of them -they'd be broke before they even started. The technician must often make an intelligent guess as to the faulty part or board, order it in, and hope that it fixes the problem. If the guess is wrong, the part cannot be returned-- the shop is stuck with it. If it's a \$2.50 item, no biggee. But if it's a \$45.00 microprocessor or other costly part, that really hurts the bottom line. The part might only be used in this one model of component, and the shop may not see another one of them for the next 10 years, or ever. Adding insult to injury, time was lost because of the order, and now it's back to the next logical choice and ya'all start over.

Or, the faulty item could turn out to be very cheap, like a bad capacitor or resistor, but tracking it down can take literally hours. How does one provide an estimate on the repair until for all practical purposes the product is actually fixed? Remember, confirmation of the repair is usually done by replacing the bad part. If the tech spends three hours to track down a \$1.50 part on a 15 year old amplifier, and tells the owner that the repair estimate will be \$195.00, and the owner declines the

repair-now what? And yes, this happens. 📱 And yes, the shop loses monsometimes ey, lots of it. The typical minimum \$50 to \$75 diagcharge nostic won't come near to covering several hours work. Shops that don't collect a diagnostic charge up front are often faced with people who simply abandon the product if the quote is higher than they want to invest, leaving the shop on the hook for everything.



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Thus, contrary to popular belief, many electronic service businesses seldom make very much money, at least not if they're honest shops. The shop can only charge what the local traffic will bear, and that amount is typically much less than many other professions. On another tack, companies that do warranty work for a manufacturer must accept whatever the manufacturer is willing to pay them, typically a low flat rate. If the company pays \$60 flat for an amplifier repair, and you fix it in 30 minutes, you did good. If it takes you two hours, you lost money. This is the major reason it is so hard to find dealer-based warranty service on many products -- dealers hate to do it, especially if they didn't sell the product and make a profit on it initially. The chance for losses can become ridiculously high.

There are yet more service-y calamities we could discuss, but things will get like all whiny after a bit, so I'll stop right here before that happens.

Epilogue: So why do some stores still operate a service department?

Most do it for the same reason they've always done it -- to make life a little simpler for their customers, and give customers a reason to buy equipment from them instead of the place down the street or over the 'net. It isn't easy, and frankly if the store didn't sell new components and systems, the service department would probably disappear. Sometimes it does-the store gets tired of losing money and gives up on repairing things or having other departments subsidize service work.

This is not going to change anytime soon, because the marketplace will not change anytime soon, perhaps never. Technology moves on, society changes. Que sera.

So if you find a place that still fixes things, and you like their work-be of good cheer, and remunerate them accordingly. It's always good to know that somebody still cares.

"Experience is a wonderful thing, because it allows you to recognize a mistake when you make it again."

---- wisdom gleaned from the back of a packet of sugar in a coffee shop, c. 1978



BIG NEWS!

Our website has been updated and improved. There you will find tons of information about our show, extensive history of our club and other music resource material. Please visit: www.recordcollectors.org and have a look around!