multi media manufacturer

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Manager's Guide to AV Design and Development

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CONTENTS

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Instruction Manuals: Help or Hindrance?

By Barry Fox

How lucky you are, people say. You get to try all this new equipment.

This used to be true and it may one day be true again. But for many years now borrowing electronics has been a pain in the neck. As I unpack the box the contents scream at me—"We are going to steal many hours of your life."

IF ALL ELSE FAILS. . .

Getting new electronics up and running and able to do what it says on the box is now a hugely time-consuming challenge. The work involved actively deters some people from buying anything new. The people it deters are those with the most money to spare. Professionals—doctors, lawyers, dentists, and the like—work hard, over long hours, and would rather carry on watching and listening to an out-dated system than waste valuable free time struggling to get a new entertainment system to entertain them.

So how did we get where we are and what can be done about it? That's a question any hifi manufacturer worried about slow sales would be well advised to ask.

Shakespeare reckoned there were seven ages of man, turning full circle. There have already been seven ages of the instruction manual and there is no sign yet of a return to happy beginnings when packaging for a hi-fi system would carry a note suggesting: "If all else fails try reading the manual" and Help Lines could usefully say RTFM (Read the Frigging Manual), when people called with stupid questions.

In the early days of audio, equipment was simple. Radios needed only a tuning knob, a volume gain control, and a treble and bass tone adjustment between "bright" and "mellow." The cartridge for a record player flipped between 78, 45, and 33.3 needles. There was no need for a manual.

MORE FEATURES

The early days of hi-fi brought a little more complexity, with the different RIAA equalization needed for moving coil and magnet cartridges, and component audio throwing up the need to connect speakers correctly, left and right, and in phase. Pickup bias and alignment became important. The age of the test record and tweak tool dawned. But manuals remained quite slim.

The first rot set in with the quadraphonic boom of the 1970s, and four speakers to put in the right positions and phase correctly. With at least four different and incompatible disc systems (SQ, QS, CD-4, and UD-4) music lovers had to choose between technol-

ogies, or rig complicated systems with several decoders, all needing separate switched connections. Manuals started to get thick and bewildering. Audio magazines came into their own, as a source of news, DIY help, views, and comparative reviews.

The discrediting of "quad" and the coming of CD produced a new topic for the magazines to debate. Did "old-fashioned" LPs sound better than new-fangled CDs? Often they did, largely because some of the early CD players had very poor D-A converters and analog output circuitry, and because early digital recordings were often flawed. But for a short happy while, playing music became easy again, with easy track selection, no stylus to clean, no bias to adjust, and no snap, crackle, and hiss to try and ignore. Manuals no longer needed to explain the absurdities of a standards battle and the technical niceties of preamp EQ.

Unfortunately manufacturers then started to offer a mass of detail on the advanced options for CD playback, like Favorite Track Selection using memory and disc recognition in the player. All this added muddle to the manuals.

At around the same time home video was booming. The first VCRs recorded for one hour only and were gloriously simple to use. Philips sold one with an analog timer, like the clock on an old-fashioned kitchen cooker. Early VHS recorders from JVC used piano key controls and delightfully clear manuals.

But competition between VHS, Beta, and V2000 (in Europe) spurred the manufacturers on to offer ever more exotic features, that needed ever increasing skill to master and ever more pages of instruction to explain. Virtually all VCRs were coming from Japan, Holland, or Germany and many of the manuals were in "how to do usefully" Japanenglish, Double Dutch, or Demi-Deutsch.

One VCR from German manufacturer Grundig could be set to record programs a full year in advance. So on Christmas Day one year you could set the timer to tape a TV program for next year's Christmas Eve.

Grundig's manuals were legendary for their user-unfriendliness. The English language instructions telling how to tune in a TV set showed pictures of the station IDs used in Germany and explained how to use Hyperband cable frequencies which were special to Germany. The text had been translated from German to English, initially for use by American servicemen stationed on German bases, and then modified for use in other countries. Small wonder Grundig later went bust and the name has now been bought by non-German companies, whose first job is to sort out the manual mess.

Sony tried harder than most to make VCR manuals comprehensible. But, as with tax laws, being comprehensive compromises comprehension.

The situation was nicely summed up by the holiday cowboys in the movie "City Slickers." As they ride through the desert they while away time trying to fathom how a VCR can tape one program while showing another.

I was recently on a train while a husband spent the whole journey on a cellphone desperately trying to tell his wife at home how to set the timer on a DVD recorder in order to record a football match he was missing.

In 1990 President George H.W. Bush told a press dinner in Washington: "In California I announced the vision of our administration and I am tired that you don't pick it up back here. So I'll say it again. We have a vision; by the time I leave office I want every single American to be able to set the clock on his VCR."

Early motor cars all worked differently. But the automobile industry matured into the modern situation where anyone who can drive one car can very quickly cope with another. It is quite a surprise now to discover something illogical, like Toyota's hand brakes that operate by foot!

The audio, video, and home electronics manufacturers have never shown similar interest in formulating common operating rules so that understanding how one system works helps getting the hang of another. No trade bodies have ever tried to bring order from chaos. The Anti-Trust laws would probably now stop them.

Satellite broadcaster Sky has demonstrated how it can be done, by requiring all manufacturers of its proprietary equipment to use the same standard layout for their remote controls. Unfortunately Sky is an exception to the rule.

COMPUTERIZATION

There is a one-word explanation for this mess: computers.

Since the coming of CD, all home entertainment equipment has been dependent on computer technology. Computer chips are not just used to decode sound and pictures, they control virtually every function. Tape controls use "logic" to prevent stretch damage when fast-forward is switched direct to rewind. Volume and tone controls no longer rely on potentiometer resistors, they change voltage levels electronically. Inputs are no longer switched by mechanical contacts, they are brought in and out by transistor gates. The computer circuitry generates square wave interference for the analog audio to pick up.

This is no bad thing, as long as the designers remember that they are designing an entertainment product for the living room, not a computer for the office. Unfortunately more and more audio and video equipment looks and feels like a computer. New age portables, like iPods and MP3 players, can only be used in conjunction with a computer. Don't be fooled by the flimsy instruction sheet that comes with an iPod. The software disc contains a 60-page manual to be printed out and ring-bound.

The new format war between Blu-ray and HD-DVD will add whole chapters to AV documentation, as did the battle between DVD-Audio and SACD.

And all the time Microsoft and Intel, the companies which provide the control software and chips for Windows computers, have their invasion sights set on the living room by selling us office computers which play music and movies and receive TV and radio off the air.

Computer designers come from a world where instruction manuals only make sense when you already know what they mean, nothing switches on or off at the flick of a switch, hardware continually needs software up-

grades, and reboots to make the upgrades take effect, with everything taking as long as it takes and often generating gobbledygook error messages that say they are "OK."

What is happening with Philips is a good example of the way computers are poisoning the well.

Philips invented the audiocassette, then the laser videodisc, and was first with a truly consumer videocassette before losing the market to Japan through a series of devastating tactical errors. Philips also invented the CD (before Sony came onboard). All these innovations were designed from the ground up to be user-friendly. The company used to have a pretty good track record of producing readable, helpful manuals, too.

But things started to turn sour as the company came to rely more and more on computer technology. One top Philips manager was reputedly shocked when he was posted away from home and had to move into temporary accommodations. He then had to try and set up a home entertainment system without any help from the usual team of tame Philips engineers whose job is to install the latest equipment in managers' homes. The story goes that he ordered a complete corporate re-think on user-friendly controls, intuitive logic, and easy-to-read manuals.

Either the story is apocryphal or the manager did not last. When I recently borrowed a Streamium SLA 5520 Internet radio from Philips, which connects by broadband to pull in radio stations all around the world, it was a horribly revealing experience. The cute little radio comes with a slim instruction sheet that gives the impression of an easy ride ahead. "Install, Connect, Enjoy" promises a three step Start Guide. In fact the only hope of getting any enjoyment from the product is to print out 40 pages of detailed instructions that are stored on the CD-ROM that must be used with a computer to "register" the radio on the Internet and sign an electronic license agreement.

Registration involves sending e-mails and accessing websites. But first the radio must be wirelessly linked to a Wi-Fi computer router, which in my case produced only unhelpful error messages from the small screen on the radio like "Server Down."

And even when the radio is finally working, the only way to set a Favorite station as a pre-set is to go on the Internet, access the Philips website and enter commands that tell the home radio to store a My Media memory setting.

The only charitable explanation is that no one from Philips' top management has ever actually tried using the product, out-of-the-box.

To use the well-worn phrase, doing the right thing with manuals is hardly rocket science. All a company must do is get someone literate to use the product, with handholding help from the boffin who designed it, and then write a description of how to use it. The next step is to give the product and description to someone who has never seen it before, watch where they get stuck, and revise the instructions. By iterative process, with several first-time users, the end result is a manual which almost anyone can use.

Hiding the main body of the manual on a CD-ROM and printing only a slim chatty "Getting Started" sheet fools no one. A compact bound book manual is far and away preferable to a stack of large sheets home-printed at considerable expense in ink, paper, and time.

DUMBING DOWN

The ideal manual comes in two halves, a simple "getting started" introduction and then a second half that gives all the detail that can possibly be needed. A few practical examples are worth their weight in gold. A step-by-step description of how to connect the most common basics—a CD player, DVD player, and satellite receiver—makes a very good guide to connecting similar but different components, such as a TV tuner, radio tuner, and iPod. Marantz did a good job on this with the manuals for its omni-purpose, omni-product remote controls.

Recording studios have for years used colored cables for easily and quickly identifying the feeds from the dozens of microphones around the room. The hi-fi industry has never really latched onto this idea, even though some home systems now approach studio wiring in complexity.

What seems a simple and obvious connection when you are setting up a complicated home system will seem anything but simple and obvious six months later when you are scuffling behind the amplifier wondering which leads end where, and which socket connects with what component.

So the ideal home system manual would have large-scale plan diagrams of the rear panel connectors, with blank spaces in the plans to write in the names of the owner's components: CD player to input A, DVD player to B, and so on. If colored cables are not available, at least you can put matching label or color tags on each end of each cable, and note the tag types in the connection plans.

The latest age of manuals is blighted by the need for manufacturers to protect their backs against compensation claims. We all know where this started. A London furniture store has taps labeled "Hot Water," with a sign alongside saying "Warning: Hot

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Water." A hospital near Oxford has a notice: "The National Health Service accepts no responsibility for the loss of patients."

A Honda car comes with the warning: "Do not allow water spots to stay on your car when the sun comes out, as they can act as a magnifying glass causing the paint to burn." A microwaved pasta meal carries the warning "Meal may be hot after heating." And a new pair of Wellington boots made by Dunlop came with a 24-page user's manual with warnings in 11 languages.

The cover-our-back legal warning disease has now spread to home electronics. In Europe the very useful switched mains outlets often provided on the back of amplifiers are usually covered by lightly welded metal plates. The owner has to pry them off with a screwdriver.

The instruction manual for a low-voltage battery-powered carpet sweeper contains nearly 50 separate safety warnings, including the advice not to rebuild the appliance "with yourself," not to switch on the appliance "without any person nearby," not to use it "near the tinder," not to "spout the water," and so on. It culminates with the warning: "Do not use the appliance if you are a children or a deformity."

A Memorex CD recording drive came with the trouble-shooting advice that "if your drive appears to have problems accessing a CD after a lengthy period of time, please use a lens cleaning set which you can purchase at your local computer retailer." Just below was a highlighted warning: "Please note that CD-RW drives must never be cleaned with a lens cleaning set."

An IBM Compact Flash Microdrive, the ultra-miniature hard drive used in some digital cameras, is packaged with the boast that it "withstands a shock of 1500G." The boast is followed by the advice: "Warning—do not drop."

The safety section of a CD player manual advises: "Do not use the Ultradisc 2000 as a projectile in a catapult or similar hurling mechanism. Use of the Ultradisc 2000 as a projectile can cause personal injury as well as damage to the transport mechanism, and will void the warranty."

Before long we shall be seeing manuals with more warnings than instructions. Already a 64-page booklet for an Olympus camera is devoted solely to safety warnings in five languages.

HOW MAY I HELP YOU?

The only antidote to a bad manual is a good helpline. Philips has a good track record on this. But the writing is on the wall. These may already be the good old days.

The computer industry is shutting down human helplines and replacing them with e-mail addresses and Knowledgebase websites, or worse still helplines staffed by unskilled labor in developing nations. Printed manuals and CD-ROM manuals are being replaced by "interactive help" that is supposed to offer automated assistance in response to keywords typed into the PC, but all too often displays the response "no help available."

It is only a question of time before the mass market audio industry follows suit; and it will happen sooner rather than later if Microsoft and Intel persuade more big-name audio manufacturers, like Philips and Sony, to put their names on Media Center PCs.

It's a truism that the very best help on any new purchase comes from a friend or family member who has already bought the same product and climbed the learning curve. If they can be persuaded to visit and spend an hour or two giving you a hands-on lesson on how to work your new system, who needs a manual? This is one very good reason to buy the same model as someone close to you.

Custom Installation is in effect the equivalent of hiring a clever friend. No wonder CI is a booming business. But it's an admission of industry shortcoming that costs the customer dearly.

So which hi-fi company will be first to exploit this unhappy situation and start advertising old-fashioned virtues like instant on/off, no need for Internet updates, and good clear book manuals alongside the promise of high-quality sound? Whoever they are they stand to clean up and start a welcome backlash trend. **M³**