

Instruction Instructions

Discover hidden savings in the last place you'd ever look—the instruction manual.

by Leon Fletcher N6HYK

Recently I bought an antenna system consisting of the usual four units—tower, antenna, rotor, and rotor control. All the gear is nationally advertised, widely used, and highly regarded by hams throughout the country.

But every unit came with printed instructions that had serious errors, omissions, confusions, even contradictions. Indeed, at least one error was an absolute farce.

How serious is the problem of ham gear supplied with instructions that are inaccurate, inadequate, inferior, incomplete, or just plain bungled? Apparently no one knows. At least a diligent search of ham magazines, handbooks, guides, instructions, and other such publications found no helpful reports, tips, or solutions.

Casual on-the-air comments by hams in Washington, Ohio, Florida, Nebraska, California, and other states, however, confirm that poor instructions are indeed a widespread concern.

Ham talk also seems to document that most of us select our gear without giving much thought—perhaps no thought at all—to the effectiveness of the printed instructions that come with our purchases. Yet it is obvious that

good instructions can make assembling and operating a unit easy, fast, efficient, and safe—a pleasure to own.

On the other hand, poor instructions can cause delays, waste efforts, spark frustrations, increase costs, produce errors, ruin equipment, and create dangers. In extreme cases, injuries can result.

From my unpleasant struggles with poorly written instructions have come 10 key questions that can help all hams select their gear more intelligently. Along with these questions are specific examples of poor instructions that accompanied ham gear sold in the past year. By now, however, at least some of the problems—it is hoped—may have been corrected. Therefore, the names of the offending companies are not mentioned.

1. *Can you read the instructions before you buy the gear?*

The manager of the Cupertino, California, store told me, "Take all the time you need." On the other hand, when I phoned cross-country to ask a manufacturer of antenna towers for a copy of the instructions for putting up one of its towers that I was considering for purchase, the chief engineer told me, "We don't lend or sell copies of our instructions. You'll get them when the tower's delivered." By then you are of course pretty much trapped into

using the instructions, bad as they may be; it's clearly not practical to return a tower that can cost several hundred dollars for shipping alone.

2. *Do the instructions make sense?*

Some ham gear comes with instructions that are clearly impractical, unrealistic, even downright foolish. An overstatement? Consider this example.

This farce was included in the 15-page *Instructions for Installation and Operation* for a nationally advertised antenna tower. The purchaser was instructed to lay a concrete foundation on which to raise the tower—a foundation 24 inches square and ten inches deep. That would be a block weighing some 500 pounds.

A few pages later, those same instructions told the purchaser that *after* the 480-pound tower was in place on top of that 500-pound foundation: *If tower is out of plumb, shift the concrete foundation block to bring it into vertical alignment, and then backfill firmly around the foundation.*

Can you imagine the struggle to try to prop up one corner of that 25-foot-high, 980-pound mass, or lowering another corner, to get the entire installation sticking straight up in the air?

3. *Are the instructions free of contradictions?*

Instructions that came with one "world famous" beam antenna warned, "Correct assembly and dimensional

adjustments are very important to successful operation." Later in those same instructions, the length of one part of an element was stated to be 51 inches; in a table that followed, the length for that same part was given as 50 inches.

Worse still, when I phoned the manufacturer to ask which dimension was correct, I was told, "Ohhh, yes ... we know about that error. But we haven't got around to correcting our instructions as yet."

Contradicting instructions also came with that infamous tower we've been using as a fine source of poor instructions. On one page the purchaser was told to place the "base hinge plate [which attaches the tower to the concrete foundation] hinge side away from the wall as shown on Detail FB." That "detail," a drawing on the next page of the instructions, showed the hinge reversed, its side toward the wall.

Later, those same instructions introduced two contradictions with one sentence. It said that the "pulley and safety rest have been inverted so that its [sic] arm will not project outward" during shipping, and therefore "must

be reversed as explained below." The instructions "below" never mentioned reversing the pulley; however, that made sense because the pulley arrived not reversed as stated, but welded firmly in position. And the safety rest, which the instructions said to "reinstall," arrived not installed in reverse, as claimed, but came uninstalled, in parts, unassembled.

4. *Are the instructions free of unnecessary jargon?*

The problem in trying to establish guides for this criterion is that language that is jargon to one person may be perfectly understandable to someone else. Furthermore, the more you read and use jargon, the quicker it may become understandable and therefore acceptable.

The first time I read the *Owner's Manual* for my new rotor control, I was confused by such jargon as "Rec Last," "SCAN then 7," "Counter Clockwise end travel," "access memory location #1," and many other expressions. But at this moment, after rereading the manual many times during the several months I've been using the control, I'm having difficulty finding examples of jargon in the manual; I've finally learned the language.

So try to avoid instructions that are jargon-packed, but also remember that those strange-sounding sentences will probably become clear to you as you re-read the instructions and work with the equipment.

5. *Are the instructions specific?*

The instructions for the winch that came with my antenna tower included this great line: *If brake disc mechanism operates intermittently or erratically, brake disc inspection should be accomplished.*

Ignoring that twisted syntax, I searched without success for instructions on how that inspection should be "accomplished." Should I dismantle the winch? Should I look for loose parts, dangling cable, or whatever? *Well, I thought, forget the inspection—how do I fix the winch when it operates "intermittently or erratically"?*

No instructions on that, either.

Other nonspecific instructions you should watch out for include such lines

as: "Adjust as may be needed." "Place in a suitable location." "Tighten as required."

6. *Are the instructions clear?*

The 30-page booklet that came with a nationally advertised rotor control unit included instructions not only for the model I bought but also for two similar but more sophisticated models.

If the instructions for those other models had been in separate sections of the booklet, there would be no confusion. But this instructional booklet intermixes directions for operating all these units. Often there is little or no indication that the instructions do not apply to my particular equipment. When I first read those instructions, I would suddenly find myself trying to learn how to operate features that were not on my model. Confusing indeed.

7. *Are the instructions in a logical sequence?*

I haven't found any manufacturer's instructions that say something such as, "But before doing that last step, you must ..." But some instructions come pretty close to such confusion.

Page 11 of instructions for assembling a beam antenna said to install screws, lock washers, and nuts on some straps. The instructions didn't state on which side the screws should be placed, yet in later steps the placement of that hardware became critical.

A very serious injury was almost caused by what was left out of another instruction. It said to "mount the balun clip to the circular boss." It did not include a warning that during the mounting, the clip might become loose and fly off at a high speed. It did fly off, hit me in the forehead, break the skin, and cause bleeding; if it had hit me just one inch lower, I would probably now be blind in one eye.

On the other hand, if you want to read instructions that are a model of logical sequencing—indeed, a model of the ideal instructions by almost every criterion—look at a Heathkit manual. Each of the more than 25 Heath manuals I've used starts with an "introduction," a brief overview of the purpose, use, and features of the unit. Next are tips for "Unpacking," to make sure you do not mix parts intended for

<input type="checkbox"/> 1. Can you read the instructions before you buy the gear?
<input type="checkbox"/> 2. Do the instructions make sense?
<input type="checkbox"/> 3. Are the instructions free of contradictions?
<input type="checkbox"/> 4. Are the instructions free of unnecessary jargon?
<input type="checkbox"/> 5. Are the instructions specific?
<input type="checkbox"/> 6. Are the instructions clear?
<input type="checkbox"/> 7. Are the instructions in a logical sequence?
<input type="checkbox"/> 8. Are the instructions free of any "surprise instructions" that may come after you've ordered the gear?
<input type="checkbox"/> 9. Do the instructions include a phone number you can call for help—ideally, an 800 (toll-free) number?
<input type="checkbox"/> 10. Are you confident the instructions tell you everything you need to know?

Table 1. Judging instructions for ham gear check-off list. When evaluating the instructions that accompany ham gear you are thinking about buying, check off each item above to help you decide if the instructions are effective.

one board, for example, with those to be used on some other board. Heath manuals also present "Assembly Notes," hints on tools, identifying parts, soldering, and such.

Then come detailed step-by-step assembly instructions presented in a very logical, clear-cut sequence. There's a check-off system to help ensure that you install each part correctly. There are numerous drawings, enlarged drawings of small units or more difficult steps, and photos. Many parts are identified four ways: by Heath part number, circuit component number, electronic values, and by a description of markings.

Final sections of Heathkit manuals present operating guides, procedures, "In Case of Difficulty," specifications, circuit description, schematic, and other details. Unlike some other instructions, you'll rarely need to search back and forth through Heathkit manuals for an out-of-sequence step.

8. *Are the instructions free of any "surprise instructions" that may come after you've ordered the gear?"*

"Surprise instructions" are such unrevealed details as additional equipment that may be needed, restrictions on use, limitations on locations, unexpected safety recommendations, unmentioned delivery problems, and such.

About a week after I'd ordered that infamous tower—but *before* the tower was delivered—I received in the mail three additional instructions from the manufacturer—details I'd not been told about before ordering the tower.

One instruction was printed in brilliant red on bright yellow paper. Across the top of the page, in letters a half-inch high, was the word "Warning!" Then came these statements (among others):

- Be sure to check your shipment carefully before acceptance.
- All shipments are made at the risk of the purchaser and (name of the tower) will not be responsible for shortage, loss, or damage occurring in transit.

As fate would have it, the antenna was delivered during a heavy rain-storm. But even without the rain, you can imagine the problem of trying to get a big and busy truck driver to wait

as you unpack, count, and inspect some two dozen parts ranging from 20-foot tower sections to 1-1/4 inch cotter pins.

A second page of surprise instructions came only after the tower was ordered. It was titled "Duty of consignees to accept freight even though damaged." It presented four long paragraphs of quasi-legal statements claiming that if what I'd ordered was delivered in a damaged condition, I had to accept it no matter what! The final point in those instructions: If the gear arrives damaged, "it is decidedly to [your] advantage to either repair [it] and file claim for cost," or "to sell the merchandise 'as is'" and then "file claim for the loss suffered."

Sure enough, the gear arrived damaged. I phoned the manufacturer and firmly pointed out that while such a provision might be enforceable in the state from which the tower was sent, it probably could not be enforced under the laws of the state in which it was delivered. The manufacturer backed down immediately and sent replacement parts.

Another example of surprise instructions came with a beam antenna. It was not until page 16 of the instructions—just as the antenna was about ready to be raised—that I was told I'd need a 3- or 4-foot mast ("not supplied") to use in finding the "balance point" of the antenna.

While many hams have hefty stocks of such supplies stored at their QTH, I don't. The result can be an unexpected dash to the hardware store, inconveniently and unfairly delaying friends who have gathered to help raise the antenna. A minor point? Perhaps. But why shouldn't all instructions present—right at the start—a list of everything you'll need to complete the project?

9. *Do the instructions include a phone number—ideally an 800 (toll-free) number—you can call for help?*

If the instructions you're evaluating don't give a phone number, there are three steps to getting information you need.

First, of course, phone the store from which you bought the unit. If the staff there can't give you the information you

Instruction Instructions

continued from page 37

need, then phone the corporate headquarters of the manufacturer of the gear. Ask for "customer service" or "the expert" on the gear that has the problem instructions.

If you still don't get the answers you need, don't hesitate to phone the president of the company. It's been my experience that a surprising number of top executives are readily available and will have the information you need sent to you quickly. Indeed, I find that the president's personal secretary (but often no one less) also will get you answers promptly.

The doubter asks, "What about the extra cost for the phone calls?" Even several cross-country calls cost but a tiny percent of the expenditure you are considering investing in the gear. Besides, you may be lucky. When you call, the key person may not be in, so you can leave a message asking him or her to return the call to you; then the cost is on the company's bill. Presidents, in particular, I notice, generally return calls promptly.

10. *Are you confident the instructions tell you everything you need to know?*

This question is obviously difficult to answer—perhaps impossible—until you are actually trying to follow a set of instructions. Still, there are a few precautions you can take.

First, you can try to find some other ham who has used the gear, and ask him or her how complete the instructions are. You might have used another set of instructions, for some other gear, put out by the same manufacturer. Check these; the chances are that if a company has prepared clear-cut, specific, valuable instructions for one of its units, then instructions for its other gear are likely to be effective, too.

Another possibility: Compare the instructions with those prepared by another company.

As a last resort, you might ask a salesperson or a manufacturer's representative if the instructions include all the information you'll need. It's not likely they'll tell you about any shortcomings, but if they say, "Yes,

the instructions are complete," and you find later that they are not, you may have a bit more clout in trying to get the additional information you need.

In sum, as you consider the purchase of any piece of ham gear, you should be able to answer "yes" to all, or substantially all, of the above questions to help ensure that the instructions for the equipment are effective. If you must answer "no" to more than a few of those instructions, you might well shop around for some other unit that may have better instructions.

Realistically, many of us don't want to reject buying a unit just because the instructions are poor. So if you find good gear with poor instructions, you should certainly contact the manufacturer to try to get clarifications.

Still, one key problem remains: Many instructional guides seem clear-cut and easy-to-follow when you're considering the purchase, but later, when you're assembling, installing, or operating the gear, you may face doubts, questions, and confusion.

Unfortunately, shortcomings in instructions for ham gear will very likely continue until hams themselves unite to tell manufacturers that their instructional manuals must follow specific criteria. Until then, we'll have to continue to depend on the ancient Latin proverb *Caveat emptor*—Let the buyer beware.