13
Ground crew

There are three important factors for the success of any tower work; attitude, knowledge and communication.

An attitude emphasizing safety will keep you from taking unnecessary risks. It means doing everything in a manner that is safe for all involved. It also means knowing when to back away from something in which you're not fully confident.

Knowledge is gained not only from experience but also from research such as reading this book and talking with folks who have done it before. Don't reinvent the wheel; use all available resources to plan and successfully execute your project.

Communication is more than just agreeing on a simplex frequency for your handhelds. Everyone on the tower and on the ground must be kept fully informed at all times. A tower crew that has previously worked together likely has their communications protocols and signals worked out, whereas an inexperienced group of buddies and/or volunteers must be directed in their assignments at each step along the way if they are going to work together safely and efficiently.

Remember that any tower project will take longer than expected; usually by a factor of two or three. Don't try to rush anything to get the project finished; this will only decrease your margins

of safety and greatly increase the chance that you'll end up doing several things more than once. Even experienced crews run into delays such as missing tools, incorrect size hardware, etc.

Pre-work meeting

On project day, the first thing you should do is have a session with the entire crew and go over what is going to be accomplished, and the order and manner in which it is going to be done. You should also cover all safety issues, commands and equipment related to the job. Point out any hazards in the work area such as power lines, etc. Explain any specialized equipment or tools, including carabiners and slings, come-alongs, hoisting grips, etc. If you're going to be using a come-along, be sure that someone knows how to work it. For some reason, successful come-along operation eludes the first-time user, so spend some time explaining and learning how to use it. Point out where a phone is and any phone numbers that may be needed in an emergency. You should also discuss and understand what to do in an emergency situation, such as lowering an injured person from the tower.

Let your crew know that they must not be standing around the bottom of the tower unless they must specifically be there. This is the danger zone for dropped tools and hardware.

RULE #1. The guy up on the tower is in charge.

Do what he tells you. Don't do what he doesn't tell you. Being on the ground crew is usually pretty boring, but don't take it upon yourself to do anything that would have any impact up on the tower. With very few exceptions, don't do anything unless directed to. If you're not sure about something, ask the guy on the tower.

RULE #2. When talking to the tower crew, look up at them and talk in a loud, concise voice.

Although it may be still and quiet where you are on the ground, the ambient noise level on the tower is always significantly higher. The three main sources of noise at altitude are dogs, traffic and wind. Combine those with being 50 to 150 feet up in the air and you

have major communication obstacles. I've found VHF/UHF handhelds to be useful. Stan Griffiths, W7NI, suggests using the inexpensive VOX-operated headsets that run less than a watt on the 47MHz band. Make sure you have good communications between the ground and the tower. And make sure that all batteries are fully charged!

Commands

Here are the commands that I use. I make certain that everyone understands each of the commands and that they all use the same ones. All of the commands refer to the 'load' (antenna, tower section, etc.) and are applied to the 'haul rope' (the line to which the load is attached).

"Tension" tells your crew to put tension on the line, to take up any slack.

Once you have some **Tension**, you can move the load with **"Up"** or **"Down"** commands.

"Slack" means giving the load some slack.

These instructions are usually given prior to actually moving the load.

"All slack" means the ground crew may gradually and gently release their grip on the load.

"Stop" is obvious and **"Stand by"** indicates that they should maintain their assignment while awaiting the next command. Again, the guy on the tower is in charge; don't do anything without his instruction.

If you drop something, alert the ground crew immediately. Yell **"Look out below!** or **"Headache!"** so that they can get out of the way of the wayward bolt, nut or tool. Their hardhats only provide minimal protection against this occurrence. Concentrate on not dropping anything. Dropped items are not only dangerous but it also means that you're doing sloppy work. A good rigger might only drop something once or twice a year—or even less.

There are also several common hand signals that you may want to use. Simple ones for up, down and stop can be useful, particularly in high-noise situations. Just make certain everyone knows what they are.

RULE #3. Really communicate.

I insist that my ground crew keeps me really informed. If I lower something to the ground, I want the ground crew to tell me that it's **"On the ground".** If I'm waiting for them to do something, I want them to tell me when it's **"Ready"** or **"Just a minute".** More than once I've been waiting and waiting for something that was ready, but the ground crew didn't tell me so we both stood there for some time until I asked for a status report. It's much easier to communicate and also much more efficient.

Take care of your crew

If you've managed to talk a bunch of your buddies or radio club members into helping you, by all means roll out the red carpet for them. They're giving up their time to help you and they deserve it. Make an effort to provide lots of water or iced tea and by all means feed everybody a nice lunch. (A six-pack or keg may be welcome, but only **after** all tower work is finished.) They may even come back sometime in the future to help you again!

Crew size

For small antenna jobs, two people (one on the tower and one on the ground) are usually enough. Even erecting *25G* (40 pounds per section) can be accomplished with two people, but this is a case where a third person to handle the tag line is real handy. For *45G,* you'll want to have two people on the haul rope as these sections weigh 70 pounds each, and a section with guy brackets is close to 100 pounds. Commercial riggers commonly use some type of winch or windlass to haul up heavy loads. For working with large antennas, such as 40-meter beams, two people on the tower along with one or two tag line folks plus two to four on the haul rope means that you'll need a large crew.

The guy on the tower

If you're the guy on the tower, I'm assuming that the reason that you're up there is because you know what you're doing. Before you climb the tower, do what airplane pilots traditionally do; walk around it and make a thorough visual inspection. Look at the base

for cracked or rusted legs or missing hardware. Go out to the anchors to check the turnbuckles, clamps and other hardware. Look for bee or wasp nests. Never assume that any tower is safe to climb, always inspect it thoroughly before you take that first step.

Whenever I'm working with someone on a tower, before we do any maneuver, I always explain how we're going to do it and the sequence that we're going to use. This way, they will understand the process and will do the right thing at the right time, hopefully. This is particularly important if you're up there with someone that you've never worked with before. Sometimes you both assume that the other guy is going to do something obvious that needs doing and then neither of you does it. This can be dangerous. Go over everything. If the person has little experience, he'll get an education while he's at it. It'll also make it easier the next time you work together.

Don't climb with anything in your hands; either attach it to your belt or have it sent up. Don't put any hardware in your mouth. Put your tools either in your bucket or tool bags on your belt. Try to avoid putting anything on a flat surface such as the rotator plate or thrust bearing plate; they can roll off.

Avoid using ac-powered tools on the tower. Battery powered tools are safer; you can buy, borrow or rent them. If you must use ac-powered tools, make certain they are insulated and that the extension cords are suitable. Zip cord extensions are tacky and dangerous. Make certain your ground crew knows where to disconnect the extension cords, and/or where the breaker box is located.