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Removing a Tower

What goes up must come down; that goes for towers and this means towers and antennas as well.

DANGER, WILL ROBINSON!

I can't emphasize this enough: The MOST DANGEROUS activity around towers is removing a tower that you know nothing about. You CAN'T be too careful in this situation. CAREFULLY inspect everything you can from the ground. Push and pull on stuff to see how secure it is. In the case of badly rusted guy wires, you may want to use temporary guys to make it safer. This is a case of “If you feel that it's dangerous - it probably is.”

If you're not sure about the integrity of the tower structure and you feel uncomfortable about even climbing it - WALK AWAY. I've done this several times and never regretted it.

THE REMOVAL PRIME-DIRECTIVE

The most important thing to remember in disassembling a tower and antenna system is that “it must be removed the same way in which it was installed.” In other words, if it was installed with a crane, it almost certainly has to be removed by a crane. If a mast was brought up through the middle of the tower, it'll probably have to be lowered the same way. For an undamaged antenna and tower system, just reverse the steps outlined in the installation section of the *Antenna Book* chapter **Putting Up Antennas and Towers**. Then disconnect the feed lines, rig up a tramline and lower away.

Two of the most useful tools in this phase of work are a hacksaw or hand grinder and a can of *Liquid Wrench*. Fasteners are typically thoroughly rusted and generally difficult to impossible to remove.

ROHN 25G or 45G sections can be difficult to take apart for a couple of reasons. If the builder didn't put any grease in the legs, they may be oxidized together. If the builder over-tightened the leg bolts and “ovalized” the legs, the legs will be compressed together. In either case you'll need something to pry the sections apart.

The traditional method is to use a small automotive hydraulic bottle-jack and a couple of two-by-fours. This technique works fine, but you must put a leash on everything so that nothing gets away from you and falls. A *Tower*Jack* allows you to pry the sections apart with relative ease. The only caution is that you may wind up bending the tower braces or popping a weld by exerting too much force with the *Tower*Jack*. If that is the case, the legs may be extremely jammed and you may have to resort to the bottle jack anyway.

Of course, the easiest and safest way to remove a tower is to get a crane in to lift everything. For the cost of a crane versus the chance of an accident, it's really a no-brainer. I've used a crane to lower 100' of 25G and also 90' of 45G with no problems or damage.

If you're removing a tower that you can't climb, there are a couple of options. If you've got the room to let it fall, carefully cut one set of guy wires and then pull one of the other ones to encourage it to start its downward journey. You might have to cut additional guys. A freestanding tower can be felled like a tree. Just be REAL CAREFUL in all cases.

If you don't have the room to drop it, you can use a crane to pick it up and lay it on the ground. The trick is getting up on the tower to attach the slings and the crane hook. The best thing to do is to get a crane with two hooks. You'll use one to lift you up in the man-basket where you'll then attach the second hook to the slings.

Have the operator put a little tension on the tower to hold it securely and then lower you in the man-basket. Once you're on the ground and the crane has the tower, cut everything holding it and then lift the tower up and lay it on the ground. Using a tagline will help you maneuver the tower as it's being lowered

Refurbishing

Many towers have been installed and removed one or more times. A used tower can often be an economical way to go, and generally will save significantly over buying all new steel and hardware.

PRE-PURCHASE INSPECTION

Take a long, hard look at what you want to buy before you fork over your hard-earned money. Often the owner doesn't know or has forgotten the specifics relating to his tower, including manufacturer, type, etc. The main thing you're interested in is its condition. You want to determine if there is any significant damage or corrosion. If any tower, including a crank-up, is in good shape, it will look like it. It will be clean and there will be little or no corrosion. Minor dents or bends that don't affect the structural integrity are usually okay. Many times these can be straightened, repaired or ignored.

In the case of corrosion, primarily rust, determine whether it is surface bleed caused by something else rusting onto the tower or whether the rust has penetrated the galvanizing. Hot-dipped towers such as ROHN 25G and 45G have excellent rust resistance; their galvanizing should last twenty years or more. Towers stamped from galvanized metal, such as ROHN BX, have thinner zinc coatings and thus have shorter service lives. Examine guy wire hardware with the same critical eye. Don't buy or reuse any badly corroded guy wire or hardware.

If the seller has a fifty-foot self-supporting tower but they don't know the brand, nine times out of ten it will be ROHN BX. Many times, these sheet metal towers are not worth the effort of taking down. If badly rusted they are only fit for a trip to the scrap metal yard.

Crank-up towers can be yet another can of worms. The weak links for crank-ups are the cables. Be very cautious if there is any corrosion, deformities or kinks in the cables or significant rust. Re-cabling a crank-up can be a difficult job; contact the manufacturer for instructions and replacement cable. See that the pulleys are in good shape; they should turn without binding. The rule here is caveat emptor—let the buyer beware!

CLEANING AND REPAIRING THE TOWER

Don't forget to weigh the cost of refurbishing into the equation. It is one thing if you've got lots of time and not much money, but if you spend a month wire brushing and cold galvanizing a tower, you could be spending as much as the cost of a new tower.

Once you get your tower home, put each section across a pair of sawhorses and go over it with a wire brush and cold galvanizing paint. For really rusted portions, use a wire brush attachment on a drill motor. Wear a respirator or mask to prevent inhaling the zinc and other materials. While it's on the sawhorses you can do a visual check for straightness by looking down each leg for anything unusual or bent.

Nuts and bolts are often either missing or unusable. Get replacements only according to the tower manufacturer's specs. Off-the-shelf nuts and bolts from your hardware store are probably not suitable; factory hardware has a certain grade rating that the parts must meet, while hardware store parts are likely going to be a lesser grade. Professional standards generally do not allow reuse of structural nuts and bolts on commercial towers.

The most convenient means of apply cold galvanizing paint is from a spray can. This is a case where you get what you pay for. The cheaper ones will run and sometimes don't adhere very well. LPS makes a very good one but it's on the more expensive end of the spectrum. Welding supply stores carry good professional varieties.

Order a new base section or fixture from the factory or fabricate one. With ROHN 25G and 45G, you can simply sink the bottom of the first section into the concrete as you pour the base foundation.

Follow the manufacturer's specifications and the information in the *Antenna Book* and *Up the Tower* to install a safe and reliable system.