

Wall and Chimney Brackets

By G8MNY

(Corrections Dec 08)

(8 Bit ASCII Graphics use code page 437 or 850

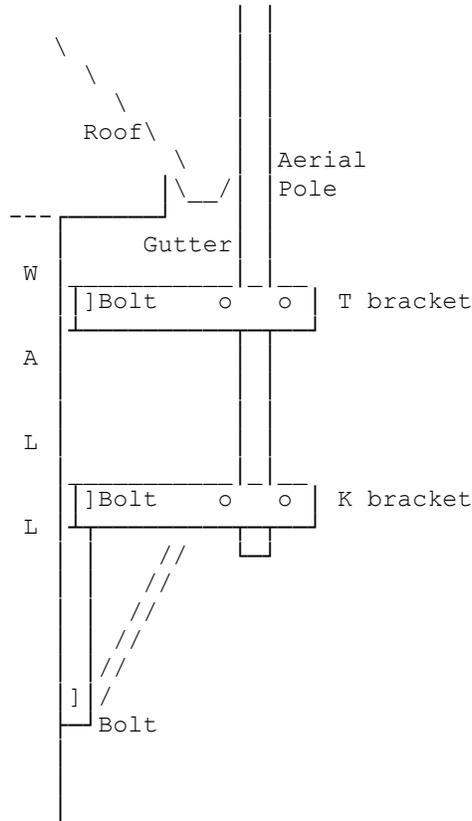
Some thought must go into mounting aerial poles to a building. Will it be strong enough for what you want to put in it, will it overload the wall or chimney & damage it?

T & K BRACKETS

Ideally the K should be the top bracket as it is on the weaker top section of the wall as it has more bolts to spread out the load. But only the K bracket can take down loads, if downloads are put on the T bracket it will bend or leaver the bolts out of the wall! Two K brackets would be better.

So it is normal to put the K at the bottom, where it's download ability is best utilised. (U can stand on it!)

If you mount either type too high there is not enough rows of bricks above it, so it could pull the wall down etc, if the cement is poor (old sand only between bricks). As far as the pole & bracket forces go, the further apart they are the better. So you have to make a compromise, deciding how strong the wall is at the top to determine the max bracket height & how much of the pole needs support, below that.



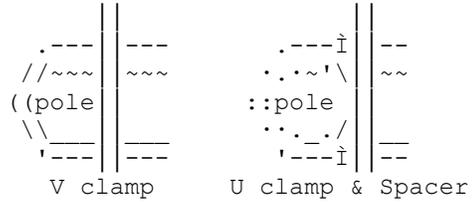
Always use the centre of bricks (if visible) for expansion bolts. Pre-mark the wall & use a hammer drill etc. When fixing the bracket do up the bolts very tight, but not enough to crack the brick! (depends on luck mainly!) If you have cracked a brick or have a poor hole, move the bracket a row of bricks or sideways if possible. If in doubt drill out the bracket to take more bolts. It is always wise to check the bolt tightness at the next maintenance check!

If you have to remove wall bolts, a coat hanger with a tiny hook on the end often works to remove the expanding nut if your patient.

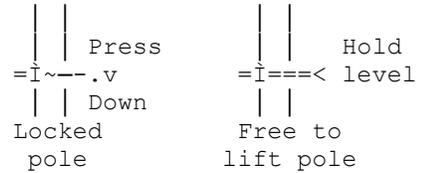
On a weak wall I have extended the width of the top bracket & also put a 2nd right angle on the inside (loft), with long studding joining the two together. This is not ideal for the wall as U can crush the cavity wall, but it was 100x stronger than just a 2 bolt T bracket!

U BOLTS

With many bracket, you get rough V shaped bolts that will dent the pole if it is a thin one. This is unimportant if the bottom clamp as that has to take the whole pole weight, but it is to the top one, if the pole is kinked at the clamp, as the pole is highly likely to fold over in a storm at that point. It is better to replace it with a properly shaped U camp & spacer, or at least not over tighten the top clamp!



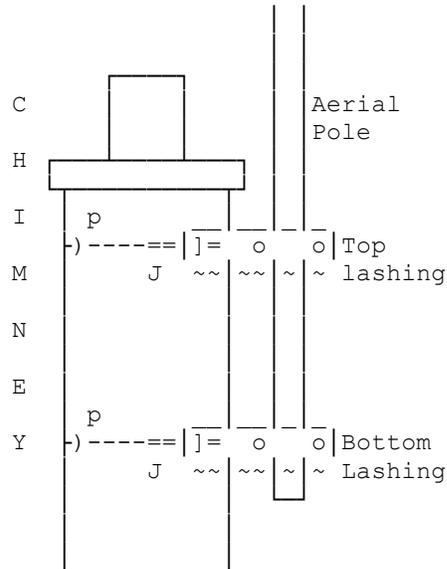
When lifting a pole through guiding U clamps it is a useful tip to make use of the "ratchet" effect. This is where a loose clamp pressed down at the centre of the U will grip the pole, but pushed up/kept horizontal, will let the pole rise. Again be aware of putting excessive down force on a T bracket, so always keep that clamp very loose while lifting! Mind fingers! Tape up/cable tie loose coax/leads etc. before they go out of reach above the top clamp!



CHIMNEY LASHING

With lashing kits make sure you have enough lashing wire to go around the chimney. The corner protectors (p) can be difficult to place from a ladder, but putting them on the wire in approximately the right place & poking at them with a stick usually works. Put the wire onto the bricks not into the weaker cement course where it could cut in & loosen.

As to spacing, the same fixing decisions as for a wall apply, except lashings actually help support the masonry if there is any cracking etc, & there is less point loading. But the lashing must be tight & wire fastings to the adjustment J bolts must be good. A twang of the wire is a good indication there is a 50kg load or so on it. Painting the lashing wire anywhere the zinc plating that was worked on with tools around the Js & (p) does reduce rusting.



PAINTING

Not done commercially, but a well painted bracket/lashing will reduce the rust marks & increase lifetime. If you intend to remove clamps in the future then greasing the threads before doing up the bolts is wise, but also paint the exposed clamp to seal in the grease, this keep nuts from turning & also stop excessive thread rusting.

EARTHING

If your worried about lightening, then add an earth wire straight to a ground stake from the bottom bracket. The gauge of wire does not matter really, as any thickness will static earth it OK (once!) & even 5A fuse wire will take 10,000 amps as it arcs on the 1st pulse! Earthing will take away nearby pulse currents

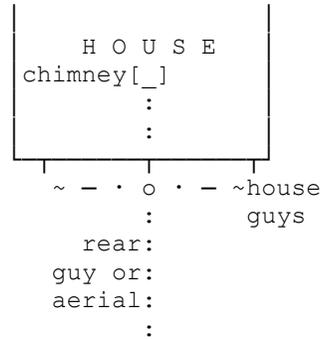
of a few amps which may save preamps etc, but for much more protection than that it is normally a waste of time & money, as you have to go a very long way to protect your shack from a direct hit!

THIRD SUPPORT

With a heavy top load, using a 3rd (another T) one between well spaced top & bottom fixings will stop the pole bending too & throw & reduce some of the swaying at that resonance. This improves the look & also spreads the load more evenly, giving some improved margin of safety, but getting it in true vertical line not always easy!

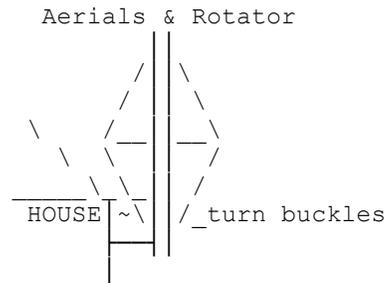
GUYING

It is not normal to guy such a pole, but if large wind loading or heavy rotator & stub pole are to be put up, there can be an annoying to for the whole lot to sway the breeze. This can easily be stopped with light guys (strings). Suitable guying positions need to be found (e.g. right angle shelf brackets to clear gutter overhang) as well UV stable rope or thin single stranded steel fence wire (plastic covered) works well, but need eyelets to stop braking.



If your into HF consider adding insulators & making these into dipoles, but they may be too near house QRM to be very useful!

If off pole guying is not practical but you still want to stop swaying & improve rigidity, consider what ships do with a cross brace & guy back to & bottom of the pole. The brace is a cross attached to the pole in the middle, The 4 arms then have steel guy wires over them from near the top to near the bottom & each one has a adjusting tensioner.



STRING FUSES

With guys or wire aerials that could pull down the pole, if say a tree fell on them, then use a weak string/cordage as a mechanical safety fuse, so that the aerial comes down first & not the pole!

NOISES

There can be several source of this. Windage across open poles, this can be stopped by plugging/capping them (bottom ones need small holes in to let water out).

Creaking noises when the wind blows need investigating, as they are often an early warning of something wrong. e.g. loose wall bolt/screw.

Rotator wering noise, can be reduced by servicing the rotator, & using plenty of really thick grease, & also under running the motor (see buls on rotators).

Rattles/clanking can be due to movement, even very small can sound loud in the middle of the night. Use packing e.g. carpet/lino to reduce/fill gaps on moving parts to stop noise.

Halyard slapping occurs when a rope is under tension parallel to a pole with wind passing (e.g. flagpoles). The cure is either dampen the resonance out with

say a sponge wedged in, or move the rope further away to that is can't hit the pole.

SAFETY

Remember if working above 2M always have someone else to hand who can advise or even call for assistance. A fall from 2M to concrete with your head can kill.

Ladders free standing need a 1 in 4 angle (75deg), & secured if at all possible. Someone footing the ladder by standing on the 1st rung is recommended.

Hardhats for any one the could have things accidentally fall on them or even bump into overhanging eaves etc,

Power tools are dangerous & difficult to use on ladders so take extra care. A small shock from one at ground level is a tease, but up a ladder can be fatal, so always use a safety trip cut (ELCB) as well as well maintained leads.

Eyeshields are need when drilling, as blown brick dust can easily get in your eyes. Also useful when manhandling VHF/UHF beams with the small elements which can easily poke your eye out when you least expect it!

Safety footwear can protect from crushing toes, but also can be more relaxing on ladders with a good solid sole & heal.

Leather Gloves, these protect hands from sharp object & may help you grip ladders & poles better, but are a real nuisance when handling nuts & washers! Open finger gloves/mits can be quite effective, by keeping hands warm & fingers still feeling on a cold day.

Safety mainly comes down to "Good decision making", so think 1st.

See my other buls on "Gyn polling up large masts", "Tree Antenna Sky Hooks", "A Light 17m /P mast design" & "PL259 Losses".

Why don't U send an interesting bul?

73 De John, G8MNY @ GB7CIP