

# Fifty-one crafty riggers' tips

Bill Wright has been installing aerials since God was a lad and he's learnt a few tricks. Some are just sense, some are cunning – and some you may disagree with



**02** An 11mm spanner cut down so it can get into tight corners

Aerial and dish installation is a potentially dangerous activity, so only act on these suggestions if they comply with your company's safety procedures.

**01** If you test multiswitches in the workshop, modify the F-type quick connector on the test lead by shortening the pin by about 0.5mm. This stops accidental line power short circuits (which trip the meter and waste time) as you connect to each output.

**02** There are various things on the market for tightening F-connectors on splitters, multiswitches and LNBs, but a standard 11mm spanner ground down so it fits between the connectors beats them all.

**03** When you fit a mast into a wall or chimney bracket don't tighten the top U-bolt so much that it dints the mast. This causes early failure. Rely on

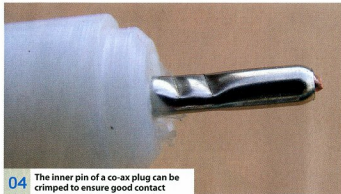
the lower U-bolt to prevent twisting of the mast in the bracket.

**04** Ideally, the inner connector of a co-ax plug should be soldered. Failing this, gently crimp the pin twice near the base with blunt cutters. The pin is not significantly weakened.

**05** If you shake a newly assembled aerial or tap the mast on the ground any loose element screws or rivets will reveal themselves by rattling.

**06** Keep a little bottle of Loctite thread locker in the van. It's a quick way to make dubious nuts and bolts absolutely secure, and avoids the need to over-tighten.

**07** If you are having trouble pushing a cable through a pre-existing hole in a wooden window frame, spray it with Mr Sheen furniture polish.



**04** The inner pin of a co-ax plug can be crimped to ensure good contact

**08** Some 18-element aerials are supplied with the cable entry on the dipole facing the reflector. Take the dipole off and fit it the other way round so the cable goes towards the cradle as it should. Co-ax should be fixed securely all the way, not left hanging between the reflector and mast as some manufacturers suggest.

**09** Test a chimney lashing wire by twanging it. If you practise you can judge the tension quite accurately, even if you haven't got perfect pitch!

**10** When drilling from the outside of the building to the inside, get someone to press a board against the inside wall to reduce plaster damage. This also works in a limited way when drilling from the inside to minimise brick shelling.

**11** Staple guns can squeeze the cable and cause impedance mismatch. Rock the gun back slightly as you fire it to prevent this.

**12** Coaxial leads on test equipment are stressed by frequent movement so can give misleading results – replace them regularly.

**13** An occasional tiny blob of silicone grease applied to the rear end of an SDS drill bit greatly improves the performance of the chuck.

**14** Familiarise yourself with anchor bolts as a stronger alternative to the customary plastic plugs and coach bolts – 75mm and 100mm by 10mm are the best sizes.



**11** On the left you see the result of using a staple gun with excessive pressure

## Bill Wright

Bill grew up with a TV aerial in his hand, helping his aerial installer dad. In 1971 he seized the reins and has never looked back. Nowadays he concentrates on distribution systems, leaving everything else to his son, Paul.





**15** This masonry fixing was too near the edge of the wall, so the brick cracked across

**15** Don't use any kind of masonry fixing near the edges of brickwork, and never fix into the mortar joint.

**16** A vertical cable run should be fixed at top and bottom first under slight tension and checked for verticality. Only then should intermediate fixings be added. Otherwise it can look like a dog's hind leg. In extreme cases use a plumb bob.

**17** On frosty days look at the other side of the roof before using a

roof ladder to check that the hook won't be on ice. Even if one side of a roof is in sun the other side can still be frozen.

**18** If you suspect that an aerial junction box might spring open, wrap it tightly with tape or a cable tie. And take the cable away running slightly downwards so water isn't carried into the box.

**19** It's rather annoying when you drop a small item as you assemble the aerial and it falls down a drain.

So don't park where there is a drain below the van door.

**20** When fitting a flush backbox you might encounter very poor masonry. For a secure fixing fill the (ragged!) hole with No More Nails, Gunnanail, or similar, and push the box into position. These products can also secure cables to some types of flat roof.

**21** For short but 'impossible' VHF or UHF cable runs, consider RG179 miniature 75Ω co-ax. Loss is about 1.3dB a metre at 1GHz. But don't try the small types of co-ax used for audio – they don't work properly for RF.

**22** Keep a waterproof bag in the van containing a complete change of clothes. One day you'll thank me.

**23** Use disposable shoe covers in the homes of the fastidious.

**24** A Mole clamp with very broad jaws as used for welding is good for clamping to guttering to prevent a ladder being blown over, but make sure the guttering is strong and secure. Alternatively, a crab clamp or an ordinary G clamp can often provide an anchor point.

**25** If you've been given the keys to a house or flat, as soon as you have the door open shout something. I usually shout, 'Where's that dog?' If there's a dog (or indeed any toothy and malevolent life form) it's best to meet it where you can slam the door in its face.

**26** Keep a small packet of white filler and an applicator tool in the van. Many a drilling disaster can be smoothed over – in more ways than one – if you show no sign of dismay when seeing the mess and carry out an immediate repair.

**27** Keep proper records of communal TV systems. Photograph the head-end and take the trouble to draw up a good clear system diagram.

**28** Make sure that your van isn't overloaded. Once the ladders and tools and you are on board there isn't all that much payload left over. If you get stopped and weighed it can be expensive, and if you have an accident your insurance might not pay out. Have a good sort-out. It's amazing how much junk hides in the average rigger's van.

**29** It isn't worthwhile changing faulty cells in a NiCad drill battery, but

replacement batteries can be had from specialist firms (use Google) at half the price of the manufacturers' originals. Before you condemn a battery, discharge it fully overnight (use a headlamp bulb as a load) and recharge it twice to eliminate memory effect.

**30** Keep a packet of baby wipes and some kitchen roll in the van. You don't want to turn up at someone's house with dirty hands.

**31** A powerful battery-powered reciprocating saw is very handy for cutting through rusted wall bolts and U-bolts, chopping up scrap aerials and removing tree branches that are in the way of the ladder. It doesn't sound like an obvious thing to keep in the van but once you've had one you'll never be without it.

**32** If you have problems wrapping self-amalgamating tape around the connectors on a Quattro, quad, or octo-LNB, heat shrink sleeving provides an answer.

**33** If you hold master keys for places where you work regularly, label them with code numbers only and keep the code elsewhere.

**21** Miniature 75Ω co-ax shown next to CT100



## Keeping yourself safe

**41** When carrying or erecting a big ladder, plant your foot firmly on the ground and use it as a fulcrum. It's a long way from your hands, so the leverage is very good.

**42** Wear gloves whenever you can. Yes, really! A specialist product like Perfect Fit Poly Gloves from Screwfix will protect you from cuts, scratches, and electric shocks. And after a week your hands will be seductively smooth. It's also worth keeping a box of disposable gloves handy.

**43** The first time you touch an installed dish or aerial do it with one tentative finger to check for excessive mains leakage via the receiver. A dish on a distribution system that hasn't been earth bonded can give you a mighty belt.

**44** Get into the habit of looking upwards for obstructions and fragile lamps before you move a ladder. Be very careful near overhead mains cables.

**45** When standing a ladder on a wet concrete or paved surface, if you suspect that ice might form while you're on the roof sprinkle salt around before you position the ladder. All you need for this is a container of table salt. You should also consider roping the ladder base.

**46** Keep a first aid kit in the van in a prominent place. Familiarise yourself thoroughly with its contents.

## Cable-ties and clips

**47** Don't use cable ties to hold cables to aerial masts. If they are tight enough to not slip down they can deform the cable and because they are at regular intervals they can cause standing wave problems. Use good quality PVC tape rather than ties. Where ties are appropriate use black ones, because all other colours are affected by UV and will perish in sunlight.

**48** If you push a cable clip's little nail fully forwards through the plastic part you can then attach the clip to the cable and nail it to the wall with one hand. Only those who have actually fixed a cable from a high ladder will understand why this helps.

**49** When hammering cable clips into a brick wall, if the mortar seems impossibly hard try using a vertical mortar joint. These will usually take nails more easily.

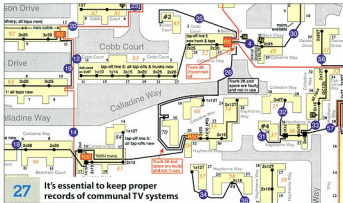


**50** When three or more cables are fixed to masonry, cable clips can look untidy. A quick and easy solution is to bunch the cables together and use plastic push-in cable tie mounts (Screwfix 89036).

**51** Fix cables to lead flashings with a cable tie. Make a small hole near the lower edge of the lead and pass the tie through. Obviously the flashing itself should be well secured.



These little push-in tie mounts are as cheap as chips and will hold bunches of cables very neatly



**34** If there are unlabelled cables at a large head-end and you are wondering if they are disused, be ruthless and leave them disconnected. If you've cut someone's telly off it won't be long before they squawk. Then you can label the cables with the dwelling numbers.

**35** Sometimes, inexplicably, a tall mast will oscillate violently in the wind, and the vibration in the house will be horrendous. A small alteration will change the resonance and fix the problem, so drop the mast 6in in the brackets or fit an (unused) FM aerial or small TV aerial between the real TV aerial and the brackets. Try to be there on a windy day.

**36** When a block of flats has 'no reception', check the hallway lighting and the door entry system as you enter the building. They are likely to be on the same mains circuit as the TV system, so if they're off you've found the fault.

**37** You can trace low-level wideband interference with a log periodic, a two-stage masthead amplifier and your analyser. Tune to a vacant channel and watch the noise floor as you move the

aerial. Chances are the culprit will be a faulty sodium light.

**38** To find where 11-12GHz terrestrial interference is coming from, stand on the roof with an LNB (no dish), hold it horizontally and rotate it through the points of the compass while watching the analyser screen. Then put the dish somewhere that's screened from the direction of the interference.

**39** To convert an 18-element Group B aerial to Group E, trim both ends of the last four directors by 5mm, the next four by 3mm, the next four by 2mm, and leave the four nearest to the dipole alone. There's no need to alter the dipole, reflector or element spacing.

**40** If you're trying to achieve a really low-profile dish installation and you want to mount the dish on the ground or close to the slates, the 4- or 8-output LNB will hang down too low. Rotate it exactly 180° from the correct polarity offset position so it's upside down and it will work fine. Waterproof the connections and apply silicon sealant around the bottom (now the top) of the LNB. Some Vision LNBs don't hang down, they stick out at the front, so they can provide another solution.



**32** Heat-shrink sleeving can be used to weatherproof LNBs connections