

Project Steps

Overview:

A. Prepare:

B. Raise up small antenna.

C. Raise up large antenna.

D. Connect to new bundle of 4-feedlines pulled up from ground.

E. Test, and if needed, adjust tips of large antenna.

People:

Climber1: Joe Yarkin

Climber2: Jon Garriott Climbers need sturdy boots.

Ground Helpers: Mark, Gail. Ground helpers in grassy field need long pants, shoes not sandals.

Tractor: Jon's worker

A. Prepare:

1. See diagrams for name of parts: mast, boom, element, rotor loop, etc.
2. See parts at large antenna in field: sling, mast clamp, White 30m element that slides...
3. At garage, discuss radios, u-bolts, red-pulley attachment to mast, barrel connectors and ground wire, waterproofing...
4. Collect tools in tool bucket. sockets 7/8" and large adjustable, 9/16" blue, 1/2" yellow, 13mm yellow, 10mm green, knife, tape, pliers, wire brushes, de-oxid paste, ...
5. Climber1 in gear and climb up with small green rope to top plate, arms at top plate, "garage-side".
6. Climber2 in gear and climb up tower almost to top, then to the "road-side" to help and hand tools.
7. Use small green rope to pull up tool bucket. Save green rope to pull up feedlines later.

B. Raise up small antenna. Small antenna is 12 feet long, 11 pounds weight. All bolts in inches.

1. Already in-place on mast is yellow-pulley 4 feet up. Orange rope through yellow-pulley to small antenna on ground. Small antenna is vertical to travel up the face of tower.
2. Ground helpers use orange rope to pull up small antenna.
3. Climbers help it up over edge of top plate. Open clip at orange rope/YELLOW tape to allow antenna to turn horizontal. Pull horizontal antenna up close to yellow-pulley 4 feet up mast.
4. Climber1 Climb up to stand on top plate. Belt around mast, below antenna, about 3 ft.
5. Climber1 Attach small antenna to mast with 2 u-bolts half-tight. socket 1/2" yellow.
6. Climber1 Remove clip at yellow tape. Remove orange rope and sling (Cut and pull RED tape to release sling.).
7. Climber1 Remove yellow-pulley and sling from mast above antenna. Have no obstructions to sliding up mast.
8. With yellow-pulley gone, loosen u-bolts and push small antenna up mast to about 6 feet. Final tighten u-bolts with small antenna pointing to road (West). socket 1/2" yellow.
9. Attach new red-pulley by u-bolt below antenna about 5 feet. Tighten well, this has to hold to pull up large antenna. socket 9/16" blue. Orange rope through red-pulley to ground, to large antenna.

C. Raise up large antenna. Large antenna is 22 feet long, 100 pounds weight. All bolts in METRIC.

1. Climber1 back down to top plate garage-side.
2. Climber2 at top plate road-side. Two people needed to get large antenna over edge onto top plate.
3. Ground crew attach orange rope to sling on large antenna. Pull rope goes over tower to tractor.
4. Tag loops on ends of large antenna for 2 ground helpers to adjust antenna position as it raises.
5. Tractor pulls up antenna, 2 helpers use tag loops keep it flat to tower face, and slight away from tower.
6. Climbers help antenna over edge of top plate, and up until it sits against mast, about 1 foot above top plate.
7. Attach u-bolts from zip-lock bag. socket 13mm yellow (1/2 inch yellow).
8. Final tighten u-bolts with large antenna pointing to road (West) same as small antenna. Detach rope and slings.
9. Climber1 stand up on top plate and remove red pulley from mast, and at upper antenna cut black tape to allow feedline to fall down along mast toward ground.
10. Climber1 back down to top plate. (No more standing on top.) Climber2 standby until after testing.

Well Done, Heavy part is done!

11. On large antenna, find closest element "White 30m". Clip cable ties, and slide plastic box and long element inward toward mast to proper spot on boom and tighten with deep socket 10mm green from underneath. 3 u-bolts, 6 bolts total, socket size 10mm green. Use Hose clamps 7mm to hold ears on plastic box against boom.

D. Connect to new bundle of 4 feedlines pulled up from ground.

1. On large antenna, cut tapes and arrange feedlines into a 3-feedline bundle along boom toward mast and a 4-feedline bundle down the mast (adding feedline from small antenna above.)
2. Then a 2-turn ROTOR LOOP (see diagram) around mast just below large antenna and drop over edge of tower near one leg, to below the bottom plate. Adjust and tape. Wait for final nylon ties and taping until after antenna testing and after watching to see if ROTOR LOOP turns OK.
3. Using small green rope, raise up new bundle of 4 feedlines inside tower, to below bottom plate,
4. Connect the 4 antenna feedlines from above, to the 4 feedlines going down the tower using the 4 "barrel connectors" with ground wires. Push-in connectors while tightening, only finger-tight before testing is OK. Match colors Blue-Blue, White-White, etc.

E. Test, and if needed, adjust tips of antenna.

1. Mark will test antennas with meter at ground end of feedline bundle. Will take 10 minutes.

If antennas test OK:

2. Climbers below antenna and watch ROTOR LOOP turn to see it doesn't catch or bind as Mark rotates antennas both ways. Mark rotates from inside house - use radio to coordinate! Don't get pinched between antenna and tower!
3. Adjust rotor loop as needed and final tape and nylon tie in place.
4. Final-tighten the 4 barrel connectors, push-in and Plier-tighten connectors (more than finger-tight).
5. Connect the ground wire to a current tower bolt, underneath or added to a threaded end. Or use another bolt and available hole in leg, scrape paint and wire brush for good ground contact, also use de-oxid paste. 7/8" and large adjustable wrench.
6. Waterproof tape both sides of each barrel connector (see diagram waterproof).
7. Tape the feedline bundle (and existing rotor cable) to a tower leg about every 20 feet down tower to ground.
8. Climbers down and done!

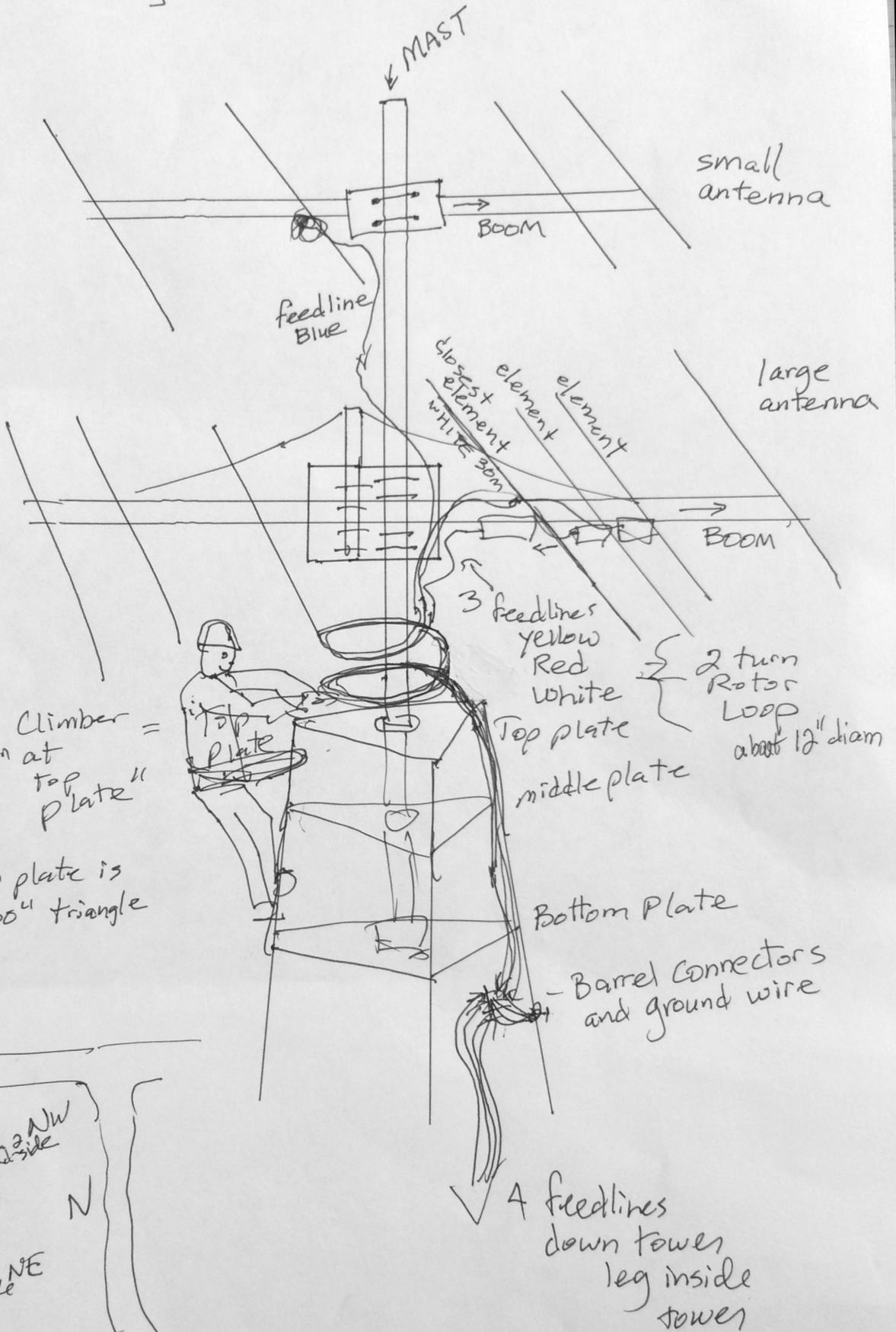
DONE!

If antennas test NOT OK: Climbers take break to get explanation?

1. We will spin large antenna to bring element tips close to tower and adjust tip lengths.
2. Mark will point antenna at 315 degrees (NW) to clear closest element from hitting tower.
3. At boom-to-mast plate, loosen "circled" u-bolts (size 10mm green) to allow "spin" of whole antenna to vertical, so element tips on one side come down close to tower.
4. Climber down tower to reach tips and adjust tip of White, Red or Yellow in or out as instructed. Hose clamp socket size 7mm. Careful, hose clamps are easy to strip-out.
5. If need to adjust the furthest-out 40m Yellow, have Mark rotate antenna back to 270 (or as low as 225 degrees) so tip is closest to tower. Reach out with rake (pull up rake with green rope) to hook the tip and pull in closer to tower. Will have some tension while adjusting the tip.)
6. Let go, then from boom to mast plate, reverse spin the antenna to bring the opposite tip around close to tower.
7. Adjust opposite tip same amount.
8. Spin large antenna back to horizontal.
9. Retest.
10. If OK, Final-tighten "circled" u-bolts to stop spinning.

Continue at above "If antennas test OK:"

Diagram "Parts"



Climber =
"at top plate"

Top plate is 30" triangle

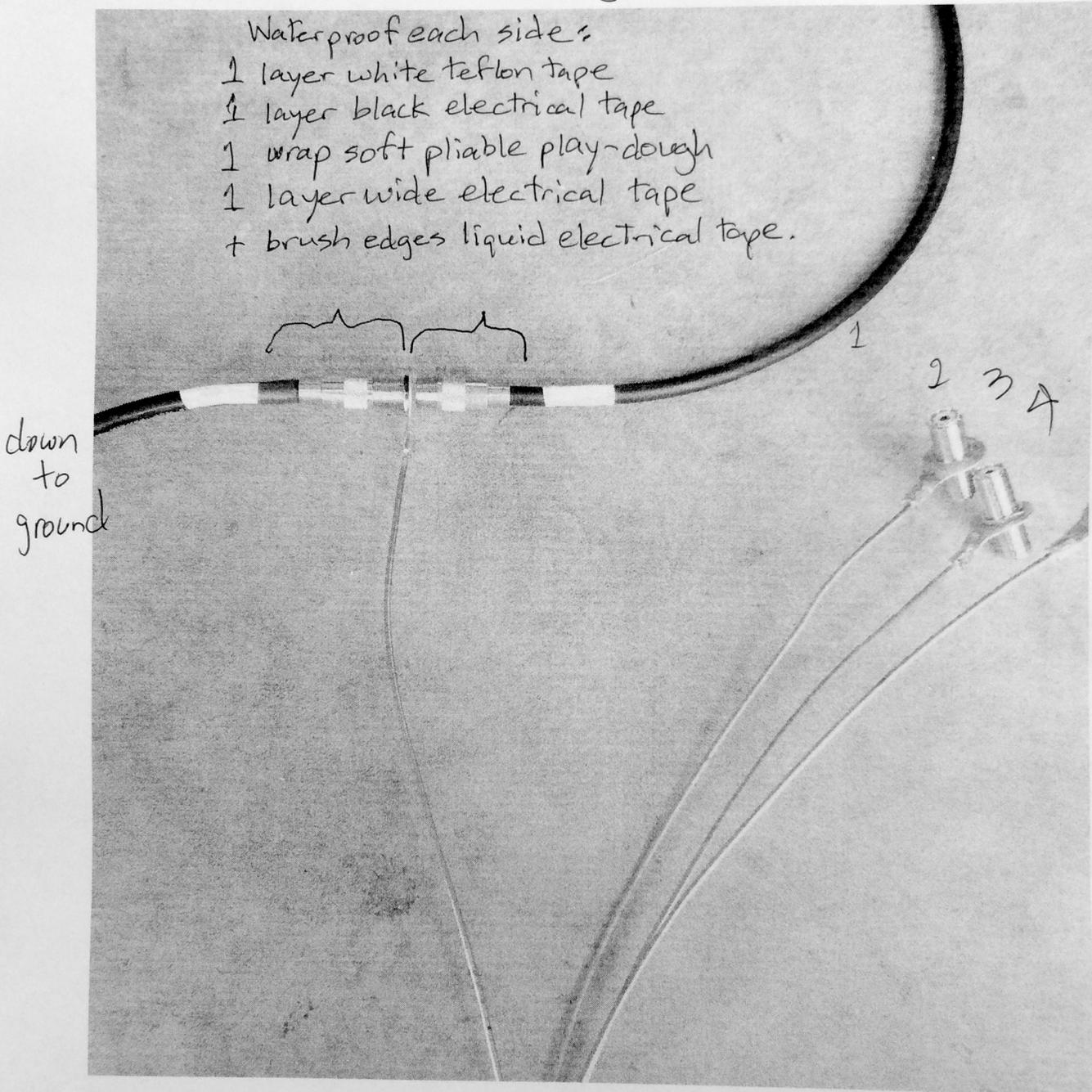




Barrel Connectors
Ground wire
Waterproofing.

up to
antenna

- Waterproof each side:
- 1 layer white teflon tape
 - 1 layer black electrical tape
 - 1 wrap soft pliable play-dough
 - 1 layer wide electrical tape
 - + brush edges liquid electrical tape.



ground
wire to tower bolt,
under nut, or add second nut.