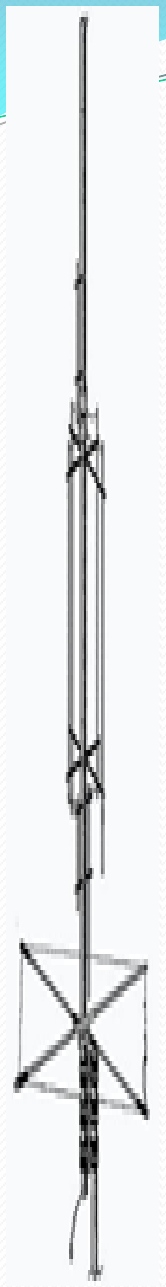
Antenna Story

By Robert S. Shank
KM6RSS



The Antenna (Installation #1)

- October ‘16:
  - Met in Fillmore with Duane DeSalvo, (KD6AF), who was moving to Washington State
    - Bought his 8-year-old garaged Gap Titan ($130, needed new parts), as well as his Swan 500 transceiver and Mark II linear amplifier ($350, always wanted one)
    - Duane mentioned that he didn’t have to apply to Fillmore for a permit for his antennas
  - Tried random wire antennas using an FT-40 automatic antenna tuner
    - Bought six 10’ PVC pipes and 300’ of AWG 12 insulated house wire
    - Installed the wire on insulators through each PVC pipe, fitting the pipes over the existing standpipes
    - Ran the control cable and connected it to the transceiver
      - Able to receive some HF and VHF communications, although roof footprint required to route the wire in a square configuration but the signal strength was low (roof is 25’ x 25’)
- May ‘17:
  - All Titan replacement parts in, stainless steel mounting plate fabricated and drilled, S5B fasteners arrived, mast and tilt-mount in hand
  - 100’ of LMR 400 purchased and installed
  - Antenna raised and **neighbor asked me if I obtained a city permit**

Search for Legal Requirements to Install an Antenna

- May cont.:
  - With antenna installed, and neighbor's question, began search for antenna regulations
    - City, County, Coastal Commission and State exempted Ham antennas height restrictions
    - 75' maximum (City Sec. 24.405.030, 8175.4-9))
    - Freestanding antennas needed site plan (8175-5.1i)
      Ventura County WCF Exceptions 8107-45.3 (no propagation diag., visual impact, alt. site)
    - California Govt. Code Sec. 65850.3
    - Any ordinance shall not preclude amateur radio…minimum practicable regulation
    - Federal Memorandum of Opinion and Order PRB-1
  - Sent emails to the Building and Safety "plan counter"
    - Yolanda Bundy, the Chief Building Official
    - Veronica Ledesma, the Associate Planner
    - Veronica responded that my property was exempt from requiring a zoning variance
    - Vince Tovey, Ventura's Senior Electrical Inspector/Plan Checker, representing the Chief Building Officer, requested a meeting at City Hall

1st City Hall Meeting-Ventura's "New" Antenna Plan Submittal Requirements

May cont.:

- Meeting attended by Vince Tovey who invited Scot Weisse, P.E., Construction Permits Supervisor

CITY OF VENTURA
BUILDING & SAFETY
www.cityofventura.net

City of Ventura
Building & Safety Division

RESIDENTIAL PLAN SUBMITTAL REQUIREMENTS

General Requirements:

- ☐ The minimum paper size is 18" x 24". Standard paper size is 24" x 36".
- ☐ Plans must be complete, legible, accurate and drawn to scale.
- ☐ Provide three (3) sets of plans with each submittal.
- ☐ Provide two (2) copies of the following: Soils reports and Structural calculations (for new construction or when applicable).
- ☐ Show compliance with State Title 24 Energy Conservation requirements and reproduce the MF-1R and CF-1R forms on plans.
- ☐ Applications must be filled out completely on both sides and signed by applicant.
- ☐ Address and owner information must be on each sheet of the plans.
- ☐ Must have the wet stamp and signature of the Architect/Engineer on the plans.
- ☐ No required information can be taped on plan.

Information required on Site Plan:

- ☐ All property lines, easements, existing lot drainage, and proposed lot drainage.
- ☐ Existing structures with setback distances between structures from property lines (include patio covers, decks, trellises, sheds, pools, etc.)
- ☐ Locations of all proposed work, showing setback distances from property lines and other structures on the parcel. ELEV.
- ☐ Height and location of all fences, walls, retaining walls, and screens.
- ☐ All driveways, paved areas, and required parking spaces.
- ☐ North arrow on site plan and vicinity map.
- ☐ Location and size of main electrical service panel. ? GRAND
- ☐ Show required landings at all doors – provide dimensions.

The Cover Sheet of the plans musts contain the following:

- ☐ Name address and phone number of owner and engineer, architect or designer as appropriate.
- ☐ Address of proposed project with assessor's parcel number and land use zone.
- ☐ A complete site plan (as described above) with project vicinity map. COUNTY ASSESSOR
- ☐ Project data to include size of lot, size of existing buildings, proposed addition and/or remodel (provide dimensions).
- ☐ A code analysis to include: construction type, occupancy classification, the number of stories, and whether or not Fire Sprinklers are required. TYPE V-B R-3?
- ☐ A complete description of the scope of the work.
- ☐ Plans sheet index and description of page.
- ☐ For Neighborhood Preservation cases, the Notice and Order must be reproduced on the front sheet of the plans (if applicable).

— continued on back

ARES/ARRL to the Rescue-Volunteer Counsel Program-Civil Rights Issue

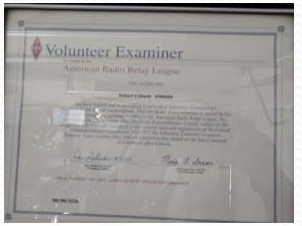
June:

Regulatory & Advocacy

State and Local, Volunteer Consulting Engineer Program, Volunteer Counsel Program, Antenna Regulation and Zoning, CCR Study Information, International, Federal RFI Preemption, Technical Relations Office, Federal

- **ARRL Volunteer Counsel Program**
  - **Richard Heller, Esq. (WA6IZH)**
    - **Civil rights suit- call bluff and put antenna back up**

- **Contacted Rob and Grant**
  - **Rob- "Other Ventura County Hams didn't have city issues because they didn't ask"**
  - **Rob gave contact information for Aaron Engstrom, Ventura County Assistant Planner; "wrote" the County's antenna ordinance**
    - **Engstrom emailed "sorry, you live in Ventura City, overrules county"**



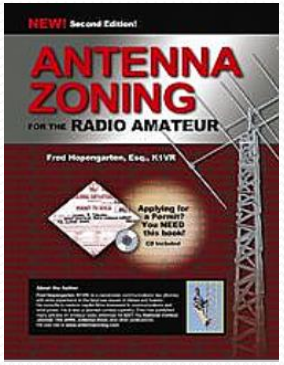
- **Applied for and received ARRL and GLAARC VE certification**

Go Back to ARRL and Find Books

June cont.:

Searched ARRL website for recommendations

1) Read the article "PRB-1 and CC&Rs - What Should I do Now?" from the May 2007 QST;
2) contact an attorney; and
3) obtain Antenna Zoning for the Radio Amateur.



- Bought "Antenna Zoning for the Radio Amateur", 2nd Edition, by Fred Hopengarten (K1VR)
  - **Lots of examples, forms, templates, etc.**
  - **Had neighbors sign letters of support about "community service" aspects of amateur radio**
  - **Fred's bottom line "go along with whatever building and safety requires since pursuing a legal solution is very expensive"**
- Contacted legal firm about issue; wanted $5,000 retainer and estimated that trial would cost approximately $20,000 in legal fees

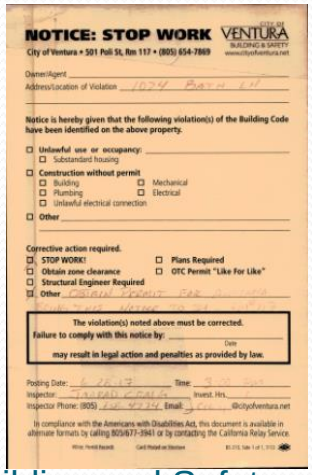
Community Service - VE, VCARC, ARES and Field Day

June cont.:

- Contacted Jeff Reinhardt (AA6JR), the CVARC VE Liaison
  - **Supported June 11th amateur radio licensing test**
- Invited to and attended Ventura County Supervisor's Proclamation presentation
- Applied for and accepted into ARES, VCARC
- FEMA coursework begun
- Assisted VCARC with June 23rd-25th Field Day weekend

Installation #2 and STOP WORK

June cont.:



NOTICE: STOP WORK

City of Ventura • 501 Poli St, Rm 117 • (805) 654-7869

Owner/Agent

Address/Location of Violation

Notice is hereby given that the following violation(s) of the Building Code have been identified on the above property.

- ☐ Unlawful use or occupancy:
  - ☐ Substandard housing
- ☐ Construction without permit
  - ☐ Building
  - ☐ Plumbing
  - ☐ Unlawful electrical connection
  - ☐ Mechanical
  - ☐ Electrical
- ☐ Other

Corrective action required.

- ☐ STOP WORK!
- ☐ Obtain zone clearance
- ☐ Structural Engineer Required
- ☐ Other
- ☐ Plans Required
- ☐ OTC Permit "Like For Like"

The violation(s) noted above must be corrected.
Failure to comply with this notice by: Date
may result in legal action and penalties as provided by law.

Posting Date: Time:

Inspector: Invest. Hrs.

Inspector Phone: (805) Email: @cityofventura.net

In compliance with the Americans with Disabilities Act, this document is available in alternate formats by calling 805/677-7941 or by contacting the California Relay Service.

- Discovered City of Ventura Building and Safety (B&S) Stop Work Notice
- Contacted Mr. Heller
  - **He suggested I send formal letter to mayor, council members, lawyer, etc. asking what specific ordinance, statute or law that I had broken (certified and return receipt requested; complied)**
- Made appointment with Chief Building Official

2nd City B&S Department Meeting and "The Code"

July:

- Met with Chief Building Official, Construction Permits Supervisor, and City Attorney
  - **Meeting started with "You must obtain a building permit"**
  - **Reason given – neighbor filed a complaint AND**
  - **Third-party legal firm found the word "ANTENNA" in a CA Code**
  - **Unaware of anyone in Ventura having to obtain a building permit**
  - **Attorney stated that this means <u>all antennas in city</u>**
  - **I didn't bother to ask if my antenna was "grandfathered"**
  - **Structural Engineering cost estimated at ~ $1,500**
- Later, received an email stating that antennas 4' and under are allowed-no permit needed so trimmed my random wire masts

RE: Radio and Television Transmitting Stations Antenna Building Permit Requirements/Analysis for 1074 Bath Lane

Bundy, Yolanda <ybundy@cityofventura.ca.gov>

You replied to this message on 8/2/2017 5:31 PM.

Sent: Tue 7/18/2017 2:58 PM
To: Robert Shank
Cc: Diaz, Gregory; Weisse, Scot; Lambert, Jeffrey

Good afternoon Mr. Shank,

Thank you for your email. As stated in our previous meeting, a building permit is required for the proposed installation of the radio antenna that exceeds 4 feet in height. The structural requirements for this installation are per the California Building Code 2016 per chapter 16 and the adopted structural standard ASCE 7-10.

Please let me know if your licensed design professional has any specific questions.

Best Regards,
Yolanda P. Bundy, M.S., P.E., CBO, CFCO
Chief Building Official

Community Development Department
Building and Safety Division
501 Poli Street
Ventura, CA 93002
Phone: (805) 677-3963
Email: ybundy@ci.ventura.ca.us

The Code: 2016 California Building Code 14.04.040 Section 105 – Permits – Amended – Work exempt from permit pertaining to **Radio and television transmitting stations**: …shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and **antennas**"

6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or story below and are not part of an accessible route.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated swimming pools accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family dwellings.
12. Window awnings in Group R-3 and U occupancies, supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

Electrical:

Repairs and maintenance: Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

Radio and television transmitting stations: The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.

Temporary testing systems: A permit shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

Gas:

1. Portable heating appliance.
2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.
2. Portable ventilation equipment.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.
2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

[A] 105.2.1 Emergency repairs. Where equipment replacements and repairs must be performed in an emergency situation, the permit application shall be submitted within the next working business day to the building official.

[A] 105.2.2 Repairs. Application or notice to the building official is not required for ordinary repairs to structures, replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles. Such repairs shall not include the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring or mechanical or other work affecting public health or general safety.

[A] 105.2.3 Public service agencies. A permit shall not be required for the installation, alteration or repair of generation, transmission, distribution or metering or other related equipment that is under the ownership and control of public service agencies by established right.

[A] 105.3 Application for permit. To obtain a permit, the applicant shall first file an application therefor in writing on a form furnished by the department of building safety for that purpose. Such application shall:

1. Identify and describe the work to be covered by the permit for which application is made.
2. Describe the land on which the proposed work is to be done by legal description, street address or similar

2016 CALIFORNIA BUILDING CODE 27

California Building Standards Commission Understanding of "The Code"

July cont.:

RE: 2016 California Building Code 14.04.040 Section 105 - Permits - Amended - Work exempt from permit

CBSC@DGS <CBSC@dgs.ca.gov>

This message has been replied to or forwarded.

Sent: Thu 7/13/2017 4:53 PM

To: Robert Shank

Robert,

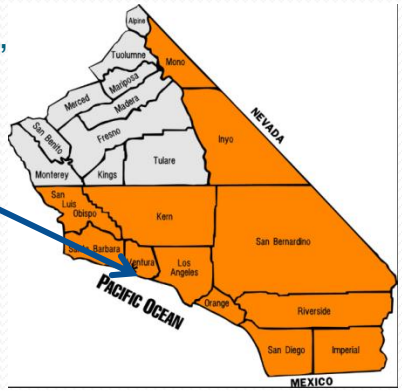
The Building Standards Code, 2016 California Electrical Code do not specifically define "Radio and television transmitting stations" however, in Art. 820 the code addresses these items. This Art. Addresses these devices as they relate to "Community Antenna Television and Radio Distribution Systems". These are the systems regulated by a utility not for a private residence with a ham radio antenna.

Your only option is to work with the authority having jurisdiction as this is under their authority and only they can address your antenna situation.

Hope this help… remember the local authority is the key to your issue.

Michael L. Nearman
Deputy Executive Director - CBSC
(916) 263-5888

The Deputy Executive Director for CBSC said "These are the systems regulated by a utility not for a private residence with a ham radio antenna"
Only option is to work with the authority having jurisdiction



Now What Say You ? (VCARC, ARES, and Anyone Else)

July cont.:

Shared the issues with anyone that would listen, brought documents to VCARC meeting, posted on K6MEP Yahoo

- Received lots of suggestions
  - Mount antenna on trailer in driveway
  - Flag pole antenna
  - Rain gutter antenna
  - Don't put antenna on a Tower (I didn't; it's on a mast)
  - Put a 4' antenna on a 40' mast

554 **Re: [K6MEP e-group] Fwd: U.S. Senator Dianne Feinstein responding to your me...**

Rodger Morris Ju

Buy yourself a trailer and mount the crank up antenna on the trailer.

;-)

560 **Re: [K6MEP e-group] Fwd: U.S. Senator Dianne Feinstein responding to your me...**

stewart.stone Jul 18, 2017

Robert --

You could try a 10/12/15/17/20 Yagi on a low roof tripod w/rotor; other option depending on roof size, could be Alpha Delta DXCC multi-band dipole -- approx 75 ft end to end; or other trap dipoles using house as your mast.

-- Stewart

B&S Minimum Practicable Antenna Regulations

July cont.:

Bundy, Yolanda <ybundy@cityofventura.ca.gov>
You forwarded this message on 7/14/2017 4:40 PM.
Sent: Thu 7/13/2017 12:18 PM
To: rshank1950@gmail.com
Cc: Weisse, Scot; Diaz, Gregory

Good morning Mr. Shank:

It was a pleasure meeting with you yesterday.

As per your request, I am sending you the submittal plans requirements:
Minimum plan size submittal 18"x24"
Description of scope of work - description must be part of plans
Plans must have the address of the project written on them
Provide section and height of antenna installation
Provide antenna structural calculations and details for the installation of the antenna
Structural Calculations and Plans must have the wet stamp and signature of the state licensed design professional

Please give me a call once you have your plan ready, so we can meet to do an over-the-counter review for you so that we can expedite this.

Don't hesitate to let me know if you have additional questions.
Thank you.

Yolanda P. Bundy, M.S., P.E., CBO, CFCO
Chief Building Official

Community Development Department
Building and Safety Division
501 Poli Street
Ventura, CA 93002
Phone: (805) 677-3963
Email: ybundy@ci.ventura.ca.us

"Fine Print"

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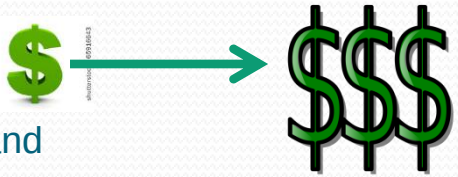
7 Calls and RGSE to the Rescue

July cont.:

B&S sent list of “approved” antenna installation structural engineers

Mark Baker, PE
Larry Hauer, SE
Ramon Garcia, SE
Corrie Florez, PE
Eduardo Zarate, PE
Jim Vinci, SE
Stuart Tomeny, PE

Called all of them with VM; most wouldn’t return my call
Jim Vinci was the original structural engineer for my duplex
- Antenna installation SE isn’t done; no $ in it
- Sent roof design calculations



Jeff Lubberts of Ramon Garcia (RGSE, Inc.) returned call and asked for details
- 10.25 hrs. of telephone/design work @$200/hr.
- 2 hrs. of drafting @$120/hr.
- .75 hr. of drafting @$90/hr.
- Grand total **$2,492.50**

RGSE, Inc. Structural Engineering

Great people to work with; made the 3 required copies
Ready for B&S plan review (and approval?)

City Hall Plan Review (Piece of Cake)

Aug.:

Made B&S appointment
Met with Ms. Bundy and Mr. Weisse
All designs and documents were reviewed, approved and stamped at meeting
Packet was submitted to clerk, paid $204.97 for the permit
Given permitting documents, card for window; ready to begin installation work

CITY OF VENTURA BUILDING & SAFETY

PEM Combo Permit: OTC

Permit No: PEMO-8-17-49539
Work Class: Residential
Status: Issued
Inspection Requests: (805) 654-7874
Expiration Date: 2/17/2018

Permit Information

Address:	1074 Bath Ln Ventura, CA 93001-3817	**Issue Date:**	8/21/2017	**Parcel:**	760244110
Main Permit:	Yes	**Square Feet:**	0	**Lot:**	
Application Date:	8/21/2017	**Valuation:**	$ 0	**Inspector:**	
				Phone:	

Describe Work

Installation of commercial hand radio antenna 35' height measured from top of existing roof structure

Code Data

Contacts

Contact Type	Name	Company	Address	Phone
Applicant	SHANK ROBERT S-LINDA D TR		1074 BATH LN CA	(303)981-5956
Owner	SHANK ROBERT S-LINDA D TR		1074 BATH LN CA	(303)981-5956

Contractors

Company	Business Address	Phone	Business License	Expires

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Signature _____ Date _____

CONTRACTOR STATE LICENSE AND INSURANCE

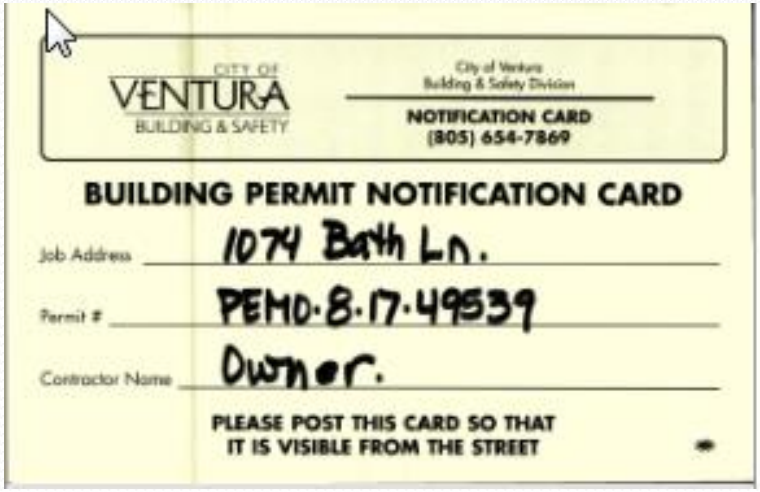
License Type	License Number	Expiration Date	Comments

Electrical

Elec Issuance: 1

Mechanical

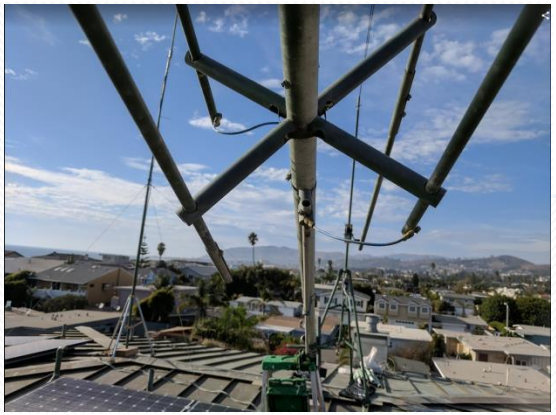
Plumbing

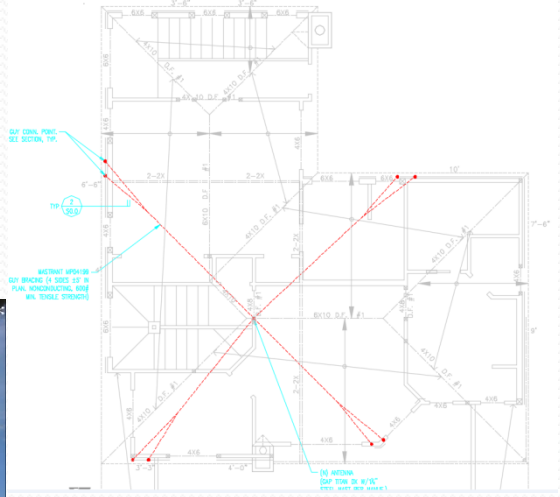


Antenna Installation #2 and VSWR Issues-Buy a New Titan

Aug. cont.-
Sept.:

- Installation must follow design or will fail inspection!
- Finding roof joists under copper roof and exterior plywood
- Raising the antenna as a one-man job
- VSWR – too high; buy another Titan

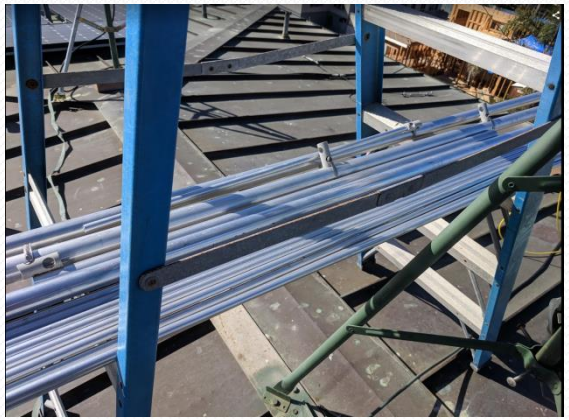




Antenna Installation #3 – No Problems

Nov.:

Bought a brand new Titan!
Up it goes



GigaParts
www.gigaparts.com

Robert Shank,

Thank you for your order from GigaParts.com. Once your package ships we will send you a tracking number. You can check the status of your order by logging into your account.

If you have questions about your order, you can email us at sales@gigaparts.com or call us at 866-535-4442.

Your Order #000029836

Placed on Nov 3, 2017, 12:32:09 AM

Billing Info

Robert Shank
1074 Bath Lane
Ventura, California, 93001
United States
T: 303-981-5956

Shipping Info

Robert Shank
1074 Bath Lane
Ventura, California, 93001
United States
T: 303-981-5956

Payment Method

Credit Card

Credit Card Number xxxx-7115

Shipping Method

Expedite Surface (2-6 Bus. Days)

Items	Qty	Price
Gap TITAN DX SKU: ZGA-TITANDX	1	$439.00
	Subtotal	$439.00
	Shipping & Handling	$6.00
	Grand Total	**$445.00**

12/4/17 Santa Ana Wind Attack (Thomas Brush Fire) and Antenna Damage

Dec. ‘17:

Taken from my roof

At least the guys held!

Installation #4 (Still have the old parts, right?)

Jan. ‘18:

Sue Stephens (GigaParts)
Dec 6, 16:07 CST

Robert,
I am so sorry to hear of the wind issue and antenna damage. My heart goes out to those affected by the fires as well. I can't imagine how scary of an ordeal.

I'm sorry, with the damage to the unit, GigaParts would not be able to extend anything in regards to the antenna warranty. You would need to work with GAP under your GAP product warranty or inquire if they would be able to extend their warranty. Perhaps your homeowner's insurance would cover the antenna. If that is the only damage you received perhaps the deductible is too high.

Please just let me know if you ever have problems corresponding with them and need us to reach out to them on your behalf.

Sue Stephens
Customer Service Manager
866-535-4442

Sorry, no warranty
Contact Gap for replacements

This time guyed at two levels

Making its own contrails

B&S Inspection and Approval of Antenna Installation

Jan. cont.:

1/23/18 Antenna installation inspection

Passed

Lessons Learned

- Join and support amateur radio groups
- Be active with community service
- Work with governmental agencies
- Ask questions and listen to advice
- Always keep the end goal in mind

QUESTIONS?