

# R F



## ORANGE COUNTY AMATEUR RADIO CLUB

P.O. BOX 95, ORANGE, CALIF. 92668

VOL. X NO. 6

JUNE 1969

PRES: JERRY, WA6ROF  
V. PRES: DAVE, WB6RVM  
SECY: FRANK, WB6TBU  
TREAS: BILL, WB6CQR

MEMBERS AT LARGE:  
DAVE, W6COJ  
JACK, WB6UDC  
TEEN REPRESENTATIVE: DAVE, WB6NRK

ACTIVITIES: JOHN, W6BNX  
PUB. REL.: KEN, W6HHC  
MEMBERSHIP: BILL, WB6WOO  
TVI: DAVE, W6GPR



## DX FROM ORANGE COUNTY

BY JACK, WB6UDC

Band conditions have been sporadic this past month and limited activity on the bands was observed. Unusually high noise levels were encountered locally which are combinations of powerline problems as well as the condition of the band.

Not much of any long path on 20 meters is heard any more in morning. Most morning operations are towards the orient which can provide some interesting contacts for DX. Incidentally for those who are interested there is an award being offered by the VS6 Bureau in Hong Kong. This award is called the FIRECRACKER AWARD. To obtain this award send a letter with log information on at least four (4) Hong Kong contacts to the VS6 Bureau. The band conditions this past month restricted activity to 20 Meters. Ron WACFIT has made some contributions again to this column.

YN4RWE	Nicaragua	BOB	21,300	0225 GMT
CPLIE	Bolivia	Frank	21300	0045
7Q7WW	Malawi	Walt	28565	1737
WA5UWN/OA6	Peru	Roland	21279	0218
KJ6EZ	Johnston Isle	Charley	28640	2341
OH2EM	Finland	Kari	14212	0328
VP5TH	Grand Turk	Tom	14203	0410
OK1AGQ	Czechoslav.	Jarda	14250	0607
VP2MA	Montserrat	Joe	21280	0031
KS6CQ	Amer. Samoa	Jake	21322	0246
HB9AHA	Switzerland	Rene	14215	0707
F8DC	France	Tony	14255	0752
VU2JW	India	Manish	21283	1818

The following are from the authors log:

VR4EZ	Solomon Is.	Bryan	14232	1420
F9UC/FC	Corsica	Jean	14214	0627
9M8RY	Sarawak	Yong	14248	1433
VK9XI	Christmas Is.	Bill	21310	1559
VK9XI	" "	Mike	14244	1436
ZF1GC	Grnd Caymen	Frank	14224	0337
PJ2CB	Curaceo	Bob	14215	0412
FK8AC	New Caledon.	Felix	14275	0631
9M6HM	Borneo	Hubert	14205	1453
PYØRE	Trinidad Is.	Eddie	14220	0041 (DXpedition)
VP2KM	St Kitts	Ken	14250	0030
HBØAFM	Lichtenstn	Oscar	14205	0048 (DXpedition)
XW8CN	Laos	Ben	14206	1441
LX2FB	Luxenburg	Fred	14245	0518
FR7ZL/T	Tromelin Is.	Guy	14210	1332
DL1SU/YBØ	Indonesia	Alex	14250	1427
OX5BA	Greenland	Burt	14204	0519
KC4USP	Antartica	Ed	7228	0621
VU2AJW	India	Chuck	21298	1827
VR6TC	Pitcairn Is.	Tom	14230	0635

Notes taken while listening across the band give hints to several DXpeditions coming up soon. Call me at the home QTH for details I have. Would still like to know who has what awards !!!! See u next month

73 *Jack*

## Minutes of Meeting - May 16, 1969

This meeting was held at the Heathkit Company on Ball Road in Anaheim. Due to a mis-understanding, the manager of the store was not there when the meeting was scheduled to start, which was at 1930 hours. Consequently, we held our meeting in the parking lot until 2030 hours, when the manager finally arrived, and the remainder of the meeting was conducted inside the store.

Ray Owens, K5SAN, was the lucky one to shake Mr. "R.F.'s" hand first, and receives a free club badge. The Heathkit Company donated three gift certificates as prizes, and the lucky winners were: W8ELW - \$5.00, W6SYC - \$15.00, and WA6BYY - \$5.00.

Field Day was discussed. John W6BNX, is to firm up the exact location, and draw a map so it can be printed in the next issue of R.F. John is also to check with the owner of the emergency generator which has been loaned to the club in the past, and make sure it will be available again. It was decided that everyone would furnish their own hot food, and that the club would furnish coffee, soft drinks, and cold cuts for sandwiches.

Team captains will furnish their own equipment and can contact John, W6BNX, if antennas are needed. We have four commitments from members, on tents. If anyone else has a spare tent, please contact John.

The Ham Fest was discussed. Ken, W6HHC, said we probably would hold it around the middle of September, 1969, in one of the county parks. It was suggested that the Heathkit Company might donate a nice piece of radio equipment as one of the prizes to be raffled. We have a long way to go regarding the Ham Fest, and Ken will need all the help he can get.

The Heathkit Pre-Field Day Jamboree will be held on the Thursday and Friday before Field Day, at the Heathkit Store on Ball Road. There will be two speakers, one being a design engineer who will speak on the latest equipment from Heathkit. The event will be held from 9:00 a.m. to 9:00 p.m. All are requested to attend, and register for the grand prize drawing, which will be a SB200. The grand prize winner need not be present to win, but all who attend will be given something.

New members to the club are: Eddie Lohse, WN5YSS; Richard Martin, WA6CQR; and Raymond Owens, K5SAN. Visitors were: Mel Bittner, no call; and Bill Sword, VE3FPO/6.

The meeting was adjourned at approximately 2200 hours.

Frank O'Leary, WB6TBU  
Secretary, ORARC

Respectfully submitted,

*Frank O'Leary*

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HAMAD: Fer Sale! Apache TX-1, Drake 2B, Hallicrafters T.O. Keyer wid Vibroplex paddle, Vibroplex bug, Gonset 15-10-6 mtr converter, 2 mtr Sidewinder wid DC supply, Push-to-talk mike & 7 element beam. Make best offer. Contact Keith Salyards, WB6RJX, 537-8919.

BASIC REGULATED POWER SUPPLIES  
BY  
W6HHC

This months article will be a scan of several types of regulated power supplies using semiconductor devices (transistors or diodes). These power supplies are used primarily in low voltage applications (0-50V) although with proper selection of components can be made for higher voltages (50V - 300V). The use of regulated supplies is essential in obtaining good performance from voltage sensitive circuits, such as oscillators or measurement circuits. The heart of these modern power supplies is the zener diode.

The Zener Diode

The zener diode is a specially built type of diode to be used as a voltage reference. The zener diode is very similar to the old voltage regulator tubes, except that while they normally regulated at around 100 VDC, the zener diode can be produced to regulate from 5 VDC - 100 VDC. Most common zeners are between (6V DC and 15V DC).

In an earlier article, I described how a diode conducts in the "forward bias" direction to produce a 0.6V DC voltage drop and that it would not conduct in the "reverse bias" direction. Well a zener diode conducts like normal in the "forward bias" direction but it also conducts in the reverse direction and there it produces a voltage drop equal to its "zener voltage rating", Vz.

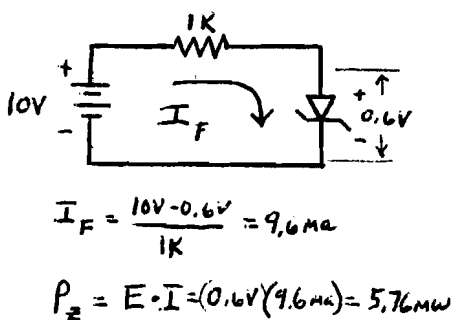


FIG 1A

ZENER DIODE CONNECTED  
IN "FORWARD BIAS" DIRECTION

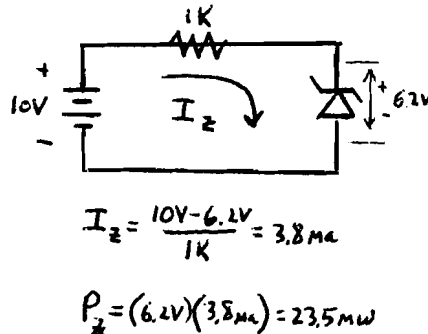


FIG 1B

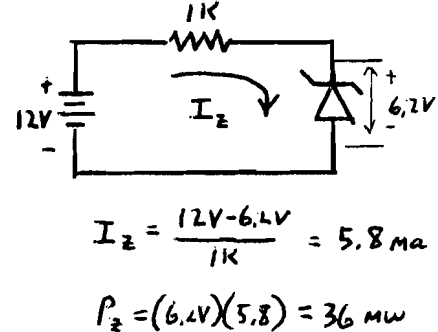


FIG 1C

ZENER DIODES CONNECTED AS REGULATORS

Figure 1 shows the two ways to use a zener diode. The circuits in Figure 1B and 1C allow you to produce a constant 6.2VDC reference voltage whether the power supply is 12 VDC or changes to 10 VDC. Manufacturers always tell you how much power you can dissipate in a zener diode, so make sure you design your circuits carefully so as to not damage it with heat. A simple (although not as good) zener diode can be made by just connecting many regular diodes in series. Remember, each forward biased silicon diode produces a 0.6 VDC voltage drop. So to produce a 6 volt zener substitute, connect ten diodes in series.

Zener Regulator

The circuit in Figure 2 shows how to build a simple and cheap power supply regulator.

Zener Regulator (cont.)

Here are some rules for determining the value of the series resistor, R.

RULES FOR CALCULATING R

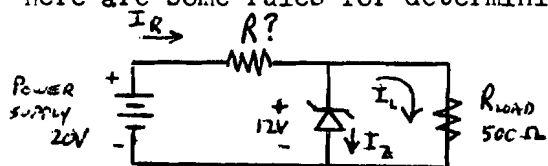


FIGURE 2

- 1) DETERMINE THE ZENER VOLTAGE ( $V_z$ ) YOU WANT.
- 2) DETERMINE HOW MUCH CURRENT THE LOAD WILL DRAIN ( $I_{LOAD}$ ).
- 3) DETERMINE HOW MUCH CURRENT ( $I_z$ ) YOU CAN SAFELY PUT INTO THE ZENER.

$$(P_z = V_z \cdot I_z)$$

$$4) I_R = I_L + I_z$$

$$R = \frac{V_{PS} - V_z}{I_R}$$

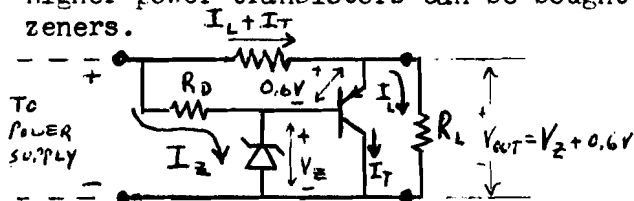
- 1)  $V_z = 12VDC$
  - 2)  $R_L = 500 \Omega$ ,  $I_L = 12VDC / 500 \Omega = 24 \text{ ma}$
  - 3)  $I_z = 10 \text{ ma}$  ( $P_z = 12V \times 10 \text{ ma} = 120 \text{ mw}$ )
  - 4)  $I_r = 10 \text{ ma} + 24 \text{ ma} = 34 \text{ ma}$
- $$R = \frac{20V - 12V}{34 \text{ ma}} = 250 \Omega$$

IMPORTANT NOTES:

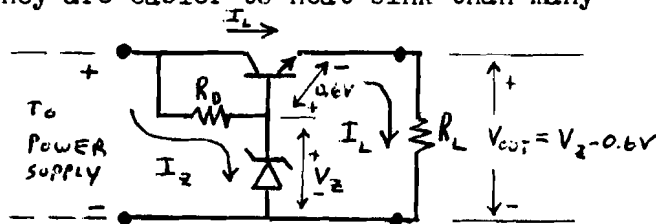
- A) The zener diode will only regulate as long as the power supply voltage is greater than  $V_z$ .
- B) Remember to calculate the highest voltage you might expect coming from the power supply into the zener regulator. Then calculate the current into the zener,  $I_z$ , and make sure this current will not produce too much power.
- C) If you disconnect the load from the zener regulator, all of the load current ( $I_{load}$ ) will go into the zener diode, make sure that the zener power rating can take this additional current.

Transistorized Regulator

Either of the transistorized regulators shown in Figure 3 can be used to produce a constant voltage source. Again the heart of the regulators is the zener diode. However, in these circuits the majority of the power will be dissipated in the transistor. Higher power transistors can be bought and they are easier to heat sink than many zeners.



TRANSISTOR SHUNT REGULATOR



TRANSISTOR SERIES REGULATOR

FIGURE 3

Choose  $R_D$  to give a safe zener current ( $I_z$ ) from the unregulated power supply voltage. Then determine the power dissipations in the transistor for the given load current.

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Next "RF" deadline: July 2!!! EDITORIAL COMMENT:(IXN) I know that HHC's terrific series on transistor circuits and uses must be making some of our readers jealous because they didn't think of it first!!! But it isn't too late! HHC will gladly accept any and all technical articles for "RF"!

## THE PREZ SEZ

Seems we have set another record. We are the first club to hold its business meeting in the Heathkit parking lot, as we experienced at last months meeting. Jack Shaw took a picture of the historic event, which should prove worthy of including in a future edition of "RF" - hi. The reason Heathkit was not open to us as planned is that somehow there was a mixup on the date. They didn't expect us until the following Friday. Tnx to ole faithful YWN for getting Bob Carrothers down ther to let us in. After visiting Heathkit, some of us wound up at the Hoffbrau where Bob treated us to as much beer as we could reasonably consume. Is there a "Q" signal for "I'm bloated?" (Burp!) Still don't know who was the last one to leave. Anyhow, it turned out to be a lot of fun, tnx to Bob Carrothers, W6KFF. (But how does Bob contact the VHF repeater when he can't stop burping?)

Field Day is just around the corner and final arrangements will be made at our June meeting. The Field Day site will be reflected on a map elsewhere in this edition of "RF." The groundrules for FD competition with the other Orange County clubs has been approved by the Board, and involves entering the points of our three top bands (as defined by ARRL FD contest rules) as the basis for scoring competition. The winner will receive and retain til the following year, the local Field Day plaque with the club's accomplishments progressively inscribed on it. Let's all get out to Field Day and do what we can to see that our club achieves this award, not to mention the fun we will have. Everyone can help - operating, logging, monitoring, facilities, etc. FD setup at the Irvine site w/ no doubt commence bright and early Saturday morning, June 28th, and we should be ready to start operating by noon. CU there.

Our Hamfest Chairman, W6HHC, sez things are shaping up and, as I recall, he has WA6YWN in charge of publicity and WB6UDC in charge of prizes and manufacturers displays. Ken still needs volunteers to head up such things as concessions, XYL-YL activities, childrens activities, and of course special ham activities like mobile judging, raffels, homebrew contests, code copying contest, etc. Come on gang, give Ken your support. Remember - the Hamfest is to raise momey for your club. We can't do it without your help.

Bill Robinson's XYL-Pat, has volunteered to make up some new publicity posters for the club at various ham stores. Bill will coordinate this effort and may have a new publicity poster to show us before long. Go easy on Pat though Bill, we may need her artistic talents for the Hamfest, hi.

In response to the many requests for some club social events, I have exercized my constitutional privilege and appointed Ron Cade, WA6FIT, to take charge of organizing a social committee and arranging for some interesting event this year in which we can get the XYLS and kids of club members together to get better acquainted and just plain have some fun. Unlike the Hamfest, this event will not be to raise money but to enhance the club's enjoyment of its members and their families. Any suggestions as to the type of event should be directed to Ron Cade. Ideas thus far have included a picnic, a breakfast, a tour to Goldstone Tracking Station, El Toro Tower, or the Elsinore Parachute jumps. Put your thinking caps on gang. Ron will have more about this at the June meeting, and don't forget the code practice session at 6:30pm (or thereabouts).

Vy 73, Jerry, WA6ROF

*Jerry*

Add the following new members to your rosters: Raymond Owens, K5SAN, 1234 W. McFadden, SA, 92707, ph 540-3171; Eddie Lohse, WN5YJJ, 5238 E. Namar, M.C.A.S., El Toro, Santa Ana, 92709, ph 544-4914; Richard Martin, WA6DQR, 11543 206th St., Lakewood, 90715, ph 860-1698. WELCOME TO THE CLUB, FELLOWS!!!

