



HAM HUM

August 1962

Vol. XII
No. 8



AUGUST MEETING

Next meeting of the Ak-Sar-Ben Radio Club, Inc. will be held at 8:00 P.M. on August 10th, at the General Motor's Training Center.

We will have a demonstration by John Orr, WØPHW, of the Telephone Company, and also of ham radio and the Data Phone. The Data Phone is a way of communicating from one computer center to another by way of long distance. This device squeezes a lot of communication into a small period of time and is one of the coming things in the business of getting information from one place to another.

We gave you the story of computers some time ago. Here we have a gadget that is of general interest that might appeal to you even more. Put one of these in your home and you could squeeze into a three-minute phone call the family gossip it would take you a week to deliver in person.

Tony Schneider of Industrial Electronics who was unable to be with us last month due to illness will bring us information on electronic components and discuss their manufacture and use.

The General Motor's Training Center at 225 North 80th Street has

plenty of free parking and is air-conditioned. This is a program recommended for your family so bring them. In addition, we will have some movies (not technical) plus refreshments. If you have any room in the back seat of your car, why don't you bring the ham down the street. Maybe he is a new one and hasn't even heard of our Club. If you have no room in the back seat, ask him to come anyway. Guests are always welcome.

The new QTH is 1724 Charles as per our phone call of 3 months ago. Recently made trip into Eastern Okla., made some gud contacts in K5 land. Thanks, Dick -

73's

Bert, KOCFQ

NEWS FROM BELLEVUE AMATEUR RADIO CLUB

New Secretary-Treasurer of the Club is John A. Gibbs, KØUEH. Also, the new meeting place of the B.A.R.C. is the old library at 1908 Hancock in Bellevue.

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DX NEWS

WQGL, WQUUV and WONKG had real good luck in landing FW8HB on Wallis Island all in the same evening on 20 meter SSB. Bill was in his last afternoon on the Island. Orville passed word along to keep your ears open for ZL4JF on Friday and Saturday evenings.

Don, WQUUV, has been picking up a lot of new countries in Africa on phone by working TY2MY-SSB as he makes his way from country to country. His present frequency is 14001 but look for him above 14100 soon.

I see Doug Flair at lunch and believe it or not he might get on 20 meters in the morning.

Band conditions on 20 have been up and down. Have been hearing some nice countries in the evening if the band stays in. The same thing holds true in the mornings. The band in the morning is either open state side or long and short direct path.

Yours truly got his VK6 card in for a need zone. Don't pass any of those boys up, gang - you will need it some day. Only four left

for me. Mac needs three yet. I hear, 15 meters has had some DX signals on but are weak. From the short skip signals heard on the bands, might be there were some skip in on 6 meters but haven't heard.

73,
Jerry, WONKG

(Editor's Note: There has been a fair amount of skip coming in on 6 meters; however, here is a ground wave on 6 that is one for the book. On July 10 at 0145 C.S.T. an airline 335 miles on 6 in a five-way QSO for 40 minutes between KOMSS, Mack, WQYZV, Dick, KOSKV, Carl, K9JSB, Stan, and KQJRM, Jack, K9JSB is in Peoria, Illinois; KQJRM is in Marshalltown, Iowa; We also talked to K9UOH and W9OUV in Moline, Illinois and to K0VSZ in Iowa City a few minutes before. For the benefit of the oldtimer who has not heard of 6 meters or VHF as yet, ground wave on 6 can be consistent at 60 miles, intermittent at 225 or 250 miles, so 335 miles is quite a stretch.)



PREXY

SEZ—



By Royal Enders, KØLYO,
1962 Club President

CQ CQ DE KØLYO BT

Worthwhile projects for the month of August for every OM, YL, XYL, or Jr. Op.

Consider the Club dates for the coming months of 1962 and put a big red circle around these on the calendar:

August 10: Bang-up technical meeting as announced in this issue in air-conditioned comfort.

September 16: The annual Ak-Sar-Ben Club picnic at Beaver Brook Farm and at the same admission donation as last year.

October 12: The big auction which will enable you to have many very enjoyable QSO's with other Hams from far and near, and at the same time buy some choice gear and components at the price you decide pay. Rules of the auction will be announced in the September issue.

November 9: The Program Committee will go all out on this one, so don't forget to say "yes" when

a Committee Member asks you to do some little extra.

December 14: The big Christmas party for the whole family and your guests, with the annual election of officers for the year 1963.

Send a check or money order to Ye. Treasurer for your dues, and include the subscriptions for CQ and QST. On each renewal or new subscription your Club receives a fee which helps to put on the meetings and parties that you enjoy.

Clean out the Shack and get ready for some fine Rag Chews as the weather gets cooler. Is the old beam and di-pole in FB shape for winter? How about the rotor? Does the tower need painting? How about realigning the Rcvr to help bring in the hard ones? Some Xmitter tubes getting soft?

(As we write this, Prexy's 40/80 meter antenna is down, thanks to some wind, along with a fault in

the original antenna raising; we plan to correct that this week-end.)

Did you make a small contribution to the ARRL building fund? Lou Cuder or Ed Donze will be glad to accept it from you, and soon we will want to send in both the individual and the Club contributions. Without the ARRL we could not possibly have the fine club we have, and the 1961 Midwest ARRL Convention would not have been held in Omaha under the Club's sponsorship. So, let's help in the building of the much needed new Headquarters. Every dollar, and half, and quarter will be of service to all amateur licensees in the U.S.A.

73 BCU BT Royal, KØLYO

10315 Dearborn Drive
Overland Park, Kansas
July 16, 1962

Gentlemen,

I recently moved from Madison, Nebr. to the above address. I will appreciate continuing to receive Ham Hum. It keeps me informed of what's doing with many of my Nebraska friends, including my GM friend, Prexy Royal Enders. Best of 73's,

Leon D. Kuhr
WØDPS

FOR SALE:

HE45 Lafayette Transceiver,
6 meter with HyGain 5 el. beam.

453-0496

Bob, WØAQA

Cuss, mutter, grumble, here I am, clear down in Texas, and I still have to eat crow 'cause the Soo Land boys beat you. The only other ham in the county comes from Sioux City. At least this may make a point I harped on for years, that nobodys' galloping lower jaw is going to make a very good showing against a good fist when it comes to a contest. As much as I hate to admit it, the trophy is where it belongs. However, maybe next year....Most of my hamming time lately has been taken up by net operation, tho I expect to do more rag-chewing when it gets cooler again. I'm always glad to get Ham Hum to catch up on what you guys are doing.

73,

Diek Reimund
W5KFI

ROSTER ADDITIONS

Kenneth Borchert, KØSCE
4118 Maple Street
Omaha 11, Nebraska

Harold E. Jacobs, KØJBC
2312 Deer Park Avenue
Omaha 5, Nebraska

Howard C. Kerr, WØFFG
9461 Bedford Street
Omaha 34, Nebraska

Hershel Smith, WAØBGM
1566 No. 18th Street
Omaha 10, Nebraska

MEETING COMMENTS

Comments on the July meeting of the Ak-Sar-Ben Radio Club held at the 4-H Bldg. of Ak-Sar-Ben Field, Ha, Nebr.

It is a rather sad affair that the meeting of July 13th did not attract a larger number of the club's members. Regardless of the small turnout, we did have several good items of interest on the program. First was Mr. Doug Flair, KOJQS, of the Mobile Communications Company, who presented some of the features of VHF F.M. communications in this area. Doug discussed such items as transmitters used for mobile FM (or PM) and the frequency deviation or swing commonly used. Also discussed was receiver sensitivity, mobile antennas, repeater systems and their antenna problems, as well as the many excellent features of the Motorola communications line. Although frequency modulation (FM) or phase modulation (PM) has never enjoyed as much popularity as it perhaps should for amateur communications, it may very well gain increased use because of the large amount of the older wideband (plus/minus 15 kc.) equipment released on the market lately and at a very reasonable price. Many studies have shown that an FM system, especially those of the plus/minus 15 kc. wide band type, has a very substantial advantage over an 'AM with carrier' type system. This is something for the 50 mc. and above fellows to consider. Remember, if we don't begin to put

the upper parts of 6 and 2 meters to use, we just might lose some of this spectrum. I wish every club member would read the article in the Aug. '62 "VHF Horizons" magazine by Mr. John Chambers, W6NLZ. Some additional recommended reading might be the Editorial on page 9 in the August QST regarding technical progress in amateur radio.

Doug donated a prize for the evening drawing consisting of a Motorola noise suppression kit for a mobile which prize was won by WOYZV. (Information regarding the Motorola noise suppression kit will be found on pages 6, 7 and 8.)

All this then brings us to the second speaker of the evening, Dr. Lynn Thompson, KOJBQ, who talked on the subject of a recent article in QST entitled "How do we sound on the air." The talk was outstanding and the only ironic part is that the ones who should have been there were not. Have you listened on 6 lately? (There is another article on how we sound in the August QST.)

The final demonstration was by Mr. Al McMillan, WOJJK, of World Radio Laboratories and World's Chief Engineer Mr. Ed Shulman, KOCZD, who presented the Meteor, World's Double Sideband Transmitter and explained its many good engineering features and some of the problems in design work and materials procurement.

My only regret with the meeting was the club's P.A. amplifier which

I had checked over recently and had worked perfectly at the May meeting.. it would pick a time like the July meeting to have a 6SN7 develop a short. We'll try to have it working better next time.

See you at the next meeting, Aug. 10th.

73, John, W0WRT

MOTOROLA NOISE REDUCTION KIT

The level to which ignition noise interference will need to be reduced will depend on the environmental conditions of operation of the radio system. The factors involved are the strength of the received carrier at various points within range of the fixed station, and the clarity of signals at the fringe areas. However, in most cases ignition noise interference can be substantially reduced resulting in optimum performance of the radio equipment under most operating conditions.

The reduction of ignition noise interference, in many cases, is essential to good system performance. Therefore, it must be given full consideration in the initial installment of the radio equipment. The components required to successfully reduce ignition noise interference may well prove to be an essential part of the communications system. Indeed, no installation of mobile radio can be complete unless the remedy for bothersome ignition

noise interference has been successfully applied at the time of installation.

Specific noise sources may be isolated to some extent, under specific conditions. When the vehicle is standing still with the ignition switch off, any noise heard will probably be external to the vehicle. Static discharge noise will be added when the vehicle is moving with the ignition switch off. If the vehicle is coasting in gear, with the ignition switch off, generator noise will be added to the others, if present. Noise produced by inadequate bonding will be most noticeable when maximum current is being drawn from the battery, and may be increased when the vehicle is in motion. Care should be used to be sure that noise tests are made both with and without weak signals. Also, care should be used to check with squelch control in the unsquelched or maximum sensitivity condition.

The use of a coaxial flexible lead, with a probe pick up loop about one inch diameter, connected to a separate powered radio set or oscilloscope and utilized as a search wand to find the hottest areas, has been found to be most useful.

It is impossible to give an exact procedure to counteract noise in all cases; too many variables exist. With an understanding of some of the sources of noise, an intelligent approach will often save considerable time. Ignition noise reduction can add to both operational efficiency and operator satisfaction.

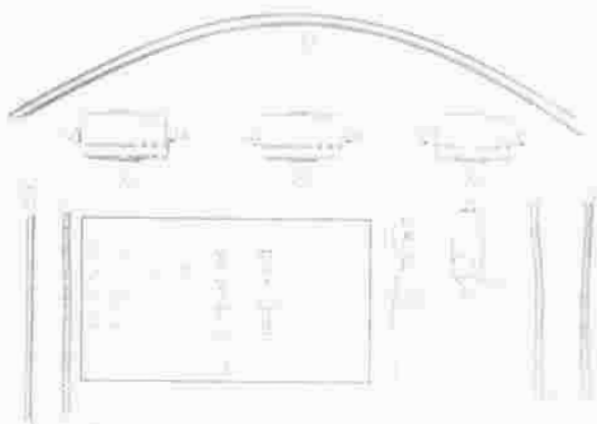
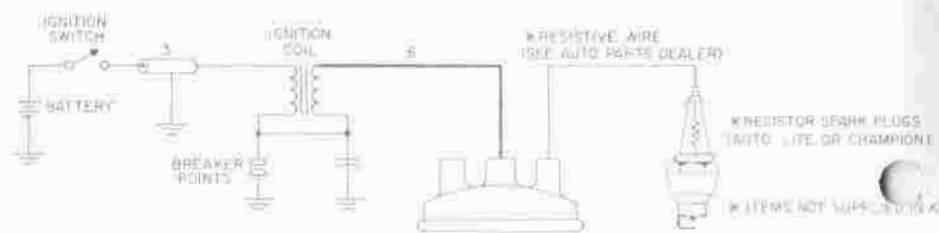


Figure 9

11. KIT COMPLEMENT (Refer to figure 9).

Ref. No.	Quantity	Motorola Part No.	Description
1	3	1V839913	Lead & Lug Assembly
2	1	1V80700A88	Lead & Lug Assembly
3	1	8C82571B02	Capacitor, Co-axial (.1 uf - 100 V)
4	3	8C82571B01	Capacitor, Co-axial (.5 uf - 100 V)
5	1	1V80700A89	Generator Field Suppressor Assembly
6	1	30A502396	Ignition Coil Suppressor Cable
7		1V80700A91	Hood Wipers and Mounting Hardware Kit



NOTE
 NOISE REDUCTION CAN ONLY BE ACHIEVED IF COMPONENTS ARE GROUNDED PROPERLY.
 BE SURE THAT ALL CAPACITORS AND THE GENERATOR FIELD SUPPRESSOR ASSEMBLY
 ARE PROPERLY GROUNDED.

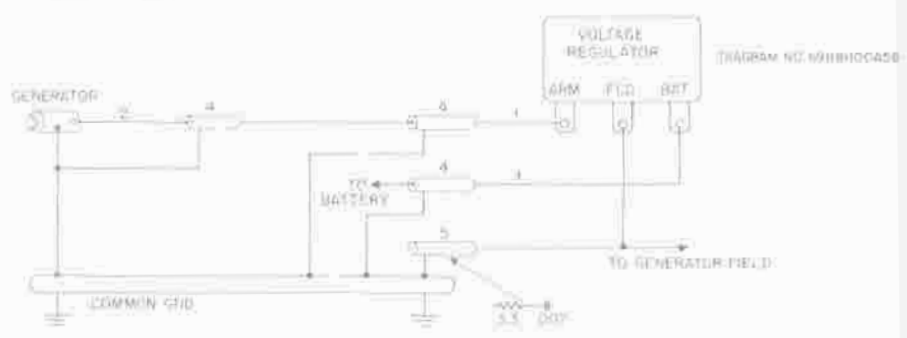


Figure 10
 Typical Noise Reduction Detail

To: All Amateur Radio Operators
 Re: Iowa 75 meter Picnic

WHERE: Waterloo Rotary Reserve
 (about 10 miles northwest of Cedar
 Falls, Iowa)

WHEN: August 19th, 1962
 (Dinner and Social Hour Saturday,
 August 18th 7:00 P.M. At Waterloo
 Municipal Airport)

REGISTRATION FEE: \$1.50 per call
 for picnic and \$1.00 per person for
 Saturday night dinner. Reservations
 and fees should be sent to Monte
 Castle, KODPH, 2603 Cedar Heights
 Drive, Cedar Falls, Iowa, before
 August 1st.

PRIZES: Lots of prizes for Ham
 XYL's and kids. Souvenirs for all.
 (If you are pre-registered you need
 not be present to win the grand prize).

This is another in a series of articles on amateur RTTY. In past articles we have discussed the general over-all operation, the receiving and the sending machines. All of this was basic information and not in extreme detail. This month we will discuss relays and in particular the polar relay.

Let's first go back and look at a plain old common relay of the garden variety. A relay is an electro-mechanical device. When the coil is energized electrically its magnetic field pulls an armature against a spring (operates mechanically). This mechanical movement is used to open or close an electric circuit by means of contacts. The input to a relay is its winding; the output its contacts.

The purpose of a relay is to isolate two circuits, to change wave shape, to combine circuits' operations (multi-contact relay), to control high power circuits from a lower power source—to name a few.

Keep in mind that the relay is basically a two-state device; however, there are a few mutations of the breed. The contacts are either OPEN or CLOSED. A spring pulls the armature one way and the magnetic field pulls it the other.

When a relay coil, a milliamp meter, and a variable resistance are connected in series across a supply voltage, as shown in figure one, we can determine the operational limits of the relay. There are two basic current test values: 1, the operate current value; 2, the release current

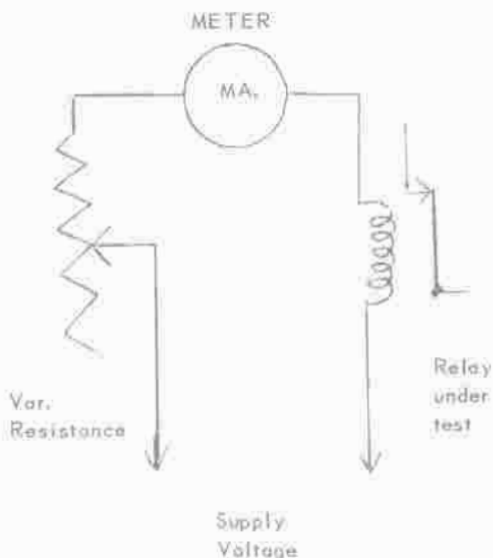


Figure One

value. As the resistance is decreased (see figure one), the current will increase. The current value at the time the relay operates is the operate current value. After the armature has operated a smaller value of current will hold the relay operated, and as we decrease the current below its operate value, the relay will release. The value of the current at the time the relay releases is its release value. There is often a great difference between these two values of current.

In operation the current used to operate a relay is well above the amount required to just operate it and the release value is often zero.

A relay can convert a sine wave signal, or a varying current signal into a current, no current, or square

wave signal. For example, if a relay which operated on 50 ma. and released on 20 ma. was connected in a circuit in which the current was varying from 10 to 80 ma., the relay would operate and release each time the current went above 50 ma. and below 20 ma., respectively. If the contacts of this relay were connected into a circuit, they would produce a current flow for the relay operate condition, and no current for the relay released condition.

The polar relay is used because there is a small difference between the operate and release current values. In the output of our RTTY receiving converter we may have a varying current circuit and the relay converts this to a current or no current circuit to operate the receiving selector magnets.

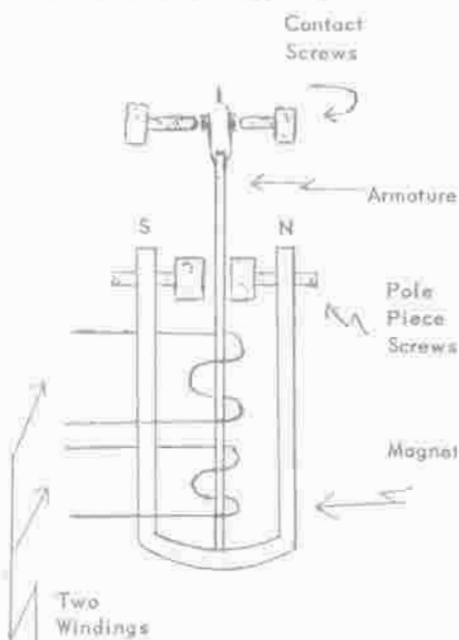


Figure Two

Figure two pictures a simplified drawing of the typical polar relay. The following description is simplified but will serve to explain its operation for practical purposes. A horseshoe magnet having north and south poles surrounds the armature. The armature is connected to the magnet at its mid-point and is clamped; movement depends upon slight bending of the armature. At the far end of the armature are contacts which will make with contact screws. (The mounting for the contact screws is not shown.) The magnetic influence is extended from the ends of the magnet close to the armature by the pole piece screws. When properly adjusted the armature will stick on either contact when manually moved there and will not remain in the center as shown, and never touches the pole piece screws. Most polar relays have two identical windings which are placed around the armature. When a current is passed through one winding the armature will become magnetized. (As you know, like poles of magnets repel each other and unlike poles attract.) If the current is such to make the contact end of the armature magnetic north it will be repelled from the magnet's north pole piece and attracted to the south pole piece - the armature will make contact with the left-hand contact. When the polarity of the voltage applied to the coil winding is reversed, the magnetic polarity of the armature will be reversed and the armature will move to the right-hand contact. No return spring is used; reversal of current in one winding will operate the armature.

However, there is a more common method of operating the polar relay other than reversing the current. When a specific current is passed through one winding in such a direction to operate the armature to the left and twice that value of current is passed through the second winding in the direction to operate the armature to the right, the armature will move to the right contact. If the current is interrupted in the second winding the armature will move back to the left contact; when the current again flows the armature will move back right. The current in the first winding serves the purpose of replacing the spring in a conventional relay. The first winding is referred to as the BIAS winding and the second winding, in which the current is interrupted, is called the LINE winding. The current in the line winding is twice the value of the current in the bias winding.

The polar relay is sensitive; its operate and release current values are close. When the bias winding has 20 ma. flowing through it and a current of 22 ma. is passed through the line winding in the proper direction, the armature should move, and when the line current is reduced to about 18 ma. the armature should move back. If only one winding is used and current is passed through the winding, first in one direction and then the other, only about 5 to 10 ma. will be required to operate the armature from contact to contact.

In some RTTY circuits the relay is connected in such a manner that one winding is in the output of the mark side of the converter and the other winding is in the output

of the space side. One winding or the other will then be energized and if each of the windings is properly connected (poled) the armature will operate one way when a mark signal is received, closing the circuit to the receiving selector magnets, and when a space signal is received the armature will open the selector magnet circuits. REMEMBER: Direction of current flow through the windings is important.

By using a polar relay in the output of the receiving RTTY converter the signals received at the magnets will be essentially square, on-off signals. There are other devices other than a relay which can be used. Any electronic circuitry which provides on-off operation with no in between condition can be used. Next month we will describe a transistorized circuit to accomplish this. Also, next month we will describe a very simple but effective method of properly hand adjusting the 255A relay.

Please address any questions you may have to:

Ak-Sar-Ben Radio Club, Inc.
RTTY
P. O. Box 291
Omaha 1, Nebraska

OFFICIAL BULLETIN NR 857
FROM ARRL HEADQUARTERS
WEST HARTFORD CONN JULY 20
1962 TO ALL RADIO AMATEURS BT

CONELRAD provisions no longer apply to amateurs. Effective immediately, FCC has deleted Sections 12.100 through 12.196 of the amateur rules. The text of the order will be in September QST AR

BULLETIN TO: Radio/TV/Hi-Fi Technicians.

SUBJECT: Audio Rectification.

PURPOSE: To eliminate amateur radio or other radio frequency interference

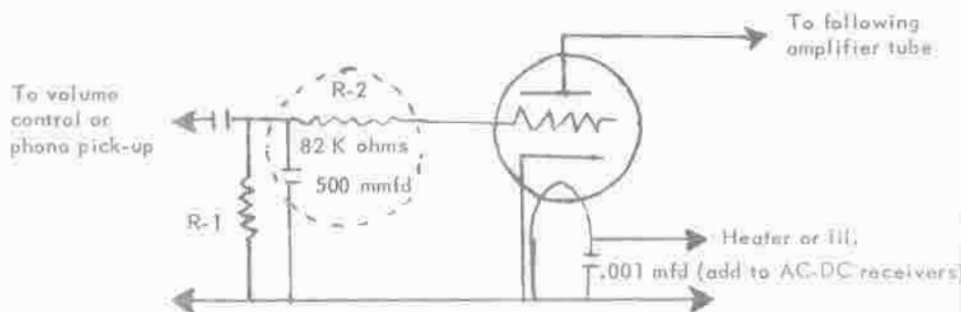
(A) Received all across the dial of a radio

(B) Received on all sound channels of a TV receiver or combination

(C) Received on record player, Hi-Fi amplifier, electric organ, public address system, tape recorder, etc.

- 1st Audio Tube -

6AV6, 6SL7, 6SQ7, 12AV6, 12SQ7, 12AX7, etc.



The above schematic is familiar to Radio and TV technicians, except for the suggested revisions shown in the broken circle. In general, it also covers HI-FI and other equipment employing audio amplifiers.

Remove all leads connected to the control grid of the 1st audio tube. Insert an 82 K resistor between these leads and the tube grid terminal. Replace R-1, (5-10 megs) with a 2 meg resistor. Connect a 500 mmfd mica or ceramic RF bypass condensers at the junction of the resistors as shown, if none is already in use. Keep leads short and shield any long grid lead. In conjunction

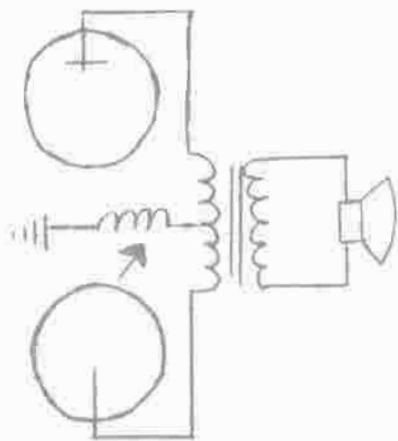
with the grid-cathode capacitance of the tube, series resistor R-2 forms a low-pass filter, preventing any appreciable RF voltage from appearing on the grid. The resistor does not affect the normal operation of an audio frequency amplifier.

Considerable interference may be experienced on some so-called "HI-FI" amplifiers due to the operation of a nearby radio station. This is obviously a problem for the manufacturer of the HI-FI equipment since the purpose of such an amplifier is to amplify audio frequencies and not function as a radio receiver. Such interference can be reduced or eliminated by relatively simple means

without changing the desired characteristics of the amplifier. Some care should be exercised so as not to reduce desirable high audio frequencies, while eliminating radio frequencies. By-passing either side of the power line with a .01 mfd disc ceramic condenser to the point where the power cord enters each piece of equipment is considered a necessity. Many HI-FI amplifiers lack such protection, in addition to being susceptible to reception of undesired radio signals through speaker leads and input wiring. Occasionally, it may be necessary to bridge cathode or plate lead electrolytic condensers with a disc ceramic condenser to act as an RF by-pass.

Most AC-DC or series string filament type receivers use a .05 mfd by-pass condenser across the power line to prevent hum or power frequency modulation of received signals. When negative is above chassis ground, an additional .1 mfd condenser is used between negative and chassis. These should be checked and replaced if necessary to make certain the power line is properly by-passed.

Most other types of short-wave radio interference to TV, including picture interference can be eliminated by installation of a high-pass filter, connected in series with the lead-in and mounted on the chassis near a position where the antenna lead-in enters the TV-tuner. Direct k-up by a 4.5 sound I.F. plus 21.6 or 43 MC I.F. amplifiers, may require additional shielding or realignment to a slightly different frequency.



The coil is wound on a 1/2" form with #26 enameled wire from center tap to cathode ground.

This is what I call the FR back door sneak. If this is not enough, in some cases where they have speakers in other parts of the house, you must then use two wire shielded wire, soldering shield to set and speaker chassis.

Courtesy of,
K8OHZ, Arthur L. Cavar, A.R.E.A.
28917 Westwood Road,
Bay Village, 40, Ohio

OFFICIAL BULLETIN NR 855
FROM ARRL HEADQUARTERS
WEST HARTFORD CONN JULY 6
1962 TO ALL RADIO AMATEURS BT

FCC has denied a petition from W8ESZ seeking a change in rules to permit Technician Class operation on the amateur ten meter band. The Commissions order points out that adoption of the proposal would not fit the concept of the Technician licensee as a VHF experimenter AR

FREQUENCY METER POWER SUPPLY

de K6YCX

de The Modulator

Very often frequency meters of the BC-221, LM type are procured without a power supply. Because of the accuracy involved in the device a good power supply is very important. The power supply need not be expensive but should be well constructed with good-quality parts.

One power supply that will do the job quite satisfactorily is illustrated in Figure 1. With the exception of a couple of unusual features it is completely conventional in design. It will be noted that the transformer primary wiring goes through the VR tube. This is done to prevent usage of this power supply without the VR tube. When the tube is removed the power is removed from the primary of the transformer.

Instead of using a vacuum tube rectifier silicon rectifiers are used. This materially decreases the amount of heat produced by the power supply allowing much cooler sustained operation. Semiconductor rectifiers of sufficient PIV (peak inverse voltage) are expensive. In order to use cheaper diodes two are placed in series in each leg. The resistors are shunted across the diodes to result in a constant voltage drop across each diode. Actually, any diodes may be used that exhibit a PIV of 400 Volts or over and 100 ma. or over.

It usually is quite difficult to set the VR current correctly because

no arrangements have been made to monitor the current flow. The 100 ohm resistor in the B+ line is used to sense the total current flow. With no external load, the variable resistor should be adjusted to result in a 1.5 VDC potential across the 100 ohm resistor. A VOM or VTVM may be used to make this measurement. Be sure to connect the positive lead of the meter at the junction point of the 7.5 resistor and the 100 ohm resistor. The B+ output from the power supply can be measured from the test point monitoring the VR voltage to the ground test point. Tip jacks are convenient for test point hardware.

A well stocked junk box will supply most of the parts with the exception of the transformer, choke and diodes. These components will cost about \$13. Gud luck!

SILENT KEY

We learned that Bill Kent, KOJBR (Junk Box Radio) will no longer be heard as he passed away on Thursday, July 26th. If you don't remember Bill from air contact you perhaps saw him at WRL as he spent some time with Globe Electronics and later with WRL and was frequently seen on Saturday in the ham shack there.

BC-221 LM POWER SUPPLY

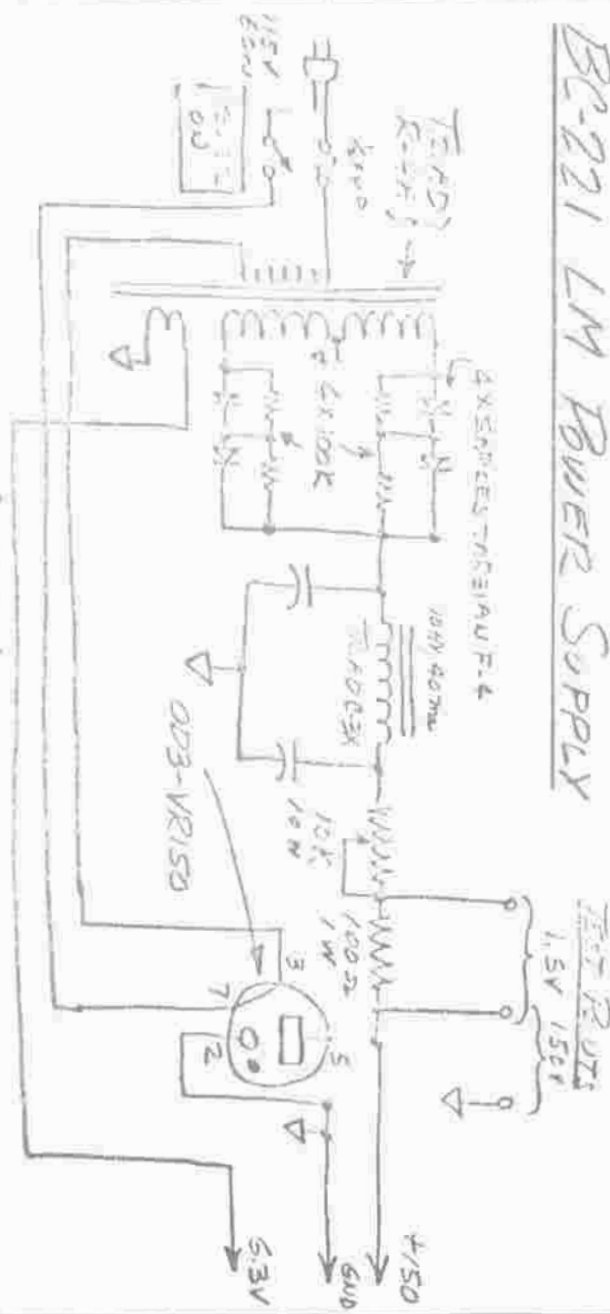


FIGURE 1.

ANSWERS FOR SSB

G. R. Thornley, G2DAF, Sideband Editor of the RSGB Bulletin, Journal of the Radio Society of Great Britain, in the July 1962 issue gets away from the technical and gives some of the answers for use on the air. ??????????

Five Years on s.s.b., or Answers I Have Heard

Report: Your v.f.o. is drifting!

Reply: (a) Yes, I know OM, I have just switched on from cold.

(b) Yes, I have complained to the Electricity Board--its due to my mains voltage variation.

(c) My v.f.o. can't drift--it's a Clapp.

(k) I am crystal controlled OM!

Report: Your sideband suppression is very poor!

Reply: (a) That's funny--I have just worked G9BF and he said my transmission was very good.

(b) Sorry OM, this is only a phasing rig.

(c) I normally work on 20 metres and I never get this kind of report on that band. I don't see why my sideband suppression should alter when I come on 80.

(d) This is a two half-lattice filter exciter--the fault must be in your receiver i.f. amplifier.

(k) My transmitter uses the third method of sideband generation!

Report: You are off frequency!

Reply: (a) I don't know who to net on.

(b) I have just built this rig and I haven't put the dial on the v.f.o. yet.

(k) I am zero beat into my receiver. The rest of the net must have moved!

Report: You are grossly overdriving and there is considerable splatter on your signal!

Reply: (a) Sorry OM, I have just come off 20 metres and forgot to turn down the gain control.

(b) You must be mistaken OM. My transmitter has a peak limiter control and this has been set by the maker.

(c) I never get these reports when I work DX on the h.f. bands.

(k) I have just worked G2DAF and he said my transmission was very good!

Questions of the Month--Together with the Answers

(i) Under what conditions does a product detector offer most discrimination to a.m. signals?

Considerable laboratory experiment has shown that this occurs when the heater supply is disconnected.

(ii) If the station you are working complains of interference on the channel and suggests you QSY, what do you say?

Tell him you can't hear anything and that it is cross modulation in his receiver.

(iii) I am testing out my recently completed sideband transmitter and receive a report that I have 6db sideband suppression, am frequency modulating my carrier, and have poor audio quality and considerable splatter. What should I do?

This is a most complex question, but after very careful consideration

and after reviewing all the relevant factors, the appropriate course of action would be to disconnect the power supply.

(iv) I have been working a.m. for many years and enjoy a regular net on three other stations. As we like snappy operating we keep our wavers short and pass the transmission round every 10 to 15 minutes with a pause for any break-in station. Will this procedure be all right when I come on s.s.b.?

If you adopt this procedure on s.s.b., you will find when you stop talking that the net is chatting away gaily—but not on your frequency.

(v) Which commercially manufactured amateur receiver is the best available?

This is always the one you haven't got—but the one in use by the station you are working.

(vi) My mechanical filter transmitter has a rather narrow passband and I would like to widen this. Can you offer any advice?

Yes—cut the filter in two with a hacksaw and reposition with the two halves spaced 3 kc/s apart.

(vii) I have built an electronic VOX system into my transmitter, and yet I find on occasions that I have been doubling with the other station. How should I cure this?

This can only occur when sound is going into your microphone at the same instant of time that sound is going into the microphone of the station you are working. This can be easily cured by a simple procedure at your end. Keep your top and bottom teeth clamped together and at the slightest sign of slack-

ness of your jaw muscles, instantly switch off the microphone.

(viii) I am getting persistent reports of carrier on my signal and although I have tried a number of different balanced modulators I have been unable to effect an improvement. Can you help?

If you can't avoid radiating a carrier, this can be turned to your advantage in the following way. Build a second exciter and connect this to your aerial in parallel with the first one. Adjust both transmitters to the same frequency. If the two carriers do not cancel each other out but reinforce, alter the phase of one exciter by reversing the carrier crystal in its holder.

OFFICIAL BULLETIN NR 858
FROM ARRL HEADQUARTERS
WEST HARTFORD CONN JULY 27
1962 TO ALL RADIO AMATEURS BT

The Federal Communications Commission on July 25 denied a petition by Maxwell Meyers, W2BIB, to amend Part 12 of the Amateur Rules which proposed to widen the limits for radiotelephone, A3, from the present space for U.S. amateurs of 14,200 to 14,350 to new limits of 14,150 to 14,350 KC. The Commission feels that further expansion of radiotelephone suballocations, with its resultant reduction of available radiotelegraph space, would not be in the public interest at this time AR

ATTENTION BUNNY HUNTERS

de Solid Copy (Overland Park, Kansas.)

The article forthcoming will not be professional or from a professional and won't make claims as such. It is based on experience and information from various magazine articles. It may possibly enlighten some on the prospects of homebrewed directional finding equipment and its use. Mostly, it may spur your own constructive ingenuity. There's a signal out there somewhere; I want to pin it down to a small directional area, as on a city map. The best type of directional finding equipment would obviously be a narrow band, say 10 element beam, but that's rather difficult to mount on your automobile and to rotate -- also consider the size and overhang. A hidden transmitter can be found very readily with less elaborate equipment, such as a collapsible dipole, possibly a miniature center loaded V-shaped beam, or more simply, a round loop of wire feedline to the car receiver.

To clarify some misconceptions I have heard voiced in some QSO's and round tables, regardless of polarization of the transmitting antenna, any good directional finding antenna will show it in a true direction, not withstanding, of course, reflections from buildings, water towers, etc. (His good luck - your misfortune). Therefore, never judge the first fix, but possibly two or three carefully made fixes at starting time plotted on a map should put you in the vicinity of the bunny immedi-

ately. A little care at this time would be well worth the effort.

Let's make a hunt starting from Loose Park; say the bunny is in Blue Valley Park, you have a simple loop as previously mentioned. This loop will show maximum signal from broadside, null when loop is aligned with signal track. This fix would show transmitter to be northeast or southwest out in Johnson County. There is the confusion we would have to eliminate. So, we move off at right angles to signal track and carefully take another fix. Your map will show intersecting lines around Blue Valley Park; back of you the lines will fan out not intersecting at all. There is the secret of direction finding with simple loops or dipoles. After reaching the immediate vicinity of bunny, especially under conditions such as Tom and Dippy, HI HI! (for you fellows reading this that didn't participate in the last hunt, in February, they were in a storm sewer), it would be advantageous to have a sensitive field strength meter, preferably one with directional characteristics. A good directional finding loop can be made with a piece of RG11U coax folded in a loop mounted to a small aluminum box. This piece of coax should be .08 wave length long or less of frequency use, so received RF current would be of the same magnitude throughout the loop to show good directional characteristics -- 22 to 24 inches should be a good length for this

coax. The exact center of the outer conductor is broken and folded back and taped to leave a half inch opening; feed line from this box to receiver or converter should be $1/4$ or $3/8$ wave length so it will be a current mode acting as a transformer, never $1/2$ wave length. The secret of this directional finding loop of course, is in the little box matching and balancing network. This loop made from a 10 meter loop described in QST, April 1954, components found experimentally to hit 50 mcs.

Make RG11U coax approximately 22 inches with fittings on ends, PL-259 and three SO-239 on box. The inner conductor of the coax is connected through the fixed condenser 25 uuf paralleled by the 25 uuf tuning condenser. One side of coax runs to the lead in; both sides are shunted to ground by the balancing condensers, 5 to 10 uuf.

Maximum signal from broad side null when parallel to signal track. Tune to frequency with Grid Dip Oscillator. Peak up on signal with tuning condenser. You may have to experiment with values to fit your own box — mine hit 60 mcs first time. I would suggest wooden or insulated handle.

This article can be topped I know, but maybe it can serve it's purpose to get the ball rolling.

Good Hunting!

Don, W0RNJ

The OMARC RADIO CLUB members, on the weekend of June 23rd, completed a successful field day when they operated portable equipment set up in a farmer's field south of Papillion, Nebraska.

In the 24 hours on the air, plus another 8 hours setting up and tearing down, 190 different stations in all sections of the United States were contacted; including Canada, Cuba, Mexico and Alaska. Approximately 13 operators were active in the field day and approximately 50 visitors, some from the plant, and others from around the immediate area, stopped by to visit.

OFFICIAL BULLETIN NR 856 FROM ARRL HEADQUARTERS WEST HARTFORD CONN JULY 12 1962 TO ALL RADIO AMATEURS BT

For many years there has been support among member societies of the IARU of the principle that the bottom 100 KC of the 14 MC band be used exclusively for CW. The European Band Plan embracing this feature has been respected and closely observed in most countries, even including those where phone operation between 14 and 14.1 MC is not contrary to regulations. ARRL believes this is an excellent plan and will continue to use its efforts to keep it in effect. Therefore, ARRL announces that effective 0001 GMT on 13 July 1962, DXCC credit will not be given for contacts where either station is operating by telephone, using frequencies between 14 and 14.1 MC. AR

EDITORIAL:

A Praiseworthy Ambition

from NRI News

If you can't say something good about a person, keep silent. Even when a person asks you outright to criticize, be careful. People often fish for compliments and praise in this indirect way, and criticism is definitely not what they want. It's your job then to find something which you can honestly praise. Be frank only when you're absolutely sure that your technical or personal opinion is really wanted.

Pointing out the mistakes of others is the easiest thing in the world to do. Most of the time we don't do it to be mean or to show the other fellow up. Speaking of the other fellow's faults is more common than telling of his virtues.

There's some good in everything, if we'll only look for it. Praising the good, no matter how little it be, will make you a thousand times more popular with people than criticizing even the most serious and glaring faults of others.

All of us have a perfectly normal tendency to look out for Number One. We like others, to be sure, but we like ourselves better. We wish other people lots of luck, but we ourselves would like to be well up in line when

that luck is being passed out.

All of us neglect wonderful opportunities to do a good turn for Number Two. We tend only to do that good turn at times it will not be inconvenient to us. This isn't selfishness necessarily. More often it is simply thoughtlessness.

When you have the chance, listen to others with sympathy - not boredom. Discover convenient excuses to praise people. Be nice to somebody you haven't bothered to be nice to before.

A multi-millionaire executive used these words to praise a Pullman porter. "I wish I could do my job as well as you do yours!"

There are even sincere ways to praise an old radio set: "It was one of the finest sets made in that period," or "That highboy cabinet is certainly a fine piece of furniture."

You'll get quite a kick out of such adventure. And in handing out praise you will find that you have accomplished something rather extraordinary for yourself.

J. M. Smith
President
