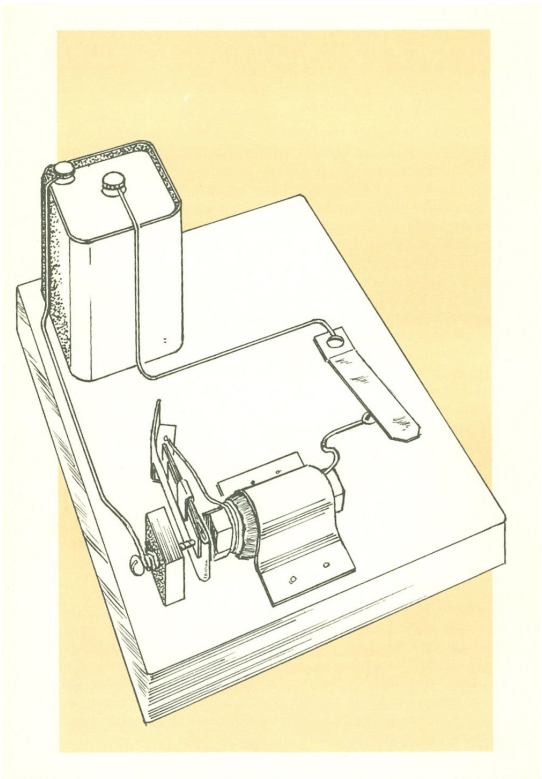
AARCOVER

Keeping Austin Wireless for Over 91 Years!

Bulletin of Austin Amateur Radio Clubs ISSN 1067-0262

March 2011 **Happy St. Patrick's Day** **Issue 3-2011**



Coded Message With a Buzzer

©1967 Thomas Alva Edison Foundation

How to Build 5 Useful Electrical Devices

An interesting example of an electromagnet at work is the buzzer. This is the device that operates the common doorbell, the kind that rings steadily as long as you hold the button in.

How do we send coded messages with a buzzer? It's easy. We hook a homemade buzzer and code key in series with a six-volt battery. The code key is a simple form of doorbell button. By pressing the code key for a split second, we produce a short buzz. And by holding the key down a trifle longer, we produce a longer buzz. These short and long buzzes can be combined in different ways to represent letters of the alphabet. The Morse code, a sound language used by radio operators all over the world, tells us what combination of short buzzes and long buzzes (dots and dashes) stands for each letter. We'll get into that a little later.

How Does a Buzzer Work It is based on the same general principle as the secret electromagnetic lock: Current passing through a wire

(Continued on page 5)

Periodic Events

Sun	7:30 p.m.	Travis ARES net	147.36 MHz + (131.8)
Sun	8:00 p.m.	Travis ARES Packet	145.73 MHz -
Sun	8:00 p.m.	Williamson ARES net	146.64 MHz - (162.2)
Sun	9:00 p.m.	ARO Swapnet	146.94 MHz -
Sun	(After Swapnet)	Newsline	146.94 MHz -
Mon.	7:30 p.m.	STX ARES Net	3.873 MHz
Tues.	7:30 p.m.	Hays ARES net	444.150 + (114.8)
Tues.	8:00 p.m.	Bastrop ARES Net	443.750 + (114.8)
Wed	11:30 a.m.	Ham Social Luncheon, Jim's	146.94 MHz -
Thu	9:00 p.m.	2m SSB Net	144.250 (USB)
Thu	11:00 a.m.	Lunch, Pokey Joe's 183&Great Hills	444.1 MHz+
Fri	8:00 p.m.	6m SSB Net	50.230(texasvhf.org/)
Sat	7:00 - 8:30a.m.	Breakfast @ Waterloo Ice House	444.1 MHz +
Sat	9:00 a.m.	Chapter 67 QCWA QSO Net.	3.920 MHz LSB
Daily	6:30 p.m.	Central Texas Traffic Net	147.14MHz+

In This Issue

Ham Radio Exams Results

The following are the results of the ARRL VE Test Session held on February 5th at Bethany United Methodist Church :

Technician Class Licenses Processed

Traci L. Battles, KF5JTU	Russell A. Friesz, KF5JTV	Cody D. Jarrett, KF5JTT
Roy M. Jenevein, Jr., KF5JTS	Dillon C. Williams, KF5JUI	

General Class Licenses Processed

Ronald E. Battles, KB5REB	Larry E. Cooper, KF5JLH	Andreas T. Rupprecht, KC5JTN
Robert G. Welch, KF5JTW	John M. White, KF5JLE	

Extra Class Licenses Processed

Poggie A. Byrd, KF5BAQ	Louis A. De La Cruz II, AE5WF	Kevin L. Stotz, KF5JLI

Examiners Participating in this Test Session

Larry Gunter, WB5BEK	Gene Hinkle, K5PA	Joe Makeever, W5HS
Tom Nevue, W2MN	Malcolm Robertson, W5RME	Joe Thiel, N5SMN
Jeff Whisnant, AE5VA		

Next ARRL VE Test Sessions

March 5th - Bethany United Methodist Church, Disciple Bldg. Room 213
April 9th - Bethany United Methodist Church, Disciple Bldg. Room 213 (Bellton Swapfest is on 1st Saturday)

TNX ES 73 DE W5HS
Joe

2-19-2011

The South Austin W5YI VE team heartily congratulates all of the following people who earned new or upgraded amateur radio licenses at our February 19th session:

Extra Class –
-none-

General Class –

Dana C. Brown –new-	Gordon J. DeWitte –new-	William E. Johnson, K5WEJ

Technician Class (all new) **–**

David L. Avery	Edward G. Weidig

Our administering volunteer examiners were:

Craig Bean, AC5KW	Tony Lyon, KJ5XF
Jim Greenwood, AB5EK	Gary Popp, AE5JR
Anthony Lanni, AE5JQ	Robert Shirey, AK5RS

Our next two amateur radio exam sessions will start at 2 PM on March 19th and April 16th in room 118 of Fleck Hall on the campus of St. Edward's University. All sessions are walk-in and the exam fee is $14.

For additional information regarding our amateur radio examination sessions, please contact Jim, AB5EK at (512) 327-6184 or by e-mail to hamradioexams@hotmail.com or visit our web page at

hamradioexams@hotmail.com or visit our web page at http://texashams.org/w5yi-austin/

Austin Amateur Radio Club, Inc., PO BOX 4739, AUSTIN TX 78765-4739, Web site: http://www.austinhams.org

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TC ARES PIO	Steven Polunsky	W5SMP		tcares-pio@ gmail.net

Please contact a club officer, attend a meeting, mail us to join the organization, you can also join or renew online.
The Austin Amateur Radio Club, Inc. (AARC) has annual membership dues of $20.00 per person or $30.00 per family. AARC maintains the following repeaters:

FREQUENCY	AUTOPATCH	USE
146.780	No	
146.880	Yes	General
146.940 107.2 PL Tone	No	Most popular, WX, Swapnet & Newsline
224.800	No	
444.100	No	
444.650 +5	No	70cm D-Star Repeater [W5KA]
146.480/+1.0	No	2m D-Star Repeater [W5KA C]
1293.200/-20	No	23cm D-Star Repeater[W5KA A]
1248.200	No	23cm D-Star DD (data, simplex/reversible) [W5KA A]

Persons using the repeaters are asked to join the club to help support these valuable resources. To use the autopatch, announce your call sign, press * and dial the phone number then release the PTT. When finished, press # to hang up the phone. Dial 911 (no * needed) for emergency services.

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Members and other readers are encouraged to submit material for publication. Call Mitch London, if mailed submissions are required. Electronic files are encouraged! Submissions may be edited for publication. **Deadline is the 20th of the month.**
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For Changes in your ADDRESS, PHONE NUMBER or CALL SIGN:
See Jay Hoffman, KA5OST (512) 388-4404 ka5ost@arrl.net
Jay handles all changes for membership information .

Over the WWWaves...

A Collection of Various Websites sent in your friendly neighborhood hams…

http://www.heathkit-museum.com/
Rick Herndon, K5FNI

http://www.ham-radio.com/n6ca/appnotes/mobile/bb_xfmr.html
If you are experimenting with very low NVIS mode dipoles, you will find the ordinary wire half wave dipole has low impedance at low height, and needs a way to match 50 ohm coax. This link shows a suitable matching transformer one can build
Stuart Rohre, K5KVH

http://www.instructables.com/id/How-to-fix-a-classic-American-AM-tube-radio/
How to fix a classic American AM table top tube radio
Rick Herndon, K5FNI

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creates a magnetic field about that wire. In this case, though, instead of the wire being coiled around a nonmagnetic tube,
as with the lock, it is coiled around a solid iron bolt. The bolt thus becomes an electromagnet.

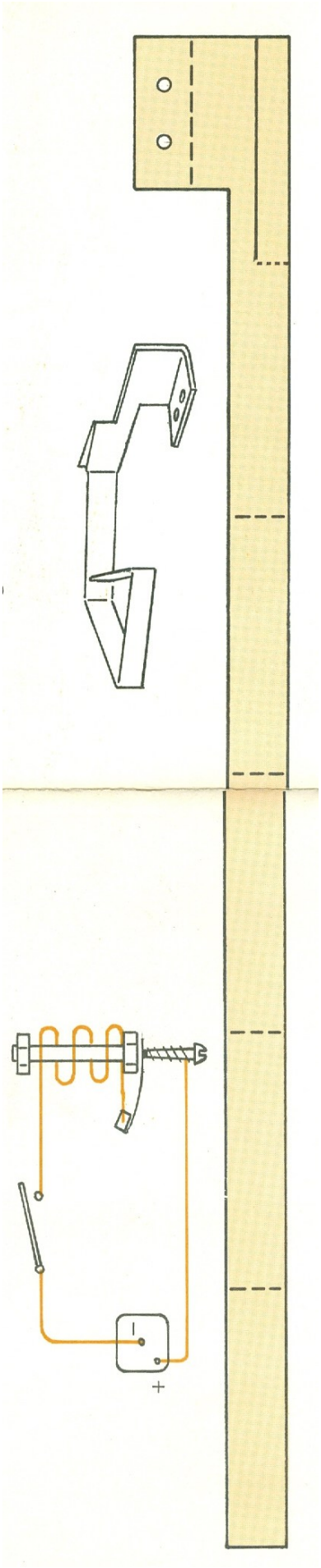
Look at the circuit diagram at the bottom right Imagine that you've just pressed the code key down. Let's see what happens as we trace the path of the current: Starting at the corner terminal of the battery, the current shoots downward to the brass contactor screw. Since the screw is touching the vibrator arm, the current continues on its way into the coil. Out of the coil it streaks past the closed code key and back to the battery. Instantly a magnetic field builds up around the iron bolt. Having become an electromagnet, the bolt attracts the vibrator arm. But as the arm starts to swing toward the bolt, it opens the circuit. Hence, the current stops. At the same time, the magnetic field collapses, allowing the vibrator arm to spring back against the contactor. With the circuit now restored, current starts flowing again ... and away we go.
No matter how quickly we press and release the code key, the current will still make several round trips through the circuit. And because of the resulting rapid motions of the vibrator arm, a buzzing sound is heard.

Materials Needed to Build the Code Set

Not only is the code set fun to build, but it is even more fun to use, especially with a fellow operator. So that both of you can send as well as receive messages, you will want to build two identical sets of buzzers and code keys. They're really not hard to make. For each set you will need the following materials.

- Bolt & Nut, 5/16” by 2”
- Tin Can strip for code key 1/2” by 3”
- 35 feet of bell wire
- Base board, 7” by 9”
- Tin-can strip for vibrator arm, 1” by 10”
- Tin-can strip to hold electromagnet 1 1/2” by 3 1/2”
- Brass screw for contactor, 1” long
- 6 tacks, 4 or 5 round head screws, 2 thin nails
- Wood holder for contactor, 1” by 1” by 3/8”
- 6 volt battery

WINDING THE ELECTROMAGNET: Screw the nut on the machine bolt so that it just covers the end of the bolt. Starting at either end of the bolt and leaving about six inches of wire for making connections, begin coiling the wire around the bolt. Carefully wind one layer along the length of the bolt and another layer back toward the
starting point. Keep doing this until about 200 turns of wire have been put on. Plan to finish the winding at the
opposite end from which you started. Cut off all but six inches of wire. Now wrap some tape around the coil to keep it from unwinding.
FORMING THE VIBRATOR: Finish cutting and folding the 1" by 10" strip according to the sketches above. Tap the folded ends with a hammer to keep the layers of metal close together. Punch two holes in the base so the arm can be mounted.
MAKING THE CONTACTOR: Since you will have to experiment to find the best spacing between contactor and bolt head, the contactor should be adjustable. That's why a screw is used. A one-inch brass screw with the point filed flat makes a good contactor. To prepare the holder, lay the 1" by 1" by



3/8" piece of wood flat; and in the exact center drill a hole slightly smaller than the screw. Drive the screw halfway through the wood.

CUTTING OUT THE CODE KEY: Once you've snipped a 1/2" by 3" strip from the tin can, the code key is practically made. All that remains to be done is to punch a hole about 1/2" inch from one end so the key can be screwed to the base board. If you want a fancier key, you can attach a small wooden knob to the sending end. With a round head screw, fasten the knob to the key by screwing from the bottom up. In that way the screw head can serve as a key terminal.

Mounting the Parts on the Base Board

Using the drawing on page 20 as a reference, position the parts accordingly. The electromagnet can be held down a dozen different ways. A simple, yet professional looking way requires a tin-can strip about 1 1/2" by 3 1/2".Shape the strip around the coil, and bend the ends outward, so that they lie flat on the board. Punch a couple of holes in each end, then tack everything in place. Next, locate the wooden holder for the contactor about % inch from the bolt head. Secure it in place either by gluing or by nailing from the bottom up with thin nails. To install the vibrator arm, proceed as follows: Line up the arm so that it is parallel with, and touching, the face of the bolt. Pound a tack part way in the hole that is nearer the bolt. Push the rear of the arm sideways so that the arm swings away from the bolt, causing the' thin strip on the other side of the arm to press firmly against the contactor screw. The thin strip and the screw must make full contact with one another. While still pressing against the rear of the arm, put a tack in the remaining hole; and pound both tacks all the way in. Finally, mount the code key, using a screw. Bend the key so that the free end is about 1/2 inch above the board. You will need a contacting terminal on the board directly under the free end of the key. Use a small round head screw. If you've put a knob on the key, the base screw should be directly beneath the knob screw. If you didn't use a knob, be sure the contacting portion under the key is scraped clean, to the bare metal.

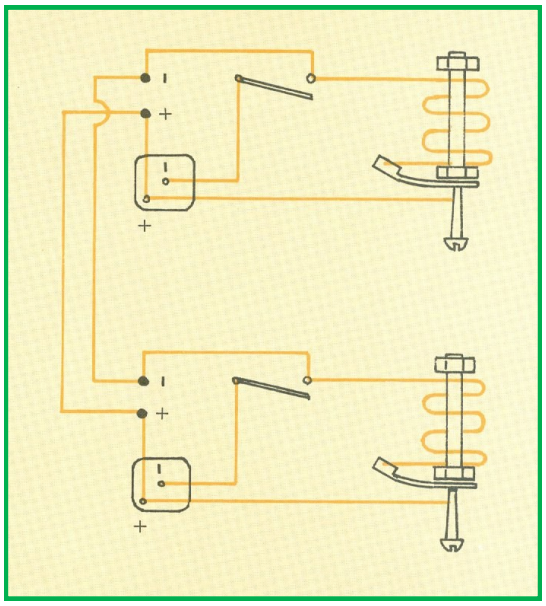
Hooking up the Circuit

This is the simplest part of the whole project. Just make the connections as indicated on the circuit diagram. In all cases, bare metal should be touching bare metal, and the connections should be tight. It would be best if you could solder the wire leading to the contactor screw. If you can't, wrap the wire around the screw and twist it with a pair of pliers. In either case, allow enough wire for the screw to be turned. For the base of the arm, lift one of the tacks just enough to tie the wire around it. Then pound it back down.

Both wires to the code key should be looped clockwise around the loosened screws. After tightening the screws and connecting the battery, you are ready to tryout the set.

Adjusting the Set

Start with a gap of about 1/8 inch between vibrator arm and bolt face. Tap the code key a few times. You should get some kind of response. To find the best setting, adjust the contactor screw and the spring force of the vibrator arm against the screw. You can also vary the sound of the buzz with a slider clip, a 3/16" by 1" piece of metal bent in' half and placed on top the vibrator arm. NOTE: Arcing between the contactor screw and vibrator arm is normal. But it will dirty the contacts, which can in time stop the current. So, occasionally clean the screw with a file and scrape the arm with a knife.



Connecting Two Sets

As it now stands, the set can be used by itself. And it will provide hours of fun for anyone interested in learning the Morse code. But let's assume you've got a code buddy and that the two of you have made identical sets, each with its own battery. What now?

First, you will have to add two more terminals to each set (see the diagram below). Use screws. Add a wire from the + terminal of the battery to one screw, and mark the screw +. Add another wire from the open end of the code key to the other screw, and mark that screw -. Upon connecting the two sets, run one wire from + screw to + screw and the other wire from - screw to - screw. Now when you tap the code key, your set will work and so will your buddy's. And vice versa. In that way, the sender can hear what he's sending.

XYL

By Carolyn Canfield, KE5DTS

"I borrow his, so I can find it by the antenna."

AARC Meeting Minutes: February 1, 2011

Meeting called to order: 7:00pm by President Mitch London, KD5HCV.

Meeting started with a welcome to all and quick look at the agenda.

We had 35 in attendance, no visitors, and 2 new members. No upgrades reported.

Minutes: January's minutes approved as written in AARCOVER.

Upcoming Events: WCARC Hamfest (2/12), LZ Class (2/12), SkyWarn (2/19), SE Tx Fox Hunt (2/19), Livestrong Austin Marathon (2/20), Cap10K Packet Stuffing (2/26), and UT Project 2011 (2/26). These items, other upcoming events, and scheduled presentations are listed in the AARC Swapnet newsletter, at www.austinhams.org, and on the Yahoo user group.

Announcements: The Big Bend 50 was fun. Details were reported and pictures were shown. The San Antonio Hamfest was good. To honor Leo Meyerson, former owner and operator of World Radio Laboratories, the QCWA Chapter 154 requested everyone send QSL cards with "Happy 100th Birthday Leo".

REPORTS

President: would like short written reports from the special interest groups (SIG) on their activities for reporting to the membership at the monthly meetings.

Treasurer: reported totals on the club's bank accounts and funds; total on funds we are holding for ARES; and membership is now 258 w/ 4 life members.

Editor: announced Joe Fischer, K5EJL, is now club Historian. If you have old items, stories, memories, details, dirt, take them to Joe. A new website is being created that will have new features and being easier to keep updated. The newsletter had some wrong time and location info on certain group meetings, the corrections were announce.

Tech Committee: reported a letter was sent to KVUE concerning the future repeater and antenna move and including some other plans. They are also planning to evaluate a new cable product coming out on the market. Some "discussion" followed.

Space Wx: Levels and totals still fairly quiet but creeping up. Solar Wind and density went up then back down. Sunspot 11150 is getting active. A coronal hole will create higher solar wind. Forecast: unsettled for several days. We finally had M Flares and a proton event take place on Jan. 28th.

Others: The ham classes need help and teachers, contact Dallas, KD4HNX, or Mitch.

Old Business: none discussed this time.

New Business: none discussed this time.

Ham of the Month: Glenn Currie, KD5MFW.

Door Prizes: D. Curran (no call) - stainless steel water bottle; Andy Howell, KF5JLJ - 1972 Electronics Comic Book; Sallie Howard, AE5OM - Girl Scout Thin Mint Cookies.

Meeting Adjourned: 7:53pm

Presentation: "Texas Army MARS" by Lew Thompson, AAA6TX.

AARC Meeting Info.

Waterloo Icehouse

8600 Burnet Rd. South of 183

Business Meeting 7pm

March 1st - Meeting to be determined. See austinhams.org for the latest!

Officers Meeting 7 pm***

March 15th - ***LOCATION CHANGE***

Meeting will be at Top Notch Hamburgers 7525 Burner Rd, just south of Anderson Ln.

2011 Upcoming Amateur Exams

ARRL VEC– March 5th & April 9th 9a.m. at Bethany United Methodist Church. Contact Joe Makeever, W5HS (345-0800) or Joe Thiel, N5SMN (832-0450) for info. $15 fee.

W5YI VEC- March 19th & April 16th 2p.m. in room 106, Fleck Hall, St. Edwards University. Contact Jim Greenwood, AB5EK@arrl.net, (327-6184) for more info.

http://texasparadise.com/w5yi-austin

2011Calendar of Events

Mar 5—26 ***Austin & Williamson County Amateur Radio Clubs free Technician class***. Saturdays-March 5, 12, 19, and 26th at 9AM - 1PM Austin State Hospital, 4110 Guadalupe, Bldg 626, Canteen Conference Room.KD4HNX@arrl.net or http://www.austinhams.com

Mar 5 ***South Texas Section Convention*** (Greater Houston Hamfest) Rosenberg, TX Brazos Valley Amateur Radio club www.houstonhamfest.org

Mar 5 ***Pearland Area Citizens Corps & NWS Skywarn Spotters Class***. www.weather.gov/skywarn/

Mar 11-12 ***Rayne 51st Annual Hamfest*** Acadiana Amateur Radio Association www.w5ddl.org/hamfest/

Mar 12 ***Ninth Annual IARC Hamfest*** Irving Amateur Radio Club www.irvingarc.org/iarchamfest.html

Mar 19 ***56th Annual St Patrick's Day*** Hamfest West Texas Section Convention Midland Amateur Radio club Midland, TX www.hamfest.w5qgg.org

Mar 26 ***Weatherford Hamfest*** Amateur Radio Club of Parker County http://www.w5pc.org

Mar 27 ***Capitol 10K Footrace, Walk & Fun Run*** (Sunday) Ham Comm volunteers contact Jeff N5MNW@arrl.net

Upcoming Meetings...

Mar.	Apr.	Austin Meetings/Happenings	Time	Address
1	5	AARC Meeting Waterloo Ice House*	7:00 p.m.	8600 Burnet Rd.
12	9	Austin QRP, Alvin's Sandwich Shop	11:00 a.m.	12200 Research Blvd.
8	12	ATV Club Meeting Mangia's Pizza	7:00 p.m.	12001 Burnet Rd.
19	16	QCWA IHOP 183 Near Duval	1:30 p.m.	11654 Research Blvd.
16	20	Digital Wednesday at Red Cross	7:00 p.m.	2218 Pershing
28	25	Travis Co. REACT Jim's 183 & Burnet	7:30 p.m.	9091 Research Blvd.
22	26	Travis County A.R.E.S., ARL Auditorium	7:00 p.m.	10000 Burnet Rd.
24	28	CERT Meeting CTECC	6:30 p.m.	5010 Old Manor Rd.

AARC Business Meeting is at Waterloo Ice House Come early and grab dinner before the meeting.