K9YA Telegraph

Robert F. Heytow Memorial Radio Club

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A Pipsqueak for all Seasons

The DC40A QRP Kit

Philip Cala-Lazar, K9PL

In winter a (a young or old) ham's fancy often turns to flights of gear-embellished fancy. As this year's mild Midwestern winter took a nasty return to its consistently cold and snowy meteorological roots, that flight of fancy took off, by remaining indoors and building some gear. Casting about for a project to keep me in the shack while storms whirled and propagation stagnated, I found my candidate at www.qrpkits.com—the DC40A QRP transceiver. A KD1JV design, the DC40A (also available as the DC30A [30-meters] and DC20A [20-meters]) features a crystal-controlled (7.040 MHz) direct conversion transceiver. The kit's instructions note the "transmitter puts out a respectable 750 mW of power, with a 12V supply and over 1 Watt with 13.8 volts" and "includes a simple keyer chip" that thoughtfully provides iambic modes A and B.

"Smoke test number one…"

Building the DC40A

After receiving the kit, I inventoried all parts against the list and separated the components into egg carton compartments. The inventory revealed two missing resistors; an e-mail to Doug Hendricks, KD6IS of QRP Kits, an immediate reply, and the errant parts were soon in my mailbox.

The well-written and illustrated instruction manual (a download from the QRP Kits Web site) was easy (and fun) to follow. There are a couple of proofreading glitches:

1. The parts list notes "skipped" resistor R21, however, R21 is depicted both on the oscillator assembly page and circuit schematic and is *not* skipped.

2. Page 5, "Toroid Winding Charts," in the "Turns" column; what is written is T1, 35 turns Pri(mary) and 5 turns Sec(ondary). It should be 35 turns *Sec*(*ondary*) and 5 turns *Pri*(*mary*) or link. The text on page 10 describing T1's construction and installation is correct.

The manual suggests performing "smoke tests" at a couple of points during the construction process before continuing to the next assembly section. A circuit description follows the manual's construction and troubleshooting sections.

Smoke test number one checks the 78L05 voltage regulator and activates the rig's keyer, it was truly sweet to see the specified 5 volts on the DVM and hear the little rig speak its sidetone loud and clear. Smoke test number two tests the oscillator circuit and sets the T/R oscillator shift—600 Hz—using your, as the construction calls it, "big rig" receiver.

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Air Force Radio School

Getting Into Radio School

James B. (Jim) Davis, NW5F

Airman James B. Davis at the Red Head Receiver Building

I received my CW training in the USAF in 1953, for some 27 weeks of school and 25-wpm of Morse. After I joined the Air Force the sergeant who interviewed me said, "Well, Davis, let's see where you're going!" I replied, "Can I say something sergeant?" "Sure." I said, "I don't know where you're going to send me, but I want to go to Ground Radio School." "Why?" and I said, "That's what I'm interested in!" "You're gone, sign here for Radio School." I did and walked away whistling Dixie! My interest in radio came from a ham I met in high school and lived in my neighborhood, I saw his gear and was a sunk duck from then on.

We arrived at the old hangars on the flight line at Keesler AFB, in Biloxi, Mississippi where our assigned classes were held. It was hot and humid; we dressed in summer khaki uniforms—starched. Leaving our squadron area, we formed up by squadrons on the main street and marched to class in a very rigid manner. Eyes right except for the line closest to the review stand, we marched past our squadron commanders. It was very regimented and exciting to go to school in the afternoon in parade, heels clicking together, someone calling cadence and the rest of us answering where we needed to—it was fun. I'll never forget that experience.

"…a sunk duck…"

Our instructor came in and greeted us. The first thing he said was something to this effect:

"Gentlemen, glad you're here. You're going to learn to COPY CW or CODE. You see the key on the desk in front of you! Don't touch it! You're not here to learn to send; you're here to learn to COPY. If you can copy you will try and send the same sounding CW you learned, so you will be able send very good."

Again, "Don't let me see anyone touch those keys trying to send, you may need to tighten the screw posts for your headset leads only."

Pumped Up

Learning to copy code needs to be done in an exacting manner where every man is pumped up and wants to do his very best. Someone would come out of class and say, "I passed 12-wpm tonight," someone else would say, "Oh man, I have to catch him, and pass 12-wpm too." This was the manner in which a lot of us pumped up the other guy.

We would sit at the outside tables, have some refreshments and spell out everything we could read to one another in dahs and dits, laugh and have a big time. There was an ice cream store across the street from school, and we were given a break for about thirty minutes at mid-evening to kind of gather up our thinking.

School was a great challenge to us all, and we worked HARD to keep up with everyone.

When I got my General license in 1966 in Tulsa, Oklahoma, the examiner, from Dallas, told the class, "All of you need to watch this guy copy and send code, and he does it the way it should be done." I didn't miss a dit or a dah, it was being sent to me at 13-wpm, and at that time it was nothing to copy 13-wpm. I was accustomed to

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copying much higher speeds than that on the open circuits in the AF.

It isn't my intention to sound boastful about all this, it is the way it happened, and if someone else were to relate their experience to you about AF radio school you would hear the same thing over again from them.

Morse Chiding

Guys from the AC&W School would walk past our squadron and yell, "Dot, Dot, Dash Dot Dit," and chide us for learning code. Well, when it came time for me to get my amateur radio ticket I had no problem with code, but the guys who went to AC&W school didn't get amateur licenses cause they couldn't and didn't want to learn Morse.

Finishing basic training at Lackland AFB, in San Antonio, Texas, all the guys had to go to something called *Career Guidance* where we were interviewed and told where we were going for further schooling.

There wasn't any earth shaking experience about Morse in school. They just meant business and no play learning it.

We weren't permitted to send at all, just learn to copy. Three hours per day of Morse, five days per week and another three hours of related subjects, theory, typing and the like. We used a mill for copying. It was all five-letter groups, 10 groups per line, and five lines per drill for 50 groups. We began at 4-wpm and increased by 2-wpm thereafter. All letters, numbers and punctuation as you would expect. Some ham punctuation is the same, but means something a little different.

> *"Dot, Dot, Dash Dot Dit,"*

I took typing when I was in the 9th grade for one semester. I passed the typing class at 55-wpm. In radio school typing class they asked if any of us could type, I said I could and so did several other guys, so they gave us a test which I passed at better than 50-wpm. They phased me out of typing that one night so that was that. The mill we used was an old Underwood, upper case only. I wish I had one of those here in the shack. A line of five-letter groups looked like this: JUGY4 IASHR JAMES DAVIS MIKE3 PIMN5 EXRST TULSA WKLNT QRZDS. There were five groups, double-spaced in the middle, and then five more groups. We worked hand in hand with the crypto section.

Airman James B. Davis (top, center) with Classmates at Radio School, Kessler AFB, Biloxi, MS

When you copy in the code in the military your superiors want to see everything that comes in on that circuit. I was copying position reports on aircraft coming in from the North Atlantic through the Azores Islands, Iceland, England, Greenland and all those places with aircraft headed towards the U.S.A. We nailed every dang one of them. If it happened to be an Unknown A/C and we didn't get a flight plan on them, our fighters were scrambled to go up and see who or what they were. Generally it was a civilian airliner ahead of their flight plan.

I used to copy the Navy Fox Stations for practice when in Newfoundland. There was one station called NSS that would really rip the code. They would come on with this VVV VVV VVV DE NSS NSS NSS BT BT BT, then they would let it go, that was a beautiful station to copy because they had all the messages on tape and the code was smooth and solid all the time, never a hitch, and when they finished they would say DE NSS AR. Then at set times those messages would start all over again. Those were the days.

Sup-up

If speeds weren't passed in the allotted amount of time we were placed on Sup-up, (Supervised Study for three hours per day for a week). That happened to me once, and I think I passed three speeds that week in Sup-up as well as regular hours of school. My hours were 6 p.m. till midnight five days a week. School

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Herman's Key

Scott Laughlin, N7NET

A sign reading "Estate Sale" caught my attention. Slowing, I wheeled into Herman's drive and dogged the old Ford to a stop. We'd never met and shook. We'd never even QSO'd. In fact, I didn't even know his call. Now it was too late for any of that.

His yard was filled with portable towers, guy wires, coax, heavy transmitters, and antenna tuners, but nothing here would meet my budget. Then I noticed a sign over the door that read, "More Inside."

His shack was a museum. Equipment was everywhere. On the walls hung world maps and hundreds of QSL cards. However, what caught my attention was a photo of a B-17 with her flight crew.

"Herman, my father, was the radio operator on that bomber," said a voice.

Turning, I found a short man of slight build. He was perhaps ten years my senior. His head was a glossy bald.

"Which one is he?" I asked, stepping closer to the photo, and studying the faces.

"The smallest of the group, the one on the end," he said, pointing an index finger. "He was five-foot-four and a quarter, and he probably never weighed ninety pounds."

"Somewhere, I heard your father was already an operator when Fort Sam Houston came on the air with their spark gap."

"True. He was." He cleared his throat and shifted his weight. "Were you looking for something in particular?"

"I hoped there might be a stray key lying about, maybe your father's favorite?"

Stooping, he reached into a pasteboard box and grabbed something. "Here you go," he said. "This is a J-38, or was. These things are getting more rare with each passing day. My father, being a ham prior to his draft into World War II, spoke Morse. This may have been the one he took to war with him. Many hams did, you know? I guess it's kind of like a trumpet player always has a mouthpiece in his pocket."

"That's an interesting analogy," I said, plucking the key from his grasp and turning it in my hand. "The armature is rusted in place."

"I know," he said wistfully. "But you could breathe life back into this puppy. Then you would own the very key my father may have used over Tokyo."

A host of possibilities raced through my head. *There's no way of telling what might be hidden beneath this rust.*

"How much?"

"Twenty bucks."

"Let's get serious."

"Twenty bucks?" I echoed. For certain, a J-38 in working order could be found for less money, but not one bringing with it a legacy. *What if the B-17 tail number were etched somewhere on this key?*

"How about five bucks and I'll save you a trip to the dump?" I countered.

"Let's get serious."

"I am serious," I said, smiling, and shoving a five-spot toward him while slipping the rusty J-38 in my shirt pocket.

He blinked, and shifted his weight again. "Well, you add another five to that one and you have a deal."

After arriving home, and taking time for a closer inspection, it was obvious that this J-38 would actually bring twenty dollars a ton on the scrap steel market. What a blunder. I should have walked away. But my remorse was countered by words echoing in my head. *This J-38 may be the same one my father used over Tokyo.* "What if…," I thought. My time was cheap. After a liberal soaking with WD-40, I slipped the key into a baggie and pinched the seal.

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Laurie Carr's World Without Limit

Amateur Radio in Mainstream New Zealand Press

Sandra Crosbie, Reporter, Feilding Herald

Discovering Amateur Radio has brought a new dimension to life for Laurie Carr. Being visually impaired, Laurie never thought that he would be able to obtain his licence to operate. He often listened to local operators on his scanner, but couldn't participate.

After discussing his wish to be able to operate an amateur radio with Peter Moore from the Manawatu Amateur Radio Society, Laurie's wish soon became a reality.

Feilding resident, Des O'Brien and Peter jumped at the chance to take up the challenge of teaching Laurie how to operate a radio.

To obtain a licence, an examination has to be passed, and there is a bank of over 600 possible questions to learn for the eventual 60-question test. The Foundation for the Blind recorded all the questions onto tapes for Laurie to learn, and he spent close to a year listening to the tapes, and memorising the answers. Meanwhile, Des assisted him with erecting his two aerials. "What a pair we made, the blind and the geriatric," said Mr O'Brien, "But we got there." He also taught him how to operate the system.

> *"…sit around and have a natter."*

Being electronically minded, Mr Moore was able to install a voice synthesiser computer chip into Mr Carr's transmitter that reads out the frequency when it is dialled up. This assists Mr Carr knowing what frequency he is on, as because of restrictions and designated bands, you have to know where you are.

Mr Moore compared operating a radio, to fishing. "You make a general call, like putting out a line with bait, and wait to see if anyone answers – or grabs your bait," said Mr Moore

The start of each day for Mr Carr, is now switching on his transmitter radio, and listening to other operators 'chat'. There is no need for me to switch on a transistor radio now. "I operate my radio everyday now, it is now my morning 'fix'. This is something I have always wanted to do, and never thought I would. But if you really want to do something, you can find a way. I really owe this opportunity to Des and Pete and the time and knowledge they have put into assisting me with getting my licence, and their continuing support," said Mr Carr.

Most international radio operators speak some English. Mr O'Brien has two albums of cards he has received from operators from throughout the world that are exchanged after contact. These include eastern European, Asian and other non-English-speaking countries.

Des O'Brien (R) oversees Laurie Carr, while he operates his Amateur Radio. Des assisted visually impaired Mr. Carr, with gaining his Amateur Radio licence.

The Manawatu Amateur Radio Society has approximately 50 members. There are 120 people with active licences in the area. They meet once a month at their clubrooms in Palmerston North. "It is mainly us older ones," said Mr O'Brien. "We like to sit around and have a natter." Many enthusiasts are retired, as they have the time to participate. Mr Moore, spends 8 – 9 hours a day on his radio. Both have electronic or technical backgrounds.

New technology has introduced advancements including computer software. "But the beauty lies in being able to talk to unknown people anywhere in the world, at no cost," said Mr Moore. "The cost to set up doesn't have to be too expensive, as second hand equipment can be purchased."

Mr Carr has two aerials. The longest, at 2 metres, is for local coverage, and his HF aerial is only 1 metre in height off the apex of his home.

Amateur radio has brought many new friends and contacts into Mr Carr's life, but he is very thankful to both Mr Moore and Mr O'Brien for their help in opening up the whole new world for him. ■

It is K9YA Telegraph *policy to feature only original material, however, in this instance, due to the subject of the article, we've decided to make an exception so the amateur radio community can view another example of what we are really about.*

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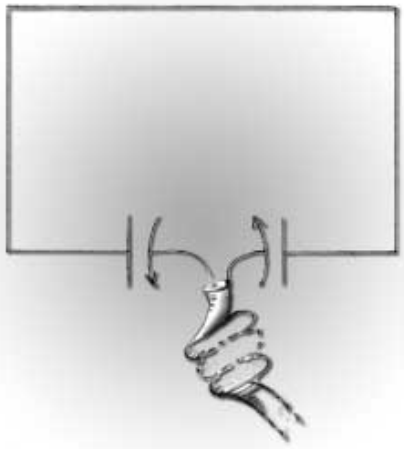
The Indoor Sportsman—Part I

Tanks from the Memories

Rod Newkirk, VA3ZBB/W9BRD



Side View of the Indoor Sportsman Antenna

Anyone out there in *K9YA Telegraph*-land who enjoyed the old 5-meter ham radio days? Not many of us left. VHF before WWII was the hobby's wild frontier, a circus of wireless fun and frolic. There are oldtimers still around who will admit to "bootlegging" on 56 MHz (Mc then) until local licensed amateurs scared them into becoming legal.

Equipment was gloriously simple. For plenty of QSOs you didn't even need an antenna per se. There was about a quarter wavelength of wire or tubing in a 5-meter transmitter's final tank circuit. When this was stretched out instead of coiled, you could radiate like gangbusters. Oh, don't snicker too loudly; feedline losses were zero.

> *"'bootlegging' on 56 MHz…"*

Our VA3ZBB/VE3ZBB skyhooks were down for premises maintenance, so Betty and I needed an alternative compact radiator to meet our ragchew schedules and net obligations on HF. The Sportsman, with its fascinating pedigree, came to mind. Modified slightly for balance and feedline matching, the ancient quarterwave loop fills the bill with DX to spare. For our favorite CW hangout, 40-meters, the required circumference, in the vertical plane, fits neatly into our radio room.

Ten Percent Rule

Adding about ten percent to the nominal 33 feet enables a simple unity match to 50-ohm coax as illustrated. The resultant 11' by 7' rectangle has its feed and tune points together at convenient floor level, bottom center. Like your old-style tank circuit, this is basically a one-band design. Additional conductors can be suspended concentrically for band change—25 feet for 30 meters, 18 feet for 20, etc.; the unused longer wire opened at top center to minimize interaction. Soldering all connections would be neat, but clean and firm alligator clipping suffices. Our conductor is lamp cord. Its color can be chosen to match interior decor, although the Sportsman is easily rolled up and filed away when not in use.

Capacitors

The twin capacitors can be junkbox receiver-type variables in good condition. We prefer a pair of two-gang models connected split-stator to avoid wiper contact. Flat match occurs when each capacitance is near 70 pFd for 7 MHz, 50 pFd for 10.1 MHz, 35 pFd for 14 MHz, etc., Tune-up is easy. With your transceiver's ATU out of circuit, AGC off or at minimum, jockey the capacitors equally for maximum receiver noise. Then, transmitting QRP, tweak them for the 1:1 VSWR match. You'll be able to roam more than half the band without re-tweaking.

Radiation is mainly in plane, the customary small-loop figure-8 pattern with significant groundwave side nulls. On skywave the nulls are less distinct but still worth consideration when positioning. The Sportsman can be tucked into a corner when bent up to 90 degrees at its center. But best to stay in the clear as much as possible to preserve balance. Well-balanced loops are good at minding their own business without seeking stray interior counterpoise. Spurious coupling responses are minimized by wrapping the coax feed line into a choke balun of ten or twelve two-inch close-spaced turns at the point of feed.

So much for the fundamental Sportsman. Not much to it. Things get more interesting in Part II when we describe a simple modification that makes it the best 80- and 160-meter indoor antennas we've ever used. Yes, we mean 160—indoors. ■

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The kit went together with no glitches or difficulties. Even winding the five coils was a pleasant and diverting experience—certainly better than shoveling snow. Peaking the receiver was simple; off peak produced much hum and weak BC station audio, a slight tweak of trimmer C8, the hum was dispatched and up popped a meeting of the County Hunters net—RST599. Testing the transmitter—no output—using a magnifier I found one lead of toroid T2 in the low pass filter retained a bit of its red enamel insulation resulting in a cold joint. Reheating the still shod lead dispatched the insulation, produced a good joint and more than one watt of RF output. The little rig was now ready for its inaugural QSO.

On the Air

That first QSO was with Mike, N9BOR, keeping it a *K9YA Telegraph* staff thing. Mike's report was impressive; "RST 599, pure CW note and you'd never think that signal was coming from a rig smaller than the paddle keying it." Via 2-meters simplex I was able to monitor my signal in real time from Mike's rig's speaker and it sounded just right.

Though only a few miles distant, that first DC40A QRPp QSO was rewarding as nabbing some rare DX. The tiny, keyer-equipped board, revealed another of amateur radio's myriad facets—a fistful of components and a few hours work can add so much to an already engrossing pursuit.

The next QRPp QSO, snagged after only two CQs, was Harrison, Tennessee where the DC40A scored RST 559—for 29 minutes—not bad, not bad at all. If an OM is permitted a bout of giddiness after 30 years of wandering the ether while reaping DX, earning wallpaper, sparring contests, passing traffic and ragchewing—then, for every one of those 29 minutes of pipsqueaking—I was giddy.

The DC40A is a worthy addition to the growing QRP kit armamentarium.

There is a discussion group for the kits at: **http://groups.yahoo.com/group/dc40kits/** (See: *K9YA Telegraph*, "QRP," May 2005, Pg. 1)

The Soldering Station Difference

Midway through building the DC40A one thing became too apparent, my old soldering iron, a 25-watt Weller SP-23, was taking a bunch of fun out of the construction phase and adding a whole lot of frustration—it was just plain too big for the job.

The Weller's contemporaries, mostly Heathkits and 'round the shack odd jobs, rarely evidenced its shortcomings. But take a tightly populated PCB and that big tip, chisel-shaped or pointed, couldn't get out of its own way. It was tough to avoid soldering two or more joints while aiming for the desired one, and forget about SMDs. Plus, that orange handle got awfully hot during extended workbench sessions.

Some online research helped me determine that, for my needs, a Hakko 936 ESD (**www.hakkousa.com**) soldering station would do the job. I ordered it with four additional tips, but found the included tip ideal for completing the DC40A. It heats up quickly and maintains its preset temperature. Using that new iron made soldering on a tight board enjoyable as its small tip and slim handle made guiding the working end to its target lead easy—no more than one solder pad at a time! ■

Ham Quips

DICK SYLVAN, W9CBT

DEPOSIT QUARTER FOR ONE QSO
50 CENTS FOR 3 QSOs

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lasted 27 weeks, but one week was for KP duty to get it out of the way so as not to interfere with school.

We were required to pass 20-wpm in the proper time for graduation. I passed 23-wpm, and would have passed 25-wpm, but they took the seats from several of us because of other guys needing to pass 20 and told us to go back to our squadrons, we had finished school.

After Radio School

I came out on orders at Keesler AFB where radio school was, and was being shipped to the 64th Air Division (Defense) in St. John's, Newfoundland, Pepperrell AFB, Northeast Air Command (NEAC). I was there for two years. Came back to the States in 1955 and was sent to the 760th AC&W Squadron, Colville, Washington 9th Air Division (Def), was there a year, and discharged New Year's Day 1957, and came home to Tulsa, Oklahoma.

The guys I was stationed with were some of the finest young men I could have been around. My instructors were the same way, always very helpful with the instruction; they wanted everyone to pass with flying colors. They were really down if someone phased out of school because they just couldn't get the code.

While in Newfoundland at the first station, we were using the old BC-610 transmitters, and Hammarlund SP-600 Super-Pro receivers. Then we were at a new Communications Center for Aircraft Tracking and the radio equipment was remote. All we had at our operating position was a key and a typewriter (mill). The transmitters were a pair of 10 KW Marconi used on microwave antennas—I think—it was a long time ago.

All us guys did the normal things while at our duty sites, trying to stay busy doing something to make the time pass to get back to the States. But wherever you go in the military you're doing the same thing, staying busy because you won't be there long enough for it to mean much except doing a job. Our jobs back then were involved in the Cold War, and defending our country, we knew it, but that was part of it I guess.

ARS NW5F

Today at NW5F

I am 74 years old, licensed since 1966, and received my Extra Class in July 2006. I am trying to get my rigs and antennas back on the air after being off for 20+ years. The maintenance base employees in Tulsa started the American Airlines Club; it isn't a national thing. Most of the guys are members of the local Transport Workers Union, TWU 514. ■

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"A polished apple tastes sweetest," say voices from the past. There is truth in these words, for as I labored over this gem, searching for numerals or initials that might disclose its heritage, the possibility of such clues grew less important.

A week later, it was buffed to a high sheen, but something was still lacking. Somewhere, I had a base plate.

From a box of spare parts, I retrieved a Bakelite base that had once served a Southern Pacific station agent. It fit perfectly. Even the nomenclature, J-38, was etched on it. I had something better than a key used over Tokyo

I had a ghost key. ■

MFJ Gets YI9TU/K7TUT QRV

Shortly before Mitch Gill's article, "What Would You Do?," (*K9YA Telegraph*, April 2007) ran, we received word his automatic antenna tuner failed. The manufacturer said it was out of warranty and would take months to repair.

That's when we stepped in and turned to Martin F. Jue, K5FLU, of MFJ Enterprises, Inc. and after a very short e-mail exchange he generously offered to send Mitch an MFJ automatic tuner and power supply—at no charge. It wasn't long before Mitch reported the tuner was in hand and he was QRV for a period until all amateur radio operations, military and civilian, were halted by the Iraqi government.

Our thanks to Martin F. Jue and MFJ for their unstinting support of an amateur radio operator, in uniform and far from home. ■

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