The SIGNAL

Collins Collectors Association

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Collins At Work: AB8AU/AB8AZ – US Army MARS

By Tom Boza, NE7X

WA8NSH at operating position #1 of AB8AZ with Collins 32S-3 and 75S-3 "S-Line".

Introduction

During the Vietnam conflict there were no individual personal cellular or landline telephones available for soldiers or sailors to use for calling family members back home. To address this, United States MARS (Military Affiliate Radio Service) stations from all branches of the service, Army, Navy, Marines, and Air Force, were deployed throughout Vietnam. The MARS system offered soldiers and sailors a way to personally communicate with loved ones back home via the use of a "phone-patch" telephone connection over short-wave radio. MARS stations allowed each soldier a free 5-minute personal radio telephone call home to the United States. In just about all cases, MARS was the only way soldiers could call home. In other words, "MARS was the soldiers' Telephone Company."

The 9th Signal Battalion supplied all types of communications for the 9th Infantry Division, which included microwave, data/computer, satellite, radio teletype, crypto, two-way radio communications between the foot-soldier in the bush and base camp, in-country military telephone, and MARS.

In this issue...

The 9th Infantry Division had two base-camp radio station locations, plus a roaming mobile unit. The two fixed MARS locations were at the 9th Infantry Division Headquarters, Camp Bearcat, just north of Saigon, and Camp Dong Tam, just outside the City of My Tho, approximately 41 miles south of Saigon along the My Tho River.

The Bearcat MARS radio callsign was AB8AU and the station was housed in the 9th Signal Battalion area of the compound. The Dong Tam MARS callsign was AB8AZ, and it was housed in the US Navy area of the compound where armored US Navy MRF (Mobile Riverine Force) gunboats were repaired.

The MARS mobile unit traveled around the 9th Infantry Division theatre of operation. This mobile MARS unit provided the capability of telephone calls home for the soldiers located in the smaller front-line field and artillery fire support bases.

My Story

I graduated from high school in the spring of 1967 and then joined the United States Army. Little did I understand that by joining the army I would be going to a war in Southeast Asia.

After finishing basic training boot camp at Ft. Knox, Kentucky, I went to Ft. Ord, California and attended basic radio operator training (05B20). I then attended advance radio teletype training (05C20) at Ft. Gordon, Georgia, after which I was shipped out to Vietnam.

I arrived in Vietnam in October 1967 at the Ton Son Nhut airfield outside of Saigon and was assigned to the 9th Infantry Division at Bearcat. After I arrived at Bearcat, I was placed into an infantry replacement platoon waiting for a final unit assignment. During this time I went out on about five RECON night patrols carrying a PRC-25 two-way FM radio transceiver on my back. I was the lucky one who got to carry the 20-pound radio plus all my other gear and M16, since my MOS was "Signal Corps."

I didn't see any real combat during this time. However, we did get shot at once by a sniper near a Buddhist temple, which scared the heck out of all us newbees. We also discovered multiple booby-traps during two of the patrols, one of which was a trip-wire tied between two rubber trees going across the path along which we were walking. The sergeant we were with spotted and defused it before anyone got hurt.

Then after about two weeks of being in country I came across a MARS station on my way to the PX. I decided to stop in and send my folks a MARS gram (radio telegram) informing them that I had arrived and all was well. I filled out the MARS gram, addressing it to my father. I included his amateur radio callsign, WA8PYN, and then I signed the message "Your son Tom, WA8NSH." I handed the message to the Master Sergeant behind the desk and he began to proof read it. He said to me, "Oh, I see you're an amateur radio operator," and I replied, "Yes." I told the Master Sergeant that I was a General class amateur radio operator and my MOS was 05C20 (Private First Class Radio Teletype Operator). I also told the Master Sergeant that I was new in country and I was awaiting my final unit assignment. He said the MARS station was one radio operator short and wanted to know if I would like to be assigned to the MARS station running radio phone calls state-side for the troops. I said yes, and two days later I was transferred full time to the 9th Signal Battalion "A" Company MARS station at Bearcat. After spending two months at AB8AU Bearcat, I was transferred to AB8AZ Dong Tam, where my real Vietnam adventure began.

AB8AZ

The 9th Infantry Division expanded its theater of operations south of Saigon in 1966. A second main base camp called Dong Tam was built in partnership with the US Navy Mobile Riverine Force. A second MARS callsign, AB8AZ, was assigned for this new location.

Looking for a new home to house the AB8AZ MARS station, there was no facility available on the army side of Dong Tam, so the US Navy allowed AB8AZ to be housed in the front half of the US Navy river boat radio communications center. In doing so, the US Army MARS unit was assigned to the U.S.N.S.A. (U. S. Navy Support Activity), so in a sense, the army operators were now in the navy.

Because the army MARS was now attached

(continued on page 2)

Collins At Work: *(continued from page 1)*

By Tom Boza, NE7X

Master Sergeant William Lee, W6RDH, at operating position #1 of MARS station AB8AU, Collins S-Line with 30L-1 RF amplifier.

to the navy, all the army MARS operators lived (bunked) in a navy hooch and ate all their meals in the navy mess This was a treat, for the navy mess was quite better than army mess. Phone patches were run for all members of the armed services, army, navy, marines, and even a few air force personnel.

The main operating position at AB8AZ consisted of the following: Collins (S-line) 75S-3 receiver, 32S-3 transmitter, 312B-3 speaker, 312B-4/5 station control with phone patch interface, SM-1 desk top microphone, and 30L-1 500 watt RF amplifier. This station was located in the front of the MARS station, just left of the door as you walked into the shack.

The second operating position at AB8AZ was composed of a Collins (S-line) 75S-3 receiver, 32S-3 transmitter, 312B-3 speaker, 312B-4/5 station control with phone patch interface, SM-2/-3 desk microphone, and Henry 3K-D RF amplifier. This station was located in the rear of the MARS station across from the workbench.

AB8AU vs. AB8AZ

There was competition between the different MARS stations in Vietnam, army, air force, marines, and navy. Everyone kept logs on the amount of phone patches per month we ran and which MARS station had the strongest radio signal back into the US. Our sister station, AB8AU, was always beating us out on signal strength. Thus, one day we talked Master Sergeant Chichester into letting us order a full-size, 3-element, wide-spaced, mono-band, 20-meter Yagi from Honolulu Electronics. When the antenna arrived, we installed it on top of an 80 ft. wooden telephone pole. There was no rotator; it was fixed short-path on the US. Using a Collins S-Line driving a Collins 30S-1 amplifier into this antenna changed things considerably. We were now S units in signal strength above all the other MARS stations, including AB8AU, into the US. We finally were able to hold our heads high, and we nicknamed ourselves "AB8AZ - The Voice of the Delta!" (We were located in the rice paddies of South Vietnam.)

AB8AU/AB8AZ Mobile

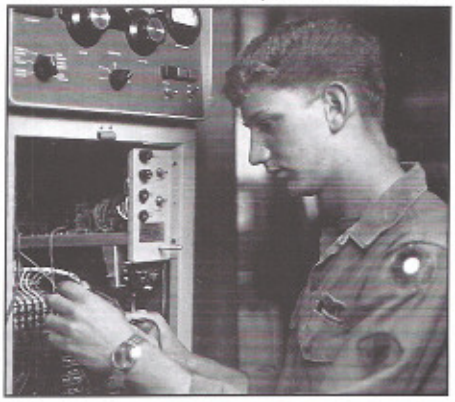
The AB8AU/AB8AZ mobile unit traveled throughout the 9th Infantry Division theatre of operation. It was comprised of a converted surplus Dodge M43 army ambulance containing Collins shortwave radio equipment and towed a trailer containing a 10KW diesel generator. It supplied telephone communications for soldiers who were located in the smaller front-line field and artillery camps and who did not have regular access to Bearcat or Dong Tam. The mobile unit set up temporary portable operations at a remote field camp until everyone had the opportunity to make a phone call home. Then the mobile unit was broken down and driven to the next field camp, where the process started all over again.

The AB8AU/AB8AZ mobile equipment: Collins KWM-2A with 30L-1 HF RF amplifier; 20.813 MHz 3-element mono-band Yagi on a 30 ft. push-up mast; 5KW 120 VAC gasoline generator pulled behind the mobile unit on a 10 ft. trailer.

Summary

Besides the nightly mortar attacks, a normal occurrence, I had a fairly safe and uneventful tour of duty from October 1967 to November 1968. To this day, I believe that if I hadn't been an amateur radio operator, and if I hadn't stopped into the MARS station that day to send a MARS gram to my parents, I may have never have made it out of Vietnam alive. For more details, visit my website, http://www.ne7x.com/web_pages/vietnam1968.html.

Mobile unit above; Tom repairs a 30S-1 below



On the Workbench

by Dutch Maurer, WB7DYW
wb7dyw@mail.ev1.net

One of my favorite rigs is the KWM-2/2A, but like many of us, time and age take their toll on these fine old radios. One of the common problems is AGC overshoot. This is easily identified by a strong station that sounds garbled or "pops" when a weaker station sounds fine, or if you need to turn down the RF gain to understand a station.

This brings us to Service Bulletin 8 parts A, B, and C. Let's start by downloading them from www.collinsradio.org. Next remove the radio from its cabinet and check to see if any of the Service Bulletin (SBs) items are already installed. With some rigs you may see one or two already incorporated in the radio. After you determine what needs to be installed, gather the parts listed in each SB. You will find step-by-step instructions in the bulletins, but they may seem a little intimidating at first. Maybe I can simplify things a little.

In SB8-A it says to remove all parts connected to E30-C. Refer to figure 7-2 in the KWM-2/2A manual for a parts layout to identify E30 (the turret closest to the audio output transformer). Terminal C is on top and is usually marked on the turret. Remove the components listed in SB-A and set them aside for now. Install the new components as listed in SB8-A. When you are done, double-check your work to be sure all components are installed correctly. Power up the radio and check to see that it is operating normally. This may be a little nerve wracking for the beginner, but it will get your blood running when you hear the click and it actually works. If everything is okay, we now will move on to SB-8B.

XV15-2 is V15 (6BN8) pin 2. Counting counterclockwise from the void between pins 1 and 9, pin 2 is the second pin. E20 is the turret between V15 and V3 (6AZ8). Translation: Connect a 620K ohm resistor between E20 terminal B to pin 2 of V15. Next add a .01 uF cap to V15 pin 3 to nearest ground. Again check the rig for proper operation. SB8-C will have you install a diode (CR11) to add delay to the AGC (Automatic Gain Control) RF amplifier. You will need to install TS-11 (terminal strip #11; these usually can be purchased from almost any electronics parts store) by bolting it to the screw holding the front of the audio output transformer and connecting the components as listed in SB8-C. Again carefully check your work, power up the rig, and look for a strong station to check for correct ACG operation. If you have done everything right, you should now be able to listen to smooth audio without the annoying "popping" from strong stations. If you have any questions, please send me an e-mail at wb7dyw@ev1.net and I will try to answer them.

At The Mic

by Floyd Soo, W8RO - President CCA
floyd@hi-rescom.com

Dayton 2006 is rapidly approaching! A full report of the event will be in the next issue of "The Signal." This is always my favorite time to "meet and greet" those Collins radio friends whom I don't get to see otherwise. If you are going and have some interesting stories to tell about your experience, please pass them along to Gail, K2RED, our "Signal" Editor (e-mail: K2REDCCA@aol.com). Speaking of Gail, I hope many of you have the opportunity to say hello to her at Dayton. She will be spending most of her time at the CQ Communications booth in the main arena. She does a fantastic job as our Editor, and she needs to hear from you, or better yet, SEE you!

Rich Sperling, WB3JLK, is our Dayton Chairman for 2006. He and Tony Sokol, W9JXN, are putting the finishing touches on the event. We changed location to the Holiday Inn Dayton North for 2006. This Holiday Inn is at Wagoner Ford Rd. and I-75. We'll have feedback from members who were there in the next issue. Rich Davis, K8PJQ, will be the keynote speaker at the CCA Banquet on Friday night. He spent his tour in the Navy aboard submarines, diesel and nuclear. He has a really great story to tell, with pictures. Because the presentation is so interesting (there were Collins rigs on some of the subs on which he served), I think we will tell the story here in "The Signal" at a later date, too. Keep an eye out for it.

Now that summer is approaching, many of you will be in "vacation mode." I hope that while you are in that mode, you are "radio-active" with your Collins rigs. At the least, check into our CCA nets and say hello using whatever gear you are running. I hope to hear more mobile and portable stations running Collins rigs on the air from camp sites, cabins, boats, and any other place you may be visiting. I know some of you still participate in Field Day with your classic Collins gear. If you do so this year, please take pictures, write a short story for "The Signal," and tell us about it! It's not often that you hear a KWM-2 or S/Line on the air during Field Day. Let's hear from those of you who do just that.

The CCA is still looking for someone to take on the Net Manager's position. It's not a difficult job. All he/she needs to do is assist the NCOs with their schedules. The Net Manager is NOT required to make all the nets! If you, or someone you know, is interested, please contact me.

Hope to catch you on the air with that beautiful Collins rig! 73, Floyd, W8RO

Visit the CCA web site at:
www.collinsradio.org

In the Shack

The radio shack of Al Manhan, K2DYH

As you can see there is a nice "S" line pumping up a 30L-1, a 75A-4, a 32V-3 Howard Mills Special, SX-115, a NC-183D and a rare Central Electronics 200V . Lurking around there's a HRO-60 and a Swan 1200-Z amp. The operator is seen experiencing some difficulty connecting the mic to the proper jack.

Call For Articles!

by Gail Schieber, K2RED

We need material to publish in the Signal newsletter! Technical articles, "hints 'n kinks," on-the-air experiences with Collins equipment, articles of historical nature, and items for the new column, "Collins Radios at Work"...which includes experiences of CCA members who used Collins gear in the military, commercial, aviation, and space services.

We don't necessarily need full-length articles. A few paragraphs or even just a photo with an explanatory caption are welcome. You do not have to be an experienced writer either. We are willing to help you. In exchange for any full-length articles accepted for future publication, the CCA will provide you with a FREE 1-year CCA membership!

You can contacted me via e-mail at K2REDCCA@aol.com.

We are also looking for shack photos for "In The Shack." Please send us a photo of yourself sitting at your Collins station and include a brief description of your equipment. Email them to Sandy KW6KW at kw6kw@comcast.net.

Join Us on the Air!

- Sunday 14.263 mHz at 2000Z
- Tuesday 3805 kHz at 8pm CST
- Thursday 3872 kHz at 8pm CST
- Friday (West Coast) 3895 kHz at 10pm CST
- Sunday 10m AM 29.050 mHz at Noon CST
- 1st Wednesday AM 3885 kHz at 8pm CST

Sunday for Technical, Buy, Sell & Swap
Tues., Thurs., Fri., & Sunday for Ragchew

Subscribe to the Collins Reflector...a FREE e-mail mailing list of over 1300 Collins users and collectors! Visit the CCA web site for complete information!

CCA Awards Banquet

The Dayton Hamvention is May 19th, 20th, & 21tst. Time is running out if you want to attend the CCA annual awards banquet on Friday night, May 19th at 7:30pm at the Holiday Inn North at 2301 Wagner-Ford Road, Dayton, OH. Use the banquet reservation form on the CCA web site at www.collinsradio.org. Be sure to tell us whether you want chicken or beef for your entrée. Cost per person is $35.00. Of course, there will also be a nice array of goodies offered as door prizes.

You can make hotel reservations by calling the Holiday Inn North at 937-278-4871. Be sure to tell them you are a CCA member to get the special $118.00 per night room rate.

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Collins Radios, Still the Best in Town - Part 6 - Conclusion

by Edison Fong, WB6IQN - edison_fong@hotmail.com

From my experience, audio power is not the only culprit in most receivers (old and new). What often is really lacking is a good-size high-quality speaker. There may be a difference in quality in the audio of a 75S1 and that of an ICOM 735 when put through the same speaker, but it is not dramatic. The most noticeable difference is during large pops and cracks that come across the air. The Collins really wins out, as with most tube audio output stages. The reason is really quite simple. The pops and cracks are transients. The transistor output stage tends to clip. The tube amp will also clip, but with a smoother transfer function which is quite apparent to the human ear. The ICOM will sound raspy, while the Collins sounds softer. However, I must stress that this is not significant, and I would not advise one to spend much time investing in this issue. The difference in tubes versus transistors is probably best left to audiophiles.

If, on the other hand, you have one of the earlier solid-state radios, such as the Heathkit SB104, you may want to look twice. The Heathkit has cross-over distortion that even my 7-year-old niece noticed. The problem can be remedied with modern ICs. I have modified many rigs that lack audio power and had experienced cross-over distortion by replacing the entire audio section with an LM383, shown in Figure 9, available from National Semiconductor. This is a 7-watt audio amplifier in a TO220 package about 1/2-inch square. It basically has five pins: ground, power, output, input inverting, and input noninverting. One can mount it anywhere, since it typically replaces an entire audio board if the rig is from the '70s or '80s.

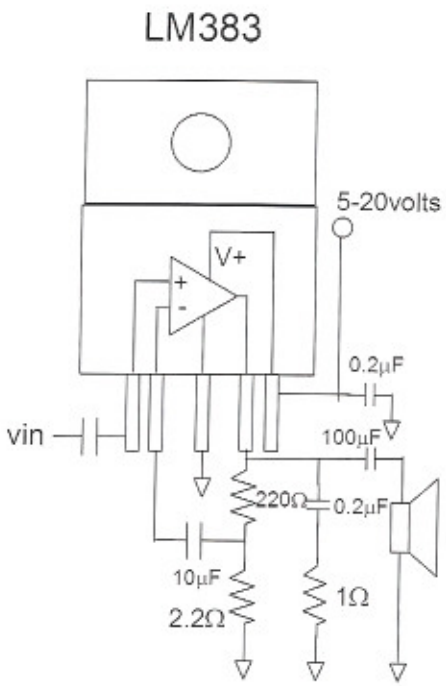

Figure 9. Pin configuration for the National LM383 7-watt monolithic audio amplifier.

Space is almost never a problem. Distortion is less than 0.1% and quiescent current is typically 45 milliamps. The audio difference is night and day. Before all you guys run out and make this mod, check out the specs on your present rig. If it is spec'd at 1-2 watts and is constructed from discrete components, then there would be a noticeable improvement. If the audio is already spec'd at 5 watts or more and consists of a single chip, then you probably would not hear any improvements.

Conclusions

What I have attempted to discuss here is not that one radio is bad and another is good, but rather the trade-offs that have been made throughout the years. Absolute performance of radios no doubt has degraded, but value has improved. This is mainly due to the transformation from tubes being the primary technology 30 years ago to the all-solid-state radios of today. However, modern-day radios offer endless features including, but not limited to, general-coverage transmit and receive, small compact size, energy-efficient circuits, infinite memories when interfaced to a computer, DSP, and low cost. The value we get today compared to 30 years ago is at least tenfold. We will continue to see modern-day radios make incremental improvements in performance, and perhaps in my lifetime I may see an all-solid-state radio match an R390A.

Letters to the Editor

I've had my Collins KWM-2 since the early 1980s, when I bought it from a work acquaintance, Ed. Ed was very proud of his Collins equipment. He had a wall full and was always eager to show it off.

One day I watched as Ed bounced a signal off Haley's Comet, and we timed the delay from transmission to return. Ed's other fascination was moon bounce.

Needless to say, I found Ed's activities very interesting. As a result, Ed was "pouring gasoline" on my "fire of enthusiasm" for ham radio. I ended up purchasing my KWM-2, a 312B-5, and a power supply from him.

Ed and I lived about 30 miles apart. He was on a hill overlooking the western coastline of Michigan, the eastern shore of Lake Michigan, and I lived due east of him off M-20. I drove home from his QTH plowing through drifts of snow that rolled over the hood of my 4x4 Ranger, with my "new" radio equipment at my side.

At that time I lived at a wonderful location - 10 acres of land relatively high compared to the surrounding area. I had long wires strung between the trees in all directions. My equipment worked great.

Shortly thereafter I relocated to the Detroit area, and the Collins rig ended up in a pile in the basement.

I recently put up a vertical dipole (a Gap Challenger) and was looking forward to firing up the Collins. The only problem was that I couldn't remember how.

A couple of the guys from the Motor City Radio Club (John McGlynn, K8CBS (also a Collins collector), and John Roberts, KC9KAM) came to my rescue, but they were only able to get an output of 5 watts. Something was wrong.

John, K8CBS, advised me to watch the e-mails of advice from CCA members and I joined the "list." That's when I noticed Floyd Soo's call (W8RO) and determined he lived relatively close to me. I wrote Floyd an e-mail asking for help, and we set up the meeting yesterday [just before Thanksgiving] at Fred's (W1SKU) house.

Fred and Floyd did a complete evaluation of my rig, giving me much needed advise on its proper operation and some needed maintenance. They also determined my rig was missing a "PA disable" jumper. That was fixed, and now I'm back on the air (with well over 150 watts of output)!

I'd like to extend a big THANK YOU to all those kind hams who helped, and to the CCA for making it all come together!
73, Al Laemmel, N8GWC

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Dear Editor, "The Signal"

I just sent in my dues and membership application to the CCA. I used to belong a long time ago but dropped out. I was pleasantly surprised see how the home web site has grown. I downloaded some FREE stuff and appreciate it.

One of the main reasons I just sent in my dues is because the site was available FREE. I think that is a BIG thing for the CCA to do for the ham community. I am glad "The Signal" now has technical stuff in it, too. Keep it up!

I'm hoping to buy some of the videos soon. I have been told they are very valuable for a person wanting to restore these old rigs. I'm looking forward to getting some of them. Thanks again. 73, Lee Bahr, W0VT