CENTRAL OKLAHOMA RADIO AMATEURS
COLLECTOR AND EMITTER

50¢

Volume 8 SEPTEMBER 1982 Number 92

INDEX

ALL THE NEWS THAT FITS—WE PRINT

"If all printers were determined not to print anything till they were sure it offended nobody, there would be very little printed."
BENJAMIN FRANKLIN

THESE CORA MEMBER CLUBS PROMOTE AMATEUR RADIO

1 AERONAUTICAL CENTER ARC
MEETS: 8:00 pm First Friday at Flight Standards Bldg., FAA Aeronautical Center

PR	AAØO	Robby Runyon	373-1818
VP	N5ABL	Holly Holcomb	799-2539
Se	WB5UHW	Jim Seignious	751-6698
Tr	K5RJR	Larry Vorheis	789-9629
EDITOR:		Jim Seignious, WB5UHW	751-6698

2 OKLAHOMA CENTRAL VHF CLUB
MEETS: 8:00 pm Third Friday, Red Cross Bldg., 10th & Hudson, Okla City

PR	W5VCJ	"Steve" Stevens	341-8486
VP	WD5IRB	Ralph Bartow	521-8330
Se	K5JB	Joe Buswell	732-0676
Tr	W5KE	Ellard Foster	789-6702
EDITOR:		Joe Buswell, K5JB	732-0676

3 MID-OKLAHOMA REPEATOR, Inc.
MEETS: 8:00 pm First Tuesday, Okla City EOC, 4600 N Eastern

PR	KC5HD	John Clement	943-2467
VP	W5HPR	Don McDown	732-6749
Se	KA5ERZ	Connie Boland	348-0123
Tr	W5KOZ	Sid Gerber	737-1050
EDITOR:		Susie Atkinson, KA5FED	842-8014

4 OKLAHOMA CITY AUTOPATCH ASSOCIATION
MEETS: 7:30 pm Third Tuesday, Okla City Fire Dept Training Center. N. Portland

PR	N5IH	Henry Isreal	722-3848
VP	AD1S	George Adkins	722-6195
Se	KA5BJS	Judy Macdonald	672-4947
Tr	K5GL	Guy Liebmann	787-9545
EDITOR:		Henry Israel, N5IH	722-3848

5 OKLAHOMA UNIVERSITY AMATEUR RADIO CLUB
MEETS: 7:00 pm Second Tuesday(Sep-May) 119 Wilson Center, 1334 S Jenkins

PR	KA5COI	Peter Richeson	329-3217
VP	KA5LZN	Greg Smith	325-2418
S/T	WA2YCA	Mike North	325-5731
EDITOR:		Greg Smith, KA5LZN	325-2418

6 ALTUS AREA AMATEUR RADIO ASSOCIATION
MEETS: 7:30 pm Second Thursday North Main Fire Station (CD)

PR	WB5MJS	Charles Smith	477-1098
VP			
S/T	WA5CBF	Loren Simms	477-0921
EDITOR:		Loren Simms, WA5CBF	477-0921

7 BICENTENNIAL (76'ers) ARC
MEETS: 7:00 pm Second Tuesday, Air National Guard, Will Rogers Airport.

PR	N5BEQ	Jim Buswell	236-0368
VP			
Se	N5AUH	Jerry Sproul	354-2061
Tr	WA5RAQ	Bill Rogers	632-4375
EDITOR:		Bruce Goff, KC5CR	751-6276

9 WHEATSTRAW AMATEUR RADIO CLUB
MEETS: 2:30 pm Second Sunday. Location varies. See club section for location.

PR	WA5GLD	Dick Ruhl(Kingfisher)	375-4843
VP	KA5FUU	Tom Johnson(ElReno)	262-5631
S/T	WA5PFK	Ralph Wilder(Watonga)	623-4521
EDITOR:		Ted Vanlaningham(ElReno)	262-1675

12 SHAWNEE AMATEUR RADIO CLUB
MEETS: 8:00 pm Second & Fourth Tuesday Shawnee City Hall (EOC)

PR	WB5ZBA	Earl Couch	598-3212
VP	WD5ETD	Rick Wilson	
S/T	KA5FBC	Jim Sullivan	273-3843
EDITOR:			

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13 KAY COUNTY AMATEUR RADIO CLUB
MEETS: 7:00 pm Third Thursday at EOC Ponca City

PR	WA5UBO	Marsh Pronneke	363-2526
VP	WB5NQT	Pat Burnham	765-7229
S/T	WB5YRN	Delbert Foiles	762-4479
EDITOR:		Marsh Pronneke, WA5UBO	363-2526

15 SOUTH CANADIAN AMATEUR RADIO SOCIETY
MEETS: 9:30 am Second Saturday, Red Cross Bldg., North Campus, Norman OK

PR	KU5B	Jack Bickham	329-1311
VP	K5KDR	Bill Oliver	329-6333
Se	AF5X	Jess McKinzie	329-1543
Tr	WB5UUX	Charles McCown	321-1061
EDITOR:		Sam Barrett, WA5RPP	321-2601

16 EDMOND AMATEUR RADIO CLUB
MEETS: 7:00 pm First Thursday. See club section for location and type.

PR	WD5DYI	Mark Northcutt	755-4672
VP	WB5MLX	Glen Cochran	942-7148
S/T	WB5UIY	Stan Van Nort	N/L
EDITOR:		Stan Van Nort, WB5UIY	N/L

17 TRI-CITY AMATEUR RADIO CLUB
MEETS: 7:00 pm First Tuesday, Location varies. See club section.

PR	WB5UBB	John Warriner	379-3149
VP	WB5VLT	J. B. Bills	379-3992
S/T	WB5TYW	Yvonne Warriner	379-3500
EDITOR:		Yvonne Warriner, WB5TYW	379-3500

18 GREAT PLAINS AMATEUR RADIO CLUB
MEETS: 7:30 pm First Tuesday, Basement Woodward Court House.

PR	N5CCV	Gerald Bowman	994-5381
VP	WBØPGD	Ron Tice	994-2138
Se	WBØQGW	Carla Tice	994-2138
Tr	N5EOY	Gerry Ford	256-5342
EDITOR:		Carla Tice, WBØQGW	994-2138

19 SOUTHEAST OKLA AMATEUR RADIO ASSN.
MEETS: 7:30 pm Second Monday. Location varies. Contact a club officer.

PR	WB5TTU	Ron Henson	326-5418
VP	WB5ULI	George Weldon	326-5672
S/T	WD5FUE	Orville Kaley	326-3650
EDITOR:		Ron Henson, WB5TTU	326-5418

20 ARDMORE AMATEUR RADIO CLUB
MEETS: 8:00 pm First Wed, Red Cross Bldg. Informal, 8:00 pm other Weds. 221 9th NW

PR	W5HJ	Tom Banks	226-3350
VP	WB5VBK	Fred Innis	223-1709
Tr	W5BLW	Charles Dibrell	226-0589
Se	WA5YOM	Tim Vandagriff	223-3582
EDITOR:			

MANAGING EDITOR:
Joe Harding, WA5ZNF Phone 737-1044

CIRCULATION MANAGER:
Bob Graham, WB5NSV Phone 677-8685

ADVERTISING MANAGER:
We need one.

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CORA, PO Box 15013, Del City OK 73155

CENTRAL OKLAHOMA RADIO AMATEURS, Inc.
MEETS: 7:30 pm Fourth Tuesday (Except Dec.) Red Cross, Oklahoma City

PR	AD1S	George Adkins	722-6195
VP	WD5JNT	Ted Van Laningham	262-1675
Se			
Tr	K5GGL	George Maschino	263-7614

SOUTHERN BAPTIST CONVENTION
DISASTER RELIEF
OKLAHOMA

BAPTIST GENERAL CONVENTION OF OKLAHOMA

JOE L. INGRAM, Executive Director-Treasurer

LADDIE R. ADAMS, Director, Disaster Relief

May 26, 1982

Dear Mr. Israel:

Orville Whitney N5ABE, President of the Oklahoma Baptist Phone Emergency Net, has brought to my attention that the Oklahoma Auto-Patch Association was very gracious to allow us to use their repeater all during the time that our disaster relief unit was in Kingfisher during the recent floods. We want to express our appreciation and thanks for this sharing. It enabled our crews to do a better job.

May God bless you.

Sincerely,

Laddie Adams

LADDIE R. ADAMS, Director

Mr. Henry Israel N5IH
Oklahoma Auto-Patch Association
% Judy McDonald
5120 SE 49
Oklahoma City, OK 73135

LRA:jf

THE BIG SIGNAL NEWS
OKLAHOMA CITY AUTOPATCH ASSOCIATION, INC.

NEXT MEETING: SEPTEMBER 21,1982.

The next meeting of the Oklahoma City Autopatch Associa- will be held in The Fire Department Training Center, located on Portland Avenue, between Reno and N.W. 10th St. The meeting will begin at 7:30 P.M. and this month's program will feature the slides and narration of the Pacific DXpedition by AD1S and N5DLM. The program will be the first Oklahoma showing of the slides of George & Vicki's trip to Micronesia; EVERYONE is welcome, whether you are an AUTOPATCH member or not.

Elections were held at the August meeting, with the following lucky folks agreeing to serve for the coming 12 months: President: Henry, N5IH
Vice-president: Mac, K2GKK/5
Secretary: Kathy, WB5NDO
Treasurer: Guy, K5GL.

All equipment is reported to be operating very well, and we have heard excellent comments on the 22-82 machine in the past few weeks. The two-meter technical committee have really done an excellent job!

K2GKK/5 will be your editor for O.C.A.P.A. beginning with the next issue of Collector & Emittor; be sure to send Mac your information on articles, announcements, etc.

If you have something to submit to C.&E., you can save Mac lots of time by typing it yourself; Use a clear, large type face and use a margin of (exactly) 4-5/8". (Make that read four and five-eighths inches-HI)

Enjoy the remaining dog days of Summer---school days are not far behind and we hope to see you at the September 21 meeting.

FOR SALE: INTERNATIONAL REPLY COUPONS, 40¢ each for a minimum of 10 @ $4.00. Out-of-town? Order 50 or more and I will pay the postage. Contact George, AD1S.

FOR SALE: ICOM 720-A HF Transceiver, featuring a full general coverage receiver, AM-CW-SSB-RTTY, PS-15 Power Supply, Microphone, CW filter,in excellent shape. NOT modified. Like factory new. Only used in air-conditioned hotel rooms lubricated by coconut milk and rum punch. Glad to demonstrate at my QTH. Call George, AD1S- 722-6195.

OK-DX

FLASH! It is rumoured that TL8GE has definite plans to operate from CHAD beginning the last week in September. The callsign should be TT8LM with QSLs directly to his home QTH.

C9-MOZAMBIQUE- SM2MLL has been heard from there, though I have not been so fortunate. Also, OH2MM is hoping to go to C9 RIGHT ABOUT NOW for a contest-style operation.

9M8-EAST MALAYSIA- VK9NS and his lovely bride VK9NL are now operating as 9M8JS and 9M8NL. Another week or so...

VU9- PANIC! Sorry about that... if you hear a crowd of VU9 callsigns over the next few months, RELAX, it's only a "plain ole VU2"... Indian stations have been granted the special prefix until mid-November.

I heard on an Oklahoma City repeater the other day that DXCC is the"worst thing to ever happen to Amateur Radio". Of course this comment came from a "ham" who seldom or never works DX. I guess others could say that the Brass Pounders League is "the worst thing..." (You won't hear me say that; I think that every amateur's interests have an important place in the amateur radio service.

As most of you know, Vicki and I made it back safely after 19,000 miles of DX, Air Micronesia and other stuff. We will show some of our slides on the "other stuff" at the September 21 meeting of Autopatch. Everycne is welcome to attend, whether you are an Autopatch member or not. See the Autopatch column for details.

The next MEETING of the OK-DX Association will be held at the WATERHOLE restaurant, 3333 N.W. Expressway, 73rd Oklahoma city. (across from the Baptist Medical Center) The meeting starts when you get there and ends when you leave. You see, we are a very friendly, informal group... Come as early as 6:00 P.M. and stay as long as you like. See ya there! De AD1S. Good DX!

CORA COMMENTS

The CORA meeting for August was held on the 24th with Ted Vanlaningham, WD5JNT, the vice president at the helm in the absence of president George Adkins. Our Secretary's job called for him to move suddenly and since new officers are to be elected at the next (September) meeting ye ed. was asked to record the proceedings so this report will have to serve as the minutes of the meeting. The July meeting was held at Ham Holiday and minutes are not available for that meeting.

The old business consisted of a wrapup and critique of Ham Holiday '82.

HH FINANCES: Income from Preregistration, Door registration, Dealers and money returned from Ladies programs was $9,734.00. Expenses, including prizes we bought were $9769.00. Awful close to a non-profit operation. We paid $4,632.55 (worth more than $6000.00 retail) for prizes in addition to having many donated by dealers. That leaves us with $2,199.48 for seed money for HH '83. Treasurers report was approved by the directors and George, K5GGL, was applauded forhis efforts.

HH FACILITIES: Everything went pretty smooth, the tunnel to the Sheraton Hotel was open for a change, we had 118 free flea market tables occupied. There was discussion as to following the lead of others and charging a nominal fee, like cost, for flea market tables. A bulletin board was needed but not being there was missed. As usual parking fees was a sore point and efforts to negotiate with the Myriad were fruitless, which led to a discussion about moving. WHAT DO YOU THINK? Not only about the location but the whole picture, tell your CORA reps - Each club should have three representatives at the CORA meeting on 28 September to start theball rolling for next HH.

HH PRE-REGISTRATION and DOOR REGISTRATION - No real prcblems, just a lot of work.

HH PROGRAMS - Discussion on whether to run two programs at same time. Most wanted to continue, but keep interest fields in mind when scheduling. The banquet was well received and the Cloggers demonstration went over with a bang. All in all, good programs.

HH COMMERCIAL and PRIZES - All but one dealer were well satisfied with their sales and attendance and will be back. Some dealers would preffer the curtained booths used last year, mainly for security reasons. Discussion: Two types (and prices) of booths? Some would like to be seperated from the flea market area. Think about it. The prize committee did a good job in rounding up the prizes and many favorable comments were received on the two grand prizes, two pre registration prizes a The
Directors approved Chuck's action in having a FIRM cutoff for depositing badges in the drum.

HH LADIES - Complaints and suggestions. Not enough budgeted money spent on prizes and "cheapness" of prizes. The microwave oven was the only major prize for ladies. Suggestion: Include special prize ticket for Sunday drawing. Suggestion: Keep all males out of ladies hospitality room, no cookies or coffee for males. Suggestion: Bus tours to shopping centers, museums, etc. with ladies paying a small fee.

The QCWA to take a look at other breakfast arrangements. A Continental breakfast is just not enough for a growing boy. Hi.

NEW BUSINESS: - The OKC police dept. would like tohace amateurs help with security at the State Fair again this year. We missed in 1981 but had 66 people helping in 1980. They want us back, but due to the shortness of time

Continued on page 6

AIR FORCE TESTING LEADING WIRE ANTENNA

Air Force communications experts are testing a new low-band antenna to replace the trailing-wire antennae used on the Air Force's massive EC-135 flying laboratory aircraft, according to reliable sources. The Old trailing wire antennae have been unreliable because they whip around in the wind, cannot be seen, and are often lost. Experiments with the leading wire antenna have shown that these deficiencies are largely eliminated when the wire is fed 3,000 feet directly ahead of the aircraft. The only drawback with the new antenna is the need for very stiff wire.

GEARVAKf BULLetin
V.21,#1-Sprg'81
jim n5beq

(the "f" is silent)

CORA REPORT CONTINUED

it may be too late. A committee of Art, W2GOM, Fred, KA5CXW and Jim, K5VRL was appointed to see if the program can be organized within two weeks. Hours needed are 10 am to 10 pm with several shifts so no one will be out there too long. If you can help, contact one of the committee.

MEETING PLACE - The question of security for cars and safety for unescorted females at night due to the surrounding area was brought up for consideration by the Directors after talking to their clubs. Should CORA move its meeting place, and where?

ELECTION OF OFFICERS -At the September meeting new CORA officers will be elected by the Directors of each club. Does your club have three (3) ACTIVE Directors appointed for that meeting on Tuesday 28 September. All CORA officers are important and the job of president is especially so since he has always also acted as "ramrod" and a sort of General Managerof HamHoliday. Our present president has done a swell job but has to step out next year so everyone needs to get together and come up with a replacement.

That's what I HEARD.

Joe Harding, WA5ZNF

MICROWAVES UNSAFE ?

If one wants to provoke a real flap, just try defining when microwaves will fry you and when they won't. The Consumers Union (CU) some time ago rated all tested microwave ovens unacceptable because their level of radiation exceeded 10/mw/cm^2. The Russians, never at a loss to look good with saliva dripping from snapping jaws, declared their "standard" is, you guessed it, 10 micro watts/cm^2. So what have we got? A plaything or facts? A photon of energy at uw frequencies is only .001 ev. This is not enough, if you check your physics books (for 10th grade 20 years ago, or college of late) to dissociate protons from the nucleus of biological tissue molecules. That requires 1M ev. Microwaves are nonionizing. Any harm from microwaves must come from thermal effects. Before people get excited about damage from these waves, better check the damage inflicted, if any real amounts, by X-rays, diathermy and other hospital delights. Or for that matter, dentists. And surely, people are exposed more to these types of radiation than microwaves. The human body dissipates under normal conditions 100W over an absorbing surface of 20K cm^2. Allowing for an absorption factor of no more than 50%, the whole body exposure of up to 10mw/cm^2 does appear reasonable and this guideline was established in 1953. (The Russkys figure we are pygmies and they are giants). So, what do teachers of microwaves and radar types do about all this? Very sensibly, keep noggins out of waveguides and nicht finger pocken where it is schlecht. Also, don't ever get evaluated by CU. The shock of a cold stethoscope may decrease your thermal fejectivity of microwaves. What about mm waves? Hmmmmmmm.

Bert Bailey, W4FMN, Raleigh ARS News.

SAFETY FIRST: To drive a nail without smashing your finger, hold the hammer with both hands or have your wife hold the nail.

What this country need most are family trees that produce more lumber and fewer nuts.

Published by ACARC Inc.

100% ARRL

COLLECTOR AND EMITTER

W5PAA

THE AERONAUTICAL CENTER AMATEUR RADIO CLUB

March 1958
Station W5PAA
Bldg. 10

Will Rogers Field

P. O. Box 1082, Oklahoma City 1, Oklahoma

A C A R C COMING EVENTS

March 7 — Regular Meeting. Special program includes feature film, "The Strange Case of the Cosmic Rays" for the whole family. Plan now to attend.

July 25, 26, 27 — West Gulf Division Convention, Oklahoma City

CONVENTION PRIZES ROLLING IN

The West Gulf Division convention of the American Radio Relay League, being held at the Biltmore Hotel, Oklahoma City, on 25, 26, and 27 July, is going to be sweetened with a delectable assortment of door prizes. Some are being purchased and some are being donated by manufacturers and distributors, and all of them are down-right mouth-watering to contemplate. A number of visiting amateurs are going away from the Convention loot-laden. Those working on the Convention look longingly upon the prize list but with no hope: No Convention Official will be eligible for a prize; his "comp" ticket will have the prize stub detached and filed in "File 13" before he even sees it.

CONVENTION SPEAKERS LINED UP

Capable and talented speakers on a variety of subjects of current interest are being scheduled for the West Gulf Division convention sponsored by the Aeronautical Center Amateur Radio Club. Antennas, receivers, and transmitters will receive the treatment of experts in the art of lucid explanation.

HEADINGS BECOME HEADLINES

In an article in the March issue of QST concerning club publications the illustration displaying various club papers contains both the "Collector-Emitter" and its older brother, the "ACARC NEWS-LETTER".

TECHETRON FEASIBLE FOR VHF

The French-developed Tecnetron, a variation of the transistor, maintains a high input impedance up into the VHF region. This impedance, which may be several megohms contrasted to the kilohms or even ohms of a vacuum tube at comparable frequencies, makes reasonable stage gains as high as 22 db in the 100-Mc region. Will next year's VHF receiver have semi-conductor amplifiers tuned by a semi-conductor variable capacitor?

TIMES CHANGE....SO DO DUES

For twelve years the ACARC has operated with 50¢ a year dues. For those dues, members have been receiving a monthly publication mailed to them (12 x 2¢), a membership card mailed (4¢), their ARRL dues forwarded to Headquarters (14¢), and refreshments at meetings (12 x 15¢). Oh, there were other items, too: Callbook and logbook and QSL cards for the club station, W5PAA; rental of halls for general meetings with other amateurs; four radio magazine subscriptions for reading at the club station; a stock of technical books and handbooks plus several articles of test equipment for loan to Club members. Back some years ago there were several beer-busts and barbeques a year that "were on the house"...not to mention the famous Christmas party that featured a gallon of real eggnogg per member. All good things must come to an end, however. The sad facts of life are such that the Club must reduce its net loss per member somewhat. This build-up should have conditioned you for what follows: Effective 1 March 1958, the ACARC yearly dues are increased from $4.00 to $5.00, inclusive of ARRL membership. Note that last: It is $5.00 regardless of whether your ARRL membership still has 1 or 363 days to go; just indicate the expiration date and an extension will be made. If you like, the Club will prorate an additional fraction of a year membership in order to make your ARRL and ACARC membership coincide.

ARRL HANDBOOKS IN STOCK

"The Bookstore", Building 185, sponsored by the ACARC, has received a large stock of ARRL Radio Amateur Handbooks and Logbooks. Club members may purchase these at a discount--another of the many services the ACARC offers its members.

MALICIOUS INTERFERENCE CREATOR SPOTTED

The person who has been causing all the trouble on 3835 KC by running an unmodulated carrier has been run to earth by an ACARC member, with the help of a mobile DF set-up. His idenity is known. If he persists in causing deliberate and malicious interference, charges will be filed against him for violating the Communications Act of 1934--$10,000 fine or 2 years imprisonment or both.

THIS IS LOOKING BACK MONTH _ _

Because I just felt nostalgic this month and because the input of articles from the clubs was very light and our minimum press format is 24 pages, there a couple of "look-back" articles in this issue. See the MORI section for one of them.

The CORA Collector & Emitter is only 8 and 1/2 years old as such but the proud ancestry goes a a lot further back. When CORA was organized and a publication was to be started that would combine articles and input from the four founding clubs the Aeronautical Centar ARC offered to let us use the name Collector & E Emitter - so we just put CORA in front of their logo and blasted off.

Many more clubs have come on board and there have been changes in format but with a BASE of CORA it continues to COLLECT and EMIT.

CHATTER

KN5FBE, Mary Bryan, must be really enthusiastic in her 7 Mc brass-pounding: she burnt up a power transformer while in a big rag-chew.

K5JPO, Merl Cornelius, has made the big step of graduating from the "mail order license" status to General Class. Congratulations, Merl!

K5BOP, Rolen P. Woods, President of the Oklahoma City Amateur Radio Club and a hard-working Full member of our own ACARC, has been admitted into the VA Hospital for treatment. A speedy recovery to you, "Woody"!

W5HXT, Walter M. Hill, has his new xmtr at full blast and is going to fling the RF off a vertical antenna. The antenna is being loaned by K5EMT, ACARC President.

K5JSM, Robert Adams, should be moved into his new house by the time this gets to its readers.

W5LMS, Virgil J. Holobaugh, is another new Full member having that ultimate-goal Extra Class license. He is at the Tinker AFB RAPCON.

W5AA, ol' Number One of W5-land, Ralph Rea, finds that 300-watts input to an 813 final doesn't slice through when the antenna is only chin high.

W5HEG, "Whitey" White, links the 50-Mc portion of the Caravan Club to the 3.8-Mc group during the Sunday afternoon roll calls.

K5KVA, Bill Faux, has a new rack husky enough to house a real 5 KiloVoltAmpere. (Let's see: A "lid" would call that a "KiloWattVoltAmpere", wouldn't he? Remember that "K" equals "KiloWatt" in lid-language.)

W5SVX, Bob Morse, is trying a folded monopole antenna (common on VHF) on the 3.5 Mc band.

W5UCK, H. B. Doss, who holds an Advanced Class license, has reported for duty at the Aeronautical Center. He will work in K5KVA's Section.

Harvey Summers is sweating out his General Class ticket, having taken the examination several weeks ago.

W5OXX, Roy Mills, is slated to report for duty at the Aeronautical Center in the near future.

W5HHD, Bill Robbins, also is scheduled for Aeronautical Center employment soon.

Greatly reduced reproductions of the earliest copies of the original C&E that I have been able to locate (courtesy of Wilhelm Wesenick, W5NQF) are presented here to show the changes and the lack of changes that have occured in amateur radio in the local area. Several silent keys and some that have just quit and some that are still burning up the airways.

TIMES CHANGE...SO DO DUES really tells a story.

If you have an older copy let me know.

Joe, WA5ZNF

AERONAUTICAL CENTER AMATEUR RADIO CLUB, INC.

W5PAA

JULY MINUTES

With President Rob Runyon presiding, the July 2nd meeting of the ACARC was brought to order at 8:00 pm with 37 members and guests present.

After a round of self introductions, Holly Holcomb gave the CORA report which highlighted plans for Ham Holiday.

Charlie, WA5JGU, made a motion to combine the August ACARC and VHF club meetings into the annual watermellon feed. The motion was carried without objection (See File Zero for details). There was no old business.

At 08:20 pm Rob turned the floor over to Holly for an informative discussion of home wiring. A great job Holly ... thanks.

We adjourned for refreshments at 09:20 pm.

Jim Seignious, WB5UHW
Secretary, ACARC

FILE Ø

For a long time now, I've been quietly cussing whenever I hear a marginal (usually hand-held) type signal used on the repeater to access the patch. The usual result is the patch is accessed successfully, and then the tones are of such poor quality as to be refused or mutilated by Ma Bell and the patch is aborted. My frustration has applied equally to the choppy, garbled, mangled, and generally poor quality signals from hand helds being used inside moving cars, and other bad locations.

The other day, I finally joined the ranks of the hand-held class amateur. I've had a lot of fun taking my "station" along with me in my pocket, and making phone patches from unlikely and exotic places (like in the john or while working in the garden).

Now, I'm getting the same stuff I've been putting out all this time. It's not uncommon for some station I'm talking to to tell me I've chopped out, and need to change positions, or for ma Bell to reject my tones, and give me that raucous Bronx cheer reserved for mis-dialed numbers.

So, my days of getting upset when someone comes on the repeater with a marginal signal are over. I've joined the ranks of the "small signal", and am now one of them. Just goes to show how some peoples attitudes can change overnight. Right?...Rubber Ducks of the world unite...our time has come.

Many Many Thanx to Jim K5VRL, and Bob W5HXL for their fine efforts in the watermelon department. It was a grand feed. The watermelon was sweet and cold, the facilities were excellent, and the comradship was unsurpassed. The only fly in the ointment (so-to-speak) was a lack of participation. We were all expecting a much larger turnout with three clubs participating. We wound up returing 12 of the 18 melons. But...those of us who were there did one heluva job on the six we did slice.

I have no idea what kind of program we will wind up with for the September meeting. We had to slip the AMSAT program back to November because of some computer problems. We'll try to come up with something decent for the September meeting..so...Y'all come.

ANY FOOL CAN CRITICIZE, CONDEMN, AND COMPLAIN...
AND MOST FOOLS DO.

FILE Ø.1

Well, the ARRL has done it again...They represented amateur radio before the Federal Communications Commission, and "saved" another band.

How can we keep New Hampshire's most famous mental retard and his merry band of hotheads in business if the League keeps that sort of stuff up?

What am I talking about? Why, just this month the Commission closed out a little hearing that didn't get much notice. The hearing was the final step in a very vigerous and bold attempt to take from amateur radio it's secondary status in the 420-450mHz band. The attemnt was mounted by a couple of companies in →

BICENTENNIAL AMATEUR RADIO CLUB

"To Promote Radio Communications"

Sponsored by Oklahoma Air National Guard
ARRL affiliated

MINUTES FOR AUGUST

THE AUGUST MEETING WAS AN ICE CREAM SUPPER BUT SOME BUSINESS WAS CONDUCTED.

SEC REPORT: REPORT WAS SUBMITTED AS PRINTED IN C&E. MOTION MADE TO ACCEPT AS PRINTED. MOTION CARRIED.

TREASURER REPORT: THE TRES. HAS NOT PRESENT BUT HE SENT ALONG SOME REPORTS FOR OUR READ ING.

NEW BUSINESS: CLUB DUES: SOME DISCUSSION ON ON CHANGING CLUB DUES WAS HELD.
ONE MOTION WAS MADE TO SET $6.00 AS CLUB DUES AND $6.00 AS REPEATER SUPPORT.
AFTER DISCUSSION THIS MOTION WAS WITHDRAWN A NEW MOTION WAS MADE THAT WE SET CLUB DUES AS $6 AND MAKE REPEATER SUPPORT STRICKLY VOLUNTARY. MOTION WAS SECONDED AND MOTION CARRIED.
AN AMENDMENT TO THE BYLAWS WILL BE AS SUCH

BYLAWS PARAGRAPH 4:

BYLAWS CHAP 4. DUES. A REGULAR ANNUAL ASSESSMENT OF $10.00 PER MEMBER IS HEREBY ASSESSED IN ACCORDANCE WITH THE PROVIS IONS OF ARTICLE V OF THE CONSTITUTION FOR THE PURPOSE OF PROVIDING FUNDS FOR CURRENT EPENSES. AMENDED 11 AUG 81

WILL BE VOTED ON IN SEPT MEETING TO BE AMEND TO *****$6.00 PER MEMBER WITH REPEATER SUPPORT VOLUNTARY

BYLAWS PARA 4: PROPOSED

DUES: A REGULAR ANNUAL ASSESSMENT OF $6.00 PER MEMBER IS HEREBY ASSESSED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE V OF THE CONSTITUTION FOR THE PURPOSE OF PROVIDING FUNDS FOR CURRENT EXPENSES.

ALSO IN SEPT MEETING WE WILL BE TAKING NOMINATIONS FOR 1983 OFFICERS.

DICK BAKER TOLD ABOUT THE NEW EQUIPMENT THE CLUB HAS ACQUIRED.

MEETING ADJOURNED TO EAT ICECREAM

JERRY SPROUL N5AUH

MORE ACARC

the radiolocation business who had been interfering with 70cm communications along the West coast. When the battle was joined they were arguing for the entire 420-450 segment so they could engage in high power radiolocation work using spreadspectrum techniques. They argues that if they did interfere with anyone except the government (who is prime there) all they would do would be to interefere with amateur radio; and everyone knows amateur radio don't amount to much anyway...right?

Wrong...The ARRL got into the act, and with a well prepared, reasoned, and effective defense showed the Commission convincingly that we "hams" should keep our secondary status, and that any work by the radio-location people should be done at less than 50 watts, and only in the 420-435mHz portion of the band.

Good deal??? You bet...thats what I pay my dues for, and that's the kind of representation before our regulatory body I expect. Sour grapes or no...and whether your particular thing is the League or not. Every licensed amateur, if he is interested in the future of this hobby shoudl join and support the League. And, if you don't like the league, sitting outside throwing rocks at it won't help...get involved. It's a fine outfit...really.

73...Rob AAØO

The following cartoon was sent in by Al Watkins, N6GQK "Good Quality Kisses"

TUNING SOLID STATE RIGS

Some months ago Tom Beary, KA9HWP, called every ham he knew to find out why he couldn't load his brand new rig into a Hustler multi-band vertical, using a Dentron tuner. He tried several antennas without using a tuner and was not able to load into any of them.

Tom took his TS 180-S to a second hams house and put it on his tri-band beam; it would not load. He took it to another ham's house and put it on his trapped dipole; it would not load. The TS 180-S evidentlly saw an swr of 3:1 or worse and shut down.

After borrowing a Dentron Super Tuner, he found that he could load his rig on 15 & 40, but loading was critical: 50-100 kHz down from where it was loaded he had to touch up the tuner controls. Finally, a friend of his suggested he change to a higher quality coax.

The transmission line he bought was RG8U manufactured to a distributor's specifications. The braided sheild was not tightly braided, but loose, like a fish net. Tom thought this would cause only a loss, never a high swr. But after replacing it with RG8X he could load his rig on all bands using the tuner.

The solid state rigs have no pi-network to match antennas with, but rely on the broadband nature of their finals to eleminate tuning. Solid state rigs have built in protection circuits to prevent their finals from over conducting. A tuner will protect the finals IF you also have a good antenna system, including transmission line.

Most hams agree that coax quality is very important, and in many cases, critical to properly working equipment and antenna systems and a low swr. But before a tuner is used, the instructions that came with a beam antenna should be read. You don't want to change the current pattern on the beam or the balun will blow.

Tania, WB9TKC via ARNS

"Patience opens all doors" - - Calling CQ CQ

"In my house I am king" - provided there is no TVI.

"Fame is but wind" - An amateur radio operator, who else?

"No day passes without some grief" - When will that band open up?

"I came, I saw, I conqured" - WAS at last.

NEW ANTENNA DESIGN FROM WA4PYQ

One of the neatest tricks to come out of the WA4PYQ Mountain Laboratory in recent years is the nifty, new, invisible Dummy Antenna. Consisting essentially of a 100-foot length of number 36 monofilament polyester fishing, this innovative antenna has many useful characteristics. First of all, it may be mounted either vertically or horizontally at any height above the ground, and it requires no radials or traps. Impedance matching is not critical and there is no radiated TVI. Because of its unique design, it may be attached to metallic masts without insulators. As one might expect, the Dummy Antenna has a nondirectional pattern and is virtually invisible when erected. Working with the Dummy is Simplicity itself: No solder is used: the antenna is simply glued to the connectors (be sure to use epoxy for outdoor applications). It is easily repaired with a simple square knot! The Dummy Antenna is immune tostrong-signal overload and electrical interference yet responds equally to skip and ground wave and strong and weak signals. Finally, the antenna may be connected to full legal power without saturation or overheating. According to WA4PYQ, the Dummy will be on the market some time later this year after a few minor technical problems are ironed out (signals are down somewhat and VSWR has to be reduced).

from WA4PYQ
GEARVAKf BULLetin
V.21,#1-Sprg'81
(the'f'is silent) jim n5beq

Heard on a net: These guys don't need a net control, they need a referee. WØCCT

She hung a sign outside their cabin in the woods which said, "Don't shoot anything unless it is moving - - It may be my husband. He has silver in his hair, gold in his teeth and lead in his pants."

When you think you have someone eating out of your hand it is time to count your fingers.

She can get more dirt out of a telephone than she can from a vacuum cleaner.

+ +

+ +

LEONARD HOLLAR, WA5FSN
SECTION COMMUNICATIONS MANAGER

It is so easy to get so close to the Forest that you do not see the Trees. This is so true in many ways, and phases of our life as we go along. So here are some of my thoughts about H.H.'82: I must go along with the Cora Comments Column in the last C & E. We learn by doing and We gain by learning. I am well pleased with all but 1 item and that is the statement that George, AD1S does not want another term as President of C.O.R.A. It has been a pleasure to work with him. His Vim, Vigor and Expertise will be missed.

I was happy to see Don Duck, AE5N honored by the N.W.S. for his loyal service; Well Deserved.

I have been "Reminded" about one of my many "Sins of Omission" and that is the fact that I have never mentioned the "Oklahoma Severe Storm Warning Net" operated by the Autopatch club. This net has been in operation for several years performing well.

This year, the format was changed and the Scope of Operations was changed. It is very efficiently operated and with the recent changes, should become one of the strongeat Weather Nets anywhere.

I do not know what the problems are, but, I am concerned that We, in Oklahoma, are no further along with Repeater Linking. I know we have the 'Expertise' available to do the work needed. It is my feeling that the Oklahoma Repeater Society could and should take a much stronger part in this effort. This can be done if We all get behind the Society and give it the support it needs.

By the time this gets to print, we will have only a month to get our Call Letter License Plates ordered. The deadline is September 30th.

I hate to get on 'Soap Boxes' but, here goes one more time. How many of you have given a Novice their license exam. Gave them a pat on the back when they passed, then dropped them? Why? I have no way of knowing how many Operators we have lost, but there have been some. Simply, they had no one to turn to for Help.

The distribution of membership of ARRL Advisory Committes should help us all. The presence of John Shean,K5DB of the DX committee should be a shot in the arm for our DX group. I have, also, been in contact with Roger Coday,N5PN, of the Emergency Advisory Committee and We will be hearing more from these gentlemen in the future.

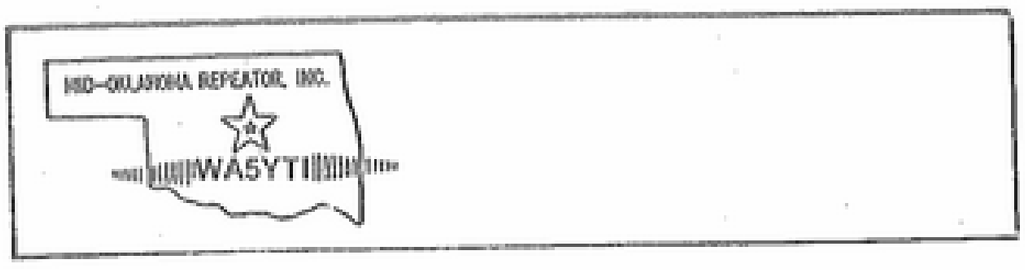
July was not a good time for the Traffic Nets. Propagation,Summer Static and Summer Vacations took their toll. If we can survive the month of August, perhaps things will level off. We can always use more participatian in all phases of the operation of these Nets.

July Net Reports

Net	Sessions	QNI	QTC	WX
O.P.E.N.	4	194	7	
O.F.O.N.	21	129	34	
S.T.N.	27	338	75	
O.T.W.N.	27	331	285	275
O.L.Z.	31	187	64	
O.N.O.N.	31	625	63	
N.W.O.T.N.	13	169	3	
Q.C.W.A.	4	132	10	

BULLETIN

I AM TOLD (AUG.14TH) THAT MAILING IS IN PROGRESS FOR THE FLYERS FOR 'TEXOMA HAMARAMA' TO BE HELD THIS YEAR ON OCTOBER 22-23 AND 24 AT TEXOMA LODGE. PRE-REGISTRATION DEADLINE IS OCTOBER 9TH.



WE MEET AT THE SAME FRIENDLY PLACE, MANY OF YOUR FRIENDS AND SOME NEW FACES WILL GREET YOU! ..:AT THE OKLAHOMA CITY EOC WHERE MORI HAS HAD THIER MEETINGS FOR YEARS...7 SEPT, Tuesday at NE 46th and Eastern. (almost) many come at 7 PM to set around our coffee tables and talk. As usual, a good program, door prizes, and refreshments.

MORI Chairman of the HH 82 Ladies Program whupped up super programs, super refreshments, a blue grass band!!! and excellent Bingo.... Gordon, WB5BXW his helpers Susie, Billie Tutor Clarence K5YAQ, Jim N5BEQ, RON: WA5GAM and Fred made sure all the ladies had a good time. Thanks Gordon for your fine organization.

Happy to hear that H R 5008 passed with flying colors, thanks to your letters and ARRL help. Its on the Presidents desk for signing.

This is a quickie due to Susie being out of town (in Brownsville Tx.

See You at the Meeting
Fred KA5CXW

Copied from MID-OKLAHOMA REPEATOR NEWSLETTER
Note date - - November 1973

Hams turned in another fantastic job during the emergency conditions that existed recently in Enid during the flood. On October 10, 1973 more than 16 inches of rain fell. Enid, normally a flat and high area, was engulfed in a flood or water, in some cases as much as five to six feet. From our perspective, the most important consideration was the fact that Switchboard and all other communications were out. Jack Muse, WN5KEZ (newly licensed from the Red Cross classes), disaster director of the Red Cross in OKC called for assistance in reestablishing communications and amateurs all over the area responded to the call. Possibly the yoemans work was done, of course, by those amateurs in Enid who immediately swung into action. We have had reports of assistance provided by K5CAY, Dan, and Ken, W5QMJ who set up on 34/94in Enid and 22/82 in OKC. Long range communication on 34/94 was difficult, so it was kept as a local channel and other frequencies were utilized for long haul. WA5JGU, OKC EC reported that he passed or relayed some 15-20 messages during the crisis and estimated the total traffic at over 500. Two professors at OSU activated W5YJ, the club station and they and students operated and served as a relay point and eventually net control station for a long period of time. Perhaps the single largest effort (to our knowledge) was turned in by Bill, W5UZX in Norman who handled some 145 messages in 14 straight hours after the rain. Bill operated on 3900 kHz exclusively and said that the important factor in the operation was the effort made by the Enid operators John, W5BGX, Harold WA5ZOO, Bernie WA5GOE and others who held on for a long time. Repeater reception was quite clear, but the range allowance limitation prevented the use of both channels (34/94 and 22/82) at all times. Finally the assignments of long haul and short haul were made to each channel and relays set up and the operation was in full swing. WR5ACB reported that some 12 OKC and surrounding area amateurs participated on 22/82 for the long haul. Some local phone service was restored about 3 days after the flood, but outside service took much longer, over 7 days. The names and calls mentioned in this report are in no way conclusive as to those who participated. Many OKC hams helped, but as usualy the real accolades go to those hams in the disaster area who really provide the critical link in such times. A tip of the MORI News Hat to these public spirited citizens who unselfishly worked so hard and diligently.

Ed: This was 9 years ago - and the service and cooperation still goes on.

WANT TO EYEBALL THE FCC?

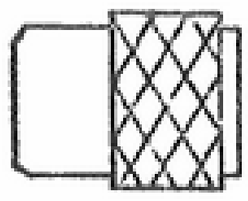
IF YOU HAVE EVER WANTED, OR NEEDED TO TALK TO THE FCC FACE TO FACE ABOUT SOMETHING THAT IS ON YOUR MIND YOU WILL HAVE JUST THAT OPPORTUNITY DURING THE PERIOD OF SEPTEMBER 13 THROUGH 17 WHEN FIELD SERVICE PUBLIC SERVICE SPECIALIST SANDRA L. MORRIS WILL BE IN OKLAHOMA CITY.

IF YOU WOULD LIKE TO VISIT WITH THIS FCC REPRESENTATIVE YOU ARE WELCOME TO WRITE OR CALL FOR AN APPOINTMENT, WHICH IS NECESSARY. YOU WILL BE ADVISED OF TIME AND PLACE - IF YOU DO IT NOW. ADDRESS:

SANDRA L. MORRIS
(FCC) ROOM 13E7
1100 COMMERCE
DALLAS TX 75242

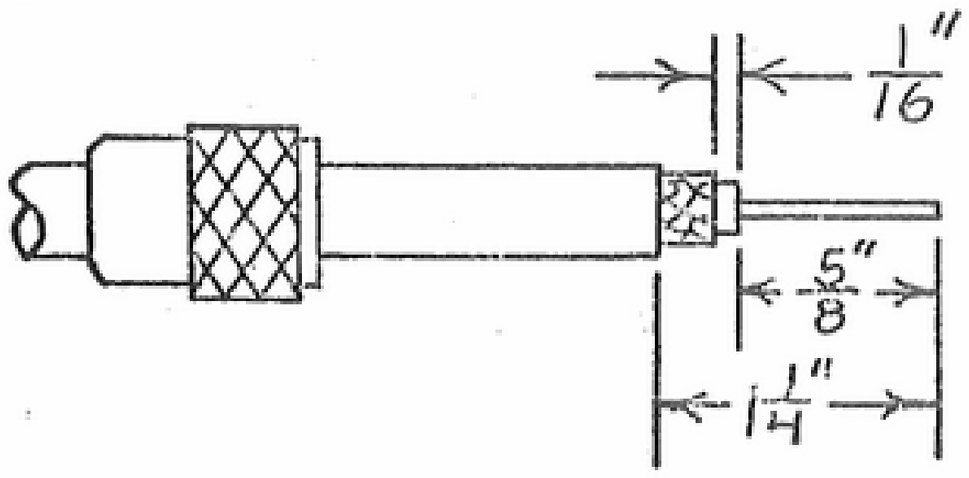
-OR-

PHONE (214) 767-0761

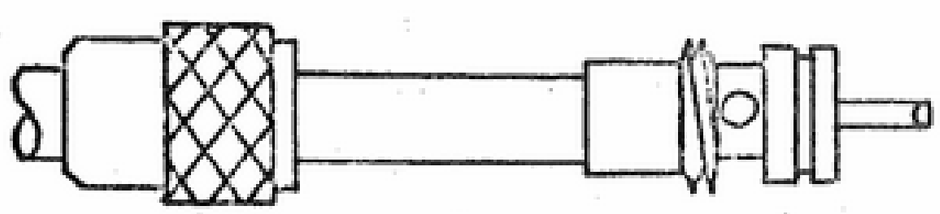


COUPLING
RING

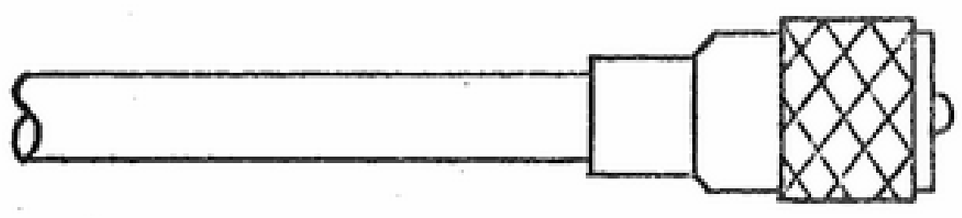
SUB PLUG
SUB-ASSEMBLY



1. Cut end of cable even and strip jacket, braid and dielectric as shown. Slide coupling ring onto cable. Tin exposed center conductor and braid.

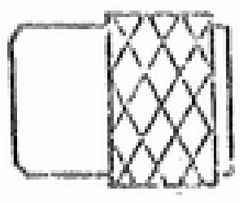


2. Screw plug sub-assembly onto cable. Solder assembly to braid through solder holes. Solder conductor to contact.



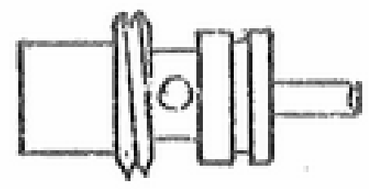
3. For final assembly, screw coupling ring onto back of plug assembly.

ASSEMBLY INSTRUCTIONS FOR PL-259A UHF CONNECTOR

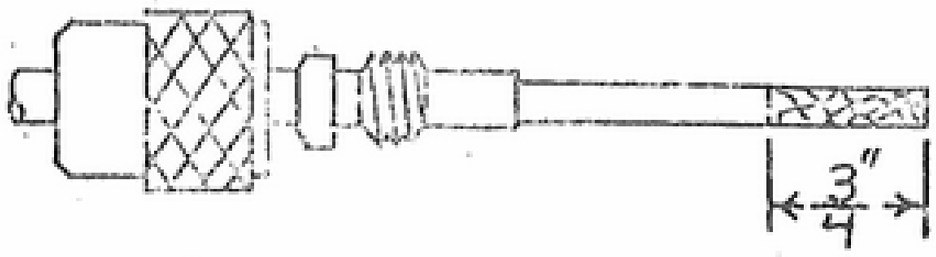


COUPLING
RING

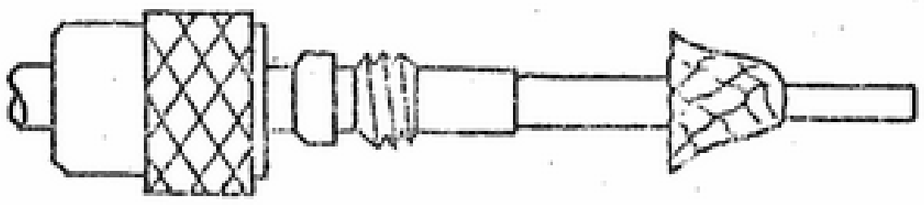
REDUCING
ADAPTOR



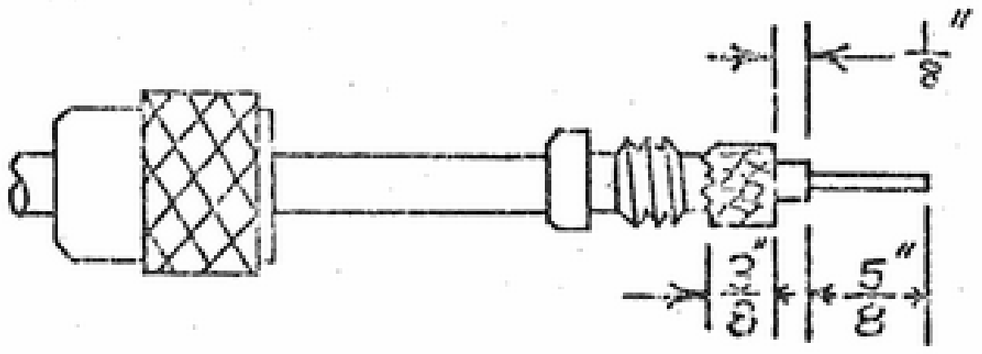
SUB PLUG
SUB-ASSEMBLY



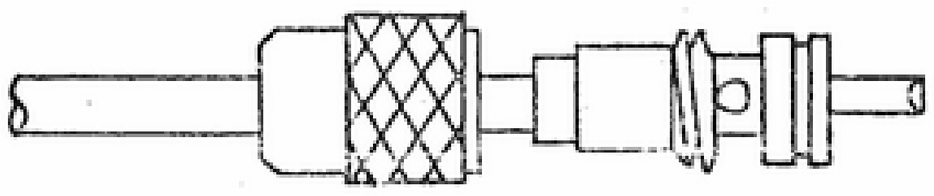
1. Cut cable end evenly. Remove vinyl jacket 3/4" from end. Slide coupling ring and adaptor onto cable.



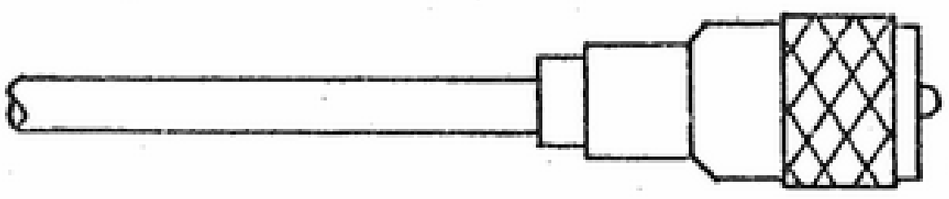
2. Fan braid slightly and fold back as shown.



3. Position adaptor flush with cable jacket press braid down over body of adaptor and trim to 3/8". Bare conductor 5/8" and tin.



4. Screw plug sub-assembly on adaptor. Solder braid to shell through solder holes. Solder conductor to contact.



5. For final assembly, screw coupling ring on plug sub-assembly.

ASSEMBLY INSTRUCTIONS FOR PL-259A UHF CONNECTOR, WITH ADAPTOR

ALTUS AREA AMATEUR RADIO ASSOCIATION

Altus Area Amateur Radio Association met at the North Main Fire Station at 1930 hrs on July 8th. We had thirteen members plus one guest attending. Those present were WB5KRH, Dwight; WB5UMH, Deanna; WD5BBO, Paul; KA5MPK, Gary; WB5MJS, Chuck; N5AIP, Bob; N5EST, Delayne; K7SBY, Shorty; W5ZDI, Clyde; W5VXU, Mike; W5VQS, Shaw; W5CCV, Joe; WA5CBF, Loren; and one hopeful by the name of Deal who works at the Post Office.

Chuck, WB5MJS, openned the meeting with introductions all around. Loren, WA5CBF, made the financial report. We have currently 333.41 dollars in the club treasurery. Here is a short list of members who are past due or will be due soon. They are WB5LAF 82-03; WB5KRH 82-09; WB5NRQ 82-05; WB5MMM 82-01; WA5ZAR 82-09; WB5MJS 82-08; K9PNT 82-09; and WA5MCS 82-06.

Dwight, WB5KRH, reported on a state sponsored C.D. RADF training meeting sometime in August at Oklahoma City. Dwight also told about Bill Dorsey, the A.A.F.B. Disaster Officer, putting together a slide presentation on the May 11 tornado. Perhaps Bill can be talked into presenting a slide and narration at a future club meeting.

Mike, W5VXU, spoke on a test of the national communications system. This test will be on July 19,20, and 21. It will be a test of Civil Defense, MARS (both A.F. and ARMY), ability to communicate messages during emergencies.

Bob, N5AIP, stressed the importance of BEING PREPARED for the upcoming storm season next Spring. Now is the time to prepare, not later.

The annual Ice Cream Social will be held at the next club meeting on August 12 at 1930 hrs at the City Park Pavillion at the North Reservoir. Deanna, WB5UMH, is in charge of the get together. Everyone is invited. Please bring a goodie to share. In case of bad weather we will meet at the E.O.C.

73's
Loren WA5CBF

The A.A.A.R.A. had its annual ice cream social at the City Park Pavillion at 1930 hrs on August 12th. The cool breezes from the city reservoir swept the area and kept the temperature and mosquitoes down.

Deanna McEndree, WB5UMH, is to be really congradulated for the fine work and turn out for this annual party. She organized and planned a fine get together. There were six freezers of different kinds of homemade ice cream, numerous pies, cobblers, cookies, brownies, etc. There was enough to make sure everyone did not go away hungery. We had sixty-two attendees.

Don Hayes, WB5NRQ, brought the Red Cross Disaster Van and set up a H.F. station (IC-730 and 80/40 inverted Vee antenna). He did a fine job on this year long project.

It was 12:15 when the last die-hards left the park. I think everyone had a good time. The next meeting will be at the EOC at the North Main Fire Station 1930 hrs on September 8th. All are welcome.

73's
Loren WA5CBF

The following information comes from an interview 3-23-82 conducted with Frank Martin, K5KCJ, and from The Altus Times-Democrat, dated 2-24-57.

THE WAY IT WAS!

This article is concerning one of the early amateur radio operators in Altus, Oklahoma: R.M. "Gramps"Martin of 901 Phoebe Street. Gramps' old call was W5FKF which he lost during World War II. The call sign he received following the war was W5IZM. W5IZM was the call we were all familiar with.

Gramps was born in Davis, Oklahoma in 1905. He moved to Altus from Amarillo, Texas where he had worked for the Rock Island railroad during the Depression (late 1930's). He first became familiar with the railroad code while working for the old Rock Island line. He learned the international Morse code and secured his first license, Conditional class. Following World War II, Gramps earned the General Class license.

Gramps was active on the Green Onion Net before WWII. The net was low-powered A.M. and on 160 meters. The net was among the local group: Gramps, Barto Huff, W5AHD, and Ernie Bacun, W5BHD. You really have to be an old timer to remember this net!

During World War II, amateur radio was shut down all over the nation. To keep up their code speed, Gramps, Barto, and Harden White (they lived respectively: North Crain, North Grady, and the 1200 block of North Lee) strung wire from pole to pole across north Altus and used audio oscillators to communicate back and forth. Frank and Raymond Martin, sons of Gramps, started learning the code and gained practice this way. It was called the "Grape Vine" according to Raymond.

Raymond Martin made a career of the U.S. Navy as a CW radio operator. Frank Martin, K5KCJ (Keep Collecting Junk), went on to become a radio amateur. Frank now works at maintanence and building flight trainers at Altus Air Force Base.

Gramps was involved in a search attempt for a downed airplane, A Taylercraft, in Lake Altus either in 1946 or 1947. Barto Huff was part owner of this airplane along with a Mr Thompson. The plane crashed in the water and sank in the mud to where the wings were just above the bottom. Gramps was asked to apply his expertize in locating the wreckage of the plane. He designed a metal detector loop wound on a glass jar (water tight)which was lowered into the Lake to try to find the plane. The two occupants, Mr. Thompson and a passenger in the aircraft, when found, had been killed in the crash.

According to the Altus Times-Democrat, published February 24, 1957, Gramps ran a lot of traffic for Altus Air Force Base and the Altus residents. He was a member of the Jackson County Amateur Radio net. The club meetings of this group were conducted at Gramps' "Shack" each Friday night for fun and study. Gramps was elected the President of this club.

Gramps had the official MARS station for Altus A.F. Base and handled messages for the personnel stationed here during the 1950's. Gramps was the official Emergency Coordinator for Jackson County and worked closely with the Civil Defense officials. He had a three kilowatt generator to run his equipment and station in case of power failure. In 1957, Gramps was the chief electriciar at A.A.F.B.

Gramps is still with us- age 76. Though inactive status keeps him off the air, he is well remembered as one of the early-day amateur radio operators in Altus.

Loren, WA5CBF

* Congradulations goes out to Gary and Cindy Alexander, KA5MPK and XYL. They were the parents of a 7 pound 2/3 ounce girl born April 25 at 3:34 a.m. Mother and Baby are doing fine.
* We hope to hear Deanna McEndree, WB5UMH, is feeling better after a stay in the hospital (4-26-82). We sure do miss those cookies!
* Congradulations goes out to Larry Mooney, WB5PWY, for the fine article on the amateur radio spotter program in April. Q.S.T.
* There is some 6 meter SSB activity (50.2 MHz) now in Altus. Those that are on include Phil, K9PNT, Bill, KA6RTX/5, and Loren, WA5CBF. Most use ICOM's 502's and verticals. Get togethers are on Sunday afternoon about 1300 hrs.
* New call signs as the result of upgrades are:N5EOZ, for Steve Sappington and N5ESV for Delayne Randolph.
* Deanna, WB5UMH, sent a Thank you card: Dear Friends, I want to thank you for the beautiful silk flower arrangement you sent me in the hospital. Thanks for the phone calls, radio chats, and most of all the visits. It feels great to know I have friends like everyone of you. Thanks! Lots of love, Deanna
* Open letter from Larry Mooney, WB5PWY: Dear Loren, Thanks for the note on the Q.S.T. article. It was very easy to write something as successful as the AR spotter program. I have been meaning to write-. Neal Marchbanks, at OKC, has told me what a great job you all have been doing. I was in Wichita Falls recently, and both Charlie,W5GPO, and Ben, WA5UTA, were very complimentary about the role that the Altus group played in setting up the 25/85 machine there.Of course, this came as no surprise to me. The amateur community in southwest Oklahoma is one of the best groups that it has ever been my pleasure to work with.
Give my regards to Dwight and the rest of the Altus club. 73's Larry Mooney

EDITORS NOTE: Dear Loren and the rest of the Altus Amateur Radio Association members for my misplacing most of the copy in this months column. Everything down from THE WAY IT WAS was found in my brief case - two months after it was submitted. MY ABJECT APOLOGY!

Joe Harding, WA5ZNF, Managing Editor.

GREAT PLAINS A.R.C.

The August meeting was called to order with 18 members and guests present. The treasurer and secretery's reports were read and approved.

KD5JR reported that the old hard line had been sold but we still need to get the old antenna's down. The new 73 site is presently at the Woodward airport.

WBØPGD reported that 45 jackets with our club emblem have been ordered and knit shirts with the club emblem are being considered for summer wear.

KD5JR reported on the July 25th drowning at Lake Vincent. Those responding to the call were KD5JR, WB5EDD, WB5OVT, WB5OVQ, WBØPGD, N5CCV, KC5OU, and WB5EGZ.

On August 22 there will be an emergency drill, Operation Snowstorm, This drill will envolve the Civil Defense, the amateurs, and the Civil Air Patrol. On August 24 there will be an exercise put on by the state. KD5JR ask for volunteers on the communications.

A motion was made to hold the 1983 Eyeball QSO on May 1. Motion carried. Everyone mark your calanders!

KØCIO's picnic.transmitter hunt will be in September at his home in Coldwater.

OTHER HAPPENINGS

The swimming party sponsered by WBØPGD and WBØQGW was enjoyed by 70 frolicking people. Hamburgers were grilled and enjoyed with all the trimmings. Home made ice cream and cake with a watermelon was enjoyed. But the high light of the evening was the swimming. KB5XI, KD5JR, WBØPGD, KØCIO, and N5EOY threw each other in several times and threatened WB5EGZ, KA5DUO and several others. Most put on a swim suit and went in except Leo. He bluffed them out! WBØPGD and KØCIO were going to throw KD5JR in and instead they threw PGD in! A certain "life guard" KØCIO needs his eyes checked! He blew the whistle and told a certain amateur she was to young to be in the deep end,to get back in the shallow end. On second thought that sounds like a compliment to me! Actually I was getting along pretty good! Even N5CCV was caught giving "mouth to mouth resuscitation" to a real doll! Just ask WA5FSN, he even has proof on camera! I even heard Leonard say that certain people better be good now!

Twenty-one GPARC members, families, and friends caravaned to the Wheatstraw picnic at Canton. A covered dish dinner was served that had the tables growning! After the meeting several went swimming. WBØPGD had a new Arden hand held he just had to work! So when he could catch KA5DUO at the far end of the building from his radio he would give him a call. Leo told me that Ron ought to buy him a new pair of shoes as he wore the soles of his out running to answer the radio! I agree! Everyone had a wonderful time and we sure thank the Wheatstraw group for the invite. By the way, KØCIO got to ride from Kansas to Canton in WØNWN's Mazada. He said he kept a sharp eye out for the Real Kill! Hi!

KA5LTW and KA5LTT have a new motor home.

Congraluations go to KC5OU. He now has his extra class.

N5EOY and WA5FSW drove to Tulsa. Gerry came home with his advanced ticket and Lance came home with his tech ticket. Be listening for the new calls. Congraluations to both!

KØCIO was heard refusing to take his weekly Saturday night shower. He said he took one,2 or 3 times every day working of his irrigation system!

KA5AAE had several weeks of visitation from "Murphy" and finally got rid of him for a while. I think about that time he showed up at KØCIO's. That's what you call sharing? Or is it..... I think Jim has him back!

It's been said before, but I have to say it again. There's no one like the amateur's! KØCIO and N5CCV, and his XYL Judy took off from their work to run the Mooreland swimming pool so that we could attend my grandmother's funeral! Our heart felt thanks go to them and their families. 73's Carla WBØQGW

---

by WD5JNT Ted VanLaningham

Another good meal and fine fellowship was had with out the presence of your fine editor. while I was down on Padre Island kicking the sand on the beach, the rest of the club was at Canton Lake enjoying more grocerys than they really should have. But I think I must be getting jealous on my part. I have missed the last 2 meetings, which were both covered dish dinners, put my climbing belt on the other day and fell right through it. I promise not to get any farther behind so I will be at the next one for sure.

We had a good turnout at Canton Lake. 21 Wheatstraw members were there and thanks to the Great Plains Amatuer Radio Club, we had a total of 56 people there. I am sure everyone had a good time.

Our next meeting will be in Weatherford for our annual watermelon feed. I will be present at this one. It will be Sept 12. You will have to tune in Wed. nite at 9:00 on 146.01-61 for the exact details, or we will be on .52 in the Weatherford area for a talk in, in case some of us get bewildered again.

See you there

WD5JNT

Some members help keep their club strong
While others join and just belong.
Some dig right in, some serve with pride,
Some go along just for the ride.
Some volunteer to do their share,
While some sit back and just don't care.
On meeting nights some always show,
But there are those that never go.
Some always pay their dues ahead,
Some get behind for months instead.
Some do their best, some build, some make,
Some never give but always take.
Some lag behind, some let things go,
Some never help their club to grow.
Some drag, some pull, some don't, some do.
Which one of all of these are you?

Jack, KØYPK

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Club
NEWS

W5SAT

August meeting

Yum, what delicious watermelons Jim, K5VRL, and Bob, W5HXL, arranged for!

...and that constitutes the minutes of the August club meeting.

There was no formal meeting but there was a lot of formal melon munching, with everyone wearing their best newspapers. I forgot to bring my fork so I had to restrict my slices to itty bitty ones I could eat delicately, 47, in all, burp.

At one point I paused to count 47 members of MORI, Aeronautical Center, and and VHF clubs. There may have been more who were circling the city trying to find it. I learned something from the comments I heard. Though I ran the description of the location in last month's C&E, few, if any, people realized it. It was imbedded in the minutes. Next year I'll highlight it a little more and then see what their excuses are.

Anyway, it was sure good to see everyone from all the clubs who came. Joe,K5JB

Remote Control of HF Equipment

One of my fascinations with radio is the use of it to remote control things. I have built and bought all kinds of gadgets that would perform remote control functions. Electronic garage door openers, remote appliance switches burglar alarms, etc. were all bought or built more out of satisfaction to see them work than a real need for the things. I used all kind of humpty dumpty things for receivers and transmitters until I finally discovered UHF radio. Over a long period of time I have accumulated enough equipment to do some pretty nifty things.

It is because of this long period of accumulation it has never seemed like a good idea to write much about details on how to do it. Opportunities don't arise every day to pick up good deals on UHF transmitters, receivers and duplexers, microcomputer controllers, tone encoders, decoders, etc. I suppose someone will eventually begin to market a High Frequency rig controller if there is a demand, but I'll probably still prefer to "roll my own".

Lloyd, KC5FM, in Pryor, asked me the other day to write something in the C&E about how to do it. He said he has a high noise level at his home and would like to remote a rig somewhere else so he can hear. I suggested it would be a lot easier to find the noise and fix it, but I know where he's coming from.

My experiments must have started with the night I spent several hours lying in bed and lying on 20 meters via phone patch and extension phone with the rig on vox. Now everyone who gets a vox simply has to have a hybrid one so he can use it with vox. Now, normally no one uses vox on a phone patch because the transmitter can't be effectively controlled when a non-radio operator is doing the talking, but every body pays extra for the hybrid feature. a hybrid is a duplexer which enables the telephone circuit to talk and listen at the same time.

This is one of the essential elements of control via radio. If the controller signals can't take priority over the signals from the HF equipment, it is not really in control and probably shouldn't be used. Some single frequency autopatches periodically offer control to the control operator but I have not been too successful in building one that was really transparent to the victim on the other end of the experiment and the chopping of the signal was really too obvious. I didn't attempt to work over the receiver at the control site to speed up receive recovery so it was mickey mouse at best.

But back to the HF rig problem. Things are often pretty noisy on HF anyway and a noisy time sharing duplex circuit might not be too objectionable.

There is a simpler solution in Lloyd's case. He needs to hear from the remote location, he doesn't need to transmit from the same location. A remote receiver could be hooked to a UHF transmitter for linking to his home. The link transmitter needs to be controllable so it can be turned on and off. It could be done by telephone or radio (more jazzy equipment). If it was to be done by telephone, it would be certainly simpler to just use the telephone circuit to bring the audio home. There is one rub to this. You have to be able to tune the frequency of the HF receiver, or use translator type circuits to permit tuning of the frequencies on one end or the other. This is a problem I have not tackled yet. In my case, I am just a few steps away from the equipment so retuning is a problem that hasn't needed to be solved. With what I have built for tuning 2 meter frequencies, it would be relatively simple to load the frequencies into the synthesized HF rig. The thing I built for VHF is not simple though. If I had it all to do over, I would use a microprocessor. At last count, there were 45 IC's in the controller.

I don't know all the legal answers so what follows are my best guesses. It has been a long time since I licensed my equipment and I don't think it is necessary now. On the license application form (610) ther may still be a question relating to whether the station will be operated under remote control. There are no other questions related to the subject and there are no requirements to submit additional information so it is no skin of anyone's nose to check the block "yes".

It is not lawful to set up a repeater on HF (except parts of 10 meters) so what ever you build, it is not a repeater. Some of the terms that used to be used were 'remote controlled secondary station' or 'remote base'. I started to use the term on a license application 'cross band repeater' but on advice from the ARRL, switched terms to RCSS so I wouldn't be band limited.

Since secondary stations are no longer licensed it is probably simple to set one up as long as all the requirements for security, technical purity, etc. that apply to primary stations are respected. Identification is certainly simplified since only one call need be issued through the transmitter channels to do all the identifications at the same time.

Remote control can be only be performed at UHF (220 and above). Also, when monitoring HF, there is a possibility, though remote, that there will be periods of silence on the audio links. This constitutes F0 or A0, which is not permitted below UHF.

Now with most of the philosophy out of the way, how do you do it?

Taken a step at a time, it is not too complicated. Only when the whole system is viewed at once does the project look hopeless. In the order of priority, I suppose the first thing one would want to do would be send information from the remote site to the operators home, or car, or whatever. I select this as the first step because it is rather passive. 'Screw-ups' won't be noticed and it permits a period of fine tuning on the design while it is serving a useful purpose. Audio circuits and control circuits have to be constructed almost at the

same time because the audio can't really put on the air until same method of control of the link transmitter is established. On HF, VOX type circuits can be used to respond to the presence of signals and key the link transmitter but I don't recommend it because there are too many problems trying to distinguish between desired and undesired signals. If some kind of pilot signal was being transmitted and the receiver was equipped with suitable decode circuits, it might be possible to use signals from the originating station to trigger the link transmitter. This would restrict the application of the thing so let's not go that route. Instead, I think the link transmitter should run continuously. Normally, I would want the link transmitter to be FM because it has morepossibilities for superimposing control signals. An advantage of using SSB on the link would be the ability to make correction to the frequency at the receiver end. The amount of correction possible depends on bandwidth of the link transmitter and receiver. Equipment used for normal communications would be capable of only minor tuning such as provided with 'clarifier' circuits, or a few hundred cycles. Since frequency stability is so critical on SSB equipment and we really don't want to build phase locked equipment for this link, lets stick with FM.

(On second thought, if we are going to use microwave for the link, we might want to phase lock the oscillators; at least they will be equipped with automatic frequency control).

Meanwhile, back to earth, lets find some surplus UHF transmitter and receiver strips, or build some of the Hamtronics kits, or if the wallet can stand it, buy a handful of IC-4's.

Getting the signal on the air is pretty simple. Just hook speaker audio to the UHF transmitter mike input, maybe using a series resistor to prevent loading of the mike input, key the transmitter, adjust the speaker audio and you are "on the air". If the range of operation is limited to the back yard, that is all there is to it. If the thing messes up, you walk back into the house and shut it off. With most of the UHV signal beind sent to a dummy load, there will probably be enough leakage to hear the thing clear over to the neighbor's house.

The most simple control circuit would be a programmable timer that would enable the transmitter circuit at the appropriate time. Lets skip that because we are going to want to eventually talk back to someone so we might as well start thinking how to make a half duplex circuit. The only thing that is standing in the way of simply transmitting to a receiver connected to the HF rig is interference from the link transmitter connected to the same rig.

There are two basic ways to prevent this interference; time division and frequency division. In time division, the link transmitter transmitting to you stops for short periods to give the receiver a chance to hear your uplink. With specially adapted receivers, the recovery time when enabled can be made quite short and the shorter the better. If the time periods are short enough the holes in the transmission are not too noticible. With FM gear though, the squelch rush during these periods can be quite annoying. In my experiments I needed nearly 100 ms to allow the receiver to recover (IC-22S) and the noise bursts were excessive. AM gear would have less problem with the rush noise but keying would have to be shaped or a 'pop' would replace the other trash.

Needless to say, I was easily discouraged by time division duplexing. It was too easy to move on into frequency separation of uplink and downlink and get the thing on the air.

On the 450 band, there is a lot of room but some of it is already packed with signals. For operation in the 435 to 450 portion it would be a good idea to contact the local frequency coordinator to avoid someone's link or repeater frequency. On the lower end, above 420, it looks wide open. Now, one piece of equipment operating around 420 and the other operating around 450 can co-exist quite nicely without any fancy filtering. Only problem is that the only surplus equipment operating on the lower end is GI stuff designed for 406 to 420. It is kind of rare because amateurs in areas where UHF has 'matured' have started grabbing up the stuff for remote bases,etc.

With commercial grade equipment operating at low power, separation can be quite a bit less. In fact, with 5 MHz separation, good shielding, and 10 feet of vertical antenna separation almost no receiver desensitation will be noted.

Another option is the 220 MHz band. Of course there is not the available equipment that the 450 band finds, but links are legal there and chance of interference is less.

Once decision is made how we are going to talk to the HF rig, it is a pretty simple matter of connecting the audio from the speaker of the link receiver to the microphone circuit of the HF rig, respecting impedance levels of course. If the HF rig has VOX, you're on the air! If you hate VOX like I do (it runs me out of breath), wire a carrier operated switch to the link receiver and let it key the rig.

There is still the matter of control. From this point on, things startgetting complicated as we think of more and more control features. The most simple I ever came up with was a little kerchunk counter. The keying circuit for the HF rig had a little time delay built into it (about 140 ms). During this time I could fire a short burst on the uplink frequency and the controller would change state from 'on' to 'off' and disable the downlink. to turn it back on it was necessary to send a short burst or just hold the key down. Because of the delay in the HF rig keying circuit, none of these noises were transmitted on HF. The delay is not significant enough to clip anything from the transmitted speech.

The further you expect to get from the HF gear, the more sophisticated the control must become. Time out timers are necessary and for security purposes, it may be necessary to incorporate subaudible encoding and decoding. I don't think it is normally necessary in this area.

Although not really necessary, an rf duplexer is nice to have because it cleans up the antenna installation a lot. They can be made but there are surplus ones available through the dealers like Fair Radio Sales, and the flea markets, like in Dallas. A mobile duplexer which works great on 450 costs around $100.

A touchtone™ decoder becames the next 'must have'. Note N5MS's articles on state of the art decoders. Some of the stuff ma bell surplusses is not too bad either. Stay away from the 567's. They are very difficult to tame. Once a successful touchtone™ decoder is up and running, the control circuits can start getting fancy. At this point a decision has to be made how comprehensive the controls are eventually going to be. It is hard to beat the micro's when it comes to flexibility but it is a whole new world of technology requiring some equipments and methods or writing and debugging software to be eventually converted into firmware by loading proms. A single board controller costs less than $200 now and you just drive it off the lot. Bob, WA5CJG, or Bob, WB5NSV, could probably advise one who was interested what alternatives were available but It would still be necessary to decide what was going to be the control features and write the software.

Anyway, until some outfit comes on the market with a little box that does it all, there is a real opportunity to homebrew something not everyone has and if taken a step at a time, it's not that tough. Joe, K5JB

Salem

EMPHASIS ON DEEMPHASIS

No doubt about it. I love Motorola equipment. It may be true that they unnecessarily complicate the design sometimes or use less than state of the art or even close, but for the most part, it is reliable and works well. Now I don't intend to slander any other great radio equipment maker like, oh, ah, GE or (sniff) regency, but most of my experience is with Motorola. This started quite some back with my very first two meter walkie talkie, a Motorola HT-220. Perhaps, I should digress about Motorola reliability. This HT was a basket case. A single frequency VHF radio that cost me over $300.00 would be expected to be reliable. Right? No. Actually, this was not the case as the radio seemed to give up the ghost every time I took it out of the town where it was purchased. For about a year, I would experience some problem about once every other month and this would give a reason to go visit my good friends W5HXD, WA5ZXK and WA5BPS in Tulsa. Merl W5HXD was a bit of a wizard inside the HT and he alway resurrected it. I learned quite a bit about these types of radios by watching him. The drive was nice and I would occasionally stop back through my home town and visit with my folks. Most of these long distance service calls ended when Merl suggested a complete board transplant from Spectronics. He was right and the radio has been operating reliably ever since. I just recently experienced my first bit of trouble in the radio when the receive audio went out. The transmitter went out a little later and I now suspect the PTT switch.

Nevertheless, this HT started a long association with Motorola and I have acquired a large number of their radio since then. I acquired a large quantity of Micor receivers at Dayton several years ago from one of the exhibitors. These apparently had been factory rejects because they had the connect pins sheared off. The Micor is an excellent repeater receiver with sensitivity of less than 0.5 uV for 20 db of quieting for both the VHF and UHF models. However, the thing that makes these radios really shine is the spurious and image rejection. The VHF model is over 100 db and the UHF model is 85 db. The selectivity and EIA intermodulation numbers are -90 db at 25 Khz and -85 db for the VHF and -100 db at +30 Khz and -80 db for the UHF Board. These radios are nothing to sneeze at.

Micors come in two different boards to make up a complete receiver. The first is an RF/IF board which contains the front end helical resonators, IF filters and amplifiers, and discriminator detector. The output is discriminator audio. The second board is an Audio squelch board that contains a custom Micor squelch circuit and a 10 watt audio amplifier to really blast out those customers in the mobiles.

Having acquired a couple of the UHFs and already having several VHF receivers around, I found that I had a shortage of the audio/squelch cards for the radios. In addition, the radios needed COS outputs and drew a humongous amount of current to run the big Kahuna audio amplifier. In fact, if the signal was turned up too lound with my tiny current regulated power supply, such an audio feedback, I mean to tell you! The excess current drain would shut down the regulator ircuit which in turn would cut the current off which ould raise the voltage again which would cause an excess current drain and on and on. The receiver audio output would oscillated at the natural resonant frequency of the current limiter of the power supply. I found that it took a fairly stiff power supply capable of current peaks of 5-10 amps or so just to handle the receiver.

Where I intended to put the receivers, I didn't need a gigantic power supply taking up space and heating up the cabinet. So I thought that I would come up with an audio card that would have more modest current requirements, take up less space, and have the proper COS outputs.

I intended to fully inplement the Micor squelch circuit. This is a clever circuit on a chip that measures the quality of the signal and either switches in or defeats a squelch tail to help out weak signals. Motorola also uses a couple of custom audio chips in their audio squelch card, but I wanted to use some standard parts and intended to stay away from hard to replace items. The only exception was the squelch chip.

I came up with a circuit design and looked it over for awhile, then sent it to Dan K5FVL and had him glance at it. I, after some extensive delays, began to lay out a card, then got bogged down in the some work at the office that was taking away my evenings with great regularity. Bob WA5NSV offered to complete the layout and he built up a prototype, then made some changes and shipped the artwork back to me. I looked at it for some time, then had a prototype built up for myself and built the card. This took some time while I was completing the TT decoder card shown last month. The card is a little complicated and busy, but after a couple of false starts went together and works like a champ. I have had to make some changes in the audio switching for the squelch circuit, but those problems have been solved with a couple of parts changes and the addition of a CMOS or FET switch.

In part of the circuit I added a tone control which I reasoned could be used to compensate for frequency response changes through phone lines or receiver characteristics. The card was universal and could be used on any receiver since it took just discriminator audio in and provided audio output. Unfortunately, the tone circuit (which had both bass and treble adjustments) would not quite compensate for the necessary deemphasis needed in the standard receiver and I began to think of ways to accomplish receiver deemphasis.

What is receiver deemphasis? Well, the explanation requires a discussion of transmitter preemphasis. Because of the RF frequencies involved (146-148 Mhz and 440-450 Mhz) after detection, there is a considerable amount of white noise or Johnson noise in the detected signal. The theory is not important here, but generally, this noise increases with frequency. For example, it is lower in the 50 Mhz region and is even less, of course, on the HF bands. On the VHF band, this noise in the system odviously effects the quality of the recovered signal. The presence of this noise is one reason than VHF and UHF signals are measured in their quality by their ability to quiet the receiver's perceived white noise. Unless the noise is quieted, the ability to communicate is hampered.

The noise present in the receiver discriminator is not true white noise, but is actually weighted toward the higher audio frequencies. Thus if a signal is received which contains high frequencies in the recovered audio, the inherent "noise" could mask the intended recovered audio. One way of dealing with this problem is a technique known as pre-emphasis by which the transmitted audio frequency response is altered by boosting the higher frequencies before transmission. This boosted audio is then recovered by the discriminator with the same frequency response characteristics as when it was transmitted. The white noise that is inherent within the system remains at the same level and the received signal has higher levels of the pre-emphasized transmitted signal. The received

signal can then be de-emphasized by lowering the higher frequencies using a frequency response curve that is the reciprocal of the pre-emphasis curve. By this method the frequency response curve is restored to, as nearly as practical, its frequency response of the transmitted signal before pre-emphasis and the inherent system white noise is also lowered to less than what it was before. In some instances, the improvement of the signal to noise ratio is considerable since the receiver quieting is measured in quieting. You can easily lose 10 db of quieting with an improperly adjusted de-emphasis circuit. This is substantial in a communications system that depends upon 20 db of quieting as a marginal signal.

Audio shaping characteristics are important as properly operating RF stages and can effect the quality of the received signal just as much. I have had receivers that began to generate quieting with as little as .1 uV and were 20 db quiet with .15 uV. When the receiver range is down this low, the audio characteristics actually have more effect on the effective "receiver sensitivity" than the RF stages. At higher signal level sensitivity such as .5 uV or .7 uV, the audio characteristics are less pronounced.

Proper pre-emphasis and de-emphasis can be a problem. Several times over the last year or so, you may have seen some "fixes" included within the C & E to correct audio characteristics defects in the Icom IC-2AT and IC-4AT. The problem generally involved touch tone levels that were very different between the two tones and had a lot of "twist." The fix generally involved changing or increasing a capacitor somewhere in the radio to increase the low frequency response of the radio to boost the low frequency back up. These capacitors were generally coupling capacitors and did not have anything to do with the transmitter pre-emphasis, but the example does serve to illustrate the some of the problems that can occur. Actually, the pre-emphasis circuit may have affected the higher frequencies since these are boosted during transmit. The problem seems to be that higher frequencies are stronger in some of these types of Japanese radios. This may result from the fact that the oriental languages make use of higher pitches than gutteral english. As a result, more pre-emphasis might be built into the radio to boost the signal to noise ratio even more. Whatever the effect, the lesson here is that pre-emphasis may be tailored to the type of transmitted signal.

Pre-emphasis at the transmitter and De-emphasis at the receiver results in a more even spread to the energy in the audio band resulting in a FM signal of nearly constant energy distribution. The circuits and curves in Figure 1 are illustrative of pre-emphasis and de-emphasis:

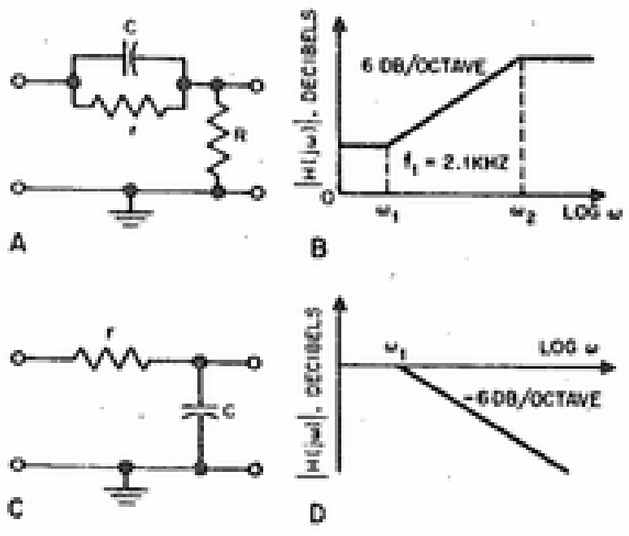

Figure 1. Pre-emphasis and de-emphasis networks along with asymptotic response.

In A, we see a Pre-emphasis network which is not much more or less than a high pass filter designed to pass high frequencies and attenuate lower frequencies. In this circuit, $r >> R$. Figure B shows asymptotic response where $\omega_1 = 1/rC$ and $\omega_2 = 1/RC$. Actually, the response would not flatten out in practice toward the upper end except that not a lot of voice energy is contained about 2.1 hence it is not as critical that the pre-emphasis continue above these frequencies. Note that the response boost is just about 6 db/octave. This means that the voltage is just about double every time the frequency is doubled.

$$Db = 20 \text{ Log}_{10} \frac{V_2}{V_1}$$

If you were to take V_2 (let's say that this is the output voltage) as 1.0 and the input voltage V_1 to be .5 volts the number are:

$$Db = 20 \text{ Log } 2 = 20 \times .301 = 6.02 \text{ db}$$

Six db per octave appears to be about optimum. This is a pretty steep rollof.

In Figure C, we see a de-emphasis circuit which you would all recognize as a low pass filter. Figure D is the curve that results from the circuit. Note that the de-emphasis is equivalent to the inverse of the pre-emphasis.

Now, how does this signal conditioning technique work in actual fact? Well, in some instances, at least Motorola, it actually does. As I was building my audio card, I wanted some actual verification that Motorola actually de-emphasized their audio like they say they do and also generate some numbers to use for design parameters. Since their audio squelch card takes discriminator output directly from the RF/IF Board, I chose to run a signal directly into the audio squelch board made by Motorola from my local audio signal generator rather than use a calibrated RF source modulated with the proper tones.

Motorola claims that they perform several functions on the audio. Negative feedback is used in the preamplifier to attenuate audio signals above 3000 Hz. De-emphasis is accomplished through a selection of components in the audio amplifiers and in the transformer output for the speaker through the use of negative feedback from one of the windings that gives 6 Db per octave de-emphasis.

I ran my audio directly into the audio squelch card and checked to see that the input remained constant all across the frequency range I was interested and got the following results:

Frequency	Voltage (Speaker)	Voltage (Line)
200 Hz	1.0 V	.8 V
300	8.0	5.2
400	6.8	5.0
500	5.0	3.6
600	3.8	3.0
700	3.0	2.5
800	2.2	2.3
900	1.6	2.0
1000	1.4	1.6
1500	.6	1.0
2000	.4	.7
3000	.2	.45
4000	.12	.32

With some comparison, it can be seen that the speaker audio doesn't really follow the DB/octave dropoff normally recommended. The second column of numbers is voltage present at an output from a line driver which comes off an earlier

audio stage. Data below 300 hertz is not valid as there is a very sharp PL filter designed to take out the PL tone. The same is true of the 4000 Hz data as there should be some rolloff above 3000 Hz. The PL knee appears to be very sharply around 230 Hz.

The speaker audio starts with about -9.8 db/oct between 400 hz and 800 hz. Between 500 hz and 1000 hz, the de-emphasis is -11 db/oct. Between 1000 hz and 2000 hz, the de-emphasis is -10.88 db/oct.

The line output is a little more reasonable. For 400 and 800 Hz, the de-emphasis is -6.74 db/oct. For 500 and 1000 Hz, the number is -7.04 db/oct. And between 1000 and 2000 hz, the de-emphasis is -7.18 db/oct. Thus line levels are just about right, but speaker audio is very heavily de-emphasized.

As a result, speaker audio might sound a little muffled. This extra heavy deemphasis also would improve the 20 db quieting test since there is less high frequency noise to measure. I have found that the Micor audio actually sounds quite good despite the heavy de-emphasis. But the point is that if you make your repeater repeat speaker audio, you will lose about six db of high frequency audio more than if you used some line output. Also because the speaker stage is a higher output audio stage, there may be more distortion which when translated through the system audio and transmitter audio adds up to more muffled sounds through the repeater. Try to find some audio source at a relatively low level that has audio already de-emphasized, then add a small outboard amplifier to drive your repeater transmitter. You may want to consider the use of the Micor audio card I mentioned. This card provides all audio processing for de-emphasis plus has a tone control with separate adjustments for bass and treble. There is a COS output and a local speaker audio output plus a separate line output.

It might pay to investigate the audio section of your repeater receiver to see if you have just a little too much de-emphasis or maybe too much. You can follow my suggestion by just injecting an audio signal at the discriminator and measured the voltage at the audio output stage. Oh, yess, forgot to mention, you probably ought to put a full quieting signal into the receiver to keep the discriminator noise down during audio frequency response tests.

Micheal Salem N5MS

DALLAS FLEAMARKET - August Edition

Ham Holiday, Dayton, HamCom and the rest have come and gone. I can't just go cold turkey on the flea market even if football season is coming up, so I decided to jag down to Dallas on the first Saturday of August to see what was jumping. Finding traveling companions was not too difficult as Jim WD5HPU and Tim WA5LTM both volunteered. The fourth place is always optional especially with a full fuel load and a hot day, but I thought that Joe WA5FLT might be available, but he was out of town.

For a couple of months we have been fighting a marginal battery. A loose connection in the charging circuit last year allowed the battery to run down during the winter months and freeze one cell which began to crack. We traced down the loose connection (which also caused some noise in the radios) and repaired it. The battery hung on until the first part of the summer when I had to jump start it to do some flying. The next time it was OK, but a trip to Stillwater required another jump. I wanted another battery, especially if it looked like the weather would be marginal. We got one shipped in and I brought it home to add the acid and give it a little charge, just to make sure that it had a head start. The weather had been clear all week, so of course, it was expected that it would began to cloud and storm for the weekend. I checked the weather about six O'clock that morning and the forecast called for scattered clouds and isolated thunderstorms plus a front between OKC and Dallas. I just needed to be careful, but it looked OK.

The battery worked great and we were putting along. Ground transportation was a little harder this time as Bill WD5FAM was uncertain of his planned trip because of a recent illness. I finagled John Graham, a good friend and hope to be soon amateur to drive over to Love to pick us up.

The flea market keeps getting bigger and bigger. The new location affords a greater size and parking that is just a little more convenient. I went down looking for some BiFET op amps (made by TI of course) and other microprocessor support chips. I found some 4514 and 4515 4 to 16 line decoders for the touch tone decoder I described last month and secured a couple of these to finish testing my prototype. I also found some Hitachi HM6116LP4 RAMS at a good price and somebody was selling Intel 2764's for about $20.00 apiece.

We milled around for a couple of hours and scoured the collections very carefully. The day was a little warm, so the coke and pepsi concession ran out early. I was reduced to drinking a diet pepsi when I couldn't find the water fountain.

Back to the airport was courtesy of Bill WD5FAM who finally did turn up and apparently decided that the social aspects of the occassion were more important than that business meeting in Tulsa. Bill told me that he didn't get back until after 5 p.m. after he had previously needed to be back much earlier. I took advantage of the trip back to practice flying around clouds and under the deck. A thunderstorm came through Norman, just a couple of hours after we scooted in.

Might try the flea market again on Labor Day. This will be the last chance before football season starts. Probably need to get out the suitcase HF station and begin some testing for Dallas weekend. I may try a different antenna than the stinko B & W Vacationeer. Very marginal at best.

Micheal Salem N5MS

TOUCHTONE DECODER[r] UPDATE

Well, after some procrastinating around, I finally was able to get some information about boards for the touchtone decoder described last month. I should have some boards around the middle of September. I took a chance and ordered some extras even though there was only about 15 or so to be use (I am going to build 4 or 5 for myself). Have you ever though about putting one of these on the output of your two meter radio and reading the numbers dialed on the local patch? Actually, their best use will be for control functions. I will probably require a saliva test before selling a board. I also think that I will be able to order the Mostek MK5103 and AMI S3525A decoder and prefilter for anybody who is interested, but might have take that under advisement. The set is $25.00 plus $17.00 or $42.00 for both. Interested parties can call me for a board.

Micheal Salem N5MS

FOR SALE: Model 1 level 11 32k one disk 2.3 TRES-DOS, Voice Syntheser and cassete recorder over $400 in software $1600 call JESS JOYCE 631 0664 after 5:00

UPDATED REPEATER DIRECTORY

July 26 1982 - Oklahoma City OK

STATE REPEATERS

FREQUENCY INPUT-OUTPUT	LOCATION	AREA	CALL
52.68-52.525	OKC	Central	K5JL
144.51-145.11	Cleveland	NE	WB5MPU
144.61-145.21	Broken Arrow	NE	WA6HNO
4.63- 5.23	Blackwell	N.Central	N5ANV
75- 5.35	Stillwater	N.C.	WB5KQL
77- 5.37	Eufaula	E.Central	WB5OBV
83- 5.43	OKC	Central	KB5OB
85- 5.45	Fairview	NW	KI5P
87- 5.47	Tulsa	NE	AB5M
89- 5.49	Yukon	Central	WA5CZN
146.01-146.61	Beaver	NW	WR5ATW
01/61	Calumet	Central	K5GDE
"	Hugo	SE	WB5TTU
04/64	Cavanal Mtn	E.Central	WR5AII
"	Granite	SW	W5CHE
07/67	OKC	Central	K5ELL
10/70	Ardmore	S.Central	W5RFX
"	OKC	Central	WA5TSJ
"	Tulsa	NE	K5LAD
13/73	Stillwater	N.Central	WB5KQL
"	Clayton	SE	K5JE
"	Duncan	SE	?
"	Woodward	NW	W5HGH
16/76	Bartlesville	NE	?
"	Elk City	W.Central	WB5FBU
"	OKC	Central	KC5CR
19/79	Altus	SW	WR5ANX
"	Ardmore	S.Central	W5BLW
"	Miami	NE	WR5AHX
22/82	OKC	Central	K5JL
"	Tulsa	NE	WA5LVT
25/85	Muskogee	E.Central	W5EJK
"	OKC	Central	WR5AVM
28/88	Lawton	SW	WR5AJV
"	Norman	Central	N5MS
"	Tulsa	NE	WA5LVT
31/91	Shawnee	Central	W5TQZ
34/94	Durant	S.Central	?
"	Enid	NW	WR5ABW
"	OKC	Central	WA5YTI
"	Tulsa	NE	WA5LVT
37/97	Ardmore	S.Central	N5AO
"	Claremore	NE	N5TM
"	Ponca City	N.Central	W5HZZ
.625-.025	Norman	Central	WA5RPP
.655-.055	Bartlesville	NE	?
.985-.385	Pawhuska	NE	WB5DYR
147.135-147.735	Edmond	Central	KC5GN
147.285-147.885	Ada	SE	WB5NBA
147.60-147.00	Tulsa	NE	WA5YPT
63/03	OKC	Central	WD5AII
66/06	Norman	Central	W5OU
"	Pryor	NE	KC5FM
69/09	Choctaw	Central	K5EGQ
"	Oolagah	NE	WA5LVT
72/12	Guthrie	Central	KA5EOS
"	Guymon	NW	KY5C

FREQ: IN-OUT	LOCATION	AREA	CALL
147.72-147.12	Mooreland	NW	KA5CJG
147.75-147.15	Enid	NW	WR5ABW
75/15	Grove	NE	K5PJR
78/18	Seiling	NW	KA5CJG
"	Tulsa	NE	WD5EVU
81/21	OKC	Central	K5JL
84/24	El Reno	W.Central	KB5RJ
"	Tahlequah	E.Central	WA6EAW
87/27	Stillwater	N.C.	K5FVL
"	Tulsa	NE	WR5ASX
90/30	Alva	NW	KBØHH
"	Concharti Mtn	NE	?
93/33	Edmond	Central	K5PL
"	Muskogee	E.Central	WA5VMS
96/36	Big Cabin	NE	WA5ICW
"	Byars	S.Central	WA5IQH
"	Laverne	NW	WD5CSW
99/39	Moore	S.Central	K3TGY
"	Tulsa	NE	WB5NJU
222.28-223.88	Waurika	S.Central	WA6HGK
2.30- 3.90	Tulsa	NE	WB5BET
2.34- 3.94	Grove	NE	K5PJR
"	Muskogee	E.Central	WB5AOH
2.46- 4.06	Pryor	NE	KC5FM
2.50- 4.10	Bartlesville	NE	KB5QJ
"	OKC	Central	N5BEQ
3.34- 4.94	Enid	NW	WR5ABW
"	Tulsa	NE	K5LAD
437.25-425.25	Edmond	Central	W5LIL
439.25-421.25	Muskogee	E.Central	W5EJK
"	Grove	NE	K5PJR
439.425-427.425	Tulsa	NE	WA5LVT
443.20-448.20	Tahlequah	E.Central	WA6EAW
3.65- 8.65	Del City	Central	K6DBR
7.55- 2.55	OKC	Central	K5YGM
8.1 - 3.1	Muskogee	E.Central	WA5VMS
8.3 - 3.3	Cleveland	NE	WB5MPU
8.85- 3.85	Enid	NW	WD5HUT
8.9 - 3.9	Edmond	Central	WD5FEI
9.1 - 4.1	Altus	SW	WR5ANX
"	OKC	Central	WA5TRS
"	Tulsa	NE	WA5LVT
9.2 - 4.2	OKC	Central	WD5AII
"	Tulsa	NE	WA5BPS
9.3 - 4.3	OKC	Central	K5JL
"	Tulsa	NE	K5LAD
9.4 - 4.4	Enid	NW	W5HTK
"	Muskogee	E.Central	WB5AOH
9.5 - 4.5	Calumet	Central	WA5FLT
9.6 - 4.6	Tulsa	NE	N5ANY
9.7 - 4.7	OKC	Central	WD5FAM
"	Ponca City	N.Central	W5TXF
9.8 - 4.8	El Reno	Central	?
9.85- 4.85	Claremore	NE	N5TM
9.9 - 4.9	Stillwater	N.Central	WB5YWO
9.975- 4.975	Moore	Central	K3TGY

FOR SALE: TEMPO-2020, HF transceiver. 80-10 meters with built in AC & DC power supply- CW xtal filter, fan, spkr - also hand mike. Instruction manual, complete shop manual, new pair 6146's. $275.00(firm). K5IRO, 348-4264.

For sale: .018 ufd chip capacitors. Perfect for down converters, UHF projects, etc. No reasonable offer refused. Call KC5CR at 751-7192.

A NEW KID ON THE BLOCK—WELCOME ARDMORE

ARDMORE AMATEUR RADIO CLUB

COMMUNITY SERVICE SINCE 1948

It is with pleasure and anticipation we join CORA. As this is our first contribution to the "COLLECTOR & EMITTER", we hope a little club history will be of interest.

Born out of a community need after the Texas City Explosion and the devastating Woodward Tornado, two amateurs from Ardmore, Charles Dibrell and Jack Gant, charted a course with city officials for a meeting room and emergency equipment. The club was incorporated in 1948, with members Charles Dibrell, W5BLW: Jack Gant, W5ERG: Harvey Priddy, W5JP; Dick Patterson, W5PNG; & Skippy Dibrell, (Charles Terrier) who lent his name so that a needed complement of officers were availble. Skippy, appears in an early club picture.

From day one our club has worked community service and emergency problems. We have been associated with the Ardmore (Carter CO.) Red Cross Chapter for many years and our monthly business meeting is held in the Red Cross office the first Wed. of the month. Club station W5JP is located there. We have available both HF & VHF equipment. We also have equipment at the Ardmore EOC. Both location have Auxilary emergency power. We operate two RPTS. N5AO on 37/97, the ant. being located in the Arbuckle Mts. Many Okla. City Hams use this Rptr. We also operate 19/79 on full battery power, the call W5BLW, w/20 watts output. Primarily for emergency use, hand-helds will work from any location in Ardmore.

Our next scheduled community service will be Sept. 4, when we monitor and aid the ARDMORE SUN RUN, this is a 5Km. a 15Km and a 1 mile run sponsored by the Sothern Okla. Striders. This is the 5th. year we have assisted.

The ARBUCKLE TRAFFIC & WEATHER NET, meets each Sunday @ 2100, Lee Hensley WB5YMN is NET CONTROL. We invite you to check in. Your are also invited to attend our "Monthly Breakfast" the second Sat. of the month @ 0800, usually at the Tower Resturant. Bring the XYL & kids. Informal meetings each Wed. @ 2000 at Charles Dibrells. Over the years we have participated in many emergencys. We are proud to report we have four 50 year Hams.Charles Dibrell,W5BLW; Jack Gant, W5GM; Ernie Miller, W5SNM; Tom Banks, W5HJ. -73- John WD5FZD.

HAVE YOU WORKED PUBLIC SERVICE LATELY ?

HAM HAPPENINGS REFER TO CLUB SECTION FOR SPECIFICS

SEPTEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			ARDMORE 1	EDMOND CLUB MEETS 2	AERONAUTICAL CENTER 3	 4
 5	 6	M O R I GREAT PLAINS TRI-CITY 7	 8	ALTUS 9	 10	S C A R S 11
WHEATSTRAW 12	SEOARA OK-DX 13	76'ers S'HAWNEE 14 O U	 15	K A Y 16	V H F 17	 18
 19	A R E S 20	AUTOPATCH 21	 22	 23	 24	 25
 26	E D I T Collector & Emitter 27	CORA SHAWNEE 28	 29	 30	MAIL C&E 4:30 PM RED CROSS	