

FLASH



MAD RIVER RADIO CLUB

VOLUME X NO. 2

JUNE 1988

EDITOR: TED-K8AQM & KEN-WD9INF

Here it is, the first FLASH from the K8AQM and WD9INF team. It's a bit rushed due to the picnic deadline and we will do better in the production end of the next issue, but TNX to several contributors, there are some great articles. Both Ken and I look forward to building the FLASH to be THE contest club newspaper to read. Let us know what you would like to read AND see in future issues.

Many TNX to W8FN for the great article on the rotor preset control; I'm sure we'll hear more on this article. W8BJKR, Mark...a soon-to-be new member...passes on some good options to the beverage antenna for those of us without the vast open spaces available. Mark lives in Toledo and operates with the WD9INF crew. Be sure to follow KBMR and his "weird" Field Day ideas, only from the mind of one such as Jim could Ø-A category spring forth! Although the pictures are not the highest quality, they give you a feel for the action found at Dayton and the talk/fun you missed if you weren't there(I couldn't live like that!). You'd better be at the picnic because the film will roll and you will be missed...be there!

As for the picnic...June 4...I'm looking forward to being your host and sincerely hope that you will plan on attending. The map is enclosed and feel free to call for additional directions. There are four extra beds and plenty of floor space if you'd like to spend the night. Food will include the usuals and a very special treat, the (in)famous K8AQM contest chili...guaranteed to burn twice with every spoonful! Bring only your lawn chair and parking is no problem. Come see Adrian, we'll sit and watch the corn grow!



73,
K8AQM &
WD9INF

May 11, 1988

I would like to take this time to thank all of you that supported Alan and myself in our quest for re-election. THANK YOU!! Now that we have won, we will continue to serve the MAD RIVER members.

SWEEPSTAKES RESULTS

Our efforts this last year were not as well as previous years. This year we had more multi's than before. We were really down in the single operator class. For those that did put forth an effort of a 100k min. qualified for a MAD RIVER ACHIEVEMENT CERTIFICATE. The winners are;

K3LR	179,250	CW
WM4T	149,924	CW (KU8E op.)
N4TY	146,146	CW
WD8IXE	156,288	CW
K8AZ	155,400	CW
W8FN	147,752	CW & 40,500 PHONE
K8ND	117,822	CW & 73,438 PHONE
KQ8M	117,434	CW
W8UPH	85,484	CW & 75,402 PHONE
N8ATR	112,950	PHONE

The following stations turned in excellant Multi efforts:

K8AQM	162,504	CW
WD9INF	245,100	PHONE
K8CC	214,500	PHONE
N8CXX	205,050	PHONE

Prior to this year's contest expect a call from the Regional VP's to get your commitment. Let's go for it!!

DAYTON

WOW!!! What a great time. The weather was perfect. The forums were great. The MRRC SUITE was well attended again. Dave 'CC did a great job of getting the suite organized. A big THANK'S to 'CC and his team. Dave will have a suite wrap up soon.

Our meeting was held in the Arena behind the Cushcraft display. The incumbents were re-elected to another term. The balance of this years meeting where scheduled. Here are the dates as I know now.

JUNE 4 MICHIGAN MEETING K8AQM HOST
JULY ? SOUTHERN OHIO MEETING HOST W8FN
AUGUST 6 W/ PA & E/ OHIO MEETING HOST K3TUP
SEPTEMBER 11 FINLEY MEETING
JANUARY 6 1989 CHRISTMAS MEETING HOST K8MR

The meeting at K8AQM's is elsewhere in the FLASH. Let's have a big turnout at TED's place.

DUES DUES DUES

YOUR DUES ARE DUE in fact the're late. The DAYTON meeting is the start of MRRC year. The new membership list will be updated for the next FLASH. This will be your last FLASH if you don't send your \$7 to Alan, N8BTU. You will not want to miss all the great things we have planned to publish this year.

CHANGES IN THE FLASH

Dave, K8CC, has retired as the Editor of the FLASH. Dave has done a awful lot of good hard work over the last 6 years to support this club. He has built a house, a very fine contest station and still managed to give MRRC 100%. Dave will remain as Regional Vice President. Thanks Dave.

K8AQM (TED) & WD9INF (KEN) have put together this FLASH. They will need our support. Send them some hints, kinks or pictures. This is our newsletter, let's keep it filled with articles.

FIELD DAY

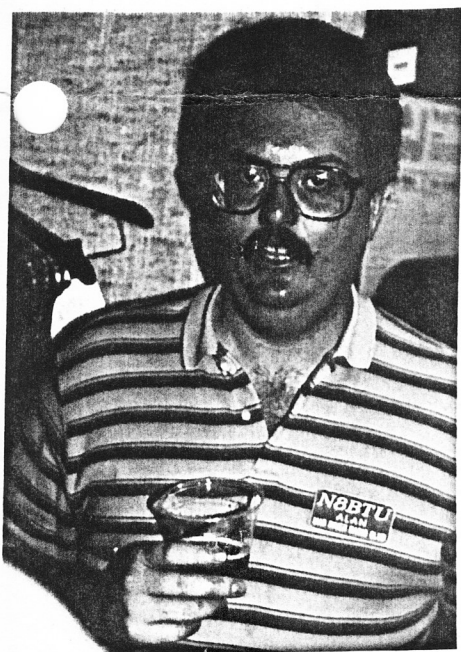
Rumor has it that K3LR & K8MR want the plaque back. Start making your plans for the 1A class attack. Send your results to K8AQM for publication.

PACKET

Yes folks, the Big Fish has procured a MFJ 1270B TNC. I am now dangerous. If you want to leave me a message, try the MRRC BBS (K8CC) on 144.95 or K8NLD-1 on 144.97.

Before we end, remeber, pay your dues, we need the bucks. We will look forward to seeing you at the meeting at 'AQM's. ... --

'CXX



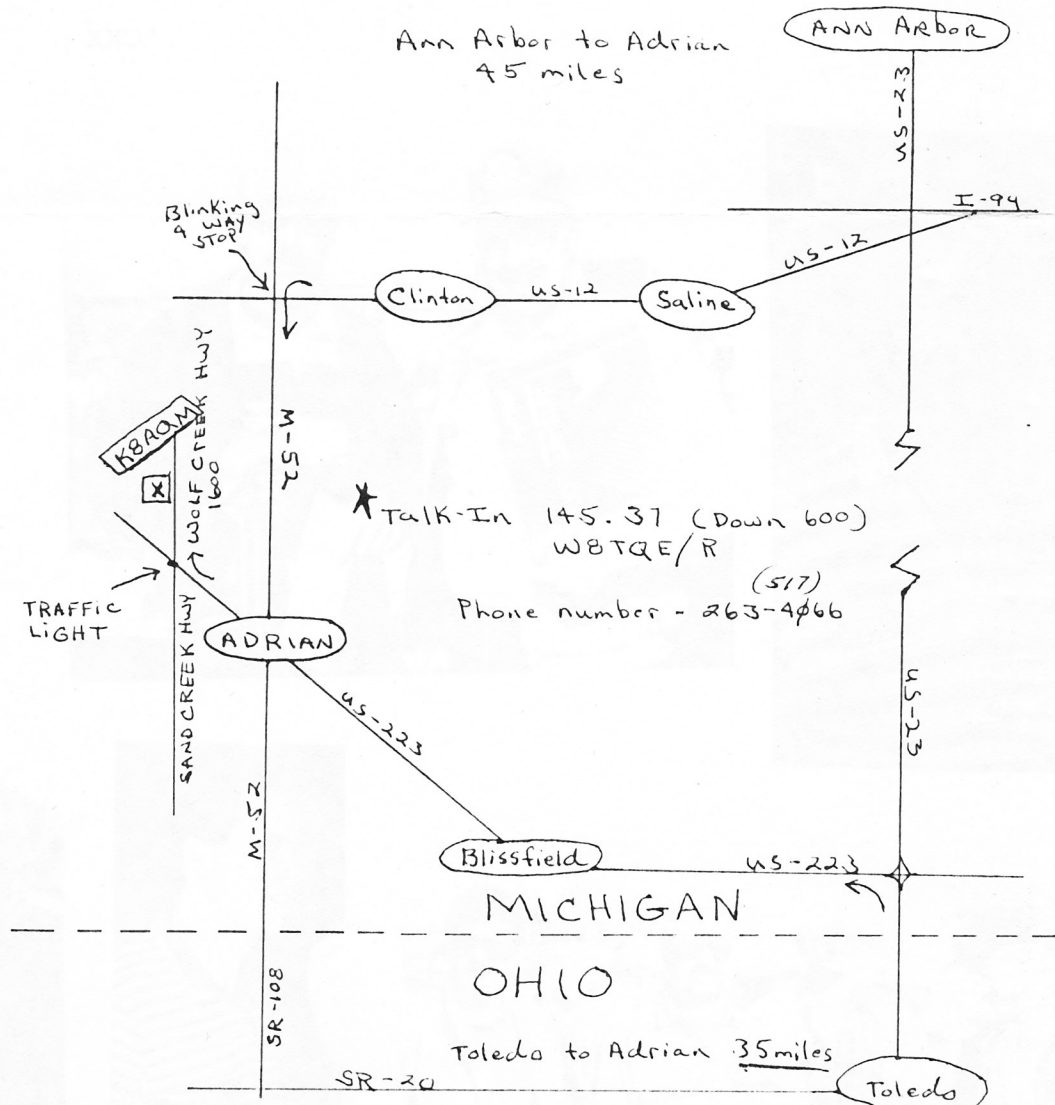
MICHIGAN PICNIC AT KBAQM - JUNE 4 12:30 til ??

Yes Virginia, you can get to Adrian from anywhere! Follow the map and jump in on the 145.37 (600 down for xmit) when you get to town as we are going through a long over due road repair program. Nice thing about a small town...you can not get too lost...someone will be glad to tell you where to go(hmm?!). If you can't get make 145.37 then try 31/91; it's VERY low profile and good for only 10 miles from my QTH. The 145.37 machine is good from Toledonorth and from Ann Arbor south.

KBAQM MICHIGAN MEETING

JUNE 4 12:30 til ?

Plenty of room (4 beds) for the night and a motel close by if desired. Lots of good food and drink. BYO Lawnchair please.

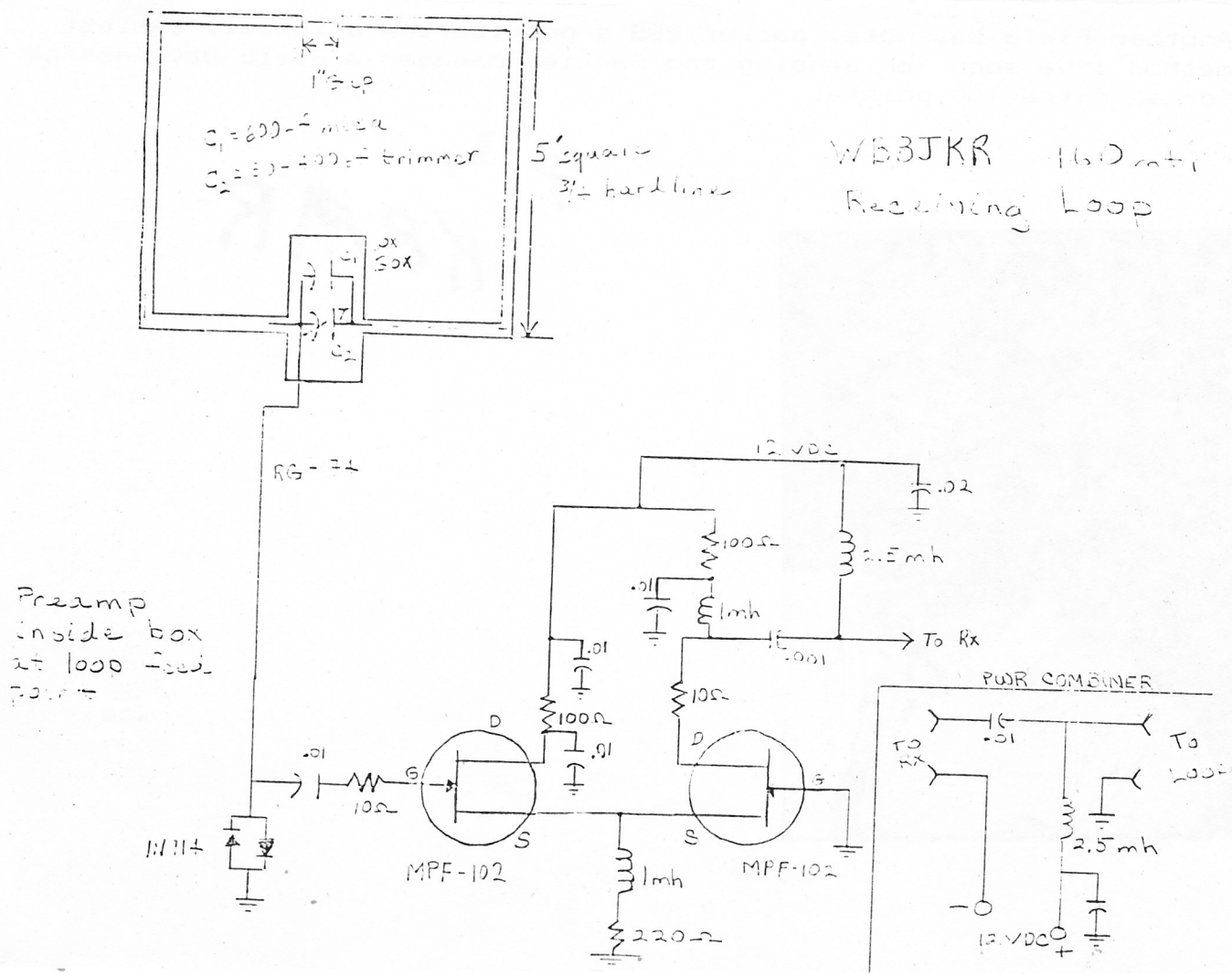


160 Meter Receiving Loop

by: WB8JKR

Here's a compact receiving antenna for 160 meters that works quite well and is simple to construct. It can hold it's own against the average beverage, but doesn't require half your friends backyard plus your own. It features a built-in 30db gain low noise FET preamp that can receive it's operating voltage thru the coax feedline so a seperate power feed is not required. The antenna is built out of 3/4 inch hardline only so it will be self-supporting; it could be made of RG-8, RG-58, RG-59, or anything that has good sheilding, but then a frame would be required. The loop is five feet on a side, the preamp is built into a 4x4 box that is at the feed point of the loop therefore providing a shield for it also. The loop is tuned to resonance by a small trimmer and the tuning is quite sharp. Properly built and installed it will provide good reception + or - approximately 50 khz from the center frequency.

For ideal operation the loop should be installed approximately six feet off the ground and above a ground screen of chicken wire or window screen approximately ten feet square. The feedline should come straight down to the ground screen and then along the ground to the operating position. Maximum response is in the plane of the loop with a DEEP SHARP null broadside to it.



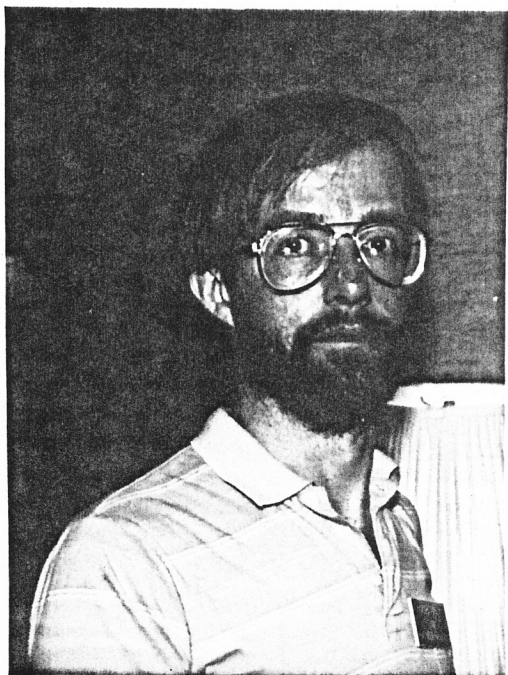
Packet progress continues in Mad River country. Dayton saw several members adding or upgrading packet capabilities. W8CAR, W8K1C, and K8AQM have acquired TNC's; K8AZ and K8MR acquired KPC-2's with Packet Cluster in mind. Of particular interest is Dan, W8CAR, becoming packet active from Sandusky, Ohio. He is on already with a low, simple antenna, and in the summer he will be putting up a 50 foot tower. His location, central to Detroit, Cleveland and Finlay, should help considerably with the club packet links.

Mini Bulletin Board stations are on at K8CC (alias MRRC) and K8BM-1. Both provide basic BBS service to the club, with such features as WWV numbers, ARRL DX and propagation bulletins, etc. Both are on 144.95.

Packet provides interesting possibilities for no-effort contesting, at least at the just-passing-out-a-few-points level. For the selected contest, load the contest exchange into your TNC's connect message. In the January VHF SS I made several such QSO's. It's neat to say, "time to work ATR", and just type a connect command and log another one down on paper! Note that the VHF contests don't allow the use of digipeaters, but that in Field Day digipeaters are not only permitted, but that the packet transmitter doesn't even count as a transmitter. Maybe I'll go out and operate packet only, and win the Q-A class!

Another Field Day note, packet BBS's provide the quickest, easiest method I've seen for sending the Section Manager a Field Day message for an extra 100 points.

73,
K8MR



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A SIMPLE PRESET ANTENNA ROTOR CONTROL de W8FN

Soon after I finally put up my first HF beam it became obvious that having to tie one hand up for up to a minute or so while the antenna rotates was not a good thing. It was equally clear that spending over \$200 for a gee-whiz computer controlled rotor box was not an efficient use of always scarce station improvement dollars. After a couple of months of R&D I was able to come up with a simple circuit which provides a hands-off preset control of antenna position at a modest cost. As a bonus, it also provides an automatic brake delay when the antenna is rotated manually. This little gadget, which has been in continuous use on the rotors at my station for the last five years, has been one of the better investments in station hardware I have made. Although this device was designed specifically for use with the popular CDE/Hy-Gain family of rotors, it should be usable with any rotor which uses a DC position indicating circuit. I have included specific directions for interfacing with the Ham IV or Tailtwister.

The preset controller circuit uses two of the four comparator sections of the popular and inexpensive LM339 quad comparator IC in a "window comparator" circuit which looks at the relationship between the actual antenna position, as measured by the DC position voltage that feeds the front panel meter, and the desired antenna position, set by a reference voltage. If these two voltages are not equal one of the two comparators turns on, closing the brake release relay, which is wired across the brake release switch on the control box front panel, releasing the brake and enabling the motor control switches. Depending on whether the position voltage is more or less positive than the reference voltage, the window comparator causes clockwise or counterclockwise rotation by means of relays connected across the corresponding front panel switches. When the antenna position falls within the "window" defined by the slightly different upper and lower limits at the comparator inputs, both comparator sections turn off and rotation is halted. The brake release relay is held on for an additional five seconds or so and then opened, re-engaging the brake and completing the automatic preset cycle.

The width of the window is set by the forward drop of diode D1 connected between the upper and lower reference inputs of the window comparator. This produces a small amount of hysteresis in the position control loop. (The final position will be slightly different if reached from the clockwise direction than if reached from the counterclockwise direction.) For most normal size HF beams this hysteresis is

negligible compared to the antenna's beamwidth. If you plan to use this device to rotate a VHF or UHF beam with a very narrow beamwidth it may be necessary to make the window narrower. Tightening the window will decrease the position uncertainty at the expense of possibly inducing a "hunting" oscillation, especially with very long boom antennas.

Power for the control circuit is taken directly from the unregulated +28 VDC supply which is used for the metering circuit in the rotor control box. A three terminal regulator is used to produce the 12 VDC required for the electronics and the control relay coils. Since the rotor control box chassis is NOT DC common (ground) for the meter circuit, the regulator cannot be fastened directly to the box chassis for heat sinking. Series resistor R12 is used to limit dissipation in the regulator IC to a value that is acceptable for free-air cooling. If the circuit is built on a board of some sort this resistor should be mounted with leads long enough to stand it slightly off the board to allow air circulation around its body.

Layout of the circuit is not critical, although it is a good idea to locate bypass capacitor C3 as close to the power pin (pin 3) of the comparator IC as possible. It is also a good idea to try to minimize the length of leads directly to the input pins (pins 6-9). I built my circuits on standard perf board and used point-to-point wiring with short leads. If you encounter RF problems with the circuit try bypassing all control wires to the rotor control box with .01uF ceramic disc capacitors at the box terminal strip. You WILL not be able to use this device to turn your beam while you are shunt feeding the tower on another band. The electronics package can be mounted anywhere in the rotor control box and wires run to the necessary connections. On every version of the HamII type rotor I have seen the entire bottom of the box chassis is unoccupied and there is plenty of room for the preset controller board.

There are many ways to control the preset reference voltage. I have used ganged pushbutton switches for my units, but this requires more metal work than most people will want to do. Probably the easiest way to add the preset control without resorting to external switch assemblies is to relocate the front panel calibrate pot to the rear panel of the rotor control box and use the vacated hole to mount a miniature two-pole rotary switch to select the preset. A two pole switch is required so that the automatic control relays can be disabled to provide a manual mode for odd directions. For each preset position a corresponding miniature potentiometer is set for the appropriate reference voltage and selected by the rotary switch. Since these pots are set

and-forget controls they can be mounted on the board with the rest of the electronics and buried inside the rotor box. A "bare-bones" preset control could be provided by simply using a single pot and setting it manually to the desired position. The existing pot could probably be used if other provisions were made for calibrating the metering circuit. If a manual control mode is desired, this pot could have a push on/off switch to disable the preset circuitry.

Operation of the preset controller is extremely simple. To rotate the antenna to one of the preset directions simply select the appropriate reference voltage. The brake will release and the antenna will rotate to the preset direction and stop. At the end of the 5 second brake delay the brake will automatically re-engage. In the manual mode it is necessary to depress both the brake release switch and the desired rotation switch to start the antenna in motion. Once rotation is started the brake switch may be released. When the desired position is reached, simply release the rotation switch to stop the antenna. The brake will automatically hold off for 5 seconds and re-engage at the end of the delay period.

SPECIAL NOTE FOR MRRC MEMBERS:

I have a partial PC board layout done for this circuit but do not have access to photographic or board making facilities. If there is enough interest in this project I will be happy to make my artwork available to anyone who wants to come up with a PC board. I also have on hand a modest quantity of parts (with the exception of the switches) which I would consider putting into kits and selling to MRRC members at near my cost. Contact me at (513) 845-3331 after 7 PM or write me at 8115 S. Palmer Rd., New Carlisle Ohio 45344 for further details.

PARTS LIST

RESISTORS:

R1-R4 10K 5% 1/4W
R5, R6 1M 5% 1/4W
R7, R8 4.7K 5% 1/4W
R9, R11 47K 5% 1/4W
R10 330K 5% 1/4W
R12 120 Ohm 10% 1W
R13-Rx 10K 10% miniature carbon pot
(Option) 10K panel mount pot with switch (RS271-1715 &
271-1740)

CAPACITORS:

C1, C4-C8 .001uF/1KV disc ceramic
C2, C9 10uF/50V electrolytic
C3, C10, C11 .1uF/50V disc ceramic

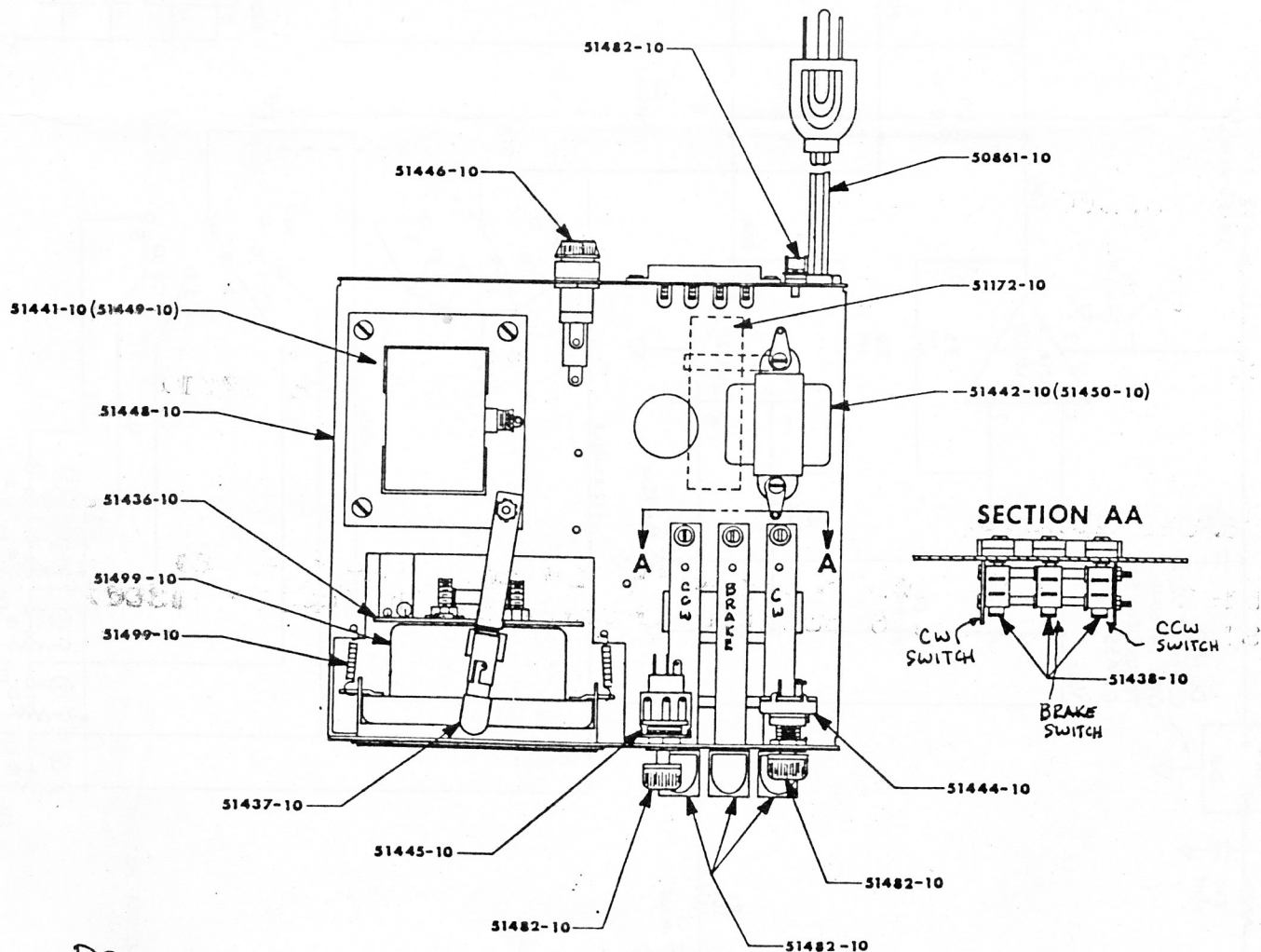
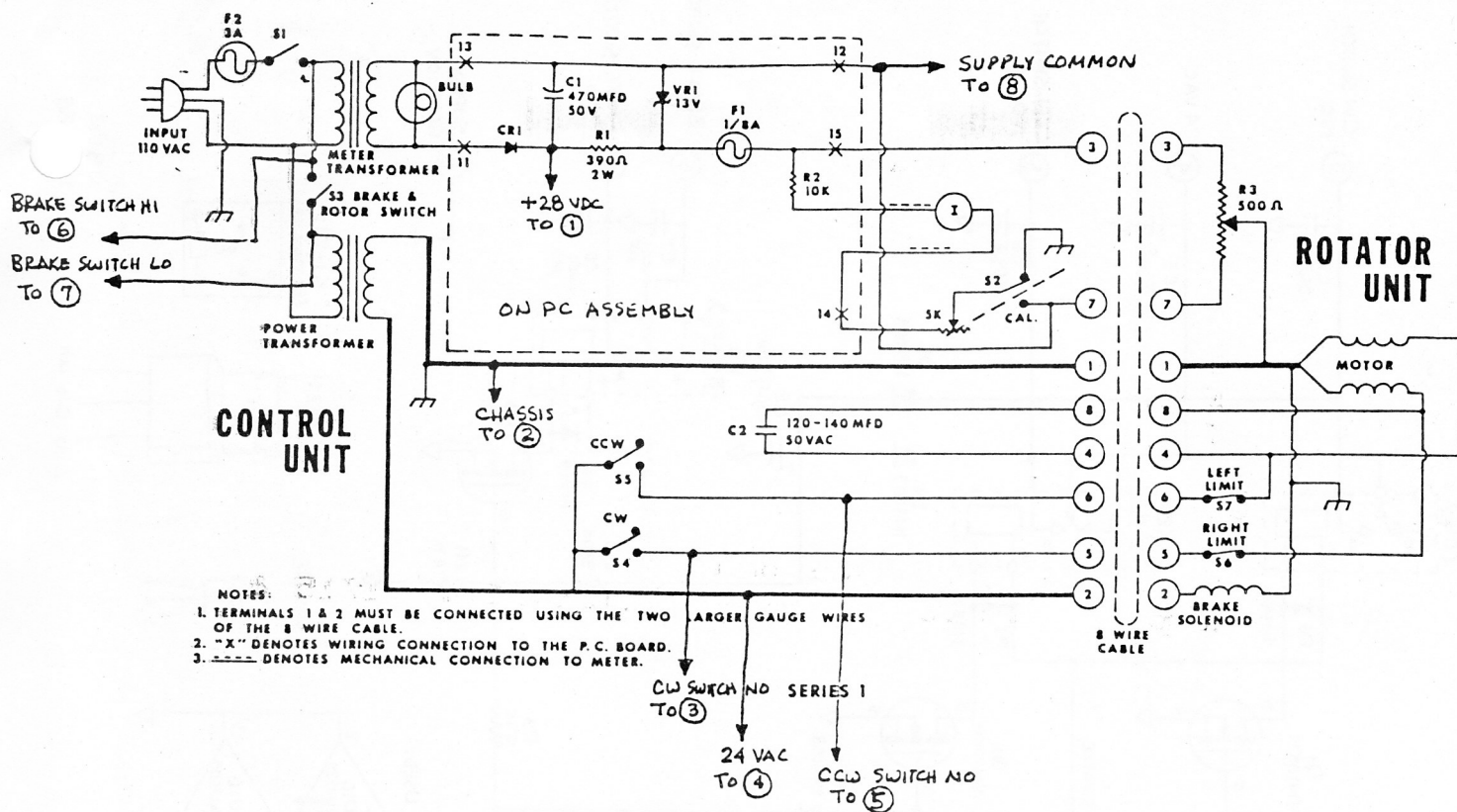
SEMICONDUCTORS:

D1, D6-D8 1N914
D2-D5 1N4003
Q1-Q3 VN10KM or BS170 VMOS (RS276-2074)
U1 LM339 quad comparator (RS276-1712)
U2 7812 12V positive regulator (RS276-1771)

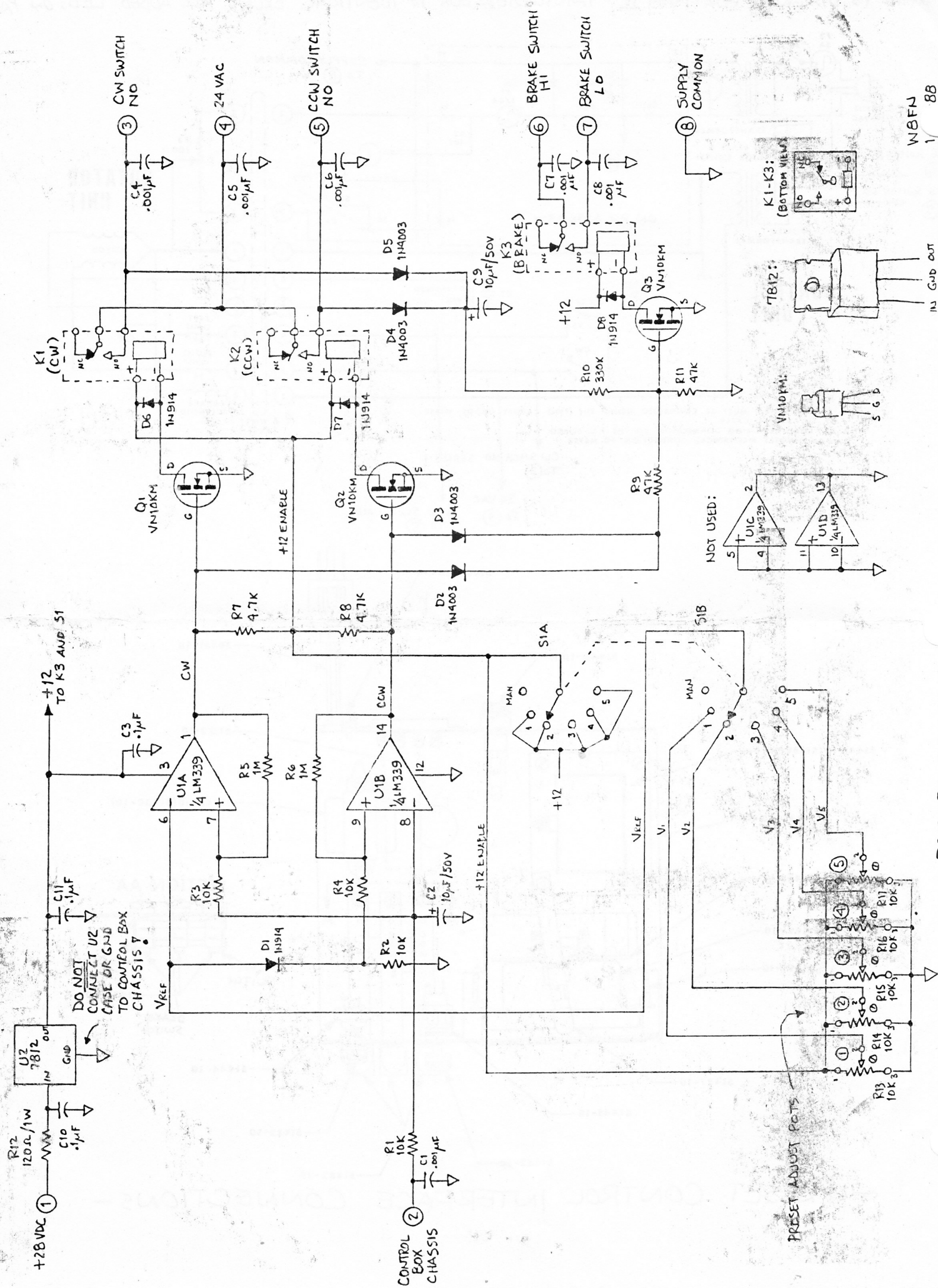
MISCELLANEOUS:

K1-K3 SPDT 10A relay with 12V coil (RS275-248)
S1 2 pole 6 position rotary switch (RS275-1386)

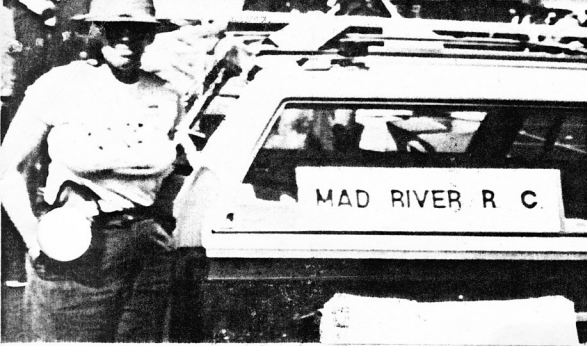
THIS IS DIAGRAM FOR HAM IV - TAILTWISTER BOX IS IDENTICAL EXCEPT FOR ADDED LEDs ON PANEL



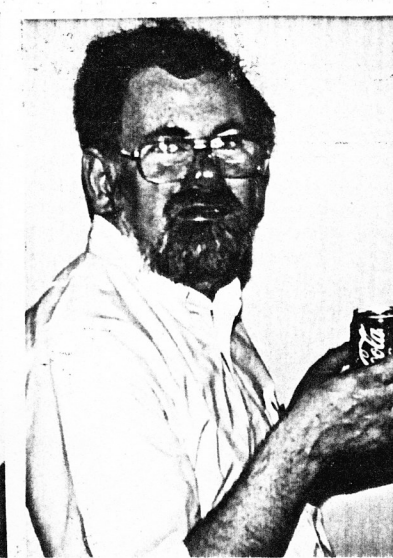
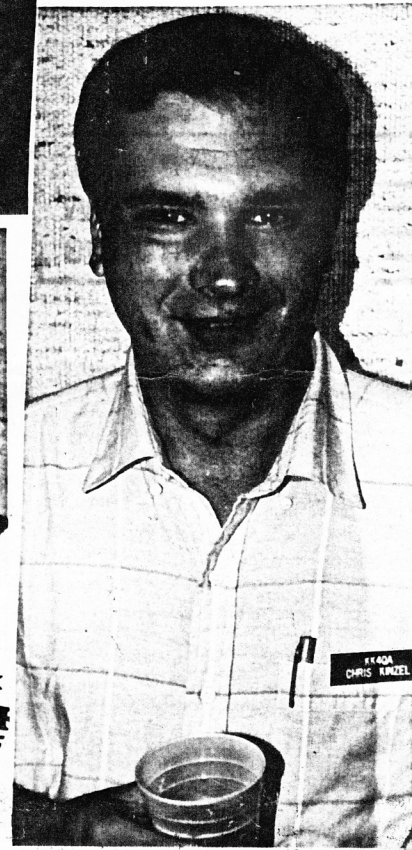
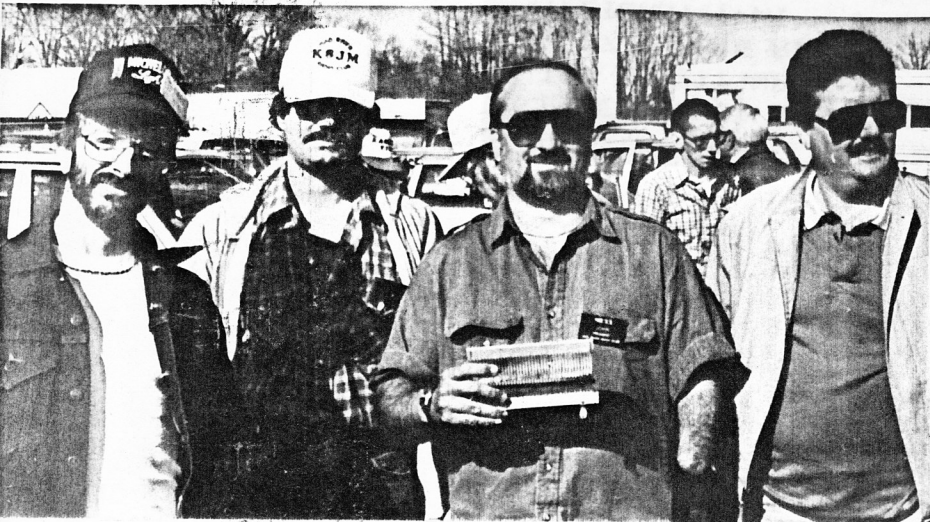
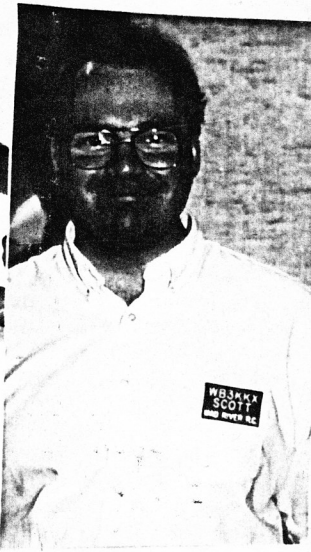
- PRESET CONTROL INTERFACE CONNECTIONS -



PRESET ROTOR COM. AL



Shot!
at
Dayton



DAVE PRUETT
TOM PRUETT WBBVMN
2727 HARRIS RD.
YPSILANTI, MI
48198
KBCC

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MULTIPLE
SCLEROSIS
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Bread Wagon 1880s

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PM
30 MAY
1988

LENAWEE COUNTY
ADRIAN, MI 49221
1600 WOLF CREEK HWY.