

# PAARAgraphs

Since 1937

Monthly Newsletter for the Palo Alto Amateur Radio Association, Inc.



## Calendar

December 1, 1995 PAARA Meeting

Menlo Park Recreation Center  
 700 Alma Street, Menlo Park 7:30-9:30 PM

December No PAARA Board Meeting

December 6, 1995 PAARA Holiday Banquet, 6 PM

check Monday night Net for details  
 (see page 2)

January 5, PAARA Meeting, 7:30

January 17, PAARA Board Meeting

Red Cross Bld. 400 Mitchell Ln., Palo Alto, 7:30 P.M.

February 2, PAARA Meeting, 7:30

February 17, PAARA Board Meeting



## Program

December 1, 1995

Speaker: ???

Speaker not confirmed at press time.

Listen in on PAARA Net,

Monday night, 8:30, 145.230-600 Mhz

**IT'S  
 ALL  
 YOURS!**



**DX** Remains spotty, some Central and South American stations are coming thru on 15 meters, but my sked with New Orleans is not working at all. 30 and 40 meter CW is very good in the early morning hours to Asia.

Some of you heard the very fine talk by **Dr Jim Maxwell, W6CF**, on "Why Morse Code?", and it gave some very fine reasons why we should all become more proficient on CW. CW is not dead yet. The mail ballots are out on the Northern CA DX Club possibly changing their by-laws and admitting hams who have zero countries confirmed. This will give a lot of hams the opportunity to see and hear how to work DX. More on this after the ballots are in and counted. 73

**Ron, W6VG**

## TREASURER REPORT

**Dave Bailey, WS6W**

Revenues	JULY	AUG	SEPT	OCT	TOTAL 1995
Dues	42	18	6	6	696
Flea Market	129.38	0	0	0	1931.38
AMPEX Auction	0	0	0	1628.06	1628.06
Advertisements	650				
<b>Total</b>	<b>821.38</b>	<b>18</b>	<b>6</b>	<b>1634.06</b>	<b>4905.44</b>
Expenditures	JULY	AUG	SEPT	OCT	TOTAL 1995
Stamps/Envelopes	0	0	32	0	128
DMV					43
State of CA					5
City of Menlo Park		150			300
Speaker's Dinner	7.03	26	12	0	80.03
Flea Market					1108.09
AMPEX Auction				194.69	194.69
Meeting Refresh		13.14	17.24	0	74.97
PAARAgraphs	324.53	300.24	312.27	440.64	1346.61
Picnic					160.37
Field Day	416.41		197.17		
Misc.	14	24.97	81.20	57.36	282.56
<b>Total</b>	<b>761.97</b>	<b>514.35</b>	<b>651.88</b>	<b>692.69</b>	<b>4123.55</b>

**Checking \$ 4,703.20**  
**Savings \$ 17,592.07**

## Miscellaneous Dates

**Flea Market at Foothill (6AM - 2PM)**  
(no Foothill Flea Markets until March '96)

**PAARA Palo Alto Amateur Radio Association**  
meets 1st Friday 7:30 each month, Net 145.230 each Monday 8:30,  
contact Jerry Tucker WA6LNV 415-961-3266.

**EMARC Electronics Museum Amateur Radio Club**  
Meets 4th Friday 7:30 each month,  
contact Sheldon Edelman 415-858-2176.

**NCDXC Northern California DX Club**  
Meets 2nd Friday each month, repeater for member info 147.360, each  
Thursday 8:00PM, contact John Troster W6ISQ 415-854-3939.

**NorCalQRP Northern California QRP Club**  
Meets 1st Sunday each month, contact Jim Cates 3241 Eastwood Rd.,  
Sacramento, CA 95821.

**Perham Foundation**, contact Sy Stein WA6ROM 408-734-4453

**SPECS Southern Peninsula Emergency Communication System**  
Meets each Monday 8:00PM on Net 145.27, 224.36, 440.80 Mhz+  
contact Mike Hastings KB6LCJ, 408-243-6745 or 408-249-6909.

**SCARES South County Amateur Radio Emergency Service**  
Meets 3rd Thursday 7:30 each month, San Carlos City Hall.  
Net is on 144.45 & 444.50 (PL-100) 7:30 Monday evenings.  
contact Dick Collins K6ANN 415-593-8952

**Disaster Services, Palo Alto Chapter, American Red Cross**  
Meets 3rd Wed. each month 7:30PM, HF, packet, BBS, ATV,  
OSCAR Gateway, NASA satellite,  
contact Ruth Claypool 415-688-0423.

**VE Exams**, 3rd Saturday each month, 11AM  
Ampex Cafeteria, 401 Broadway, R.C.

Silent Key

**WA6NIL**

James Lomasney

November 17, 1995

# DON'T MISS

the

## PAARA

### Holiday Banquet

and

### Officer Installation

**DECEMBER 6, 7:00 PM**

No host cocktails at 6 PM

"B" Street Restaurant

236 South B Street, San Mateo

**\$18 each**, pork roast, chicken, red snapper, veggie lasagna,  
includes tax, tip, & wine

Pay by check to PAARA,

⇒ Box 911, Menlo Park CA 94026 by Dec 1st.

Or

⇒ Bring payment to PAARA meeting Dec. 1.

♥ Guests Welcome ♥

## PAARAgaphs Ad Rates

PAARAgaphs accepts paid advertisements from non-members  
(short personal ads remain free for members in good standing).

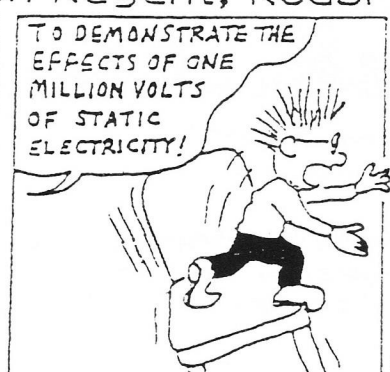
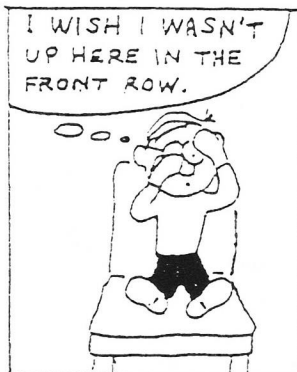
All ad rates listed are per issue only.

1. Not for profit ads by association members for ham-related items and wants. No cost for business card size ads (additional space at \$2.50 per business card size).
2. For Profit organizations and/or individuals: \$5-business card size, \$25-half page, \$50-full page or back cover.

These fees may be reduced or waived in exchange for a valuable consideration that is given to the Association or its general membership. Such consideration must be in addition to any existing arrangements with the association.

The PAARAgaphs editors reserve the right to reject any ad deemed to be not in the best interest of the Association. All fees are for "scanner-ready" copy or text-only ads.

ELMER



ARNS

by Rich Regent, K9GDF

**Palo Alto Amateur Radio Association, Inc.**  
**PO Box 911**  
**Menlo Park, CA 94026**

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 VP.....To Be Filled  
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Submit material for PAARAgaphs by the 15th



**Here & There**

**Forty Meter Verticals** see page 4,

(Smith chart for this system will be in a future issue)

The write up of the "Forty Meter Directional System" was for the use of the Field Day team back in 1980. Those were the years when no antenna system was too big for us, it seemed. As far as I know it was Terry's concept. And whenever it was set up it performed wonders for us. I can't help but think that it needs more attention, especially in these days of low band DXing. This is an original article by one of PAARA's own - Terry Conboy, N6RY, now living in Newcastle, WA,

(e-mail is [tconboy@uswnvg.com](mailto:tconboy@uswnvg.com)).

**Fred, K6YT**

<sup>1</sup> PAARA-Palo Alto Amateur Radio Association-P.O. Box 911, Menlo Park, California 94026-0911

Club meetings are on the first Friday of each month, 7:30pm at the Menlo Park Recreation Center, 700 Alma Street, Menlo Park, CA. • Radio NET every Monday evening, at 8:30pm, on the 145.230-600 repeater Mhz, PL tone off. • Membership in PAARA is \$6.00 per calendar year which includes a subscription to PAARAgaphs. • Make payment to the Palo Alto Amateur Radio Association.

Permission is hereby granted to reprint from this publication with appropriate source credit.

**SOS and MAYDAY**

Records indicate that a British vessel used radio as early as 1899 to summon aid. The first radio distress call came from an American vessel has been traced to 1905. But radio operator Jack Binns made headlines in 1909 when he stuck to his post on the stricken steamship Republic to send the distress signal then in use, "CQD". In 1912 the ill fated Titanic flashed the same call.

Before the turn of the century there was no special radiotelegraph call for emergencies at sea. One pioneer operator simply sent the letters "HELP" in code. In 1903, Italy suggested "SSSDDD" as an international radio emergency call. By 1904, a number of ships engaged in Atlantic trade were equipped with "wireless", as radio was then known, and they recruited land telegraph operators for sea duty. The operators resorted to the landline general call "CQ", meaning "attention all stations". In 1904, the Marconi company added the letter "D" to signal distress.

Meanwhile, German ships had been using "SOE", and in 1906 Germany recommended these letters as an international distress call. This combination was deemed unsatisfactory to radiotelegraphy because the final dot was often obliterated by static or other interference. The American delegation to international conference suggested "NC", which is the call for help in flag signaling. However, an international agreement was reached on "SOS", which became effective in 1906, though "CQD" continued to be used by British ships for some years thereafter.

For radiotelephone purposes, or voice transmission, the international distress call is "MAYDAY", which corresponds to the French phrase "m'aider" meaning "help me". It was adopted from a British proposal approved by an international convention in 1927. It has since been used by military as well as civilian ships and aircraft. In 1963, an international telecommunication conference agreed that the distress signals "SOS" and "MAYDAY" should also be used in space communication.

Hal, N6AN

Origin: FCC Info Bulletin 4/88 Source: DXPSN

# Forty Meter Directional System

Vertical antennas have proven to be effective performers for Field Day operation at our beautiful site at Ravenswood Point. This is due largely to the surrounding salt water and the lack of obstructions. In 1978, two verticals were used. The two quarter-wavelength "Q-sections" of 75 ohm line were used to step the base impedance of the antennas up to about 100 ohms to permit directly feeding the two antennas in-phase or 90 degrees out of phase. By adding a quarter-wavelength of 50 ohm line to the feed system of one of the antennas, a 90 degree phase lag is obtained and a heart-shaped pattern giving 3 dB gain in the direction of the lagging antenna is formed. With the two antennas fed through equal length feedlines, an egg-shaped pattern is generated with about 1 dB of gain broadside (bi-directional).

This arrangement proved very usable, but somewhat inconvenient when it came time to change patterns, since it was done by manual patching at the antennas. It was also found that although the cardioid pattern gave very good front-to-back ratio, the front-to-side ratio was only 3 dB. We all know how many stations there are in southern California that can QRM a contact with the Midwest. Since the line of the two verticals ran east-west, there was great rejection of KH6 stations!

For 1979, we decided to change the spacing of the two verticals to a half-wavelength. The line of the array still ran east-to-west. By feeding the two antennas in-phase, about 3.8 dB of gain to the north and to the south could be had with the pattern of Figure 1. Notice the wide nulls to the east and west. Also, by feeding the two verticals 180 degrees out-of-phase, 2.3 dB gain with Figure 2 can be had. Just for fun, a third phase angle was added. With a 90 degree phase difference between the two antennas, the pattern of Figure 3 is generated. The two lobes of the pattern give about 3 dB gain and the gain to the east or west is unity. By reversing the connection of the delay line, a mirror image of this pattern could also be created.

The feed arrangement of the verticals was also modified. The line feeding each radiator was changed to 50 ohms. Delay lines, also 50 ohms, could then be added at the common point of the feed system. In order to match the parallel impedance of the two antennas, a Wilkinson hybrid was used. This hybrid not only matches the two 5-ohm feeders to a single 50 ohm line going back to the transceiver, but also isolates the two antennas so they do not interact through the feed system. The Wilkinson hybrid was made out of two quarter-wavelength pieces of 75 ohm coax and five 10W non-inductive 500 ohm resistors in parallel.

Small DC relays with mercury-wetted contacts were used to switch the phasing lines in and out. With both lines out, the verticals were in-phase. With the half-wavelength line in, the antennas were 180 degrees out-of-phase. With the quarter-wave line in the circuit, the eastern antenna lags the western antenna by 90 degrees. With both of the phasing lines switched in, the western antenna lags by 90 degrees. The details of the relay switching and the Wilkinson hybrid are shown in Figure 4.

Being modest, this simple arrangement worked fantastically! The best results were produced by calling CQ/QRZ on the pattern of Figure 3. This gave good coverage of the US mainland and surprisingly, also tended to reject all of the foreign BC gunk so prevalent on the 40 meter phone band. When a station called, a quick turn of the switch controlling the relays allowed you to null QRM and/or peak up the station's signal while receiving. Because of the ease of pattern switching, you could even use a different pattern for transmitting and receiving under difficult situations.

I only wish there was room at my home to put up such an array on 80 meters. You get spoiled very quickly when using an electronically steerable directional antenna!

**Fred, K6YT**, our World Class Field Day Chairman, tells me that there is a third vertical available.

Hmmmm.....

de **Terry N6RY**

August 5, 1979

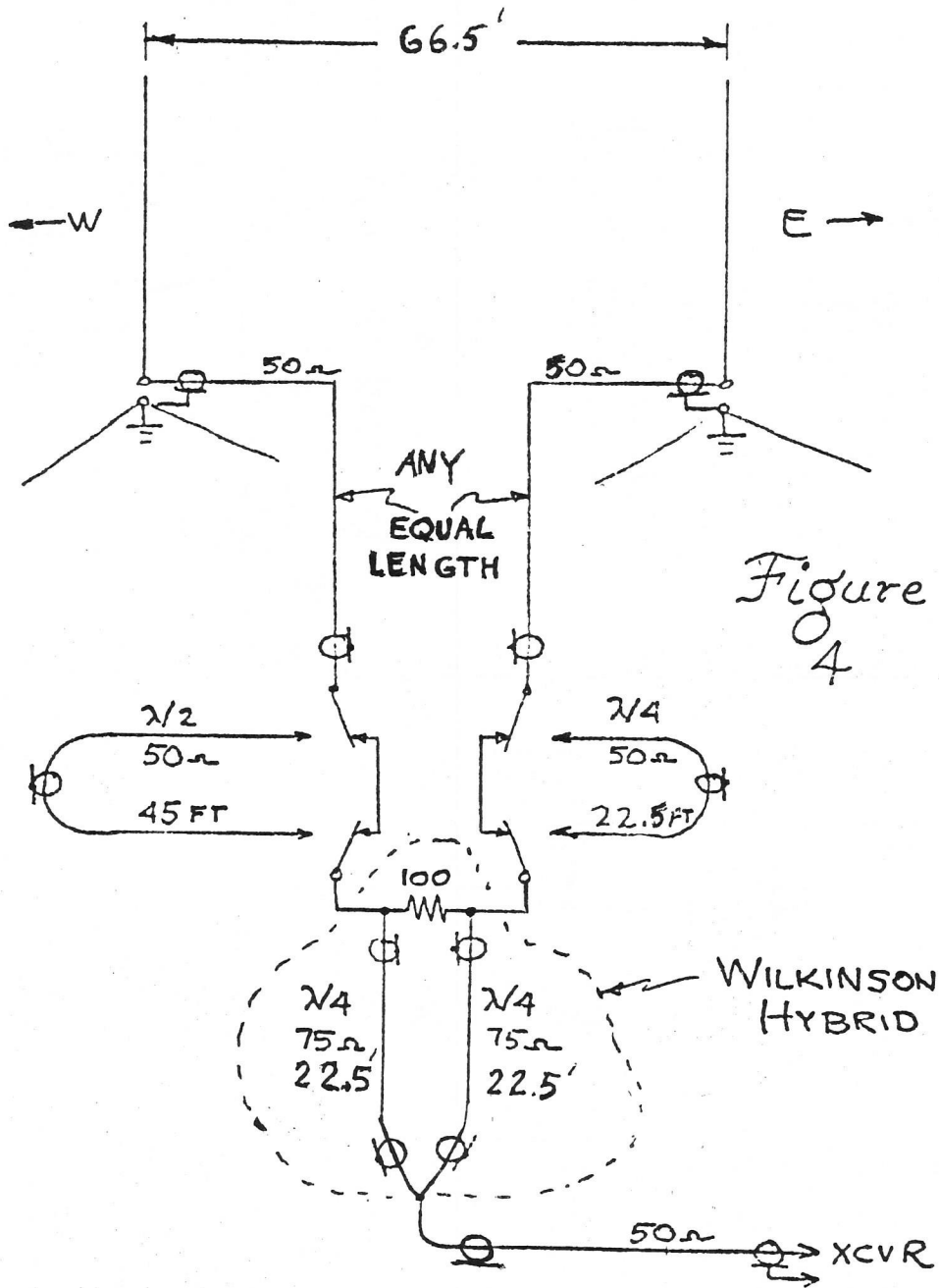
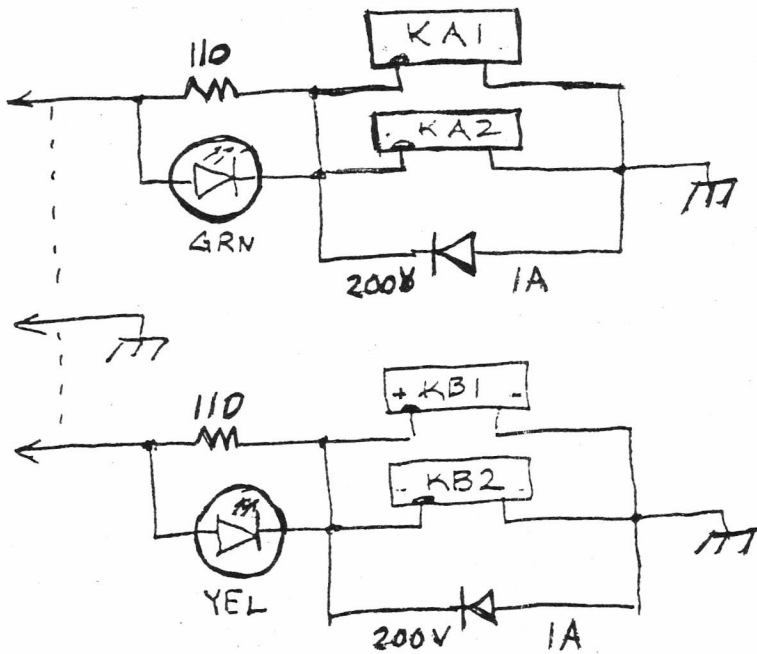
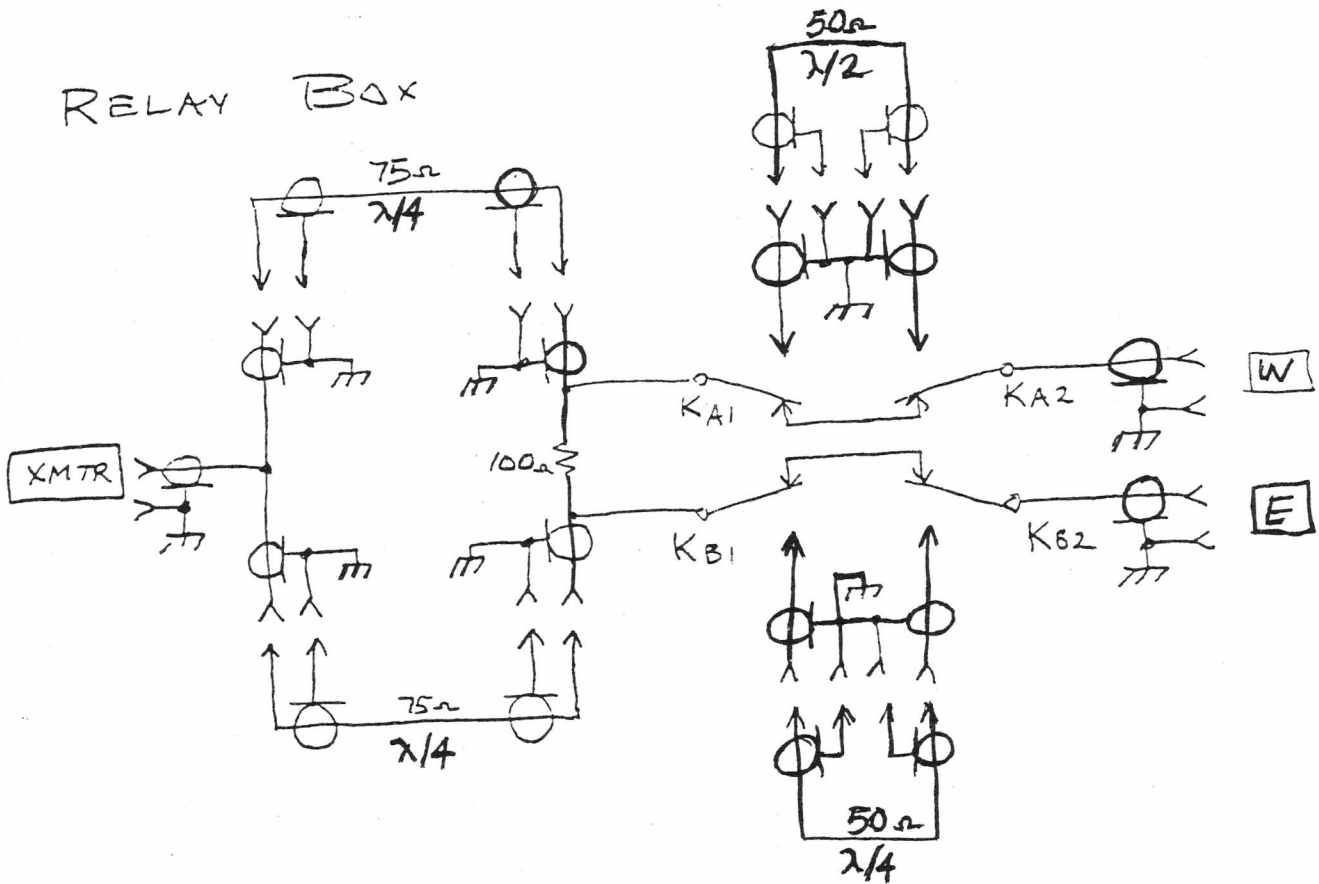


Figure 4

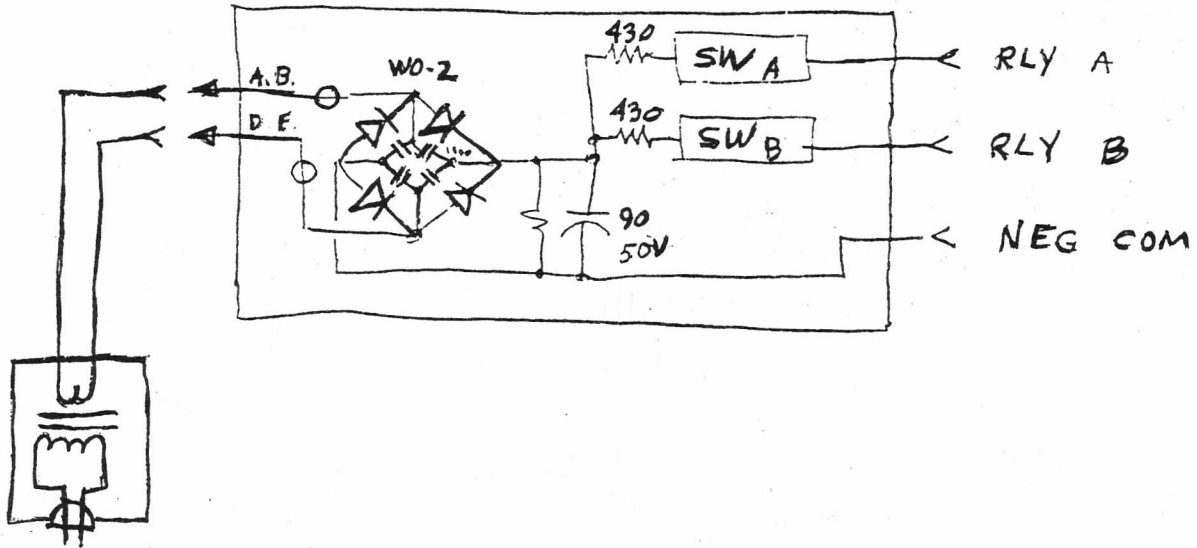


# RELAY BOX



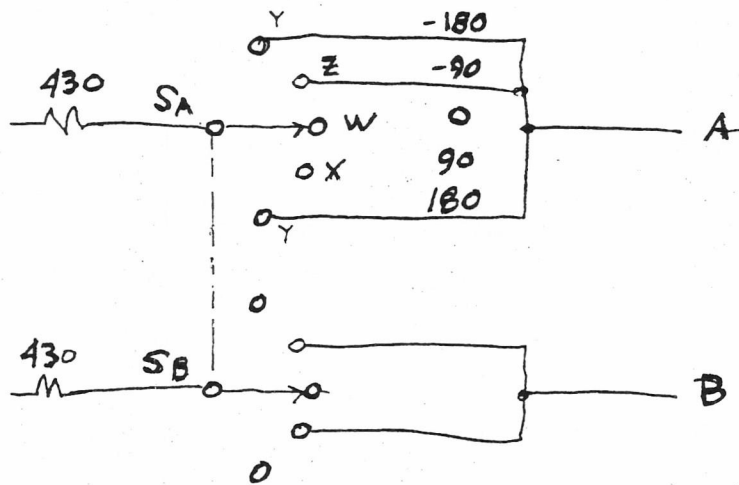
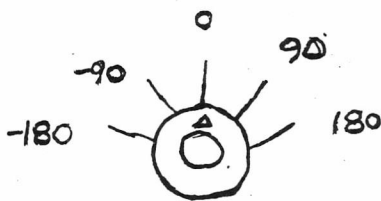
MERCURY RELAYS MUST OPERATE WITH BOX ON FLAT SURFACE ( $\pm 45^\circ$  MAX) TAC 6-9-80

# CONTROL BOX



A → 180° LINE RELAY  
 B → 90° LINE RELAY

A	B	DIR	∠A-B	
0	0	N-S	0°	W
0	1	NNE-SSE	90°	X
1	0	E-W	180° (-180)	Y
1	1	NNW-SSW	270° (-90)	Z



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**DECEMBER**

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**PAARAgaphs Newsletter**  
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