

SCOPE August 2008 ❄

A newsletter by and for the Palomar Amateur Radio Club of San Diego, CA, USA.

Club Meeting

6 August 7:30pm at the Carlsbad Safety Center

“Jerry Kostro presents Radio Mobile, a VHF/UHF predictive RF mapping program”

Repeater Site Work Party

10 August Meet at Mother’s Kitchen 10am

16 August Meet at Mother’s Kitchen 10am

Board Meeting

13 August 7:00pm at W6GNI QTH

PARC Annual Picnic

24 August at San Dieguito Park



President’s Letter

June was busy. July started busy, with a presentation from Andre Hansen, K6AH, on Digital Communications Techniques for Emergency Communications and then Red Flag Patrol on July 4th. July ended with a Repeater Technical Committee meeting, which is covered in this edition of the SCOPE.

Our August program will feature Jerry Kostro, AK6QJ, on “Radio Mobile”, a VHF/UHF predictive RF Mapping program, that has been used, with success, to predict good communications points for special events.

Looking down the Road:

August is looking pretty busy and September may be, as well. RACES will be hosting one more “Wild-Land Fire Safety Training” on August 11th at 6:00pm. Contact Gerry Sandford at gerry.sandford@sdsheriff.org for location and RSVP. The PARC Picnic is August 24th at San Dieguito Park. Ham Radio Round-up will be in September. Keep an eye out for details.

We have a number of brand-new hams in the area and there will be a Get-On-The-Air Seminar on the morning of August 23rd. A venue will be determined by the time this reaches you. We need your help with one-one one mentoring for part of this event. In

particular, we would like plenty of people to demonstrate basic programming of radios. If you are able to help, contact me at ad6vi@cox.net.

Hope to see you all on August 6th, at the Carlsbad Safety Center

Steve Early,
President, Palomar Amateur Radio Club

Radio Club Resources

Check out these great local radio clubs on the web at the following addresses.

<http://www.fallbrookarc.org/>

<http://www.sddxc.org/>

<http://www.earsclub.org/>

<http://roars.net/>

<http://www.wa6bgs.org/>

<http://n6six.50megs.com/>

Show And Tell

PARC welcomes members to bring items to the meetings for a "show and tell". These items could be projects in progress or completed old and/or restored equipment, short items of interest, or unusual items, and happens 5-10 minutes prior to the evening's presentation.

Contact Dennis KD6TUJ at (760)802-2573 or email at KD6TUJ@amsat.org to coordinate.

Membership Report

New Members Joining PARC: G4WKW, KI6RRQ, W6CDU.

And 16 members reinstated their membership.
And, W6BGK sent \$100 for 5 years! Thanks!!

If you are reading this on the web site because you didn't get a SCOPE in the mail - how about joining, or rejoining PARC? The club needs the support of many hams to keep Palomar Mountain repeating back what goes up there!

Our membership is still dropping. Bring a friend, and let's sign them up. Maybe too much internet/cell phone competition? But, there are many aspects to ham radio, new ones every year. The digital modes are really neat! How many other hobbies can brag about having their own satellites up?

As a reminder, in accordance with the by-laws, the year for participation points is August 1 through July 31. So, the points for attending the August 6th, 2008 club meeting will be starting points for year 2009. The fold and staple crew will get their points added in 2008, since this newsletter was prepared and mailed before July 31st.

Al
W6GNI

Fold & Staple Report

July Issue Fold & Staple Crew

KB6NMK Jo, W6GNI Al, WA5ACE Sonny, K2RP Ron

We could use one or two more on the list of Fold & Staple folks. Stop by the membership table and volunteer. A social work exercise, and get a participation point too.

Licensing and Class Information

Register 5-7 days in advance for the following test sessions.

PARC Testing is in Carlsbad on the 2nd Saturday of the month at 9:30am at the Carlsbad Safety Center.

<http://www.kiloxray.com/vec/>

Test sessions may be cancelled if no one pre-registers.

EARS Testing is in Escondido on the last Saturday of the month at 9:00 am at the LDS Church.

The address is 1917 East Washington Avenue, Escondido , 92025.

Contact Harry W6YOO (760) 743-4212 or W6YOO@amsat.org.

Novice History Website

Cliff Cheng, PhD, WW6CC and now recently assigned AC6C has a website that strives to preserve and present the stories and biographies of hams who held novice licenses from 1951 to 2000.

I am sure there are hams you all may recognize who have contributed to the site and Cliff is looking for more stories of your Novice experience.

I know that in 1963 when I took my Novice exam at my local high school, it seemed a real challenge to learn the morse code and theory, even though the test was multiple guess by then, I really had learned to draw every schematic and try to understand how circuits worked ! Enjoy and add your Novice license story here if you ever held that grade license.

<http://novice.bappy.com/index.html>

73, Dennis Vernacchia N6KI
ex - WN2JDW - May, 1963 - NNJ

July Meeting Goodie Givers

KK6BO Ed

KG6RCW Tom

K0CDV Sue

Thank you for making our meetings so sweet!

Ham4Less.com

1(800) 230-04581(760) 945-9503

call us—we may have it!

Arrow Antennas

Hustler Antennas

Opek Antennas

Gordon West books

Workman Products

Anderson Powerpoles

SPECIAL:

New G5RV Antenna

(57 ft total length)

\$ 44.0

Minutes

Palomar Amateur Radio Club

Board of Directors Meeting

July 9th 2008

The meeting was called to order at 7:04 PM by President Steve Early AD6VI. The meeting was held at the home of Al Donlevy W6GNI. Present at the meeting were:

President Steve Early AD6VI

Vice-President Dennis Baca KD6TUI

Secretary Loren Hunt AD6ZJ

Director #1 Tom Martin KG6RCW

Membership Al Donlevy W6GNI

Director #2 Paul Williamson KB5MU via Land Line
Scope Editor Michelle Thompson W5NYV via Land Line

Repeater Site Mike Pennington K6MRP

Guest Conrad Lara KG6JEI, Field Day Chair

Guest John Kuivinen, WB6IQS, Field Day Safety officer

Guest Wild Bill WB6BFG, Field day 15M, 40M band captain

Treasurer's Report

Steve AD6VI distributed the report. Total Assets are \$15,269.67. The prepaid dues are \$6,198.00.

A motion to accept the report was made by Dennis KD6TUI and seconded by Tom KG6RCW. Motion was carried.

Secretary's Report

Loren AD6ZJ presented the Secretary's report. A motion to accept the report was made by Tom KG6RCW and seconded by Mike K6MRP. Motion was carried.

Discussion Items

1. Field Day Lessons Learned

- Check out equipment before field day. Avoid using new untested equipment.
- Set all rotors to North before field day.
- Search for field day site and find by January.
- The field day email reflector worked but needs to get started earlier.
- A message board should be added to the PARC website to disseminate field day data.
- There is no excuse for not having every station on the air by 11:00 AM whatever it takes.

-Greeters and information specialists need to be available during the operation.

-GOTA needs to be on the air Friday night and available at all times for our guests to get on the air.

-No raising of towers after dark. No exceptions.

-Have "plan B" wire antennas ready to go for all bands

-Any tower being used must be in good mechanical condition. Rust bucket towers should be sold for scrap and replaced.

-Plan on a work party in March to test and tune antennas

-The PARC General meeting topic for July should be Field day follow up

-Check early for field day theme so every station can make an effort to emphasize the theme.

-Band pass filters need to be fully tested and ready to go by May

2. Technical committee meeting – Open to all BOD members

-Will be held at the home of Art KC6UQH on Sunday, July 27th

-Will be planning repairs, upgrades, control operators and other repeater site details.

General Meeting: August topic: Radio Mobile presented by Jerry AK6QJ.

Membership Report: Presented by Al W6GNI
Current club membership is 364.

Repeater Site Report: Presented by Mike K6MRP

-Painting of the towers is still awaiting a painter.

-The camper shell is still on site. We need to ask if the buyer still wants it

-Next work party will be Sunday August 10th.

-The documenting of the repeater site layout has begun.

-The installation of a replacement 730 machine by Art KC6UQH has improved performance.

-New Electrical conduit is still being routed to the various buildings.

-Paul KB5MU and Dennis KD6TUI installed the vent in Building #2

-The old battery building needs careful dis-assembly

OLD Business:

1) Retention of first year members – what are we offering to keep members? More presentations geared towards new hams, more classes

2) Pay-Pal for website donations – No progress

continued on page 4

continued from page 3

3) PALBBS – Need to replace batteries – Wild Bill WB6BFG will check on availability of replacements

New Business:

- 1) PARC Picnic – San Dieguito Park – 24th August – Tom KG6RCW will reserve the site.
- 2) Any interest in Lifetime memberships for the club?
- 3) Need to get more members involved in learning the technical side of ham radio.
- 4) Field day donations amounted to \$90.00

Place of next Board Meeting: Home of Al Donlevy W6GNI

Motion to adjourn made by Tom KG6RCW and seconded by Mike K6MRP. Motion carried.

Palomar Mountain Amateur Radio Club Technical Committee Meeting Minutes

recorded by Michelle W5NYV

27 July 2008

11:06 start time

6m Repeater

6m repeater problems were brought up by David Doan KC6YSO in an email sent to the board.

When it was built, it was thought that ARES would use it. ARES has had several turnovers since then, and it is not listed in their most recent communications plan. N6PIG was designated control operator for this machine.

Advantages to 6m propagation include a terrain-hugging aspect, which, in theory, should allow a greater range than 2m. It has never been realized, however, in practice. As David Doan KC6YSO mentioned in his email, antenna durability has been a challenge. Possibly using a $\frac{3}{4}$ wave antenna turned upside down and captured on the bottom was proposed as a solution. It doesn't have to be $\frac{1}{4}$ wave off the TOWER, not off the ground, in order to get (most of) the desired directionality. But with close spacing, the impedance starts to change. A mitigation for that is to use a folded dipole element. Then you can get back the gain by using two of them. Someone needs to get innovative, make a model, and see if it works.

Action Item: David Doan KC6YSO and Bill Bennett N6PIG to look into power problems with 6m repeaters.

David Doan KC6YSO is unable to monitor this repeater with any consistency, but is interested in helping.

Packet Repeaters

John Kuivinen WB6IQS volunteered to continue being the RF technician on the packet repeaters.

Action Item: Dean Jacobson W6DBJ, volunteered to take on more responsibility with this system. This included becoming control operator for the packet systems.

Bill Bennett N6PIG asked "Are we are a little island of packet and not connected to the rest of the world?" Dean Jacobson W6DBJ described the packet topography in San Diego as "insular." Paul Williamson KB5MU said that we had "No outbound connectivity (from San Diego) at this time." There is a packet node available. There is interest in gaining a connection north-south to re-establish a link to Los Angeles.

John Kuivinen WB6IQS is making a standing offer – complete service monitor (Cushman CE6) that covers all of our frequencies. As long as someone wants to pick up the pieces it's a donation to the club and keep it at their house. It might not last on the hill.

146.700

John Kuivinen WB6IQS built this and is the technician for it. Dean says it "works great". Dean says he would like to learn how to maintain it.

145.05

John Kuivinen WB6IQS remains technician and provides some maintenance.

146.730

Art McBride KC6UQH announced he is looking for someone to take this repeater over as technician. The repeater was recently swapped out. The current radio is a mobile Micor that has been modified (solid state switching). It's standalone with its own controller. This was a spare tx/rx because there were parts in it that

continued on page 5

continued from page 4

failed, including audio squelch. Art McBride KC6UQH put in a new final. It doesn't have the original Micor mobile finals. This radio originally came from Long Beach Police Department. Controller board was placed in an external box. The system is powered from a 20A Astron supply. The original 73 is under repair. Control Operators Mike K6MRP, Art McBride KC6UQH, John Kuivinen WB6IQS as a backup.

The question of how often a repeater must be monitored was asked by David Doan KC6YSO. The answer from Paul Williamson KB5MU is that it is considered under automatic control, unless it has autopatch. Or, as Art McBride KC6UQH added, unless the FCC changes your automatic control status, on a case by case basis, if there has been a complaint or problem or there exists a particular situation.

David Doan KC6YSO asked about whether or not we are going to keep our PL tone on or off. There was some interference, but it was coming from inside the repeater cabinet. When the repeater was recently swapped out, the interference went away. It is a useful and positive thing to have one repeater in town that is open and doesn't have a PL tone. All of our voice repeaters generate the PL and send it out.

Paul Williamson KB5MU brought up complaints from the membership about the long ID'er. This would require a change to the EPROM. We don't have to have a long ID if we don't want to. Voice ID has been talked about, but remains controversial.

Action Item: Reducing the length of the ID'er was remanded to the board for consideration.

147.075

Art McBride KC6UQH as technician but would be happy to pass it on. This is a GE repeater with our controller card in it. Repeater belongs to MARA. Mike K6MRP, Art McBride KC6UQH, John Kuivinen WB6IQS as a backup for control operators. Loren offered to be assistant technician for 147.075 along with Bill Brooks KG6VVP.

David Doan KC6YSO recommends that the delay timers, that include a relay, should be taken out because they are no longer necessary.

147.130

This repeater is the same type radio as the 146.700. It's a Motorola base station type. John Kuivinen WB6IQS would like to be backup technician for this box as well as the 146.700. Bob Wickord, W6RHW built this one up.

Packet backbone link

John Kuivinen WB6IQS handling RF side of this system. Brian WB6CYT and Paul Williamson KB5MU originally developed this system. They circumvented the audio filter to modify it. It works but there is nobody for it to talk to now. Dean Jacobson W6DBJ asked if we could use this as a packet node? Paul Williamson KB5MU answered that it was possible but not encouraged. The original idea was that it was a backbone, that user terminals would not use this frequency. It would have different access frequencies. Our system is working, however all other nodes seem to be down. PAL BBS is another Metronet node. This is valuable in terms of emergency communications. Bill WB6DGR is off the air. He had a Metronet connection. There were three or four at the most, ever. We have been completely successful in not having very many backbone nodes. Another node on some other mountain would be nice. The old 220 backbone that went into Riverside has been off the air for years. It sounds like there might need to be a study on what to do with the packet system in San Diego County. Is SANDRA interested in putting packet gear back on the air? Is packet worth the effort? 145.010 node on Otay.

Action Item: Michelle W5NYV and Dean Jacobson W6DBJ will do a study on what to do and whether to do it.

447.000

Desense on 447.000 has been reported. Probably needs a separate 9v regulator. When you come up it takes less signal to bring it up. After about 10 seconds it takes more signal to hold it.

Action Item: Technicians Art McBride KC6UQH, Loren, Bill Brooks KG6VVP to investigate and repair.

Mike Pennington K6MRP, Art McBride KC6UQH, John Kuivinen WB6IQS as a backup for control operators.

continued on page 7

Club Classified Advertisements

Personal equipment ads are free to members and could be bumped after 3 months. Make up your ad like the ones on this page and send to
SCOPE@PALOMARARC.ORG.

Commercial ads in big boxes: \$2/col. inch/month. We will squash your ad copy to the number of inches bought.

(7.28) Hi-quad by Higain. New in the box except partially assembled at field day 2008. New and never used but about 25-30 years old. Don Johnson (760) 613-5154 WD6FWE. Make me an offer. Proceeds to be used to get new field day antenna.

(7.28) Kenwood TS830S complete 6 piece station, collector quality. Call for details. Swan 350-needs work. Heil Mike and stand-perfect in original box. 12 V DC to 110VAC inverter. 400W continuous, 800W intermittent. New in box. Above items from estate of Rod, AC6V. AEA MM3 Morse Machine. Like new. Ultimate memory keyer, trainer, simulator. \$225. Ron K2RP 760 436 8109 K2RP@ARRL.NET

(6.8) Wanted: Cushcraft R7 vertical multiband antenna for HF use. Contact Mickey 760-744-2034 or mickeykc@juno.com.

(5.1) Complete 5-watt portable 20- meter QRP CW station. Oak Hill Research OHR-100A professionally wired and aligned. Built-in Iambic keyer, battery supply. Custom "Old Timer" wood case with calibrated vernier dial. Complete with field kit with mini-keys, 20 meter "Gusher" dipole and many accessories. Like new condition

**PRICE REDUCED to \$100.
Kirt KK7QT (760) 994-0127**



continued from page 5

Some discussion of the control boards followed. Example control boards were showed around. See page 10 for a diagram of a repeater control board.

1241.25 ATV repeater

The link was removed on the Santiago site because someone needed it for one of their repeaters on Mt. Wilson. Therefore, we are no longer linked to ATN. We were not informed. We may not want to be involved in the future. We may want to become involved with the METS (Microwave Experimenters TV System). Bill Smith originally built the ATV system. There is no documentation for it.

New Projects

John Kuivinen WB6IQS has offered the club an LCD display NTSC/PAL with two cameras with pan and tilt and electric "doorbell", SDRAM card. It saves pictures. It has a PIR motion sensors and can starts recording upon detection of motion. If someone wants to pick this up as a project, then this would be a good headstart. Art McBride KC6UQH recommends dome camera for durability.

Action Item: Conrad Lara KG6JEI interested in heading up the towercam effort.

Lunch 12:00pm-1:00pm.

Art McBride KC6UQH has a VHS tape from 1996 of Stan giving a tour of the site.

METCON Battery Monitor

Where are we, what are we doing with it, does it work? It is not hooked up to the 48volt. It needs some adjustment in order to make it work with the new batteries. Input to the voltmeter and power to the voltage to frequency converter have a common negative terminal. You need a small 12v floating power supply to power the voltage to frequency converter. It needs something like a wall wart.

Action Item: Loren Hunt AD6ZJ might have a wall wart that would work.

However, Mike Pennington K6MRP says that there is going to be a voltage converter from 48 to 12 volts (floating). Floating power supply avoids ground loops. Regulated 12v 1A wall warts would be ok. Loren

Hunt AD6ZJ to provide two wall warts to Mike Pennington K6MRP so he could have them on hand. Plug it into the inverter. Or 48-to-12 volt, or 12v-to-12v converter.

Something needs to be done to provide power for the METCON Battery Monitor in order for it to work with the new battery system. Michelle W5NYV asked was there any interest in starting up a project to design a new battery monitoring system?

Action Item: David Doan KC6YSO to write specification based on Mike Pennington K6MRP's requirements.

PAL BBS offsite BBS system linked via 146.700

Action Item: Paul Williamson KB5MU and Dean Jacobson W6DBJ and John Kuivinen WB6IQS will get together and repair this system. Dean Jacobson W6DBJ is willing to be control operator as well. John Kuivinen WB6IQS is willing to be technician.

Control receiver and preamp.

Control receivers (2) were built up years ago. There is another box with 80s technology that John Kuivinen WB6IQS put together DTMF decoder with hardwired sequencer. This controlled autopatch and still controls digital repeaters (05, 439, 700) through an on/off relay controller. You could selectively turn things off, but when you wanted to turn things back on, everything was turned back on. It was a reset function. The control box in the packet building is a slave to the control rx in the main repeater shed. Audio from the main control rx is distributed to both buildings and decoded locally.

Documentation

Documentation has been requested and the reason for this was explained. Documentation improves management of the site and allows club members to more easily participate and experiment at the site.

Action Item: Michelle W5NYV and Bill Brooks KG6VVP to continue to work on documentation.

Equipment Assignment per Inverter

Assignment of equipment per inverter was proposed. The strategy could be having two tiers of priority, and the two tiers being assigned to the two inverters. Or,

continued on page 9

PARC and PARC Affiliated Repeaters

Frequency	Tx	Tone	Call Sign	Remarks
52.680	–	107.2	W6NWG	
146.730	–	107.2	W6NWG	See note 1
147.075	+	107.2	W6NWG	
147.130	+	107.2	W6NWG	
447.000	–	107.2	W6NWG	
224.380	–	107.2	KK6KD	Americas Unidos
224.900	–	107.2	WD6HFR	Convair/220 ARC
224.940	–	107.2	KK6KD	Sharp Hospital Coverage
446.140	–	123.0	WB6FMT	Vista
146.175	+	107.2	N6FQ	Fallbrook ARC; linked to 445.600
445.600	–	107.2	N6FQ	Fallbrook ARC; linked to 146.175
145.050	(s)	None	W6NWG-1	Packet node; linked to Metro 9600 net
146.700	–	None	W6NWG-4	Packet duplex repeater; Duplex; PALBBS use OK

PARC also conducts the following ATV (amateur fast-scan television) operations:

ATV in: 915 MHz WBFM, 2441.5 MHz WBFM

Intercom: 146.415 MHz NBFM simplex (tone 79.7)

ATV out: 1241.25 MHz AM

Regular Nets Sponsored by PARC

Day	Time	Frequency	Name	Manager
T/Th/Sa	2000	146.730	NTS Traffic Net	Marvin KD6YJB KD6YJB@arrl.net
Sunday	0830	146.730	ARES Net	Jo Ashley KB6NMK@amsat.org
Sunday	1900	147.130	Handi-Hams	Marcia De Runtz KG6FIX
Sunday	2045	147.075	MARA	Glenn Jones KG6JDF@amsat.org
Monday	1915	146.730	RACES Sub-net	
Monday	2100	146.730	Microwave Net	Kerry B.
Tuesday	1900	147.130	Red Cross Net	Ted tthompdson@sdarc.org
Tuesday	2100	146.730	Off-Road Net	Dick Wilimek KA7AYTrwilimek@cox.net
Thursday	2000	147.075	SATERN	tomcarmody@cox.net
Thursday	2100	146.730	Ham Help Net	Lin Robertson kj6ef@amsat.org
Friday	2100	146.730	Hiker's Net	Ed KF6DXX@juno.com

Board of Directors Contact Information

President - Steve Early	AD6VI	619-461-2818 ad6vi@amsat.org
Vice President - Dennis Baca	KD6TUJ	
Secretary - Loren Hunt	AD6ZJ	
Treasurer - Bob Birch	KG6RGI	
Director - Paul Williamson	KB5MU	858-571-8585 kb5mu@amsat.org
Director - Tom Martin	KG6RCW	
Scope Editor - Michelle Thompson	W5NYV	858-229-3399 w5nyv@amsat.org
Repeater Site - Mike Pennington	K6MRP	760-749-8888 k6mrp@amsat.org
Repeater Tech - Mike Pennington	K6MRP	760-749-8888 k6mrp@amsat.org
Membership - Al Donlevy	W6GNI	760-630-3096 w6gni@amsat.org

¹ The 146.730 repeater transmits a CTCSS tone of 107.2, but does not usually require any tone for access. When necessary, an access tone of 107.2 can be enabled.

continued from page 7

assign everything to each inverter, depending on how loaded down the inverter would end up being. Inverters may be more efficient when they are fully loaded.

Open Question: What are the priorities of the equipment? What emergency groups, if any, will have or already have priority?

David Doan KC6YSO asked about efficiencies of the inverters. Mike Pennington K6MRP estimates in the 80s. Inverters are on standby while on commercial power. They come on within 50mS. They are only on when we lose commercial power. David Doan KC6YSO asked about the generator and the transfer switch. This means that either commercial or generator power is provided to inverter. This means that the batteries cannot be charged off the generator.

Open Question: How long do the batteries last? About 2 weeks? Can we test this?

The chargers are ferroresonant and draw about 10A a piece. The generator sources 18.8A at 240. Charger input is sensitive to frequency drift, so connecting current chargers to a generator might not be a good idea.

Action Item: Paul Williamson KB5MU to establish a Control Operators mailing list where control operators post updates about control actions. This list includes all the technicians for each repeater, and is intended to coordinate and inform.

Mike Pennington K6MRP gave an explanation of the blown breaker for the failed fan that caused a power failure at the site.

Does ARES still rely upon the 220 repeater for any use?

Action Item: 220 question remanded to board.

Mike Pennington K6MRP and Michelle W5NYV discussed cleanup, painting the buildings, and painting the tower.

New Projects

New battery monitoring system. Straw man requirements by David Doan KC6YSO.

Some way of physically shutting off the repeaters could

be designed and built as well as a remote start system for the current generator.

Future use of the frequencies coordinated for the retired autopatch. We have coordinated duplex frequencies 420 430. We could run something on these frequencies.

Action Item: Michelle W5NYV to find out how they are coordinated.

Action Item: Michelle W5NYV to find out about coordination for 919.25 VSB (AM) and 927. Someone had planned to do something with these at some time, possibly a digital repeater for users. A bunch of old Motorola equipment coming out of service was originally intended to be set up for this pair.

Power management

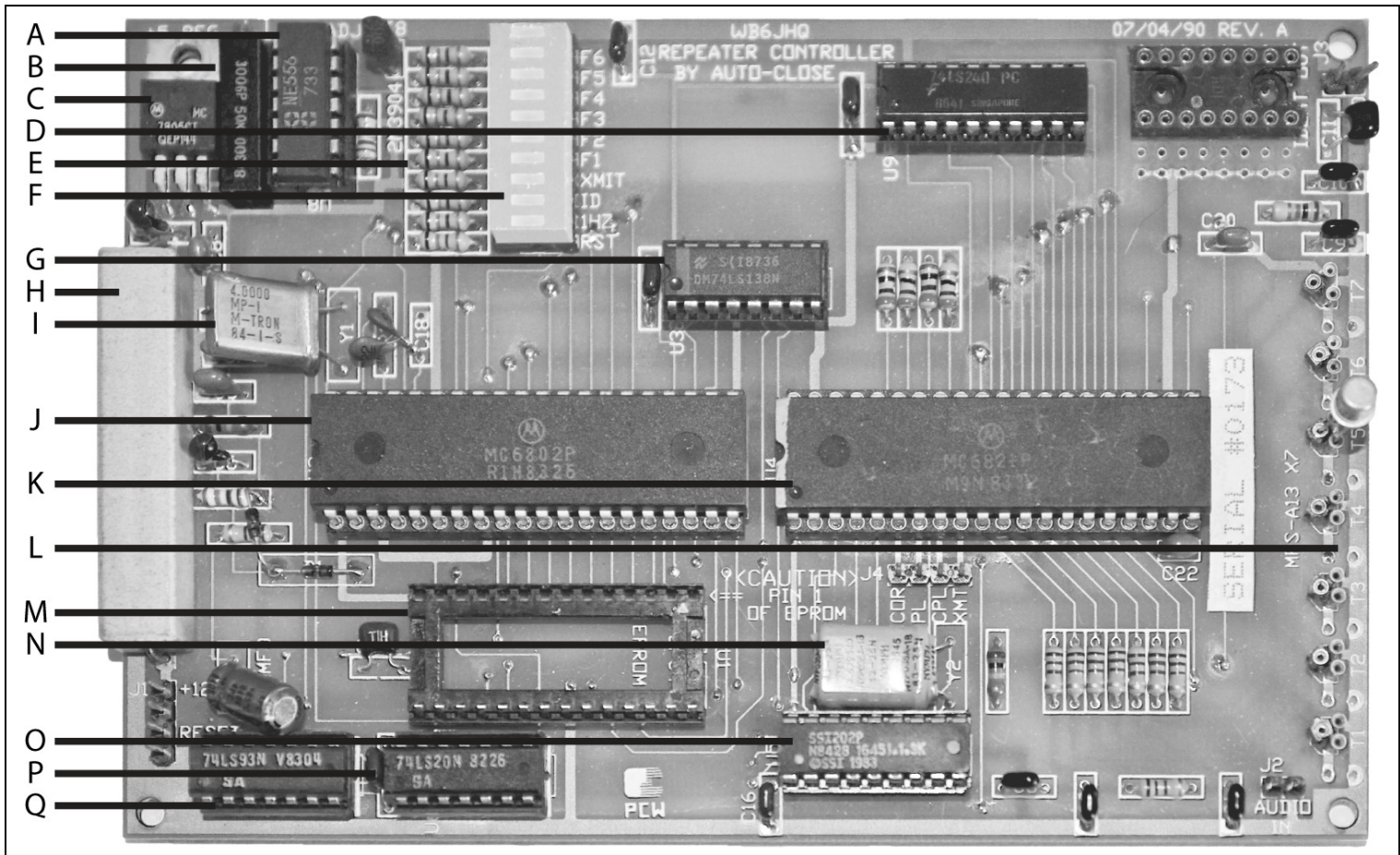
Don Johnson WD6FWE will take this project on. There is a need for more switching converters for the repeaters that don't currently have switching power supplies. Requirements for power supplies 1) reliable 17A (12.6 -13.8V) 2) quiet 3) comparable to the Astron SS18.

John Kuivinen WB6IQS has a large sized box of coax cable connectors. 7/8 1/2 and lightning arrestor items. John Kuivinen WB6IQS suggested that the club consider paying for gas for people that make regular trips to the mountain to work at the repeater site.

John Kuivinen WB6IQS asked if the connectors he bought are working out ok. They are according to Mike Pennington K6MRP reports that we are doing well so far with the supply. John Kuivinen WB6IQS will make more upon request. These connectors consist of AT standard female reverse polarity connectors and are being used for the emergency power system.

Open Question: Are we going to go into the freezer building with the inverted power or not?

Meeting ended at 3:00pm



Here is one of the WB6JHQ repeater controller circuit boards that we use on the Palomar Mountain repeaters.

- A. An NE556 dual timer circuit, which I imagine generates the Morse code identification tone (in one timer) and code speed (in the other timer).
- B. A 50k ohm trim potentiometer, which is probably part of the NE556 circuit and allows for adjustment of the code speed or pitch.
- C. A 7805 three-terminal voltage regulator takes the supply voltage of nominally 12 volts DC and drops it down to the +5 volts required by the circuitry.
- D. A 74LS240 octal buffer/driver drives eight of the status LEDs.
- E. Ten resistors limit current to the ten status LEDs.
- F. Array of ten status LEDs.
- G. A 74LS138 address decoder.
- H. A big honking power resistor to help the voltage regulator dissipate the difference between the +12V input supply and the +5V regulated voltage.
- I. 4.000 MHz crystal for the microcontroller's built-in clock generator.
- J. MC6802 microcontroller. That's a MC6800 with a built-in clock generator and a whopping 128 bytes of internal RAM. This chip design dates from 1977.
- K. An MC6821 peripheral interface adapter adds two 8-bit output ports and four interrupt inputs to the microcontroller.
- L. Sockets for 7 output transistor drivers. Only one transistor is installed on this board.
- M. The EPROM containing the microcontroller's firmware goes here. All the default operational parameters for the repeater, such as the repeater's callsign, have to be burned into the EPROM before installation.
- N. 3.579 MHz crystal for the DTMF (touch-tone) decoder.
- O. SSI202 DTMF decoder chip listens to the audio from the common control receiver, decodes the touchtones it hears, and sends them as serial characters to the microcontroller.
- P. A 74LS20 dual 4-input NAND gate.
- Q. A 74LS93 dual 4-bit counter.

The IC socket in the upper right was added in the small prototyping area on the circuit board. It's used as a connector to facilitate getting all the required signals in and out of the board.

Paul Williamson KB5MU



Complete inventory for servicing amateur
and commercial communications equipment

RF POWER TRANSISTORS — TUBES — POWER MODULES

Diodes • Relays • Trimmers • Capacitors • Heatsinks
Transformers • Chokes • Combiners • Wattmeters • Books

3-500ZG • 811a • 572B • 4-400a • 6146B • 8072 • 8560AS

3CX400A7 • 3CX1200A7/D7/Z7 • 3CX1500A7 • 3CX3000A7

4CX250B • 4CX250R • 4CX400A • 4CX800A • 4CX1500B

Merit W6NQ • Gary K6CAQ • Steve K6NDG • Rob WA6GYG • Doug K6DRA

760-744-0700

www.rfparts.com • orders@rfparts.com



IMPULSE Electronics

(760) 747-5277 — (866) 747-5277

www.impulseelectronics.com

**Your Connection for
Emergency Power Solutions**

Power Products

Power Pole Connectors — Power Cables — Tools
AGM Batteries — Red/Black Zip Cord 14 — 8 GA

West Mountain Products

RIGrunner — RIGblaster — Accessories
PWRgates — Computerized Battery Analyzer
Coax Cable — Coax Assemblies — Adapters
Terminals — Coax Connectors — Battery
Chargers — Battery Accessories
Email sales@impulseelectronics.com

NiCd Lady Company

Grace Lloyd

N6WPA

grace@nicdlady.com

www.nicdlady.com

Custom Assembly • Rebuilds • Batteries

• **Lead Acids • Replacement Packs**

20585 Camino Del Sol • Unit B

Riverside, CA 92508

800/906-6423

951/653-8868

Fax 951/653-5189

Your Complete Battery Source

PALOMAR ENGINEERS

Box 462222, Escondido, CA 92046

TOROID CORES

Palomar stocks a wide variety of cores and beads. Our RFI Tip Sheet is free on request.

Our RFI kit keeps RF out of your telephones, TVs, stereo, etc. **Model RFI-4**
\$25 +tax+\$8 to ship.

BALUN KITS

Ferrites slip over coax. Shrink tubing holds them in place. Works from 3.5-60 MHz (Use two kits for 160m).

Model BA-58 (for RG58, RG8X & similar cables up to 1/4" dia. \$8.50+tax+\$8 S&H/order

Model BA-8 (for RG-8, RG-213, 9913 and similar cables up to 1/2" dia. \$16.50+tax+\$8 S&H/order.

TUNER-TUNER

Tune your tuner without transmitting. Save that rig! Just listen to the Tuner-Tuner's noise with your receiver. Adjust your tuner for a null and presto! You have a 1:1 SWR. **Model PT-340 \$99.95+tax+\$8 S&H**

See catalog at www.Palomar-Engineers.com

Please check our complete ads in **QST**, **CQ**, and **World Radio** magazines.

**Please consider our advertisers
when you're shopping.**

**Let them know that you heard
about their business from the
SCOPE.**

HAM RADIO OUTLET

Tom KM6K
Jose XE2SJB
Jerry N5MCJ

KENWOOD
rf CONCEPTS
DIAMOND
US TOWERS
KANTRONICS
YAESU, MFJ, ICOM
BENCHER, Inc.
HUSTLER
COMET
AMERITRON

Astron,
AEA,
OUTBACKER
Larsen Antennas
TEN-TEC
Hy-gain, Tri-EX,
Cushcraft And Others
too
Numerous to
Mention!

Drop in to see our display of working equipment. Find out about Pkt location determining equipment (APRS). Check our complete line of magazines, ARRL books, license manuals, and Bulletin Board with all sorts of Goodies listed.

Open: 10a.m. — 5:30p.m.
Monday thru Saturday
858 560-4900
or toll free 1-800-854-6046

*Ask about our
great prices*

Directions: On 163, take **Clairemont Mesa Blvd.** off ramp to East. Stay in right-hand lane. Turn right at stoplight. As you are turning right you can see our beams in this shopping center. Travel 100 yds. On Kearny Villa Rd. and U-turn back to shopping area and HRO sign. Be sure to see our equipment in action on **real** antennas!

SCOPE
P.O. BOX 73
VISTA, CA 92085-0073

PERIODICALS
US POSTAGE
PAID
AT VISTA CA
92085-9998

Address service requested

Scope (USPS #076530) is published monthly by the Palomar Amateur Radio Club 1651 Mesa Verde Drive, Vista, CA 92084. POSTMASTER: Send address changes to SCOPE, P.O. Box 73, Vista, CA 92085. Periodicals postage paid at Vista, CA 92084. Dues are \$20 per year or \$35 per year for a family. Dues include a subscription to Scope. Editor: Michelle Thompson W5NYV.

Submissions: scope@palomararc.org
Questions? Ideas? Comments? W6NWG@amsat.org

This month's General Meeting will be held on 6 August, 2008 (The first Wednesday of each month) at the Carlsbad Safety Center. This month the program features Jerry Kostro talking about Radio Mobile. Talk-in on 146.730 MHz repeater. Technical Committee meeting starts at 19:00. General meeting starts at 19:30 but show up at 19:00 for setup and visiting beforehand. Ridesharing and coordinating for dinner beforehand often occurs on the repeater on Wednesday afternoons. Everyone is welcome! The Palomar Amateur Radio Club serves the Amateur Radio community of San Diego County California with repeaters located on Palomar Mountain. The club has monthly meetings, Field Day festivities, an annual auction, and many other fun and interesting functions. All are welcome at our club meetings and on-the-air interactive radio nets which now feature discussion groups on hiking, microwave, off-roading, as well as traditional message traffic and emergency communications nets (RACES - ARES - MARA). 73 and hope to CU you on the air! –NN3V (past president of PARC)