



Cathay Newsletter June 2006

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Cathay Amateur Radio Club is basically an active social club of Ham Radio Operators and their spouses.

Monday Night Net Time: 9PM PST Frequency: 146.67MHz -600KHz PL85.4 and 442.70 +5MHz PL 173.8 The repeaters are linked. The Monday night net is the best way to find out the latest club news. All check-ins are welcome

President's Message

Greetings to all,

For those who were unlucky and unable to attend, here are some of the highlights of the Cathay Spring Meeting at Harry's Hofbrau. Any member who volunteers to chair an event that requires an admission or similar fee will have that fee paid by the club. For example, since Joe *W6DOB* is chairperson for the 2007 Banquet, Joe will not have to pay for his Banquet ticket.

Any member who is on active duty for the US military will have their Cathay dues waived as long as they are on active duty. We are still looking for volunteer chair people for the Picnic and the Field Trip. If you would like to volunteer, please remember that it would be best to choose a place or event that attracts as many people as possible. If there are multiple choices, the membership will vote. Feel free to contact me if you would like to chair an event or participate on a committee.

To sum it up, it seemed to me that all who shared in the gathering had a good time. I know I did.

Looking forward to seeing you next time,
Tony Halog, KR6EG

From the Editor:

We had 20 members attend the April Meeting. George W6BUR, finally after 16 years, won the Grand Prize. He chose the VHF Motorola GM300, a 16 channel 25 watt mobile. His comment was that it was worth the wait to win a “real radio” than to have another radio that would get overload at his QTH in the Oakland Hills. See the pictures below of the luncheon . Thanks to Howard N6MNV for the pictures.

April 8th Meeting in Redwood City



President Tony Halog KR6EG talking to the members.



Dave NE5EE and his wife Diana KG6IOH.



Lloyd KD6FJI winning his first prize with the club.



Bill Hardy KF6VOG with his 3rd pair of FRS radios.



George was shocked when he had the winning ticket after 16 years with the club. Just don't tell Hetty how much tickets he has bought over the years. Finally when the club offers a "real radio" aka. Motorola GM300, George wins it. George just didn't need another Icom or Yaesu.

Field Day at George's House

Mark your calendar's. George and Hetty again have graciously offered their house for Field Day. This site is ideal since it is the location of the W6BUR repeater. Bring a pot luck dish and share it with a fellow colleague. Ask anyone that has gone to this event and they will tell the food is superb. It's a FREE event. Here are the directions:

Field Day Saturday June 24th

Place: 13310 Skyline Blvd. Oakland CA

Phone: 510-638-6955

Time: 10 AM to 3PM

Food arrangement: potluck

Cost to members and non members: FREE!!

DIRECTIONS:

FROM THE BAY BRIDGE OR EMERYVILLE:

Take #580E towards Hayward, exit on Keller Avenue, go uphill at Keller to dead end on Skyline, go North (left turn) onto Skyline Blvd for 1.75 miles....look for multiple mail boxes, turn right without passing the mail boxes up the private road. The number is 13310.....We will be monitoring the 146.67 box.

FROM THE SOUTH:

Take #580W to KELLER AVENUE OFF RAMP and take the Easy Way's direction.

If you have not been to George and Hetty's house, you have missed one of the greatest Field Day sites around. It is perched at the peak of Skyline Blvd. in the Oakland Hills. Bring your portable radios, portable set ups, Elecrafts K-2's and whatever else you have. I love this event because I get to try out all the radios I don't have. I also get to try out some great food. Better than any

buffet in town. Guaranteed!! I will bring my Motorola Service Monitor and Agilent 8591E spectrum analyzer to check out your radios. Of course, bring the great food and shoot the breeze. I will show off my HT220 and hopefully recruit more members to the HT220 club. This year I got my laptop loaded with all the Motorola software and I also purchased the programming cables. So if you bring your Motorola radio, I will program it for free (typically a \$50 value)

For the raffle, we will have some great choices. The board has decided that we will offer one of THREE, yes THREE grand prizes. The choices will be a UHF Motorola GM300 16 channel 25 watt mobile, a 17 inch LCD monitor, and a Yaesu FT1802 200 channel 50 watt mobile. The Yaesu is featured in this month's QST. The winner will get to choose one of the grand prizes. If we sell enough tickets to cover a second Grand Prize, then the second winner will choose the second prize and so forth. So if we only sell enough tickets for one Grand prize, the remaining prizes will be left for the annual picnic. If you cannot make the event (such as you are in Southern California or attend another club's Field Day), you can still buy a raffle ticket. Just email me (edison_fong@hotmail.com) and I will give you the details. It's time to get rid of that old clunker CRT and replace it with a thin, bright, energy saving, LCD monitor. The winner will finally get back the room you lost on your desk when your computer took it over 15 years ago. If you already have an LCD monitor then you probably don't have a commercial quality UHF radio (you know, the kind the police and firemen use). That would be a great choice. If you have been using that weak signal 2 watt handie talkie and trying to get into the Monday Night net, then maybe the Yaesu FT1802 is a good choice. There will be about a dozen other smaller prizes such as a SW radio, toolsets, flashlights, etc. Raffle tickets are \$5 each.

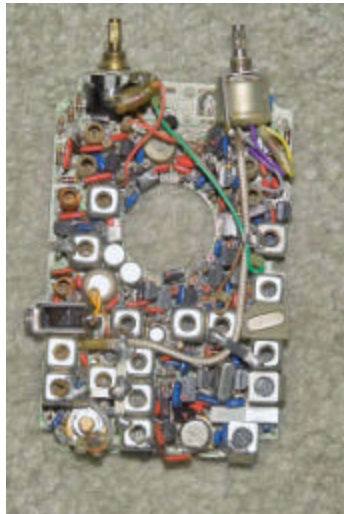


The winner during Field Day 2006 will get a choice of a Yaesu FT1802 which is the latest and greatest 2 meter 50 watt mobile from Yaesu or a professional UHF Motorola GM300 16 channel 25 watt mobile. If you already have these, then how about a 17 inch LCD monitor?

The Motorola HT220 Installment II *By Edison Fong WB6IQN*

This is the second installment of this series on the Motorola HT220. This month we will cover various models of this tiny gem. Well at least 35 years ago, it was considered tiny. Today, it would be considered too large by many.

The heart of the HT220 is the radio itself. The radio was designed with a double sided PC board which was state of the art at that time. The norm was single sided at the time. Combined on one highly compact board was the dual conversion receiver and a 1.8 watt transmitter. This was quite a marvel since in 1969, vacuum tubes were still being used. The board itself is about 2¼ x 3½ inches and about ½ inch thick as shown in Figure 1. As can be seen, it is quite packed. It uses two custom bipolar IC's when most people didn't even know what an IC was. The parts layout was at least twice as compact as the state of the art pocket size transistor radios of day. The limits for this radio were only left to the imagination.



1. The heart of the HT220 measuring 2 1/2 x 3 1/2 inches.

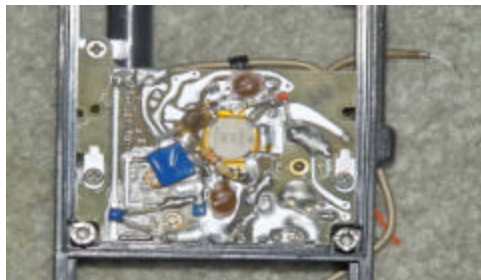


2. 6 channel version of the HT220. It uses an extra piggyback board for the extra channels and is about twice as thick as the slimline.

Last month we introduced the basic unit which was called the slimline and was limited to 2 channels and contained to one main board. With this proven chassis, Motorola decided to build an entire family of radios with various types of features to suit the needs for the incredible demand for two way portable radios. The most common request was for more channels. This was rather difficult since IC synthesizers had not been invented. They just could not fit anymore crystals into the small main chassis. The solution was to piggyback an additional board. This made the unit almost twice as thick. In the version shown in Figure 2, 6 channels were available. Another request was for higher power. It was found that 1.8 watts often was not adequate. Again, Motorola made a breakthrough and managed to fit a 5 watt amplifier inside the extended back. They developed their own VHF and UHF power transistors in Tucson, Az. By 1970, they introduced the 5 watt version of the radio. A photo of innovative amplifier is shown in Figure 3. In total, they managed to

stuff 6 channels with PL and a 5 watt amplifier. Although this radio was big, it was still one half the size of the previous HT200.

Another request from users was the addition of a DTMF touch tone pad. Motorola designed a special DTMF front version shown in Figure 4. Quite large by today's standards, but back in the 1970's it was the only choice in town. A fully loaded radio with 6 channels, PL, 5 watts and touch tone pad was well over \$2000 and that was back in the 70's. That would be over \$5000 in today's money.



3. 5 watt piggyback amplifier.



4. Fully loaded 6 channel 5 watt version with PL and touch tone pad.

Now going to the other extreme was a request from the Secret Service and other government agencies to make a radio as small as possible; and I mean small for 1970's. What they had in mind was something even smaller than the original HT220. Motorola choose not to design another radio considering all the effort that went into the HT220. Instead, the same team decided to design a smaller battery for the HT220 and attach it to the back of the chassis as opposed to the bottom. It was given the nomenclature HT100. This made the radio $\frac{1}{2}$ the height of the slimline but about $\frac{3}{8}$ inch thicker. A picture of this radio is shown in Figure 5. The HT100 was available in a two channel model with PL transmit only. But the batteries were still not advanced enough to support 1.8 watts even with the efficient HT220 transmitter. The slimline battery at the time was 200mah. With the transmitter drawing about 300ma, the radio only could transmit for about 45 continuous minutes. The new piggyback battery had only a capacity of 70mah. Because of this lost in capacity, leaving on the final power amplifier was not practical. It would only transmit for about 15 minutes. Motorola decided that the HT100 could only use the HT220 driver stage as the final RF amplifier. This reduced the current drain to about 120ma on transmit but only with about 150mW output.

Stay tune for the next issue where we will continue more on the various models. In particular, the HT220 copy cats and the HT210 which was Motorola's answer to the competition.



5. The HT100 was clearly the smallest with a custom made piggyback 70maH nicad battery.

You might be prepared, but are you ready? *By Tony Halog KR6EG*

Some people noticed and some people didn't, but the middle of April was quite hectic here in San Francisco with all the different events commemorating the centennial anniversary of the 1906 earthquake. Numerous organizations, public and private, called attention to the remembrance from varying perspectives. There was the annual gathering at Lotta's Fountain, where some of the remaining survivors shared their memories of that time in their lives. The San Francisco Fire Department held a three-day exposition, featuring displays of fire-fighting equipment and techniques to the crowds. There were many Safety Fairs and exhibits around the city, including a presentation of Amateur Radio in Emergencies at the Exploratorium. All of this was done to remind people about what happened one hundred years ago, and hopefully, to prompt us to prepare and be ready to take care of ourselves in an emergency.

Why am I raising this topic now? Well, why not? Hurricane Katrina comes to mind. Something momentous can happen in a matter of moments that drastically changes thousands of lives. Are you (and your family) prepared? Sure, you say, I've got plenty of water. I know I can get water out of the water heater. I have water stored in the garage. I have food stored and I rotate it periodically. I'm an Amateur Radio Operator! I have backup power. My family has a plan to meet if we are apart when an event occurs, etc., etc.

Power outages happen all the time. Most of the time it doesn't affect us. Say, when's the last time you changed your flashlight batteries? Or even tried to turn the flashlight on? No problem, you say, it worked the last time I tried it. Do you remember when that was?

Almost everyone should know by now that my wife Connie KF6WEA and I are heavily involved in Emergency Communications. But I didn't want to belabor the importance of communications to a radio club. We should know all about what to do when pressing the PTT, right? So I wanted to write a little bit about everyday life, because it includes people, not just radio operators. And I have come to meet and make many friends in Cathay. So you folks are not just voices coming out of a box to me, you are people and you are my friends. I have come to care for many of you because of the friendships we have developed over the years. So I ask you: Are you ready? If the big earthquake happens tomorrow, or tonight, or five minutes from now, Are your ready?

Only you can answer that question. I hope all of you are ready.

vy 73

Tony Halog

KR6EG

President, Cathay ARC