



SANDERSON FIELD

R.C. NEWS Happy New Year Pylon Race Jan. 6th



CHARTER NO. 3079

CLUB MEETING

*This months meeting will be held
on Thursday January 10th at 7:00
p.m.*

at PUD #3

At 3rd & Cota

The Christmas party was a success, thanks to everyone who came and brought all the great food. There was one person on the ball and got some pictures, thanks Gordon Barrett Jr. The pictures are on page 2. Also thanks to Dick Robb for reading the gift exchange story.

The new lease was signed on the 18th, we couldn't get any changes that would let us pay less, in fact the lease is **exactly** the same as last year. The didn't even do their customary 7% increase as they have every year since I've been in the club. I'm pretty sure we won't be able to count on that one.

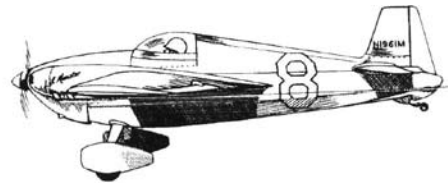
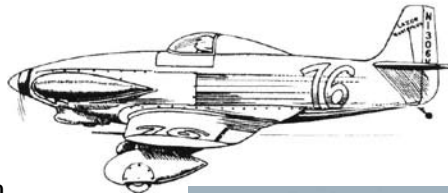
We will be changing the lock and keys again on the 1st this year. If you've already renewed, I'll mail or otherwise get you a new one. Burt Daggett and I are planning on flying the morning of the 1st, If you can drag yourself out in the January weather it would

be a good time to get the new key. If you are renewing by mail, please send the old key with your check and proof of AMA membership and Chuck will send a key back with your card. Don't forget the self-addressed STAMPED envelope please.

*If you are not renewing
your membership we would greatly
appreciate it if you could send your
key back to us.*

NW Model Hobby Expo

The Expo will be held at the Monroe fair grounds again this year on February 9th and 10th. Tickets are \$7 Saturday \$5 Sunday or \$10 for both days. They're holding the Event in one building this year and supposedly have more room for the swap meet.



Look at this incredible picture taken by a German aviation Photographer. A Lufthansa 747-400 and a United 757-200 are on a simultaneous landing approach on the parallel runways 28L and 28R at SFO. Real runway separation is only 225 meters.

Christmas Party photos



RADIO FACTS

By James Goss

Most of us in the RC hobby has seen how the radio equipment has changed over the years. Some may even remember the vacuum tube systems used in the fifties. Since the solid state RC radio equipment came out using analog modulation, not much has changed until the mid 80's. Up until then we had standard AM, amplitude modulation, and FM, frequency modulation, as a means of modulating the RF cw signal. It is said that FM receivers will pick up less noise than AM receivers. RF noise can come from anything that produces an electromagnetic or electrostatic field, such as lightning, high voltage power lines, or the metal to metal contact of two metals rubbing each other on your airplane. Noise of this type has amplitude, which is another way of saying it has a voltage value, and will react with an AM receiver more than an FM receiver. As an example, if you were flying your airplane with an AM receiver and there was lightning nearby you may get a glitch, which means your airplane does some aerobatics on its own. For the purpose of this article a glitch will be defined as a sudden loss of your normal signal. Another example of noise can be heard on your regular AM radio in your car or home. During a lightning storm you will hear all kinds of popping on AM, but minimum noise on the FM radio.

Modulation of the transmitted signal can be broken down into

two main types, analog and digital. With analog pulse modulation, some characteristic of the pulse such as height or width will be changed in proportion to the original signal. AM uses height change and FM uses width change, also known as pulse width modulation.

In digital pulse modulation, a binary code is generated. The way this works is as follows: An analog voltage signal is generated when you move the transmitter sticks. The sticks are connected to pots, short for potentiometers, which are variable resistors. When the control sticks are moved, the center tap on the pots will have a new DC voltage. This voltage is sampled and its binary equivalent is generated. The RF carrier is then changed according to this voltage signal. All modulation systems will sample the information voltage to be transmitted, but they all have different ways of indicating the sampled amplitude.

The two new forms of modulation in use today for radio control systems are the Pulse-Coded Modulation, PCM, and Pulse-Position Modulation, PPM. This gives us a total of four systems, AM, FM, PPM, and PCM. This could be confusing to a new comer to our hobby.

In pulse position modulation the original signal is first pulse width modulated, then differentiated, and clipped. All this means is that you end up with a very narrow pulse width or spike that is either negative or positive going in polarity. These pulses vary their position on

a reference line and is in reference to the zero signal pulse position. The pulse will either lead or lag the reference pulse. The amount of lead or lag is in proportion to the original signal above or below its reference line. Thus the name pulse position modulation.

This is still analog modulation because some form of the pulse is changed.

Pulse coded modulation is a form of digital pulse modulation and is the major type of digital modulation in use today. PCM converts the amplitude of the original signal into its binary equivalent. Binary is a simple base two number system in which a one represents a high and a zero represents a low. Either on or off is the whole format for digital electronics. This binary equivalent represents the approximate amplitude of the original signal generated by the control sticks. When you move the control sticks through their complete range you will generate many different unique binary codes, one for each input sampling point of the original signal.

Time sharing of the carrier signal is used to place all your radio's channels in operation. Be it a three, four, six, or eight channel radio. The carrier signal is the signal that is generated by the transmitters master oscillator. If you have channel 22 for example, the oscillator will be running at 72.230 MHz. This is determined by the crystal you plug into your transmitter. It would have 72.3 MHz marked on the crystal. By the way, crystals have no polarity, you can plug them in either way. Even if you are not moving a control stick the carrier

RADIO FACTS CONTINUED

is still being transmitted. The 50 channels we have to select from is spaced 20,000 Hz, or 20kHz, from each other. They start at channel 11, which is 72.01 kHz, and end at channel 60, which is 72.99 kHz. That's not much distance and all your three, four, six, or eight channels you have on your radio must be within that bandwidth. We are lucky because Canada only has 10 kHz between their channels.

You can't interchange the receiver and transmitter crystals. This is because the receiver oscillator must run at the IF, Intermediate Frequency, above the incoming signal frequency. For example, on ch. 22 the transmitter frequency is 72.23 MHz so the receiver will be running at the IF above this frequency or at 83.03 MHz. When these two frequencies beat together, their difference, which is 10.7 MHz is passed on to the IF amps. If your receiver uses double conversion, the 10.7 MHz will be further re-

duced to 455 kHz. This signal will now be demodulated, which takes the coded signal off the carrier and it is then sent to the servo where it is compared to a reference signal generated in the servo. All good RC systems today will be double converted which helps reject unwanted signals from getting to the receiver. They do cost a little more for the extra circuits.

Another question asked by new comers to the RC hobby is how much power does the radio produce and how far away will it work. Most radios today have a maximum rating assigned to them of one watt of radiated power. Due to efficiency most will produce around .75 watts. This is plenty of power for our airplanes because you must keep them near the field to see which side is up anyway. With most systems you can collapse your transmitter antenna and still have control of your plane. Try this experiment: Get about 300 ft high and have someone to start

lowering your antenna until your plane starts to act up, at which time raise the antenna and regain control. This will give you some idea about distance. Antenna theory could be a complete topic by itself. I hope this information will be of some use to the new members of our club.

Pylon Race January 6th

Props has requested another pylon contest on January 6th, we are on the Ports calendar for that day.

Tom Strom Jr. asked me to let everyone know that they will be handing out raffle tickets for each contest and at the end of the winter season they will hold the raffle. Tom says the hobby shop he works at are donating some great prizes.

Come out and help if you can.

CLUB OFFICERS

| | | |
|----------------------|-------------------------|---------------|
| President | Jody Diaz | (360)427-6102 |
| Vice President | Dick Robb | (360)427-4521 |
| Treasurer | Charles Kentfield | (360)866-9473 |
| Secretary | Bob Beatty | (360)426-5601 |
| Field Marshall | Charles Kentfield | (360)866-9473 |
| Safety Officer..... | John Tupper..... | (360)426-6383 |

BOARD MEMBERS

| | | |
|------------------------|-----------------------|---------------|
| Board Member..... | Jody Diaz..... | (360)427-6102 |
| Board Member..... | Dick Robb..... | (360)427-4521 |
| Board Member..... | Stacy Myers..... | (360)426-9367 |
| Board Member..... | Bob Beatty..... | (360)426-5601 |
| Board Member..... | Dave Fisher..... | (360)490-2338 |
| Alt Board Member | Bob Mason | (360)426-9256 |
| Alt Board Member | Chuck Kentfield | (360)866-9473 |

DUES ARE \$100.

IF YOU PAY BY MAIL SEND YOUR DUES, PROOF OF 2008 AMA MEMBERSHIP AND A SELF ADDRESSED STAMPED ENVELOPE TO THE TREASURER:

**CHUCK KENTFIELD
3122 Madrona Beach Rd
Olympia WA 98502**

Make checks payable to SFRCF

January 2008

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--|--------|------------------------------------|------------------------------|-----------------------------|-------------------------------|----------|
| 30 | 31 | 1 SFRCF Board meeting | 2 | 3 | 4 | 5 |
| 6 SFRCF Pylon Race PYLON RACE | 7 | 8 | 9 WSP Speed Determination | 10 SFRCF meeting get key | 11 WSP Speed Determination | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 Updated: WSP Speed Measuring | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 1 | 2 |

All scheduled activity on the runway so far this month is at the North end and doesn't affect us much. As usual don't fly over the people working there. Check the web site for updates.

Club Scheduled Events for 2008

- January 1st.....First fly of the year (success in the rain)
- January 6thPylon Race - Come out and help officiate
- February 11th.....
- March 18th
- April 19thSanderson Field RC flyers annual swap meet 9:00 to 12:00 SHS Sub
- May 10th.....Fly-In - 9:00 a.m. to ?????
- June ??Forest festival Parade float
- June 7th.....Display at Walmart
- June 8th.....Public Fly-In 9:00 a.m. to ????
- July 19th.....Scale fly-in/Public/potluck BBQ - 9:00 a.m. to ?????
- August 3rd-5th
- August 16th.....Fly-in/potluck BBQ
- September 13th.....Fly-In 9:00 a.m. to ????
- October 11th.....Fly-In 9:00 a.m. to ????
- December ??Christmas Party

These dates are subject to change with 1 week notice by the Port

It's time for 2008 dues, dues are \$100.00

Check out our web site at <http://sfrcf.quintex.com>