



# Texas City Wings

## Texas City Radio Control Club



Volume 10, Issue 6

Newsletter

June 2008

### TEXAS CITY RADIO CONTROL CLUB MINUTES

David Gatling – Secretary

Minutes of the Texas City Radio Control Club meeting for May 31<sup>st</sup>.

The meeting at the TCRCC flying field was called to order at 9:00 a.m. by President Michael Grassmuck. A quorum was not met with 17 members in attendance.

Visitors: none

#### Secretary's Report - David Gatling:

A motion was made, seconded, and voted on to accept the April meeting minutes as presented in the May newsletter.

*Continued on page 2*

### Various Power Options for RC Aircraft

Radio controlled models may be powered by various means including electric motors, 2-cycle glow engines, 4-cycle glow engines, and gas engines. Each have their own advantages and disadvantages and all are widely used by thousands of modelers world-wide.

#### ELECTRIC MOTORS

Electric Motors are the newest form of power for model aircraft but probably the most popular for model cars. They are also ideal for small speed boats and scale boats of all sizes. With the vast improvement in NiCad battery technology (reduced size and greater capacity) over the past few years, electric motors have really become a viable means of power.

Electric motors to power small planes, 1/12 & 1/10 scale on and off road cars, and small speed boats are all very similar in construction. They usually have a ferrite core motor and operate at high RPMs. The "Mabuchi 540" is a popular example of this type of power plant and many manufacturers supply a variation on this motor. Model aircraft also use higher performance motors with Cobalt Magnets. These motors are more expensive but provide more power. Large scale boats will quite often use heavier, high torque, lower RPM motors for power.

Power for these motors is usually provided by a series of NiCad cells made up into packs. Six and seven cell packs are most common while larger Cobalt aircraft motors may require up to 28 or more cells. These are light and can be recharged quickly in about 15 to 30 minutes. Their run time is short, however, usually in the 4 to 10 minute range. In scale boats, weight is not

*Continued on page 2*

### INSIDE THIS ISSUE

- 1 Club Minutes
- 1 Various Power Options for RC Aircraft
- 5 Calendar of Events
- 6 TCRCC Board Members

*Continued from page 1*

**Treasurer’s Report – Ray Saenz:**

Financial information omitted on Web Version.

**President’s Report – Michael Grassmuck:**

Mike read a letter of appreciation to Gordon Spencer for his donation to the club.

He recommended that members check the frequency board to monitor if persons a flying without a membership card. If so, to approach that person and remind him or her that they should pay their dues to continue to have flying privileges at the field.

Mike stated that the club had received a complaint from the land owner along the east fence about the brush we had left on the fence line when clearing for the pylon races. Mike will have the brush removed.

**Event’s Section Report –**

Mike Grassmuck reminded the members of the Braden Clough Big Bird event on June 21<sup>st</sup>. He stated that Mike Walther will need volunteers for the event.

Mike commented that the club is looking at having a club 40 racing event, Mark Weiss will follow up and a 3D DOD, down on the deck, event, Kevin Furman to follow up.

**Newsletter Editor Report – Vaughn Johnson:**

All OK.

*Continued on page 3*

*Continued from page 1*

nearly as critical and is quite often required. In these models, 6 and 12 volt lead acid and sealed batteries are used. These are also rechargeable (overnight) and with the higher capacity will give much longer run times in the order of an hour.

**GAS POWERED ENGINES**

Gas powered engines (using gasoline) are becoming very popular in powering larger model cars, boats and planes. They don't usually come in small sizes suitable for medium and smaller size models but for the large models they provide good power with a reasonable cost and inexpensive to run. A spark plug provides the fire and no external power is required in starting. Fuel is usually a gas and oil mixture. Boat and car versions are usually equipped with a recoil pull starter for easy starting.

**GLOW ENGINES**

Model glow engines come in two forms 2-cycle and 4-cycle. Both use "glow fuel" which is a methanol based fuel with castor and/or synthetic oil as a lubricant. The major difference in the two types is the way fuel is delivered to and exhaust is removed from the engine during operation.

In a 2-cycle engine the fuel/air mixture (as metered by the carburetor) is forced into the combustion chamber during the down stroke of the piston. During the upstroke the mixture is compressed and when the piston reaches the top of its stroke, the glow plug ignites the compressed gases, forcing the piston down. On the way down exhaust gases escape through the exhaust port while the fuel mixture enters the chamber. The entire power cycle takes place in 2 strokes of the piston.

In a 4-cycle engine the fuel/air mixture (as metered by the carburetor) is brought into the combustion chamber during the down stroke of the piston through a valve operated by the crankshaft. On the upstroke the valve closes and the mixture is compressed. When the piston reaches the top of its stroke, the glow plug ignites forcing the piston

*Continued on page 3*

Continued from page 2

**Safety Officer’s Report – Richard Rehwald:**

No incidents.

Harvey Cappel related to two radio failure incidents he had. One was a lose wire in an ignition system connector on a new motor and the second was a glitch causing the plane to become erratic. Fortunately nothing serious happened as a result.

**Pilot Instruction – Harvey Cappel:**

Harvey stated that Bob Schultz and Bill Calhoun have soloed. Congratulations to you and good luck.

**Field Marshall’s Report – Walter Clemishaw:**

All is well. The new alarm system is installed and working. Walter has agreed to serve as Field Marshall the rest of the year. Thanks Walter.

Mike said the Board of Directors will be considering making the vice president responsible for the Field Marshall’s position and make the Safety Officer a separate position again.

**Show and Tell**

None

Meeting was adjourned at 9:45am.

**Next meeting will be at the TCRCC field, Saturday, June 28<sup>th</sup> at 9:00 am. Breakfast will be served.**

Continued from page 2

down. On the next upstroke of the piston a second valve opens and allows the exhaust gases to escape. The fuel mixture then again enters on the down stroke. The entire power cycle takes place in 4 strokes of the piston.

The glow plug is common to both 2-cycle and 4-cycle engines and is made up of a tiny little coil of platinum wire. To start the engine, an electric current, supplied by a 1.5 volt battery, must run through the coil to heat it. The engine is then turned over to make the engine start running. Once the combustion cycle has started, the coil in the glow plug can retain heat between firing and the electric current is no longer necessary.

The mixture for both types of glow engines is usually adjusted by two needle valves on the carburetor. One needle valve adjusts mixture for idle and low speed operation while the other is for high speed mixture adjustment. Engines for control line models do not usually have carburetors and operate only at full throttle. A needle valve is mounted at the air intake and provides mixture adjustment for high speed only.

Throttle control for R/C engines is usually accomplished via a rotating barrel in the carburetor. This barrel controls the amount of fuel/air mixture going to the combustion chamber and is activated by a small arm mounted on the side of the carburetor.

Two-cycle engines are the most common model aircraft power plant. They are simple, light, easy to operate and easy to maintain, and are generally inexpensive. They operate at a high RPM with a high pitched sound. Four-cycle engines are growing in popularity and produce a lower, more scale- like sound. They produce their power at lower RPM than two-cycle engines. Because of their valves, they have a higher part count and thus are usually more expensive than two-cycle engines. They may also require a bit more maintenance and adjustment than their two-cycle counterparts but they are not difficult to operate and maintain and they sure sound great!

Continued of page 4 (Left Column)

*Continued from page 3*

### **WHERE SHOULD I START?**

For straight simplicity, ease of maintenance, overall performance and lower cost, we generally recommend that the beginner start with a two-cycle engine for their model aircraft. Choose an engine that is in the upper portion of the displacement range recommended for the model. You can always throttle back and you have reserve power if you need it to get out of a spot.

### **BALL BEARINGS OR BUSHINGS?**

You can get engines with either ball bearing supported crankshafts or with just bushings. Ball bearing engines usually have a bit better performance, run smoother, and last longer with proper maintenance but are more expensive than those with bushings.

### **RINGED OR ABC?**

The piston and cylinders for model engines are generally constructed in one of two methods; ringed or ABC. Ringed engines have been employed on model engines for years and were the main method of construction until recently. An aluminum or iron piston with a ring moves in an iron sleeve. The ring provides the compression when operating. Ringed engines are easy to flip start, generate good power, are inexpensive to restore compression after long usage by simply replacing a ring, and are generally slightly cheaper. Ringed engines require a generous break-in period where the motor is run very rich to provide lots of lubrication while the ring fits itself to the cylinder. They are also more easily damaged if the engine is run too lean.

More recently a method of construction has been developed called ABC (aluminum, brass, chrome) where an aluminum piston runs in a chrome plated brass sleeve. The piston and cylinder are matched at the factory to give a perfect fit and provide optimum compression. ABC engines start easily by hand, give more power than their ringed counterparts, have a good lifespan, and are less susceptible to damage with a lean run. They are slightly more expensive to buy and very expensive to restore compression if required as the entire

*Continued on next Column*

*Continued from previous Column*

piston/cylinder assembly must be replaced. No extended break-in is required for an ABC type engine.

### **OPERATING TIPS**

Keep the fuel that enters the carburetor clean with the use of a fuel filter. Put a filter on the output of your fuel bottle when filling your model and another between the fuel tank and the carburetor in your model.

If you are flying from an area that is dusty, we recommend an air filter for your carburetor intake to keep dirt from scoring the inside of your engine. Glow engines for cars come with air filters as standard equipment and are a must.

When finished operating your engine for the day, run the engine dry of fuel by pulling off the fuel line before shutting it down for the last time. This will ensure that no raw fuel is sitting in the crankcase. Methanol and nitro-methane attract moisture which will rust your engine components, particularly your ball bearings.

After running your engine dry, use an after run oil to give a protective coat to the inside of your engine for further prevention of corrosion.

When starting an aircraft engine by hand, always use a chicken stick to prevent injury to your fingers.

When setting the high speed needle valve always adjust it to the rich side of a smooth run. An engine that runs lean for any length of time is very susceptible to damage, particularly a ringed engine.

Use only the manufacturers' recommended fuel mixture and propeller.

If your propeller is chipped or cracked, replace it. It could be a danger to you and those around you.

**Remember** - Model engines are quite powerful and operate at a high RPM. They can easily take a finger off if given a chance. **Once the engine is started, make sure that you stand behind the model and not**

*Continued on page 5*

Continued from page 4

**in front or on either side of the turning propeller. If the propeller should come loose or come apart, it could cause quite a bit of damage to your body, including death.** They also get quite hot during operation! **Please be careful!!!!**

**ENGINE TERMS**

The following are a few terms that relate to engines that you may not be familiar with: Schnuerle Porting A standard 2-cycle engine usually has one fuel inlet port on the side of the cylinder opposite the exhaust outlet. On a Schnuerle ported engine there are several fuel inlet ports on three sides of the cylinder allowing more fuel to flow to the combustion chamber. This gives somewhat more power than with standard porting. A Schnuerle ported engine is usually slightly more expensive due to higher manufacturing costs involved.

Long or Short Glow Plugs There are two lengths of glow plugs available. The short ones are generally used on engines of .15 cu in displacement and smaller. The long plugs are used on all engines larger than .15. Please follow the manufacturers' recommendations.

Idle Bar Glow Plugs An Idle Bar Glow Plug has a metal bar across the bottom of the plug which prevents raw fuel from dousing heat from the element during idle.

Long Stroke The stroke of an engine refers to the distance the piston travels from top to bottom. In a Long Stroke engine this distance is a bit longer than on the standard engine making the engine a bit stronger in torque and operation lower RPM. Quite often an engine is "Long Stroke" if the stroke distance is greater than the diameter of the piston.

Propellers The size of an aircraft propeller is described by two numbers; the diameter times the pitch in inches. For example, a 10 x 6 propeller is a prop of 10" in diameter and having 6" of pitch. The diameter is simply the length of the prop. The pitch is described as the distance the propeller will move ahead in a perfect or solid medium at 100% efficiency in one revolution. That is

Continued on page 6

**Calendar of Events**

- June 28<sup>th</sup>** Meeting at the Field (Breakfast will be served)
- Sept 20<sup>th</sup> & 21<sup>st</sup>** Pylon Races  
Mike Walther, CD
- TBD** 2 Fun Fllys
- Oct 11<sup>th</sup>** Braden Clough Big Bird  
Mike Walther, CD

*Continued from page 5*

to say, if you were to rotate your 10 x 6 propeller exactly once, your plane would move ahead 6", assuming this could be done with 100% efficiency and no slippage in the air.

Different sizes of motors require different size propellers to keep their operating rpms in an optimum range. The following link is a prop chart from Top Flite for two and four stroke engines. Please note that even the same size prop by two different manufacturers may perform differently. Experimentation is perhaps the best way to come up with the best performing propeller in your particular plane.

Engine Thread Shaft Sizes. It is important in knowing the shaft size of your engine when ordering certain spinners, spinner adapter nuts, safety spinners and prop hubs.

## **SOLOS**

Congratulations to Bob Schultz and Dr. Bill Calhoun for completing their solo flight under the instruction of Harvey Cappell. Welcome to the club.

## **TCRCC Board Members**

**President –** Michael Grassmuck  
5507 Highland  
Santa Fe, TX 77517  
AMA 814797  
Phone: 409-739-5986  
Email: [mikeg29@comcast.net](mailto:mikeg29@comcast.net)

**Vice President -** Richard Rehwald  
P.O. Box 76  
Santa Fe, TX 77517  
AMA 518937  
Phone: 409-925-8606  
Email: [rehwald@wt.net](mailto:rehwald@wt.net)

**Treasurer-** Ray Saenz  
6125 Woodacres  
Hitchcock, TX 77563  
AMA 43792  
Phone: 409-986-7742  
Email: [rcflyer333@aol.com](mailto:rcflyer333@aol.com)

**Secretary -** David Gatling  
271 Amber Ln  
League City, TX 77573  
AMA 789729  
Phone: 281-332-4344  
Email: [cdgatling@comcast.net](mailto:cdgatling@comcast.net)

### **Members at Large-**

Braden Clough  
Phone: 281-534-2454

Mike Walther  
Phone: 281-218-0953  
Email: [mwrcpylonracer@sbcglobal.net](mailto:mwrcpylonracer@sbcglobal.net)