Prop Talk

THE NEWSLETTER OF THE RIVERSIDE RADIO CONTROL CLUB

EDITOR: JIM "SKI" BRONOWSKI

E-MAIL: RRCCCONTACT@YAHOO.COM

www.riversidercclub.org

OCTOBER 2016

Strange "cave drawings" found

The lost tribe of Hemet shows up in our pit area

This strange drawing sketched in the middle of our pit area was found last week. It appears to be a man's body with the head of a dear. Some observers have remarked that it resembles the spirit of "Bambi" that has been revered by many older Disney groupies. Experts have told your editor that it was done by, not a group of Native Americans, but by a lost group of 1960 hippies that set up a commune in the mountains near Lake Hemet. They wandered off and roamed the mountains only to show up occasionally backstage at the Ramona Pageant in Hemet.

RRCC CLUB OFFICERS

President: *Jeff Szueber*

Vice-President: *Jon DeFries*

2nd Vice-President: *Bob Baker*

Secretary: *Rob Evans*

Treasurer: *Larry Roberts*

Newsletter Editor: *Jim Bronowski*

Safety Officer: ***Vacant***

Field Director: *Dale Yaney*

Webmaster: *Oscar Weingart*

ALL OFFICERS MAY BE CONTACTED AT: RRCCCONTACT @YAHOO.COM

Notice: Field Closure

Fri, Sat, Sun Oct 28, 29 30 - Quickie 500 Pylon Race

Fri, Sat, Sun Nov 4, 5, 6 F3J Sailplane Meet

NEXT MEETING SATURDAY OCT 15TH 10:00 A.M. CROWLEY FIELD

Minutes of the September 2016 Meeting

Call to Order:

- President Jeff Szueber called the regular monthly meeting of the Riverside Radio Control Club to order at **10:03 AM, September 17th, 2016** at Crowley Field.

Minutes of the previous meeting:

- The **minutes** of the **July 2016** meeting were approved as written and published in the August Prop Talk newsletter by the members present.

Old Business:

- President Jeff Szueber discussed the problem with scheduling the events at our field the end of October and the beginning of November. There was a date conflict with the 3D Freestyle event and the F3J Glider meet. As the glider event had been set up for many months, Jeff was going to contact the Contest Director of the freestyle event and see if they could fly on a different date. (UPDATE) *The CD of the freestyle event said that many contestants had made hotel and airline reservations and the date could not be changed. So he cancelled the event at our field and they were going to try and find another field in the area to use on their original date. The final lineup is as follows: October 28, 29, 30 - Pylon Race, November 4, 5, 6 F3J Glider Meet. Our field will be closed during those two dates and a sign posted at our field and the free-flight area indicating the closures during those events.*

- The roster of members names and email addresses have been posted to our web site as requested by the club membership.

New business: None

Program and Show and Tell:

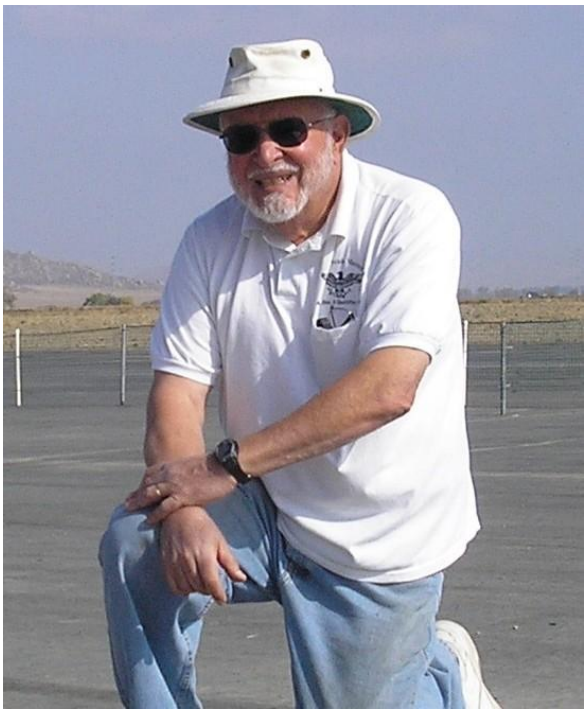
- Jim Bronowski demonstrated his Tactic "Drone View" video camera. It is a low profile camera specifically designed for R/C airplanes, helicopters and drones. The quality of the video is excellent and, best of all, there is an extension that plugs into your receiver so you can turn the video camera on and off during flight. It is also WiFi capable. The cost? Fifty bucks.

Raffle:

15% Fuel, Starter Battery, 2 Lipo Batteries, Epoxy, Glow Driver with Charger, Foam-Safe CA, Thick CA and Mini CA.

Meeting Adjourned at 10:41 AM by Jeff Szueber
Minutes submitted by: Rob Evans

Tactic Drone View Camera



Oscar's Observations

By Oscar Weingart

Follow-up on a Splash-Down

Last month, I discussed and recommended the new film, "Sully", about the "Miracle on the Hudson". Since then, I have found the National Transportation Safety Board (NTSB) final report on this famous ditching. See it for yourself at: http://www.ntsb.gov/investigations/AccidentReports/Reports/AAR1003.pdf

Also, the March Field Air Museum (MFAM) has scheduled an Inland Empire Aviation Roundtable (IEAR) meeting on the same subject on October 26 at 7pm. The speaker will be John Dutto, a retired FAA Air Traffic Control supervisor, who will discuss the incident from an Air Traffic Control perspective. John served as an Air Traffic Controller in the United States Air Force, from 1974 to 1978. He became an FAA Air Traffic Controller in 1982 and retired after 29 years.

Drones

MFAM has recently acquired an MQ-1 "Predator" Drone, which is now on display in the main hangar. According to Wikipedia, " *The General Atomics MQ-1 Predator is an American unmanned aerial vehicle (UAV) built by General Atomics and used primarily by the United States Air Force (USAF) and Central Intelligence Agency (CIA). Initially conceived in the early 1990s for aerial reconnaissance and forward observation roles, the Predator carries cameras and other sensors but has been modified and upgraded to carry and fire two AGM-114 Hellfire missiles or other munitions. The aircraft, in use since 1995, has seen combat in war in Afghanistan, Pakistan, the NATO intervention in Bosnia, Serbia, Iraq War, Yemen, Libyan civil war, the intervention in Syria, and Somalia*."

The MQ-1 Predator and later MQ-9 "Reaper" are operated by the the Air National Guard's 163d Reconnaissance Wing at March Air Reserve Base, California. (See https://en.wikipedia.org/wiki/General_Atomics_MQ-1_Predator). MFAM is hoping to have an IEAR meeting on the Predator in January, 2017, to be presented by Air Force Reserve personnel. MFAM has several military drones on display, including Regiald Denny's OQ-2 "Radioplane" target drone, discussed in an earlier Prop Talk article. I look forward to a possible exhibit on the history of drones.

That Predator is BIG, with a 55 ft. wingspan. (The Reaper is even bigger, with a 65 ft. wingspan.) The Predator is hung from the ceiling in museum's main hangar, with two (hopefully dummy) Hellfire air to ground missiles hung under its wings. Strangely, with its neutral gray color, it seems to disappear. There is a live camera in the Predator, broadcasting to two television monitors down below on the floor of the museum.

The Predator is powered by a Rotax pusher engine. Rotax engines are used in many ultra light aircraft. The pusher setup, with the prop at the rear end of the fuselage, makes sense to me, as it avoids the prop and engine interfering with the many sensors on the bird. It is the ultimate in Remote control, with pilots in the states flying Predators in the Middle East.

Oscar

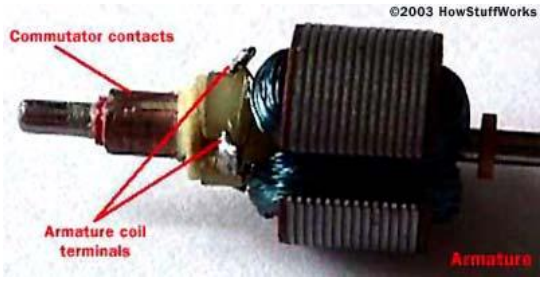
MQ-9 "REAPER"

BASICS OF ELECTRIC MOTORS

How a Conventional (canned) DC Motor Works

A conventional brushed motor is often referred as a *canned* motor. Every canned motor consists of the following parts:

Armature- The rotating portion of the motor. It consists of the poles, terminals, and the commutator.
Poles- Copper wires wound around a piece of metal forming an electromagnet. The poles are attached to the armature. Most motors have 3 or more poles
Terminal- Point at which the copper wire of a poll attaches.
Commutator- A switch on the armature that reverses the current to the poles every 1/2 rotation so that the magnetic fields of each will always maintain rotation.
Brushes- Tabs in the motor cap that are wired to the battery and make contact with the plates on the commutator as the armature rotates.
Magnets- The outer shell (or can) of the motor is lined with two permanent magnets, of opposite polarity. This non-rotating portion of the motor is also referred as the motor stator.



The battery is wired directly to the brushes. The brushes make contact with the plates of the commutator as the motor turns. There are the same number of plates on the commutator as there are poles on the armature.

When the brushes come in contact with the appropriate plates of the commutator, a particular pole (electromagnet) is charged. When a pole is charged, it is attracted to one of the magnets in the can and repelled by the other.

The commutator acts as a switch by switching the polarity of each pole every time the pole passes a magnet. When the polarity is switched, the pole is attracted to the next magnet in the can while being repelled by the one it just passed. This process repeats as long as power is supplied to the motor.
The commutator acts as a switch by switching the polarity of each pole every time the pole passes a magnet. When the polarity is switched, the pole is attracted to the next magnet in the *can* while being repelled by the one it just passed. This process repeats as long as power is supplied to the motor.

Disadvantages of Brushed Motors

- The brushes and commutator wear out
- The brushes and commutator must be cleaned periodically
- Friction from the brushes slow the motor down
- Friction from the brushes lead to shorter flight times and battery life.
- Friction from the brushes cause lower power to weight ratio

How a Brushless Motor Works

Brushless RC Motors work on the same principle as brushed motors, except the electromagnets(poles) are stationary and the permanent magnets are on the spinning portion of the motor.
Since the electromagnets are stationary, there is no need for brushes! ESC's for brushless RC motors take care of switching the voltage of these electromagnets.
It's important to know that a brushless speed controller and a brushed speed controller can *not* be used interchangeably. They perform completely different tasks.

The quickest way to tell the difference between a *canned motor* and a *brushless motor* is to count the number of wire leads. All Brushless RC Motors have 3 wires. Canned motors have 2 wires. The third wire is used for feedback during the instant that it's not energized. Switching any two of these wires will change the rotation of the motor

Advantages of Brushless Motors

- No brushes or commutator wear out
- Don't have to worry about cleaning the brushes or commutator.
- There's no Friction from brushes to slow the motor down.
- Longer flight times and extended battery life due to the absence of friction from brushes.
- Much higher power to weight ratio!

Inrunners vs Outrunners

There are two types of Brushless RC motors, inrunners and outrunners.
The permanent magnets of inrunner brushless motors are positioned on the inside of the electromagnets. Inrunner brushless motors are set up very similar to the canned motor explained above, except the permanent magnets and electromagnets are in opposite positions.

An outrunner brushless motor has the permanent magnets on the outside of the electromagnets. You can see in the picture to the right that the outer hub holding the permanent magnets has the output shaft attached in the center.

So which one is better?

The faster a motor spins, the more efficient it is. Inrunner motors turn very fast and are much more efficient than outrunner motors. Inrunner Brushless RC Motors require a speed reducing gearbox between the motor and propeller of your RC airplane.
For this reason, the output speed and torque of the propeller can easily be "*tweaked*" to facilitate different flying characteristics by using different size gears.
The downside of an inrunner is the added parts that can and do fail. The gears get stripped, and the gearbox shafts are easily bent. It can also be an obstacle when mounting the gearbox motor combination for your RC airplane neatly, especially under a cowling.

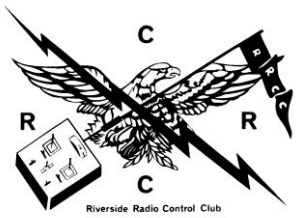
Outrunners

- Low RPM's, high torque
- Less efficient than inrunners
- No gearbox required
- Narrow prop selection
- Silent

Inrunners

- High RPM's, low torque
- More efficient than outrunners
- Require a gearbox
- Wide prop selection
- Noisy

http://www.hooked-on-rc-airplanes.com/brushless-rc-motors.html



RIVERSIDE RADIO
CONTROL CLUB
P.O. Box 295
Homeland, CA 92548