Cornwall Aero Modellers

NEWSLETTER

January 2017

Club Executive

President: Karl Kingston
Vice-president: Rick Besner
Treasurer: Roger Belanger
Secretary: Mike Cafferky
Field manager: open
Events: Jack Dikland & Merv Blizzard
News editor: Frank Reaume
Safety Officer: Frank Reaume

The Annual General Meeting of the club was held on January 16th at Minimax.

- The 2016 financial report was presented and adopted. The club made two large purchases (sun shelter and solar panel) that resulted in a minor budgetary loss for the fiscal year.

- The executive for 2017 will be identical to the previous year, as no other members volunteered for the positions.

- The club bylaws were amended to indicate that March 31 is the new deadline for submitting club dues for the coming year.

- Discussions concerning membership cards were put on hold for the time being.

The club treasurer is now accepting dues for the 2017 season. Please remember that the dues should be submitted no later than March 31**.**

Also, any member who wishes to fly outdoors at the field, or indoors at the Dome, after January 1, 2017, must have his MAAC membership renewed prior to that date, in order to be covered by proper insurance.

A member of the local Phelan RC Flying Club has opened an on-line hobby store, specializing in drones and lipo batteries. To browse his inventory and price list, just surf over to:

www.shamihobbies.com

You can also subscribe to his weekly newsletter to be advised of current deals.

Shami Hobbies is also a sponsor of the RCCanada website and the MAAC mag.

Upcoming Club Auctions:

1) ORCC auction will take place on February 7 at McNabb Community Centre (Percy & Gladstone) in Ottawa from 7:00pm to 9pm.

2) The annual KRCM Auction will take place at the RCAFA Club (at the entrance to Kingston Airport) on Saturday, February 18th, 2017. The doors will open at 0900 hours. Registration will begin shortly thereafter. Guests will have lots of time to set up their stuff, check out the offerings, register and relax. The Auction action will begin by 1100 hours.

Those members who own a Spektrum radio that can be updated – a new system update (version 1.12) along with a new voice update (version 1.09) was released last month. So don't forget to install these latest modifications.

A new radio from FrSky (makers of the well-known Taranis X9D) has just come on the market, aimed at newcomers to the hobby. It is the Taranis X7, which will retail for only $150 CAD and incorporates many of the features of its bigger brother.

Specifications

Number of channels: 16ch (with external XJT module 32ch is possible)
Operating Voltage Range: 6~15V (2S, 3S Lipos are acceptable)
Operating Current: 210mA maximum (both RF module and backlit are on)
Operating Temperature: -10~45℃
Backlight LCD Screen: 128*64 outdoor readable LCD
Model Memories: 60 (extendable by SD card)
Compatibility: FrSky X series, D series and V8-II series receivers (plus other receivers if an external module is used)
Weight: 740g with battery

Features

Quad Ball Bearing Gimbals
Receiver Match
Audio Speech Outputs (values, alarms, settings, etc.)
Real-time Flight Data Logging
Receiver Signal Strength Indicator (RSSI) Alerts
Super Low Latency
Smart Port Supported
Vibration Alerts
Model configuration files compatible with TARANIS X9D Plus
Open TX

Recently, Model Airplane News published a nice article on their blog, entitled "Radio Secrets". It should prove to be valuable advice for both beginners and experienced flyers. Here is a transcript of their tips regarding basic radio and servo setup success:

1- Installation: First, check that your servos are properly installed. Unless you're flying a foamie or small electric in which the servos are glued into place, use the rubber grommets and brass eyelets that come with your servos. Install them so the wide brim of the eyelets is under the grommets (between them and the servo tray). Tighten the screws until their heads meet the brass bushing's top edge. The rubber grommet will be compressed a bit, but that's OK. The object is to have a secure, shock-mounted servo installation that won't move when the servo arm is deflected. If the eyelet is installed with the wide end up, the grommets will be compressed so much that they won't isolate the servo from the source of vibration.

2-Direction Correction: This is a crucial setup check and should be done before any linkages are hooked up. Does the control surface move in the correct direction relative to the transmitter's stick input? Start with one servo and place the servo arm on the spline. Don't concern yourself with whether it is exactly 90 degrees to the case. Turn on your transmitter and receiver and move the stick (top) that corresponds with that channel. If you see that the arm is moving in the wrong direction required for the correct control surface movement (middle), use the servo reversing menu and hit select "norm" to "rev" so the servo responds in the correct direction (bottom). Now go one by one through the remaining servos and correct their directions if necessary.

3- Centering the Arm: First, all servos should be centered with the transmitter sticks and the control trim levers centered, then place the servo arm on the spline (mechanical portion). Move the arm's position on the spline to get it as close to 90 degrees to the servo case as possible then, if necessary, use the sub-trim menu to adjust the arm's position. Do the mechanical adjustments first; don't rely on the subtrim function only. This can affect the servo's overall control throws and end points.
For most elevator, rudder and aileron servos, the servo arm should be at a 90-degree angle to the case.

4- Mechanical Help: Because the servo placement is usually pre-determined in an ARF, you need to mechanically (i.e. no programming) set the control linkage at 90 degrees to the servo arm. Determining which hole to use in the servo arm is simple: if you want more throw on the control linkage, place it in the hole farthest from the servo's center; closer if less throw is desired. Different size models will have various linkage setup requirements, so consult the instruction manual for the proper linkage setup. With the linkage disconnected to the servo's arm, there shouldn't be any binding when you move it by hand.

5- Surface Connection: The control surface's linkage connection depends on the type and size model you're flying. If you want to achieve maximum surface deflection, connect the clevis to the control horn using the hole closest to the surface. For large-scale and 3D airplanes, connect the linkage to the outermost hole (farthest from the surface) for maximum leverage; this also helps to prevent flutter. This photo (below left) shows threaded rods for control horns with plastic connectors to which the clevises attach. Note that they are at the end of the rod rather than close to the surface. It is usually best to have a straight line from the pushrod linkage's fuselage exit to the hole in the surface's control arm/horn. Sometimes a slight bend in the rod (top right) after it exits the fuselage is needed to relieve servo and linkage binding.

6- End Points: Depending on your brand of transmitter, you'll see EPA, ATV or Trav. Adj. in your radio's menu. EPA means end-point adjustment; Trav. Adj. is travel adjustment, and ATV is adjustable

travel volume. These programs adjust how far the servo arm will move in either direction. Their default settings are usually 100 percent but can often be increased or decreased using the increase/+ or decrease/- keys. Use this menu when you have either too much or not enough control-surface travel when you try to match the manufacturer's recommended settings.
Here's an example. Your model's elevator travel should be only 1 inch up or down, but when you move the radio's elevator stick to its most forward and aft positions, the elevator moves 2 inches each way. While in this menu and on the channel you need to limit (in this case, elevator), pull the stick all the way back, hold it there and keep pressing the decrease/- key (lower left) until the deflection matches the 1-inch mark. Push the stick forward and do the same to achieve the correct amount. Note: if you had to reverse your servo's direction, you might have to hit the increase key (lower right) to decrease the throw. If you need to increase travel, hold the stick in the mentioned positions and hit the increase key. Repeat this for your aileron and rudder deflections using side-to-side stick movements.

7- Two Positions: With the flip of a switch, dual rate commands two different amounts of surface deflection when you move a transmitter stick. Generally limited to the elevator, rudder and ailerons, dual rate is great for test flights, takeoffs and landings. The first amount of high-rate deflection was set when you adjusted the control-surface travel to the manufacturer's recommendations. On your transmitter, dual-rate switches correspond with the mentioned channels. When you set your travel volume/high rates, the switches were either up or down. How you set them is up to you; some folks like to flip the switches up for high rates and down for low. Others prefer the opposite. Go to the dual-rate menu in your transmitter and note the switch position; these are marked with either a 0 and 1 or a 1 and 2. These examples show 1 and 2. The factory-set percentage for each position is 100 (top left), so leave your preferred high-rate switch position at 100 and flip the switch to the low-rate position. Using the decrease/- key, lower the percentage rate until the surface deflection measurement matches the recommended low-rate amount (middle left). As you do this, hold the corresponding transmitter stick to its fullest forward or back, left or right position and watch the surface deflection decrease down the markings on the ruler held in your other hand (bottom left) to measure the deflection amount. Sometimes, a third hand helps with setting the low rate. Now hold the stick fully deflected and flip the corresponding channel dual-rate switch back and forth. You should see the control surface move to two different positions (top right).

8- Stop Over-controlling: Exponential (aka expo) decreases the sensitivity of the stick inputs around the center of its movement. Whether you're flying 3D or just taking off or landing, this function is extremely helpful for the over-controlling pilot and I highly recommend that you use it until you perfect your technique. On some radios, this feature is found in the dual-rate menu. In others, you have to go to the non-basic menu to find it. It's best to consult your radio's manual if you can't find it. Once found, the screen shows "expo" and a percentage amount, usually factory-set at 0 (top left). Select a specific channel on the screen and press the increase/+ key to dial in the amount of required expo (top right). Sometimes, manufacturers have it listed in the instructions (you see this especially in 3D airplanes), or the amount is left up to you. Before you decide, it is best to note the amount of stick movement with which you fly. For example, if you're flying a trainer and move the sticks all over the place, you want to set those percentages on the high side-usually around 30 to 40. If you have a finite control of the sticks, 15 to 20 seems to work well. High-performance 3D aerobats can require 50 to 60 percent or higher. Some surfaces may require a different percentage than others, which is fine. Note that expo is set for each dual-rate position, so you may need to adjust the expo percent for the low dual-rate setting as well (lower left and right).

9- Turning Help: What is aileron differential? Simply this: when you move the aileron stick, one aileron deflects at a higher amount of travel while the other one deflects at a lower amount. This helps to prevent adverse yaw, which is the airplane's nose initially turning in the opposite direction of the turn input, thus resulting in a slip during the turn. Who should use it? Pilots whose left thumbs are not quite adapted to

adding rudder input when initiating turns. It is particular useful when flying high-wing scale aircraft and trainers, as it visually smoothes out the turn. As with expo, aileron differential is either in the regular menu or the non-basic and is also based on a percentage amount. When you bring up the aileron differential screen, you see a 0 as the factory-set percentage. Use the increase/+ key to add the differential to your aileron's deflection. A good starting amount is 25 percent. Try that for a flight or two; if you discover it needs to go higher, increase by increments of 5 until you achieve the desired results: a smooth, coordinated turn when you only use the ailerons to bank the model.

10- Throttle Setup: First and foremost, you want the throttle linkage to run in as close to a straight line as possible from where the linkage attaches to the throttle servo's arm to its connection on the carburetor barrel's control horn. Sometimes, a straight line is not possible and the linkage might need a Z-bend, usually within the fuselage's radio compartment. There shouldn't be any binding in the linkage's movement. If there is, you need to mechanically fix it before you set your throttle travel on your radio. Now go to radio's endpoint adjustment menu and dial up the throttle channel. You'll note that it reads 100 percent in either the throttle-up or -down position (top right). Here's one way to achieve the correct high- and low-throttle settings. When connecting the throttle linkage to the servo arm, usually with an EZ connector or Kwik Link, push the linkage in the direction that fully opens the carburetor barrel. Remove the servo arm from the throttle servo, slide the connector onto the wire and reattach the arm so it is in the full-throttle position when the transmitter stick and trim are set as such (above). Tighten the small hex-head bolt and your high-throttle travel position should be set. If you hear the servo binding, lower the percentage on this position using the decrease/- key until the buzzing disappears. You may only need to drop a few percentages to achieve this. Next, lower the throttle stick all the way to see how far the carburetor barrel closes (top right). If it closes all the way, decrease the travel throw until there is an opening that will allow air into the carburetor (above right). Lower the throttle trim and note the position where the barrel completely closes. If it doesn't, adjust this by decreasing the travel throw (left). Your engine should completely shut off when you lower the stick and then the throttle trim. The throttle trim need not go to its max lower limit to stop the engine from running. Your engine's travel limits are now set.