HCRC Flyer

September 2021

AMA Charter #341

Yak 55 Aircraft + Yak 55 Aircraft + GE J-85 Jet Engine = YAK 110

A Very cool one of a kind aircraft.

HCRC Meeting Notes from Thursday, August 5th, 2021

Quorum Present. 16 Members including 4 Executive Members present

Executive Members present:

Members present: Ed Kopec, Mike Booth, Pat Malone, Dennis Walker, David Whiteley, Peter Cincotta, Rick Nadeau, Bob Prosciak, Andre Bouchard, Joan Learned, Tracy Page, Leo Dube, Mike Shaw, Ron Paul, Dan Kapinos and Bill Ewers

Club finances for the month of July were reported and approved.

Please consider volunteering for our Wings Over Hadley Fly-In. We need multiple volunteers both days to help make our event a success. Please remember that you do not have to volunteer for the full day. Please consider working a shift and then flying or vice versa.

Trees are grabbing up planes! There are two planes in trees - 1 at the north end of the runway and 1 over the parking area. Please remember that club members are responsible for recovering planes from trees - if necessary by hiring a tree service.

The shed roof hasa been re-sealed. It will get another coating in September. Please consider volunteering to help with the sealing efforts.

Please do your part to keep our field looking good. There has been some fuel left on the plane stands. Please clean these tables if you spill fuel.

Our upcoming event schedule:

9/11	Fall Club BBQ
9/25	Fall Outdoor Tailgate Swap Meet
10/3	All Electric Fly-In

New Member Applications:
Louis Enselek was voted into the club.

Article submitted by Ron

Fly better with dual rates, expo & mixing

Debra Cleghorn
Featured News, Getting Started, Radio Systems
Comments

Utilizing your radio's built-in programming will let you fly better with more control of your model. This article is intended for new and intermediate fliers and higghlights three important features you need to understand, dual rates, exponential, and mixing.

LET'S GET STARTED
First of all, when holding your radio during your flight, it's a good idea to have the "standard" position on all switches be "away" from you. Another way to say this is to have the switches located on the top of your transmitter toward the back of the case and those on the front of the transmitter toward their top position. Establishing this allows you to always return to your most comfortable flying parameters should your flight get on the edge of your control abilities for whatever reason.

EXPONENTIAL
Simply stated, exponential in our radios gives stick inputs a softer "feel" around the center of stick travel. The greater distance we move the stick away from center, the less effect any programmed expo has. Expo works in concert with rate settings and is another piece of the puzzle in getting your radio controls exactly the way you want them.

Sneaking up on how much expo to use is a good way to do it if you've never tried it before. Entering a 10% value would be a good start. You will hardly notice that amount of input on the bench or in the air. But once you figure out the procedure for setting it, there's no mystery about going into the menus and increasing it to +15 or +20, or even more. Some of the best pilots use +70 or more on expo to fly 3D. Most sport flyers will and should be in the range of +20 to +40. The type of aircraft you fly will determine how much expo you should use, if any. Even trainer aircraft and novice fliers can use some expo to advantage.

Have no fear of exponential. The softer feel around stick center will make you a smoother flier; just don't overdo it. For most helicopters, it's a must. For most sport aircraft and sport fliers, it really helps a lot in advancing your flying skills.

DUAL RATES

Dual rates are one of the neat features of our modern radios. The elevator dual rate switch is usually in the upper left front corner of the transmitter; the aileron switch is in the upper right front corner; and the rudder switch, if you have one, is in the upper right top. The purpose of these switches is to establish a limited servo travel position when the switch is moved to either of its two positions. For example, the switch "away" from you might give 100% servo travel, and if you click it toward you, your dual rate setting might provide 70% travel of that same servo (surface).

Here's a specific example. Let's say you are flying a tail-dragger and that you need to input small amounts of rudder on takeoffs. You might program your standard position rudder rate at 70% of available rudder throw (the switch would be away from you, toward the back of the transmitter). Your second rate might be 100% (or even more) so that when you want to fly aerobatics, clicking the switch forward will give you almost double the throw on rudder. The result of this setup is that your ground handling and basic maneuvers will be very smooth on your standard setting, but your rudder authority for maneuvers will be very powerful on your high rate setting. The amount of travel that you set needs to be adjusted after flight experimentation. As you know, servo arm and surface horn length are also factors that control surface deflection amounts. Programming "rates" are the final step in tuning your aircraft to your liking.

Dual rates are not to be ignored! This feature is an important component provided by our modern radios that make us smoother, more accomplished fliers. They are easy to program, and even the beginner-level transmitters sport dual rates. Top shelf radios have triple rates! Several radios can combine all rates on one switch. In my opinion, that's a really nice feature that might be used after[ITAL] you program individual rates/switches and get them where you want them. Then, one switch sets all three surfaces to do either high or low settings, or any combination you want.

MIXING

Mixing presents more of a challenge. It also requires more patience to get it the way we want it, but the effort is worth it.

Most modern radios feature mixing circuitry. Some radios even have pre-programmed mixes. One of the examples of how mixing can help make you a better pilot is the knife-edge mix between rudder and elevator. Knife-edge flight is a very cool maneuver, and really cool when you don't have to constantly input elevator to hold the plane in position as it flies down the flightline on its side! So how is this accomplished?

Let's start by assuming you have the rate switch the way you want it. That means it's set to hold the nose of your aircraft up a bit and level with the ground as the plane flies by you rolled over on its side. You might have fine-tuned your "normal" rate setting to achieve this. Now let's get more specific. Let's say you are at the field, and the wind is blowing right to left. You are going to fly your knife-edge maneuver from left to right, into the wind. You enter by giving the aircraft right aileron, making it bank to the right a quarter turn, and left rudder to hold up the nose. All is going well at first, but in a second or two you see the nose of the plane going off line and pulling toward the canopy as you fly by. You need to correct with a bit of down-elevator. After a few passes, you get the feel of what is required to make the knife-edge look good. But you are constantly correcting, and the flyby looks ragged when you over/under-correct. The solution to this condition is a rudder/elevator mix.

What you need to do is program about 5% of down-elevator to automatically input into your aircraft when you hold rudder. Since you don't want this to happen all the time when you use rudder, you put the mix on a switch on the transmitter. Now, just before entering knife-edge, you hit the switch, roll a quarter turn, and when you enter your rudder command, the elevator deflects downward to whatever value you have entered in the mixing program. Five percent is a good starting point, but it may take more or less, and sometimes it may even take a "negative" mix, meaning the plane was moving toward the landing gear, not the canopy. In that case, you

program up-elevator mixed with rudder. It sounds complicated, but it really isn't. The best advice is for you to read the manual that came with the radio, and try it on the bench, then out at the field. I like to take some written notes also, so when I get to the field I can remember what I did, and how to add or subtract more input if necessary.

There are many mixes you can use. Flap/elevator is a common one, and so is aileron/spoilers. Give mixing a try; like rates and expo, you are going to like it when you get it right.

Most important, any radio inputs or changes should be done by you, the modeler, owner, and flier of the radio and aircraft. It's OK and even preferred if someone with experience is looking over your shoulder, giving instructions or making suggestions, but don't let them make the changes. Hands-on experience is a basic tenet of effective learning.

We have these features and many more in our radios. It might be time for you to give them a detailed look, with the goal of making your flying the best it can be. Master your radio; don't let it master you!

By Tony Ianucelli

Upcoming Events:

9/2	Club business meeting at the field 7pm
9/11	Fall Club BBQ
9/25	Fall Outdoor Tailgate Swap Meet
10/3	All Electric Fly-In
10/7	Club business meeting 7pm (location TBA)

OUTSIDE Club Events

FCRCC bbq and flyin on 9/19 with 9/26 rain date

494 Airplane of the month: Lockheed C-130 Hercules

The **Lockheed C-130 Hercules** is an American four-engine turboprop military transport aircraft designed and built originally by Lockheed (now Lockheed Martin). Capable of using unprepared runways for takeoffs and landings, the C-130 was originally designed as a troop, medevac, and cargo transport aircraft. The versatile airframe has found uses in a variety of other roles, including as a gunship (AC-130), for airborne assault, search and rescue, scientific research support, weather reconnaissance, aerial refueling, maritime patrol, and aerial firefighting. It is now the main tactical airlifter for many military forces worldwide. More than 40 variants of the Hercules, including civilian versions marketed as the Lockheed L-100, operate in more than 60 nations.

The C-130 entered service with the U.S. in 1956, followed by Australia and many other nations. During its years of service, the Hercules family has participated in numerous military, civilian and humanitarian aid operations. In 2007, the C-130 became the fifth aircraft[N 1] to mark 50 years of continuous service with its original primary customer, which for the C-130 is the United States Air Force. The C-130 Hercules is the longest continuously produced military aircraft at over 60 years, with the updated Lockheed Martin C-130J Super Hercules currently being produced

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