An Owl cannot fly without ...

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Flight Feathers

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MEETINGS

FIRST SATURDAY OF THE MONTH

@ 11:00 AM

@ KENNYWORLD

DUES ARE DUE!

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GIVE/SEND YOUR $50 TO RON SANDERS

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SERVOS: THE DIGITAL ADVANTAGE

Many modelers assemble their model airplanes without ever giving a thought to their control system. They just use whatever they have, but really, this isn't the best plan of action. To achieve the optimal performance for your aircraft, you need to use the servos best suited for your aircraft.

Servos come in a wide variety of sizes and power ratings, and you need to match them to the size and performance of your airplane. In general, the larger and more powerful your airplane is, the larger and more powerful your servo needs to be. Large airplanes require more strength to move the control surface, so they usually require large servos. Also, in the case of high-performance 3D airplanes and pylon racers, which fly at very high speeds, you need servos with the power to properly control the model. It is not always the size that matters. Some mini servos can produce more torque than a standard-size servo; this is especially true when comparing analog servos to digital servos. When it comes to power, the servo's torque output and the type of gear train that it has is far more important than its size.

The function you are asking the servo to do is another consideration. Throttle servos and servos that activate switches and valves for retractable landing-gear systems need not be powerful. To save space, you can use mini servos to do the light-duty work. When it comes to aerobatics, travel performance is also important. A powerful servo that can move a big rudder on an aerobatic plane needs to have precise travel and centering functions for the optimal performance of the airplane.

Spektrum brand manager John Diniz notes, "First, it comes down to the size of the aircraft, then the output needs. With a 3D aircraft, you will need speed along with torque. I fly sailplanes, which have very thin wings, so I am looking at the best-performance servo that can fit in a small space. For complicated projects, like jets, you want the most reliability in torque servos for the flight-control surface. But on the accessory, you want the smallest, lightest servo that will work. It is just a hierarchy of what am I putting it in, what do I want it to do, what does it need to do, and how precise does it need to be to get the job done."

Digital servos are quickly becoming the standard offering from most manufacturers.

There is no physical difference between the two types of servos: analog and digital. The servo cases, motors, and gear trains are exactly the same, and both have the same feedback potentiometer. The digital servo's microprocessor circuit, which interrupts the incoming signal, is what makes the difference. A conventional analog servo compares the receiver's command to the actual position of its output shaft each time a new pulse command is received. The pulse rate for an analog servo is anywhere from 40 to 50 times per second, depending on the brand of radio and the number of channels being transmitted. The digital servo's microprocessor monitors the position of the output shaft more frequently, typically 300 times per second (or roughly six times faster than the standard analog servo). And it is this rapid updating that gives digital servos their quicker response times compared to analog servos.

Rapid updating also creates stronger servo-holding power. When a force is applied to a digital servo's output arm, it sends corrections six times faster, developing maximum torque to resist the servo arm's load. Analog servos do not develop maximum torque until their output shaft has been displaced several degrees from their desired position. In this case, the advantage of the digital servo is greater centering precision and power.

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All Model Fun-Fly -- May 27th 2017

Members took to Kennyôs shop as this yearôs first OWLS meeting fell on a particularly cold Saturday.

One topic discussed was opening up the Memorial Day weekend Electric Fun-Fly to all models, suspending landing fees, and foregoing sanctioning of the event with the AMA. Last year only had three non-club member pilots hardly worth the $50 sanctioning fee. Of course, food and drinks will be provided at an exceptional all-you-can-eat combo deal.
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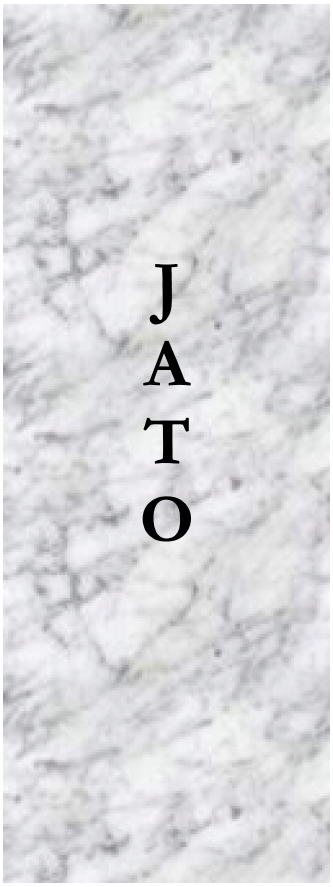


Totally Useless Trivia

A JATO-equipped 1958 Dodge Coronet car on the El Mirage dry lake was used for a TV advertisement to demonstrate the power of their 'total contact' brakes. This was broadcast during The Lawrence Welk Show in the late 1950s.

O.O.B.

Kevin Lee, owner of Leeôs Hobbies in Citrus Springs, notified us this month that he is closing shop. Kevin had taken over D&S Hobbies just a couple years ago. He follows other recent closings of Jackôs Hobbies, Ocala, and Greyôs Hobbies in Dunnellon.

Jet Assisted Take Off

…article inspired by George Favor

JATO (acronym for **jet-assisted take-off**), is a type of assisted take-off for helping overloaded aircraft into the air by providing additional thrust in the form of small rockets. The term *JATO* is used interchangeably with the (more specific) term **RATO**, for *rocket-assisted take-off* (or, in RAF parlance, **RATOG** for *rocket-assisted take-off gear*). The rockets are usually one-time units that are jettisoned after takeoff.

After World War II JATO became particularly common owing to the low slow-speed thrust of then-current jet engines or for assisting heavy aircraft; the prop-engined Avro Shackleton used Armstrong Siddeley Viper turbojets for takeoff. As the take-off thrust of jet engines has grown, JATO has fallen from favor. It is still used, however, when heavily-laden aircraft need to take off from short runways or when operating in "hot and high" (low air density due to high ambient temperature and high airport elevation) conditions.

Two similar zero-length launch experimental programs were carried out by the US Air Force and by the Soviet VVS at around the same time in the late 1950s, both using high-thrust, short burn duration booster designs of very similar appearance and function. The US Air Force used a modified Republic F-84, designated EF-84G, which used the MGM-1 Matador cruise missile's solid fuel booster. The Soviet VVS used a modified MiG-19 fighter, designated SM-30, launched from a special launcher, and using a nearly identical solid-fueled rocket booster design to that of the EF-84G. The F-100 and F-104 were also used for zero-length launch experiments.

Operation Credible Sport was a United States military operation plan in late 1980 to rescue hostages held by Iran using C-130 cargo planes modified with rocket engines to enable a very short take off and landing. The plan was canceled after an accident occurred during a test landing when the forward-facing JATO units designed to slow the aircraft fired before the downward-facing units (designed to cushion the landing) did, causing the aircraft to crash-land.

The JATO Junior was an attempt by Aerojet Engineering to introduce smaller JATO units to small commercial aircraft, but was blocked by the U.S. Navy Bureau of Aeronautics. Aerojet claimed that the smaller JATO bottle, delivering 250 pounds of thrust for 12 seconds could help a light private plane that normally requires almost 900 feet of runway to clear a 50 foot high obstacle, could do the same with 300 feet of runway with a JATO Jr unit.

The JATO Rocket Car is an urban legend that relates the story of a car equipped with JATO units that is later found smashed into a mountainside. This story is often given as an example of a Darwin Award; it appears to be apocryphal, with no basis in fact.

Article source Wikipedia

Dawn Patrol…1914 - 1918

During WW1 pilots adopted the practice of taking off from airports just before dawn so they would be in position to engage the enemy with the sun at their backs. This meant the enemy had difficulty seeing them with the sun in their eyes.

Source: General Aviation News - November 2016

Watched a huge brown mother boar and her little tiny baby cross the field around 5:30pm Jan. 20th…awesome!

The OWLS Nest Gallery

Darn Fences!

Ronôs landing was perfect, but the taxi to the pit hit a snagé I mean fence.

When Wing Meets Horse

Ted has entertained us for years with his flying and anecdotes and 2017 appears to be starting no different. According to Ted, this wing was setting on a bale of hay in his barn when it slid off and landed in an occupied horse stall. When the horse stepped on the wing, Ted figured it would end up as toast and did not rush to get under the horse to retrieve it. But hours later, he was surprised to find that the wing suffered only minimal damage, which Kenny has already fixed like new.

Some Boys Have All The Toys!

My friend, Earl Keese from down under (Maclean Australia), sent his photo of a heli on a Catamaran. Must make for a very tricky landing.

WOW!

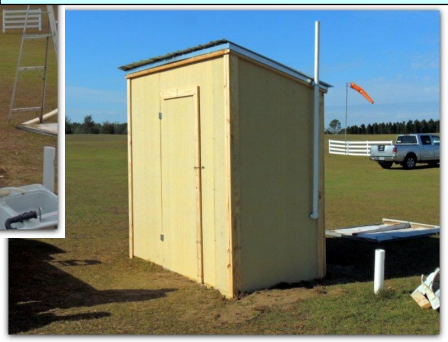
Is this really our clubhouse?

Ted & Art did an amazing clean up job.

Our Privy Got Updated!

Art & Ted remodeled our outhouse: doubling its size. I helped with the plumbing and sink counter. A new coat of paint by Mike Elmore is coming soon.

Anyone have a small window?



OOPS!

Doc inspects his plane after a less than successful launché but only a busted prop and dented wing.

Got Photos? Catch me at a meeting or send a copy to: keukadiver@gmail.com

KennyWorld R/C Field **CR 464 west of SR 41, 17150 SE 60th Street, Morriston, FL 32668, 352-528-3744**

We're on the Web! Onewinglowsquadron.org and Facebook! Https://m.facebook.com/profile.php?id=857602174259072

Digital Servos …continued

Hobby People product manager Craig Kaplan has this to say about digital servos: "In most cases, digital servos will outperform analog servos in multiple ways. Digital servos center better, provide better torque throughout the movement of the servo, and also have better holding power over analog servos. Some radio manufacturers insist digital servos be used as analog servos, but they are not compatible with the newer, faster-processing radio systems." John Diniz agrees, "Digital servos are now the standard."

DISADVANTAGES?

There is only one disadvantage to using digital servos: power consumption. Digital servos transmit power to the servomotor more frequently, and therefore, the power consumption is greater. It is important to use larger-capacity receiver battery packs when using digital servos. It is recommended to use one that is at least twice the size of your normal battery capacity. If you use a 1000mAh pack, switch to a 2500mAh pack when using digital servos.

"Digital servos center better, provide better torque throughout the movement of the servo, and also have better holding power over analog servos." *Craig Kaplan* *Hobby People product manager*

HIGH-VOLTAGE SERVOS

The benefits of high-voltage (HV) servos come from being able to run them off an unregulated lithium-polymer (LiPo) battery pack. This eliminates the need for a voltage regulator, which can be a failure point. Also, LiPo packs provide a more consistent voltage level throughout discharge as compared to nickel-cadmium (Ni-Cd) packs, where voltage drops off continually from the start. LiPo packs provide better servo performance throughout the entire flight.

Craig Kaplan states, "High-voltage servos can [provide a] benefit in many ways but may not be required or compatible with some equipment. High-voltage servos are meant to operate directly from a 2S (7.4V) LiPo pack (or even higher in some cases). While the servo can accept the higher voltage, your receiver may not. Additionally, some 'non-HV' servos may out perform HV servos, so it's good to spend some time researching what is best regarding your own radio equipment." Because of the popularity of HV servos and LiPo packs, most of the major radio manufacturers are now making their new receivers compatible with HV servos.

PROGRAMMABLE SERVOS

Though digital servos have a lot to offer with regard to precision, power, and performance, some digital servos allow you to reprogram their microprocessors. Hitec RCD offers digital-servo programmers that work with their digital servos and give you the ability to change the travel direction, servo speed, neutral point, and endpoints of the servos. On some digital servos, you can also program overload protection and resolution-mode setting.

The advantage of programming the servos themselves is that you will need less equipment inside the aircraft, thereby saving weight. Let's say that you need dual flaps or dual elevator surfaces for your plane. To operate with the same mechanical advantage, one servo needs to rotate clockwise while the other rotates counterclockwise. By using a servo programmer, each digital servo could be programmed with the proper rotation, identical deadband width, neutral points, and endpoints. These two servos can then be plugged into a Y-harness into a single receiver channel without any computer radio mixing required.

This same programming advantage can be used when "ganging" digital servos together for a single control surface. Each of the servos can be fine-tuned to have identical movements. This allows the servos to be slaved together for a comment task, without them fighting each other at the neutral-point and endpoint positions.

Shawn Spiker, Hitec RCD sales manager, explains: "The biggest advantage is making two different servos digitally identical. This really comes in handy when you are using multiple servos on the single control surface. If you need to slow a servo down for a certain application, you can program that into the servo itself even if your transmitter does not have that capability."

Servo Installation

Craig Kaplan has this advice for servo installation: "Before installing a servo, it's wise to use the included grommets and eyelets from the manufacturer. The flanged part of the eyelet faces the platform that the servo is being mounted to in order to prevent the servo from 'digging in' to the material. This provides a more solid installation while allowing the rubberized grommets to absorb unwanted vibration. Also, when installing a servo, make sure that its neutral points and subtrims on the radio are all at zero and that the servo is centered before installing the servo arm. If the servo is off slightly, simple inputs with the subtrim function can correct it to the desired position."

Source: https://www.giantscalenews.com/threads/servos-101.9781/