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May

The EFO Officers

2020

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The Next EFO Flying Meeting: To Be Determined Sat., May 9, 10 a.m., Midwest RC Society 7 Mi. Rd. Field

What's In This Issue:

Radio Brand Usage Research -

Ken Myers' Preview of the Jumper T16 Transmitter - Upcoming Keith Shaw Birthday Party Electric Fly-in Info -Upcoming 36th Annual Mid-America Electric Flies Announcement - Upcoming Events

Radio Brand Usage Research By Ken Myers

At the December 2019 EFO meeting, I started my research on the various brands of radio systems that many of us are using today.

I posted the responses from the club members present at the meeting in the March 2020 *Ampeer*.

http://theampeer.org/ampeer/ampmar20/ampmar20.htm#DEC

So that you don't have to look that up, I've reposted their responses here.

Denny Sumner is currently using a Spektrum DX9 silver transmitter. He is using a Lemon DSMP (Spektrum compatible) receiver in his Parkzone T-28, and a pair of Lemon receivers in his glider using 9 servos. He noted that he uses the Lemons in glider to use the vario function as well as the mixing that he wants. He found that trying to program the 9 servos with the two receivers difficult.

I sent him an email the next day and asked for more specific information about the Lemon receivers. Denny's response follows.

* * * * *

I've used the LM0044D Stabilizer in a few of my models. The LM0052U is the Telemetry Receiver we use in our gliders, 7 channels, Vario and altitude Telemetry. I used their 10ch, LM0040 as a second receiver in our gliders with six servos in the wing. This receiver was Velcroed to the wing, and connected to the LM0052U with a 2 wire servo extension to get power from the 7ch receiver in the fuselage. The last Lemon Receiver I've used is the 7ch LM0051U which has Telemetry but only LiPo voltage. They have an optional energy module that can give you current from your battery.

* * * * *

Roger Wilfong noted that the radio system used in the canard that he showed is a Spektrum DX8 with an Orange Rx (Spektrum compatible), two BlueBird 3.7 gram servos for the ailerons and a 4.3 gram for the elevator. The battery is a 3S 550mAh LiPo.

* * * * * A followup email from Roger noted;

I have a Futaba 8AUS transmitter on 72mHz for outdoor models. I use a mix of Futaba, Hitec, and Berg receivers with it. Also, for outdoor I have a Tactic 850 using a mix of TR624, TR625, TR624 & TR625 modified for end-pins, and a couple of TR825 receivers.

For Indoor flying I used to use a Futaba 8AU with a Spektrum module for the UMX planes. Also when we started up at Ultimate, I bought a bunch of Orange and Lemon receivers to replace the GWS 72 mHz receivers that were in the planes I used to fly at Oakland Yard - the 8AU I used there got the Spektrum module. I also use a Tactic TTX 660 indoors.

* * * * *

Keith Shaw noted that the early problems that Spektrum had kept him away from them. He still uses his Multiplex, FrSky QX7, and Avionic transmitters. He also noted that he wishes that he could get more the small receivers Avionic/ FlyDream, as he really likes them.

Bob Blau had been using a JR on 50/53 MHz as he was a ham. His first 2.4GHz radio was also a JR. He has a Spektrum DX8 Silver and uses Spektrum receivers.

Ken Myers uses a pair of Tactic TTX650s and Tactic TR624 and TR625 receivers. He also has used a FlySky FS-i6X radio system with a FlySky receiver. His report on that radio system is in the October 2018 *Ampeer*.

http://theampeer.org/ampeer/ampoct18/ampoct18.htm#RADIO

In an *Ampeer* notification email, I asked for this type of information from subscribers. The following is the information I received via email.

Joe Hass - I use a Tactic 8 channel for most newer aircraft. I also have a Spektrum DX8 with a bent external antenna and Spektrum DX7 (the original). Once I equip an aircraft I rarely change. Most of my transmitter memories are half full.

Jim LaLone I am currently flying a Hitec A9 transmitter and their 6 and 7 channel Optima receivers.

I have been extremely satisfied with this radio, and I am sad that it is discontinued with no followon. I especially like the touchscreen, SPC power, and flight pack voltage telemetry. The only feature I wish it had was voice alerts.

Ross Taylor I use Hitec radios exclusively, including Eclipse 7s with Spectra 2.4 modules X2

and a mix of Hitec and Futaba servos. That's a bit old school but they are serving my needs very well.

Dave Peterson - I am using multiple JR XP903 Heli Transmitters and love them! They do everything I need them to do.

Of course to get off 72mHz and go to the latest technology, I upgraded the Tx on the radio to 2.4Ghz using a replaceable module from FrSky DJT that plugs in the back. This combination is incredibly reliable and easy to use.

For Rx's, I am using FrSky V8-FR-II Receivers that have great range and love them as well. 8 Channel and using all 8 of them!

I should mention that I have 4 helicopters running perfectly with this technology, as well as a couple planes too.

They work great for me.

I LOVE JR Products and hated to see them go under. But the setup I mention above is rock solid and I trust it on all my flying machines.

Dave (HeliDave and BoaterDave on the forums)

Dave Castetter My favorite Radio brand is still JR and all are on 72 MHz. I have been flying them since the 1970's. The JR 347 was my first real computer radio that worked extremely well. I have never had a failure or lost model due to JR radio issues.

I still own two JR 347s, two JR 388s, and two JR 9303s. The 9303 is very nice – but does not talk to the older PCM receivers. It needs FM or SPM receivers.

My favorite receivers are the JR scan select – as you do not need to worry about X-Tals drifting. The "flight modes" on the JR are really nice for sailplanes and aerobatic ships.

I also have a third JR 9303 with a Spectrum 2.4 module installed in the back. I have not used it yet.

Regarding 2.4 GHz, I still do not trust it nearly as well as the 72 MHz. Since "everyone" has moved from 72 MHz to 2.4 GHz, my area is pretty much free of 72 MHz interference.

I have 2 Spectrum DX18s. The option of telemetry is nice – but I still do not trust them as well as my JR radios.

Regarding the Spectrums, two of my closest friends fly F3F and F3B along with Thermal. They have \$\$\$\$ and fly the best sailplanes from Europe. Most are in the \$2,000.00 + range for airframe and another \$500 or so in airborne equipment.

After numerous Spectrum quality issues – they moved to Jeti. So far the Jeti radios have been rock solid. Jeti is what most fly in the European contests. (the Spectrum Dx18s and all the receivers were donated to me when they made the change. It's nice to have great friends)

Plenny Bates - For a year I have been using a Spektrum DX9 DSMX transmitter.

All of my receivers are Lemon with diversity antennas.

When I bought my transmitter, the receivers with telemetry, sold by Spektrum, sent a refresh to the servos every 11 Ms even when the transmitter was sending at a 22 Ms rate. The result was non digital servos many times would not work. This went on for over a year with Horizon never making it clear there was a problem. Well over a year after the problem was known, Horizon sent a software fix to the people who have the problem receivers.

For that reason I went with Lemon receivers and have been happy. I have never had a range issue except an occasional telemetry drop out at over 1000' slant distance.

I went to Spektrum because a friend was going to that brand was would help me program the transmitter.

I started using JR 9303 transmitters and JR receivers very soon after that model came out and used that gear until about 2 years ago. That was on 6 meters and RCM. It was faultless.

Nick Bisonni - My transmitter is an Airtronics Aquila - 6 and the receivers are Airtronics "RX500" (many) and "RX71E" (one).

Barrie Hill (Australia) I use two transmitters. One is a JR X-3810 a 36Mhz purchased in the midnineties and still going strong, however it is now fitted with FrSky 2.4 module for a few years. I have not had problems with interference since moving to 2.4.

The other transmitter is a slightly younger model and is a JR PCM9XII which was also on 36Mhz but was changed to 2.4 when the other was upgraded. This is my main transmitter and still going strong.

Willie McMath I have 3 Futaba systems; a 10C, 8UAP and T8FG Super. I have 10 FrSky 7-ch (Futaba compatible) receivers and one Futaba receiver.

The responses were not what I expected. I had expected a lot more Spektrum brand transmitters and receivers.

There were a lot more compatible receivers mentioned than I had expected.

"Back in the day", during the 72MHz period, we did have Berg, FMA, Corona receivers and others that were designed to work with either the positive or negative FM systems of the day.

I guess I should not have been surprised with the number of compatible responses.

The reason that I asked this question should be clear in the next article.

Ken Myers' Preview of the Jumper T16 Transmitter

Introduction:

At the January meeting of the Midwest RC Society, I gave a PREVIEW talk on the Jumper T16 transmitter.

The Jumper T16 transmitter is different from compatible receivers in that it is a somewhat compatible transmitter. It contains a multi-protocol module that can transmit signals to various receivers on different protocols.

The reason I purchased it was to give me something to investigate over the long layoff between outdoor flying seasons.

Please note this is only a preview, not a review or any type of endorsement.

The following appeared in the February 2020 Midwest RC *Monitor* newsletter. I have edited it slightly and added some comments.

There were 16 members present at the Wednesday, January 8, 2020 meeting during Ken's Jumper T16 presentation.

Ken Myers' presentation was about a fairly new, Feb. 2019, RC transmitter known as the Jumper T16. It is able to transmit using a large number of the Ampeer

2.4GHz protocols and therefore, it is compatible with many different brands of 2.4GHz receivers.

He started his presentation by asking a series of questions regarding the 2.4GHz brand radios that the members are now using.

1. How many of you are regularly flying with these 2.4GHz radios? The members were told to included 72MHz radio brands that had been converted to 2.4GHz.

1. RTF transmitter that came with your aircraft: 0

2. a Detrum Gavin Tx: 0

- 3. a Radiolink Tx: 0
- 4. an Orange Tx: 1

5. a Turnigy branded Tx: 0

6. a Graupner HoTT Tx: 0

7. a JETI Tx: 0

- 8. a FlySky Tx: 2
- 9. a FrSky Tx: 0
- 10. Airtronics: 0
- 11. a JR Tx: 1
- 12. a Hitec Tx: 1
- 13. a Tactic Tx: 6
- 14. a Futaba Tx: 5
- 15. a Spektrum Tx: 12
- 16. another brand: 0

2. How many of you are currently flying 2.4GHz with more than one of the brands mentioned? i.e. usually taking at least two different protocol/brand 2.4GHz: 4

3. How many of you are flying a module in your main Tx to use a different protocol than the one the main transmitter is using?

This also includes 72MHz radio brands that have been converted to 2.4GHz. 1

4. How many of you are using a multi-protocol module, like the Jumper JP4IN1or the iRangeX IRX4, in your transmitter? 0

Dave Stacer helped Ken demonstrate how he could control 6 different aircraft, one at a time, using the Jumper T16 transmitter with very different 2.4GHz protocols. The six aircraft, set up with six different protocol receivers, were an RUA 2-4-10 with a FlySky iA6B receiver, a stick-type plane with a Tactic TR624 single antenna receiver, a SuperEZ with a Tactic TR625 dual antenna receiver,

another RUA 2-4-10 with a Jumper X8 receiver, and a Pandora with a FrSky X8R receiver.

Two important things that Ken noted were that the two Tactic receivers use different protocols and that the Jumper R8 and FrSky X8R use the same protocol.

After the demonstration, he asked the members a few more questions.

 How many of you have heard of a transmitter operating system known as OpenTX? 6
How many of you have heard that OpenTX is too hard to learn and program a plane with? 0
How many of you have heard that OpenTX is

only for multi-rotor pilots and computer geeks? 0

Dave was also volunteered to program a plane on the Jumper T16. He had never seen, or held, that radio before.

Ken talked him through the steps of how to turn on the transmitter and create a new model.

Dave read the onscreen question prompts and Ken told him how to enter his choices.

The guidance questions appeared to be simple to answer.



Screen 1: Choose between Glider or Plane Plane was chosen.



Screen 2: Does your model have a motor? Yes was chosen. What channel is it on? CH3 was chosen.





Screen 3: Number of ailerons on your model? Two One, or two with a Y cable One, or two with a Y cable was chosen.

Screen 4: Does your model have flaps? Yes No No was chosen.



Screen 5: Pick the tail config of your model. One channel for Elevator, one for Rudder Two chans for Elevator, one

for Rudder

V-tail One channel for Elevator, one for Rudder was chosen.



Screen 6: No, I need to change something (located near bottom of the screen) Yes, all is well, create the plane !

Yes, all is well, create the plane ! was chosen.



Screen 7: Model successfully created ! Press RTN to exit

After pressing the RTN button, the model select screen appears.

A Few Quick Facts

The Jumper T16 was 1st

advertised by Banggood in Feb. 2019.

Features include:

Required Battery: 2 x 18650 Lithium Ion or 2S LiPo (neither included) Current: 350mA (NO CRSF - crossfire module) Channel: 16 ch using SBUS/IBUS, 8 ch PWM STM32F429BIT6 MCU Shipped in Mode 2 (Throttle on Left) - can be changed to Mode 1 4.3 inch 480x272 outdoor readable color screen Compatible with OpenTX Angle adjustable, dual bearing, Hall sensor gimbals Jumper JP4-in-1 Built-in Multi-protocol Module with TBS Crossfire support Removable battery Supports Telemetry Memory 16 per protocol (can be expanded by SD card)

Voice function

Vibration reminder function Standard JR module slot 6-Flight Mode Buttons Two-color LED status display Equivalent function of "Model Match" **Included with the transmitter:** MicroSD card - preloaded USB cable 18650 tray Throttle return springs and parts Neck strap Throttle spring adjustment set Self-stick foam pad to secure the battery box I wanted to use a Cobra motor, as they are my "go to" brand.

There are only a few sellers of the T16 in US. It is difficult to find in stock in the USA.

Grayson Hobby \$159.99

https://graysonhobby.com/jumper-t16-open-sourcemulti-protocol-radio-transmitter-jumpertx.html Says \$179.97 on page, but that includes the listed extras; two 18650 Lithium Ion batteries, custom 3D printed backplate, Jumper R8 Airplane Receiver The base price plus any optional choices determines the price.

Shipping was \$12.10 for his and sent 2-day priority mail

Heli-Nation \$169.99

https://www.heli-nation.com/latest-jumper-t16-prowith-hall-gimbals-open-source-multi-protocol-builtin-radio-transmitter

Price includes 2-day priority shipping if pre-ordered **Team BlackSheep** \$159.99

https://www.team-blacksheep.com/products/prod:jumper_t16_pro **DefianceRC** \$169.99 Free shipping

https://www.defiancerc.com/products/jumper-t16-prohall-gimbal-radio-with-built-in-multi-protocol-module **BuddyRC** \$159.95

https://www.buddyrc.com/jumper-t16-pro-hall.html NewBeeDrone \$169.99

https://newbeedrone.com/products/jumper-t16-pro-with-hall-gimbals-open-source-multi-protocol-built-in-radio-transmitter?aff=10

Ken gave the members a **warning** about the 18650 Lithium Ion cells being supplied by Grayson Hobby. They are branded as Garberiel and listed with a capacity of 6000mAh. Ken tested them and found their capacity to be only 850mAh when discharged at 1/10 the capacity of 6000mAh. In other words, they were discharged at 0.6A.

Ken recommended the 18650batterystore.com online store as a source. The LGs that he purchased from that Website are no longer available, but there are good Samsung and Panasonic cells there. They do not need to be high discharge types as the system only draws 350mA.

Another good source is www.rcbatterykit.com. Bob can supply the cells, wiring for internal charging and a charger at a very reasonable price. The price depends on the options that you choose for the cells and whether or not you'll purchase a charger.

The Jumper R8 receiver seems fine, but Ken had not flown it yet, and at \$9.99 when purchased with the T16, that's a savings of \$5 over the regular price of \$14.99.

https://graysonhobby.com/jumper-r8-16-channel-receiver.html

There are four active threads on RC Groups regarding Jumper. Three are about the transmitter and one about the Jumper R8 receiver.

Jumper T16 2.4G 16CH OpenTX Multi-protocol Radio (started Feb 2019)

https://www.rcgroups.com/forums/showthread.php?3243685

Jumper T16 Owner's Thread - (2.4G 16CH OpenTX Multi-protocol Radio) (started May 2019)

https://www.rcgroups.com/forums/showthread.php?3301299

Jumper T16 hardware hacks (started June 10, 2019)

https://www.rcgroups.com/forums/showthread.php?3332697

Jumper R8 Receiver - 8-channel PPM/16 channel SBUS, D16 compatible, telemetry?

(started October 16, 2019)

https://www.rcgroups.com/forums/showthread.php?3433401

There is also a RC Groups thread regarding the multi-protocol module.

DIY Multiprotocol TX Module (started May 2014)

https://www.rcgroups.com/forums/showthread.php?2165676

Ken also told the members about a supposed new radio that is based on the Jumper T16. It is called the RadioMaster by Hobby Porter. The person that started Hobby Porter worked for and with Jumper, so it is basically a Jumper T16 with a few upgrades that that person thought would make it better. It is not available at this time. https://www.rcgroups.com/forums/showthread.php?3493859 and radiomasterrc.com

A list of the supported protocols for the multiprotocol module can be found on github. https://github.com/pascallanger/DIY-Multiprotocol-TX-Module/blob/master/Protocols Details.md

He also noted that there is no protocol for the Futaba FASST receivers only the SFHSS is supported.

The radio does not come with a manual. Jumper has a manual online at jumper.xyz.

https://www.jumper.xyz/portal.php?

mod=view&aid=17

The manual is dated Aug. 2019 and Ken did not find it all that useful.

To help him learn more about the Jumper T16, he created a Website with links to all of the useful YouTube video about the Jumper T16 and OpenTX.

Ken posted a link to that collection of YouTube videos on the EFO Website.

http://theampeer.org/Jumper T16/jumper-T16.html

Table of Contents for the YouTube Videos

The videos are arranged by date with the newest first in each section.

1. OpenTX Companion Computer Software

& Jumper T16 Firmware Updating

for the transmitter's OS, the Multi-module's firmware & the SD Card

2. Model Setup and Programming How Tos

3. Hardware, Hardware Hacks and Complete

Disassembly

4. Range

- 5. Problems and Some Fixes
- 6. Previews, Reviews (Ken suggests to start here.)
- 7. FrSky versus Jumper

Ken called for questions from the members. Some of the questions and Ken's answers follow.

Is the transmitter FCC part 15 certified?

Yes, here is the link to the FCC information for the Jumper T16.

FCC ID 2ANTI-T16

https://fccid.io/2ANTI-T16 Jumper T16 Pro



Is this going to become your daily transmitter? Ken said that he wasn't sure yet, as he's only completed actual range tests on two of the receivers, the Tactic TR624 and FlySky iA6B, which both passed, but he's not flown them. He said that once he has done some actual flying with each

receiver, he'll make his decision. But it seems to be looking good at this point.

Since that Midwest meeting, I have had a chance to fly the transmitter indoors at the Ultimate Soccer Arenas in Pontiac, MI and at the Legacy Centre in Brighton, MI. There were no problems at either indoor venue.

Please remember that this is nothing more than a preview. It is not a review nor is it an endorsement.



The Upcoming Keith Shaw Birthday Party Electric Fly-in 2020 (Tentative)

The Balsa Butchers are hosting the "Keith Shaw Birthday Party Electric Fly-In", for the 18th year, at their field near Coldwater, MI. The event takes place on Saturday, May 30, 2020. It is a one day event again this year.

The event consists of Open Electric Flying with a "Special Guest of Honor Theme", Happy Birthday Keith Shaw [June 6].

Enjoy a day with the "Pioneering Master of Electric R/C Flight". 8 a.m. - 5 p.m., Saturday. NO LANDING FEE! Donations for field maintenance and lunch appreciated.

For additional information contact; Dave Watson 517-250-6190 or flybuddy619@yahoo.com Contest Director: Dave Grife - E-mail: grifesd@yahoo.com or Phone: 517-279-8445 Please e-mail or call with any questions.

The field will be open for guests to fly on Sunday as well.

36th Annual Mid-America Electric Flies 2020

AMA Sanctioned Event (Proof of AMA/MAAC membership required to fly) Saturday, July 11 & Sunday, July 12, 2020 Hosted by the:

Ann Arbor Falcons and Electric Flyers Only The 7 Mile Rd. Flying Site, Salem Twp., MI, is Provided by the:

Midwest R/C Society

Contest Directors are: Ken Myers phone (248) 669-8124 or email kmyersefo@mac.org – http://www.theampeer.org for updates & info Keith Shaw (734) 973-6309 Flying both days is at the Midwest R/C Society Flying Field - 7 Mile Rd., Salem Twp., MI

Registration: 9 A.M. Saturday Event Flying from 10 A.M. to 4 P.M. Sat. & 10 A.M. Until You Leave Sunday (Open Flying Saturday after the Event & All Day Sunday, which is just an open electric flying day.)

Pilot Landing Fee - 18 and over, \$10 for both days, Under 18, FREE (AMA/MAAC membership required)

No Parking Donation Will Be Requested from Spectators

Awards on Saturday Only

Best Scale Most Beautiful Best Mini-Electric Best Multi-motor Best Sport Plane Foam Flurry for NCM aircraft CDs' Choice

Planes Must Fly To Be Considered for Any Award Plaques for winner in each category

The Field is Open for Open Flying All Day Friday a

The NCM (Not Conventional Materials) Event

Traditionally, model aircraft airframes have been mostly constructed from balsa wood, plywood, spruce, and fiberglass. For the purposes of this meet, NCM airframes are mostly constructed from not conventional materials i.e.; sheet foam, foam board, cardboard, block foam, foam insulation material, etc.

Foam Flurry for NCM aircraft: This is a true event. It is based upon the all up/last down event of early electric meets. Any NCM aircraft may be used (no ARF types). Power systems are limited to a maximum of 3S (no paralleling) LiPo batteries or 4S maximum, no paralleling, for A123 packs. All planes qualifying for this event will launch at the same time, and the last one to land will be declared the winner.

VERY IMPORTANT REMINDER FOR 2020 -THE FLYING FIELD ENTRANCE TO THE MIDWEST FLYING FIELD CHANGED LAST YEAR!

The old entrance to the Midwest RC Society flying field is permanently closed!!! **DO NOT ATTEMPT TO USE IT!!!**

To locate the Midwest R/C Society 7 Mile Rd. flying field, site of the Mid-America Electric Flies, look near top left corner of the map, where the star marks the spot, near Seven Mile Road and Currie Rd.

The field entrance is on the north side of Seven Mile Road about 1.5 Miles west of Currie Rd. entrance is on the north side of Seven Mile Road about 1.6 Miles west of Currie Rd.

The address is 7621 Seven Mile Road, Northville, MI 48167. The entrance is through a private residence drive and out past the barn.





Directions from Google Maps to the flying field https://www.google.com/maps/place/ MIDWEST+R%2FC+SOCIETY/@42.422025,-83.6170775,805m/ data=!3m1!1e3!4m13!1m7!3m6! 1s0x8823559bdf962b57:0xd100df97d9dcebf1!2s7419+7+Mile+Rd, +Northville,+MI+48167!3b1!8m2!3d42.4187058!4d-83.6190072! 3m4!1s0x882355a2c9e29cb5:0xaaf592068692b984!8m2! 3d42.422025!4d-83.6148888?hl=en

Because of their convenient location and the easy drive to the flying field, the Comfort Suites and Holiday Inn Express in Wixom, MI have been added to the hotels' listing. They are only 10 miles northeast of the field and located near I-96 and Wixom Road. See the map-hotel .pdf for more details.

http://www.theampeer.org/map-hotels.pdf

Upcoming E-vents

May 30, Tentative - Keith Shaw Birthday Party Electric Fly-in, Coldwater, MI (details in this issue)

Upcoming 2020 36th Annual Mid-America Electric Flies

The 36th Annual Mid-America Electric Flies are scheduled for July 11 and 12, 2020 at the Midwest RC Society 7 Mile Road flying field. (details in this issue)

The Ampeer/Ken Myers 1911 Bradshaw Ct. Commerce Twp., MI 48390 http://www.theampeer.org

The Next Monthly Meeting: Date: To Be Determined, 10 a.m. Place: Midwest 7 Mi. Rd. Flying Field