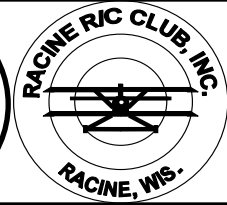




THE FLIGHTLINE



AMA CLUB 668 SINCE 1968
RACINE RADIO CONTROL CLUB INC SINCE 1968

March Issue
Next Meeting March 18, 2018

WE ARE ON THE WEB
www.racinerclub.com

Club Officers

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Racine R/C Club Meeting

Sunday: February 18, 2018

Time: 1:00 PM

Location: RC Flying Field

Open Meeting - President Jim Litwin called to order the meeting of the Racine RC Club.

Welcome-New Member & Guests-

There was one guest, Rich Smentek, who had been a previous flier and became a member of RRCC at the meeting.

Minutes – Last Meeting –There were no additions or corrections to the minutes of the last meeting as published in the last newsletter.

Reports

President – Jim Litwin wanted to discuss the rationale for changing the lock combination early. There had been two occasions that someone had access to the combination, opened the lock and gate and had vandalized the area with spinning tires kicking up mud onto the field shelter and port-a-potty. Since the combination has been changed there has been no reoccurrence of these break-ins.

Vice President – Roger Nicolaus mentioned that the Club Banquet is going to be held on March 3, Saturday, at 5:00 PM at the Roma Lodge, Spring St., Mt. Pleasant, the same as last year. Cost will be \$23 per person, \$45 per couple. There are 37 currently signed up.

Secretary/Treasurer – Bill Flannery reported membership for 2018 is currently 47: regular 14 senior 29, junior 2, non-flying 1, and 1 family member.

A special mention was made of the Terry Weber fund which reached \$770 from the sale of Terry's aircraft and equipment that was donated to the club by Terry's surviving wife, Faythe Weber. That money helped pay for the

road bond that replaced the rough gravel in the shelter and spectator areas. Our walking challenged members and guest will be very appreciative.

Safety Officer – Dan Pozel had no current safety issues.

Field Chairman – Darrel Hossalla had nothing to report. All the members really appreciated the huge task of plowing out the parking area that Hoss has been doing all winter.

Newsletter Editor – Dennis Vollrath has several copies of the newsletter for anyone in need.

Tractor Chairman- Eric Armantrout had no comments.

Compost Director – Jerry Rose is compiling the compost duty roster and asked that all members contact him to sign up for the mandatory compost duty. Also, please check the personal information on the roster for correctness especially name, address and phone number. If there are any errors notify either Jerry or the secretary, Bill Flannery.

Web Master – Bob Houin will be sending out the monthly email newsletter. If anyone uses their work website for an email address or does not want to receive the newsletter please let Bob or Bill Flannery know so your name can be removed from the mailing list.

Old Business – There was no outstanding old business.

New Business- Jim Litwin announced the voting on the following 2017 Club Awards:

- Craftsmanship (membership)
- Instructor (instructors)
- Golden Propeller (previous recipients)
- Sportsmanship (membership)

The Golden Propeller award winner was previously selected by past recipients. Due to

the lack of previous winners that are still members of the club, Jim made the motion that this award be determined by the entire membership. The motion was seconded and unanimously passed.

The following were nominated for the Golden Propeller Award:

Jim Litwin

The following were nominated for the Craftsmanship Award:

- Ed Witt
- Darrel Hossalla
- Bob Houin
- Jerry Rose
- Roger Nickolaus

The following were nominated for the Sportsmanship Award:

- Roger Nickolaus
- Eric Armantrout
- Dennis Vollrath
- Ron Dixon

Ballots were passed out and collected. The results will be announced at the banquet.

Larry Petricek stated that the Milwaukee Association Swap Meet was a success and that the raffle had brought in \$173. Hoss stated that the Wheaton Ill. Swap Meet had brought in more than \$1400 at the raffle. An anonymous member suggested that Larry should wear a shorter dress.

Show & Tell – Dennis Vollrath brought in a newly constructed Bush Master by Extreme Flight which, of course, was powered by an electric motor rated at approximately 2 hp. This is a very capable giant aircraft performing 3-D flight at Joe Nall a couple of years ago. We'll all be waiting for the maiden flight.

Raffle Drawing – Raffle was won by Jerry Rose, who donated the \$20 winnings to the club. Thanks, Jerry.

Close Meeting- The motion was made and seconded to adjourn. Next Meeting is on Sunday March 18th at 1:00PM.

JIM'S CORNER

Spring is only about a week away, and conditions at the field are getting better, in spite of the wind, mud, snow, overcast skies, and excess gravity that seems to grab at some of the planes. Daylight Saving time comes in 3 days (as I write this article) and that should help with the flying in the early evening.

The awards banquet was enjoyed by all that attended. If you went hungry, it was not because of the amount of food available. There was PLENTY!! The 2017 awards were presented and they were:

Craftsmanship ----- Ed Witt
Instructor ----- Eric Armantrout
Sportsmanship ----- Dennis Vollrath
Golden Propeller ----- Jim Litwin

Most of our past members have renewed their membership for 2018, but if you have not done so, and plan on being a member this year, please send your dues to the Secretary, Bill Flannery.

I had an occasion to talk with the Mt. Pleasant Public Works Foreman, Mike Benish about the upcoming year, and he indicated that the Village Board did not authorize additional funds for a 3rd day of operating the

compost site each week, so we are the same as last year, Wednesday afternoons, and all day Saturday. The issue of a 3rd day IS coming, so sooner or later, we will have to deal with it.

I can't stress this enough: start doing some maintenance checks on your planes and equipment. Poor batteries, loose wiring, loose bolts, hardened fuel lines, cracked structure / wing parts can only lead to problems in the air. A few minutes now will save you a lot later.

As we had into the 2018 flying season, we seem to be in good shape. Adequate funds, field equipment in good shape, and no flying field issues. We will have some restricted flying to the north of us during the day as the Village starts developing the expanded compost site, but we can still fly thru the "Slot" as we do now when the Mt. Pleasant maintenance people are working in the compost site. It will just be a bit narrower than it is now.

Sunday, March 18 is our next club meeting. Hope to see you there.
Fly Safe & Have Fun
Jim Litwin, President

Dennys Stuff: Info on Spektrum Receivers

Your editor found this bit of information located in the www.RCGroups.com website, posted by Andy Kunz, one of the software Engineers at Horizon Hobby.

Andy was responding to a question on how the Spektrum receivers handle the signals from their remote receivers. The following text is based on Andy's response in RCGroups.

In normal flying, every 22 milliseconds (That's 45 times per second) your receiver(s) gets an update from the transmitter. All the receivers (internal and remote)

send the servo's position information to the base microcontroller (computer chip) located in the main receiver. The micro looks to see who has data - first the internal main receiver, then the remotes.

If the main receiver has received data, it immediately updates the channels positions accordingly. If the main receiver didn't get a valid servo information signal, the main receiver nearly instantly checks the signals from the various remote receivers.

Every 22 milliseconds, the main receiver checks all of the remote receivers to check on whether they also received a proper signal. If any receiver didn't have

position data, it marks that as a "fade" for that receiver (that is the A, B, R, or L number). If none of the receivers have data, it marks that as a Frame Loss (F number). During a frame loss, all the servos hold their last position.

If somehow it doesn't get 45 in a row from any receiver, then it changes to a Hold (H number) and the failsafe from bind is engaged. (22 milliseconds times 45 equals a loss of signal longer than 990 milliseconds or just under one second)

Also note, these 2.4 GigaHertz receivers are capable of handling a tremendous amount of information in that signal received from the transmitter. These receivers include error checking of their received signals, so if something happens to that signal for what ever reason, the main receiver goes to another remote receiver to get its information.

For throttle that means it always goes to the preset position at bind. For other channels, it depends on the receiver and configured failsafe mode. For some they

will continue to hold their last position ("hold last") or for others they can be programmed to go to preset positions ("preset failsafe").

The important thing is that every 22 ms the servo positions will be refreshed by one or more of the Spektrum receivers. It won't wait for the latest one to stop working for some period of time before switching over. It continually monitors all and uses data from all of them every time.

FYI, the www.rcgroups.com website has a tremendous amount of information on all versions of radio control, from heli's, foamies, small and large models, giant scale, DIY projects, the list goes on and on.

That RCGroup also has a separate forum on the Spektrum radios that currently has nearly 4000 pages of information.

It is very worth while to check this website out.

Dennys Stuff—Hall Effect Sensors

Many of our readers of this newsletters that fly gasoline powered engines have heard of the Hall Effect sensors used in their engines.

So just what is a Hall Effect Sensor?

As can be expected, there is a very wide variety of hall effect sensors on the market. The www.digikey.com website has thousands of different types of these devices.

These units come in various types, including analog types that can be used for position sensing, along with digital types that are "Go-No Go" type units.

These sensors generally have three wires

connected to them, the negative connection, the positive connection, and the signal output connection. Many of them are designed to operate on the standard integrated voltages of either 3.3 Volts DC or 5.0 Volts DC.

Connecting the unit to a 5 Volt source, the output signal will generally be zero volts. As a magnet approaches the sensor, at some critical magnetic strength, the output signal switches from zero volts to the power source voltage, either 3.3 or 5.0 Volts DC.

That is somewhat similar to a simple ignition contact that was used on our engines decades ago.

Here is where the very wide range of sensors becomes an issue. Some of these sensors only operate up to around 10-20 times per

second. At 20 times per second, that is 20 times 60 seconds or 1800 RPM, obviously a wrong choice for any RC gas engine.

Other, more expensive sensors can operate up to 10,000 cycles per second and beyond, far higher frequency than what is required for our Gas engines. That 10,000 Hertz is equivalent to 600,000 RPM.

So, replacing a sensor in an existing Hall Effect unit would be a crap shoot at best, even if it were not encapsulated.

So, what can go wrong with these things?

About the only thing is no output when the engine is cranked over. And, that doesn't take much to measure. A simple LED and a resistor comes to mind.

But, if the sensor has problems at high RPM, the LED test unit won't work well. There are commercial units designed to test these sensors, but I've no experience with them.

Roger N indicated he uses a simple digital voltmeter to check them.

So, what else can check these sensors? An oscilloscope. Read on!

Dennys Stuff - Oscilloscopes!

Many of the readers of this newsletter are familiar with the common digital multi-meter, available for as low as \$5.99 from Harbor Freight.

I've got several of these HF meters, they are not bad for general use with our RC stuff. I also have a pair of \$350 Fluke 87 meters that are far more than what's needed for our uses.

But, on DC voltages and current, these digital meters are only useful for measuring voltages and currents that are stable in value, IE not varying all over the map in short time periods of less than a few seconds.

Enter the oscilloscope.

An oscilloscope has a visual screen with a vertical and a horizontal display. For measuring voltage, the vertical display would be used to measure voltage, the horizontal display would be to measure time.

So, these scopes allow measuring something like voltage or current against time, displaying it on the oscilloscopes screen.

Your editor is an admitted Electronics test equipment junkie equipped with a whole variety of electronic test stuff.

Some 50 years ago, I scratch built an oscilloscope that worked, and it was used for several years. Now days, those same scopes are likely to be computer controlled, and can display a very wide variety of information on their screens, in addition to the displayed waveform itself.

Problem is, they are not cheap, especially for the RC membership that might use one once or twice a year.

Well, your editor bought a new oscilloscope, with a photo of it the top of the next page. This unit shows what happens when you make a connection to a 9 volt battery by just touching two wires together.

Each vertical division is 0.2 volts DC, with a 10/1 scope probe, making each division 2.0 Volts DC. Note the "Bouncing" of the contact. Note that each horizontal division left and right is 10 milliseconds.

The photo below on the left shows the

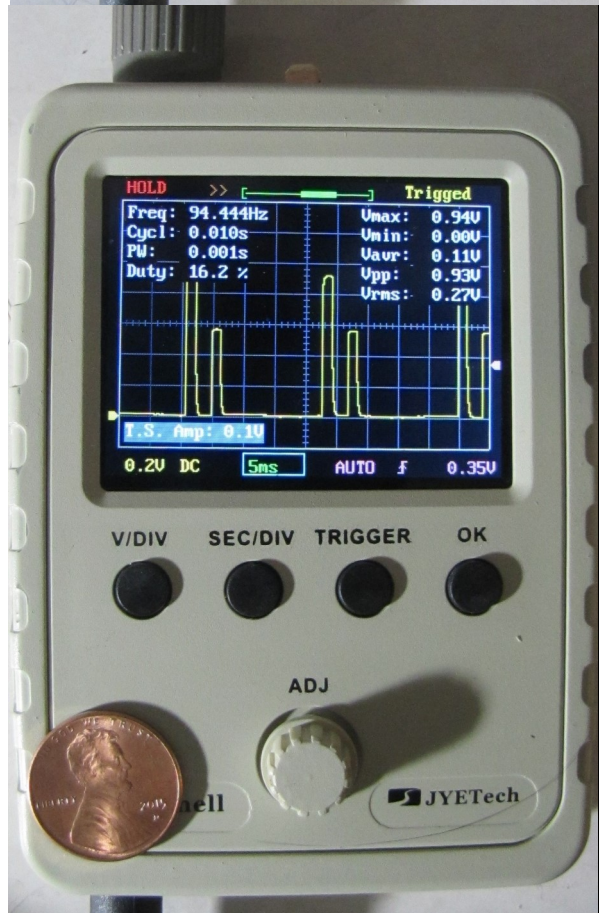
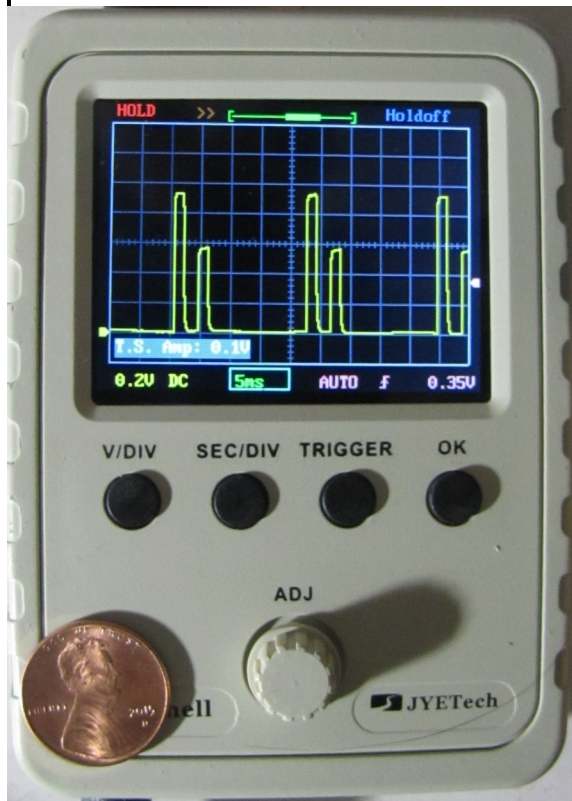
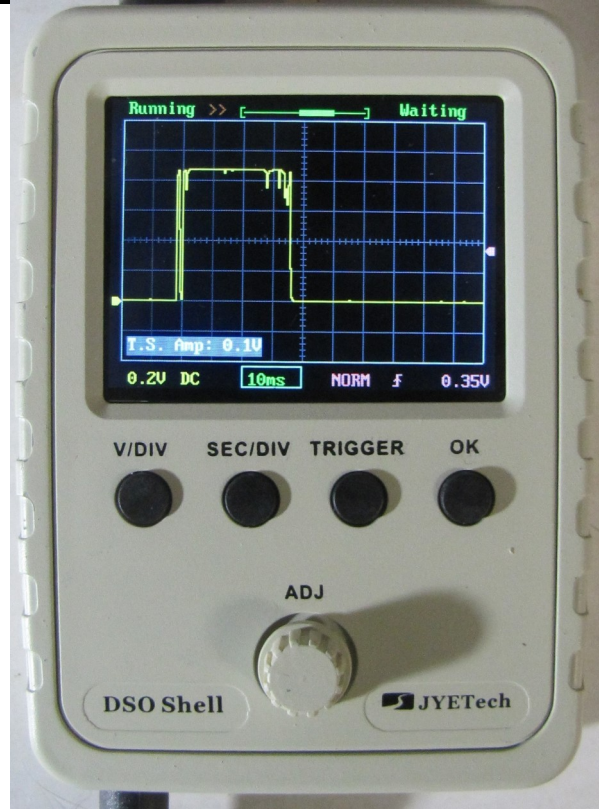
signal output of that “Peter Meter” as described in the February 2018 RRCC newsletter. Note that the horizontal display is 5 milliseconds, or 0.005 seconds per division. Or 22 ms per “Frame”

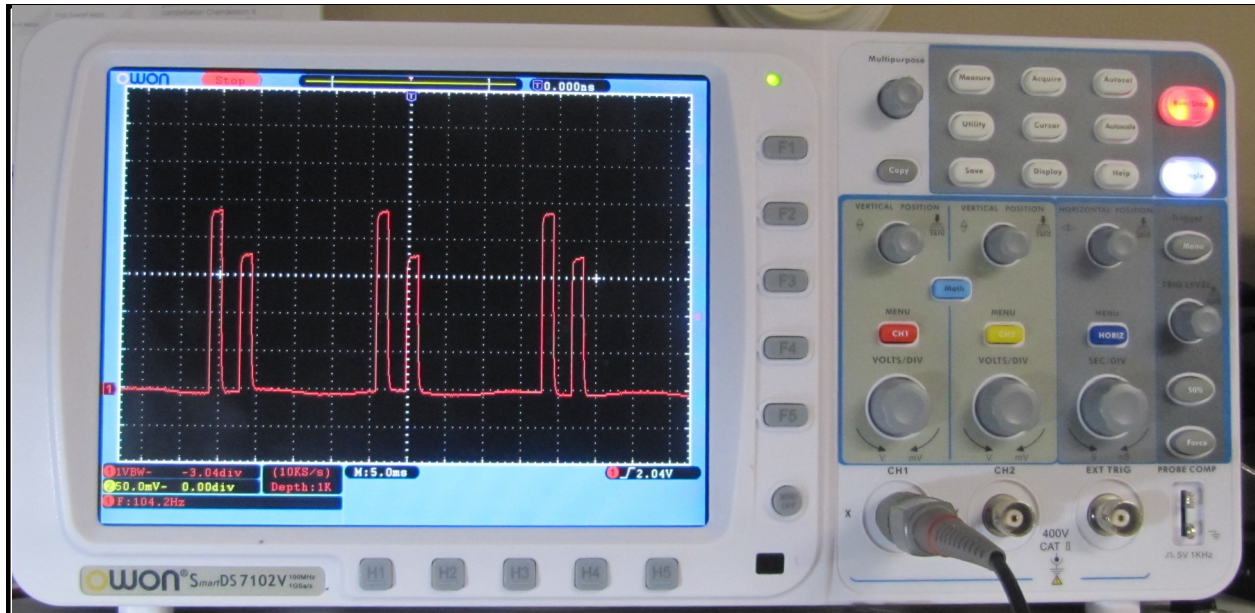
And the photo below on the right shows the DSO150 scope along with measurement information. The DSO150 is fairly accurate both on vertical and horizontal time measurements.

This scope has an usually wide range of horizontal time display, adjustable from 10 Micro Seconds to 500 Seconds per division.

Also note the size of this unit, compared to a penny. It measures 3 by 4 inches and about 3/4 inch high. It is powered by a common 9 Volt Alkaline battery, but that battery will only last a few hours on this unit. A 9 Volt DC wall wart power supply can also be used.

Your editor has converted his scope to operate off of a pair of 850 mah LiFe receiver





batteries, using only three of the four cells in the two battery packs. They will last about 6 hours between charges.

The photo above shows the same signal as measured by my \$400 Owon oscilloscope.

So, what is its price? I bought mine for \$33.00, shipping included. This is a kit where about a dozen resistors, a few capacitors and other hardware must be soldered in. Fully assembled units are available in Ebay, but they ship from China for a few \$\$\$ more.

Note that there are two versions of the DSO150 kits. One comes with the surface mounted parts all ready installed. The other kit requires soldering in the surface mount parts. It is not fun to solder in an integrated circuit with 48 pins that are spaced at 0.020 inches between pins. If interested, be sure to order the proper unit.

HALL EFFECT SENSORS

So, just how would one of these scopes be useful for RC? Back to that Hall Effect unit used with most of the RC gas engines used with those ignition modules.

These ignition Hall Effect sensors will be putting out a signal very much like the scope

traces shown on the photos shown in this newsletter, only they'd have a single pulse, versus the double pulses shown on the photos.

And, a simple "Y" harness inserted between the Hall Effect Sensor and the ignition module will allow measuring those signals.

Nice thing about it, if the Hall Sensor should become erratic or similar while the engine is running, these scopes will quickly pick that up.

And, some RRCC members may recall some tests I wrote about a few years ago about analog and digital servos and what they can do to the battery voltage that is powering the receiver and servos.

This little scope will work very well on those types of tests. One of the limitations on the DSO150 is that it is limited to frequencies under 200,000 cycles per second, compared to 100,000,000 cycles per second on the Owon scope. I'll bring the little DSO150 scope to our next meeting.

For anyone that has issues with their gas engines running, let me know, and I can bring this unit along with a "Y" adaptor to the field to take a look at what's what.

RRCC BANQUET!



Buzz
Thanks for the
photos!



COMPOST DUTY ROSTER

Comp Date	Time	Worker	Comp Date	Time	Worker	Comp Date	Time	Worker
11-Apr-18	12-2	Darrel (Hoss) Hossalla	27-Jun-18	12-2	John Collins	12-Sep-18	4-6	Edward Witt
11-Apr-18	2-4	Darrel (Hoss) Hossalla	27-Jun-18	2-4	John Collins	19-Sep-18	12-2	James Levandoski
11-Apr-18	4-6	Jerry Rose	27-Jun-18	4-6	Ray Fisher	19-Sep-18	2-4	James Levandoski
18-Apr-18	12-2	Roger Nickolaus	05-Jul-18	12-2	Ron Burden	19-Sep-18	4-6	Ronald Schroeder
18-Apr-18	2-4	Roger Nickolaus	05-Jul-18	2-4	Dennis Vollrath	26-Sep-18	12-2	Thomas Dremel
18-Apr-18	4-6	Jerry Rose	05-Jul-18	4-6	Thomas Dremel	26-Sep-18	2-4	Charlie Reich
25-Apr-18	12-2	Randall Vandeberg	11-Jul-18	12-2	Dennis Krzyzanek	26-Sep-18	4-6	Charles Kind
25-Apr-18	2-4	Bob Houin	11-Jul-18	2-4	David Czarnowski	03-Oct-18	12-2	
25-Apr-18	4-6	Bob Houin	11-Jul-18	4-6	Ray Fisher	03-Oct-18	2-4	Charlie Reich
02-May-18	12-2	Randall Vandeberg	18-Jul-18	12-2	Jim Dumke	03-Oct-18	4-6	Charles Kind
02-May-18	2-4	Dan Pozel	18-Jul-18	2-4	Jim Dumke	10-Oct-18	12-2	
02-May-18	4-6	Dan Pozel	18-Jul-18	4-6	Bob Lupia	10-Oct-18	2-4	Rich Smentek
09-May-18	12-2	Wayne Greisen	25-Jul-18	12-2	Bill Flannery	10-Oct-18	4-6	Rich Smentek
09-May-18	2-4	Wayne Greisen	25-Jul-18	2-4	Bill Flannery	17-Oct-18	12-2	Larry Petricek
09-May-18	4-6	Bob Johnson	25-Jul-18	4-6	Bob Lupia	17-Oct-18	2-4	Larry Petricek
16-May-18	12-2	Nat Cerami	01-Aug-18	12-2	Jerry Engwis	17-Oct-18	4-6	
16-May-18	2-4	Nat Cerami	01-Aug-18	2-4	Dennis Vollrath	24-Oct-18	12-2	
16-May-18	4-6	Keith Buska	01-Aug-18	4-6	Stephen Knackert	24-Oct-18	2-4	Bernie Vanderleest
23-May-18	12-2	Jim Hiett	08-Aug-18	12-2	Craig Manka	24-Oct-18	4-6	
23-May-18	2-4	Jim Hiett	08-Aug-18	2-4	Craig Manka	31-Oct-18	12-2	
23-May-18	4-6	Keith Buska	08-Aug-18	4-6	Stephen Knackert	31-Oct-18	2-4	
30-May-18	12-2	Pete Luks	15-Aug-18	12-2	Buzz Paricka	31-Oct-18	4-6	
30-May-18	2-4	Pete Luks	15-Aug-18	2-4	Buzz Paricka	07-Nov-18	12-2	
30-May-18	4-6	Eric Armantrout	15-Aug-18	4-6	Jerry Engwis	07-Nov-18	2-4	William (Oz) Miller
30-May-18	4-6	Ron Dixon	22-Aug-18	12-2	Carl Bergquist	07-Nov-18	4-6	William (Oz) Miller
06-Jun-18	12-2	Bryan Bailey	22-Aug-18	2-4	James Martinich	14-Nov-18	12-2	
06-Jun-18	2-4	Bryan Bailey	22-Aug-18	4-6	James Martinich	14-Nov-18	2-4	Bernie Vanderleest
06-Jun-18	4-6	Bob Johnson	29-Aug-18	12-2	John Schaefer	14-Nov-18	4-6	
13-Jun-18	12-2	Ron Burden	29-Aug-18	2-4	John Schaefer	21-Nov-18	12-2	James Strelitzer
13-Jun-18	2-4	Jim Litwin	29-Aug-18	4-6		21-Nov-18	2-4	James Strelitzer
13-Jun-18	4-6	Jim Litwin	05-Sep-18	12-2	William Wampler	21-Nov-18	4-6	
20-Jun-18	12-2	Roger E Olsen	05-Sep-18	2-4	William Wampler	28-Nov-18	12-2	
20-Jun-18	2-4	Roger E Olsen	05-Sep-18	4-6	Ronald Schroeder	28-Nov-18	2-4	Steven Navone
20-Jun-18	4-6	Eric Armantrout	12-Sep-18	12-2	Carl Bergquist	28-Nov-18	4-6	Steven Navone
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