Flare-out
TWIN CITY RADIO CONTROLLERS, INC. Newsletter
AMA Charter Club Number 383
November Minneapolis, Minnesota U.S.A. 2025

Crocktoberfest Closes Out TCRC Flying Season

by Jim Cook

Saturday, October 4th, a large contingent of TCRC pilots showed up at the Jordan Field for the club's Season Finale – Crocktoberfest.



The pilots gathered in the shelter for a great meal at Crocktoberfest. (Photo by Jim Ronhovde)

As he has been for the last few years, VP Brian Johnson was the chairman for the event. The weather was bright and sunny with clear skies, but the wind was the culprit at 15-20 mph but with gusts much higher.

There were about 20 members present and there was a lot of flying despite the uncooperative wind. And the wind took its toll on a few planes during the day.

Brian brought out the paintball gun and then flew the target plane for a good part of the day. Again, the wind made both flying the plane and being able to hit it with the gun quite an accomplishment.





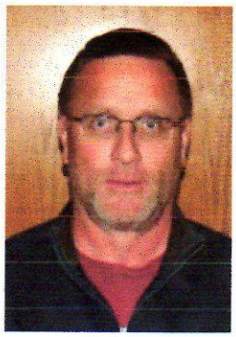
(Photos by Jim Ronhovde)

It wouldn't be Crocktoberfest without a crock pot, and this year it was filled with Walking Tacos. Everyone took full advantage of the great meal.

Of course, the Season Finale doesn't mean the end of flying for the year. On nice days pilots will still show up, as will the All-Season Flyers, as they do every month. ☺

A Note from The Head Wing Nut

By Bob Briesemeister



Welcome to November -- the cloudiest month of the year. I hope that setting your clock back didn't mess with your sleeping habits or missing breakfast. We have had a lot of wind lately but there have been some nice flying days and the first week of November looks to have above average temps.

At the October membership meeting we had a silent auction for the items that were donated by Morgan Larson's family. The club raised $335.00 dollars. I was disappointed that we weren't able to raise more funds for the club. Thanks Morgan.

November brings the TCRC election of officers for the 2026 board of directors. All executive spots are up for election, and I believe two at large positions. If you are interested in being a candidate, come to the meeting on the 11th and throw your hat in the ring. Being on the board is a good way to have input on how the club is run. TCRC is a volunteer nonprofit organization and I have had great board members as my time as president.

The Ugly Airplane Contest will also be held at the November 11th membership meeting also. Bring a plane that is flyable but is ugly either by having been crashed, having been repaired, built poorly or just plain ugly. You can win a gift certificate to a local hobby store and have the pleasure of possessing the coveted traveling trophy in your home for a year.

The TCRC Annual Banquet will be held on November 22nd at Fong's Restaurant in Prior Lake. The date had to be changed from the 15th due to a booking conflict. Happy hour will start at 5pm with appetizers at 5:30 and dinner to follow at 6:15 or so. There will be some table games to obtain raffle tickets to win the door prize of your choice. We will also play Jeopardy or The Initials Game to win even more tickets. Some of your annual membership dues go towards the door prizes. The cost is $30.00 per person for dinner and there is a cash bar. Things usually get over around 9pm. Come and join your fellow TCRC members, spouses and friends for a fun night of comradery and stories, and you could come home with an airplane or other R/C related items. There are also other prizes for the nonflying guests. I will need to have a head count by Thursday November 21st so let me know at the November meeting or give me a call.

Please bring an airplane or project to talk about at the November membership meeting and also please put February 7th as the date of the 2026 TCRC Auction on your calendar.

See you at the meeting. ☺

Ugly Airplane Contest Coming

by Sherwood Heggen

November 11, 2025 is the date of the Ugly Airplane Contest at the TCRC general meeting.

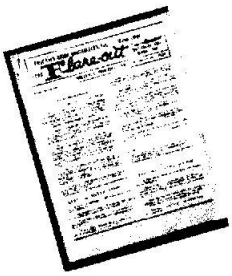
Mike Robin, the winner of the 2024 Ugly Airplane Trophy, will be relinquishing it to the 2025 contest winner. In addition, the winner will receive a $25.00 gift certificate.

Just remember that "beauty is in the eye of the beholder." Or in this case, "ugly is in the eye of the beholder." And all in attendance will be beholders!

Don't miss out on the opportunity to have your airplane be recognized for not being in pristine condition in an honorable way. Bring more than one if you have them.

See you at the meeting! ☺

TCRC meets every month on the 2nd Tuesday at 7:00 PM in Fellowship Hall of CrossPoint Church located on the southeastern corner of the intersection of 98th Street and France Avenue in Bloomington. Guests are welcome to attend these meetings.

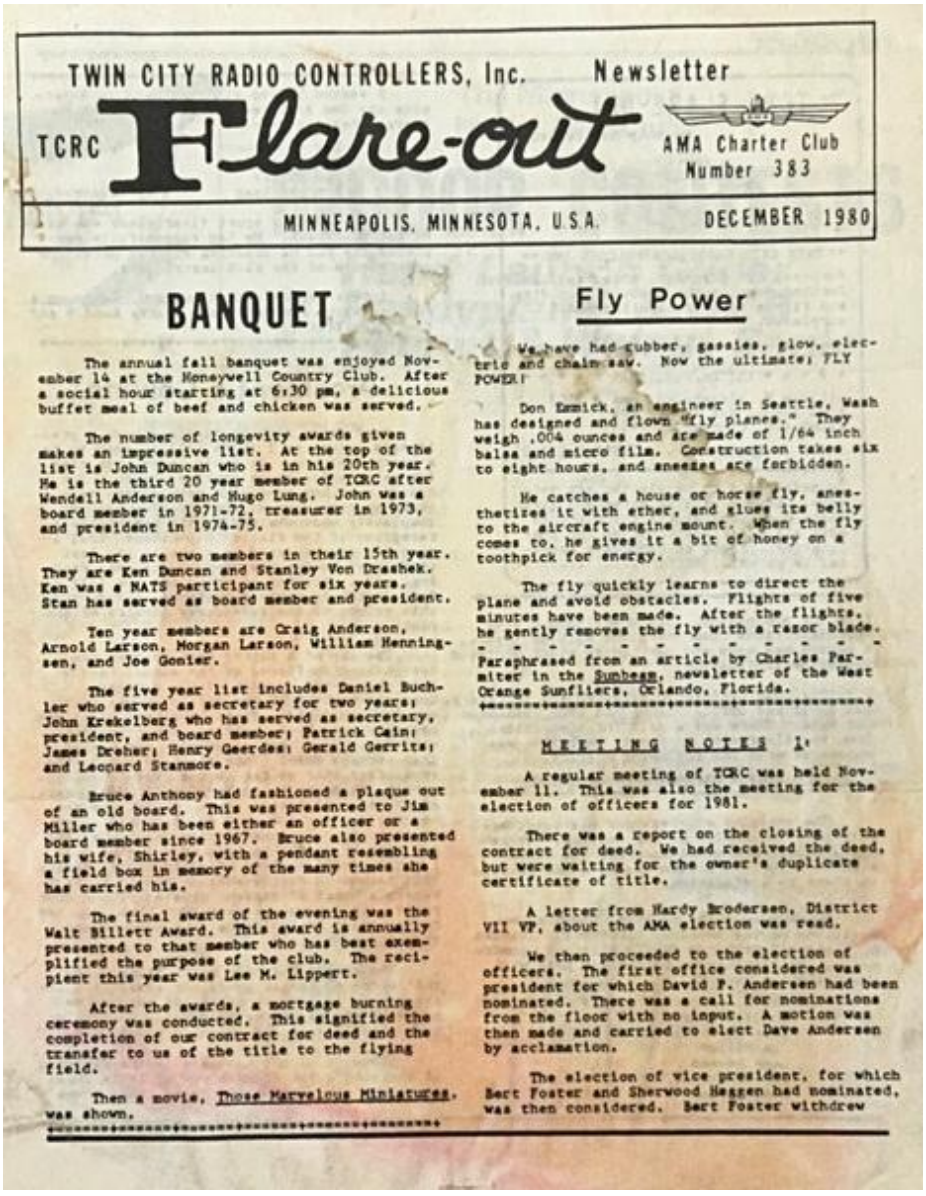


Thirty, Forty or More Years



by Jim Ronhovde

THE ANNUAL BANQUET



TWIN CITY RADIO CONTROLLERS, Inc. Newsletter

TCRC **Flare-out** AMA Charter Club Number 383

MINNEAPOLIS, MINNESOTA, U.S.A. DECEMBER 1980

BANQUET

The annual fall banquet was enjoyed November 14 at the Honeywell Country Club. After a social hour starting at 6:30 pm, a delicious buffet meal of beef and chicken was served.

The number of longevity awards given makes an impressive list. At the top of the list is John Duncan who is in his 20th year. He is the third 20 year member of TCRC after Wendell Anderson and Hugo Lung. John was a board member in 1971-72, treasurer in 1973, and president in 1974-75.

There are two members in their 15th year. They are Ken Duncan and Stanley Von Drashek. Ken was a NATS participant for six years. Stan has served as board member and president.

Ten year members are Craig Anderson, Arnold Larson, Morgan Larson, William Henningsen, and Joe Gonier.

The five year list includes Daniel Buchler who served as secretary for two years; John Krekelberg who has served as secretary, president, and board member; Patrick Cain; James Dreher; Henry Geerdes; Gerald Gerrits; and Leonard Stanmore.

Bruce Anthony had fashioned a plaque out of an old board. This was presented to Jim Miller who has been either an officer or a board member since 1967. Bruce also presented his wife, Shirley, with a pendant resembling a field box in memory of the many times she has carried his.

The final award of the evening was the Walt Billett Award. This award is annually presented to that member who has best exemplified the purpose of the club. The recipient this year was Lee M. Lippert.

After the awards, a mortgage burning ceremony was conducted. This signified the completion of our contract for deed and the transfer to us of the title to the flying field.

Then a movie, Those Marvelous Miniatures, was shown.

Fly Power

We have had rubber, gassies, glow, electric and chain saw. Now the ultimate; FLY POWER!

Don Emmick, an engineer in Seattle, Wash has designed and flown "fly planes." They weigh .004 ounces and are made of 1/64 inch balsa and micro film. Construction takes six to eight hours, and sneezes are forbidden.

He catches a house or horse fly, anesthetizes it with ether, and glues its belly to the aircraft engine mount. When the fly comes to, he gives it a bit of honey on a toothpick for energy.

The fly quickly learns to direct the plane and avoid obstacles. Flights of five minutes have been made. After the flights, he gently removes the fly with a razor blade.

Paraphrased from an article by Charles Parmiter in the Sunbeam, newsletter of the West Orange Sunfliers, Orlando, Florida.

MEETING NOTES 1:

A regular meeting of TCRC was held November 11. This was also the meeting for the election of officers for 1981.

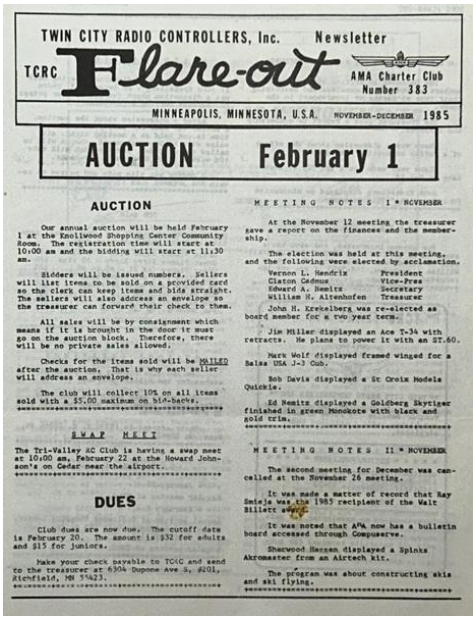
There was a report on the closing of the contract for deed. We had received the deed, but were waiting for the owner's duplicate certificate of title.

A letter from Hardy Brodersen, District VII VP, about the AMA election was read.

We then proceeded to the election of officers. The first office considered was president for which David P. Andersen had been nominated. There was a call for nominations from the floor with no input. A motion was then made and carried to elect Dave Andersen by acclamation.

The election of vice president, for which Bert Foster and Sherwood Haggen had nominated, was then considered. Bert Foster withdrew

Before photos were an option, forty-five years ago, the 1980 December ***Flare-out*** was a written article for the annual banquet. A rather consistent assortment of events was: Happy Hour, Dinner, Recognition of the previous year and the new officers and board members, **Walt Billett Award** being awarded, Entertainment (the movie, Those Marvelous Miniatures). The event was at the Honeywell Country Club. One very special event was the Ceremony, **BURNING OF THE MORTGAGE**, (contract for deed) for the first owned field.



TWIN CITY RADIO CONTROLLERS, Inc. Newsletter

TCRC **Flare-out** AMA Charter Club Number 383

MINNEAPOLIS, MINNESOTA, U.S.A. NOVEMBER-DECEMBER 1985

AUCTION February 1

AUCTION

Our annual auction will be held February 1 at the Knollwood Shopping Center Community Room. The registration time will start at 10:00 am and the bidding will start at 11:30 am.

Bidders will be issued numbers. Sellers will list items to be sold on a provided card so the clerk can keep items and bids straight. The sellers will also address an envelope so the treasurer can forward their check to them.

All sales will be by consignment which means if it is brought in the door it must go on the auction block. Therefore, there will be no private sales allowed.

Checks for the items sold will be MAILED after the auction. That is why each seller will address an envelope.

The club will collect 10% on all items sold with a $5.00 maximum on bid-backs.

SWAP MEET

The Tri-Valley RC Club is having a swap meet at 10:00 am, February 22 at the Howard Johnson's on Cedar near the airport.

DUES

Club dues are now due. The cutoff date is February 20. The amount is $32 for adults and $15 for juniors.

Make your check payable to TCRC and send to the treasurer at 6304 Dupont Ave S, #201, Richfield, MN 55423.

MEETING NOTES I * NOVEMBER

At the November 12 meeting the treasurer gave a report on the finances and the membership.

The election was held at this meeting, and the following were elected by acclamation.

Vernon L. Hendrix	President
Claton Cadmus	Vice-Pres
Edward A. Remitz	Secretary
William H. Altenhofen	Treasurer

John H. Krekelberg was re-elected as board member for a two year term.

Jim Miller displayed an Ace T-34 with retracts. He plans to power it with an ST.60.

Mark Wolf displayed framed winged for a Balsa USA J-3 Cub.

Bob Davis displayed a St Croix Models Quickie.

Ed Remitz displayed a Goldberg Skytiger finished in green Monokote with black and gold trim.

MEETING NOTES II * NOVEMBER

The second meeting for December was cancelled at the November 26 meeting.

It was made a matter of record that Ray Smiela was the 1985 recipient of the Walt Billett award.

It was noted that AMA now has a bulletin board accessed through Compuserve.

Sherwood Haggen displayed a Spinks Akromaster from an Airtech kit.

The program was about constructing skis and ski flying.

Forty years ago The ***Flare-out*** had no report on the Banquet.



Pardon Notice

Flare-out

TWIN CITY RADIO CONTROLLERS, INC. Newsletter

AMA Charter Club Number 383

TCRC

December Minneapolis, Minnesota U.S.A. 1990

TCRC Annual Banquet Attracts A Crowd

by Bill Sachs

On Thursday, November 15th, 56 members and their wives attended the TCRC Annual Banquet at the Chart House Restaurant.

Some of the 56 people in attendance at the Chart House enjoying the food and company. (Photo by Conrad Naegele)

We started out with a cocktail hour and the room was busy with conversation and laughter. At seven o'clock dinner was served buffet style with roast beef, chicken supreme, rice, carrots, salad, potatoes and gravy and dinner rolls. The location, atmosphere, food and decorations were great.

After dinner outgoing president Bud Stitt thanked Morgan and Marion Larson and Lank and June Neuman for all they had done to make this banquet possible and then reminisced about his tour of duty as president of TCRC.

Bruce Anthony was called upon to present six five, ten, fifteen and twenty year patches to those TCRC members who had belonged to the club for those lengths of time. Those receiving patches were:

5 Year
Jim Cook
Paul Gras
Ralph Post
Harry Proctor
Marvin Swenson

10 Year
Ben Becker
Fred Noble
John Pribble

15 Year
Gerald Gerrits
Paul Hirsch
John Krekelberg

20 Year
Joe Gonier
Bill Henningsen
Arnold Larson
Morgan Larson, Jr.

25 Year
Ken Duncan
Stan VonDrashek

Bud then introduced the new officers and Board members for the coming year. They are: President--Butch Neutgens. Vice President--Bill Sachs; Secretary--Ralph Post. Treasurer--Jim Cook. Board Members--Stan Erickson, Bud Stitt and John Krekelberg.

Next on the agenda Stan Erickson, last year's recipient of

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Thirty-five years ago the banquet was at the Chart House. Lank Neuman gave a hilarious report of his wife, June, overcoming her fear of flying.

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Thirty, Forty or More Years

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Flare-out
TWIN CITY RADIO CONTROLLERS, INC. Newsletter
AMA Charter Club Number 383
December Minneapolis, Minnesota U.S.A. 1995

Sunday TCRC Banquet Draws A Crowd

by Jim Cook

The 1995 edition of the TCRC Banquet was held on Sunday, November 19th at the Chart House in Lakeville. This was a departure from the normal Thursday for the banquet, but from the comments received, it went over quite well.

Vickie Anderson, Tom Carlson, Jerome and Gloria Vierling, Mary Cook, Bill Altenhofen, Conrad Nagele, Vince Anderson and Carmen Smith socialize before dinner. (Photo by Jim Cook)

The evening started with cocktails at 5:45 PM and 50 members and spouses got plenty of time to socialize.

The buffet dinner was served at 7:00 and as usual, the fare was excellent.

Following the meal, president Jim Cook took the podium. He introduced and thanked the banquet committee which consisted of Jim and Mary Cook and Scott Anderson. He also thanked the Gedney Company which had donated the table prizes. He then recognized those members who were attending their first banquet. They were Rick and Carmen Smith and Tom Carlson.

Next, Jim reviewed the many activities that the club held in 1995. He started with the auction in February and ended with the Season Finale in late October.

The outgoing board of directors was then introduced and thanked for their year of service. Then the new board of directors was introduced. The 1996 board consists of Don Elwell, president; Jim Cook, vice president; Bill Altenhofen, secretary; Orv Schneewind, treasurer; and Bill Sachs, Stan Erickson and Brad Spencer as board members.

Jim then introduced Jim Ronhovde who came forward to give the 1995 Service Awards. (See the article on page 7).

Jim next introduced Brad Spencer who came forward to make the Wall Billett award. Brad threw everyone off-track by talking of the new recipient's on-time rating before giving the trophy to Scott Anderson. (See the article on page 4).

Finally, business done, Jim called the entertainment committee to come

Continued On Page 3, Col. 1

Thirty years ago, in 1995, the Banquet was still at the Chart House, but the event had changed to Sunday from Thursday night. Entertainment had started spoofs on TV shows. The **OLDLY-MARRIED GAME** was played, testing couples' knowledge about each other's perspective of what a spouse thought their spouse thought, quizzed mostly on the RC hobby.



Flare-out
TWIN CITY RADIO CONTROLLERS, INC. Newsletter
AMA Charter Club Number 383
December Minneapolis, Minnesota U.S.A. 2005

TCRC Members Celebrate At Annual Banquet

by Jim Cook

Sunday, November 13th found about 40 TCRC members and their spouses assembling at Dangerfield's Restaurant in Shakopee for the Annual Banquet.

Just a few of the many members and spouses that attended the TCRC banquet. (Photo by Scott Anderson)

Start time was 5:00 PM for cocktails and social hour and the downstairs arrangements at Dangerfield's were nice and roomy. Bill Jennings had put together the continuously-running slide show presentation depicting photos from all of the club's 2005 activities.

At 6:00 the buffet line opened and the participants enjoyed a very nice selection of entrees and side dishes. All in attendance said the food was very delicious and Dangerfield's did a nice job of catering.

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TCRC Dues Change

by Pat Dziuk

After careful consideration the TCRC board has approved a dues increase for 2006. TCRC annual dues will be $75 for regular members, $37.50 for junior members and $30 for social members. An early renewal rate of $60 for regular members or $30 for junior applies if renewal payments are mailed to the TCRC treasurer and are post-marked by January 15, 2006.

The club initiation fee (a once per lifetime fee) has been reduced to $25 for regular members and $12.50 for junior members. New members joining after October 1st will pay the full dues rate which will cover the remainder of the current year and the entire next year plus the one time initiation fee.

This dues increase was deemed necessary due to important maintenance projects that are required to keep our flying field and facilities in good shape.

A dues notification will be mailed to each member around December 5th. Please take the time to review your personal information and send in the renewal form and check to John Dietz - TCRC Treasurer. Send it in early to qualify for the reduced rate. ☺

Twenty years ago the New Improved ***Flare-out***, with better black and white pictures, reported that Dangerfield's Restaurant was the location. TRIVIAL PURSUIT was the game of entertainment.

Come have fun and try for men's and ladies' prizes at

THE ANNUAL BANQUET

TCRC Elections November 11th

It is already November and the year is racing past. That means that the TCRC elections are only one month away. As usual, the elections will be held at the November meeting, which this year will be Tuesday, November 11th at CrossPoint Church.

All four of the officer positions are up for election this year plus two of the three at-large board seats. The board seats held by Jim Ronhovde and David O'Hara are up for election this year. The board seat held by Gerry Dunne is not up for election this year.

Currently the officer positions are held by Bob Breisemeister, president; Brian Johnson, vice president; Ken Weddell, secretary; and Tim Wirtz, treasurer.

Please consider being a candidate for TCRC office. The club needs you. Be both a voter and a candidate at the TCRC elections on November 11th. ☺

Be A Candidate For Office!

TCRC Annual Banquet November 22nd

The TCRC Annual Banquet is back and is scheduled to be held starting at 5:00 PM on Saturday, November 22nd at Fong's Restaurant in Prior Lake at the intersection of Highway 13 and County Road 21.

The cost is $30/person and the meal will of course be Chinese cuisine served buffet style.

The banquet is always a very enjoyable time with TCRC members and their families coming together to partake of a great meal and indulging in camaraderie with both old and new friends. In addition to the program of reviewing the previous year's events, attendees will play several games and contests for all attenders. Winning, or sometimes just partaking of a game will allow you to be awarded raffle tickets. The raffle tickets can be used to try and win some great prizes, and there will be lots of winners!

The TCRC Banquet is something you do not want to miss!

Let Bob Briesemeister know you will be attending the banquet preferably before the November 11th meeting.

Mark your calendars and plan on being a part of the fun at the TCRC Banquet on Saturday, November 22nd. ☺

The Workshop



Brian Johnson
Vice President

Hello and welcome to The Workbench!

This month I thought I would do something a little different than the usual build article. In addition to building, I enjoy tinkering with just about everything model airplane related. Something that I am interested in and seem to accumulate a LOT of is servos. Most of them come from airplanes I have purchased either from the auction or from swap meets or have come from crashed planes that people do not want to deal with. I have always wondered if these crashed relics are as good as or better than the new ones I am buying. Are name brand servos better than some of the generic ones available from various ecommerce sites? Lastly, what makes a servo good?

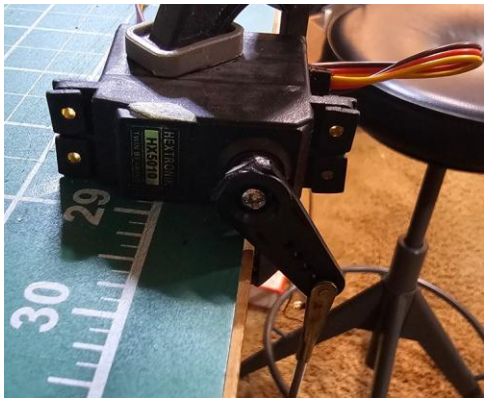
The last question is complex because it depends on the application. It is usually a combination of size, torque, backlash, reliability, and centering ability for me. The order of importance of these characteristics would change depending on the use. For nose wheel steering or for planes with a single aileron servo, torque will be more important than for planes with dual aileron servos or with a tiny little tail wheel. For control surfaces, centering is more important (to me) than it is with a throttle servo. Notice one of the marketing metrics I left off my list of important features is speed. That was intentional because that metric is not terribly important to me for standard everyday aircraft use. If I were shopping for helicopter gear, 3D equipment, or even car parts that would become a factor.



I had recently taken apart a couple planes that I was decommissioning and before putting all the gear away for the next airframe, I decided I would put together a little test rig and gather some data. I dug through my stash of both new and used equipment and got to work. For this data set I chose only servos that I would consider appropriate for "standard" applications. That is aircraft in the .20-.60 range. In addition to what is commonly called standard size, I also included some of the newer mini servos that have specs as good or better than a lot of the standard servos making them more than fit for applications in .60 sized aircraft.

The tests:

I conducted a series of tests on each servo. I used a luggage scale and a servo tester to test the stall torque of each servo at 5, 6, 7.4, and 8.4 volts. Although none of these are high voltage rated, I went ahead with tests to 8.4 volts just to see what would happen and to see which ones could handle the abuse. Each servo was tested 3 times at each voltage, and the stall was held long enough for the servo to stabilize and for the scale to lock in a measurement, about 3-4 seconds per cycle. The figures in the chart are the averages of the three tests. I used a servo horn drilled at exactly (as exact as I could get) one inch from the center of the screw so the conversion to oz/in was straight forward coming from a scale that measures in pounds and displays base ten. Here is a picture of the contraption I came up with. Once everything was set, I was able to get consistent and repeatable results with each servo.



To measure backlash and centering, I tried both my servo tester and my transmitter, and both gave very consistent results. I ultimately conducted the testing with my

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The Workshop

Continued From Page 5



transmitter because I was able to more easily explore the outer ends of the centering capability for each servo. The rig I set up was a dial indicator mounted on a plate of half inch steel and the servo clamped between two 123 blocks to secure it and allow for free movement throughout the travel. My method for measuring backlash involved moving the servo arm manually back and forth with the servo powered on to capture just the slop in the gears plus any additional slop in the output bearing or bushing as well as flex in the output shaft. The goal for this one was not to stress the motor and possibly compound the backlash with any slop in the centering ability so if any buzzing was heard during this test, I started over. I also found that screwing down the servo horn made a significant improvement to the backlash measurement for a few of the servos, so all data was recorded with servos powered up and the horn firmly secured to the servo as if in use. I repeated this several times for each servo until I had a good consistent number for the backlash.

For the centering tests, I moved each servo in small increments as far as I could off center until it righted itself. The goal being to see how far in either direction the unit would come to a rest from the starting point. The motions on the transmitter very closely resembled the movements required to fly slow circles around the field and provided what I feel was an accurate representation of the differences in where the servo would rest while flying.

I sorted the data in order of backlash for no reason other than I needed something to sort on to keep the data straight in my mind and I did not want to give the impression that I was moving from my ranking of worst to first or vice versa. For all intents and purposes, these are in no particular order.
Without further ado, here are the results-





Servo	Size	5V(oz/in)	6V(oz/in)	7.4V(oz/in)	8.4V(oz/in)	Backlash	Centering variance	Backlash deg	Centering Variance deg
TowerPro MG995	Std	72	86.4	83.2	129.6	40	72	4.6	8.3
HK 15138	Std	48	49.6	65.6	64	33	8	3.8	0.9
Hitec HS322BB	Std	38.4	46.4	32	40	28	12	3.2	1.4
traxxas 2075	Std	108.8	105.6	116.8	128	23	13	2.6	1.5
Tower STD TS-53	Std	28.8	32	44.8	51.2	22	3	2.5	0.3
Futaba S148	Std	28.8	36.8	41.6	46.4	20	8	2.3	0.9
GoTeck D9257 MG	Mini	48	54.4	67.2	91.2	20	6	2.3	0.7
Futaba S3003	Std	30.4	35.2	46.4	54.4	20	5	2.3	0.6
Futaba S9301	Std	59.2	76.8	91.2	91.2	18	1	2.1	0.1
Futaba S3004	Std	38.4	40	46.4	57.6	17	7	1.9	0.8
Hitec HS422	Std	19.2	28.8	36.8	41.6	17	3	1.9	0.3
HK HX5010	Std	67.2	94.4	108.8	107.2	15	24	1.7	2.8
WinKing M0900	Std	116.8	123.2	136	147.2	12	10	1.4	1.1
BlueBird BMS620MG	Std	72	84.8	108.8	88	7	14	0.8	1.6
HK HX12K	Std	112	116.8	129.6	136	4.5	20	0.5	2.3
HiTec HS-225BB	Mini	54.4	59.2	59.2	59.2	3	32	0.3	3.7
Savox SA1230SG	Std	283.2	0	0	0	2.5	5	0.3	0.6
Corona DS-329MG (HK)	Mini	44.8	54.4	57.6	59.2	2	28	0.2	3.2

Tower Pro MG995

These are the Amazon special servos you can purchase in packs of 4 for about 25 dollars. The torque specs piqued my curiosity, and I could not help myself. The best thing I can say about these servos are that they make a nice template for spacing servo rails or cutting servo trays. That and they love the volts. These units happily gobbled up as much power as my tester would provide and made solid torque gains at each level. I

Continued On Page 7, Column 1

The Workshop

Continued From Page 6

have flown with them and between their gear slop, inability to find anything close to a center, and the random drifting and hunting they do, these are the only ones of the group that have no practical use for our hobby.

HK 15138 (New)

These are one of my favorite cheap standard servos. I will use them on control surfaces for smaller planes and for throttles on everything. They are light, and lightly built, and cost under five dollars each so I get a dozen at a time. Torque is reasonable and although there is a fair amount of backlash, it did a good job of finding and holding a center. It stood up to 8.4 volts without complaining, although did not make any more torque at 8.4 volts than it did at 7.4.

Hitec HS322BB

This is one that I am betting many of us have several of in our collections. I had kind of been letting these sit in favor of some newer product but after testing it is clear that these are perfectly serviceable units. The single bearing means they have a little more slop than some of the others, but they center well and handle abuse well. The interesting thing about this model is that the torque dropped significantly when I went to higher voltages. I wonder if there is some sort of protection built in. Once I reduced the voltage back to 6 volts the torque returned to normal. I tried two different servos and got the same results leading me to believe that this characteristic is part of the design rather than an anomaly.

Traxxas 2075

This is a servo that is included in many RTR RC cars from Traxxas. I included it because I have a couple laying around from my RC car collection and being they are the same general size as a standard aircraft servo I have wondered whether they would make decent aircraft units. The answer is clearly yes. They have plenty of power and compete well in the other specs. As an added bonus, they are waterproof in the event of an unexpected pond encounter. Still, I don't know if I could mentally cross the streams and put a car servo in an airplane. It just feels wrong.

Tower STD-TS-53

Another example of a fine servo to recycle from one airframe into a new sport rig to run the throttle. It is slightly anemic, especially for the weight, but makes up it with better than average precision among this group. Nothing bad to say, but nothing great either.

Futaba S148

Similar to the previous example, another perfectly acceptable servo to have around. Just as a matter of personal preference, I would likely favor the Futaba servo over the Tower unit simply because of the name but their performance is so similar that there is no objective reason to choose one over the other.

Go Teck D9257 MG (New)

This is one of my favorite discoveries as of late. They are digital, coreless, and have ball bearing supported output shafts. I found one of these in my collection and tossed it into an ARF simply because of the size. It is somewhat unique in that area being slightly longer and narrower than most mini servos making it a perfect fit for the cutouts in the latest offerings of Tower Hobbies ARFs. That said, I ordered a few more for about 25 dollars a pair and found them quite satisfactory. Some of the other servos would surge and then wane before settling on a constant holding power when I deliberately over volted them and these displayed none of those tendencies. They just stayed consistent and kept ramping up the power. These were both brand new servos that I used for testing so time will tell regarding their durability but both survived testing with no issues.

Futaba S3003

No surprises here. A slightly updated version of the S148. They work great for sport flying, and I tend to use these more for smaller control surfaces rather than relegating them to throttle only use as I do with the older version.

Futaba S9301

These servos were nice upgrades from the standard servos a couple of handfuls of years back. They are digital and have coreless motors and, despite having plastic gears, provide a nice power bump over the base level units of the time. This servo was downright magic when it came to centering and I had to work to even get a thousandth to hold. I wish I had more of these to test to see if that is expected for this servo or if this one was just a fluke. Sadly, this unit did not survive being over volted and let the smoke

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The Workshop

Continued From Page 7

out on the second attempt at 8.4 volts. I am honestly surprised this was not a more common occurrence, but this was the only servo to fail from excessive voltage in the entire bunch.

Futaba S3004

The S3004 was the replacement for the S3003 and was upgraded with a ball bearing supported output shaft. Performance is ever so slightly improved but for all applications I would use these two interchangeably. It's all ball bearings nowadays.

Hitec HS422

This one turned out to be the disappointment of the group. Backlash and precision were very good, so I was expecting more I the torque department. The torque results were not only very low, but the first one I tested stripped the gears at 8.4 volts after reaching about 45 oz/in of torque. I tried a second one that I have and although the gears survived, the strength was on par with the first example. Again, I am not surprised that some of this testing turned out to be destructive due to the abusive nature, but I am a little surprised that there was physical destruction at forces much lower than other plastic gear servos achieved at 6 volts.

HK HX5010 (New)

This is my overall go to standard servo. It has good torque, little backlash, and is reasonable at centering. It is more than adequate for sport flying although precision flying would not be its forte. They cost about 8.50 each, have dual ball bearings, and are digital. I buy these a dozen at a time and I have yet to have one go bad. They are rated to 6 volts and seem to have a voltage limiter built in because over volting did not have much impact on raw torque. Just for fun, I tested one of these at 12 and 15 volts and got right around the same numbers as I did at 7.4 volts with no sign of overheating or failing.

WinKing M0900 (New)

There was a brief period several years ago where it seemed like Tower Hobbies was going to make an attempt to compete with Hobby King in the ultra-inexpensive hobby component market. They have since stepped back from that strategy but during that period they offered a budget line of servos under the brand WinKing, and I bought a handful of these while they were available. Of all the servos on this list, the data for this one is the most deceiving. It has very good torque numbers, is one of the best as far as backlash goes and is very good at centering. The problem is that the servo overshoots every position by about 4 degrees every time it stops. It does not matter if you are returning to center or just moving from ¾ throw to 7/8 throw, it will always overshoot and bounce back. Highly not recommend.

Blue Bird BMS620MG (New)

I came across these when I was searching for servos for my quarter scale Space Walker that I was building. Despite being quarter scale, that plane is still small enough fly well on heavy duty standard servos and these fit the bill perfectly. They are very precise and return to the same spot every time. This is a little deceiving in the numbers (although 1.6 degrees of variance is barely perceptible) but the stiffness in the gears and the larger than average ball bearings mean that there was less flex in the output shaft (measured with backlash) than many of the other servos had which helps with overall precision. I was surprised the measured torque was not higher, but they never seemed to struggle. These are my go-to for heavy duty applications in this arena.

HK HX12K (NEW)

Another offering from Hobby King, this is their heavy-duty ball bearing digital standard servo. The gears are metal, and they feature a brushless motor for about 15 dollars. This is another good choice for heavy duty standard applications, although it is noticeably louder than the Blue Bird. This servo I rated for 7 volts so it is no surprise it kept making use of the extra energy and had relatively linear gains as the voltage increased. While this servo displayed zero unusual tendencies throughout the testing and performed very well, it was the only one that became noticeably warm after 12 consecutive stall tests. I am not sure if that means that it was suffering more than the others, or if it means it was doing the best job of moving the heat from the inside to the outside.

Hitec HS-225BB (New)

Another mini that is punching above its weight class and playing in the standard field. Of all the servos here, this is the only one I bought expressly for the purpose of

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The Workshop

Continued From Page 8

testing in this group. I would not say I was disappointed by this servo, but it was far from my favorite. The most interesting thing to me was that the voltage did not seem to matter in terms of output. There was a slight gain in stall torque going from 5 to 6 volts and from there on, it did not matter. You get 59 oz/in no matter what you give it. This amount of torque is more than adequate for sport flying. Backlash is very good making it easy to set up a slop free linkage. The only place this one really falls down is in the centering ability. 3.9 degrees is enough to make control surfaces visually misaligned and enough to noticeably change trim throughout a flight.

Savox SA1230SG (New)

This one was kind of an outlier. I do not usually spoil my airplanes with equipment of this caliber, and the two examples I have were gifts. This is a great example of getting what you pay for. These cost more than 2 dozen of the HK 15138 servos that I am so fond of. It was fun to play with what the big kids have though, and I was impressed. Backlash and centering were both excellent and I was unable to test the torque. I measured 283 oz/in at 5 volts and at 6 volts my little Home Depot clamps were unable to hold the servo on the bench despite the doubling up measures. If I could afford these, I would use them on everything but as that is not the case, I will put them back in the drawer until I find a worthy airframe.

Corona DS-329MG (New)

This is another offering from Hobby King and is part of their mid-range line-at least that is how it is presented. For the price, about 2/3 the cost of the Hitec HS-225BB, you get metal gears and a coreless motor. This is the high speed version and there is a higher torque version (DS-339MG) for the same cost but that was out of stock when I placed my order. Based on what I have seen so far, I would likely use the Go Teck for this class of servo before this one if given the choice.

It was interesting to me that some of my favorites and what I perceived as the best servos were not necessarily the ones that scored the highest in the data. I will also say that the data does not necessarily change my opinion of any of this equipment due not in any small part to the subjective portion of testing that involves things like look, sound, and feel. A couple of noteworthy points. Backlash of less than a degree is imperceptible to the hand in most cases and most of that comes from the components themselves flexing rather than the gears meshing incorrectly. Also, centering variance of less than a degree will be extremely difficult to notice visually even if a servo is connected tightly to a control surface. That is half a degree in either direction and just and extremely small amount. In my experience, the ones that scored around 2.5 degrees have bothered me visually at times depending on the set up but have not given me reason to blame any flight characteristics on a servo.

That brings us to the end of another month-I hope you enjoyed the read as much as I enjoyed the activity!

Until next time-happy building and happy flying!! ☺

AMA Presidential Election

Incumbent President Rich Hanson of the Academy of Model Aeronautics is not running for re-election this year.

Three candidates are running for AMA President.

- Randy Cameron
- Greg Stone
- Eric Williams

Randy Cameron is from Missouri in District VI.

Greg Stone is from California in District X.

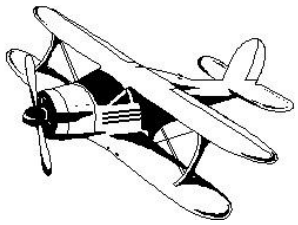
Eric Williams is from New York in District II.

The campaign statements for Randy, Greg and Eric can be found on pages 96 and 97 in the October 2025 issue of Model Aviation. Please take the time to read each candidate's statement and be sure and vote.

Your election ballot is attached to the bottom of your 2025 AMA Dues Statement that you should have received in the mail in September. Your election ballot must be postmarked no later than November 7, 2025.

Exercise your right to vote and elect the candidate of your choice. Mail you ballot in today. ☺

Show & Tell



Another neat plane showed up for Show & Tell at the October meeting.



(Photos by Bob Breisemeister)

Sherwood Heggen had a plane with a neat story to it at the meeting. He said that at a TCRC membership meeting around 2011, modeling items from an estate were displayed for anyone to have for a donation. I noticed a kit box with no cover with balsa sheets and sticks randomly stuffed into it. Always having a need for balsa, I left a donation and took the box of balsa home.

The next morning while sorting through the wood, I noticed a die-cut rib among the sticks. Digging deeper, there were more ribs and balsa sheets containing die-cut sides for a fuselage. Further digging revealed a mostly complete kit of an unknown model with no plans. Later, I learned through posting pictures on RC Groups that it was a model called the Enticer, by Dick Sarpolus, who designed the airplane around the World Engines Maloney 100. It was a construction article in the 1987 ***Flying Models*** magazine. I later found a picture of it and plans on the Internet. The box sat in storage until a couple of years ago when I decided to build it. I was not attracted to its skinny, boxy look, so I decided to bash the kit to appear more like a Golden Age aircraft. Strip ailerons were replaced with barndoor ailerons. The fuselage was widened by over an inch. A Magnum 120 $S was installed with a fiberglass cover and a rounded forward fuselage. The turtle deck was formed with bulkheads and stringers with a slight arch and the vertical fin was given a more pleasing shape. The wire landing gear was replaced with a Dural gear with wheel pants. The changes made the Enticer's appearance to be more "enticing".

Sherwood's modified Enticer had a wingspan of 72-inches and weighed in at 10.25 pounds. He covered it with Stits light-weight fabric done in tan wings with black trim and a black/white fuselage. Sherwood said the maiden flight will have to wait until next spring.



Brian Johnson had the Excalibur that he has been building and featuring the step-by-step construction in his monthly VP column, The Workshop. It was sort of neat to see the finished product after watching its birth from plans to the finished aircraft. He flew the Excalibur for the first time at Crocktoberfest, and it flew as good as it looked. ☺

A member can have his new or rebuilt airplane appear in the Show & Tell column just by sending a picture of the plane and a data sheet about the plane. (Data sheets can be obtained on the club website, TCRCOnline.com).

Send your pictures and info by texting to Jim Cook at 952-200-2030 or emailing them to him at jimcook888@q.com. Data arriving before the last day of the month should make the newsletter.

Now, you don't have to attend a meeting to show the membership what you have been building.

David Andersen's Hall Of Fame Award in *MA*

In the November 2025 issue of ***Model Aviation***, the induction of David Andersen into the AMA Model Aviation Hall of Fame is featured in AMA District VII VP Randy Gibson's column.



DISTRICT NEWS

District VII

Iowa, Michigan, Minnesota, Wisconsin

Hello District VII members. It is amazing how quickly the flying season is coming to an end. I hope you have made many flights and have shared the happiness of our hobby with others. Visiting so many District VII members brings me such happiness. It is you who makes me enjoy being your representative. I enjoy having conversations with you, learning from you, and listening to your concerns.

This month, rather than discussing events that I have attended since my last writing, I want to recognize a couple of members for their efforts, contributions, and as members supporting members.

The AMA Model Aviation Hall of Fame Award has been honoring AMA members since 1969. This award recognizes aeromodelers whose contributions to model aviation throughout the years have been outstanding, improving the sport/hobby and increasing its prestige and stature. Members are nominated by family and friends, and the nominations are evaluated by AMA.

The 2025 class recipients included District VII member David Andersen. David is an active competitor at the U.S. Scale Masters and AMA Nats and has even had models on display and won awards at the Toledo R/C Swap Meet & Expo. Not only did David compete himself, but his award-winning designs have been used by other modelers. David's Scale airplane designs have appeared in numerous publications, including *R/C Modeler*, *Model Aviation*, and *Model Fly* (a Norwegian publication).

David has other notable accomplishments outside of modeling; among them is the design of the air traffic control suite computer workstations for the nuclear aircraft carrier USS *George H. W. Bush* (CVN 77).

My immense joy was presenting David with the AMA Model Aviation Hall of Fame award during the Northern Alliance Military Fly In, held in Owatonna, Minnesota. It was an incredible event. (More to come about the fly-in in a future column.)

Randy Gibson

Vice President

Another award I had the honor of presenting this summer was the AMA Superior Service Award. It recognizes individuals who have provided long-term service and have demonstrated high levels of contributions to the model aviation community.

Leon Corey, through his life's commitment to the modeling hobby, is well deserving of this award. He was a founding member of the Calumet Flyers RC club back in the early 1970s. Leon has held every office within the club and has donated much of his time toward club activities and promotion. Although he does not often fly his models, you can find him maintaining the beautiful flying site and mowing the facility twice a week, every week.

Again, one of the joys I have with being your District VII vice president is helping recognize members in the district. Thank you to Tom Poirot and the Calumet Flyers for bringing Leon's passion and contributions to light. To see Leon's surprise and appreciation was heartwarming. Thank you, Leon, for all you have done throughout the years.

To those in District VII, although I might be unable to reach out individually to all of you, I thank you and appreciate very much all that you do in sharing the joys of this hobby. I also want to wish you a Happy Thanksgiving. "HIP"

ASSOCIATE VICE PRESIDENTS

EVENT SANCTION COORDINATORS

FREQUENCY COORDINATORS

NOVEMBER 2025 | MODELAVIATION 101

The article can be found on page 101 of that issue of ***Model Aviation***.

The award was presented to David by Randy in August at the Military Fly-In in Owatonna.

Randy does a nice job of reviewing many of David's accomplishments through the years in his article. To be inducted into the AMA Model Aviation Hall of Fame is a great honor, and its presentation to David was well deserved.

Be sure and take the time and read the article. ☺

THE TCRC FLARE OUT
Monthly Newsletter

****TWIN CITY RADIO CONTROLLERS INC.****

Purpose: To preserve, encourage, and further develop the hobby of building and flying radio controlled model airplanes.

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President	**Bob Breisemeister 612-964-8877**
Vice President	**Brian Johnson 763-744-6379**
Secretary	**Ken Weddell 952-500-3446**
Treasurer	**Tim Wirtz 952-941-5357**

TCRC Flare Out

Editor James R. Cook 952-200-2030
Publishers: Tom Hall 515-664-7674

Website: http://www.tcrconline.com

Contacting The Editor

by Jim Cook

I have shut down my "Q" email address and will no longer receive emails there.

To contact me, or send an article or photos, please use my "icloud" address from now on.

Thanks. See you at the TCRC Banquet! ☺

2025-2026 AMA Dues Statements

Most older TCRC members should have received their 2025-2026 dues statements in the mail this month from the Academy of Model Aeronautics. Newer members renew on the anniversary of the month they joined.

AMA 2025 dues are the same as the previous year. They are:

- Adult (19-65) $85
- Senior (65 and up) $75
- Under 19 Free
  or $15 with ***MA***

Your AMA membership gives you $2.5 million in personal liability coverage, $25,000 in medical coverage and also a subscription to either the print or digital ***Model Aviation*** for the year.

To belong to TCRC, you must have a valid membership for the year in AMA.

Please note that AMA also has a Park Pilot membership that has a cost of $38 per year, but that membership is not valid for membership in TCRC.

To renew your membership in AMA, the Academy gives you four methods: at the AMA website, www.modelaircraft.org; by phone at (765) 287-1256; or by returning the renewal form you received in the mail in the supplied envelope.

Deadline for paying your 2025 AMA dues is December 15 to avoid a lapse in membership services. ☺

Calendar

Nov. 7	**AMA Presidential Election Deadline**
Nov. 11	**TCRC Elections**
Nov. 11	**TCRC Membership Meeting 7:00 PM CrossPoint Church Bloomington**
Nov. 11	**Ugly Airplane Contest Sherwood Heggen**
Nov. 22	**TCRC Annual Banquet & Awards David Fong's Restaurant 5:00 PM Prior Lake**
Dec. 3	**TCRC Joint Board Meeting, 7:00 PM Bob B's Home**
Dec. 6	**All Season Flyer Finale, Jordan Field 10-10-10 Rule**
Dec. 9	**TCRC Membership Meeting 7:00 PM CrossPoint Church Bloomington**

Always Wear An Orange Vest To Retrieve A Plane

The Minnesota Hunting Season is now in full swing with deer archery starting on September 13th, waterfowl on September 27th and deer firearm on November 8th.

If for any reason you go into the woods while at the Jordan field, put on an orange vest! This is a club requirement!

If your airplane does go down in the woods, the orange vests are quite close. The orange vests are stored in the rafters of the shelter and easy to reach.

Be safe! Wear an orange vest anytime you have to retrieve an airplane. ☺

Show & Tell Data Form

Bringing a plane to the TCRC meeting for Show & Tell?

If you are, be sure to go to the club website TCRCOnline.com and print out a blank Show & Tell Data Form. Fill this out and make sure it gets to the newsletter editor, Jim Cook so that the correct information shows up about your new airplane in the newsletter.

Also, if Jim is not at the meeting, make sure someone takes a picture of your new masterpiece and emails the picture to Jim also. If he is not at the meeting, you can have someone take a picture of the completed form and email that picture to him also. ☺

Building Season Has Officially Started!!



Looking For A Great R/C Club?

If you are into the hobby of flying R/C airplanes, or thinking about getting into the hobby, Twin City Radio Controllers is the club for you.



TCRC ***owns*** 40 acres of land in Jordan, Minnesota and has paved runways, taxiways and pits on that land for flying model aircraft. There is also a shelter and a dedicated parking lot on the property. The club also owns all of the equipment necessary to keep the land well maintained.

The Jordan site is an FAA Recognized Identification Area (FRIA) and TCRC members do not have to have a broadcast module on their aircraft while flying at the site.

To be a member of TCRC, a pilot must be a member of the Academy of Model Aeronautics (AMA) and be registered with the FAA. The club helps new members with these registrations.

The club also has an auxiliary flying site just two miles away from the Jordan Field if the Jordan Field is not available.

To be a member of TCRC there is a one-time initiation fee for new members in the amount of $75.00. The annual dues are:

Adult	$105.00	
Family	$105.00	
Junior	$ 47.50	(Under 16 years of age)
Social	4 0.00	

TCRC has monthly meetings October thru May at Crosspoint Church located at 98th Street and France Avenue at 7:00 PM. The meetings for the months June, July, August, and September are held at the Jordan Field at 5:00 PM, weather permitting. At the indoor meeting, there is usually a program about building or flying R/C aircraft.

Additional benefits of being a TCRC member are several members-only flying events, a spring and fall float fly on Bush Lake in Bloomington, the largest upper Midwest R/C annual auction, and being able to have access to members with vast experience in the hobby.

To become a member of TCRC you can contact Tim Wirtz at 952-941-5357, or visit TCRCOnline.com, or come to a monthly meeting, or stop by the Jordan Field located at 18304 Sioux Vista Trail in Jordan. ☺



Don't forget to mark your calendar to attend the TCRC Annual Banquet at David Fong's Restaurant in Prior Lake on Saturday, November 22nd.

Let President Bob know you will be attending when you are at the November 11th membership meeting or give him a call at 612-964-8877.

The TCRC Banquet is not something you want to miss! ☺

TCRC Apparel For Sale

by Ken Weddell

Members and friends can now purchase grey sweatshirts, grey T-shirts and hats. The costs are:

- T-Shirts $12
- Sweatshirts $20
- Hats $13

If you are interested in purchasing any TCRC apparel, please let me know what item and size you would like and it will be available at the next regular membership meeting. ☺

Pay Your AMA Dues Today!

Twin City Radio Controllers



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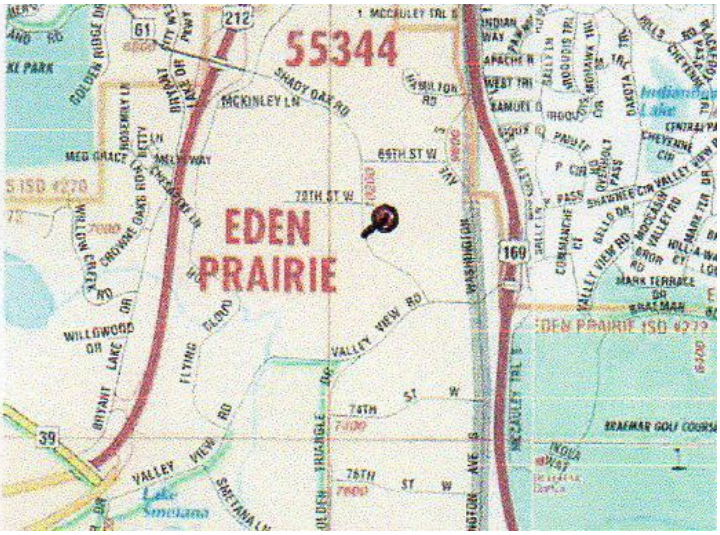
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