





Folks,

The March President's Message is on vacation. Don't forget the March 21st "In The Bones" meeting at the Orion Center, 6:45PM. See you in April!

Book

Bob Chapdelaine, President, Skymasters RC

tary on Frank Whittle, the inventor of the jet engine.

https://youtu.be/CYHUOszSffU

Skymasters Wade Wiley sent us this interesting link to a documen-

https://youtu.be/CYHUOszSffU Enjoy!

Front Cover

Long time Skymasters Bob Donohue with his "Archie" at Ultimate Soccer.

Paul Goelz photo



Cobra build

Part two

In last months article we went through building the so called I beam wing using a novel wing rib construction. This month we will go through the remainder of the build. We will go through the process of doing a molded balsa turtle deck, the construction of a fiberglass cowl using the moldless method and the preparation of the control surfaces for the installation of pinned flat hinges.

The Cobra is a world championship winning model from the 1960's. The style and look of the model dates it. I decided to update the look to be a bit more contemporary and incorporate tricycle landing gear. Few control line models use tricycle landing gear but I think it will be a good choice for ground handling in long grass.

To update the look I decided to do a long gently curved turtle deck going from the tail and blending into the cowl. To create the shape I decided to mold the 1/16" balsa on a foam form. I had originally intended to mold the shape all of the way to the spinner. That didn't work out so well due to the more extreme shape at the nose so I went to plan "B" and used the foam form to do a molded fiberglass cowl.

The turtle deck shape is long and thin so the foam form was going to be too flimsy so I made a strong back stiffener. This was made from a piece of 1/4" plywood and an additional 3/4"x1-1/2" rib. I traced the fuselage top view shape on the 1/4" plywood then cut it to shape and sanded it smooth.



Tracing the fuselage top view shape

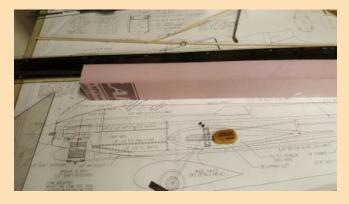


Form base cut to shape and sanded



Stiffener added to form base

The next step is to cut a piece of 2" thick pink foam insulation slightly oversize and glue it to the plywood base.



Pink foam blank

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Foam blank bonded to plywood base

The next step is to "shape to the desired shape" as Dave Platt was fond of saying. I do this with 40 grit sand paper glued to a 12"x2-1/2" sanding block. I start the shaping by cutting the side view and top view to the profile I'm looking for. Next I draw the cross section on the end of the foam and sand a bevel on each corner to remove most of the excess foam.



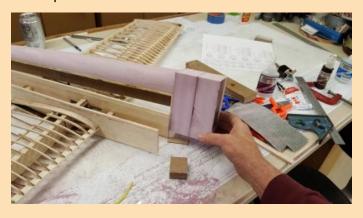
Sanding a bevel to start creating the shape

I then continue with more bevels to get close to the desired shape. Then I take a piece of 80 grit paper about 11"x4" and finish the shape by using the strip of sandpaper like you are buffing your shoes. Use light pressure and take your time.



Buffing (sanding) to the final shape

Next I glued the firewall to the end of the shaped form. The firewall was previously cut to the desired nose cross section. Next I cut a block of foam that I will sand to the shape of the cowl



Foam cowl blank glued to the firewall

Using the same technique as on the turtle deck, finished the shape of the cowl



Shaped cowl form

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Now I edge glue 2 pieces of 1/16 balsa to create the molded balsa turtle deck blank. I trim the sheet to be slightly larger than the circumference of the foam form. I hoped to be able to mold the balsa all the way to the spinner ring.

At this point I soak the balsa blank with hot water for about 5 minutes. I then put the blank in top of the form and gently press it against the foam at the tail. Using elastic bandages I wrap the balsa tightly against the form. The wrapping will allow the balsa to follow a 3-D shape to some extent. When you see the balsa starting to wrinkle you must make some relief cuts before you can continue.



Relief cuts

With the relief cuts made continue to wrap all of the way to the nose.



Fully wrapped balsa mold

Let this dry for about 24 hours. When you remove the wrapping you will have a molded balsa part that has almost no spring back

My fuselage is a monocoque design meaning that there is no structure inside to help keep the shape and provide strength. The 1/16" turtle deck is very squishy so we will add a layer of 1.5 oz fiberglass cloth to the inside. To do this I cover the foam plug with clear packing tape as a barrier. At the nose where the tape wants to wrinkle I use black electricians tape. Next I apply a coat of

PVA mold release (available at any on-line fiberglass material supplier) and then a coat of mold release wax.



Prepping the form for the fiberglass

Now I cut a piece of the 1.5 oz glass cloth to size and place it on the prepared form.



Placing the fiberglass on the form

We need to apply the resin now. Be stingy. More resin does not add strength only weight.



Wetting out the fiberglass with resin

While the resin is still wet put the molded balsa piece back on the form and wrap it with the elastic bandage again. Allow the resin to cure and then remove the glassed shell from the form.

I was not happy with the way the cowl area turned out so I went to plan "B" and molded a cowl. To do that I re-

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moved the cowl foam form and redid the electricians tape over the whole surface and added the PVA and wax to prepare the form. Next I applied 2 layers of 1.5oz glass cloth and resin and let it cure.



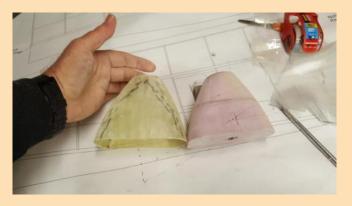
Apply 2 layers of 1.5oz fiberglass cloth

To remove the cowl from the form I made a cut on the bottom surface to make it easier to pop off.



Cut the cowl to ease in removing

I found the cowl to be a little squishy so I added a layer of 60z glass on the <u>inside</u> to stiffen it. When the reinforcement was cured I trimmed the cowl.



Trimmed cowl

Next I added a balsa mounting flange for attaching the cowl to the fuselage.



Mounting flange added to the cowl

Before mounting the cowl and turtle deck to the fuselage I cut the turtle deck into 3 pieces to provide a battery hatch.



Cutting turtle deck for a hatch

At this point I attached the firewall to the fuselage and glued the front and rear turtle deck pieces in place allowing spaqce for the hatch piece. To proceed I measured the cowl and motor then fabricated a motor mount box out of 1/8" birch plywood.

To mount the nose wheel strut that I had previously made I drew upon old control line model technology that goes back to the days before "J" bolts (I didn't have any "J" bolts in inventory and didn't want to drive an hour to get some). In the old days landing gear wires were attached by drilling pairs of holes on either side of the wire and then binding the wire in place by wrapping copper wire around the gear wire and through the holes. After binding with the copper wire the copper wire loops are fully soldered.

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Holes for copper wire binding



Landing gear and soldered copper wire

At this point I made cardboard templates and made end plates for the hatch mounting pin and magnets.



Making a cardboard end plate template

End plates were made from the templates and then installed in the fuselage and hatch. Additional stiffeners were then added to the bottom edges of the battery

hatch,



Hatch end plates and stiffeners

To complete the hatch, locating pin and hold down magnet holes were match drilled with a piece of sharpened brass tubing of the appropriate size.



Match drilling hatch pin and magnet holes

The fuselage and wings are done and now it is time for my least favorite task...hinging the control surfaces. I have stopped using CA hinges on control line models as they are too stiff for my liking. The control surfaces are moved by the centripetal force reaction of the two control lines acting through the bell crank and pushrodsControl surface movement is resisted by the aerodynamic load on the (large) control surfaces and the stiffness of the hinges. It has been determined that the line tension may not be enough to give full control surface movement. If we can minimize hinge resistance we can get better aerobatic performance. In an r/c model a bigger servo deals with the problem. In a control line model there isn't a fix for this problem that doesn't introduce other (usually) bigger problems. So on the Cobra I'm using flat pinned hinges. To mount the hinges you need to cut a slot that is large enough to allow easy insertion without scraping the adhesive off as you insert it. I used to have the Hobico electric hinge machine which fell apart in my hand during its first use. I now use my own shop made tools to make a hinge slot of the proper size.

The first tool is a modified Xacto saw blade. I shortened it and sharpened the tip so it would go onto a piece of balsa like a knife. The second tool is a piece of

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stainless steel .020" thick by 1/2" wide. I glued a piece of 80 grit sandpaper on one side.



Shop made hinge slotting tools

To use the tools mark the location where you want to make a hinge slot. Pick a drill bit or piece of wire that is about 1/64" (.015") diameter smaller than half of the control surface thickness. Huh you say? Ok, suppose your control surface is 1/4" (0.25") half of that is 1/8" (0.125"). select a 7/64" drill. That is 1/64" smaller than the 1/8" half thickness. Ok? What is the drill bit for? The shank end of the bit is a spacer that will allow you to hold the saw tool at approximately the center of the edge of the control surface.



Wire center line spacer

Using the drill shank or wire as a guide use the saw tool like a...well like a saw and cut a slot a little deeper than the hinge leaf. Now, it is likely that the slot will be a little tight. Enter the second tool. Insert the sanding blade into the slot and move it back and forth to enlarge the slot until the hinge leaf is a slip fit.



Hinge slot sanding tool

This goes faster than it reads once you get the hang of

it and you don't need the \$29.95 + tax Hobico tool that still leaves the slot too tight (IMHO).

Ok, so that's it for the construction of the Cobra and here is what it looks like at this point.



Cobra in the bones



Cobra in the bones

That's it for this installment. Next time we'll be going through the finishing which will be unique. To build some anticipation, the finishing process will include one or more of the following:

- An item of women's clothing
- A laundry product
- An x-ray of my skull (shows the loose marbles)
- And an airbrush.

I've never tried this technique before so there is going to be some experimentation and process development before I do it on the model. We'll see how this works out next month

Steve Kretschmer

February Indoor flying At Ultimate Soccer

Click anywhere in the collage to view the entire photo album on the Skymasters web site



Flightline Swap February 2nd, 2018

Click anywhere in the collage to view the entire photo album on the Skymasters web site



Club meeting

February 21st, 2018

Click anywhere in the collage to view the entire photo album on the Skymasters web site



Five Minutes on Safety

Random Thoughts

Range check

• It is a good idea (that many of us ignore) to do a range check before each new flying session.

A known good radio system can fail, and you never know when that might happen.

Prop safety

- ALWAYS treat the propeller on an electric aircraft like a loaded gun whenever the battery is connected.
- ALWAYS treat the propeller on a fuel powered aircraft with extreme respect when the engine
 is running. Take extra time to think it through when making any needle valve or engine adjustments with the engine running.
- ALWAYS make sure that any cords or cable (like remote glow starters and starter power cords) are well clear before starting the engine.

Throttle Hold switch

- ALWAYS program, understand and USE a throttle hold switch on your transmitter if the transmitter includes that function. A THROTTLE HOLD switch is different than a THROT-TLE KILL switch and is useful on both fuel powered and electric aircraft.
- The THROTTLE HOLD switch locks the throttle channel to idle (fuel powered) or zero throttle (electric) and prevents the throttle from advancing unless the switch is placed in the "non-hold" position.

Battery disconnect

 Electric aircraft are MUCH safer if they are equipped with a master battery disconnect switch, accessible from the outside of the aircraft with all hatches closed / in place. The disconnect usually takes the form of a shorting plug that can be seen and when NOT inserted, you know for sure that the motor is disabled. This is even more important if the battery plug is not easily accessible in an emergency.

Taxi safely

It is good practice when taxiing not to aim directly at an opening between flight stations.
 When taxiing back to the pits, I angle towards a flight station until I get close and then I taxi parallel to the flightline until I reach the opening where I am standing. While still aiming east or west (ie., NOT towards the pits) I shut the motor down and then carry or tail walk the aircraft back to the pits.

Help Wanted at Skymasters

Website Content Editor Updater

Looking for a club member who can keep our club website calendar and website events updated. Required Pittle skill getting around but most of it is auto-



mated. Training provided and most of the information is provided for you to add to the site. The unit of the site of the site

Email: president@skymasters.org or webmasters@skymasters.org. Thanks!

Club Email System Notice

We have a great club email system. Just an FYI, when you have something to sell or list for sale (or looking for something) please use the

"classifieds@skymasters.org". I encourage use of this email mail list system. Our member to member email address "members@skymasters.org" is for general communications between our members. We have several other great email addresses (actually many) such as the "indoorfly@skymasters.org", floatfly@skymasters.org, and many other email lists that you may be on by default. For a complete list, click this link (you will need to log in with your Skymasters credentials to view the addresses). Each mail list has a specific purpose for our very active club and you'll see that the emails that come as official club communications, i.e. club leadership, event directors or club officers, etc. are marked that way... either way you have control over the emails you receive or don't want to receive... by going to your member profile in your Skymasters Profile and "edit my profile" and then "Edit Email Subscriptions/Options: I would really advise you to NOT change these unless there is some problem. Email is the primary way we communicate what is happening in our club! NOTE: to communicate TO the club you must use the email address you registered with on the site. Also, it is great when you log into the Skymasters website too! www.skymasters.org.

Skymasters Indoor Flying

Oct. 30th thru April 16th*

Join us on Tuesdays* from 10 AM - 1 PM

At Ultimate Soccer Arenas.

Where its always warm and dry!

Located at 867 South Blvd., Pontiac, MI 48341



Single Flying Session \$10 Any 5 Session Punch Card \$40 Season Pass \$120



All Pilots must have proof of current AMA Membership
A Special 3 Month Trial AMA Membership is Available
Spectators welcomed at no charge. Come in and walk around.

Check us out at: www.Skymasters.org

Support your local hobby shops:



* Indoor Schedule of Dates and Times Subject To Change

Save This Date

Sept. 6th, 7th & 8th 2019 Skymasters

Midwest Regional Float Fly Seven Lakes State Park, Holly MI

- New Flying Friday from 11:AM* until 5:PM**
- Flying Saturday from 9:AM until 5:PM**
- Flying Sunday from 9:AM until 3:PM**

Register Online "NOW" at http://www.skymasters.org for \$25

Seven Lakes State Park has great camp sites.

Last year we had over 28 pilots camping at the park. Join the Fun!

Sites features: concrete trailer pads, 20/30 Amp, fire pits & clean restrooms.

Another benefit is that registered pilots can fly with small electric planes in the evening at Sand Lake located in the camp ground.

For camping reservations call 1-800-447-2757

Note: If you register for a camp site you still have to register for the float fly.

DNR Recreational Passport & current AMA Required



^{*} Friday Flying will begin after event setup has been completed.

^{**} Weather permitting.

Skymasters

Midwest Regional Float Fly

Sept. 6th, 7th & 8th
Come Fly With Us









For camping reservations call 1-800-447-2757



For camping reservations call 1-800-447-2757

You can make your camping reservation on or after 3/6/19



Midwest Regional Float Fly Three Day Float Flying Event Sept. 6th, 7th & 8th 2019

DNR Recreational Passport & current AMA Required

Register for the Event Online "NOW" at http://www.skymasters.org for \$25





2019 CLUB EVENTS

SKYMASTERS RC CLUB – LAKE ORION, MI



April 2019

Saturday April 27 — Involvement Day — Bald Mountain

May 2019

Saturday May 11 - Field Opening/Work Day - Scripps Road Flying Field; Lake Orion

Sunday May 19 — Chet Brady - Spring Float Fly – Bald Mountain Trout Lake; Lake Orion

Wednesday May 29 - Student Flight Training & Potluck begins - Scripps Road Flying Field

June 2019

Saturday June 8 — Night Fly (evening) – Scripps Road Flying Field; Lake Orion

Sunday Jun 9 – Electric Fly – Scripps Road Flying Field; Lake Orion

Saturday June 22 — Control Line Fly In – Scripps Road Flying Field; Lake Orion

July 2019

Saturday July 13 – Open House - Recreation 101 – Scripps Road Flying Field

August 2019

Sunday August 4—Warbirds and Scale Fly In - Scripps Road Flying Field; Lake Orion

Sunday August 18—Corn Roast and Top Gun Flying - Scripps Road Flying Field; Lake Orion

September 2019

Sat. – Sun. September 7-8 - Midwest Regional Float Fly – Seven Lakes State Park Rec. Area, Holly

Saturday September 21- Skymasters Fun Fly - Scripps Road Flying Field; Lake Orion

October 2019

Indoor Flying Season Begins – Ultimate Soccer Arenas; Auburn Hills

December 2019

<u>Christmas Party</u> – Orion Center; Lake Orion

dates subject to change - PLEASE always consult current information on website: www.skymasters.org

Skymasters 2018-2019

Club Meetings

Orion Center - 1335 Joslyn Rd, Lake Orion, MI 48360 - Room A

3rd Thursday of Month - 6:45 - 8:45 p.m.

September 2018

Wednesday 19th – Club Meeting – <u>Scripps Field</u>

October 2018

Thursday 18th - Club Meeting

November 2018

Thursday 15th - Club Meeting - (Elections & Club Review)

December 2018

MONDAY 17th - CHRISTMAS PARTY

January 2019

Thursday 17th - Club Meeting

February 2019

Thursday 21st - Club Meeting

March 2019

Thursday 21st - Club Meeting

^{*}dates subject to change – PLEASE always consult current information on website: www.skymasters.org and current club email communications*



ON THE WING

Skymasters Breakfast

(Everyone is welcome)

First and Third Monday of each month through the summer... and beyond!

9AM

Red Olive restaurant
In the strip mall on Walton
across from Crittenton Hospital
Rochester MI

Skymasters Indoor Flying

Tuesdays!

We fly every Tuesday through mid April

10AM to 1PM (three hours)

<u>Ultimate Soccer, Opdyke & South Blvd</u>

Pontiac, MI

AMA required

Next Skymasters Meeting...

Thursday, March 21st

6:45PM

at the Orion Center, 1335 Joslyn Road

(on the east side of Joslyn, just south of Clarkston Road), Lake Orion, MI



Other local area indoor flying

Premiere Sports Center

14901 23 mile, Shelby Twp, MI

(northwest corner of 23 mile and Hayes)

Every Thursday, 9AM to 3PM

Electric planes and helis (separate heli space)

\$10/session, AMA required
Info: Steve Durecki 586-246-4203 (text or voice)

http://www.stevesindoorflying.com/

Legacy Center

9299 Goble Dr.

Brighton, MI 48139

(Off of Winans Lake Road, between Rickett Rd. and M23)

Wednesdays 1PM—3PM November through March \$10/session

Sponsored by the Hamburg Flyers RC club

March 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Saturday Breakfast 8:30AM Iris Café
3	4 Skymasters Breakfast 9AM Red Olive, Rochester Hills	5 Indoor Flying 10AM-1PM Ultimate Soccer, Pontiac	6	7 Indoor Flying 9AM—3PM Premier Sports Center Shelby TWP	8	9 Saturday Breakfast 8:30AM Iris Café
10	11	12 Indoor Flying 10AM-1PM Ultimate Soccer, Pontiac	13	14 Indoor Flying 9AM—3PM Premier Sports Center Shelby TWP	15	16 Saturday Breakfast 8:30AM Iris Café
17	18 Skymasters Breakfast 9AM Red Olive, Rochester Hills	19 Indoor Flying 10AM-1PM Ultimate Soccer, Pontiac	20	21 Indoor Flying 9AM—3PM Premier Sports Center Shelby TWP Skymasters Meeting 6:45PM Orion Center	22	23 Saturday Breakfast 8:30AM Iris Café
24	25	26 Indoor Flying 10AM-1PM Ultimate Soccer, Pontiac	27	28 Indoor Flying 9AM—3PM Premier Sports Center Shelby TWP	29	30 Saturday Breakfast 8:30AM Iris Café
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Skymasters Information...

The Skymasters field is located in Lake Orion, within the Bald Mountain Recreational Area on Scripps Road, between M24 and Joslyn (see map). A recreation passport or sticker is required and can be obtained from the Park Headquarters located on Greenshield Road or you can check the box on your tab renewal for a "Recreational Passport".

Flying hours:

QUIET ELECTRICS ONLY from 8AM to 10AM and 8PM to 10PM. The noise limit is 80dBa at ten feet. Regular flying is permitted between 10 AM to 8 PM. The noise limit is 94 dBa at 10 feet. These noise limits are enforced.

Student Instruction & Pot Luck Every Wednesday, May through September. Flying any time but we eat at 6:00 p.m. - rain or shine, literally! For those participating we ask that you bring something for the grill enough to feed (at least) you and
your guests -OR- bring a dish to
pass -OR- bring your own (nonalcoholic) beverage. <u>Something for</u>
the grill: The obvious choices are
burgers, sausages/brats and hotdogs
- but other alternatives are welcome.
If you bring it we will cook it! We've
cooked pork tenderloin and chops,
salmon, venison burgers, steaks and
more. Don't forget the buns.

We start cooking about 5:30 p.m. - having grill items by then helps us get everything ready on time.

Potluck dish to pass: Don't know what to bring, working late? Each week we'll let you know what is needed for the next week from plates to condiments, charcoal, etc. Pick one of the needed items to bring instead! Not one to cook? A quick stop at local supermarket deli

for a side salad, or bakery for dessert always works!

From June through August, club meetings are held at the field, on the second and fourth Wednesday of the month at 8 PM. A great chance to fly and socialize. Winter meetings (September through May) are held at the Orion Center, 1335 Joslyn, in Lake Orion. Bring a model for Show and Tell, enjoy coffee and donuts and listen to the speaker of the evening.

The Skywriter newsletter is available online at the Skymasters web site and is free to all. It may also be printed from the web site if desired. All contributions are welcome. Please send photos and articles to newsletter@skymasters.org If you know of anyone who may be interested in R/C Aviation, please give them a link to this newsletter or give them a copy of an AMA magazine. It may spark their interest!

