



THE STYRENE SHEET TWO

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MORE BONUS for YOU: Mr. JIM LUND's "GO BIG or GO HOME # 2"

Welcome
IN THIS ISSUE –



AGAIN Building BIG!

This Time Out, Jim's Model Project Proves To Be TOO MUCH FOR FINESCALE MODELER , Finally Story Can Be Told HERE
(Feature Article Begins on Page 3)

“ AS FATE WOULD HAVE IT ... A PERFECT ANSWER FOUND WHILE HUNTING FOR ANOTHER ”

*Thanks to his being a long time member, Jim Lund even managed to provide this Editor a guest editorial .Which splendidly suits Jim’s mission to “provide a little breathing room in the Publication Production Schedule”. I found this fine topical piece for this second issue of the SST, written by Jim far ahead of the models you’re about to see were built by him . Words tied nicely to his subjects from Inaugural SST, in this one, ones coming. **Farsighted he, from June ’98:***

A vac-master: ‘Why vacuforms work for me’

By Jim Lund

Vacuformed plastic has been around almost as long as plastic itself. However, it wasn’t until the late 1960s that an entire kit was marketed. It happened in England, and Gordon Stevens was the man to do it with *Rareplanes*.

The *Frog* and *Airfix* companies in Great Britain were producing a line of 1:72 plastic kits, and created a large group of enthusiasts waiting for each new release. Gordon suspected that many of the old favorites would not be done because of the high cost of tooling an injection mold and the associated number of sales needed to make a profit. He had made some experiments with vacuforming and made the decision to market the kits. Since he was first a marketing professional and second a lifetime hobbyist of scale aircraft models, he had the credentials for success. His first kits were crude, for they were merely .030 plastic sheets draped over wood patterns. But Mr. Stevens is a keen learner, and somewhat of a perfectionist, so he developed the female mold technique and started adding surface details usually found only on the finest injection-molded kits. His success did not go unnoticed, and others started offering vacuformed kits as well. Though others never caught up to Gordon’s quality, their offerings made available a variety of kits unheard of before.

Besides the benefit of low manufacturing cost, vacuforms also give the modeler a more in-scale thickness of parts. Many

modelers today prefer vacuformed clear parts for that reason. However, some parts just don’t work in vacuform—propellers, landing gear, antennae and such. But now we have resin, white metal and photoetched brass for those things. For me, the ultimate kit is multimedia—vacuform fuselage, wings and tail with white metal props and landing gear legs, resin interior parts, photoetched brass instrument panel and antenna, and a Microscale-printed decal sheet.

Incidentally, for a really great aerobic workout, after anchoring your sanding board on the drainboard, take about ten kits and rub them down in a circular manner, going left to right for about 40 revolutions and, after checking your progress, do the remainder right to left. You must always maintain a light pressure at all times. This tones arm and hand muscles. the circular rubbing works the stomach muscles and helps in keeping that pot belly under control!

If you’ve done scratch building, after carving the thing out of wood or such, you must then prepare a mold and heat up the stinky old vacuform machine, and after long hours of hard labor you finally have a sheet of styrene with the image of your model on it. Look at all the trouble the vacuform kit has saved you!

Without the advent of the vacuformed kit, my collection of 1:72 models would not exceed 1000 as it does now, but would be down around the 400 mark. The way to go... vacuform!

I am utterly in full awe and agreement with you here , W J Lund ! - Mick Burton, Editor at will – DENS25403@mypacks.net

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- 23) “ **DOUGLAS COMMERCIALS: A Family Portrait in 1/72 Scale** ” Jim Lund’s Gorgeous Gallery Spans DC-1 to MD-80 (runs to 45)

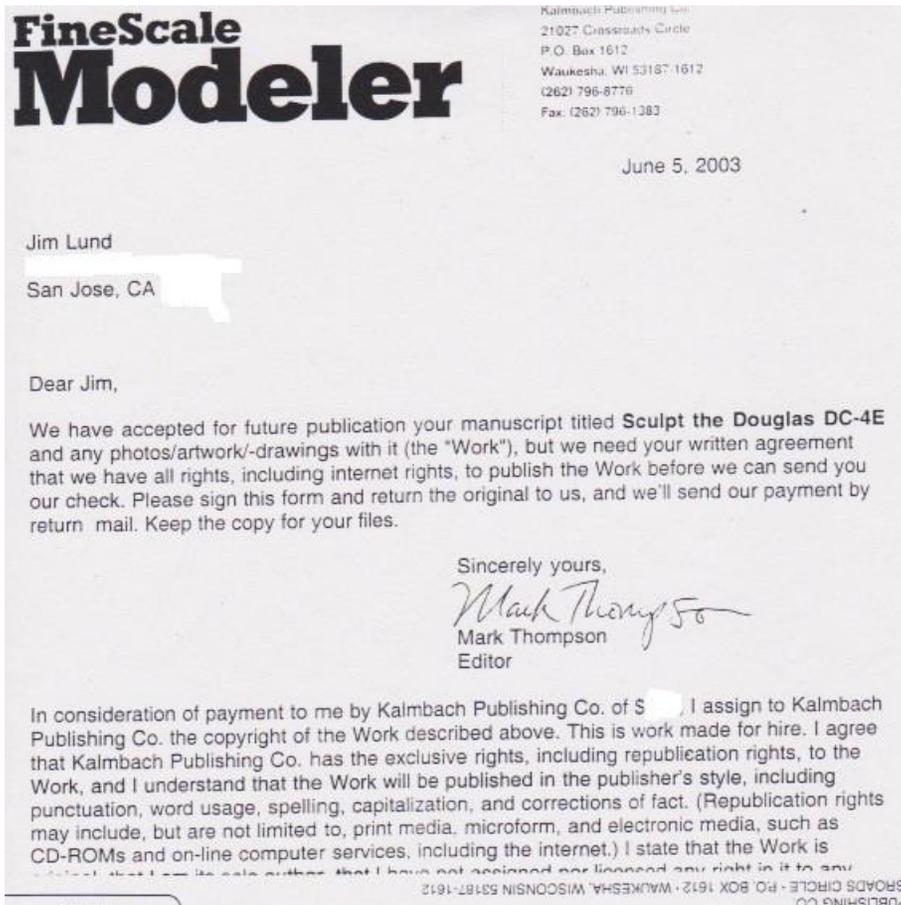
Chapter 2: Scratch Building Big, The Douglas DC-4E

Text & Photos: W.J. Lund

Are you ready? This Chapter was bought & paid for by Fine Scale Modeler magazine. They never really had the guts to print it, because, after looking it over, it was considered too original and beyond the grasp of their readership. So after giving me \$\$ for it, and holding on for over 14 years they gave me the OK to let the Styrene Sheet print it. (*for which, This Editor is grateful-mb*)

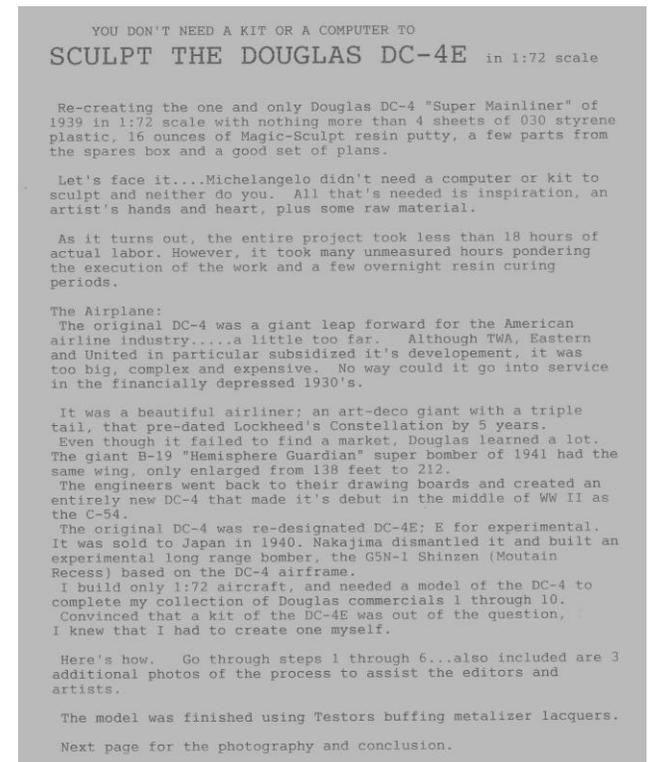
INTRODUCTION

Mick, this explains why this story languished for 14 years. Most of the original manuscript was lost, so what you got, were the scraps that I could dig up - sorry about that!



The "Sculpt the DC-4E" contract that tied up this story for 14 years.

With the advent of the Internet and e-mags and such, I believe the printed hard copy stuff is in jeopardy. I do think that FSM was impressed by my effort, but overwhelmed by its originality. I wish them the best, even though my article on the Junkers JU-390 V-2 has been paid for but unpublished for the past 10 years. There is a chance that they might free it up soon if they don't publish it.



A scrap? Yes, but yet a great start for a re-launch today!

You Don't Need A Kit Or A Computer To Sculpt The Douglas DC-4E in 1:72 Scale

Re-creating the one and only Douglas DC-4 “Super Mainliner” of 1939 in 1:72 scale with nothing more than 4 sheets of .030 styrene plastic, 16 ounces of Magic Sculpt resin putty, a few parts from the spares box, and a good set of plans.

Let's face it...Michelangelo didn't need a computer or kit to sculpt and neither do you. All that's needed is inspiration, an artist's hands and heart, plus a little raw material.

As it turns out, the whole project took less than 18 hours of labor. However, it took many unmeasured hours pondering the execution of the work and a few overnight resin curing periods.

The Airplane



It was a beautiful airliner; an art-deco giant with a triple-tail, that predated Lockheed's Constellation by five years. Even though it failed to find a market, Douglas learned a lot.

From Mr Al Lowry collection, donated to Leisure World Aerospace Club,
now file AL61A-044 of the SDASM (free use)

The original DC-4 was a giant leap forward for the American airline industry ... a little too far.

Although TWA, Eastern and United in particular subsidized its development, it was too big, complex and expensive. No way it could go into service in the financially depressed 1930's.

New DC-4E at United Airlines base, Oakland Airport, CA
- by W T Larkins





The giant B-19 “Hemisphere Guardian” super bomber of 1941 had the same wing, only enlarged from 138 feet to 212.

The Douglas B-19. Public Domain, via wikipedia.en

The engineers went back to their drawing boards and created an entirely new DC-4 that made its debut in the middle of WW II as the C-54.

Douglas C-54 (DC-4) USAAF

Dec 31 1942

Public domain, free use via wikipedia.en



Nakajima G5N1, Dec 31 1941

Public domain, free use via wikipedia.en

The original DC-4 was re-designated DC-4E; E for Experimental. It was sold to Japan in 1940. Nakajima disassembled it and built an experimental long range bomber, the G5N1 Shinzen (Mountain Recess) based on the DC-4 airframe.

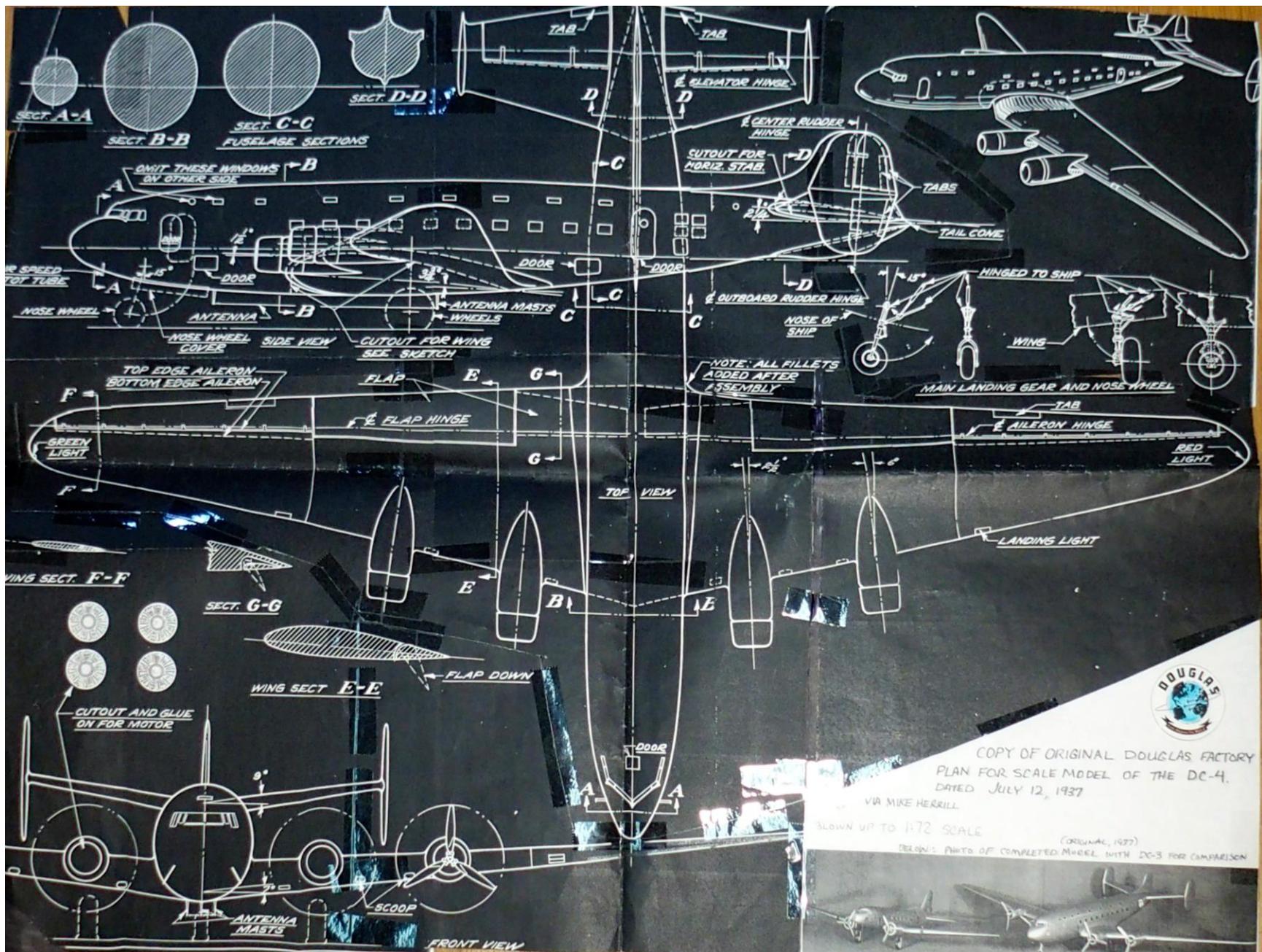
I only build 1:72 aircraft, and needed a model of the DC-4 to complete my collection of Douglas commercials 1 through 10.

Convinced that a kit of the DC-4E was out of the question, I knew that I had to create one myself.

Here’s how: Go through steps 1 through 6...also included are 3 additional photos of the process to assist the editors and artists.

The model was finished using Testors buffing metalizer lacquers.

At the end of construction chapter, a brief pause for special notes on the real air and model photography, and then conclusion.



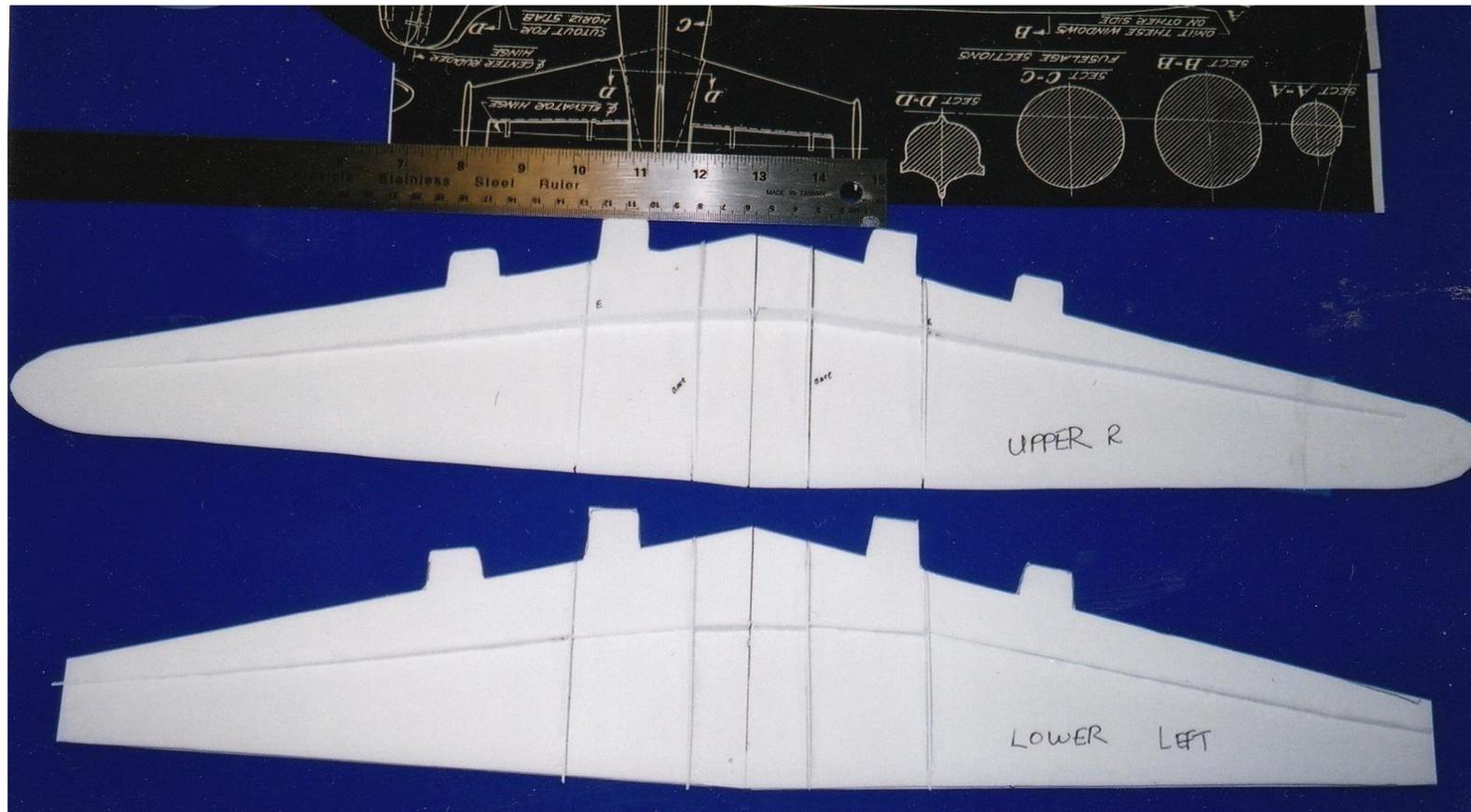
Here we have the official Douglas factory plan for a scale model of the DC-4.

Here , the outside engine is canted outward by 6% , but it agrees with the other drawing on all the other ups, downs and outs. I made the decision to use this drawing for my model ... it will follow these dimensions to the letter. I have to thank Mr. Mike Herrill for passing this plan along to me.

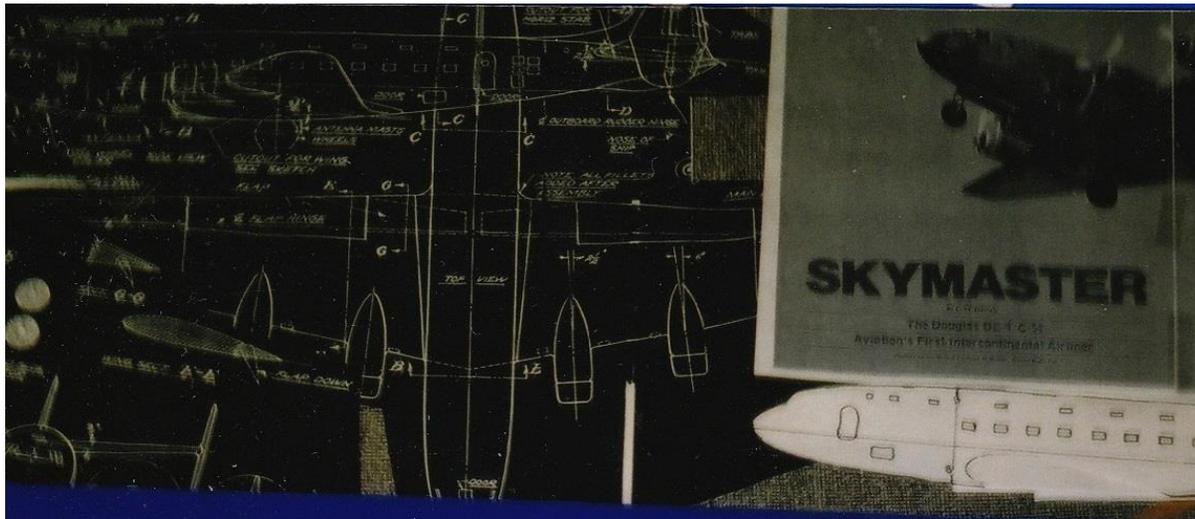
I wanted to build a collection of Douglas commercial aircraft from the DC-1 to the DC-10, all of course, in 1/72 scale. Kits: The DC-2 by MPM could be sliced up and made into the DC-1. There were several C-47/DC-3 kits, one of which could be made into the DST (Douglas Sleeper Transport), that evolved into the DC-3. There existed the Rareplane C-54/DC-4 and later the Mach 2 kit as well. Execuform had the DC-5 covered, Heller had the DC-6B, that could be cut back to a DC-6. FormaPlane had the DC-7 and Aircraft in Miniature had kits of the DC-8-30 and the stretched -63. Aurora had the DC-9 and A.I.M. also had the super stretched DC-9-50 and the DC-10.

However there was no original DC-4E. No kit maker wanted to do it. So it was up to me. Lets move on to my construction !

CONSTRUCTION BEGINS

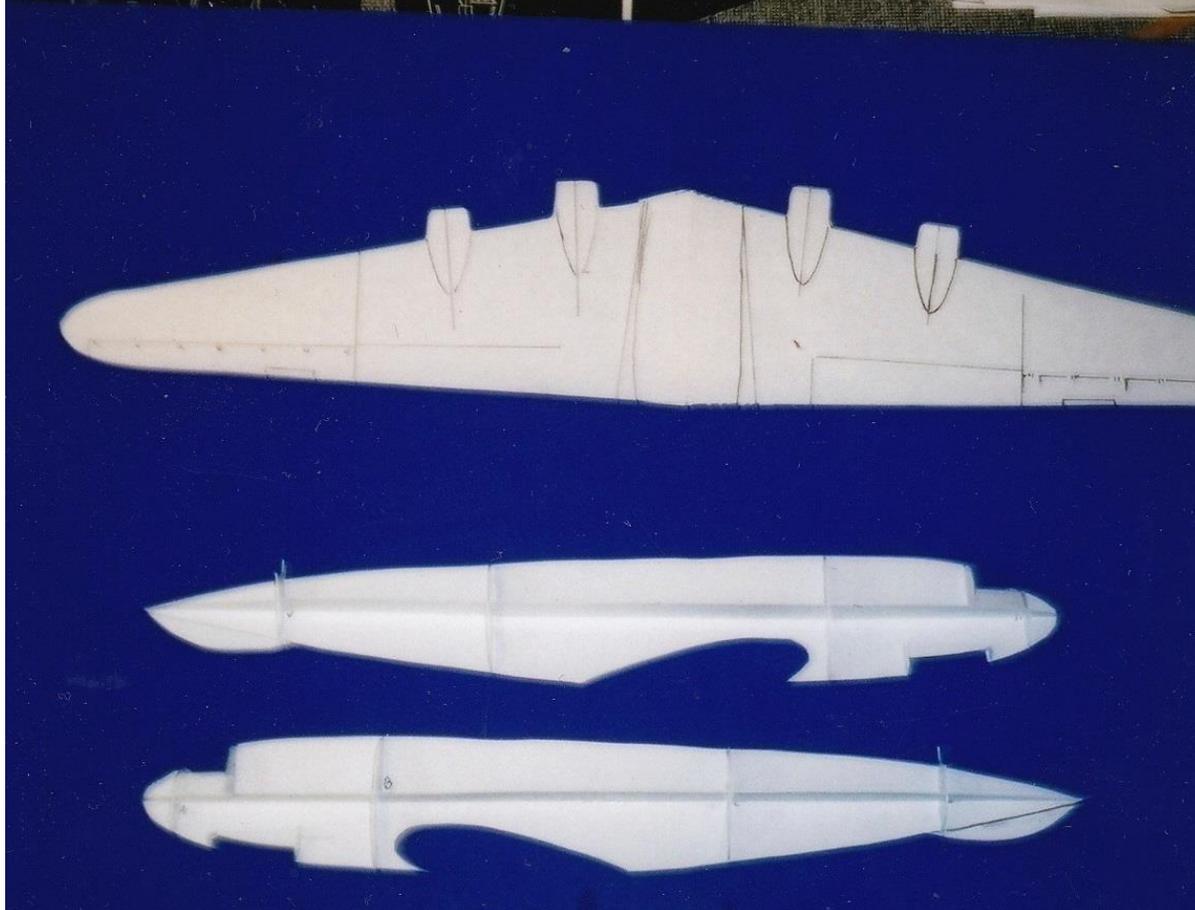


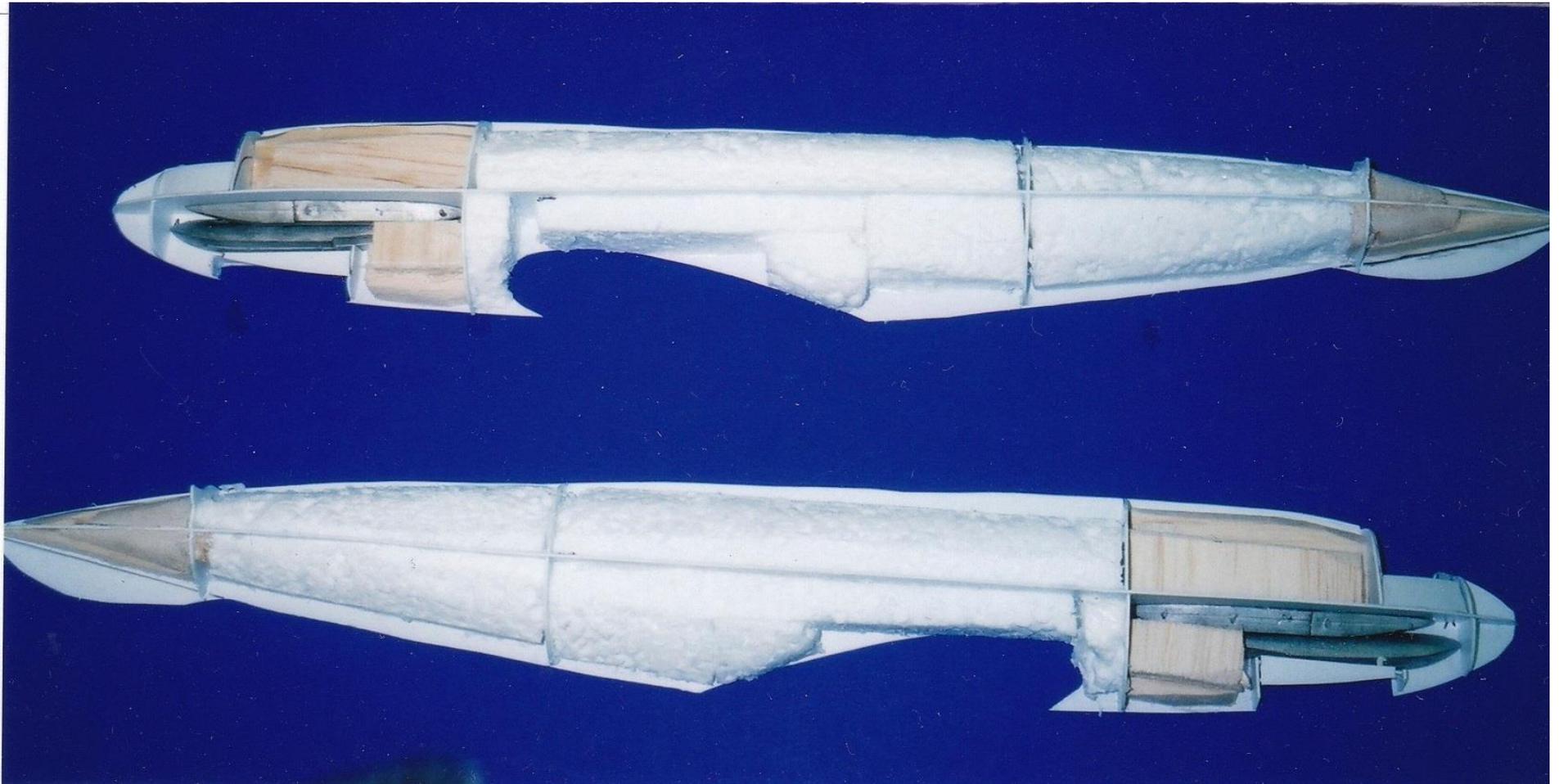
- 1- Patterns cut from .030 styrene sheet. Thickness templates glued in place. Lower wing pattern cut short chordwise to allow sharp trailing edges. Tips are cut short for the same reason. Also pictured is the copy of the Douglas factory drawing for a scale model of the DC-4 for sales purposes (via Mike Herrill)



Additional Photo # 1, to assist & support in Steps 1& 2 of construction narrative.

Showing the 1:72 wing and fuselage sheet styrene patterns and more detail bits of the Douglas factory plans for sales model

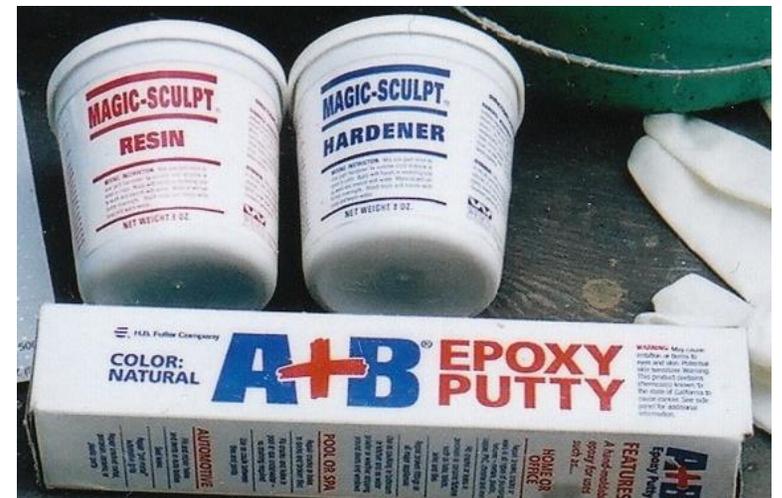


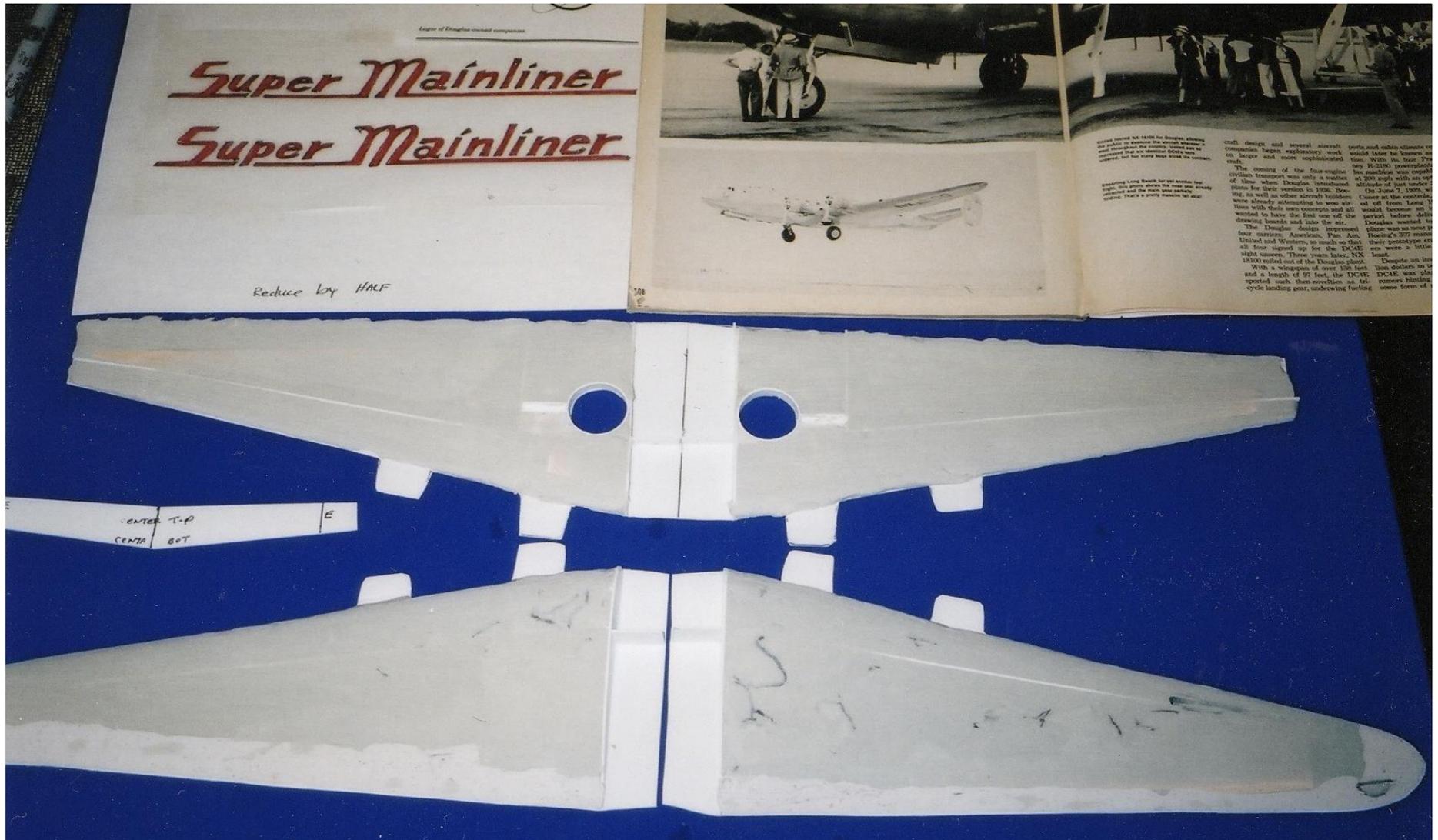


2- Fuselage patterns cut from .030 styrene sheet with thickness templates glued into place, and filled with styrofoam and balsa to reduce the amount of resin putty, thus saving weight and money. Lead weights are glued in the nose for balance.

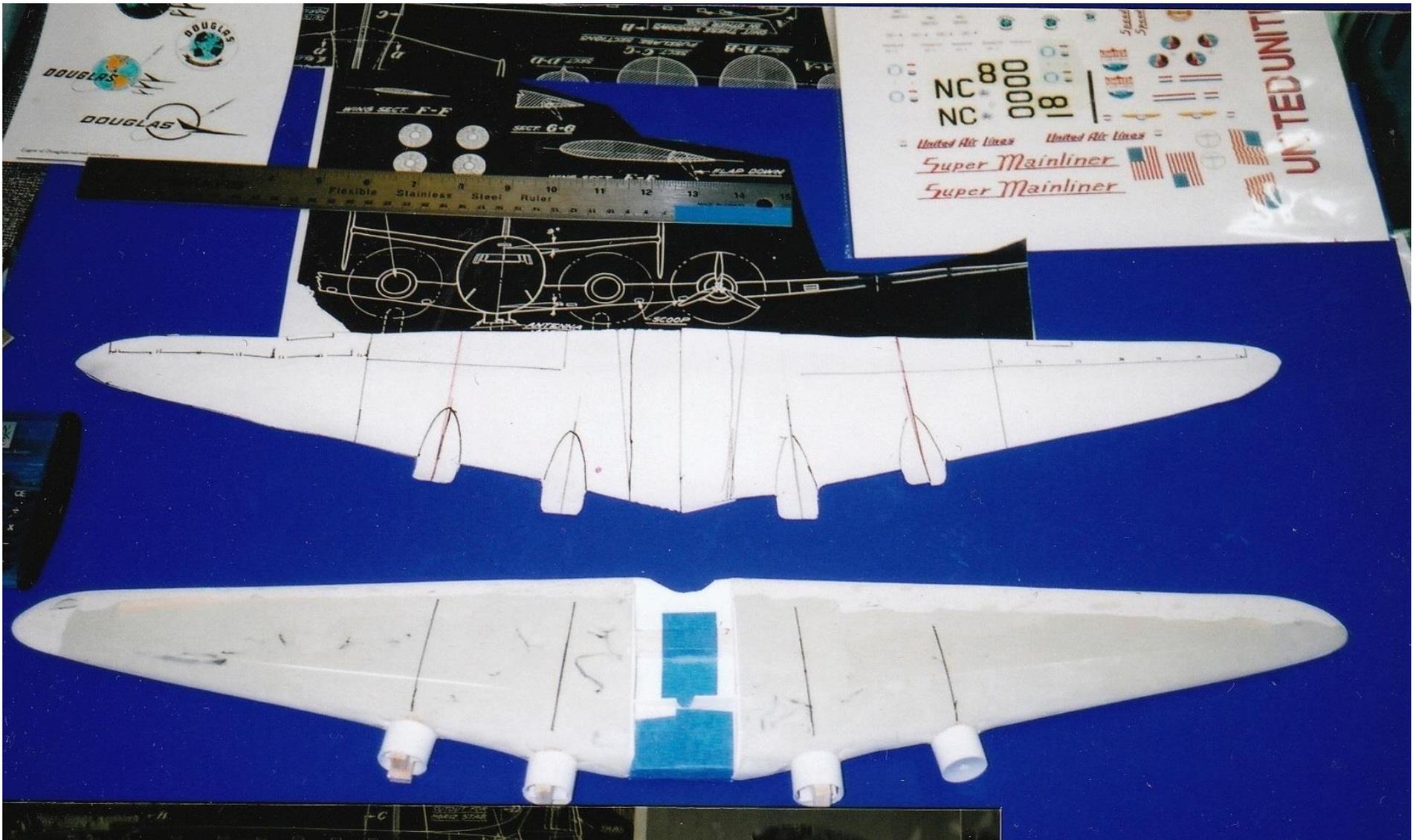
Cockpit area is left open so that an interior can be installed later. Note that nose wheel well has been blocked in place.

3- The key component – this comprises 99 % of the model. Thus the title of “Sculpt a DC-4” is apropos.





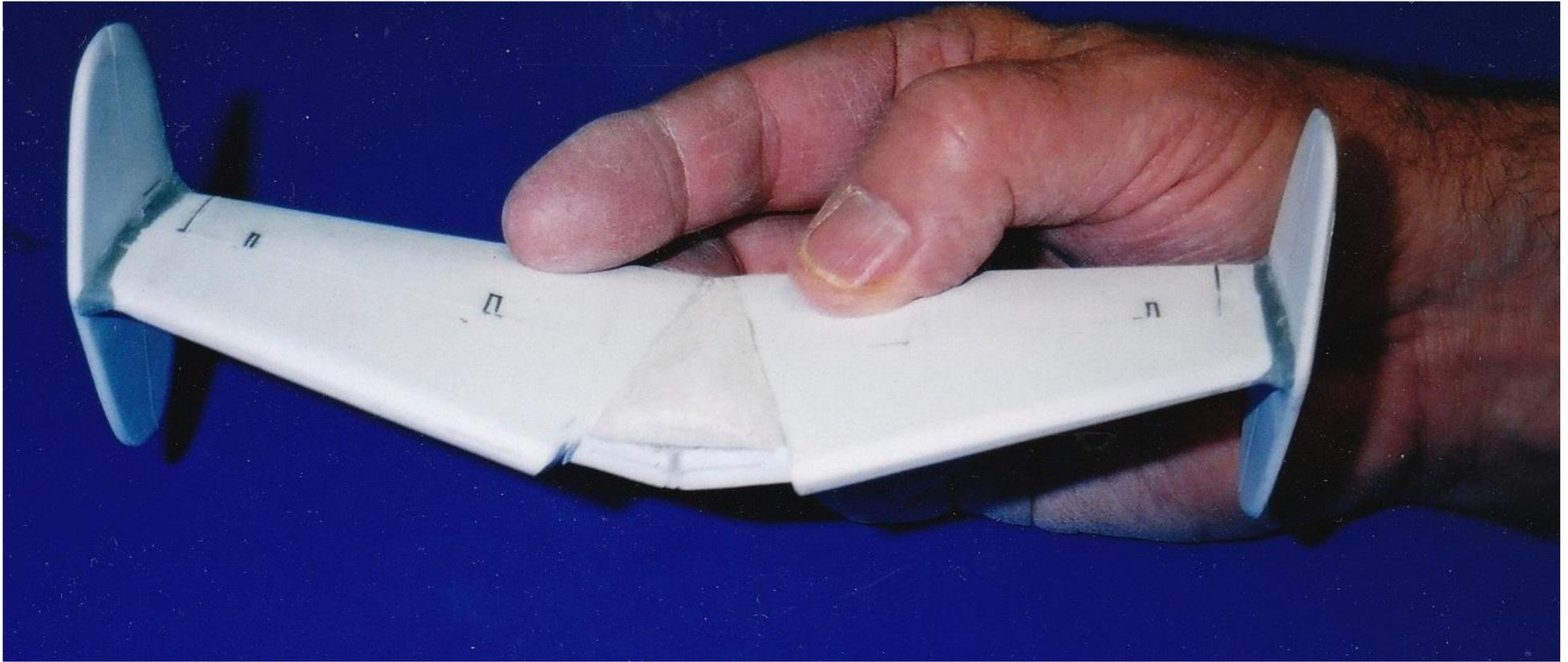
- 4- Wing halves filled and sanded down exposing .030 styrene template guides. As the cured resin is sanded down, the templates show through and you stop sanding. This is a high energy build.
- After bonding the two with styrene cement and filling the lower trailing edge, wing tips with Magic Sculpt, then sanding smooth: Crank in the dihedral by bending the wing center, which is open at fuselage width and gluing the center spar shown here (left) .
- Also shown are the hand drawn graphics that will be reduced by half, and then printed on a blank decal sheet at the local color copy place.



Additional Photo # 2, to assist & support in Steps 4, 5 & 6 of construction narrative.

Finished wing , showing nacelle alignment marks and sleeves prior to filling with Magic Sculpt.

Note that DC-4E inner nacelles are canted 2 ½ degrees, the outside nacelles are canted at 4 degrees.



Tail assembly shaped from laminated .080 styrene sheet

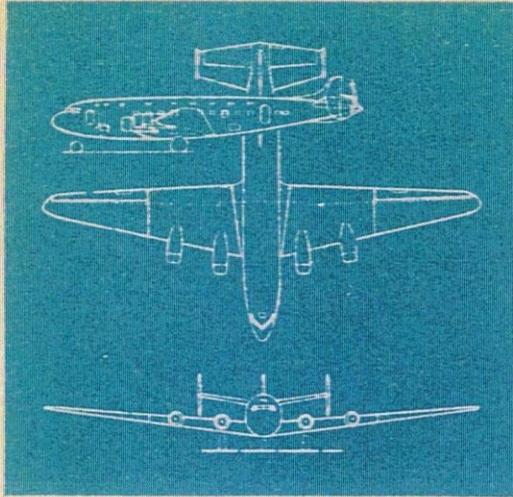
Additional Photo # 3, to assist & support in Steps 5 & 6 of construction narrative.



5- The fuselage sides are boxed together just like the wings were. After detailing the cockpit interior, the clear windshield with top is faired in place. The nacelles are made from rolled .030 styrene and are attached to the protruding stubs, which are canted outward on the DC-4E. Filled with Magic Sculpt, the nacelles are then blended into the wing.



6- All parts of the tail assembly are made from laminating .080 styrene and sanding to shape per plan. The wing and tail assembly are glued onto the fuselage with epoxy glue. All gaps and wing fillets are formed with the Magic Sculpt. Now all is sanded smooth, checked for any irregularities and primed. Shown here are the cowled engines modified from the Italeri DC-3 kits. Also shown are the wheels made from scratch, using resin putty. These will be the last things to be installed, after scribing, painting and decalling. The propellers will come from Aeroclub.



Douglas DC-4

America Leads

World's largest land transport, designed to carry 42 passengers and a crew of five. Equipped with pressure cabin for sub-stratosphere operation, and tricycle landing gear.

SPECIFICATIONS—Wing span 117' 6". Length 92' 3". Height 27' 10". Weight empty 34,546 lbs. Useful load 12,454 lbs. Fuel 1700 gals. Oil 88 gals.



PERFORMANCE — Powered with four Pratt & Whitney twin-row "Hornet" engines developing 1100 h.p. each, the DC-4 has a maximum speed of 257 m.p.h., a cruising speed of 235 m.p.h. and a cruising range of 2600 miles. Rate of climb 1200 ft./min. Service ceiling 22,900 ft. Manufactured by Douglas Aircraft Corporation, Santa Monica, California.



Jim Lund
San Jose, CA

◀ 15

Copy of page 15 of "Airplanes of the U.S.A." by John B. Walker, Whitman Publishing Co, Racine WI – 1940.

Douglas Aircraft must have sent the specifications for the all-new DC-4, then on the drawing boards. Actual dimensions:
Wingspan 138 ft 3 in, Length 97 ft 7 in, Height 24 ft 6.5 in. (DC-4(E))

As you can see, the dimensions are for the all new DC-4 (C-54), but the plans and the picture are for the original DC-4.
Confusion prevails !

NOTES ON THE UPCOMING FINISHED PRODUCT PHOTOGRAPHY:

Goal: To capture the excitement of the days gone by, when the very thought of taking to the air in such a giant and futuristic airliner left everyone in awe. Some photographers might use black & white or sepia to evoke nostalgia, Mine is a different tack. Even though color photos of the era were generally not found (Color photography was very rare and expensive, it was available in the mid-1930's). I was unable to unearth any color photos of the DC-4E, but found some copies of black & white that had been colored by artists and published in magazines of the day.

Where I have seen artwork that looks like a photograph, I was to do the opposite...Make a photo look like a painting.

The DC-4 was built on 1935 technology – so it will be photographed using 1935 technology.

1. Any old manual 35mm SLR camera with a 50mm lens. Load it up with 400 ASA film.
2. In order to keep the entire scene in focus, with the camera so near the subject, the depth of field is critical. To solve this problem, you must reduce the aperture to a pinhole (F 22)
3. Since the camera should be hand held, a fast shutter speed is needed for an unblurred shot. Shoot at 1/250th.
4. Now what is needed is maximum possible light with minimum heat. To do this you must go outside around noontime on a sunny day.



Here it is, with perfectly cocked engines, the Super Mainliner strikes a familiar pose. All decked out in its United Airlines splendor...with news reels spinning and visitors milling all about, the newest Douglas airliner makes the rounds throughout the nation's airports.

This colorful scene depicts the spirit of the day.

DC-4E SCRATCH BUILD PROJECT CONCLUSION & A HUGE GALLERY OF MODEL PHOTOGRAPHS

Donald Douglas has taken a bold move into the future. After all, his very first airliner, the Douglas Commercial One, evolved into a world beating aircraft, that defined the aircraft that the airline business had sought. The ability to make money transporting people from point A to point B. The ubiquitous DC-3 dominated the world's airlines from 1935 to WW-2. Then it morphed into the ubiquitous C-47, the preeminent military transport.

While America was experiencing the Great Economic Depression, the Douglas plant in Santa Monica ran three shifts around the clock, 24/7 to keep up with the orders. All of this success emboldened him to take a step too far. The economy was not quite ready for such a complex and expensive airliner. No sales were made.

The Douglas engineers down sized and simplified the DC-4 into a completely different machine, that would at first serve as the C-54 Skymaster in 1942. No other air force had a mass produced transport as efficient in moving men and material across the oceans. America had the right plane at the right time.

The DC-4E model is a one of a kind. Who knows how long this resin-putty thing will hold together? Will it warp and begin to disintegrate in time? Most of the WW-2 Cruver bakelite 1/72 models are warped out of shape today. The component 2 part resin material has not been tested by time. The San Francisco Airport Museum now owns this model...time will tell.

All photos made by Jim Lund.



" Photographing your model is the greatest and happiest part of the entire effort of building it " - Jim Lund.

However, I would like add an addendum to the “Summing up on previous page”: In retrospect, I have made many models made entirely of Magic-Sculpt with .030 styrene sheet templates. All single engine types, like the Hughes HB-1 racer and others. The system works well, and time will tell if this technique will hold its shape indefinitely.

Here we have a look at this model from every angle. The real thing was shipped off to Japan. Photographer W.T. Larkins photographed it being loaded onto a ship for transport.









*Colorful Pics depicting
the Super Mainliner
on a visit to Glendale.*



This chapter of BUILDING BIG # 2 is finished.
– WJL fini

DC-4E Super Mainliner PART TWO: THE REST OF THE FAMILY

JIM's GATHERING Of His WHOLE DOUGLAS COMMERCIAL CLAN For A PORTRAIT GALLERY



Douglas DC-1 The one and only DC-1 depicted at Glendale, 1934. This aircraft served as a test plane of many purposes and finally ended its career during the Spanish Civil War, where it was destroyed. Modified from the MPM DC-2 kit.



Douglas DC-1

Douglas DC-2. PanAm Grace Airways, 1935. Pattern by MPM, Czech Republic.
When all the bugs on the DC-1 were removed, the production model was renamed the DC-2.



The sensational Douglas DC-2. Just one year earlier, Boeing had the most advanced airliner in the world. When TWA wanted to buy some, Boeing said they would have to wait their turn after United Airlines (owned by Boeing), got all their orders. Big mistake. TWA's Jack Frey appealed to Douglas, who came up with a superior design and killed their Model 247 airliner. Well, live and learn.



Douglas DST. Pattern by ESCI & Jim Lund. Pictured here is the Douglas DST (Douglas Sleeper Transport) with the plane it replaced in the background (Curtiss T-32 Condor sleeper). American Airlines passengers were put off by the old biplane, after riding in the the ultra modern DC-2. American Airlines appealed to Douglas to make a sleeper out of the DC-2.

Douglas widened the fuselage to accommodate sleeper berths and came up with the DST. It was soon discovered that the wider body allowed the aircraft to carry 21 passengers. This was just the perfect size to improve profitability. The sleeper arrangement was removed, and the plane was re-named the DC-3 - the very best money could buy.



Douglas Sleeper Transport (DST)



Douglas DC-3

Pattern by Italeri of Italy.

The DC-3 was undeniably the world's best airliner from its inception in 1935 until the start of WW-2.



Douglas DC-5

Pattern by Mike Herrill of Execuform

For some reason, this very good Douglas transport never sold to U.S. Airlines.

Douglas felt that that the low sitting tricycle landing gear would facilitate loading and make a superior military transport.

The Army Air Corps would have nothing to do with it...they wanted the DC-3 (C-47)

Douglas DC-5

Shown here is a Dutch employed (KLM Airlines) example,used in the Dutch East Indies, 1940.

Had a lot of fun making the decal with what KLM stands for.





Douglas DC-4 Mach 2 kit
Post war U.S.A. to Europe champion.
This aircraft had been flying this route since 1942, A proven trans ocean flying machine.



Canadair DC-4M2
Rareplane kit.

The Canadians mounted four howling Rolls Royce Merlin engines on the DC-4 and called it the "North Star".

The British B.O.A.C. called it the "Argonaut".



The Douglas DC-6

Converted Heller DC-6B, Pattern by Jim Lund. Next generation Douglas airliner, introduced in 1946, it had an enlarged, pressurized cabin and was a more powerful version of the DC-4/C-54 that preceded it.



Douglas DC-6B

Pattern by Heller of France.

In terms of cost per mile, comfort and reliability, the DC-6B is considered the best piston engine airliner of all time.



Douglas DC-6B



Douglas DC-7C

J & L vacuform kit

This baby topped Lockheed's Super "G" Constellation and forced Lockheed to spend a fortune for a new wing design for their L.1649A "Starliner" that lost a ton of money.



Douglas DC-7C "Seven Seas"



Douglas DC-8-30 Pattern by Neil Gaunt of the United Kingdom. Transport Wings (TW) kit





Douglas DC-8-63 TW (Transport Wings) kit. Pattern by Neil Gaunt of United Kingdom.

This is one long sucker. The DC-8 just kept getting prettier and their service life kept getting longer as well.

These “Stretched Eights” are today still flying cargo around the world. Pictured here is the passenger model.



Douglas DC-8-63



Douglas DC-9-10
The flying banana by the legendary kit maker Aurora products Corp of West Hempstead, New York.
Shown here in the Hughes Air West livery.
Pattern by Raymond Haines



Douglas DC-9-10



Douglas DC-10-30 Transport Wings (TW) kit



Douglas DC-10-30



McDonnell-Douglas MD-80
Pattern by Gaunt of the U.K. TW KIT.

The MD (McDonnell Douglas) 80 series was actually a Douglas DC-9-50, with a fuselage stretched by a whopping 44 feet and a completely new wing.

The U.S. Government forced a “shot gun wedding” between Douglas and McDonnell. This led to the McDonnell-Douglas name and ended the Douglas Commercial line at the number 10.

THE END OF THIS PARTICULAR STORY

-THANK YOU, W.J. Lund, from The Editor