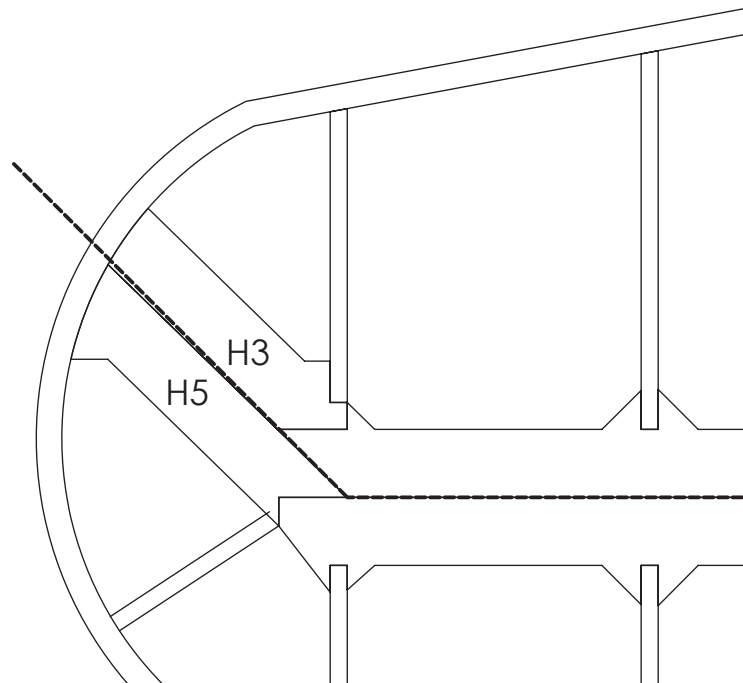
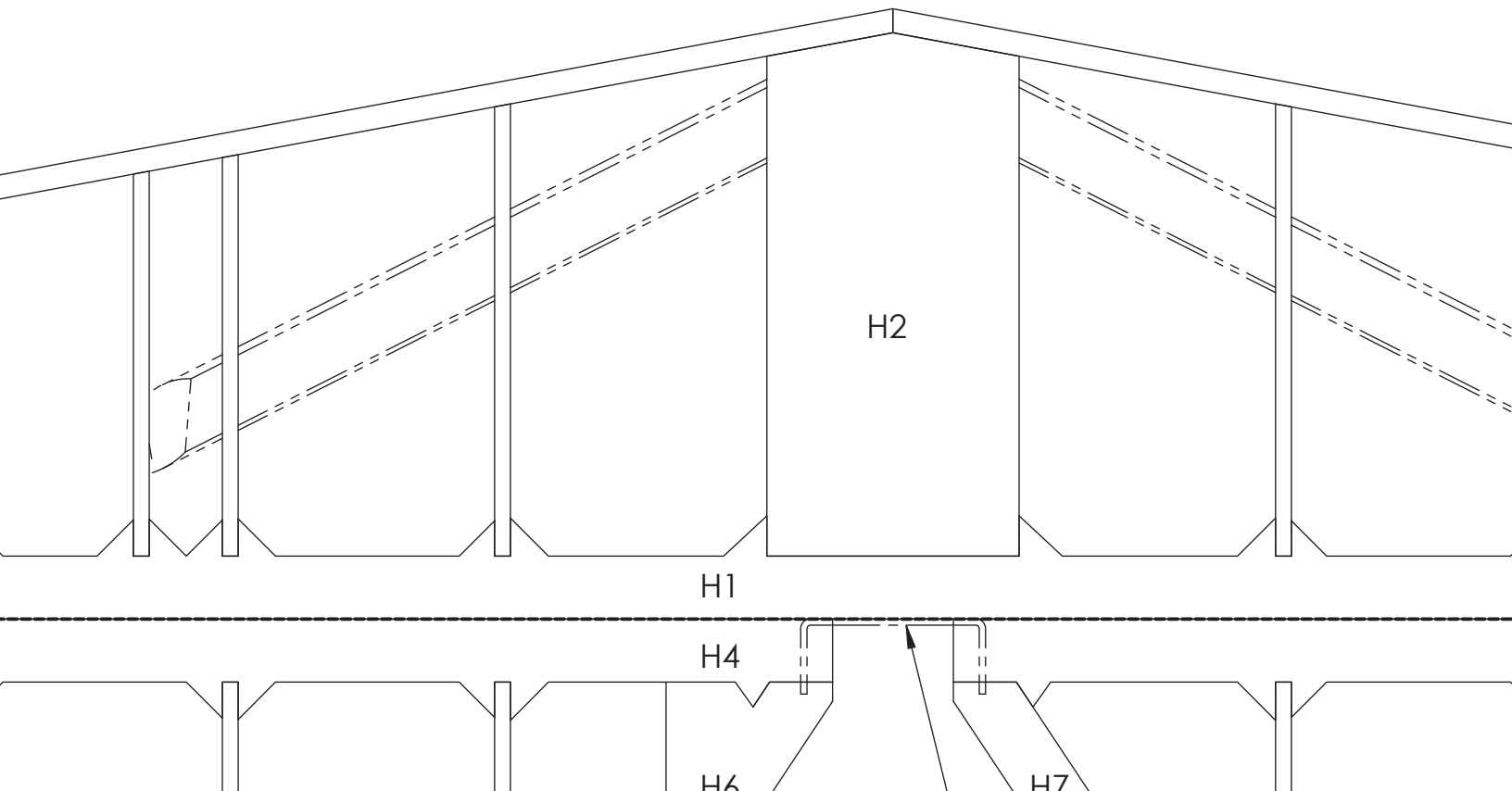


F





These braces optional
Use with HStab Struts

Dihedral Gauge
Align W1 along
this edge

DIHEDRAL

The dihed
rib W1 at
Dihedral

Comple
2 13/16"/7
when wir

WT

W7

RAL

hedral is set by installing center wing
at the angle provided by the
ral Gauge.

leted wing assembly should measure
6"/71mm from board to bottom of W7
wings are level and supported by W1.

1/8" x 3/16" balsa or basswood
upper and lower Mainspars
with 1/16" balsa Shear Webs

S6

S5

3

2

1/4" soft balsa Leading Edge

LE

W3B

W2B

R2 x 2

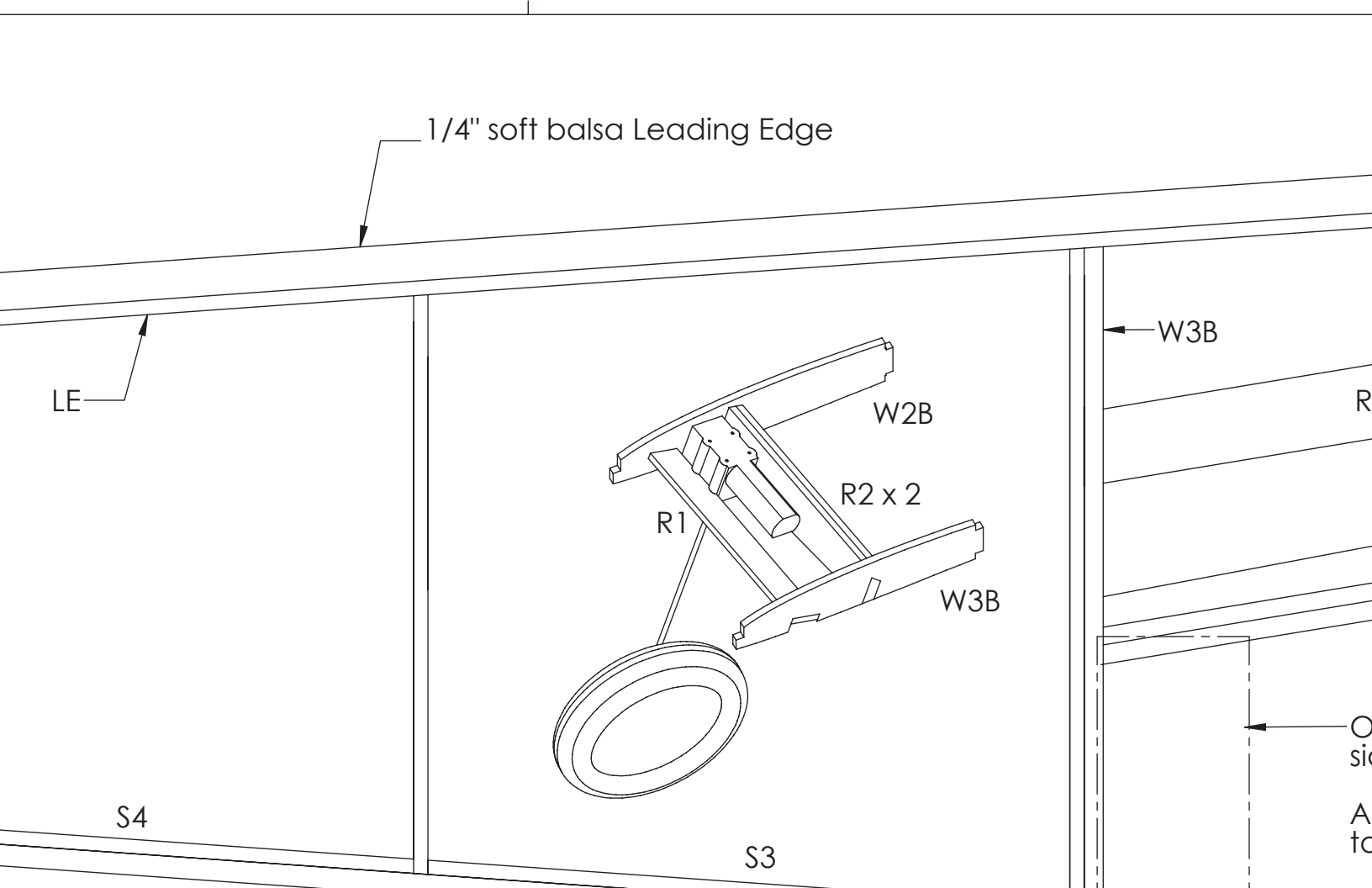
R1

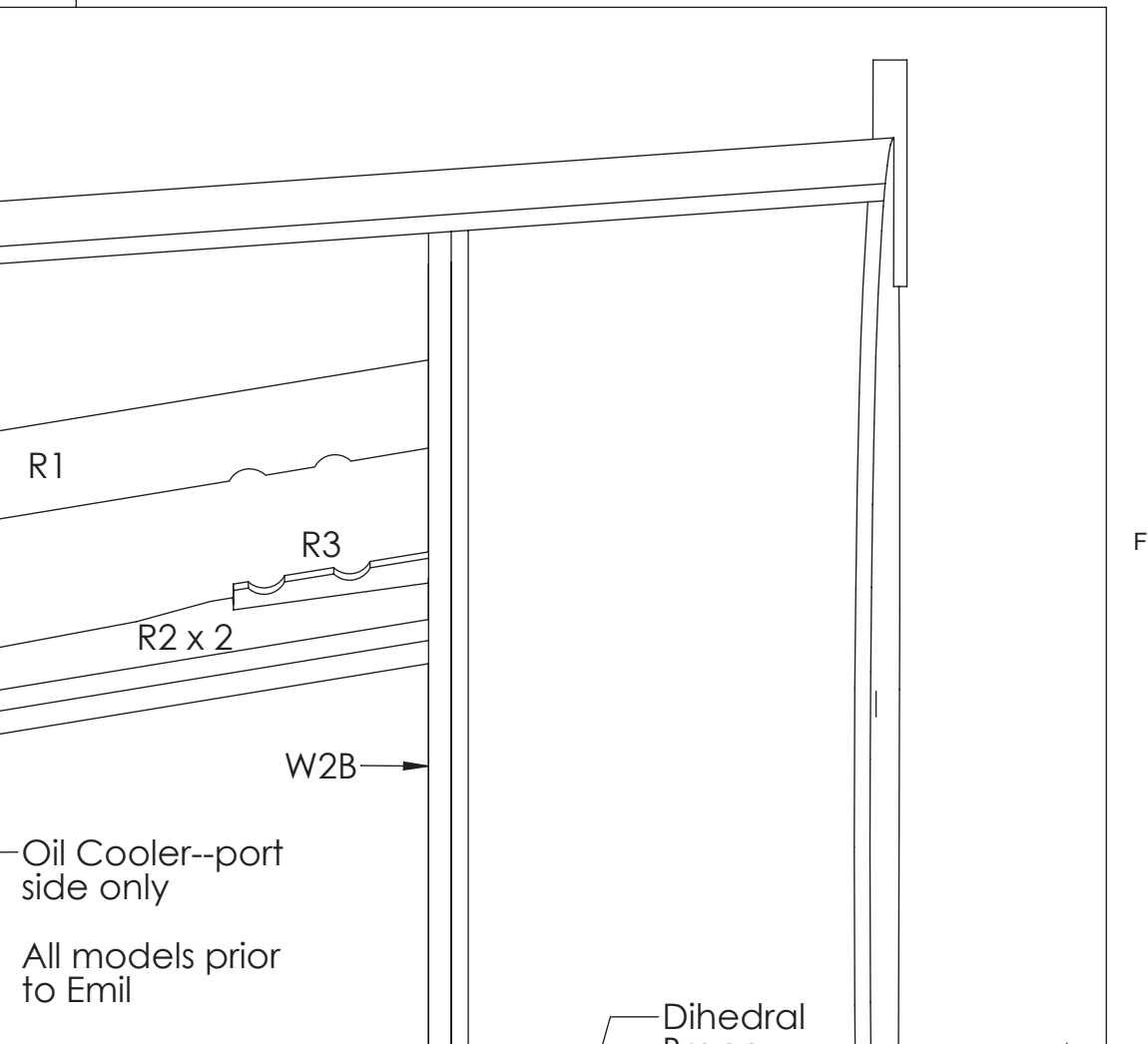
W3B

S4

S3

O
si
A
to

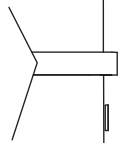




Sheet center sect
edge with 1/16" b

E

D



H6

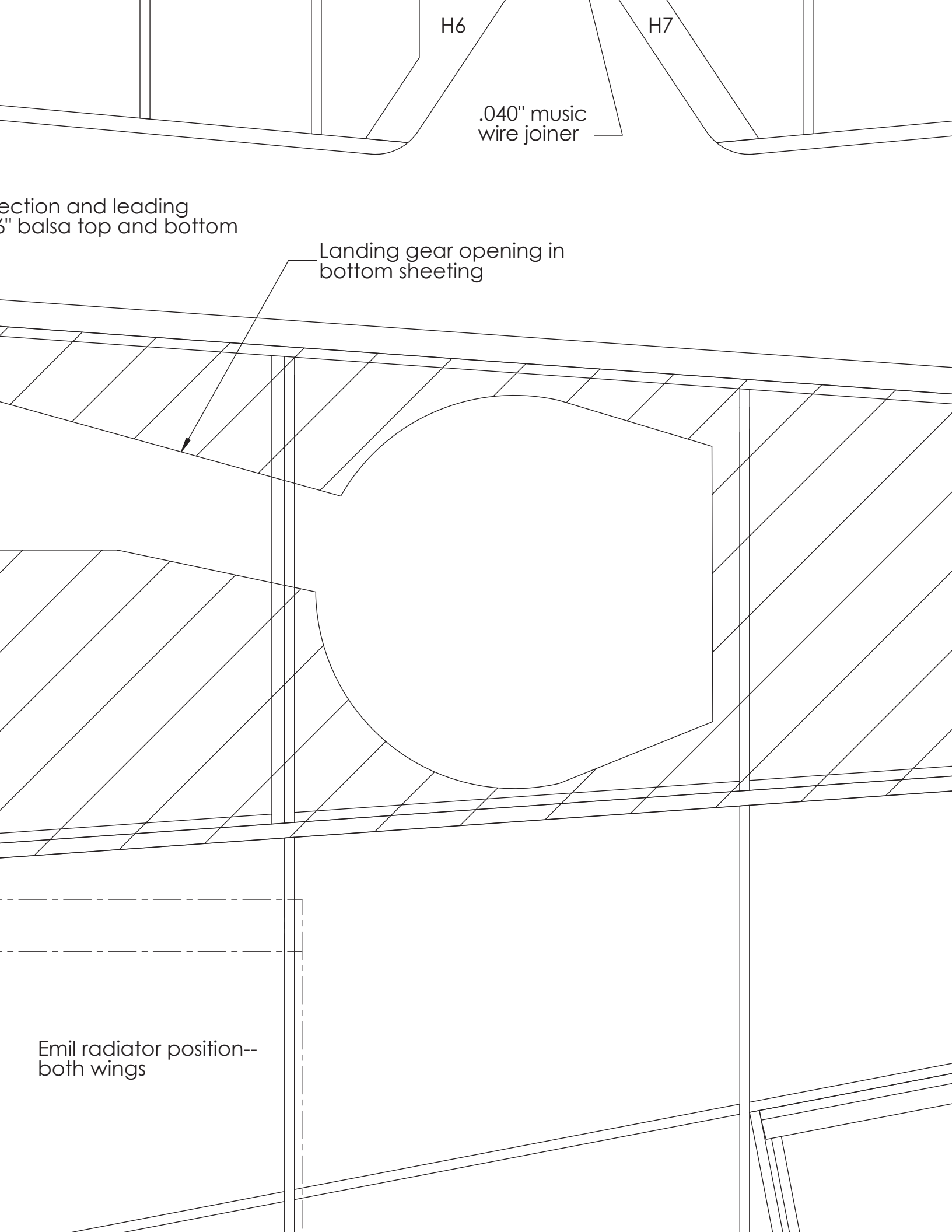
H7

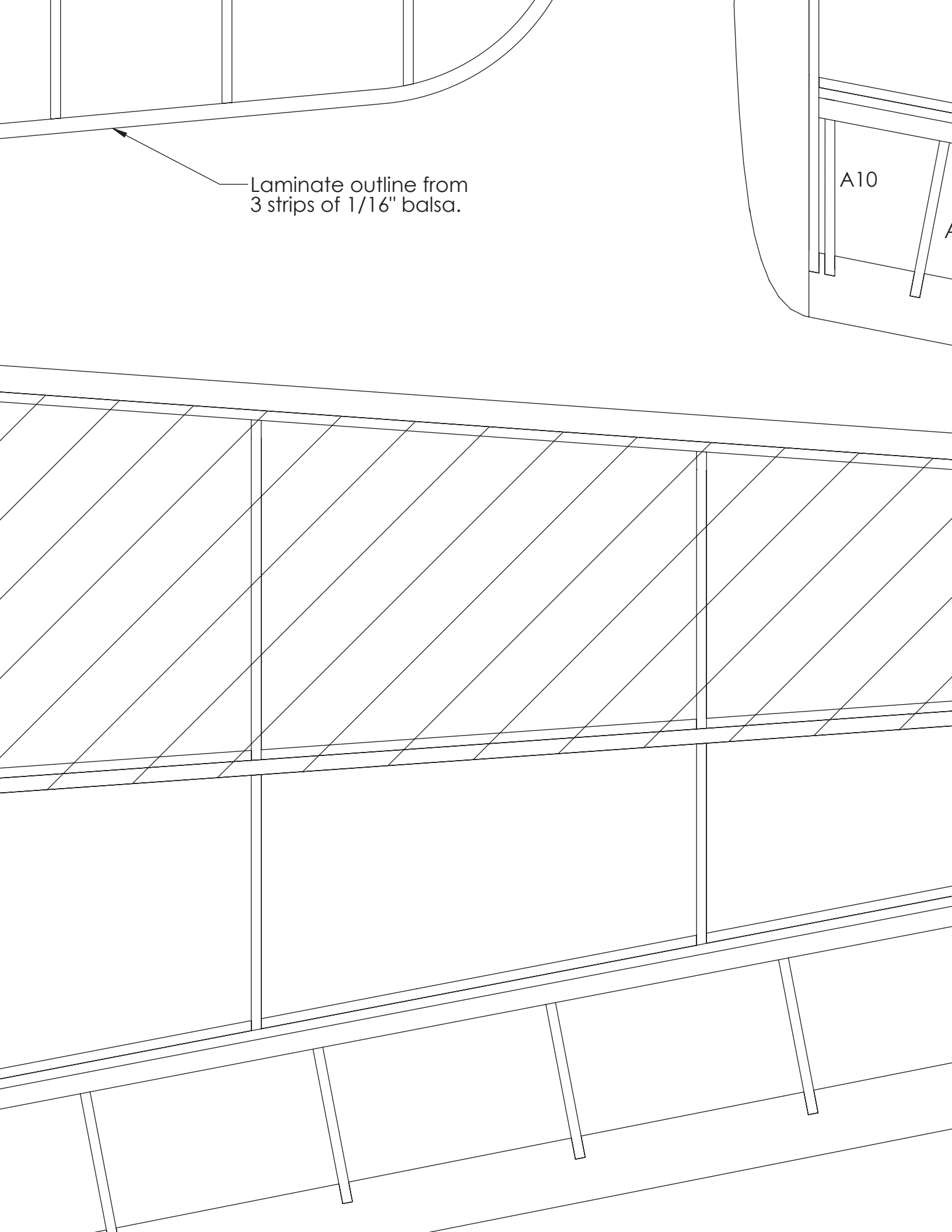
.040" music
wire joiner

ection and leading
5" balsa top and bottom

Landing gear opening in
bottom sheeting

Emil radiator position--
both wings

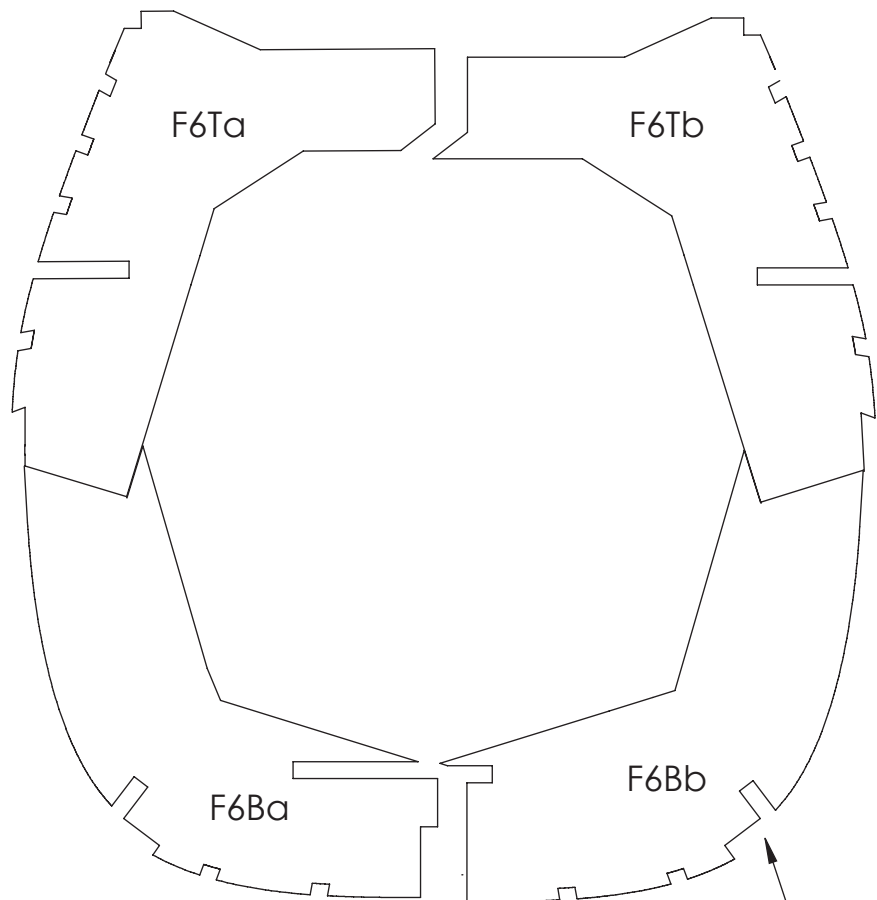
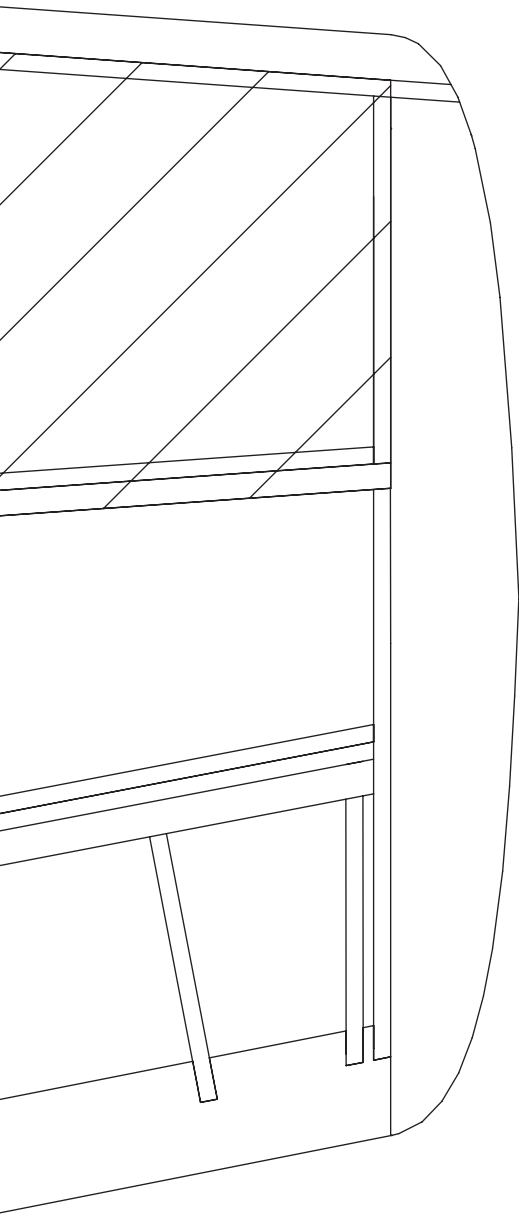
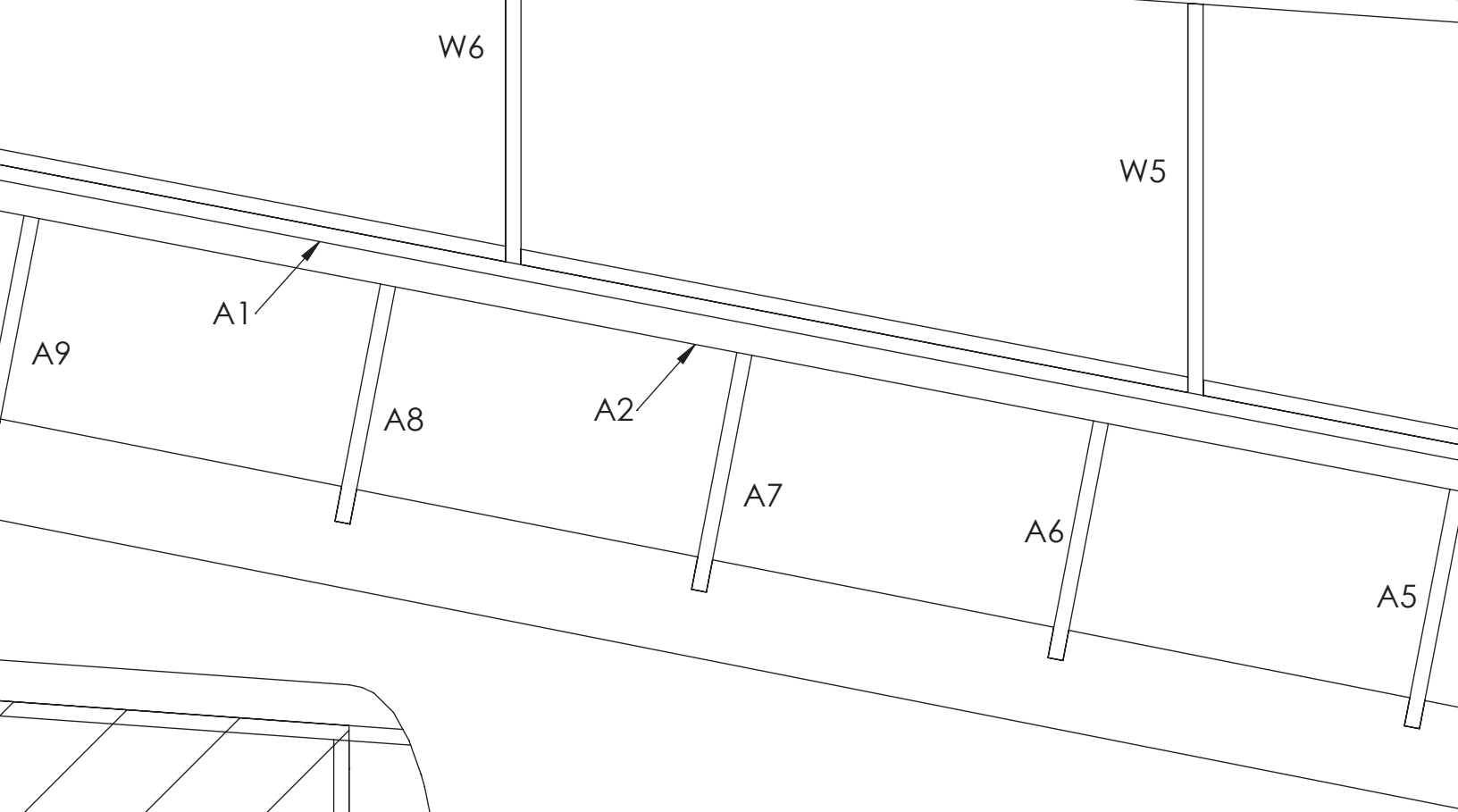




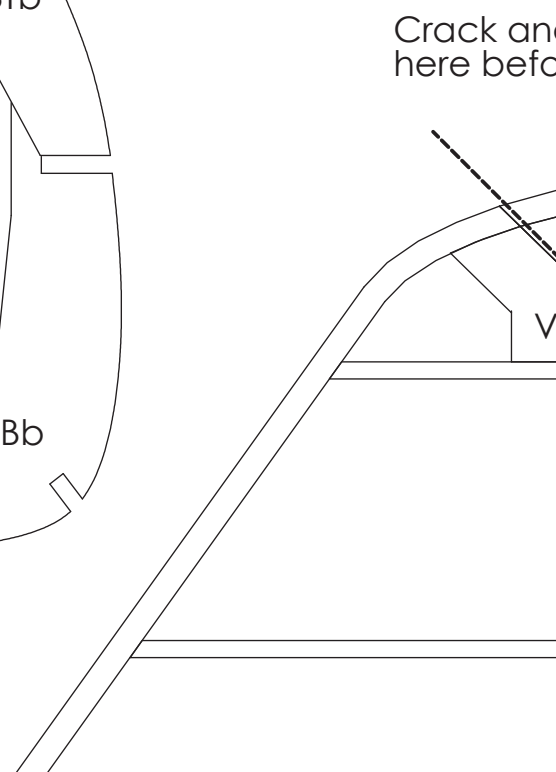
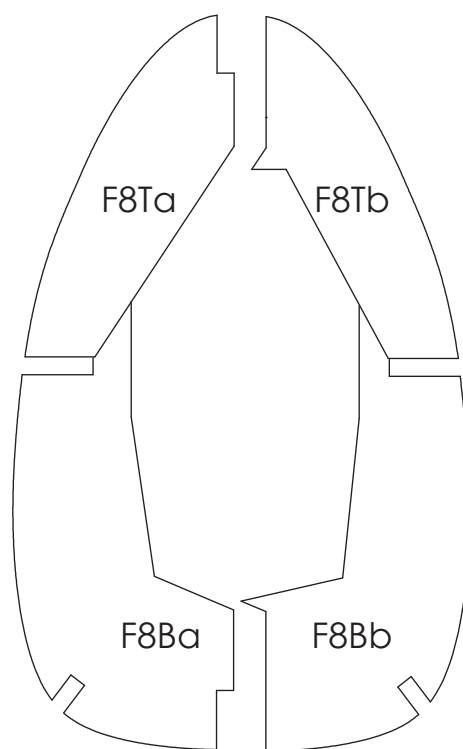
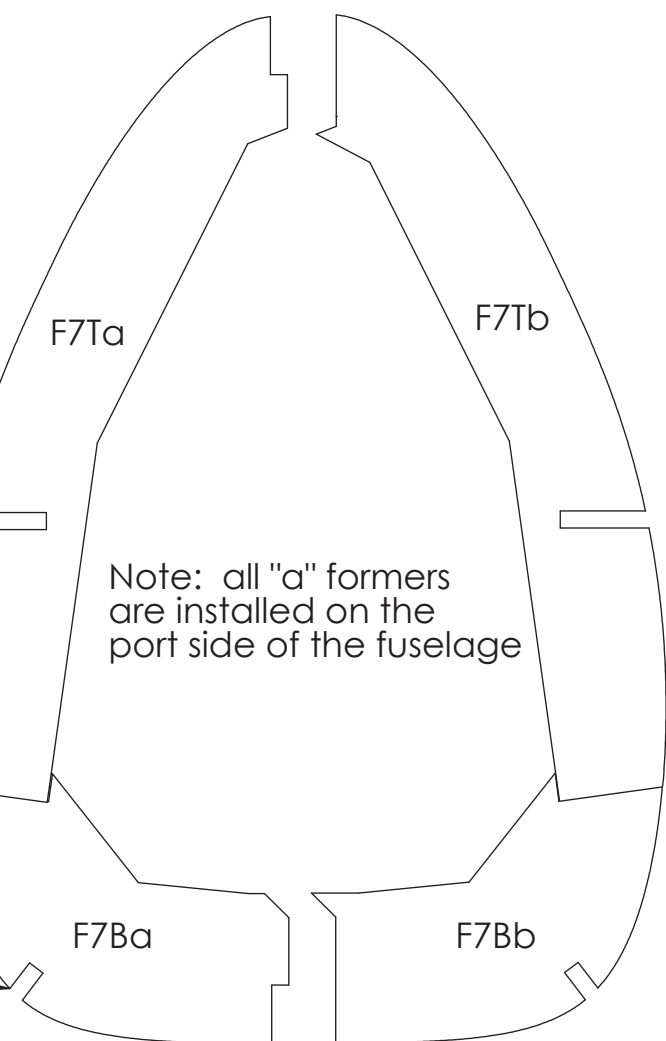
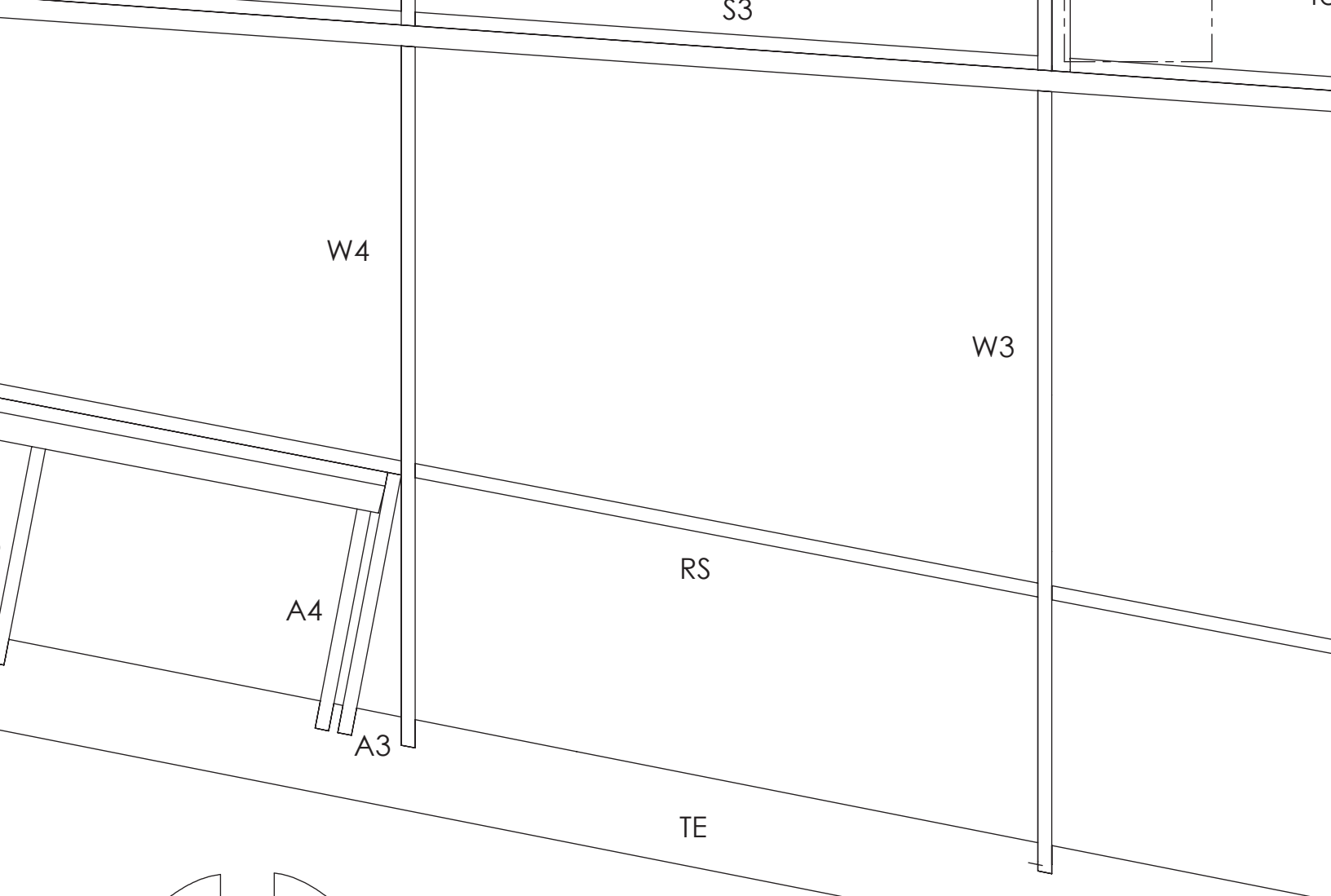
Laminate outline from
3 strips of 1/16" balsa.

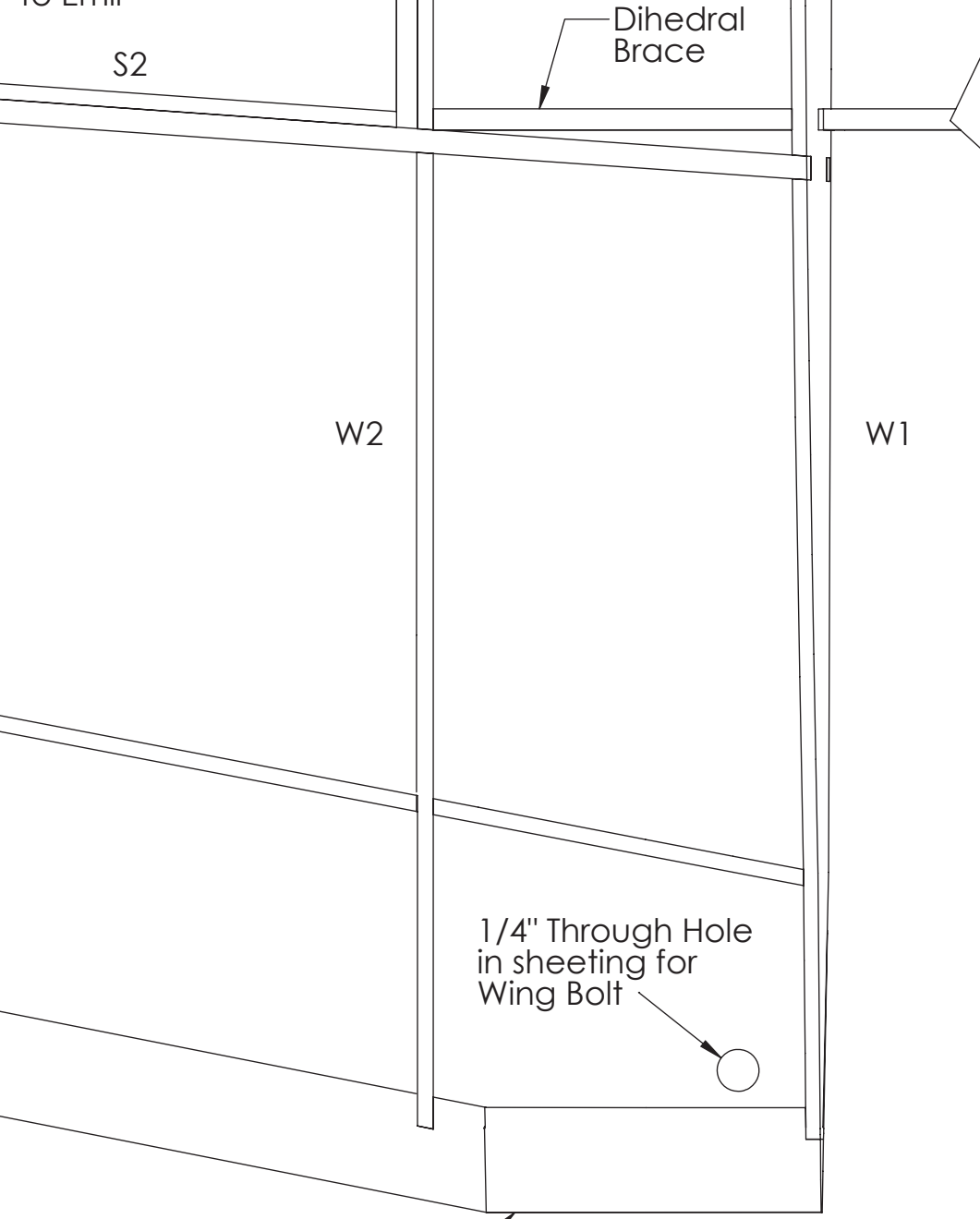
This technical drawing illustrates the construction of a boat hull. The top section shows a curved laminated outline, which is the subject of the text label. Below this, the hull's internal structure is detailed, featuring a series of diagonal ribs and vertical bulkheads. A horizontal beam is shown intersecting these ribs. At the bottom, a series of vertical supports or struts are depicted, likely for a model or a small-scale hull. The drawing is a line art representation, focusing on the geometry and assembly of the components.

A10

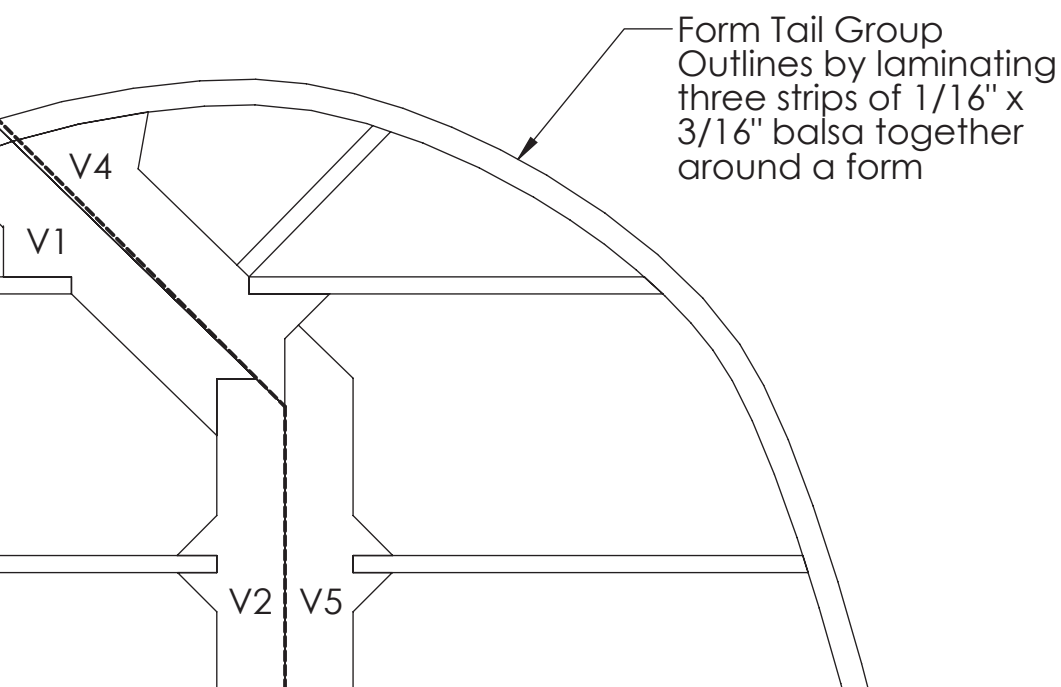


Fit side keels K9 in
these notches
between F6 and F8



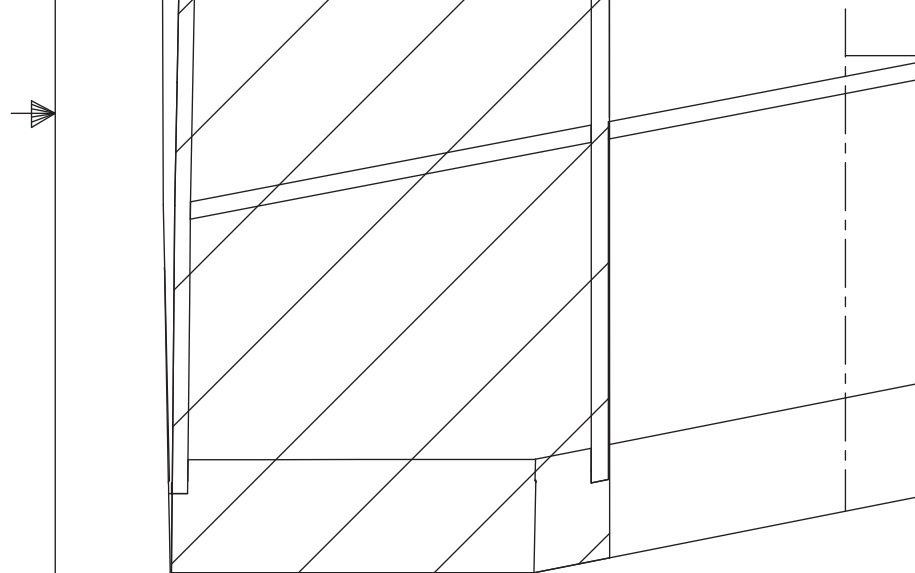


and raise root end of TE
before W1 is installed



E

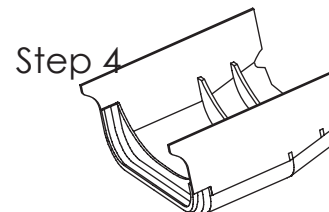
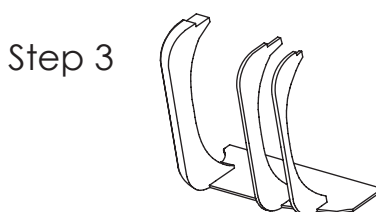
D



C

CHIN SCOOP

1. Build scoop opening by laminating C1 thru C3 over outlines below.
2. Glue C1-C3 to C4 by aligning the notches each side.
3. Glue C1-C4, C5, and C6 perpendicular to side panels C7.
4. Sheet the bottom of the scoop between both C7's with 1/16" balsa.
5. Sand the scoop opening to a smooth radi using C1 as a guide.
6. Epoxy the scoop assembly to the fuselage



B

SPINNER and Detail Parts

3D printable parts for this model are available as open-source files on [Thingiverse.com](https://www.thingiverse.com). These include the spinner and backing plate, instrument panel, and exhaust stacks. Search Infield Engineering Bf 109.

Use caution with printed parts--it is the builder's responsibility to work with a reputable printer and to verify that the resulting part is safe for use

WING--assembly order

1. Pin the lower main spar and rear spar (RS) to the board.
 1. Raise the lower main spar by shimming it with 1/16" balsa scrap--this will allow the sheeting to cover the spar later.
2. Laminate Rib Doubler W2B to W2 and W3B to W3.
3. Ribs W2 thru W7 perpendicular to board.
4. Trailing edge (TE)--crack near root where shown on plan and lift to flatten the belly area.
5. Rib W1--set angle with Dihedral Gauge.
 1. Raise root end of TE and glue to W1.
 2. Glue crack in TE.
6. LE, upper mainspar, and shear webs.
7. Aileron parts in numerical order
 1. Do not glue A1 to RS!
 2. A1 is a doubler to A2.
8. Wing Tip (WT).
9. Unpin assembly from board.
10. Retract parts R1 thru R3.
 1. Stack two R2's together.
11. Sheet as shown with 1/16" balsa.
12. 1/4" Soft balsa leading edge.
13. Join wings with ply Dihedral Brace.
14. Install a wing pin from 1/4" dowel where marked on ribs W1.

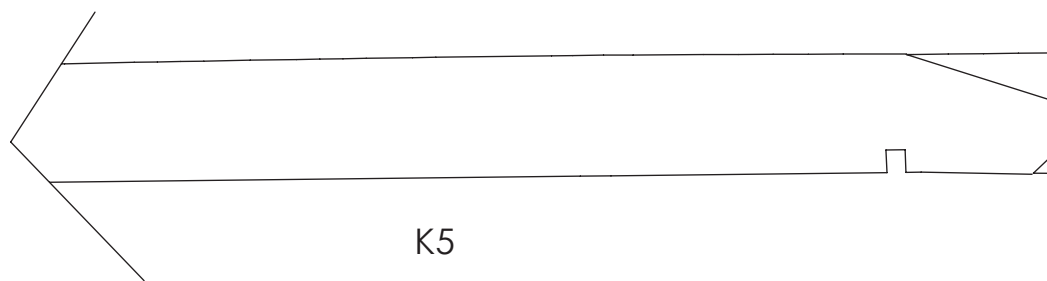
FUSELAGE--assembly order

Build the port (left) side

1. Formers F6 thru F8
2. Keels K5 and K6--p
3. Keels K1 thru K4--p
4. All "a" Former part
 1. F3T is tilted slightly
5. Keel K5/K6--glue in
6. Keel K9--ties forme
7. Wing Saddle WS--
 1. Dampen outer
8. Add a few stringer shape.
- NOTE: all fuselage
9. Remove assembly

Build the starboard (right)

10. BATT--battery tray
11. WP--wing pin plate
12. WB--wingbolt pad
13. All "b" Former part
14. Keel K5/6
15. Hatch formers F1H
16. F1--ply nose forme
17. Lower hatch rails
18. Upper hatch rails
19. Keel K9--ties forme
20. Wing Saddle--dar
21. Stringers--alternat
22. Knock out K1 betw
23. Knock out K3 betw
24. Epoxy C1 into vac



K5

SIDE KEEL TEMPLATE: build two of these

Cut Battery Hatch here

K1

y order

side first on a building board.
F8--preassemble over plan above.
F6--preassemble over template below--make two.
F4--pin these parts flat to the plan.
F3--install perpendicular to plan.
F5--slightly back to allow the hatch to come off easily.
F1--into "a" Formers.
F2--Formers F6 thru F8 together.
F5--align upper edge with notches in F3 thru F6.
F4--outer surface of WS and it will curl into place.
F5--lugs below the side keel to lock the assembly into

age stringers are 3/32" square balsa.
ably from board after it has fully cured.

(right) side free from the board.
ay.
late.
ad.
arts.

F1H, F2H, and F3H--glue only to keel K1.
F4--glue only to K1, K3, and K5's.
F5--glue only to F1, F2, and F3T.
F6--glue only to F1H, F2H, and F3H.
F7--Formers F6 thru F8 together.
F8--dampen and align top edge.
F9--mate from side to side to avoid warps.
F10--between F4 and F5 to create cockpit opening.
F11--between F3 and WB to create wing pocket.
F12--vac-formed cowling.

Bf 109 or Me 109?

Although thousands of Luftwaffe models were built by everyone in the aircraft industry, including the head of the Reich Aviation Ministry, for the 109. Instead, he insisted on building the plant where it was produced. This is the only documentation of the time that I have seen of this directive.

Bf 109 VARIANTS

Oddly, the very first 109 to be built had a V1 engine was "upright", V1 h

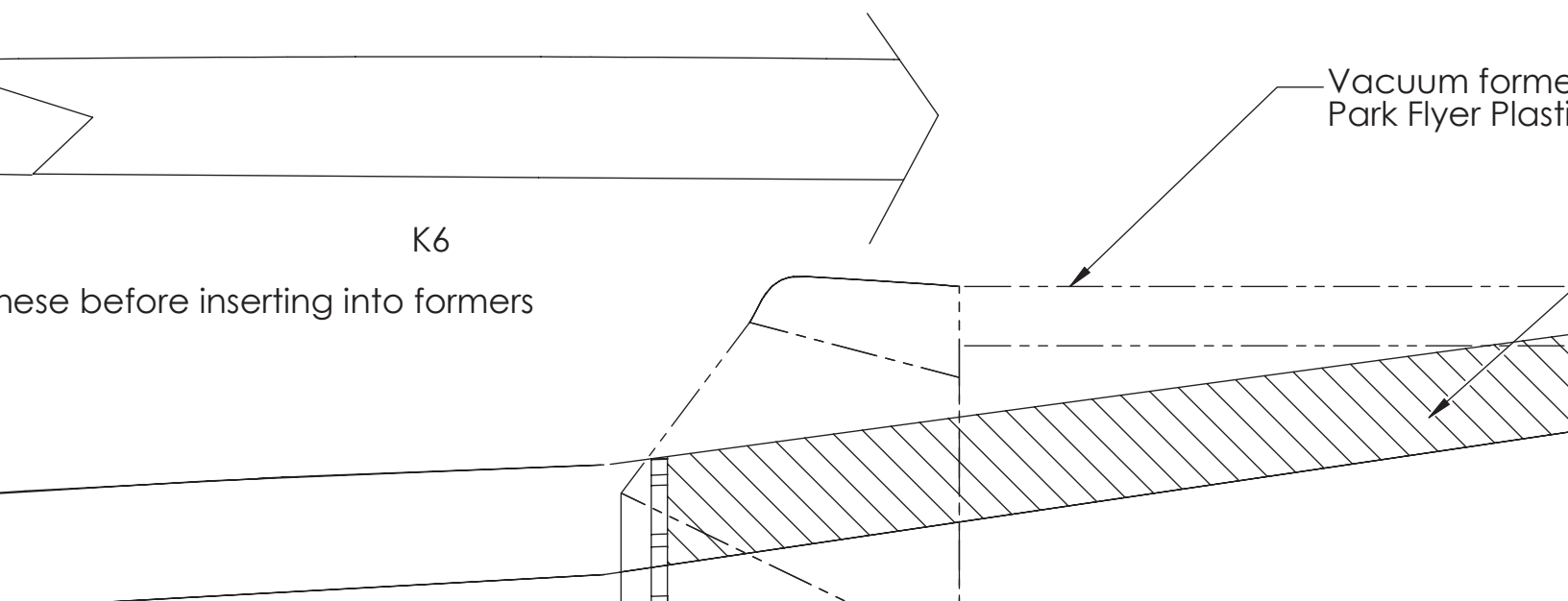
From V2 onward, the 700hp Daimler-Benz DB 601 arrived with its 1100hp Daimler-Benz DB 601. The chin scoop, single small upper radiator scoop, made to the exhaust stack a foot long.

Although the performance of the aircraft was changed. The addition of the boxy upper radiator scoop and exhaust stacks easily turns the aircraft into a Page 2.

THE MODEL

This model was originally of scale. The airframe is perfect for serving as a base with mounting points for a variety of accessories. It could find to fit this thin wing. The struts are of scale. The struts are of scale.

The scale wheel will measure 5 7/16" / 141mm f



Luftwaffe pilots fell in love with the 109, Willy Messerschmitt wasn't appreciated in the aircraft industry. In particular, he had run afoul with Erhard Milch in the 1930's. As Chief of the Aviation Ministry, Milch refused to honor Messerschmitt with the "Me" designation. He insisted that the aircraft be named Bf 109 after the Bayerische Flugzeugwerke (Bavarian Aircraft Works). Bf 109 was the official designation in German government service. Of course, the Allies and even Luftwaffe field units were free to disregard

to take to the air was powered by a Rolls Royce Kestrel engine. Because this model had a very different appearance than her progeny.

1000hp Junkers Jumo 210 inverted vee powered all Bf 109 models until the Emil model. The Jumo-powered birds are identified by their large underwing oil cooler, and small carburetor scoop. Several changes were made to the Bf 109, ranging from rows of mere holes in the cowling to individual pipes nearly

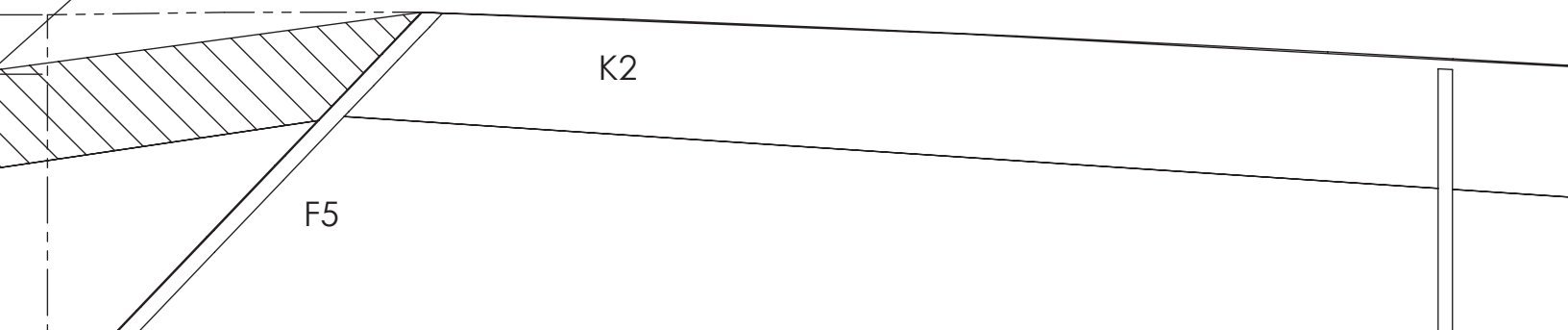
The difference between the Emil and the Bf 109 was a dramatic improvement over earlier marks, very little of it. This makes it easy for the builder to upgrade this model to the Emil standard. The Emil has a large underwing and chin scoops, a supercharger scoop, and the late-style cowling. This turns this model into an E. Outlines for the wing and chin scoops are included on

The Bf 109 was designed with a 30" wingspan and no landing gear. At 45", the scaled up model has servoless retract. The wing shown here and its shortkit have been modified to fit a pair of HobbyKing HK-15094M units. These were the smallest retracts I could find. Even with these small retracts, the strut geometry had to be adjusted to be a bit more vertical and a little shorter.

The landing gear leg is 3 3/16" / 81mm in diameter by 1/2" / 12mm thick. The landing gear leg is 10" from the retract to the axle.

The canopy is available from various sources.

Remove Keel from cockpit and wing pocket after fuse is completely framed



TAIL GR

Sheeting
rudder
durabil

1. Be
fro
1.

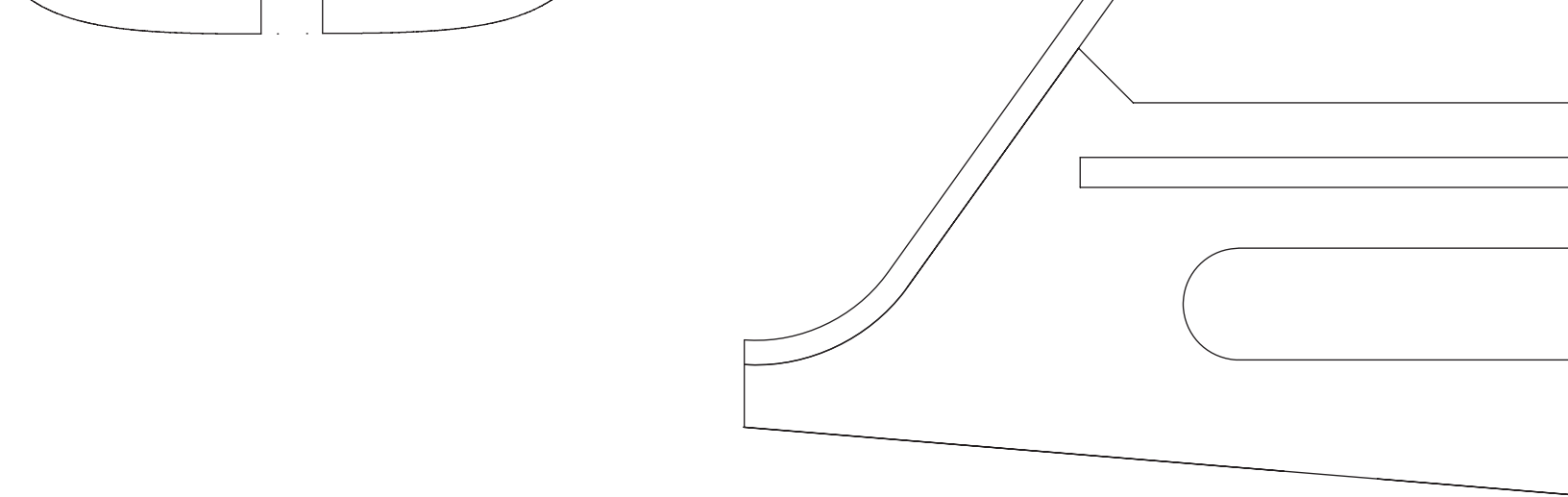
2. Pir
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sid
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Note: I
where



GROUP--see diagram-->

etting the fin and horizontal stabilizer and covering the
der and elevators as open frameworks provides
ability with a scale appearance.

Begin tail group assembly by laminating outlines
from three strips of 1/16" x 3/16" balsa around a form.

1. Three strips provides plenty of material for
sanding

2. Two strips can be used if preferred by the builder
Pin the cured outlines into place over the plan.

Install the tail framework parts in numerical order.
Glue in the balsa bracing:

3. Use 3/32" x 1/8" for the Fin and Horizontal
Stabilizer.

4. Use 3/32" x 3/16" for the Rudder and Elevators.
Separate the Rudder from the Fin and the Elevators
from the Horizontal Stabilizer by cutting through the
outlines where shown.

Sheet the Fin and the Horizontal Stabilizer on both
sides with 1/32" balsa.

1. Sheet the bottom sides first.

2. Sand away excess material from the top of the
outlines with 60 grit.

3. Sheet the top sides.

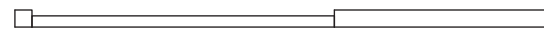
4. Once sheeting is in place, thickness of fin and
stabilizer will match rudder and elevators.

Sand to shape and install hinges.

e: Extra bracing can be added to the stabilizer
are shown if you will be adding scale tail struts.

Fin / Stabilizer

Rudder / El



Step 2 & 3 Build the framework ins
outlines



Step 5.1 Sheet one side of the Fin



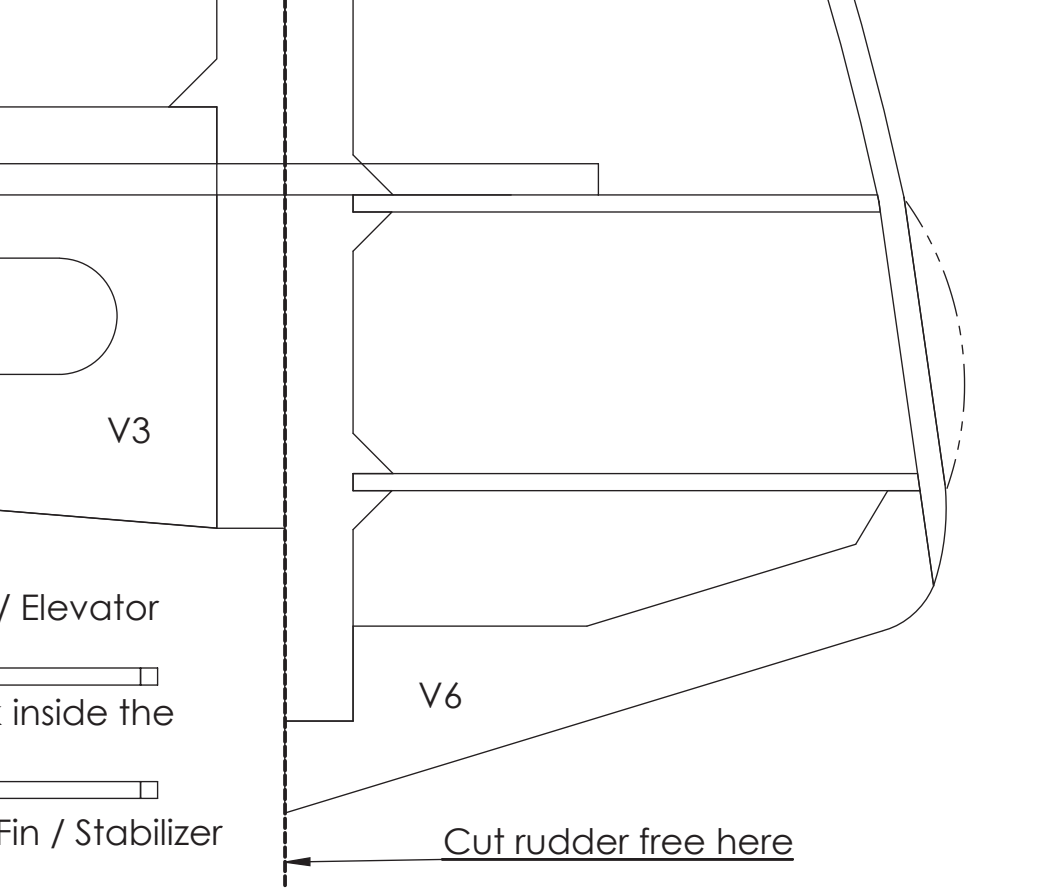
Step 5.2 & 5.3 Sand the excess fro
Stabilizer outline, then sheet the se



Step 6 Sand to shape

PROTOTYPE SPECIFICATION

Wingspan	45.7"
Length	44.8"
Weight	33oz
Wing Area	390 sq in
Power	AXI 2814 110
Propellor	11x7 2-blade
Battery	3S 2200mAh



/ Elevator

inside the

Fin / Stabilizer

from the Fin /
the second side

ONS

100kV

ade

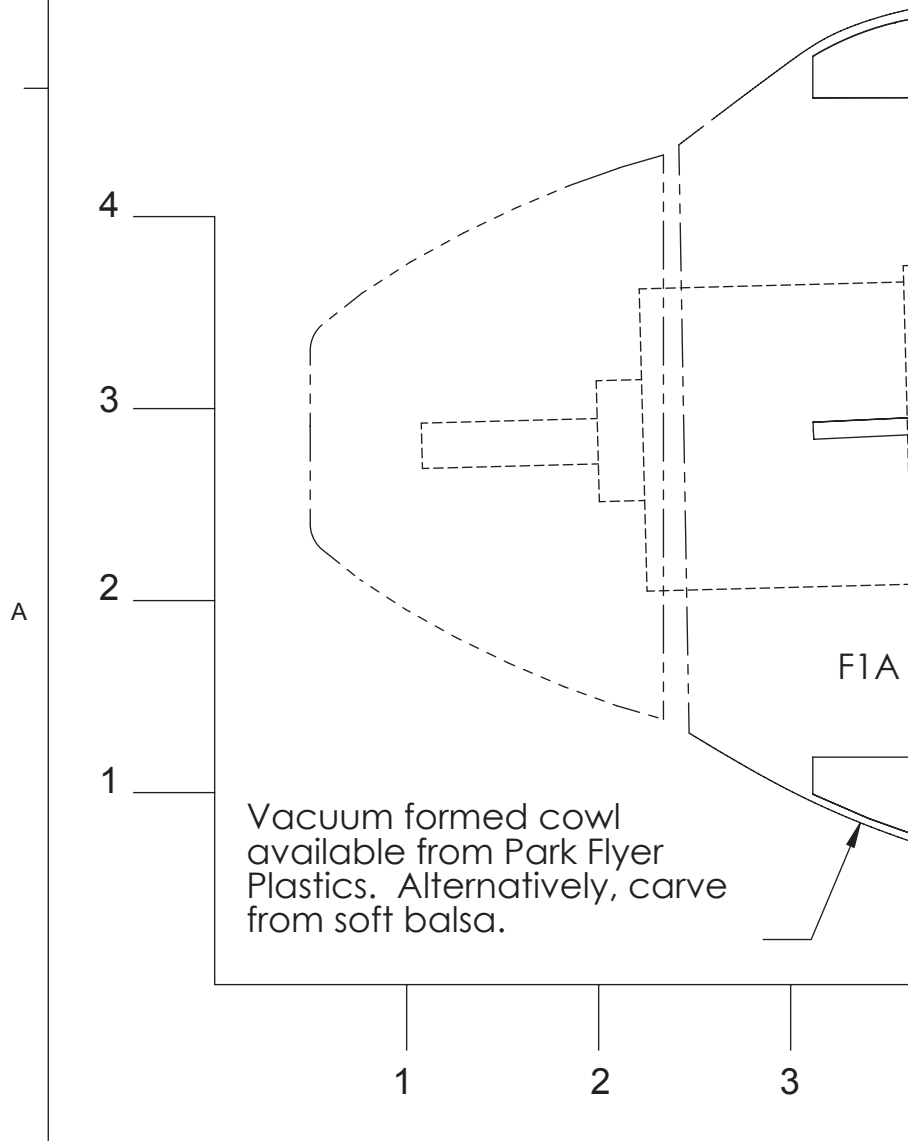
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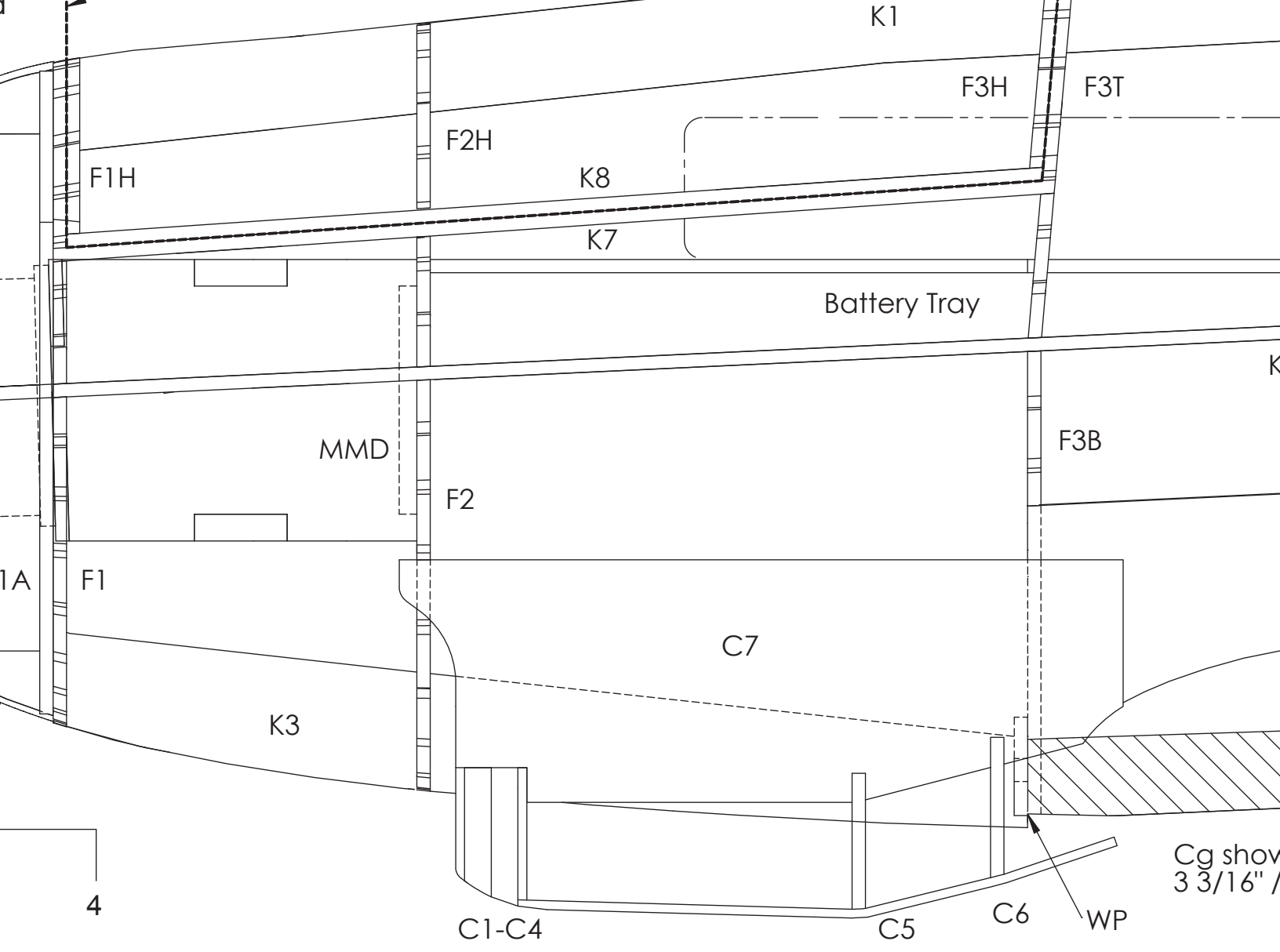


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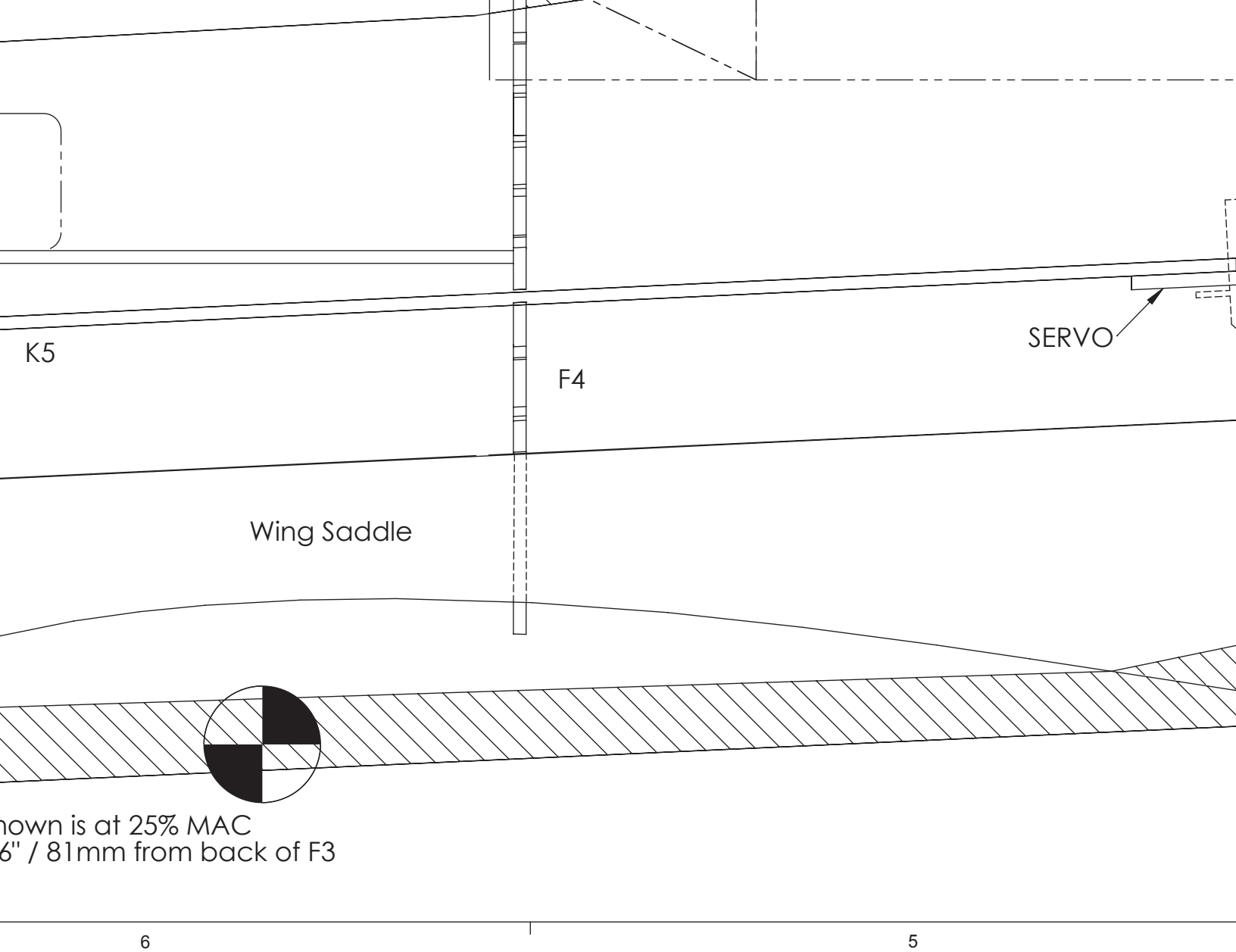
B

responsibility to work with a reputable printer and to verify that the resulting part is safe for use.

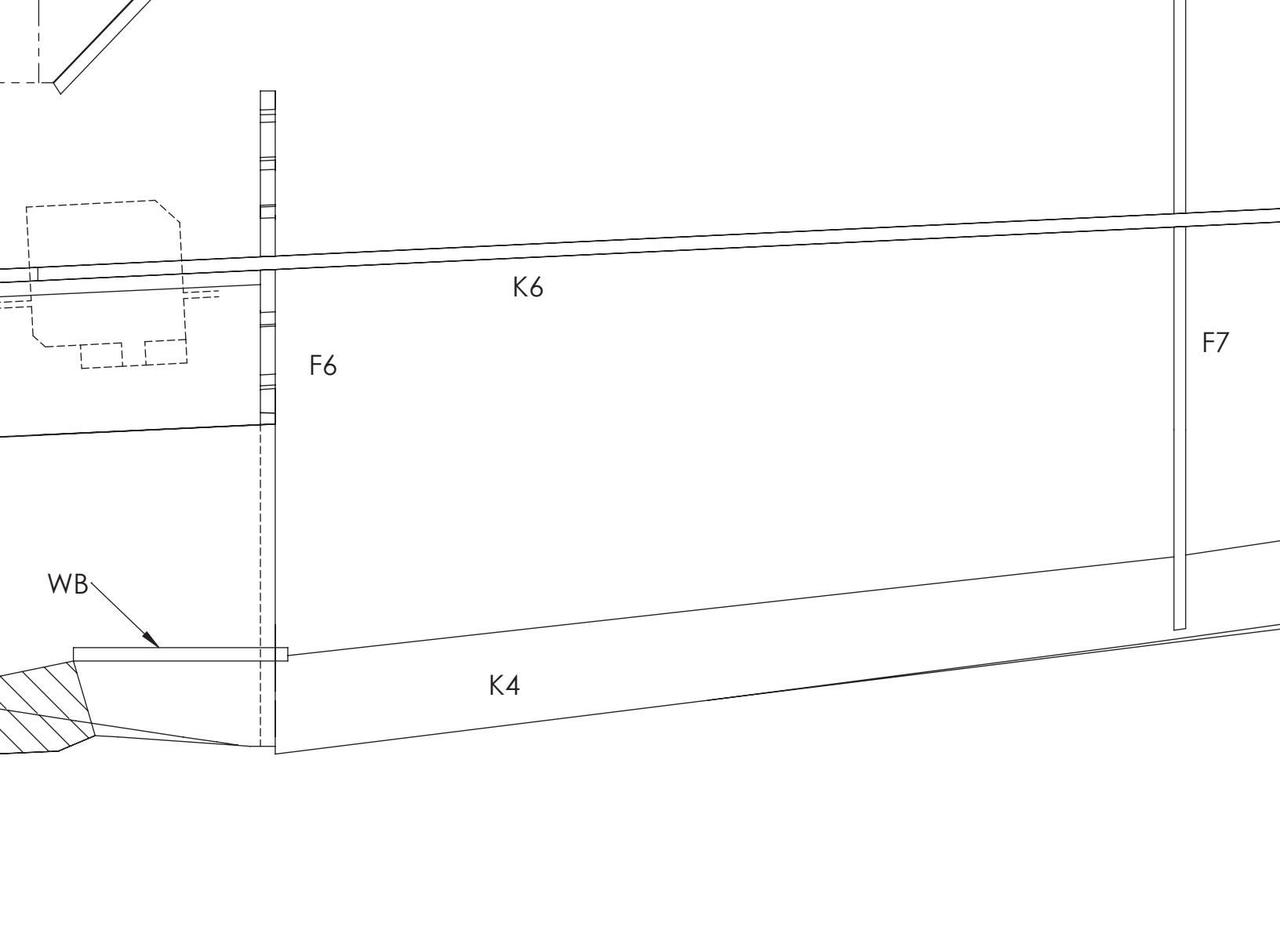




Cg show
3 3/16" /



shown is at 25% MAC
6" / 81mm from back of F3

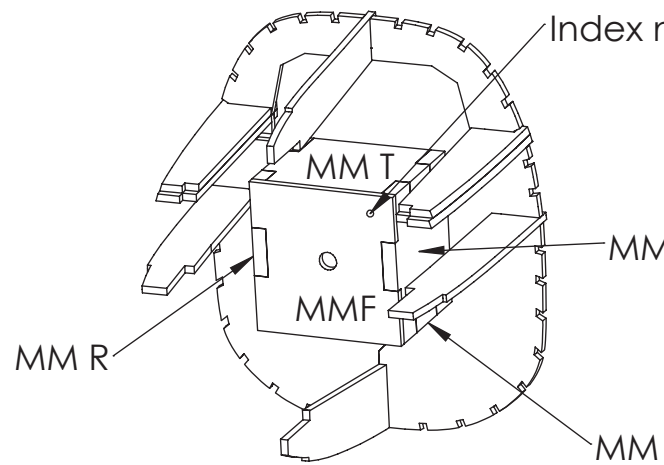


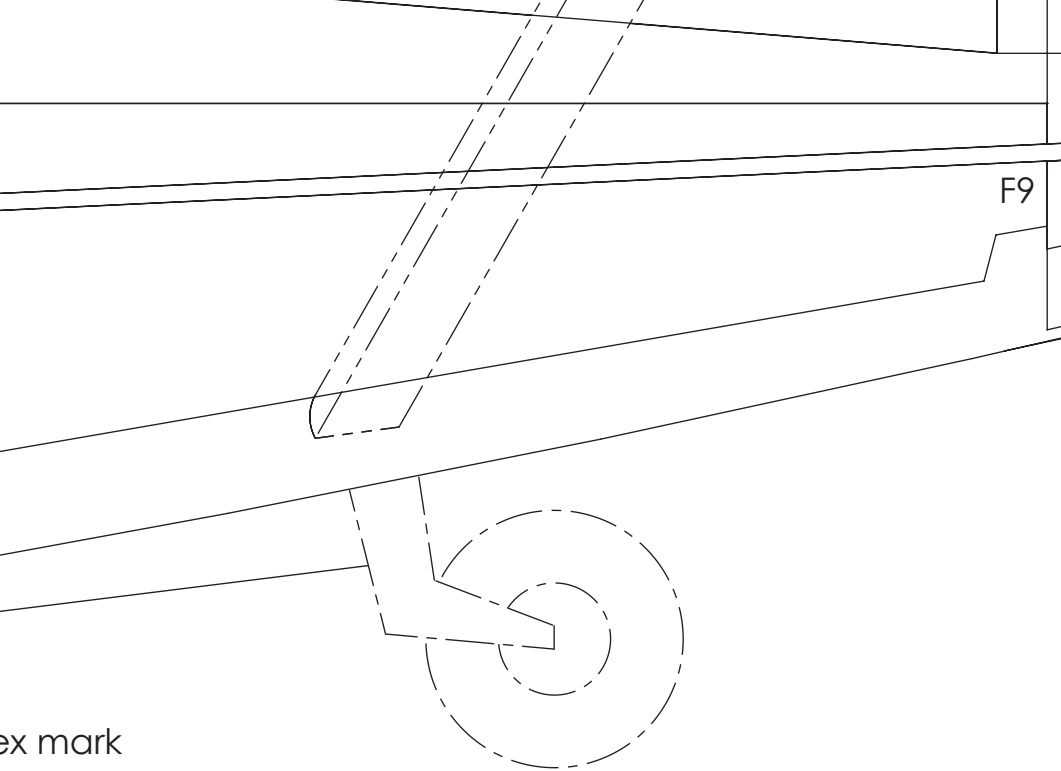
F8

MOTOR MOUNT

1.5deg each down and right thrust built in to mount when assembled as shown.

MMB is a ply reinforcement at the base of the mount--see plan drawing.



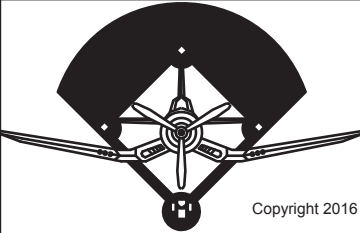


A

ex mark

MM L

MM B

INFIELD ENGINEERINGtm by Paul Kohlmann			
 Copyright 2016	Title 45" Messerschmitt Bf 109 V2 thru Dora		
	Size E	Dwg. No. 45in bf 109 plan	Rev D
Laser cut kit available! www.infieldengineering.com	Scale: 1:1	Weight: 32-38oz	Sheet 1 of 2