V. Kennasser | VIVACE 126

Sheet in ABS | 126" Elliptical Wing Sailplane
Wing area=1,260 sq in | Wing span=126"
Weight=7.0 lbs | Airfoil=Eppler 64 mod
Scale: Quarter Scale | REV: 12 12-2014

Sheet 1 of 1

Shear web height tapers from 5/8" at the root center to 7/16" at the panel break, Vol to 3/16" at WP4 to 5/16" at WP5

Wing mount bolt holes
anchor to motor fuselage

Alternative wing to carried
from 1/4" light Balsa

Option LE for
no undercamber
Sand LE round
bent conclusions
Sand TE to a
point to taper
in moving chord

1/16" top sheeting continues
to aileron spar at TE

1/4" x 3/16" hard
balsa LE curved
to shape

1/16" balsa
triangle block

To panel shear
webs are 1/16"
balsa/grain balsa

3/32" balsa
triangle braces

Two laminations of 1/16" x 5/8" for outer panel inner LE strips

Outer panel shear
webs are 3/32"
balsa/grain balsa

1/16" top sheeting
continues to rear
spar and is glued
with CA

1/16" x 0.07" AS
hard balsa TE
strip sanded to
taper to 0.04" at
tip

1/16" top and bottom
3/32" OD bent aluminum rod
2/56" SS screws or servo mounting
1/16" ply sides and side doublers
Thickness epoxy fill

Incidence pins
are 1/16 dia
music wire in 1/16"
ID brass sleeve

1/4 x 3/8"
balsa LE
over 12

1/4 x 3/8" balsa
below LE curve
to shape

1/4" balsa
triangle braces

Bottom
sheeting
joints

Top and bottom of
spar are sheeted
with 1/16" balsa,
sheeting is
against front edge
of spar, with
covering 1/32" past
spar

Top
sheeting
joints
staggered
from edge
of spar

Rib center lines
offset 3/4"

Inner panel shear
webs are 1/16" of
laminations of 1/64"
energyron balsa

3/8" balsa
sheeting

1/2 inner supercritical
airfoil Eppler 205
to 64 mod

Wing mount
bolt holes
anchor to
motor fuselage

Wing mount bolt holes
anchor to motor fuselage

Fit over on top of spar beam with holes then sand to match top of rib W

Wing spar beam is 5 laminations of 1/64" ply
and 1/64" balsa/grain balsa. Spar beam is
wrapped in 2 oz fiberglass on 4 of 5 sides

Hinge aileron on bottom

Hinge flap on
bottom

Joiner box top

Joiner box bottom

Joiner box inner side

Joiner box outer side

Joiner boxes are wrapped
with 2" layers of biaxial 2.5 oz fiberglass
offset they are epoxied between spar caps

Aileron spar tapers from 1/2" x 1/4" x W28 to 1/4" x 5/32" x W5

Top view

Side view

Fit inside from
1/16" balsa
extra top and
bottom

1/16" x 1/4"
balsa hinge
reinforcement CF1
to wings and fin

Joiner box inner side

Joiner box outer side

Joiner box top

Joiner box bottom

Servo mounts

Tire servo to fit flush with wing bottom

Flap horn

Aileron horn

4-40 screw nut

4-40 bolt

1/32" dry

Spar materials

Center section top spar cap: 0.060 x 0.50 CF

End-grain balsa joiner webs

Center section bottom spar cap: 0.030 x 0.50 CF

Mid section top spar cap: 0.030 - 0.024 x 0.375 tapering CF

Mid section bottom spar cap: 0.030 - 0.024 x 0.375 tapering CF

Top section top spar cap: Thin end of the Mid section CF cut to 1/4"
Top section bottom spar cap: Thin end of the Mid section CF cut to 1/4"

Flavor Tex wrapping (generously 6 wraps per inch doubled x1 joiner boys)

Wrapping flap and bottom from wings. 1/32" Kevlar

Try not to enter here as it weakens
the spar. Cut from the side if
needed to remove

Aileron and flap servos mounted
on the bottom of the wing

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Flap angles from Shaks Supra drawing

Aileron angles from Shaks Supra drawing

Boom from Supra or equivalent

Fin

Rudder

Elevator

Boom

Horizontal is based on Dr Mark Drela's AG35

Root rib portion interference must sweat

W1 1/16" dry clip rib tube on one of each panel

Three airfoils are interpolated

Add any missing TE trailing

Trace the root rib airfoil twice on paper and cut out the
outer edge of the airfoil to create a template

Make a centerline on each rib 1/8" in from
the trailing edge to locate the spar web

Notch the LE for the wing fingerlock
and the TE for the aileron and flap. Cut
the edge off the spar to suit the notch

Trim the fingerlock spar a little meeting
the spar web and the rib centerline

Trim the fingerlock to allow room to set the
spar at the proper dihedral angle. Glue the
fingerlock spar to the spar web

Glue the rib to the spar web and the
fingerlock spar. Glue the rib to the wing
skins and the spar to the wing skins