Nosecone

Main parachute compartment

Airframe forward section

Electronics and camera compartment

Altimeter bay coupler

Airframe mid section

Drogue parachute compartment

Booster section

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Project: Angelfire

All dimensions are in inches

CAD scale: 1" = 20"

Drawing: AIRFRAME ASSEMBLY

Rev: A

Date: Jan. 29, 2005

By: Vern Knowles
NOTES

1. All fins, centering rings, body tubing, and coupler tubing are as supplied in an Air-X "Black Rock" kit.

2. Body tube G12 fiberglass, 5.150" OD, 0.075" wall thickness, cut to 36.750" length. Slotted for three fins.

3. Coupler tube: G12 fiberglass w/ 0.090" wall thickness, 14.000" length.

4. All centering rings are G10 fiberglass.

5. Three fins G10 fiberglass 0.130" thick.
FIN DIMENSIONS

NOTES

Number of fins 3
Fin root cord 27.876"
Distance to TC 19.000"
Fin span 6.125"
Fin tip cord 7.625"
Fin thickness 0.130"
LE sweep 72°

Material: 0.130" thick G10 fiberglass sheet

Epoxy root edge of fin to central motor tube and reinforce joints with 8oz fiberglass strips.
AIRFRAME MID SECTION

Datum 0.000" — Top of body tube

6.688" — Retainer screw holes
Drill 4 holes 9/64" Ø at 90° spacing.
Use #6-32 screws to secure body tube to altimeter bay.

25.625" — Vent hole

28.625" — Shear pin holes
Drill 3 holes 7/64" Ø at 120° spacing.
Use #4-40 nylon screws as shear pins.

34.125" — Bottom of body tube

Body tubing 5.000" ID x 34.125" length.
0.075" wall thickness. G-12 fiberglass.

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Angelfire

All dimensions are in inches

CAD scale: 1" = 6"

Drawing: AIRFRAME MID SECTION

Rev: A

Date: Jan. 29, 2005

Print scale in Inches: 1" = 6"
AIRFRAME FORWARD SECTION

Igniter wire seal plates

- Top plate
- Bottom plate

These plates seal off the wires from two Daveyfire igniters.

Two plates of 1/16" thick G10 fiberglass with 5/32" diameter holes at each end for 6-32 x 0.5" screws. Two slots 7/64" wide are cut into the bottom plate for igniter wire routing.

1.25" diameter holes for ejection charge holder to pass through the bulkhead.

5/16" x 2.0" U-bolt for recovery harness attachment.

Top View

Two 3/4" PVC end plugs screwed to bulkhead to serve as redundant ejection charge holders.

Left side

Top View

(1 of 2) 3/4" PVC end plugs for ejection charge holders.

Left side

Bottom View

Drill 3 holes 7/64" Ø at 120° spacing 2.0" below the top of the body tube. Use #4-40 nylon screws as shear pins.

Parachute compartment pressure vent hole 0.125" Ø 5.0" inches from top.

Body tubing 5.000" ID x 36.000" length. 0.075" wall thickness. G12 fiberglass.

Main Chute Compartment

5/16" x 2.0" U-bolt stainless steel McMaster-Carr part number 8896T73

Two sections of copper tubing 0.105" long. One above and one below the bulkhead.

5/16" x 2.75" stainless steel threaded rod

Altimeter bay removed from airframe.

Altimeter bay installed in airframe.

4.160" stainless steel U-bolt McMaster-Carr part number 8896T68

(1 of 4) threaded brass inserts for securing mid-section body tube to altimeter bay. McMaster-Carr part number: 900164007. Use six #6-32 x 0.500" button head screws.

Remove 1/4" nuts for access inside the altimeter bay.

All dimensions are in inches

CAD scale: 1" = 6"

Project: Angelfire

Drawing: AIRFRAME FORWARD SECTION

Rev: A

Date: Jan. 29, 2005

Print scale in Inches

By: Vern Knowles
NOSECONEN

Shape: 5:1 Ogive
Material: G-12 filament wound fiberglass

(1 of 4) threaded brass inserts for securing base plate to nosecone.
McMaster-Carr part number 90016A021.

1 of 4
#10-32 x 0.75" machine screws

1/4" x 1" stainless steel U-bolt
McMaster-Carr part number 8896T123

Drill and tap 3 holes for #4-40 screws at 2.0" below the shoulder, 120° spacing. Use #4-40 nylon screws as shear pins.

Radio finder transmitter antenna

25.750"
4.000"
5.000"

Bottom View

Angelfire

All dimensions are in inches

Project:

Angelfire

CAD scale: 1" = 6"

Drawing: NOSECONEN

Rev: A

Date: Jan. 29, 2005

By: Vern Knowles

Print scale in Inches
0 1 2 3 4 5 6 7 8 9 10 11 12
Three holes 13/64" diameter, spaced 120° at 2.281" radius.

ø 4.800"

ø 3.900"

Thrust plate
Material: Aluminum

0.250"

Three holes 13/64" diameter, spaced 120° at 2.281" radius.

ø 4.800"

ø 3.500"

Retainer plate
Material: Aluminum

0.250"