Affordaplane
Aircraft Plans

Updates 2019

* Includes FAR 103 guidelines

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Hello!

As Affordaplane Aircraft enters its twentieth year in business, I would like to thank our customers and new visitors to our little world of grass roots aviation at its best.

The A-Plane is built from plans, and many hundreds have successfully flown. The complete plans set has a builders manual, blueprints, materials list, and many photos.

The following drawings allow current plans holders to have the most up to date plans without having to purchase a new set. These show how to build your Affordaplane as an FAR 103 legal ultralight, and still be able to use a motor up to 75 pounds in weight. They also include complete fuselage drawings in CAD, both original and 103, including the gussets. I also go into detail about what it takes to make your airplane FAR 103 compliant.

New visitors feel free to look over the plans, it will give you an idea of what our full plans sets are like. And be sure to check out the Affordaplane Plans page for more information.

These updates go with a set of plans. Do not try and build an Affordaplane from just these updates. **These drawings supersede all previous drawings.**

If you are interested in the Affordaplane you should check out our facebook group. The link is listed above.

Special thanks to Phil Pillera for his help.

Thanks and blue skies!

Dave Edwards
Affordaplane Aircraft
**Affordaplane 103 Guidelines**

As with any ultralight, you have to watch your weight during construction. Do not deviate from the plans, or add unnecessary weight. The Affordaplane 103 fuselage is shown in the following drawings. This fuselage differs from the traditional one by using 1 inch by 2 inch square tubing for the rear fuselage. If you are building a 103 version, you should follow these steps:

1) Build the Affordaplane 103 fuselage shown in these drawings.
2) Do not add the cockpit area. This saves building a cowling, and the associated weight. Simply build the cockpit floor (page 9 of the drawings in the plans). You will want to reinforce the forward part of the floor with rivets. That is shown in a drawing. You can add a small windscreen and instrument pod as shown in the following drawings.
3) Use light weight wheels such as the Azusalite brand. Do not use wheelbarrow tires, they are too heavy.
4) Use very little paint. You can easily add five pounds of paint to this airplane. You just want to fill the weave of the fabric and finish with a thin shiny top coat.
5) Foam wings weigh more than aluminum rib ones. For a 103 airplane, use the aluminum ribs.
6) You must use a motor that weighs under 75 pounds complete.

**Affordaplane 103 Drawings**

The following pages are for the 103 Affordaplane. This includes the fuselage drawing with dimensions, and the gussets with dimensions. Also included are the windscreen details, and instrument pod.
All square tube except for the three 1"x2" tail pieces are 2"x2" x .125 wall 6061-T6 aluminum square tube.

These tubes are 1" X 2" X .125" wall 6061-T6 aluminum rectangle.

1"x2" top and bottom tail longerons arranged this way.

vertical gussets

(not to scale)

AFFORDAPLANE

Description: 103
Fuselage Tube Layout

Drawing #2
Full size
Not full size

AFFORDAPLANE

Description:
Gusset A Dimensions

Drawing #42
Full size

Description:
Gusset B Dimensions

Drawing #43
Full size

AFFORDAPLANE

Description:
Gusset C  Part 2

Drawing #45
Not full size

AffordaPlane

Description: Gusset C Dimensions

Drawing #46
Full size

Description:
Gusset D Full Size

Drawing #47
Not full size

Description:
Gusset E Dimensions

Drawing #52
Full size

AFFORDAPLANE
Description: Gusset F Full Size Part 2
Drawing #54
Gusset F Dimensions

Not full size

Drawing #55
Full size

Description:
Gusset G Full Size Part 1

Drawing #56
Description:
Gusset G Full Size Part 3

Drawing #58
Full size

Description:
Gusset G Full Size Part 3

Drawing #58
AFFORDAPLANE

Description:
Gusset I Dimensions

Drawing #62

Full size

6 1/4"
Elevator must be 0 degrees incidence to reference line.

Upper Longeron Tube 1"x2" x .125 wall 6061-T6 rectangle

2" X 3" X 1/4"
6061-T6 alum angle

3/8" gap for elevator travel fill with AN970-4 washers
AN4-27 bolt
AN960-4 washers
AN310-4 castle nut
cotter pin ms24665-132

AN4-5A bolt
AN960-416 washer
AN365-428 Nylock nut

Cable runs to forward wing attach strut (upper fitting). See detail.

Nicopress sleeve 18-2-6
Cable thimble AN100-4 common for all wires.

Stainless Steel Cable Tang

AN3-16 bolt
AN970-3 washers
AN310-3 castle nut
cotter pin ms24665-132

AN3-30 bolt
AN960-10 washer
AN310-3 castle nut
cotter pin ms24665-132

AFFORDAPLANE
Description: 103 Elevator Attach / Incidence
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Drawing# 26
The control stick is curved back 1 inch as shown in this drawing. This allows the stick to fully clear the down tubes in front of the stick. The length remains the same, 19.5 inches. Some builders have reported that they wanted more clearance for down elevator. This update addresses that issue.

Control stick stays straight in this direction up and down. No bends.

View looking towards cockpit from tail

**AFFORDAPLANE**

**Description:**
Control Stick Update

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Not To Scale
Not To Scale

Affordaplane

103 instrument pod

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Description:

103 instrument pod
Reinforce front of floor with this line of pop rivets for 103 version.

6061 T-6 alum angle 1.5" x 1.5" x 1/8" x 18" long

6061 T-6 alum angle 3/4" x 3/4" x 1/8" 1 1/2"

alum angle 2" x 2" x .125" 6061 T-6

landing gear support tube is made from 2" x 2" x .125"
wall 6061-T6 aluminum and is 24" long.

this angle may be widened to accommodate larger motor.

AN4-30A bolts AN960-416 washer AN365-428 Nylock Nut

AN3-5A bolt AN960-10 washer AN364-1032 nylock nut

fuselage gussets
Full Size Fuselage Drawing with Gussets

If you are building a Light Sport Aircraft, or using a larger motor than 75 pounds in weight, we recommend using the original fuselage. This fuselage uses 2” x 2” x .125 inch wall 6061-T6 square tube. These drawings allow people to use the precut gusset kits offered by aplaneparts.com. The following pages contain the fuselage drawing with dimensions, and the gussets with dimensions.
AFFORDAPLANE

Description:
Fuselage Tube Layout

Drawing #2

- Cut all tubes out of 2" x 2" x .125" wall 6061-T6 Square Aluminum Tubing
Full size
Full size

AFFORDA PLANE
Description:
Gusset A Part 2
Drawing #41
Not full size

**AFFORDAPLANE**

Description:
Gusset A Dimensions

Drawing #42
Full size

AFFORDAPLANE
Description: Gusset B Dimensions
Drawing #43
Full size

AFFORDAPLANE

Description:
Gusset C Part 2

Drawing #45
Not full size
Not full size

Description:
Gusset D Dimensions

Drawing #48
Description: Gusset E Full Size Part 2
Drawing #50
Full size

AFFORDAPLANE
Description:
Gusset E Full Size Part 3
Drawing #51
Not full size
Full size
Not full size

AFORDAPLANE

Description:
Gusset F Dimensions

Drawing #55
Full size

Description:
Gusset G Full Size Part 1

Drawing #56
Full size

Gusset G Full Size Part 2

Drawing #57
Full size

AFFORDAPLANE
Description:
Gusset G Full Size Part 3
Drawing #58
Not full size

AFFORDAPLANE
Description: Gusset G Dimensions
Drawing #60
Full size

AFFORDAPLANE

Description:
Gusset J Dimensions

Drawing #63