

CHOOSE AEROSPACE

Aircraft Drawings Supplement

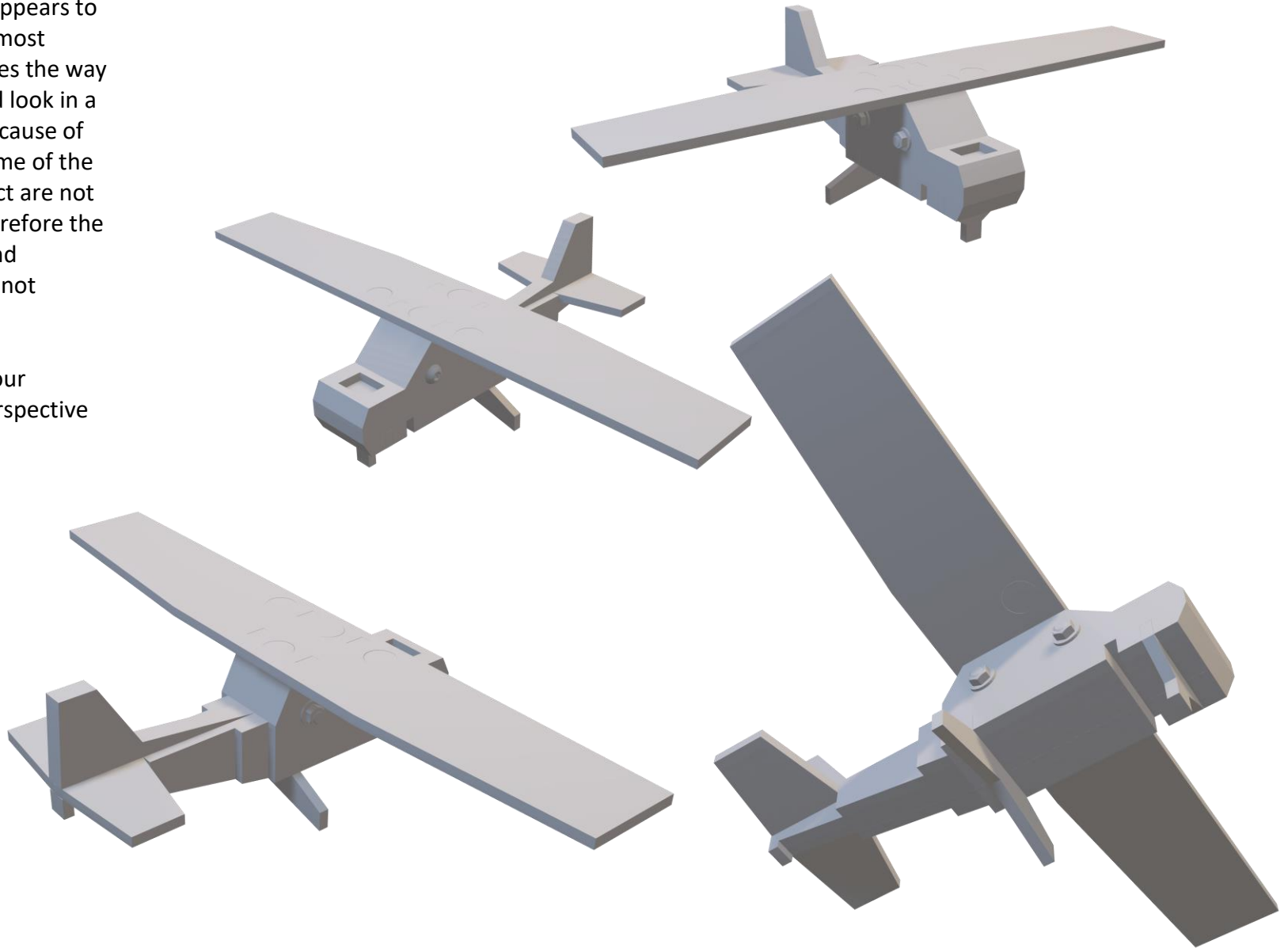
This packet contains the drawings necessary for the Aircraft Drawings hands-on unit work and to build the model for the Weight and Balance hands-on unit



PERSPECTIVE VIEW

A perspective view shows an object as it appears to an observer. It most closely resembles the way an object would look in a photograph. Because of perspective, some of the lines of an object are not parallel and therefore the actual angles and dimensions are not accurate.

This page has four examples of perspective view drawings

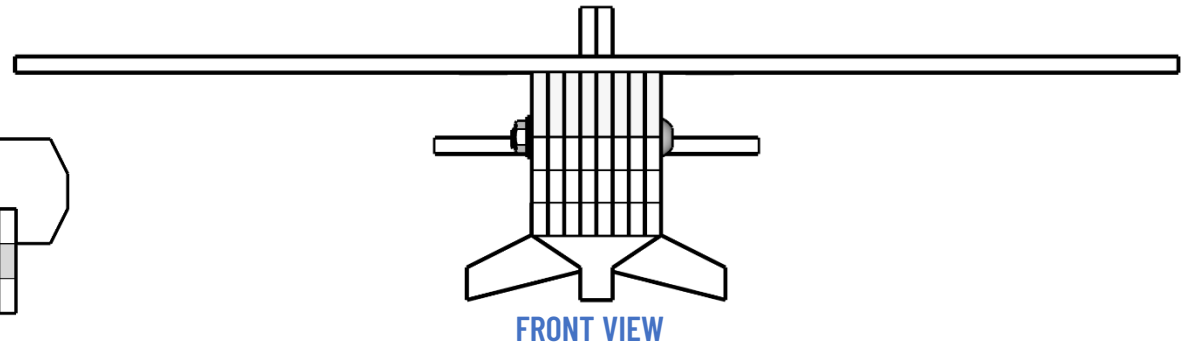
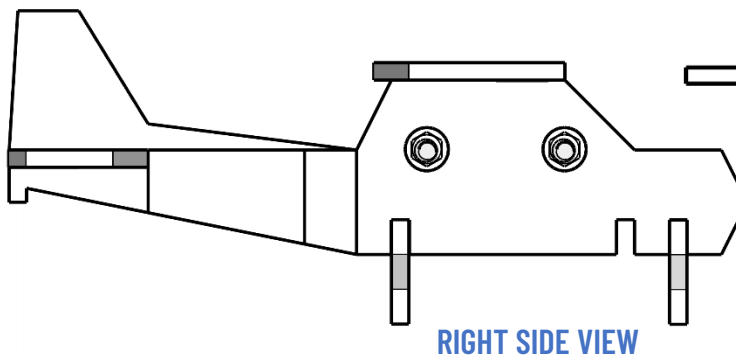
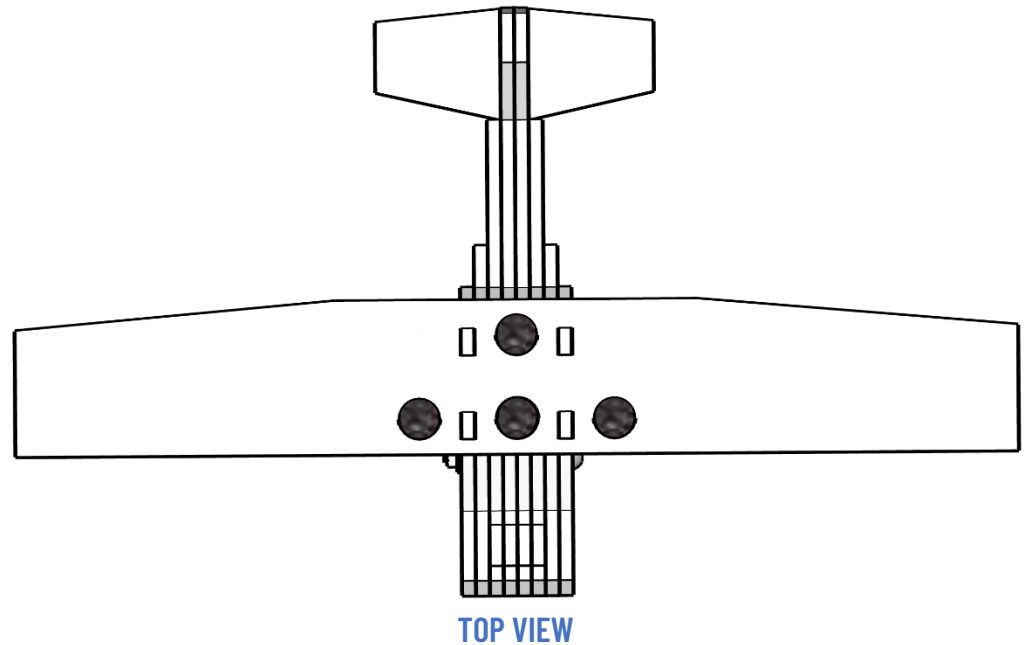


ORTHOGRAPHIC VIEWS

In orthographic projection, there are six possible views of an object, because all objects have six sides—front, top, bottom, rear, right side, and left side.

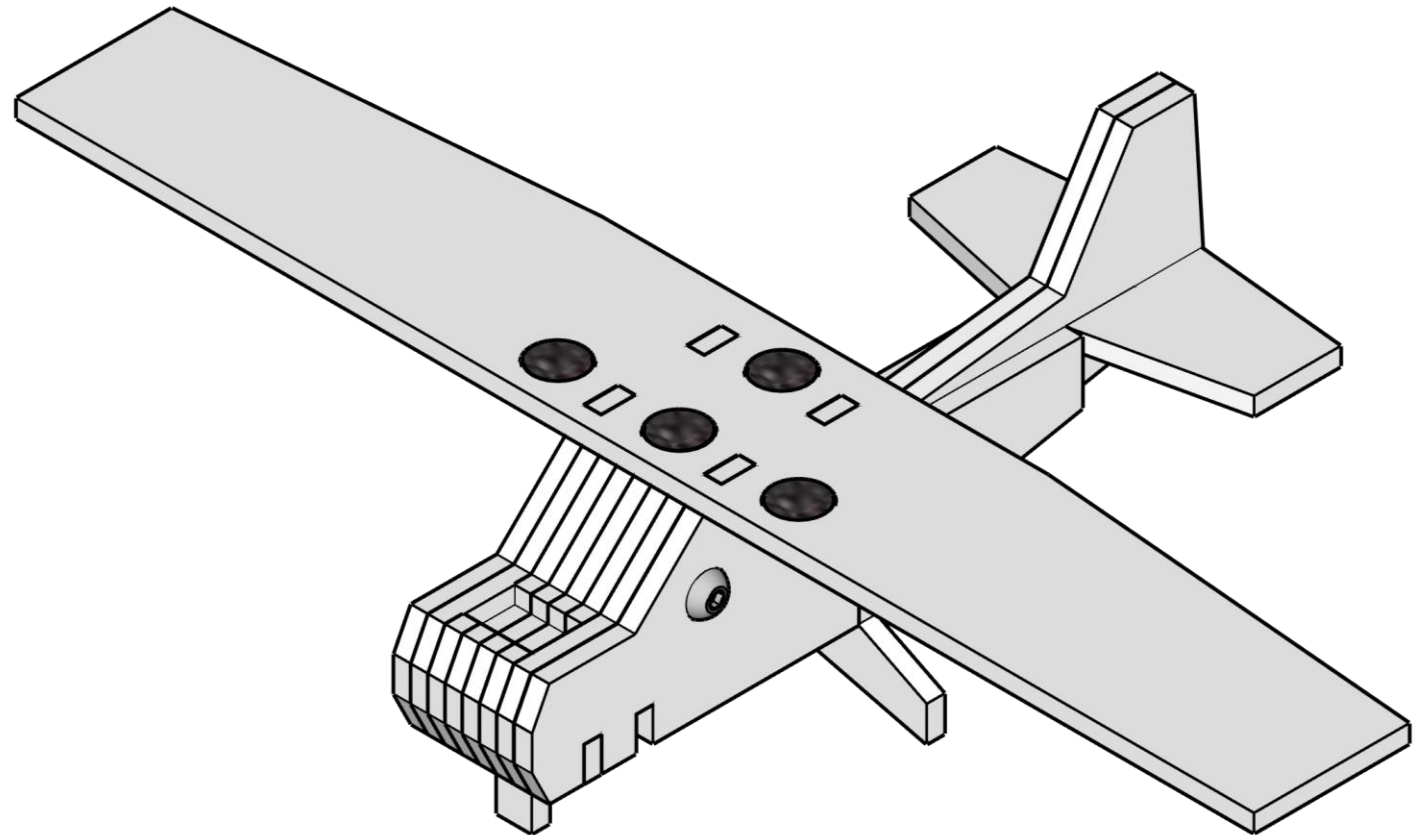
It is seldom necessary to show all six views to portray an object clearly; therefore, only those views necessary to illustrate the required characteristics of the object are drawn. One-, two-, and three-view drawings are the most common.

Three views are all we need to convey the overall design of this aircraft.



ISOMETRIC VIEW

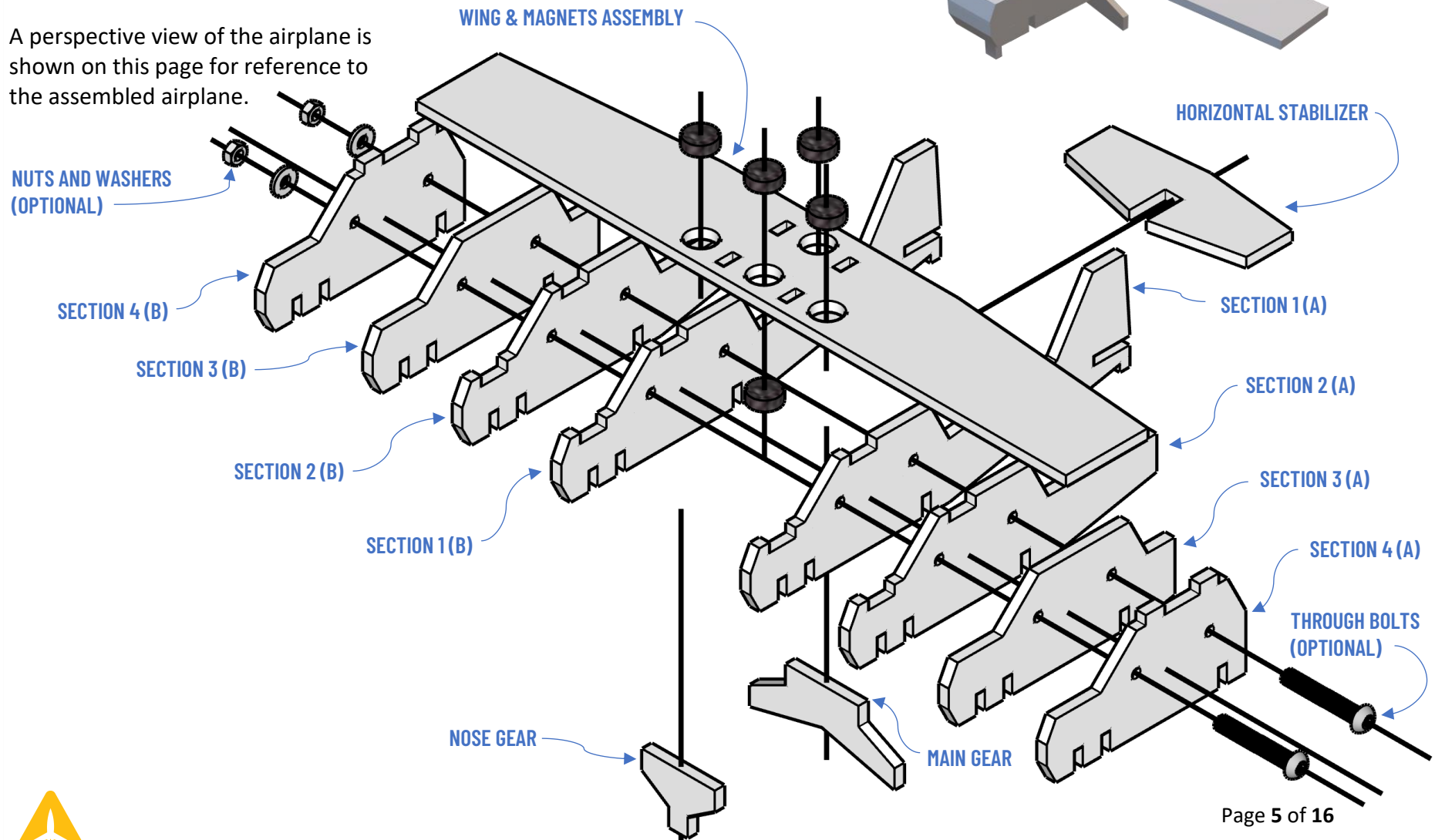
An isometric view uses a combination of the views of an orthographic projection and tilts the object forward so that portions of all three views can be seen in one view. This provides the observer with a three-dimensional view of the object. Unlike a perspective drawing where lines converge and dimensions are not true, lines in an isometric drawing are parallel and dimensioned as they are in an orthographic projection.



EXPLODED VIEW

An exploded view drawing is a pictorial drawing of two or more parts that fit together as an assembly. The view shows the individual parts and their relative position to the other parts before they are assembled.

A perspective view of the airplane is shown on this page for reference to the assembled airplane.

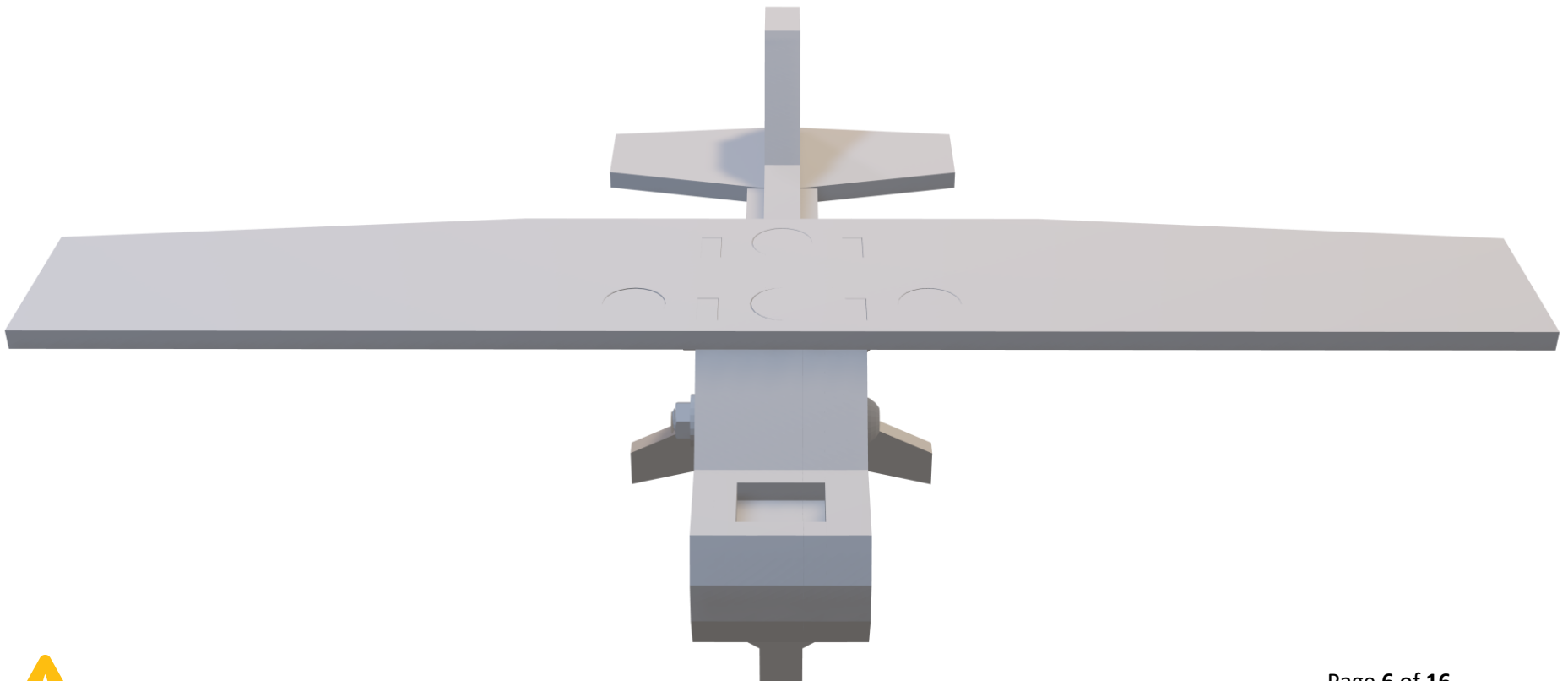


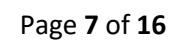
DETAIL DRAWING VIEWS

A detail drawing is a description of a single part, describing by lines, Notes, and symbols the specifications for size, shape, material, and methods of manufacture to be used in making the part. Detail drawings are usually rather simple; and, when single parts are small, several detail drawings may be shown on the same sheet or print.

A smaller detail view shows only a part of the object but in greater detail and to a larger scale than the principal detail drawing. The part that is shown in detail elsewhere on the drawing is usually encircled by a heavy line on the principal detail drawing.

The following pages contain the detail drawings necessary to create the individual parts of the model airplane. Everything you need to build the parts is there, including dimensions, material lists, and how many of each part to build. Following the detail drawings is a notes section with additional written information to help with creating the parts and assembling them together for the completed model.

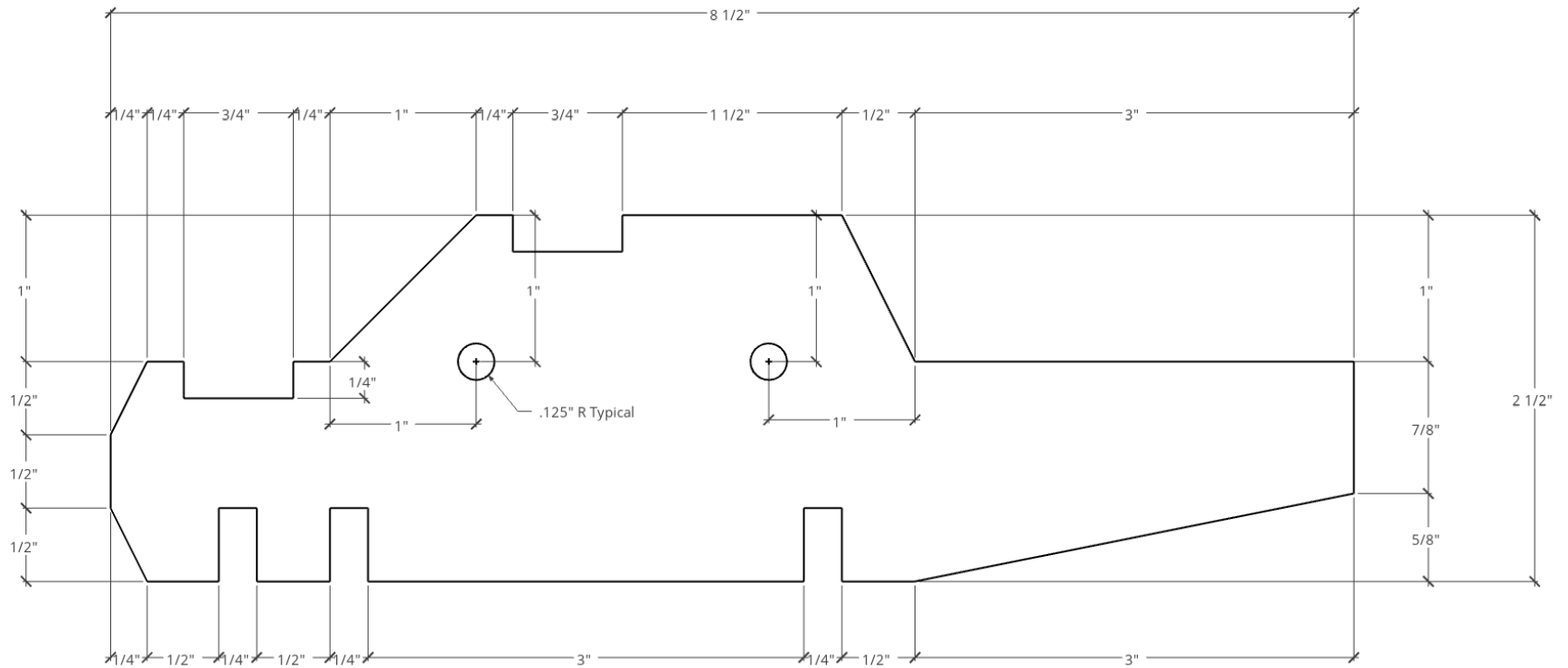
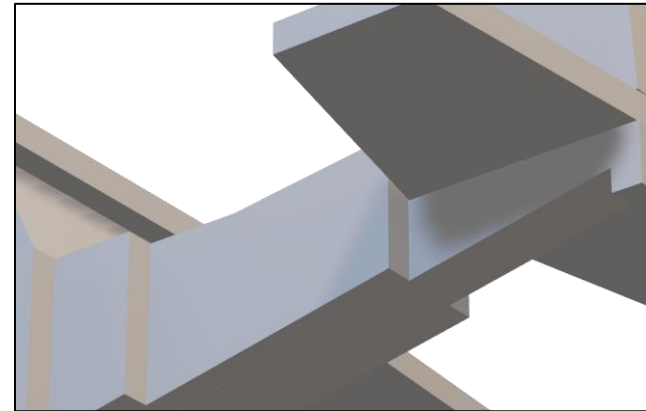


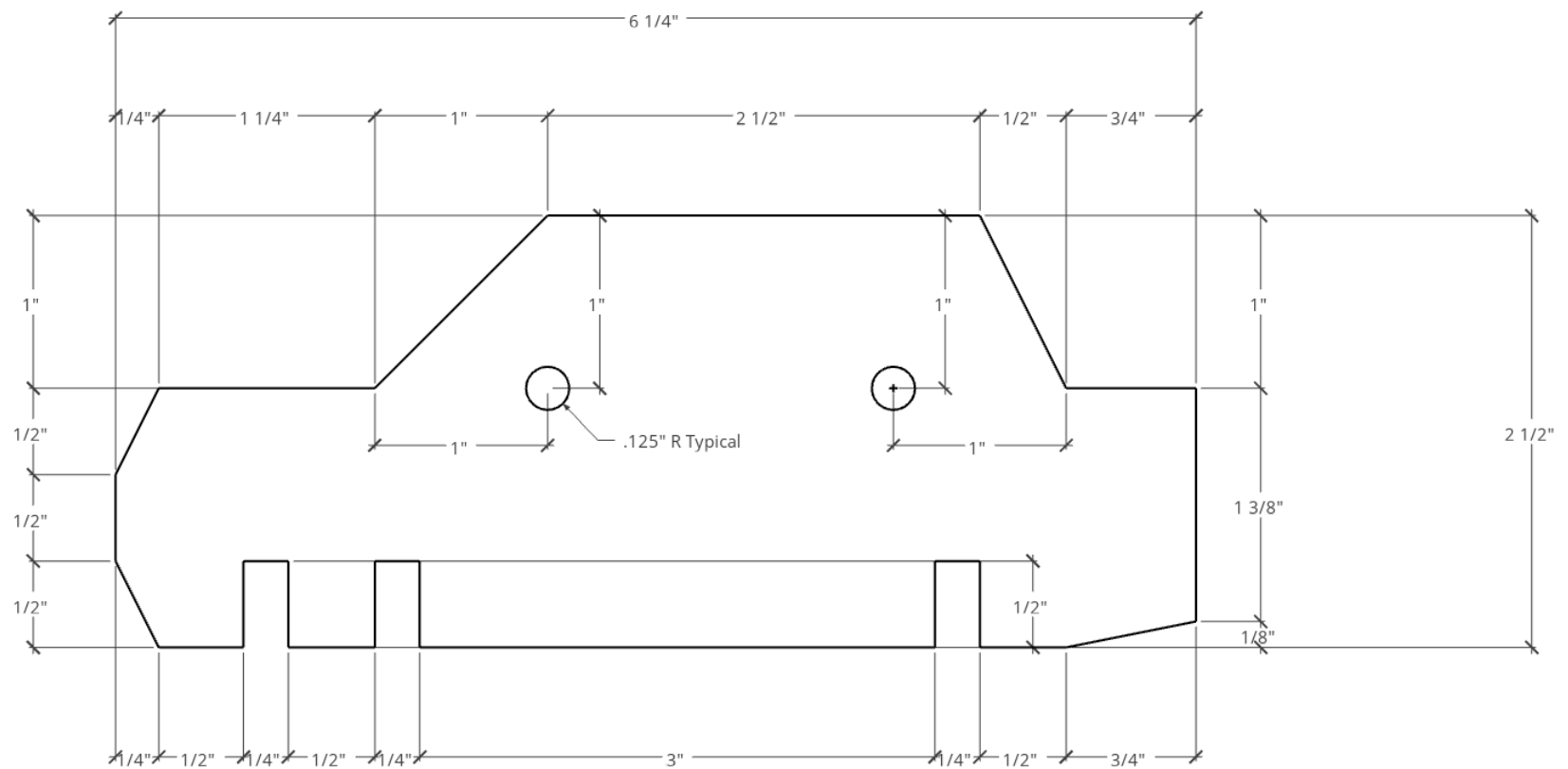
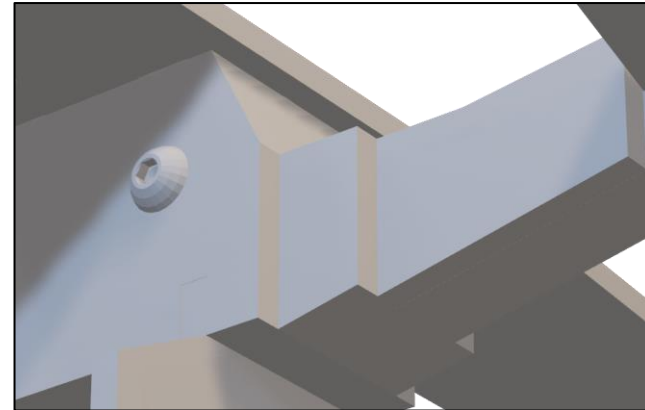


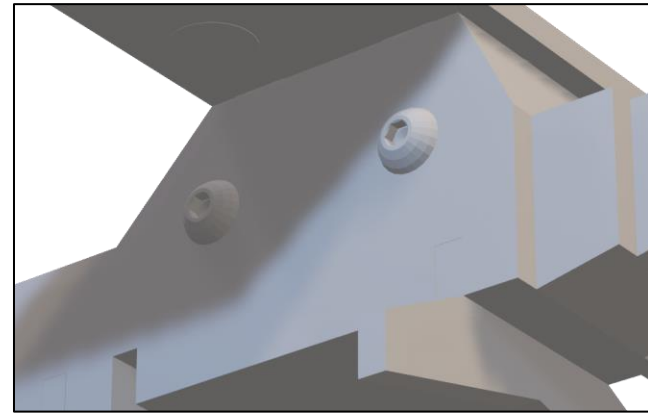


DETAIL DRAWINGS: SECTION 2 (A&B)

Material	Medium Density Fiber Board
Thickness	1/4"
Outer Dimensions	8 1/2" x 2 1/2"
Quantity	2
Notes	1, 2, 3, 4, 5

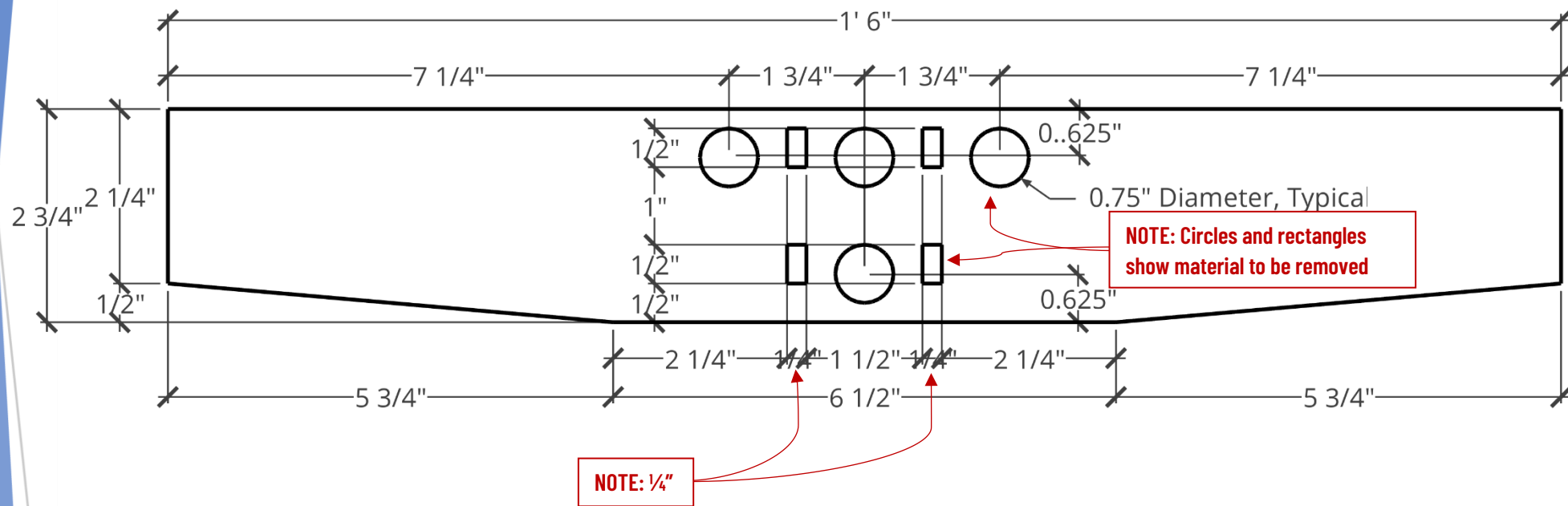
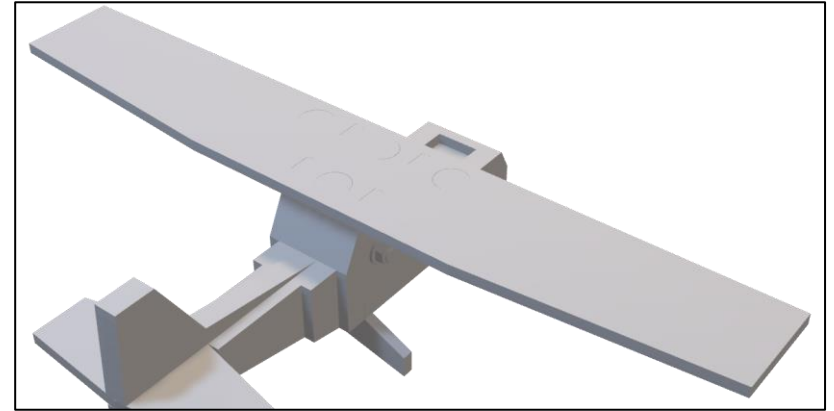






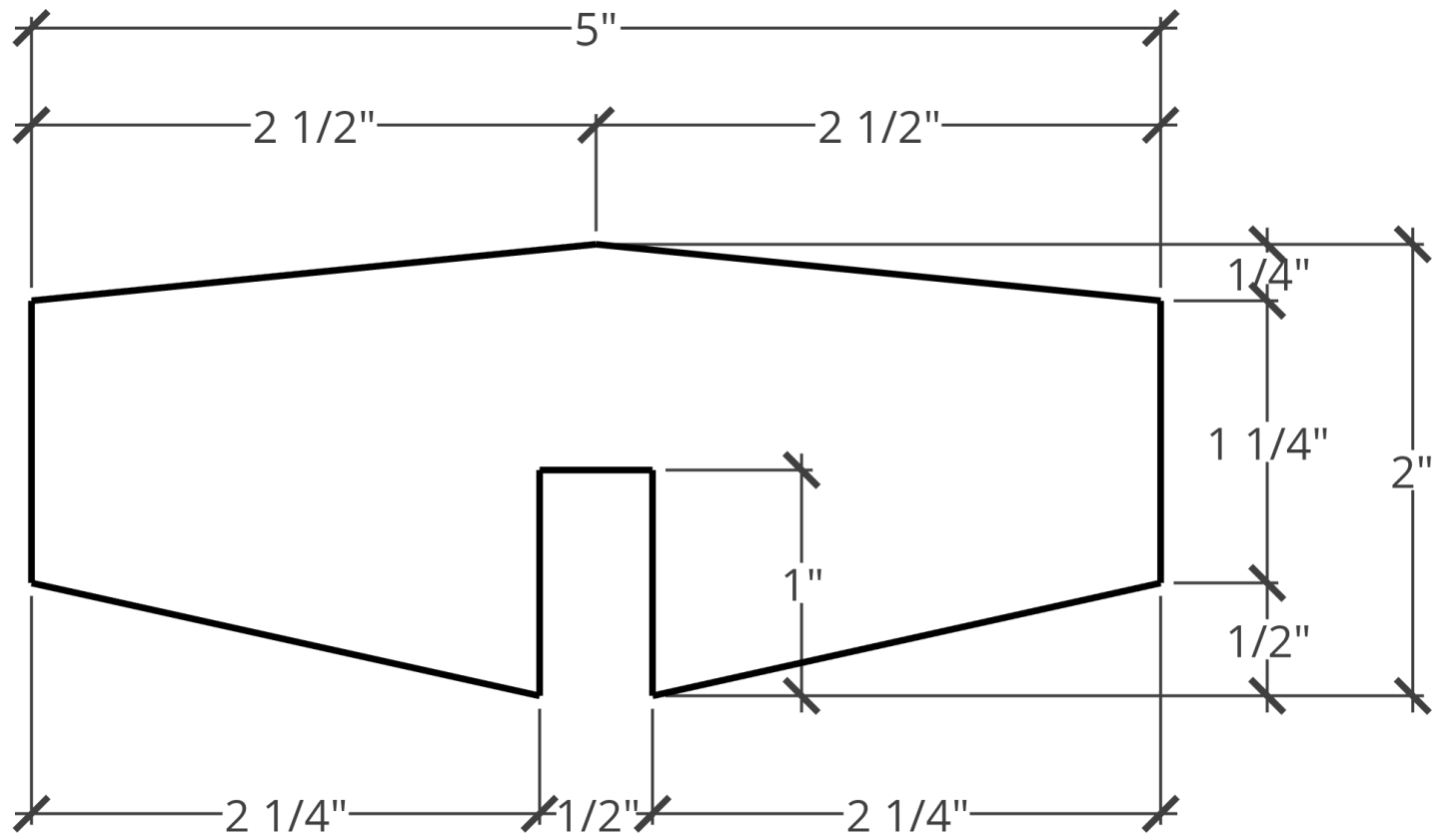
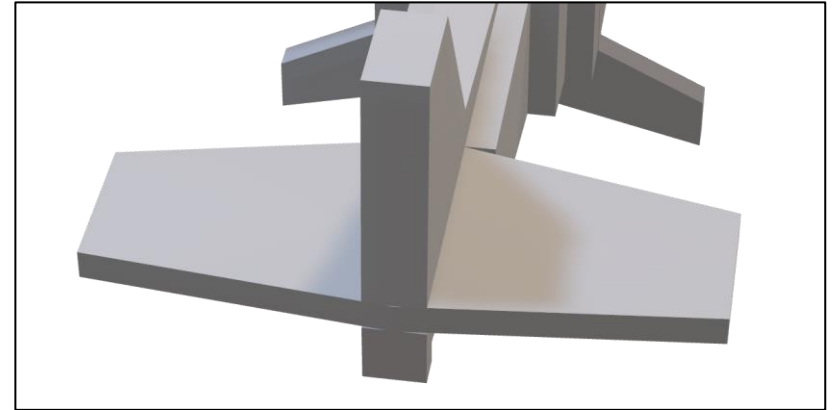
DETAIL DRAWINGS: WING & MAGNETS ASSEMBLY

Material	Medium Density Fiber Board (MDF)
Thickness	1/4"
Outer Dimensions	1' 6" x 2.75"
Quantity	1
Notes	1
Material	Round Magnets
Thickness	1/4"
Diameter	3/4"
Quantity	5
Notes	8, 9

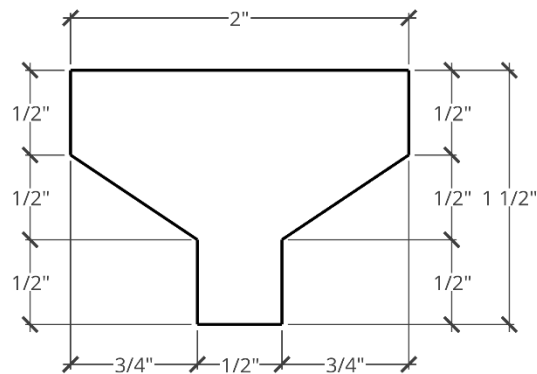
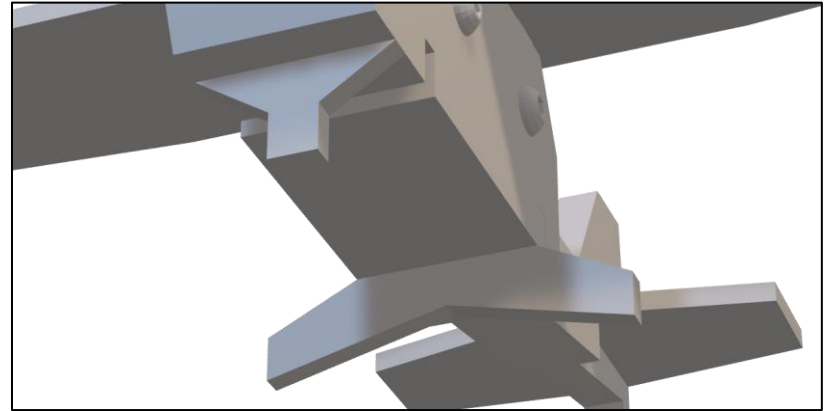


DETAIL DRAWINGS: HORIZONTAL STABILIZER

Material	Medium Density Fiber Board (MDF)
Thickness	1/4"
Outer Dimensions	5" x 2"
Quantity	1
Notes	1, 2, 3, 4, 5



Nose Gear Material	Medium Density Fiber Board (MDF)
Thickness	1/4"
Outer Dimensions	2" X 1 1/2"
Quantity	1
Notes	1, 3, 4, 5, 10
Main Gear Material	Medium Density Fiber Board (MDF)
Thickness	1/4"
Outer Dimensions	4" X 1 1/2"
Quantity	1
Notes	1, 3, 4, 5, 10

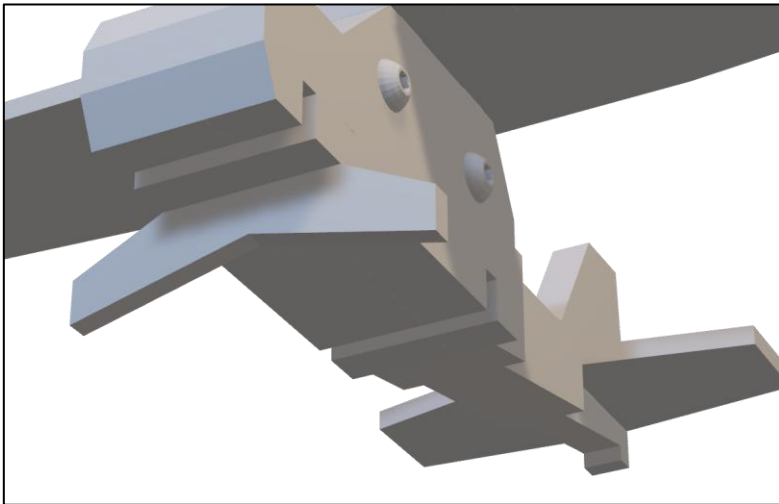
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MAIN GEAR



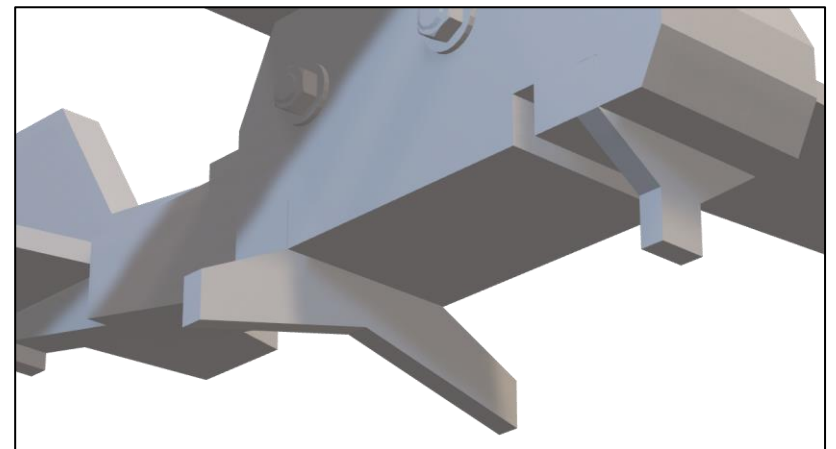
ASSEMBLY NOTES

- Assemble the airplane as shown in the exploded view drawing
- There are a few options for attaching the center sections together
 - Use wood glue and clamp the assembly together until it is dry
 - Use finish nails driven by a hammer or nail gun
 - Use wood screws to attach the assembly together (pre-drill holes to avoid splitting)
 - For a smoother look once assembled, you may fill holes and gaps with spackle and sand any offset parts to match
 - Use through bolts and washer/nut if you intend to fully assemble/disassemble the aircraft for each cohort (see notes 6 & 7)
 - Remove the wing for storage, if desired
- Attach the horizontal stabilizer by mating the slot in it with the slot in the aft of the center section
 - Remove the horizontal stabilizer for storage, if desired
- Attach the gear by sliding the gear into the appropriate slot
 - For tricycle gear configuration, assemble as shown in the exploded view
 - For tail-dragger configuration, place the main gear in the forward main gear slot and do not use the nose gear
 - Remove the landing gear for storage, if desired



TAIL-DRAGGER CONFIGURATION

TRICYCLE GEAR CONFIGURATION



PROJECT INFORMATION

AIRCRAFT DESIGNED BY: Kelly Filgo
(kits may be ordered in pairs at ChooseAerospace.org)

DESIGNED USING: sketchup.com

EQUIPMENT AND CONSUMABLE SUPPLIES NEEDED TO BUILD FROM SCRATCH:

- Table saw
- Band saw
- Drill press with .25" drill bit
 - Or hand-held drill
- Nail gun with 1.5" finish nails
 - Or use hammer and nail-set tool
 - Or use wood screws (pre-drill with appropriate drill bit)
 - Or use wood glue and clamp work together while drying
 - Or use through bolts and washer/nuts to fasten together
- Hot glue gun and glue sticks
- Spackle, sandpaper, and spray paint (if you want to paint the airplane)
- .25" Medium Density Fiberboard
 - With a careful layout, you can get 1 airplane from a 16"x18" MDF panel
- .75" x .25" magnets (x5)
- Assorted large size hardware or other ferric metal items to place on the magnets and in the engine area to add weight to the aircraft for the Weight and Balance project

