



27% PITTS Bulldog and Challenger ARF Instruction Manual



The Pitts special introduced many decades ago still wows crowds at air shows. Pitt's biplanes also competed in IAC competition by pilots the likes of Gordon Price and Kermit Weeks who went on to design new aircraft such as the Ultimate, Weeks Special and Solution. In modern times these aircraft are still be updated and made famous by new pilots such as Sean Tucker in the Challenger and the late Jim Leroy with the Bulldog. These small but highly aerobatic aircraft have yet to loose there charm nor there heart pounding performance.

We have redesigned this gem and brought it up to PAU's high standards of performance and completeness. The new Challenger and Bulldog is lighter and much more nimble with the quality our customers have come to expect from PAU. Also we now offer a Bulldog version of this fantastic Pitts. A 40cc engine will give you great scale like performance while a 50cc will turn this into a monster with incredible flight performance. We're very happy to keep barn storming and fast action aerobatics alive and well with a great line-up of exceptional performing Pitts aircraft.

We believe you will find this to be a fantastic flying Pitts Biplane. Most modelers will find assembly of this aircraft simple and straightforward. We recommend the builder follow the step-by-step instructions to achieve the best performance and to ensure nothing was over looked. This manual also includes tip sections throughout that may help you in key areas during assembly. Please familiarize yourself with this manual before assembly.

This manual is broken down into ten chapters for simplicity:

Chapter 1 - Parts Inventory

Chapter 2 - Preparation for Assembly

Chapter 3 - Landing Gear and Tail Wheel Assemblies

Chapter 4 - Canopy and Fuselage Hatch

Chapter 5 - Engine Installation

Chapter 6 - Cowling installation **Challenger**

Chapter 6a- Cowling installation **Bulldog**

Chapter 7 - Wing and control surface Installation

Chapter 8 - Hardware Installation

Chapter 9 - Radio and Control Surface Setup

Chapter 10 - Final Inspection and Pre-Flight

Additional items needed to complete this aircraft, which are not included:

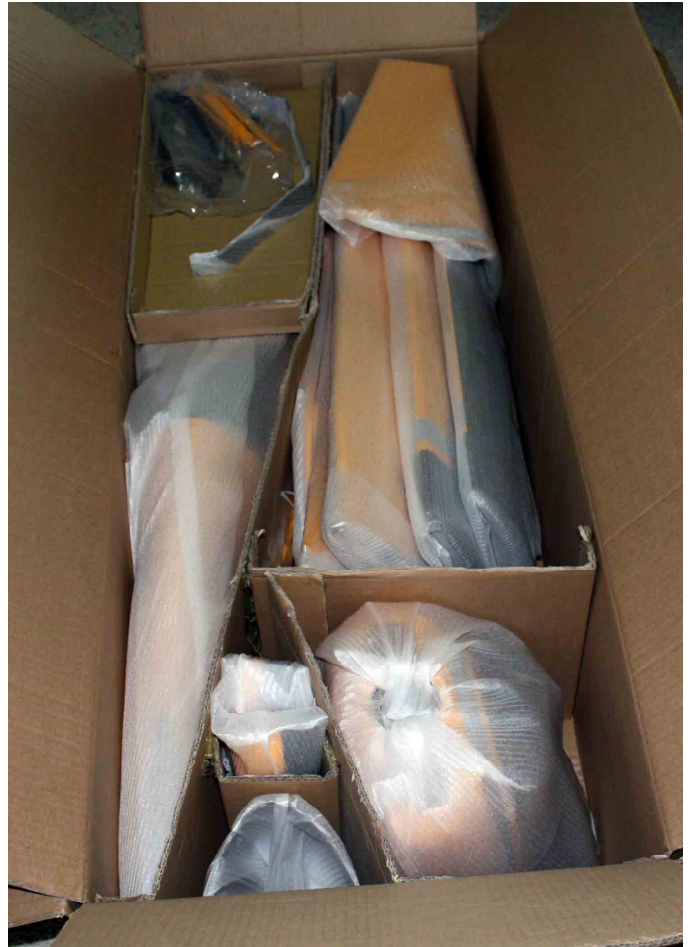
- An engine, within the recommend range, and propeller
- 8 channel computer radio and receiver recommended
- Batteries and switches (with regulators if using Ion batteries)
- Four aileron servos rated at least at 70oz of torque
- Two elevator servos rated at least at 100oz of torque each
- One or two rudder servo rated at least at 100oz of torque
- One throttle servo with push rod and links
- Optional choke servo with push rod and links
- One fueling dot or fueling device
- 3 to 4 feet of fuel tubing
- Foam rubber
- 3.5 inch spinner
- 30 to 45 minute epoxy
- A bottle of thin CA
- Covering iron
- Various modeling tools for assembly
- ½ inch low tack masking tape

Chapter 1

Parts inventory

Place an “x” to ensure your kit is complete:

- 1 Fuselage
- 4 Wing panels (2 right and 2 left)
- 1 Horizontal stabilizer
- 1 Rudder
- 1 Fiberglass Cowling
- 1 Aluminum landing gear
- 1 Pair of Dubro Light wheels
- 1 CF Tail wheel and tiller assembly
- 6 H9 titanium pushrods/turnbuckles
- 1 set of Dubro wheel collars
- 1 pair of Dubro wheel axels
- 1 HD Dubro pull-pull set
- 3 Sets of Dubro control horn assemblies
- 1 20oz Dubro fuel tank
- 8 4/40 Dubro ball links
- 1 Set of additional various marked hardware
- 1 Vinyl graphics package



If any of these parts are missing immediately contact PAU.

If you need more information you can visit our support forum at: www.flyinggiants.com

This manual is strict property of Performance Aircraft Unlimited.

Chapter 2

Preparation for Assembly

Professionals utilizing premium Ultracote covering carefully covered your model. Due to climate changes during shipping, the models covering may have loosened and/or wrinkled. It's a good habit to go over your model with a covering iron to ensure all joints, seams, and edges are properly sealed.

Ultracote is a lower temperature film that seals and shrinks at lower temperatures. Make sure you set your iron on a low temperature initially to get a feel for the correct temperature setting and adjust accordingly. Higher temperatures will cause your covering to over shrink and distort. Also, use a sock over your iron to ensure a scratch free finish.

Place an “X” to ensure task completion:

- Go over you model as necessary with a covering iron to insure all joints, seams, and corners are sealed properly. **Use extra care not to touch the side windows with the iron!**
- Use your iron to ensure the areas where cutouts are needed for your hardware are located and sealed down, such as servos; tubes, and control horn mounting locations.

Next, we'll need to cut out the covering at the locations for hardware and final assembly. Make sure you use a sharp hobby knife so your cuts will be clean and straight.

- Start with the fuselage, Locate and cut out the servo and stabilizer and wing tube locations.
- Locate and cut the location for the anti-rotation pins and mounting holes for the stabilizers and wings.
- Locate and cut the two mounting bolt locations for the canopy and the two pull-pull exits.
- Locate and cut the servo mounting locations for each wing half.



Chapter 3

Landing Gear and Tail Wheel Assemblies

Now that we're ready for assembly, we are going to start with the main landing gear first. You will need to locate the following parts to begin assembly.

Place an "X" to ensure task completion:

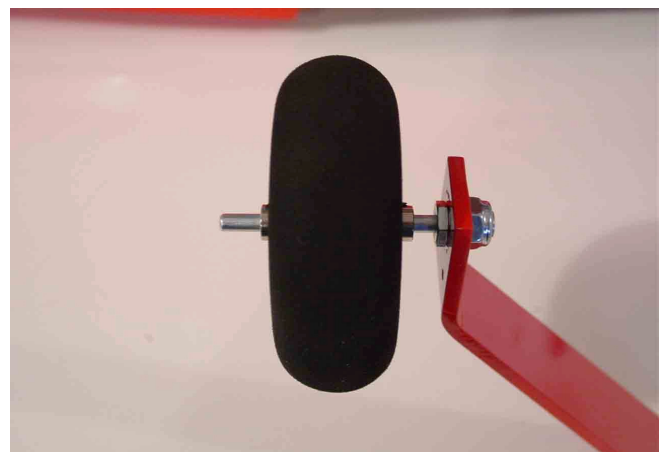
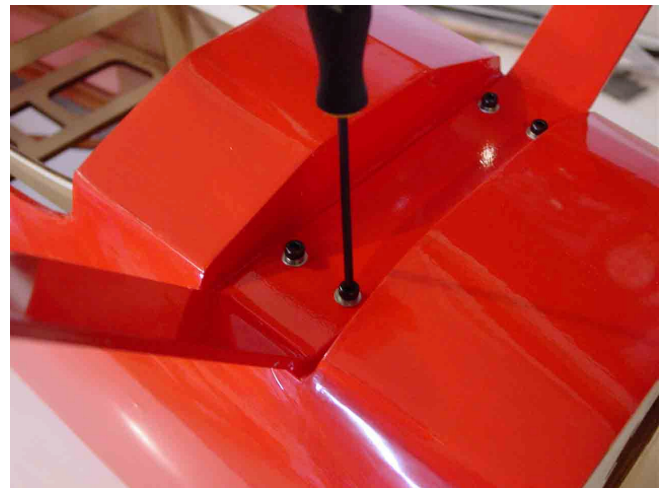
- ❑ What you will need in this chapter for the main gear:

- ✓ Aluminum main gear
- ✓ One pair of 3.5 inch wheels
- ✓ One pair of Dubro axles
- ✓ Four wheel collars
- ✓ Hardware pack marked "main wheels"
- ✓ Fuselage
- ✓ Rudder
- ✓ Tail wheel assembly

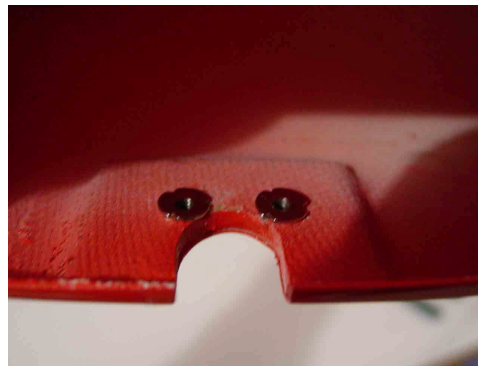
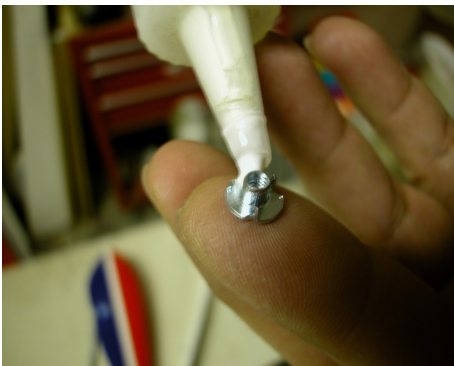
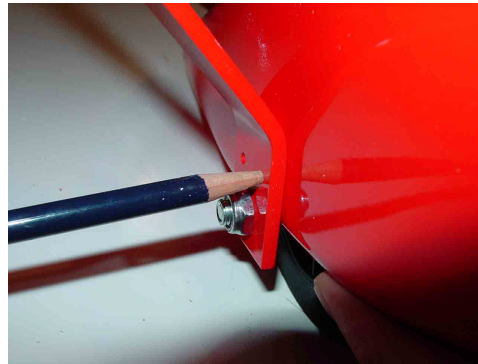
Not Provided:

- ✓ 1/2" and a 9/16" inch wrench
- ✓ Blue loc-tite
- ✓ Allen wrench for wheel collars

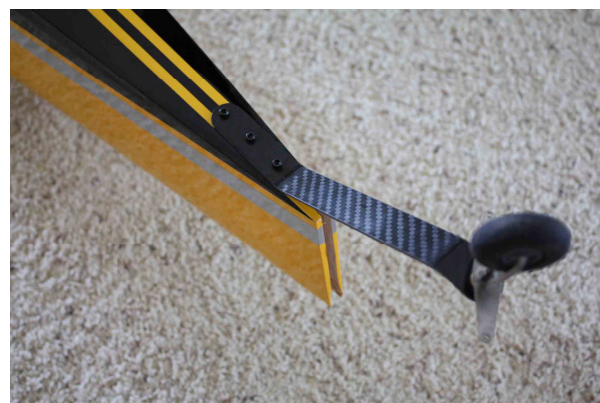
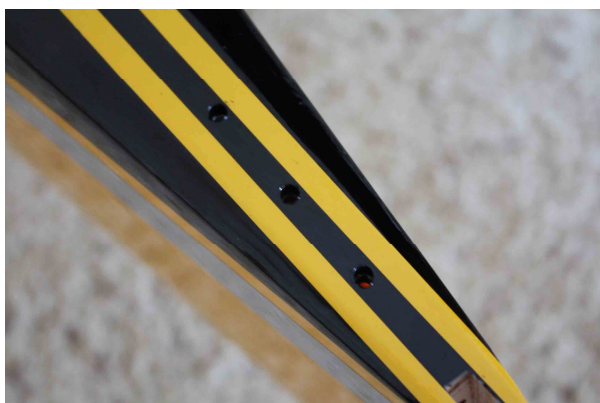
- ❑ Use a small soldering iron and open the holes for the main gear bolts.
- ❑ Fasten the axles to the main landing gear with the lock nuts.
- ❑ Install the landing gear to the fuselage using the four 8/32 bolts, spring washers, and flat washers, and compression nuts.
- ❑ Using your four wheel collars and wheels, center you wheels on the axles. Place the collars as close to the wheels as possible but ensure the wheels still rotate freely. Again, we don't want the wheel to move from side to side and contact the wheel pants. Also, we recommend the use of loc-tite on the setscrews of the wheel collars to prevent them from vibrating loose.



- Cut out the center wheel opening on the wheel pants on the side with the wood-mounting block
- With the aircraft resting on the landing gear, we are going to need to set the right angle for the wheel pants. We used a standard servo and placed it at the end of the pant resting the end on the rubber grommets of the servo. Mark the drilling location for the 4/40 bolts.
- Drill the holes for the 4/40 bolts in the wheel pants at the locations you've marked.
- Apply some white wood or epoxy glue to the inner side of the four 4/40 blind nuts and install the blind nuts to the inside of the wheel pants.
- Now you can install the wheel pants with the 4/40 bolts and washers. Don't forget to use loc-tite here again. Wheel pants tend to take the most vibration.



- For the tail wheel, install the bracket with the three 6/32 bolts provided with blue loc-tite.
- Use loc-tite and place on all the setscrews of the collars securing the tail wheel and wheel assembly.



Tip#2 Set aside your two tiller springs, we will install those later after the rudder is mounted.

Chapter 4 Cabanes and Canopy

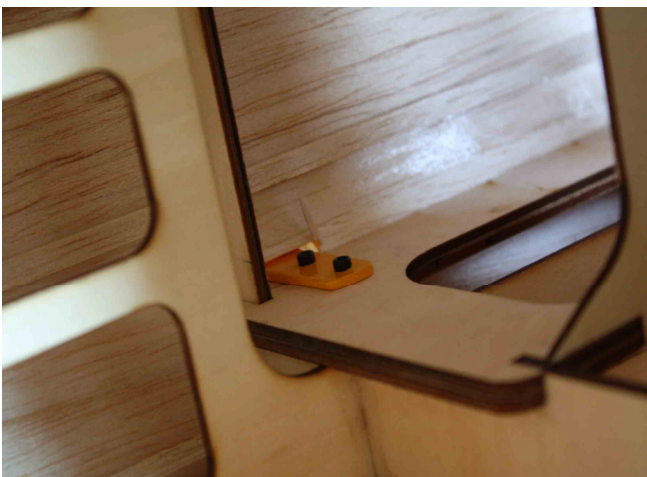
Not much to cover installing the canopy as it's pretty much done. Keep in mind if you are doing any repairs to the canopy to use epoxy, RC56, or odorless CA. Regular CA will fog the canopy.

Place an "X" to ensure task completion:

- ❑ Gather the following for canopy and hatch installation:
 - ✓ Fuselage and Canopy
 - ✓ Canopy mounting screws
 - ✓ Cabanes and mounting hardware
 - ✓ Blue Loc-tite
 - ✓ Thin CA
 - ✓ Low tact masking tape



- ❑ Use your hobby knife and cut open the slots for installing the cabanes.
- ❑ Install the cabanes in the fuselage using two 4/40 bolts each using blue loc-tite.

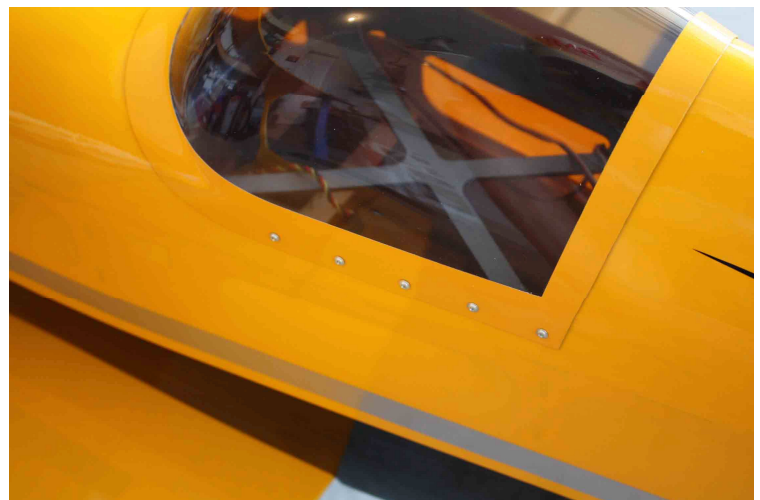
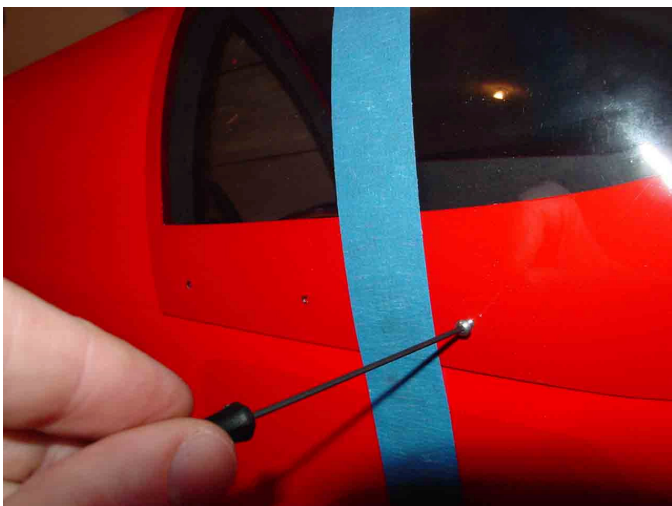


When installing the Canopy, **we recommend using the screws provided** for the ease of getting back into the fuse. If glued in place, it will be very difficult to get fuse access for maintenance and moving your hardware to different locations.

- ❑ Locate your bag of canopy screws.
- ❑ Measure and mark 4 to 6 evenly spaced holes on each side of the canopy.



- ❑ Tape the canopy to the fuse with low tact masking tape and starting from the center start installing the canopy screws keep some pressure of the canopy for a nice tight fit.
- ❑ Once installed, remove the screws and cote the thread holes with thin CA to harden the wholes. Once the CA has fully dried re-install the canopy.



Chapter 5

Engine Installation

Bulldog and Challenger engine placement is slightly different. Please pay close attention to the differences.

Your firewall is pre-mounted but our customers can select from a wide variety of engine choices. It is nearly impossible to cover every engine installation choice in this manual but we'll cover the DA-50. Your aircraft was designed around the 40cc to 50cc gas motors. Also, we have provided a canister tunnel on your Pitts for those desire quieter operation. Please consult the manufacturer for the installation of optional canister.

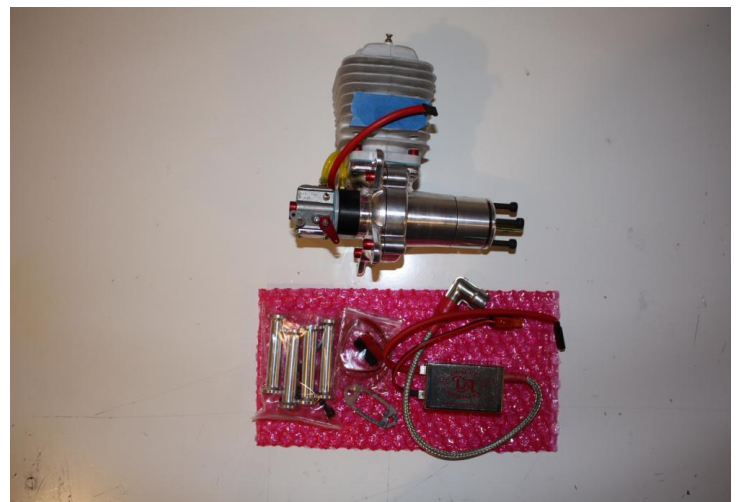
We will cover the installation of the DA 50cc motor. Follow your engine manufactures instructions for any additional guidance. Lets get started!

Place an "X" to ensure task completion:

What you will need in this chapter:

Not Provided:

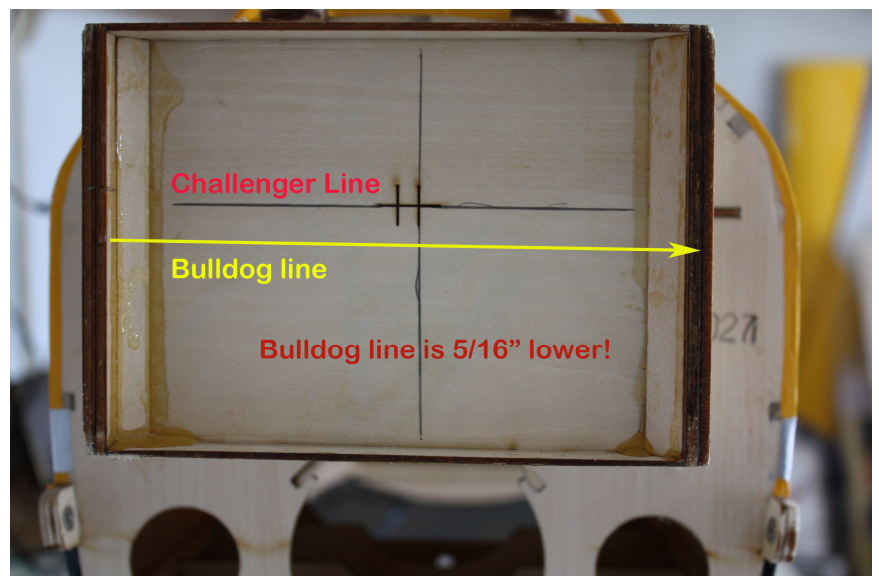
- ✓ **3" standoffs for the DA-50**
- ✓ **Four ¼-20 bolts for the DA-50**
- ✓ Four lock or compression nut with fender washers
- ✓ An engine in the recommend size range
- ✓ 3.5 inch spinner
- ✓ Propeller
- ✓ A drill and drill bits
- ✓ Center punch
- ✓ Scotch tape for template



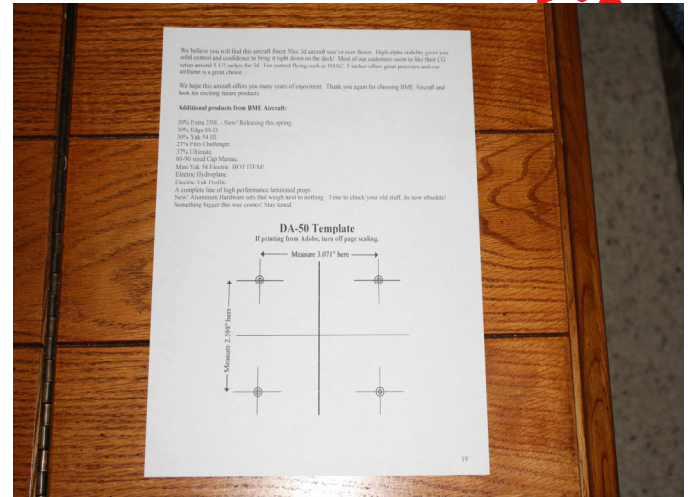
Also with the engine is installed, you will want approximately 6 –13/16 inches from the firewall to the spinner back plate for proper cowl placement.

DA-50 installation for Pitts!

- ❑ **Challenger only!** The firewall is pre-marked so you'll just need to center your motor in the "+". Take a ruler and draw a line across the entire firewall for the thrust line and offset centerline.
- ❑ **Bulldog only!** The thrust line should 5/16" lower than the pre-marked "x". Once you have your thrust line marked, draw another line 5/16" lower for proper engine placement for the Bulldog.

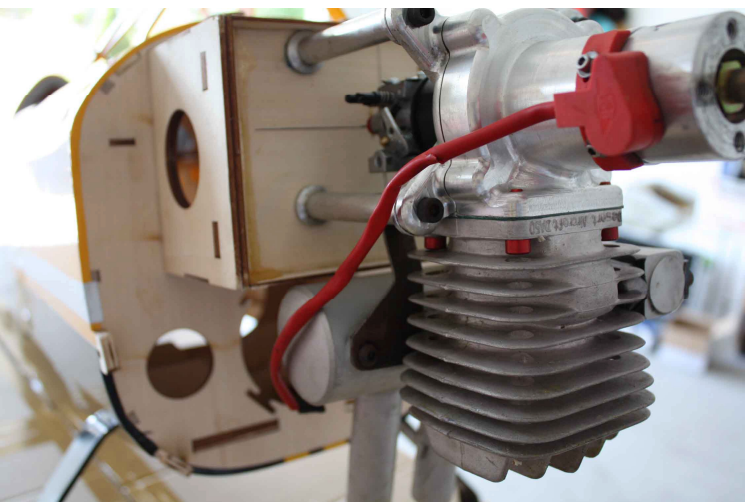
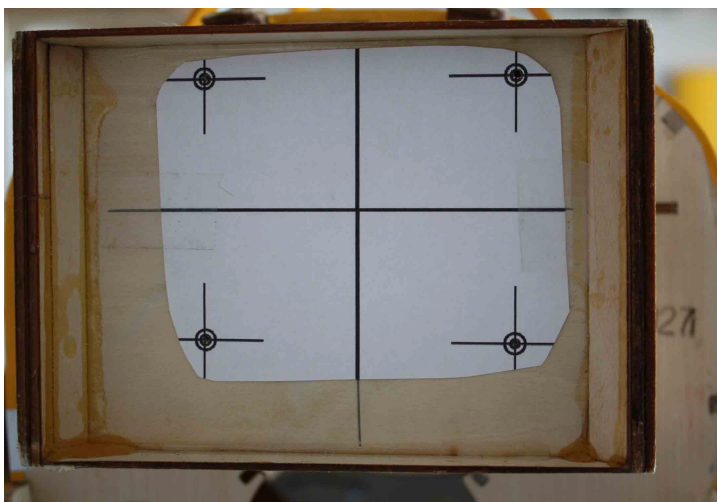


- ❑ **DA-50 users only.** If using the DA template provided on the last page of this manual, check the measurements on the template and ensure the holes are correct. Cut the paper template to the size needed to tape it to the firewall using your thrust line and offset centerline as a guide. Mark the drilling locations and drill holes for 1/4-20 bolts. **Do not forget that the Bulldog is 5/16" lower than the stock thrust line!**



- ❑ Mount the motor using 3" standoffs for the DA-50, and four 1/4-20 bolts.

- ❑ Now that you have the motor mounted, mark the locations for the fuel line and throttle push rod remove motor and drill those locations and reinstall motor.



We recommend 4/40 push rods for throttle and/or optional choke servo. Also ensure there is no metal-to-metal contact from the throttle/choke to the servos. 2/56 Ball links for 4/40 rod (not included) will prevent the aforementioned metal-to-metal contact and will bolt to nicely to your motors carburetor.

Depending on your engine and prop selection you may want to add another .5 degrees of right thrust. We've found that a 23x8 propeller seems to give us the best performance.

Chapter 6

Challenger Cowling installation only

Bulldog owners please move to Chapter 6a

Place an “X” to ensure task completion:

- What you will need in this chapter:
 - ✓ Fuselage and cowling
 - ✓ Six 4/40 bolts with spring and lock washers
 - ✓ Six bonded washers

Not Provided:

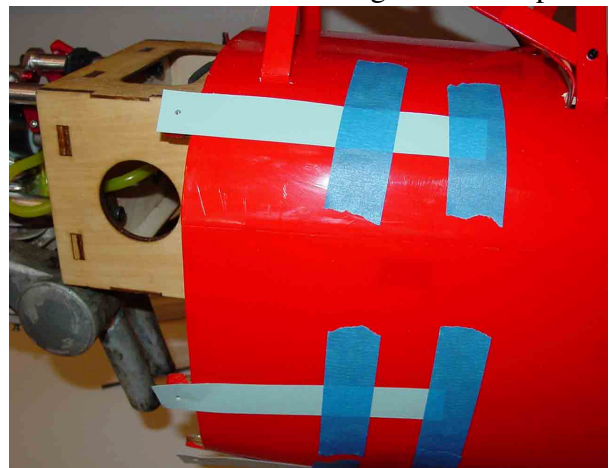
- ✓ A 3.5 inch spinner
- ✓ A Dremel tool
- ✓ A facemask and eye protection
- ✓ Pencil or dry erase marker



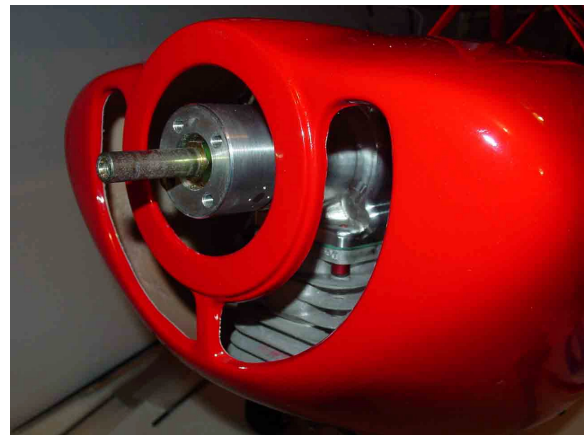
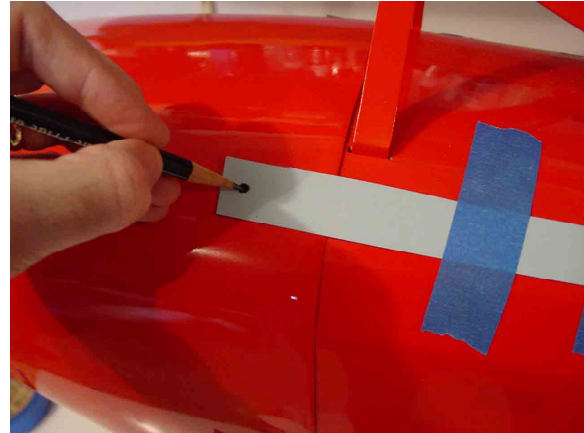
Always wear a mask and eye protection while cutting fiberglass. Take your time while installing the cowl. With care you will end up with a professional installation that will make an impression at the field.

Close the choke and place a piece of tape over the carburetor inlet and exhaust outlet to keep out any dust while setting up your cowl. Since the cowl is preset and uses a ring to mount, there will not be much to do here.

- First cut out the cooling outlet area.
- Test fit the cowl to see where the cut is going to be made for engine head. Measure the distance and cut an opening just enough to get the cowl mounted. Make sure the muffler has been removed. We will return to fine trim it later.
- Once the cowl fits, take your card stock and make six strips 6 inches long and 1 inch wide. Drill a 3/32 hole in one end of each strip.
- Using your 4/40 bolts, loosely bolt each strip of card stock into each cowl mounting hole and tape the other end to the sides of the fuselage.
- Remove the 4/40 bolts from the cowl mounting locations and position the cowl with the card stock paper overlapping the cowl.
- Place the cowl back on the fuse with the card stock overlapping the cowl and place your spinner back plate back on the engine.
- Position the front of cowling at least a 1/8th of an inch behind spinner back plate and centered.



- ❑ Once satisfied with the fit and its lined up to match the covering, mark the cowl mount locations and drill out the holes for your 4/40 bolts.
- ❑ Remove the card stock strips from the fuselage and bolt the cowl in place.
- ❑ Now we are ready to do some fine trimming. We will want to cut at least an extra 1/4 inch cut around any of the engine components that protrude. Mark any additional areas that may require trimming to include if necessary, the muffler. We also want to make sure we have at least twice the area of the cowl opening open on the bottom to allow for proper engine cooling as well.
- ❑ Remove the cowl and cut out the remaining areas to be trimmed. Re-install the spark plug and mount the cowl.



Chapter 6a

Bulldog Cowling installation only

Place an “X” to ensure task completion:

- ❑ What you will need in this chapter:
 - ✓ Fuselage and cowling
 - ✓ Six 4/40 bolts with spring and lock washers
 - ✓ Six bonded washers
- Not Provided:
 - ✓ A 3.5 inch spinner
 - ✓ A Dremel tool
 - ✓ A facemask and eye protection
 - ✓ Pencil or dry erase marker



Always wear a mask and eye protection while cutting fiberglass. Take your time while installing the cowl. With care you will end up with a professional installation that will make an impression at the field.

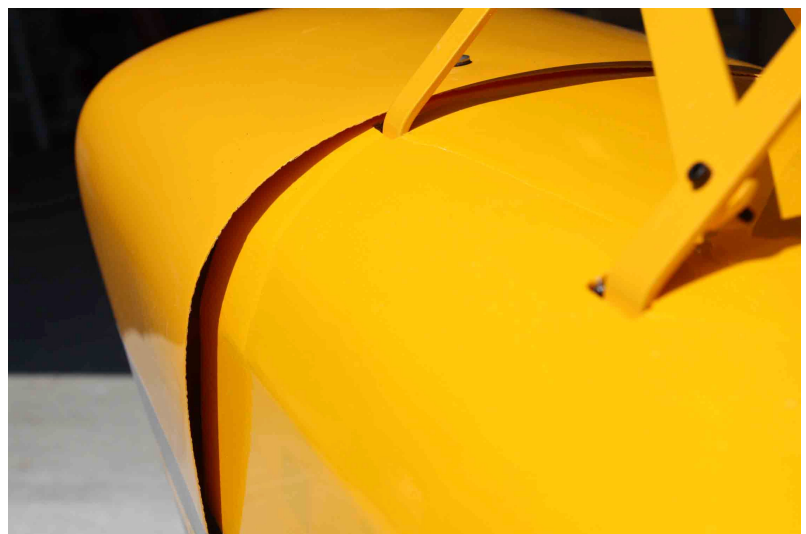
Close the choke and place a piece of tape over the carburetor inlet and exhaust outlet to keep out any dust while setting up your cowl. Since the cowl is preset and uses a ring to mount, there will not be much to do here.

The Bulldog is slightly different for cowl installation and we will need to create the cheeks that extend past the side of the fuse as found in most full scale Pitts to include the Bulldog.

- ❑ First cut out the cooling outlet area.
- ❑ Test fit the cowl to see where the cut is going to needed to be made for engine head. Measure the distance and cut an opening just enough to get the cowl mounted. Make sure the muffler has been removed. We will return to fine trim it later.
- ❑ Once the cowl fits, take your card stock and make six strips 6 inches long and 1 inch wide. Drill a 3/32 hole in one end of each strip.
- ❑ Using your 4/40 bolts, loosely bolt each strip of card stock into each cowl mounting hole and tape the other end to the sides of the fuselage.
- ❑ Remove the 4/40 bolts from the cowl mounting locations and position the cowl with the card stock paper overlapping the cowl.
- ❑ Place the cowl back on the fuse with the card stock overlapping the cowl and place your spinner back plate back on the engine.
- ❑ Position the front of cowling at least a 1/8th of an inch behind spinner back plate and centered.



- ❑ **Once satisfied with the fit and its even on each side to match the covering, mark the cowl mount locations and drill out two top holes only!** Install the top two bolts. At this point the paint lines on the cowl will be below the lines on the fuse.



- ❑ Once the top two cowl bolts have been installed, we will need to bring the bottom of the cowl up so the paint lines will match the covering. This will create a slight bow on each side of the cowl and leave a gap near the top corners between the cowl and fuse creating the full-scale look of a Pitt's biplane.

- ❑ Once satisfied the paint lines are matched to the fuse and you have the same amount of gap on each side, drill and install your remaining 4/40 cowl bolts.

- ❑ Now we are ready to do some fine trimming. We will want to cut at least an extra ~~1/4~~ 1/2 inch cut around any of the engine components that protrude. Mark any additional areas that may require trimming to include if necessary, the muffler. We also want to make sure we have at least twice the area of the cowl opening open on the bottom to allow for proper engine cooling as well.

- ❑ Remove the cowling and cut out the remaining areas to be trimmed. Re-install the spark plug and mount the cowl.



Note the gap between the cowl and fuse. Remember to keep it even on both sides to achieve the proper look.

Chapter 7

Wing and control surface Installation

Place an “X” to ensure task completion:

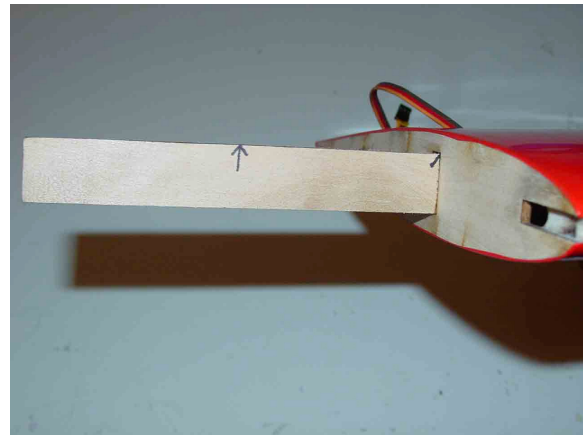
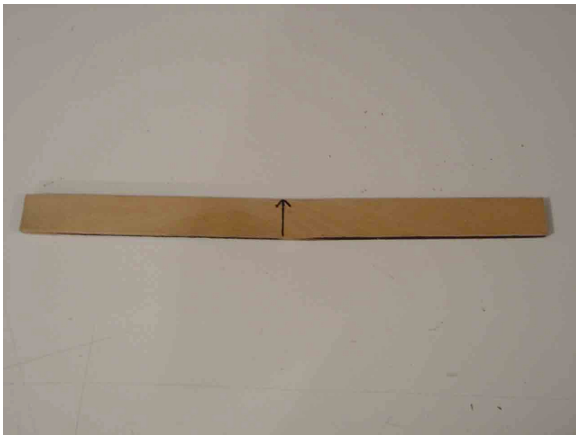
- ❑ What you will need in this chapter:
 - ✓ Wings and fuse with rudder
 - ✓ Elevator and horizontal stab
 - ✓ Pull-pull hardware
- Not Provided:
 - ✓ 30 to 45 minute epoxy
 - ✓ Two cycle oil
- ❑ For the top wing, trim away the excess covering away from the wing roots to allow epoxy more area to be spread and to bond to the wood.
- ❑ Fit the wing joiner centered and epoxy in place. Be sure to coat the inside of the hole well with epoxy.



- ❑ Now epoxy the other half of the joiner as well as the root ribs and join the two half's together.
- ❑ Tape the halves together and lay them on a flat surface and allow the epoxy to cure. There is no dehidral in the top wing. You can clean up any epoxy that may have squeezed out without rubbing alocohol so long as it has not set.



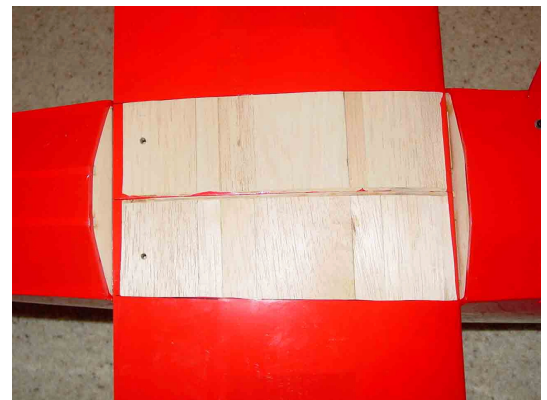
- ❑ For the bottom wing, trim away the excess covering away from the wing roots to allow epoxy more area to be spread and bond to the wood.
- ❑ **Measure and mark a centerline of the joiner. Also mark which way is up on the joiner as the bottom wing has dihedral. If glued in incorrectly you could ruin the bottom wing so be careful not to put the joiner upside down.** Fit the wing joiner centered and epoxy in place. Be sure to coat the inside of the hole well with epoxy.
- ❑ Now epoxy the other half of the joiner as well as the root ribs and join the two half's together.
- ❑ Tape the halves together making sure the root of the wings are butted firmly together and allow the epoxy to cure.



- ❑ Now that the epoxy has cured we let's install the lower wing.

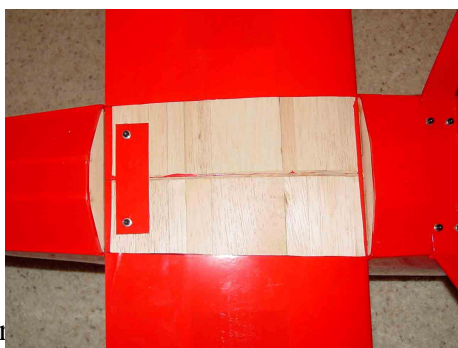
- ❑ Open the two holes in the center rear of the lower wing for the 8/32 wing bolts. Slide the wing into place and **loosely** fasten the wing bolts.

- ❑ Find the bottom fillet cover for the wing and set in place. Mark where the covering needs to be removed from the bottom wing. Using a sharp hobby knife, be careful not to cut into the wood, cut away the covering like shown on the bottom of the wing.

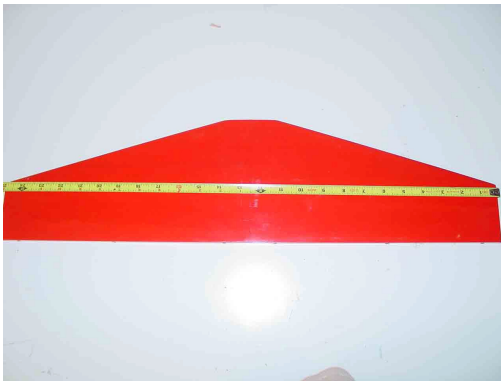


- ❑ Remove the two wing bolts and install the hardwood wing bolt support. Use epoxy here and re-install wing bolts to hold in place and allow to cure.

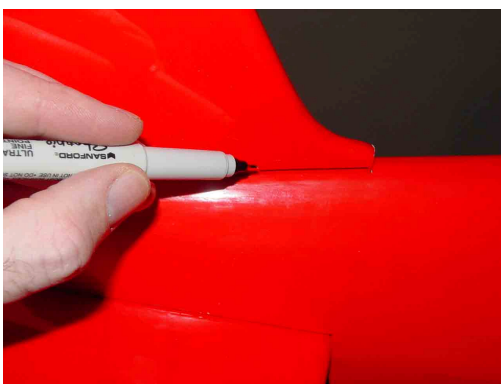
- ❑ At this point while you are waiting for the epoxy to cure, you can epoxy or CA the fillet in place and allow to dry. Once all the glue has cured you may now remove the wing but must be installed for the next step.



- ❑ With a sharp hobby knife, cut out the slot for the horizontal stab, servos, and pull-pull cable exits.
- ❑ Measure the stab like shown to find the center and draw a line on both sides of the horizontal stab and side the stab into the fuse using the lines to find center.
- ❑ Mark the stab at the points it meets the fuse and carefully cut away the covering like shown.
- ❑ **With the bottom wing installed**, epoxy the stab in place ensure its level and equal to the lower wing and let dry.



- ❑ After the epoxy has cured, slide in the vertical stabilizer and mark the area where the covering must be cut away.
- ❑ Once the covering has been cut away, epoxy in the vertical stabilizer ensuring its 90 degrees from the horizontal stabilizer.



- ❑ Now we can install our control surfaces using epoxy. The surface itself has been done for you so you'll only need to do the other half. Put a drop of oil in the joint of the hinge being careful not to get the oil on the hinge itself. This will help prevent the joint from being glue together. Also while the aircraft was not designed for 3d, it ended up being a great 3d airframe! **So if your considering a little 3d for this bird make sure that you have at least 40 to 45 degrees of through in the elevators when they are glued in!**

- ❑ Installing the struts is pretty straightforward. Locate the struts and mounting tabs along with the 4/40 bolts. Mount the tabs to the struts first using the 4/40 bolts.

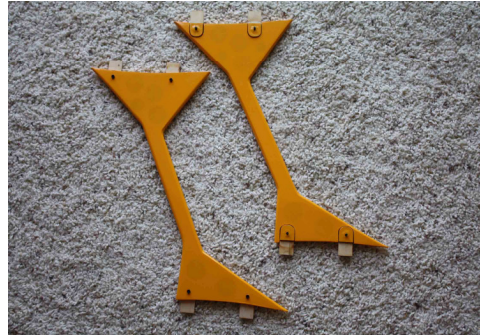
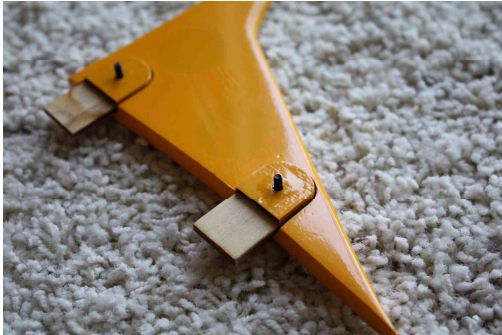


- ❑ Find the mounting locations in the bottom wing and cut open. Mount the bottom wing to the fuse. With epoxy, coat the inside of the strut tab holes. **Be careful not to get epoxy outside of the hole. You do not want to glue your struts to the wing by accident.** You can use wax paper to help keep epoxy from coming back out of the hole and onto the strut. **Make sure your struts are right side up and facing the right direction first! They only fit one way and the larger end goes up and to the front! Always dry fit first!**

- ❑ Once the epoxy has set we can do the same for the top wing. Prep the top wing in the same manner with the bottom wing mounted to the fuse. Install the top wing while epoxy the tabs in place.

- ❑ After the epoxy has set, you can now remove the struts. You may want to remove the struts while the epoxy is soft but the tabs will stay in place. You will want to do this while the epoxy is soft but the tabs will stay in place.

- ❑ While this aircraft does not require flying wires, they may be added for a scale appearance.



Chapter 8

Hardware Installation

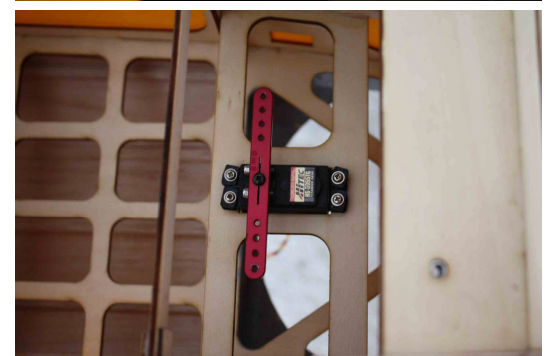
We provide high quality Du-bro control horn assemblies included with Pitts aircraft kits. We believe these assemblies give the proper differential for the flight surfaces, which means less radio mixing for you.

Place an “x” to ensure task completion:

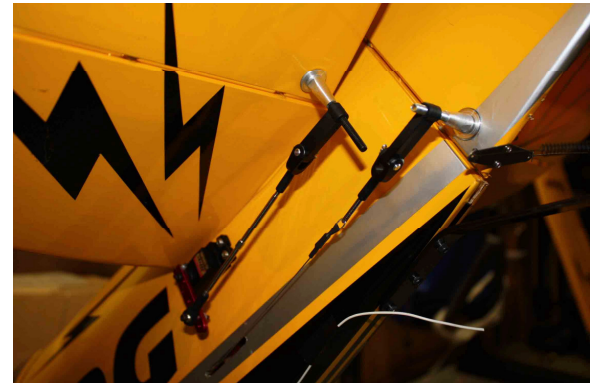
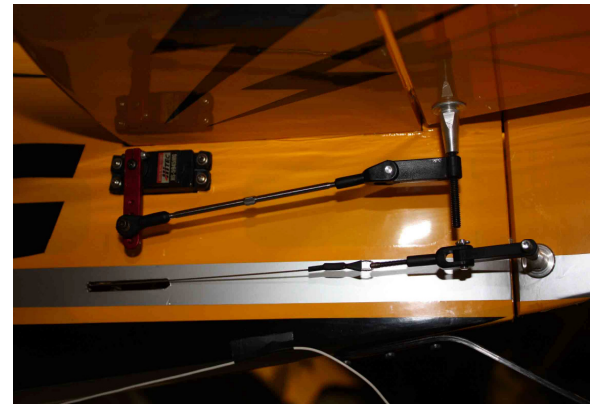
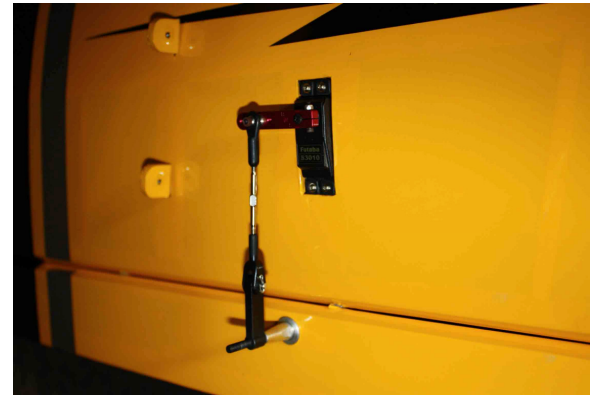
- ❑ What you will need in this chapter:
 - ✓ The entire airframe
 - ✓ Six H9 titanium push rods
 - ✓ Six sets of Dubro control horn assemblies
 - ✓ One Dubro pull-pull system
 - ✓ Six HD Dubro ball links
 - ✓ One 20oz Du-bro fuel tank

Not Provided:

- ✓ Four 70oz or better servos for ailerons
 - ✓ Two 100oz or better servos for elevators
 - ✓ One servo for rudder at least 100oz
 - ✓ One throttle servo 70oz or better
 - ✓ Six 1” servo arms
 - ✓ One 3” rudder servo arm
 - ✓ One Fuel dot or other fueling device
 - ✓ Some foam rubber for mounting receiver, ignition module, and fuel tank
- ❑ Install 70oz or better servos for the ailerons in the servo trays located in the bottom of the wings with the output shaft of the servo oriented towards the front of the aircraft.
- ❑ Install 100oz or better servos for the elevators in the servo trays located in the back of the fuse with the output shaft of the servo oriented towards the front of the aircraft.
- ❑ Install one 100oz or better servo for the rudder in the servo tray inside the fuselage.
- ❑ Install your throttle and or choke servos in the forward bays provided.
- ❑ Make sure your elevator servos are centered and mount your servo arms at 90 degrees to the hinge line.
- ❑ Screw in your two HD ball links onto the counterclockwise ends of the 4” 9 push rods and screw the other end into the control horn. Ensure everything is still centered. Don’t forget to add locknuts to the 4/40 bolts attaching the ball link to the arm.



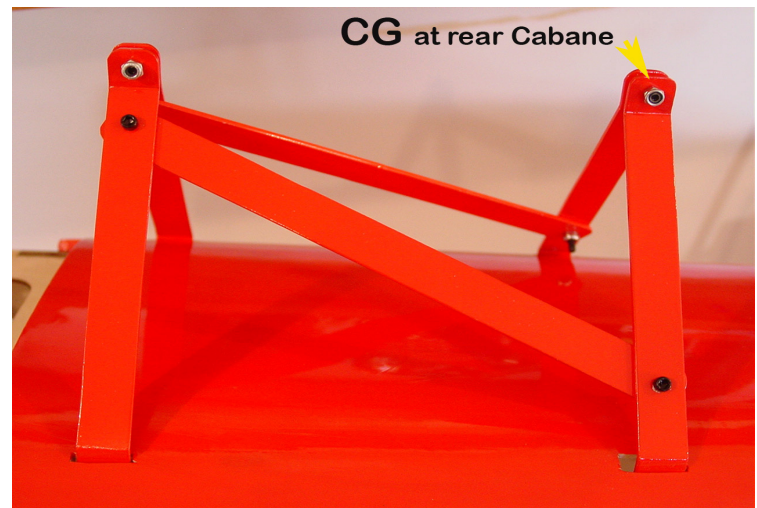
- Ensure aileron servos are centered and mount your arms parallel to the hinge line.
- Screw in four HD ball links onto the counterclockwise ends of the 2" H9 push rods and screw the other end into the control horn. Ensure everything is still centered. Don't forget to add locknuts to the 4/40 bolts attaching the ball links to the arms.
- Ensure your rudder servo is centered and mount your rudder servo arm.
- Install your pull-pull cable your remaining pull-pull hardware. Cables should be not crossed to avoid any rubbing on the exits. It is normal for the non-pulling side of the cable to slacken a little when the rudder is deflected.
- Install your tiller springs you set aside earlier.
- Assemble the fuel tank according to the directions provided on the package. You will need to decide whether you want a two or three-line setup. With a two-line setup you will need an additional "T" fitting in the carburetor line that connects to your fuel dot or fueling device. Make sure you use Tygon fuel tubing inside the tank for the clunk as well.
- Install the fuel tank on the fuel tank deck using zip-ties or hook and latch (Velcro) straps. Place a loop in the vent line over the top of the tank to prevent fuel loss during flight and improve flight times. Take small zip-ties or fuel line clamps and fasten to all the points where the fuels lines connect.
- Mount your battery switches in the side of the fuse. There are locations already built into the design.
- Install the fuel-filling device in a location of your choice. In this case, we put it on top just behind the rear cabane for a scale appearance.
- Install your throttle push rod. Again as mentioned earlier, we do not want metal-to-metal contact at the attachment point on the engine. Use a 4/40-rod with a 2/56 ball link for 4/40 rod to attach the push rod to the motor.
- Once satisfied with your throttle setup, mount the cowl using the five 4/40 bolts provided and attach the prop and spinner.
- Lets install the wings at this time and check our center of gravity (CG).



Now we're ready to check the CG and install your remaining hardware. The CG range is 7-1/2 to 7-3/4 inches back center of the top wing or dead center of the rear cabane with the wings mounted.

- ❑ Check CG at this time and place your batteries and remaining hardware in locations to attain the desired CG. If satisfied mount your remaining hardware.

Congratulations! You have just completed assembly of your Pitts. Now would be a good time to install the optional vinyl graphics included with your kit.



Tip# Optional step. Now would be a good time to seal all of your hinge gaps prior to installing your hardware. This can provide you with a better flying aircraft by increasing control surface performance and preventing possible flutter. Matching covering material can be ironed in place to fill any gaps on the bottom of your control surfaces.

Take approximately a one-inch strip of covering the length of your surface. Fold it in half while placing into the gap with the control surface fully deflected up and iron it in place. Check to make sure you still have full surface travel once you have completed (figure 78,79, and 80).



Chapter 9

Radio and Control Surface Setup

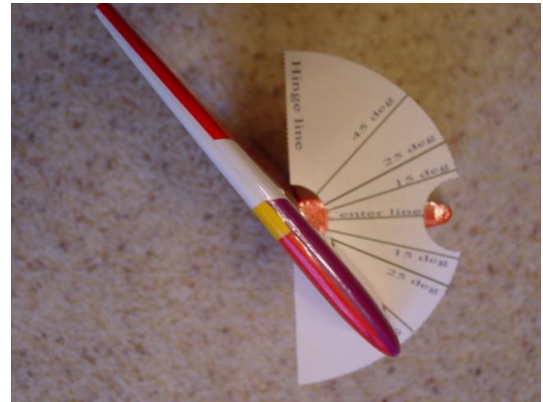
Now we are ready to setup your aircraft for flying. Included in this manual are templates for measuring surface throw you may use if desired. We recommend that you setup your aircraft on low rates for initial flights until you become familiar with the aircraft and its capabilities.

The recommended low rates for this aircraft are:

20 degrees for ailerons with 0 to 20% expo
 15 degrees for elevators with 0 to 20% expo
 25 degrees for rudder with 0 to 20% expo

The recommended high rates for this aircraft are:

30 degrees for ailerons with 40 to 70% expo
 40 to 45 degrees for elevators with 40 to 70% expo
 As far as it will go without touching the elevators for the rudder
 with 30 to 70% expo
or as much as you can stand for hardcore flyers.



CG Range is 7-1/2 to 7-3/4 inches back center of the top wing or dead center of the rear cabane.

Place an “X” to ensure task completion:

- What you will need in this chapter:
 - ✓ Completed airframe
 - ✓ Radio
 - ✓ Throw templates or meter
- Cut out the templates for surface throw. These should be located on the last page of this manual.
- Tape each one in place using the horizontal line as a reference point to each stabilizer at the counter balance and at the inside of the wings where the ailerons meet.
- Set your throws accordingly. Double check to make sure nothing is binding to include the throttle and or choke servos and their linkages. Also, ensure all surfaces and controls are moving in the proper directions.

Chapter 10

Final Inspection and Pre-Flight

Welcome to the final chapter prior to your maiden flight. We hope you have enjoyed building your PAU Pitts Bulldog and Challenger.

Lets go over the airframe and perform a pre-flight to make sure everything is in order.

- Inspect the airframe for any visible damage and loose covering that may have occurred during the build.
- Inspect the main landing gear and tail wheel assembly. Ensure all mounting hardware and collars are fastened properly.
- Inspect your motor installation and cowl to ensure all bolts are tight and the muffler is firmly mounted in place. Check the motor and muffler for possible contact with the cowl. Inspect ignition module and spark plug wire for proper mounting. Check propeller and spinner to ensure they are both secure.
- Inspect the inside of the fuselage to ensure your batteries, switches, regulators (if equipped), fuel tank and lines are securely fastened. Check wing and strut bolts to ensure they are in place and secured.
- Inspect all control surfaces and control surface hardware. Gently tug on each surface to make sure the hinges are properly bonded. Check the four 4/40 horizontal stabilizer fasteners and ensure they're in place and secured.
- Check all servos for mounting screws. Check servo arm mounting screws and inspect that the 4/40 links have been secured with lock nuts.
- Fill fuel tank and inspect for any leaks.
- Check your batteries in both your aircraft and radio to ensure they are fully charged
- Turn on radio to inspect all controls for binding, proper direction and throw while on high rates.
- Re-check CG. It should be anywhere from 7-1/2 to 7-3/4 inches back center of the top wing or dead center of the rear cabane.
- Secure aircraft using a buddy or hold down and start motor according to manufacturers guidelines. Don't forget to lower your throttle prior to ignition.
- Perform a proper range check with the motor running using your radio manufacturers instructions.
- Make sure you go back to low rates for your maiden takeoff and enjoy!

This concludes your pre-flight checks. After your maiden flight, repeat these steps to perform a post flight to ensure nothing has loosened. It's always a good habit to use a checklist like this one to go over your aircraft prior to the first flight of the day.

Flying!

We believe you will find this aircraft finest Pitts you've ever flown. We are very excited to be able to offer both the Challenger and Bulldog with outstanding flight performance. If you have a fondness for aerobatic biplanes especially ones made famous by their pilots, we have just what you're looking for.

Always taxi your Pitts in grass with up elevator. Being a shorter airframe, taller grass may aid in a nose over. Also be mindful of the CG. While it will fly fine a little tail heavy, inverted in a tail heavy condition could be a handful. Rollers, harriers are picture perfect and knife edge flight requires only the slightest of rudder input. The ailerons are very effective so plan on them being very responsive. Stalls are straightforward and gentle.



Every airplane has structural limits, and the larger the plane is, the more critical it is to understand and respect these limits. This is particularly true for 3D aerobatic planes, since by design these planes are lightweight, over powered, and have oversized control surfaces.

Pilots need to use proper throttle management, and avoid high speed when executing high stress maneuvers such as Walls, Parachutes, and Blenders. As a general rule, the throttle must be at idle position whenever the nose is pointed down (whether at 90 degrees or 45 degrees down line).

Planes must be inspected frequently, looking for any loosening screws, bolts and glue joints. Servos and linkages must be free of play or "slop", as this is a major cause of flutter (and crashes).

Understanding and applying these few safety and maintenance guidelines will help you get many enjoyable and rewarding flights with your Giant Scale Plane.

We hope this aircraft offers you many years of enjoyment. Thank you again for choosing PAU and look for exciting future products.

Additional products from PAU:

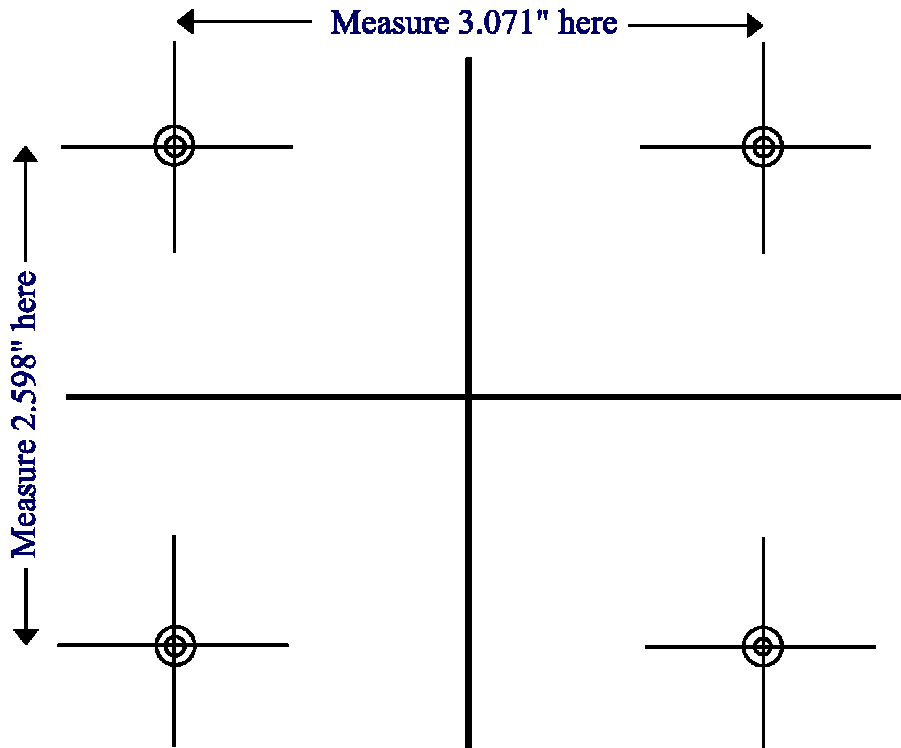
- 43% Edge 540.
- 36% Edge 540.
- 30% Edge III-D.
- 30% Extra 300sp
- 27% Pitts Challenger and Bulldog.
- 37% Ultimate.
- 60-90 sized Cap Maniac.
- Mini Yak 54 Electric, HOT ITEM!
- Electric Hydroplane.

A complete line of high performance laminated props

New! Aluminum Hardware sets that weigh next to nothing. Time to chuck your old stuff, its now obsolete! Something bigger this way comes! Stay tuned.

DA-50 Template

If printing from Adobe, turn off page scaling.



Throw Template

If printing from Adobe, turn off page scaling.
Cut out around all the dotted lines.

