

F9F COUGAR

**1/5.25 Scale Almost-Ready-To-Fly RC Jet
Assembly and operations manual**

Specifications F9F Cougar



Type : 1/5.25 Scale T.A.V.S ARF PRO
Length : 92.2": (2342mm)
Span : 84": (2238mm)
Weight : 28—38Lbs (13—18 Kg)
Engine : 22—32Lbs (10—14 Kg) trust
Radio : 12 Channel (10—12 servo's)

The Grumman F9F "Cougar" by Skymaster

Thank you very much for purchasing our Skymaster ARF PRO COUGAR. Please note that the photos in this instruction manual show certain views from the prototypes. Some instructions in this manual was taken from Panther and is identical as Cougar. Some modifications and upgrades might have taken place by the release of the model. We have tried to produce a very scale replica of this classic jet. This manual describes the assembling of "PRO" model. Speed brake, Landing gear and doors are factory installed. Before you start building and setting-up your aircraft, please make sure you have read this instruction manual, and understood it. If you have any questions, please don't hesitate to contact us. Below are the contact details:

Office Taiwan:

No.9.39 Lane,Yuag-Chang 2nd Street, Ren-Wu Hsiang, Kaohsiung Hsien, 814, Taiwan, R.O.C.

TEL: +886 9 3299 7923

FAX: + 886 7373 1215

<http://www.skymasterjet.com>

Sales : skymasterjets@263.net

Technical support : morne.m@pixie.co.za



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INTRODUCTION

Thank you for purchasing Skymaster arf pro Cougar! We have put a lot of effort and time into this model. We at Skymaster strive to be a market leader in the ARF—jet market. We were the first company to produce ARF—jets in the world and we would like to continue being amongst the best. Although we have made every effort that this model was fit for shipping, we would like you to inspect the contents and call your nearest dealer immediately if any defects or missing parts are spotted! This manual will allow you to duplicate the factory prototypes.

LIABILITY

You have acquired a kit, which can be assembled into a fully working R/C model when fitted out with suitable accessories, as described in the instruction manual with the kit. However, as manufacturers, we at Skymaster are not in a position to influence the way you build and operate your model, and we have no control over the methods you use to install, operate and maintain the radio control system components. For this reason we are obliged to deny all liability for loss, damage or costs which are incurred due to the incompetent or incorrect application and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by binding law, the obligation of the Skymaster company to pay compensation is excluded, regardless of the legal argument employed. This applies to personal injury, death, damage to buildings, loss of turnover and business, interruption of business or other direct and indirect consequent damages. In all circumstances our total liability is limited to the amount which you actually paid for this model.

BY OPERATING THIS MODEL YOU ASSUME FULL RESPONSIBILITY FOR YOUR ACTIONS.

It is important to understand that Skymaster, is unable to monitor whether you follow the instructions contained in this instruction manual regarding the construction, operation and maintenance of the aircraft, nor whether you install and use the radio control system correctly. For this reason we at Skymaster are unable to guarantee, or provide, a contractual agreement with any individual or company that the model you have made will function correctly and safely. You, as operator of the model, must rely upon your own expertise and judgment in acquiring and operating this model.

WARNING

This 'jet' aircraft is a high-end product and can create an enormous risk for both pilot and spectators, if not handled with care, and used according to the instructions. Make sure that you operate your Jet according to the AMA rules, or those laws and regulations governing model flying in the country of use. The engine, landing gear, servos, linkages and control surfaces have to be attached properly. Please use only the recommended servos and accessories. Make sure that the 'Centre of Gravity' is located in the recommended place. Use the nose heavy end of the CG range for your first flights. A tail heavy plane can be an enormous danger for you and all spectators. Fix any weights, and heavy items like batteries, very securely into the plane. Make sure that the plane is secured properly when you start the engine. Have a helper hold your plane from the nose before you start the engine. Make sure that all spectators are far behind, or far in front, of the aircraft when running up the engine. Make sure that you range check your R/C system thoroughly before the 1st flight. It is absolutely necessary to range check your complete R/C installation first WITHOUT the engine running. Leave the transmitter antenna retracted, and check the distance you can walk before 'fail-safe' occurs. Then start the engine, run at about half throttle and repeat this range check. Make sure that there is no range reduction before 'fail-safe' occurs. If the range with engine running is less then with the engine off, please DON'T FLY at that time. Make sure that your wing spar tube is not damaged. Check that the anti-rotation dowels for the wings are not loose. Check that the wing, stab, fin and nose retaining bolts are tight. Please don't ignore our warnings, or those provided by other manufacturers. They refer to things and processes which, if ignored, could result in permanent damage or fatal injury. Secure the plane before starting engine.



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ARF Paint

The color finish on your Skymaster Cougar arf pro model was applied out of the mould. We have used only the highest standard automotive paints to finish your model.

Should you damage the finish, Skymaster stock the color paint and hardener required for the repair. A good automotive spray painter should also be able to mix and supply the correct samples for repair.

If you have no experience in the use of these paints, it will be best to seek assistance.

Do not leave your model unprotected in the sun! always cover your model or park it in the shade. Extreme temperatures will damage the paint!

Finishing Your All White Panther ARF PRO

It is always best to fully assemble the model before painting. By doing so no damage or glue prints will ruin the paint.

The all white model will have some release agent on the surfaces.

Use #1000 wet and dry paper to sand the entire model. Mould lines can be sanded and filled using normal automotive fillers.

Please be extra careful when sanding near the hinge line! The hinges can easily be damaged. When masking and painting please make sure the control surfaces are not bend past 90—180 degrees extensively. This will cause the hinges to crack and may cause flutter.

The rudder and clear canopy are not installed. It is best to install these components after painting was done.



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HANDLING & TRANSPORTING

Composite models are very light but strong. These characteristics do have a down side! It is brittle. Take care when handling your model. DO NOT ATTEMPT TO PICK UP AN FULLY FUELED MODEL BY THE LEADING EDGE BY YOURSELF! The leading edges will crack and delaminate. Full size jets have specially marked access points for the hooks of cranes!

Inspect your model before and after a rough landing. Make sure all parts are safe and sound.

Inspect model before and after transport. A sudden stop can easily cause an unnoticed dent!

The wings and tails are very flight worthy structures. They are light and extremely strong , however, they will dent if mishandled. Always support these structures on clean soft foam rubber.

LIVE HINGE

Skymaster utilize this system of hinging control surfaces because it is a very strong hinge system and is accomplished at the factory.

Occasionally, because of climatic changes, the bottom surfaces may “catch” or interfere with control travel surface actuation. Should this happen, use a fine abrasive strip to further bevel the L.E. of the control surface.

CAUTIONS: Do not apply any primer or paint to the underside of the main surface trailing edge.

Prior to each flight, check that the ailerons and elevators actuate properly, up and down.

Inspect the live hinges on a regular basis. If some cracks occur please repair asap with special hinge tape available from Skymaster or its dealers.



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Tools and Adhesives

Tools etc:

This is a fairly quick and easy plane to build, for a jet model, not requiring difficult techniques or special equipment, but even the building of Skymaster aircraft requires some suitable tools! You will probably have all these tools in your workshop anyway, but if not, they are available in all good hobby shops, or hardware stores like "Home Depot" or similar.

1. Sharp knife (X-Acto or similar)
2. Allen key set (**metric**) 2.5mm, 3mm & 5mm
3. Sharp scissors, curved type for canopy
4. Pliers (various types)
5. Wrenches (**metric**)
6. Slotted and Phillips screwdrivers (various sizes)
7. Drills of various sizes
8. Battery drill and Dremel tool (or similar) with cutting discs, sanding tools and mills
9. Sandpaper (various grits), and/or Permagrit sanding tools (high quality - recommended)
10. Carpet, bubble wrap or soft cloth to cover your work bench (most important !)
11. Car wax polish (clear)
12. Paper masking tape
13. Denaturised alcohol, Acetone, or similar (for cleaning joints before gluing)

Adhesives:

Not all types of glues are suited to working with composite parts.

Here is a selection of what we normally use, and what we can truly recommend. Please don't use inferior quality glues - you will end up with an inferior quality plane, that is not so strong or safe. Jet models require good gluing techniques, due to the higher flying speeds, and hence higher loads on many of the joints. We highly recommend that you use a slow cured epoxy for gluing highly stressed joints, like the hinges and control horns, into position and the most commonly used is 'Aeropoxy' (Bob Violett Models, USA). The self-mixing nozzles make it easy to apply exactly the required amount, in exactly the right place, and it will not run or flow onto places where you don't want it! It takes about 1 - 2 hours to start to harden so it also gives plenty of time for accurate assembly. Finally it gives a superb bond on all fibreglass and wood surfaces. Of course there are many similar glues available, and you can use your favorite type.



1. CA glue 'Thin' and 'Thick' types. We recommend ZAP, as this is a very high quality.
2. ZAP-O or Plasti-ZAP, odourless (for gluing the clear canopy)
3. 30 minute epoxy (stressed joints must be glued with 30 min and NOT 5 min epoxy).
4. Aeropoxy/Loctite Hysol 3462 or equivalent (optional, but highly recommended)
5. Epoxy laminating resin (12 - 24 hr cure) with hardener.
6. Milled glass fibre, for adding to slow epoxy for stronger joints.
7. Micro-balloons, for adding to epoxy for lightweight filling.
8. Thread-locking compound (Loctite, or equivalent)

At Skymaster we try our best to offer you a high quality kit, with outstanding value-for money, and as complete as possible. However, if you feel that some additional or different hardware should be included, please feel free to let us know.



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HEALTH

Use a mask (available at auto paint stores) to protect from inhaling the glass or carbon fiber dust. Use this mask whenever you are sanding or cutting fiberglass or carbon fiber materials. Use a charcoal filter paint mask (available at auto paint supply stores) when spraying any primer or paint. Spray out of doors or in a properly vented spray booth. Use safety glasses any time rotary tools, such as Dremel cut-off disc or Perma-Grit cutters, are being used.

GENERAL ASSEMBLY TECHNIQUES

We recommend to wax the model before assembling. This will help protect the finish from an epoxy finger print. Wax will not help for CA glues!

Extra glue, extra paint, extra resin will add up to a heavy model. Plan before you glue!

The glass cloth side of parts to glue, should be sanded with #80 grit paper for best glue adhesion.

Support the fuselage on foam pads.

Skymaster makes every attempt to insure that the parts fit. However, due to manufacturing tolerances, some parts may fit a little tight. Always trial fit parts and adjust if needed.

Only use high quality adhesives such as the ZAP products from Pacer Technology.

For extremely high stress areas we recommend "Aeropoxy." It is the strongest and best gripping adhesive we have found.

If fuel or grease are on the surface, first clean with acetone or thinners.

Clean off all excess glue—excess glue is excess weight.

Always check the outside skin of the model to look for any glue residue and remove it with Acetone before it cures. "Aeropoxy" is tough to remove once it has thoroughly cured.



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Radio equipment

Failure to use the recommended servos, output arms, extensions, and hardware may result in a loss of control!

Throughout this manual we make use of various types of servos and radio equipment! We have used JR equipment during the installation process. If you make use of another manufacturer, please use equipment with similar specifications!

The Cougar will require extension leads! Please use high quality extension leads. Make use of ceramic non ferrite cores if leads exceeds 1 meter.

The trend nowadays is to use dual battery management systems and dual RX equipment. With the introduction of 2.4 GHZ even quad RX systems are considered as normal for a jet model.

Always center and install the correct output arms while on the bench, once the servo is in the aircraft access to the servo arm screw is sometimes limited. The JR Matchbox makes this task very easy. Some power boxes also include this servo matching function.

Do not save any money when buying radio equipment. The price of servo's are far from the price of replacing the entire model.

REMEMBER: The best equipment is only as good as the weakest link. Ask yourself if this servo or link or lead etc is worthy of my trust to protect my very large investment...

Accessories

The full size Cougar main gear doors are always closed. Accept when retracting. A special air or electronic sequencer is needed for this option.

The Cougar can be fitted with servo's in the range of 10—15Kg torque. I have used servo's I have in stock.

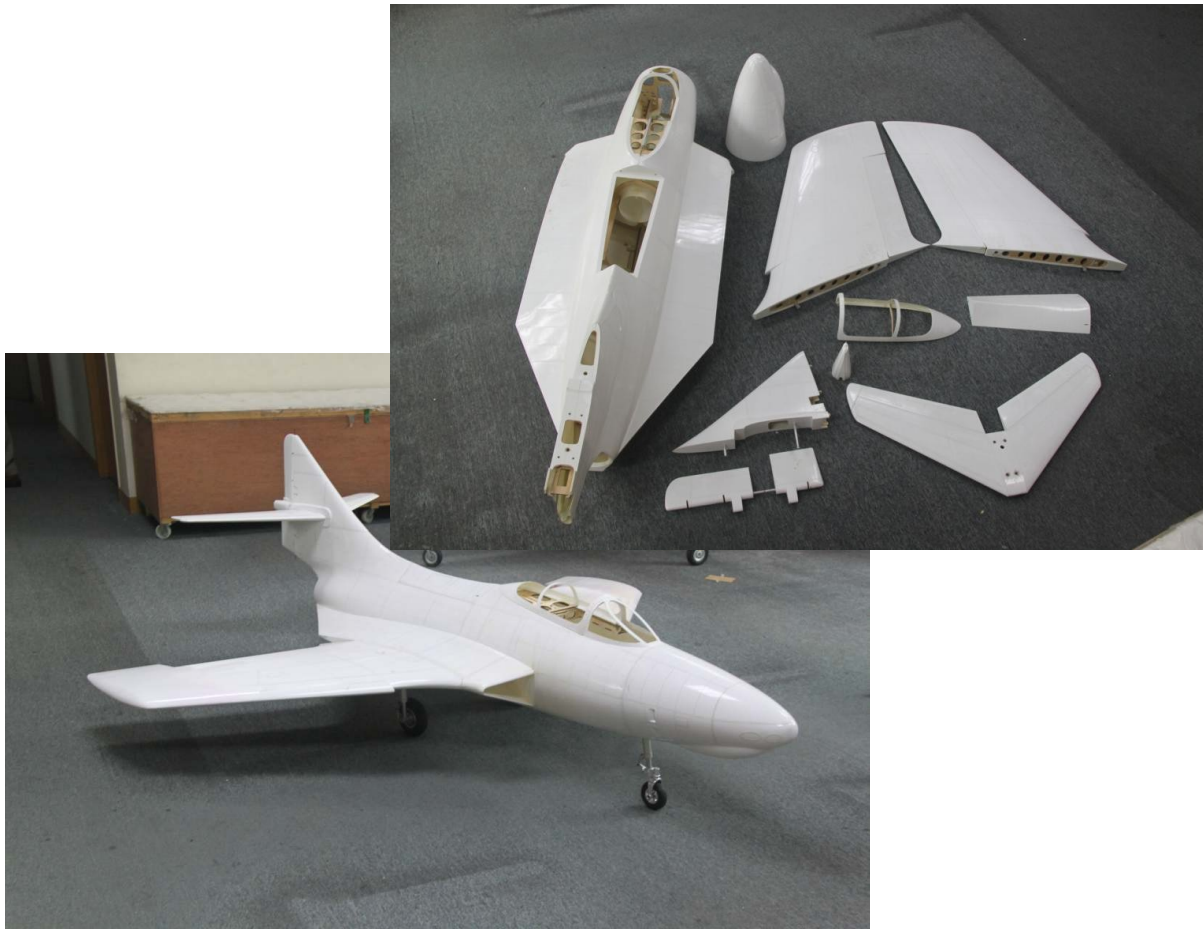
1. 2 DS8511 servo's for the elevator.
2. 1 DS8711 for rudder.
3. 2 DS8911 servo's for ailerons
4. 2 DS8511 servo's for flaps
5. 1 JR8511 steering servo.
6. 3 Standard JR577servos for Landing Gear, Door and Wheel Brake valves or check next line.
7. 1 Airpower EV5U valve + 1 x EV2U valve for landing gear + doors + brakes
8. 1 EV2U valve for speed brake
9. 1 JR Matchbox for flaps or Powerbox Royal with build in matchbox function.
10. Pneumatic support set for landing gear (air tubing, valves, Tee's, fill valves, air tanks etc.)
11. Turbine motor, with thrust range between 10kg and 14kg, with ECU, fuel pump, battery and solenoid valves, mounting strap etc. One of the common choices is the JetCat P140rx.
12. Fuel tubing, Hopper tank (or BVM UAT), festo fittings, fuel filters, fuel tube clamps etc.
13. Cable ties in various lengths. Cable management parts, Aluminum tape, safety clips etc.

***Did you understand everything in this manual completely?
Then, and only then, let's start assembling your Cougar.
If not, please read it again before you start the assembly.***

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Kit Contents

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OPTIONAL PARTS

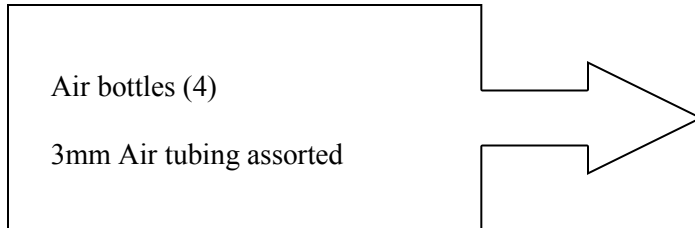


Photo 1



Photo 2



Photo 3

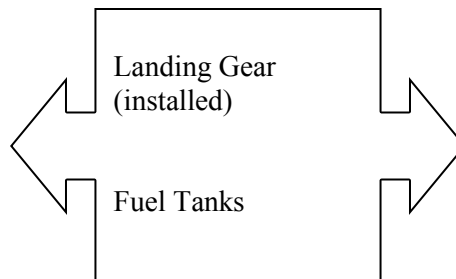


Photo 4



Photo 5

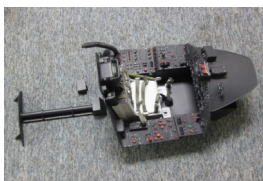
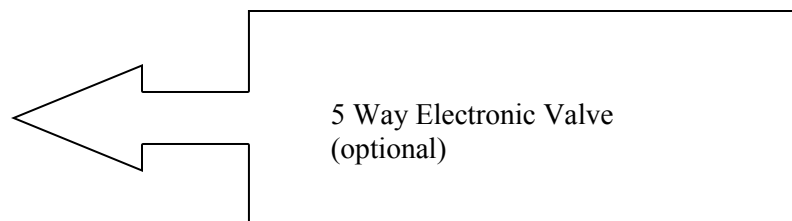


Photo 6

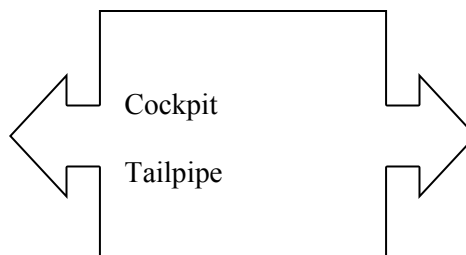


Photo 7



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Photo 8

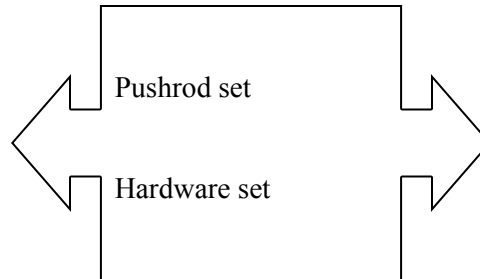


Photo 9



Landing Gear Oil Set



Photo 10



Photo 11

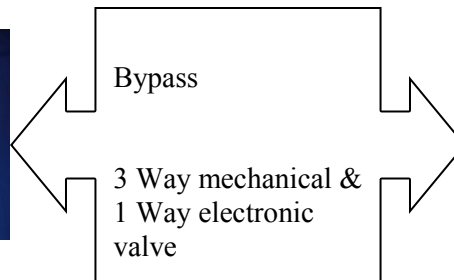
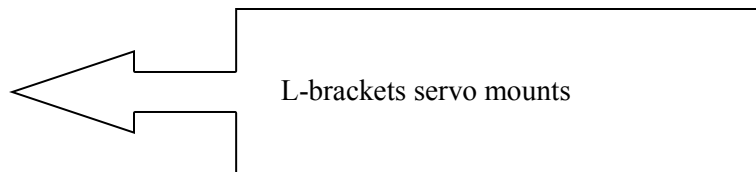


Photo 12



Photo 13



L-brackets servo mounts



Photo 14

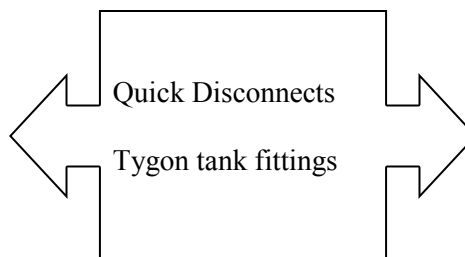


Photo 15

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CONTROL LINKAGES



Photo 16

Flaps :	85 mm	(2)
Aileron :	80 mm	(2)
Elevator :	80mm	(2)
Rudder :	55 mm	(2)
Steering:	55mm	(1)

WINGS

NOTE: Make sure to have some sort of protective foam on the work bench. This will protect the paint surface from unwanted dents. Assemble both wings simultaneously. Mark ✓ each step.

- ☐ Remove the wings from the protection cover.
- ☐ Remove the masking tape holding control surfaces.
- ☐ Check for free movement of ailerons. Trim or sand if needed.
- ☐ Remove the servo covers.
- ☐ Locate the L-Brackets. Fit to 8911 servos. Fit plastic horn to servo. Centre servo horn.
- ☐ Cut "U" shape 1/8" ply to fit servo.(only if servo mounts are not installed)
- ☐ Make sure enough ply around servo to glue to upper skin.
- ☐ Screw servo in position.
- ☐ Glue ply mount to upper skin with aeropoxy.

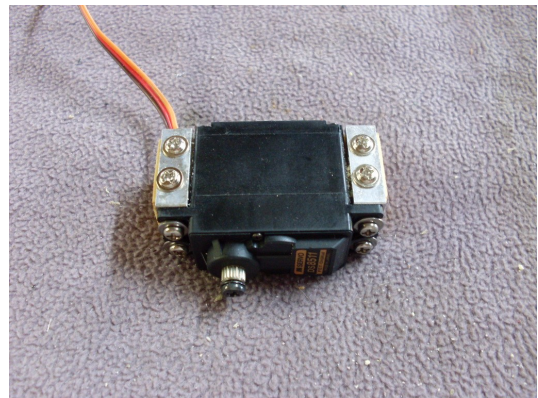


Photo 17



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Photo 18

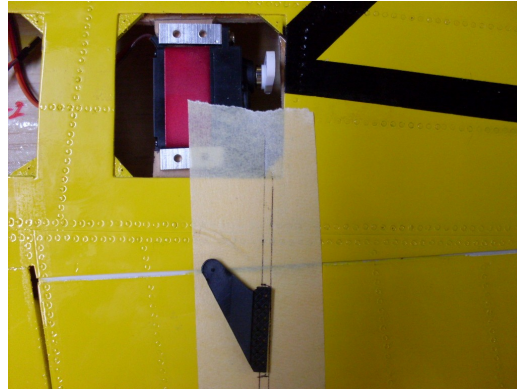


Photo 19

- ☐ Secure extension wire. Use safety clips on joint.
- ☐ Mask off area for aileron horn.
- ☐ Draw a line perpendicular to hinge line.
- ☐ Mark off area for aileron horn.

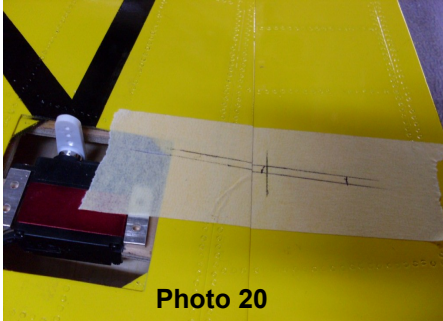


Photo 20

- ☐ Draw a line on hinge line when aileron is in down position. This will be the front of horn location.
- ☐ Use dremel tool to cut slot. NB Make sure the horn is supported by balsa inside the aileron. If no wood inside aileron, cut slot in LE spar of aileron (just above hinge line) and insert 10 x 10 balsa stick. CA in position.

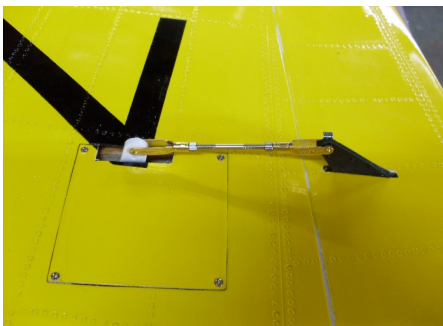


Photo 21

- ☐ Glue horn in place.
- ☐ Fit pushrod.
- ☐ Mark location of horn in cover.
- ☐ Cut slot to clear horn and pushrod.
- ☐ Fit servo cover
- ☐ Fit pushrod
- ☐ Check operation.



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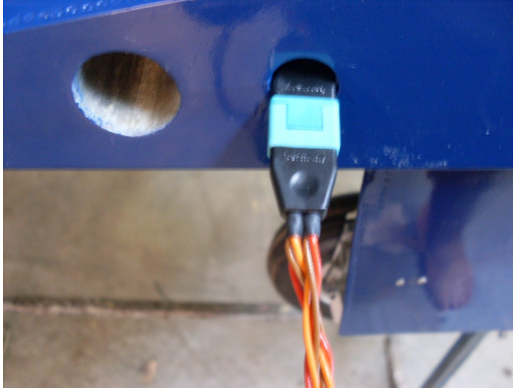


Photo 22



Photo 23

- ☐ Repeat for other wing. Make sure the servos are mirror image.
- ☐ Trial fit wings to fuselage and mark location of hole for servo wires.
- ☐ NOTE : Use your own favorite connection between wings and fuselage. MPX plugs work well and make joining and removing wings easy.
- ☐ This complete this section.



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STABILIZER

NOTE: Make sure to have some sort of protective foam on the work bench. This will protect the paint surface from unwanted dents. Mark ✓ each step.

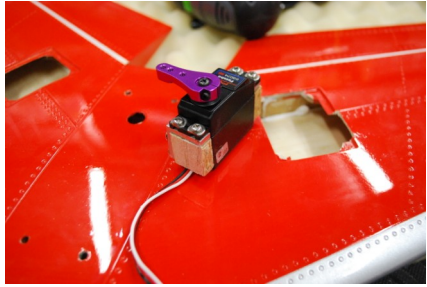


Photo 24



Photo 25

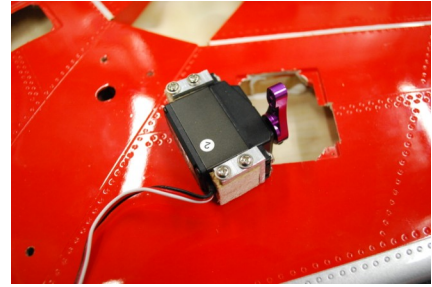


Photo 26

- ☐ Fit 4 x L-brackets to 2 x 8511 servos. Servo's mirror image of each other.
- ☐ Fit servo horns and adjust travel and sub-trim with TX.
- ☐ Fit mounting blocks to L-brackets. Drill pilot holes. This will stop the wood cracking.
- ☐ Feed wire through holes and glue mounting blocks to skin. Make sure the skin was rough. Use #80 grit to scratch the skin. (NOTE: I wanted to fit STD size servos. I had to glass the skin for extra strength. If using smaller servos—glue a ply base plate to skin. Then glue servo mount blocks to ply.
- ☐ Mask area for elevator horn. Draw a line perpendicular across hinge line.
- ☐ Mark location of horns. (Note shape of horns). Dremel slot for horns.
- ☐ Glue horns using 5 min epoxy. (Note—make sure balsa support inside elevator).
- ☐ Fit pushrods to servo horns and elevator horn. Repeat for other elevator.

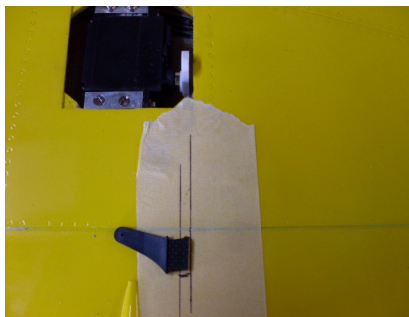


Photo 27

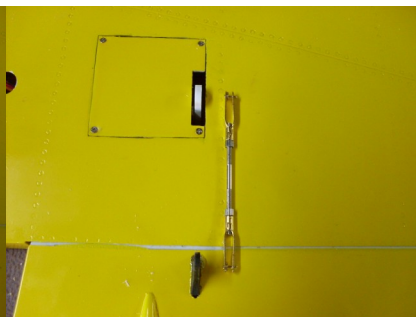


Photo 28

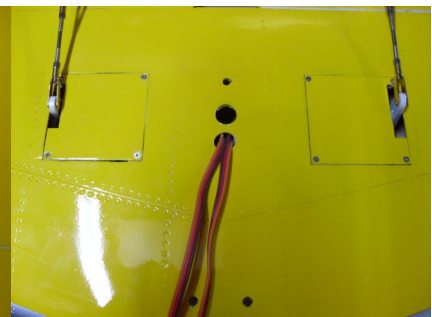


Photo 29

- ☐ Cut hole for servo wire in skin. Cut slot in servo covers and secure.



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FIN STAB & RUDDER

NOTE: Make sure to have some sort of protective foam on the work bench. This will protect the paint surface from unwanted dents. Mark ✓ each step.

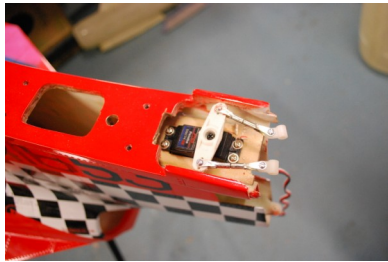


Photo 30

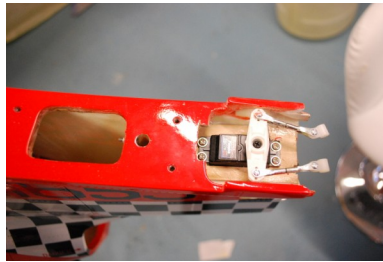


Photo 31

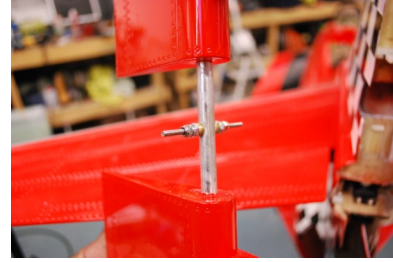


Photo 32

- ☐ Fit DS8711 servo to mount and drill 4 pilot holes. Make sure servo is centered before you screw it in position.
- ☐ Fit horn and check operation.
- ☐ Fit extension lead to rudder servo.
- ☐ Feed the 2 elevator cables through hole in fin root and bolt stab in position. Use 3 cap screws as supplied.
- ☐ Trial fit the rudder fearing and dremel 1/2 circle to clear rudder post.
- ☐ Fit fin and tighten the clamps.
- ☐ Make up rudder belcrank. Use 50mm 3mm threaded rod and stick it through hole in rudder post. Use locktide to secure rod with bolt on either side of post.
- ☐ Now fit the 2 plastic horns at each end.



Photo 33

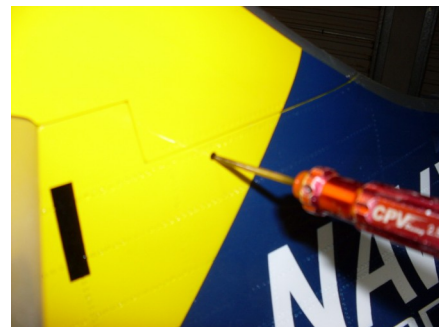


Photo 34



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Photo 35

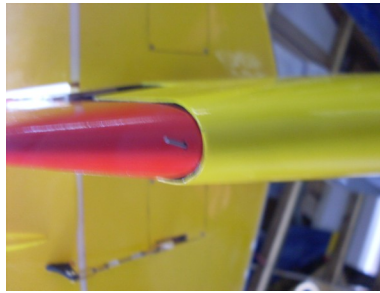


Photo 36

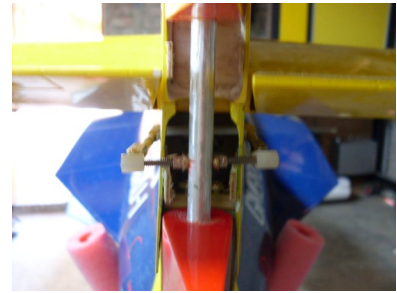


Photo 37

NOTE: This shows the second option with the rudder pushrods on outside of fuselage.

- ☐ Trial fit rudder to fin. Check clearance for belcrank.
- ☐ The rudder hinge is 2 pieces of piano wire. One piece from top and other piece from bottom.
- ☐ NOTE : (I have found that on my kit to much slop in hole for piano wire. I made a bush for each hinge)
- ☐ Slide the piano wire into place. Once in place use clear tape to prevent wire from falling out.
- ☐ Trial fit fearing and mark location on belcrank exit.
- ☐ Cut holes to clear belcrank;

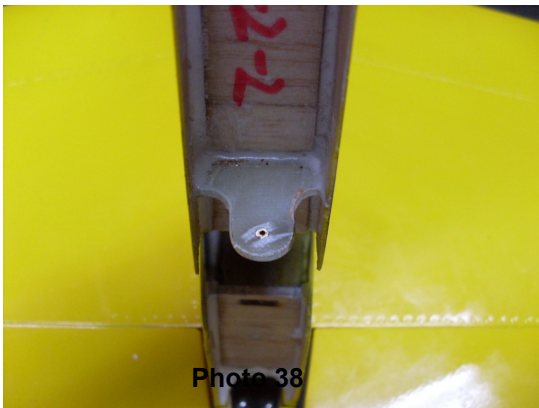


Photo 38

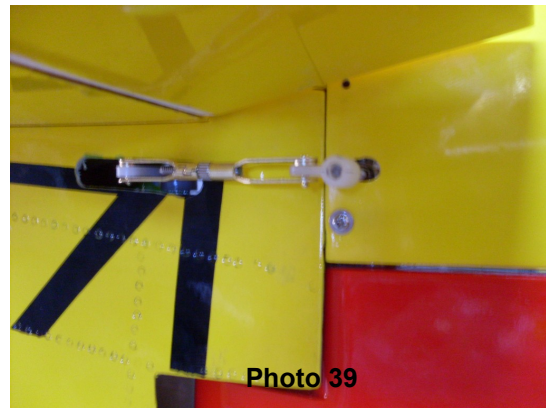


Photo 39

- ☐ When happy secure fearing with 4 screws.
- ☐ This complete this section.



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FUSELAGE

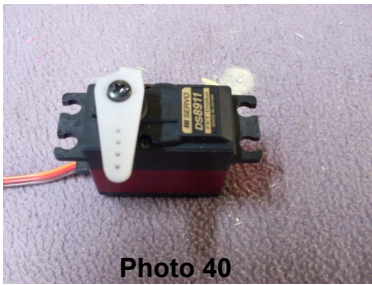


Photo 40

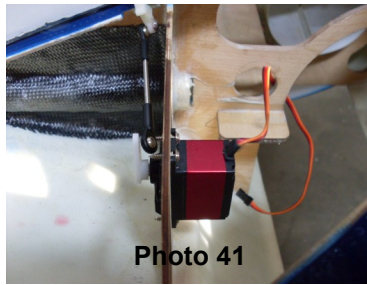


Photo 41



Photo 42

- ☐ Go through all bolts. Undo and locktite in position.
- ☐ Centre a DS8911 servo and install long control horn.
- ☐ Cut the web on servo lug for flush fit.
- ☐ Fit servo into mount with horn facing down and centered.
- ☐ Make pushrod using ball links.
- ☐ Bolt pushrod with 2mm bolts and secure with locktite.



Photo 43

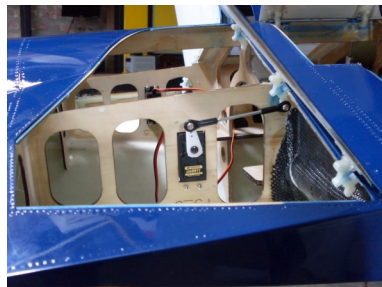


Photo 44



Photo 45

- ☐ Check operation of flaps. Adjust pushrod length if need.
- ☐ Repeat for other speed board.
- ☐ Install JR DS8511 steering servo and centre servo. 4 x 3mm bolts and lock nuts.

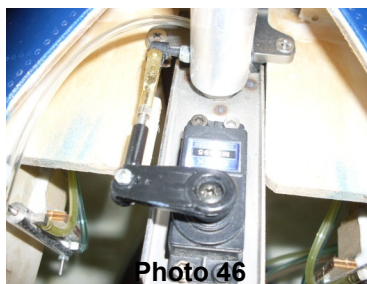


Photo 46



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TAIL PIPE

- ☐ Drill holes in mounting lugs of tail pipe.
- ☐ Make 90 degree bend in each mounting lug.
- ☐ Slide tail pipe through hatch into position.
- ☐ Silicon belmouth to pipe.
- ☐ Install bottom bypass and check fit to inlet duct and pipe.
- ☐ Trim bypass to clear former if needed. Drill hole in bypass and fit tail pipe lugs to bypass and turbine rail.
- ☐ Glue bellmouth with silicon glue.



Photo 47

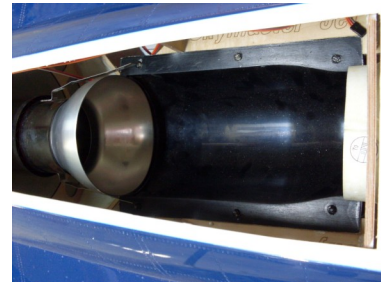


Photo 48

FUEL CELL

- ☐ Rinse the fuel tank and check for leaks.
- ☐ Make up fuel line clunk. Make sure clunk moves freely and reaches all corners of inside of tank.
- ☐ Fit to tank. Mark pipes for "inlet" and "outlet".
- ☐ NOTE: Some tygon tubing hardens after a year or so. I use Robert XL tygon.
- ☐ Plumb tanks using diagram on next page.
- ☐ Fill tanks and check for leaks.
- ☐ Drain tanks with fuel pump and check no air bubbles in system until last drop is drained. A good plumbing will secure good turbine operation..



Photo 49



Photo 50



Photo 51



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FUEL CELL DIAGRAM

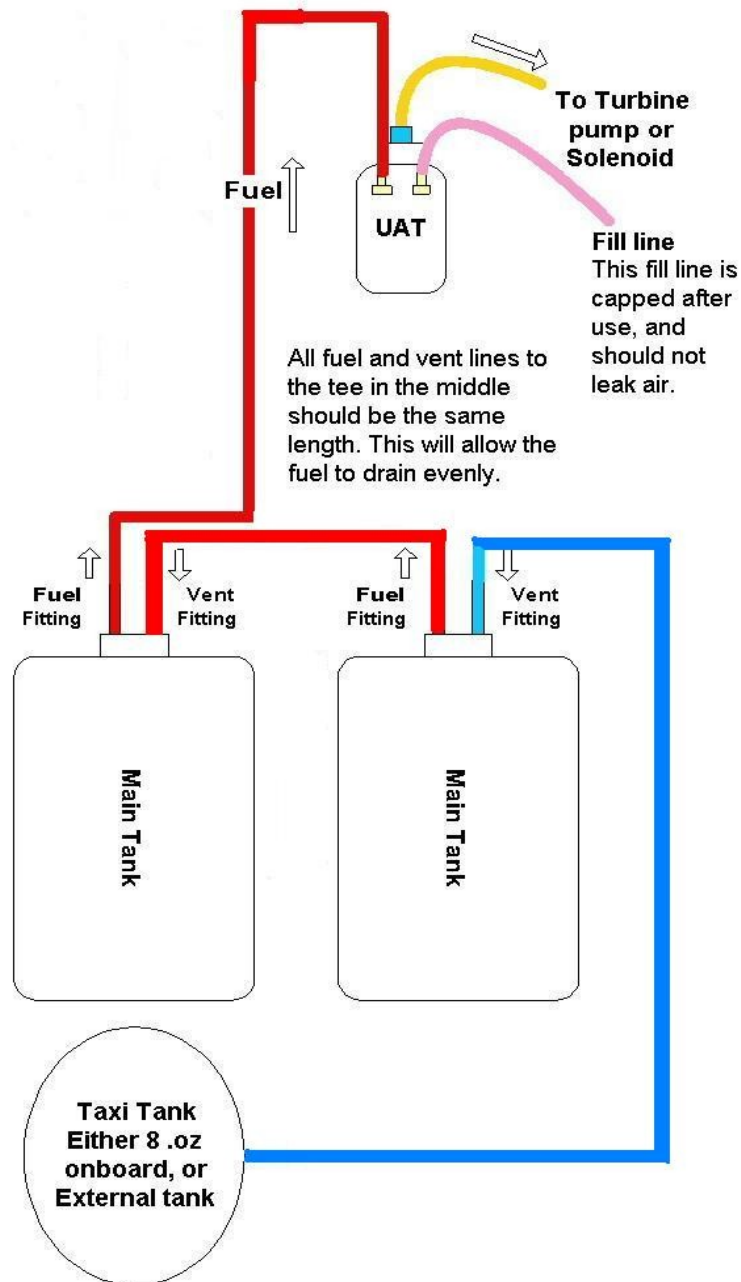


Photo 52



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AIR SYSTEM There are 2 options available for the air system: Mechanical or Electronic. For mechanical you will need 4 x 2 way and 1 x 1way valve with 5 servos and sequencer. For electronic you will need 1 x EV5U and 2 x EV2U.



Photo 53



Photo 54

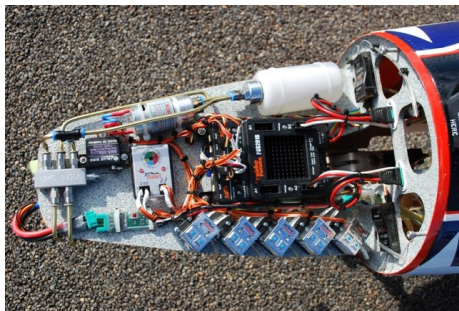


Photo 55

- ☐ Most of the plumbing are factory done.
- ☐ Glue the 4 air tanks with silicon.
- ☐ 1 tank for LG & Doors. 1 tank for brake. 1 tank for Speed brake. 1 tank for sliding canopy.
- ☐ Fit the 4 filler valves into firewall for easy filling.
- ☐ T—LG pipes together and fit to EV5U. T doors together and fit to EVU5. Fit brake to EVU5.
- ☐ Secure sliding canopy actuator to 2way valve.
- ☐ T-speed brake and fit to 2 way valve.
- ☐ Secure all valves on accessory tray. I have mount the EV5U on top and 2 way valves on bottom of tray.
- ☐ The air system will consist of :

Air up, Air down retracts (2)
Air up, Air down doors (2)
Air out brakes (1)
Air up, Air down speed brake (2)
Air in Air out canopy (2)
Air supply (4)
Total of 13 pipes

- ☐ Air leaks can damage your model! Please do a thorough check for air leaks. Make sure the system can hold pressure for at least an hour in the up and down position.

- ☐ Do not rush this installation.



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- For scale functions on L/G you will require additional 2 way electronic valves. The main doors in the fuselage will stay close before and after retraction. This can easily be programmed together with EV5U.



Photo 56 2 way

AIR DIAGRAM

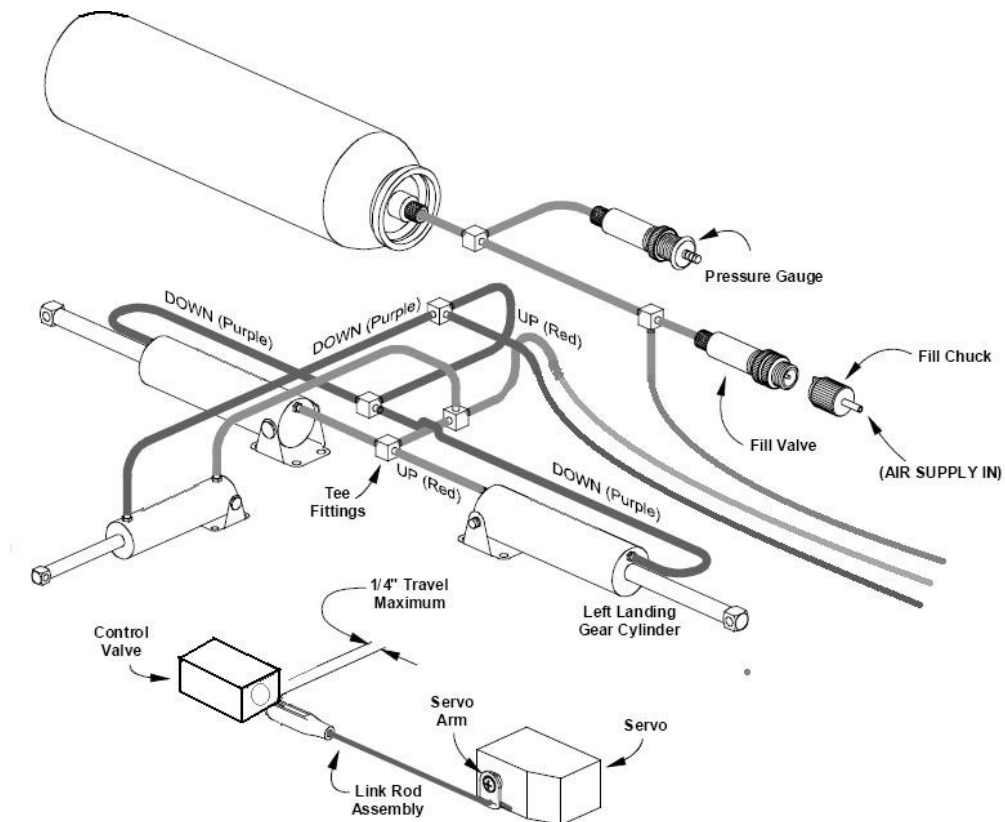


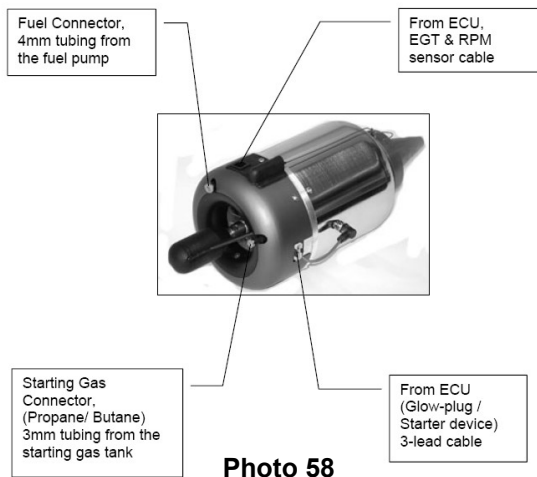
Photo 57 Diagram for retracts



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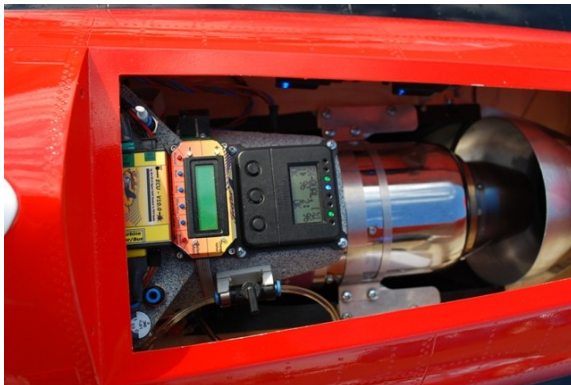
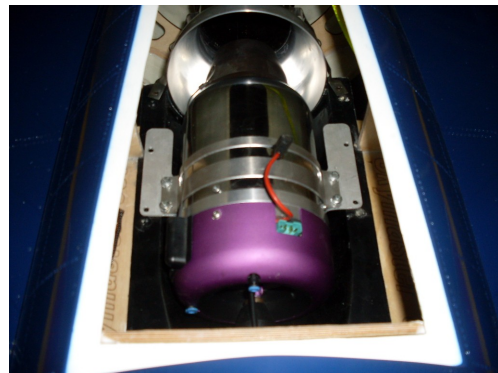
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TURBINE INSTALLATION



- Please follow the instructions supplied with your turbine.
- Secure turbine to turbine rail via hatch at bottom of fuselage. Leave gap of 25mm between NGV and tailpipe.
- Run all turbine wires and power cables on opposite side of servo wires.
- Always secure all wires in harness. I would suggest you install a FOD. This will save you money in the long run.

- Install fuel pump close to UAT. We recommend to make use of a mechanical shut off valve as well.
- Secure all Festo pipes with cable ties. Make sure fuel filter and gas canister are mounted vertical.
- Install NiCad or Li Po battery in nose. I always put a fuse holder inline with power cable.



- A bypass always looks good and improve the aerodynamics of model.

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COCKPIT AND CANOPY (after painting)

- If glass was not fitted—trace the shape of canopy and cut to fit. Glue with canopy glue. Make sure you glue canopy glass while frame is installed in fuselage. If glue outside of fuselage—the frame may distort.
- Trial fit cockpit and cut to fit. You will need to cut off the left side panel as well
- Build a balsa platform for tub and screw tub to platform for easy removal.
- The dash board is silicon glued in position permanently.
- The F9F have a sliding canopy. For ease of installation—remove canopy.
- Once cockpit is fitted—reinstall sliding canopy.
- Check sliding canopy to clear pilot. Dremel frame if needed.



Photo 62



Photo 63



Photo 64



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Assembly & Operation Manual

EQUIPMENT INSTALLATION INTO PANTHER

□ Equipment installation is a personal venture. There is one golden rule: Do it as neat and logical as possible! This will make fault finding and service of components easier. The Cougar basically consist of 6 circuits!

1. Servo wires
2. Power cables
3. Data cables
4. Pneumatic pipes
5. Fuel pipes
6. RX cable / Satellite Receivers

Please try and separate these circuits as far as possible. It is advisable not to run RX cables near any kind of electrical fields. Make all switches and filler valves easy accessible.

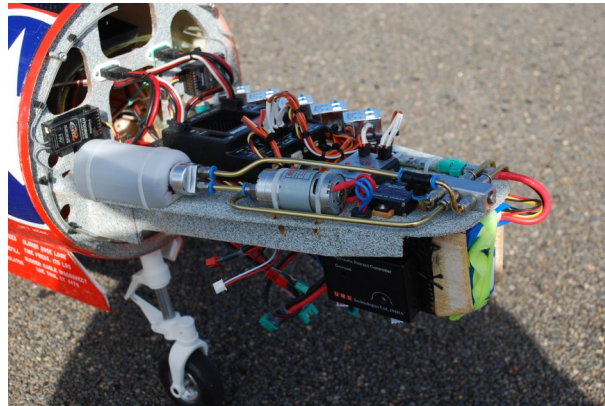


Photo 65

- The Cougar will come out tail heavy if you do not plan installation. It is very important to install all equipment as far forward as possible. Lucky we have a huge tray in the nose for easy access.
- I have installed 2 x RX + 2 X ECU batteries in front of nose gear. This is weight of 1 kg together.
- Once all accessories are installed you can fit nose cone. It is a simple turn to lock.

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BEFORE YOU FLY

It is assumed that the builder of this kit has acquired the basic skills and knowledge necessary to make a safe and functional radio control installation into a model. Therefore, these notes are intended only to assist that experience.

When inserting the main spar into wing, make sure it only enters the amount required. The longer spar is front spar. Please measure correct distance for main spar and secure spar so that it does not slide more to one side than other. It must be symmetrical to both sides.

Travel adjust measured at root. Use Expo to suite your style.

1. Elevator	20-25 mm	2. Rudder	20mm
3. Aileron	10—15 mm	4. Flaps take off	25mm
5. Flaps landing	40-45mm		

NOTE : Make sure flaps travel same. Flaps should be deployed in landing circuit only below 90mph.

- CG 245 mm from LE. Empty tanks, UAT full and wheels down.
The CG can be changed to best fit your flying style. A forward position is safe and nose heavy configuration.
WARNING: Do not move CG back unless you are experience and have some feel of model before!
- Weight Dry weight will be between 30 and 38 lbs depending equipment.
- PSI 100—120 psi for pneumatic system
- Power Make use of battery management system. Double up on batteries and make sure all wired can carry current needed to operate.
- TX RX Do a complete range check before flight. Do this with turbine running. Follow manufacturers instructions.
- Speed Set the maximum speed to 180mph! The prototype were tested with Jetcat P-160 turbines. I found the 160 too much power for F9f. Only 1/4 throttle were needed for scale speed. More powerful turbines require extra care and extra reinforcing.
- Timer A timer can save your model. Get into the habit of programming the timer.



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Take-Off

Do some taxi tests before your flight! Make sure you are familiar with all settings and make sure the model track straight on the ground without rudder input.

Choose a fine day for the maiden flight. Do not force a maiden flight!
Select take off flap or flight mode 1 and open throttle. The Cougar will easy rotate without flaps. Gently pull back on stick 30m down the runway. Raise the flaps and gear at safe altitude and trim model if needed.

Slow Flight

Most of the first flight should be utilized to get familiar with the slow speed flight characteristics. Select the flaps to the takeoff position; there should be no pitch change. Extend the gear and select full landing flaps; adjust the power to maintain level flight and a speed of about 80—90mph.

Climb to a safe altitude and slow the model to the edge of a stall to know where that edge is. **NOTE: The Cougar have flaps and speed board as option. Putting all these out together will induce serious drag. More power will be needed to sustain flight.**

Landing

Fly a complete circuit before landing. Approach from the downwind side and lower the LG. Fly a complete circuit getting use to the power required. On the next circuit lower the flaps. If you have a headwind be very careful not to get below the power curve on the downwind side. Do not use speed brakes for landing on maiden. When you are happy and more experienced the speed brakes will slow model down faster.

Align the model and use throttle to control the descent! The elevators will stay very active even at low speed. Flare the model just before touch down. Let the model roll out and apply brakes.

Taxi back and do necessary adjustments to customize Panther for your need!

We at Skymaster wish you many happy flights with your Cougar! Add some scale options like missiles and landing lights to compliment a very fine model.

Anton Lin and Skymaster Team!

