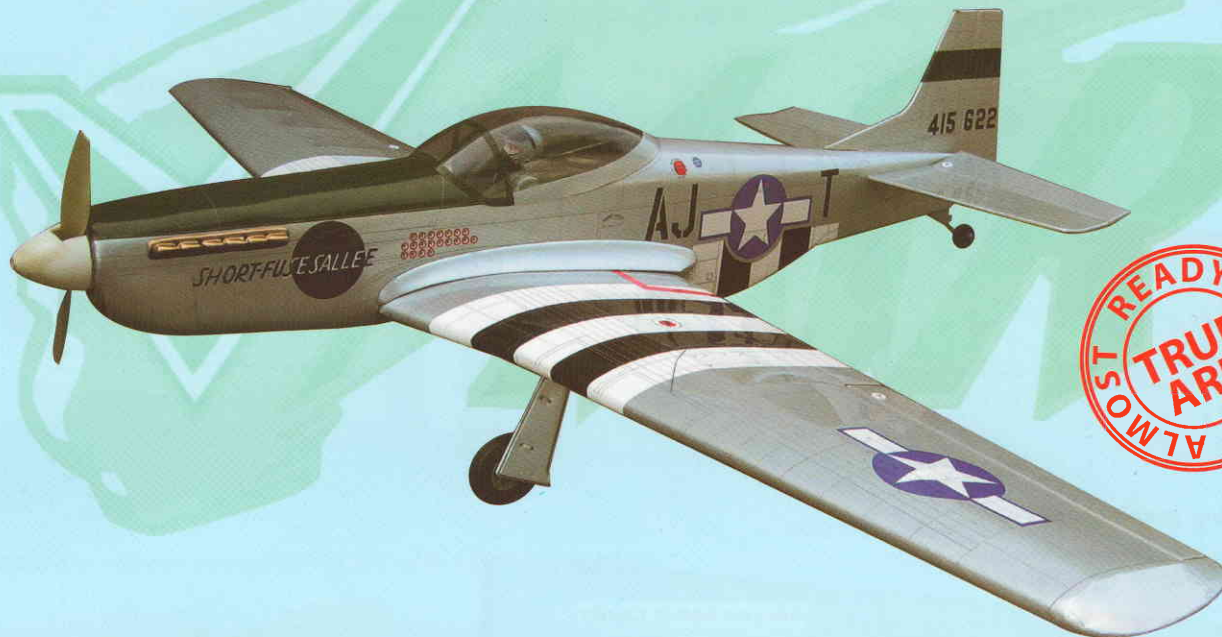


# P51 D MUSTANG EP



## ASSEMBLY & OPERATIONS MANUAL

Please review this manual thoroughly before assembling or operating this model.

### Proceeding with assembly and use of this product indicates Agreement With & Acceptance of the following Liability Disclaimer.

Model airplanes, model engines, model engine fuel, propellers and related accessories, tools and equipment can be hazardous if improperly used. Be cautious and follow all safety recommendations when using your VMAR model airplane. Keep hands, tools, clothing and all foreign objects well clear of engines when they are operating. Take particular care to safeguard and protect your eyes and fingers and the eyes and fingers of other persons who may be nearby. Use only a good quality propeller that has no cracks or flaws. Stay clear of the propeller and stay clear of the plane of rotation defined by the propeller. The Manufacturer, Distributor, Retailer and/or other

suppliers of this product expressly disclaim any warranties or representations, either expressed or implied, including but not limited to implied warranties of fitness for the purposes of achieving and sustaining remotely controlled flight. In no event will the Manufacturer, Distributor, Retailer and/or other suppliers of this product have any obligation arising from contract or tort, or for loss of revenue or profit, or for indirect, special, incidental, consequential or other damages arising from the use of this product. In purchasing and/or using this product, the user accepts all responsibility for its use and accepts all liability associated with such use.

### CAUTION

A Remote Control Model Aircraft is not a toy. It is a flying model that functions much like a full size airplane. If you do not assemble and operate this product properly you can cause injury to yourself and others and damage property. DO NOT FLY this model if you are not qualified. You are entirely responsible for the mechanical,

aeronautical and electrical integrity of this model and it's structure, control surfaces, hinges, linkages, covering, engine, radio, wiring, battery and all other components. Check all components before and after each flight.

**Don't fly until it's right!**



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*The Graphics and Detailing are inside the POLYCOTE ECS!*

# STAGE 1

## INSTALLING THE AILERON SERVOS INTO THE WING

### Parts needed

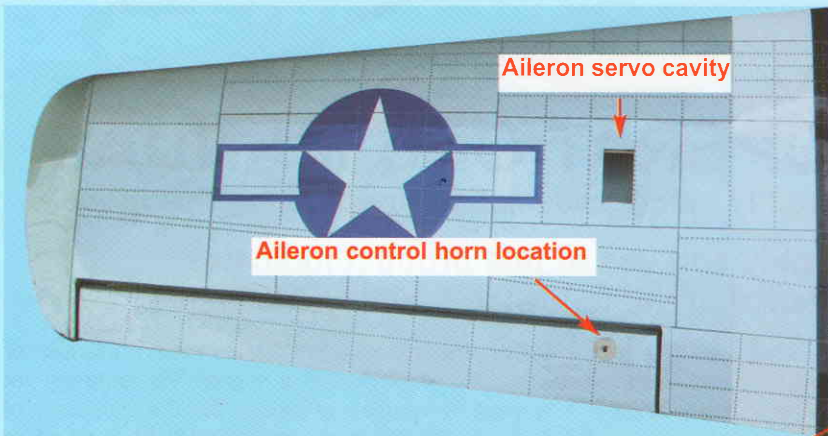
- Right and left wing micro servos
- 2 Aileron control rods (with 2 CNC clevises on both end)
- 2 Control horns assembly



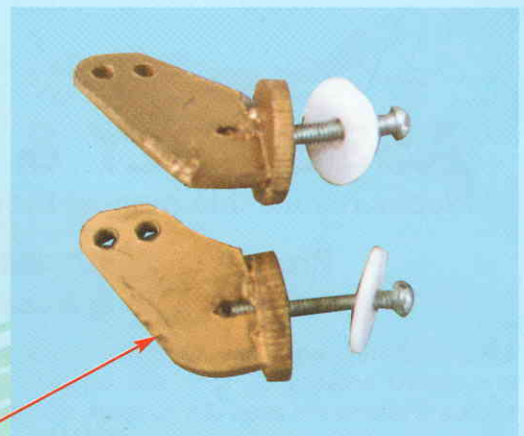
1A - 2 aileron control rods assembly



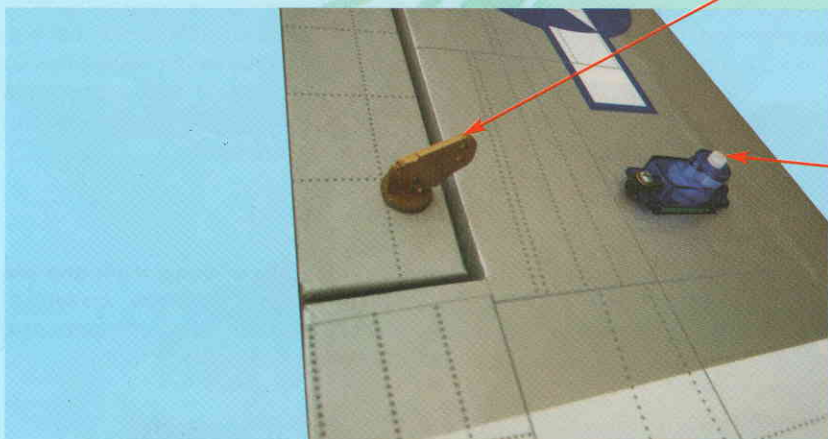
1B - Wing assembly top view



1C - Wing assembly top bottom view



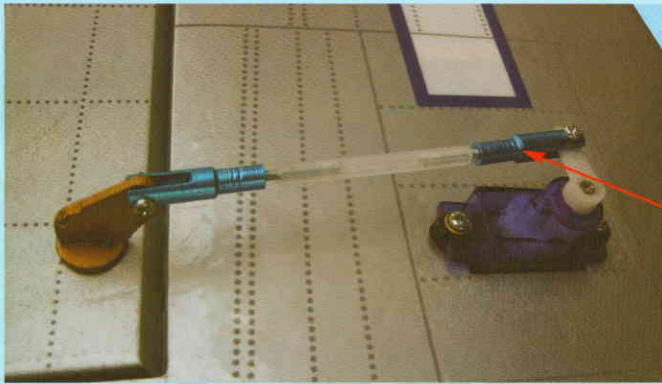
1D - Aileron control horn assembly



1E - Aileron control horn and aileron servo installed to the wing



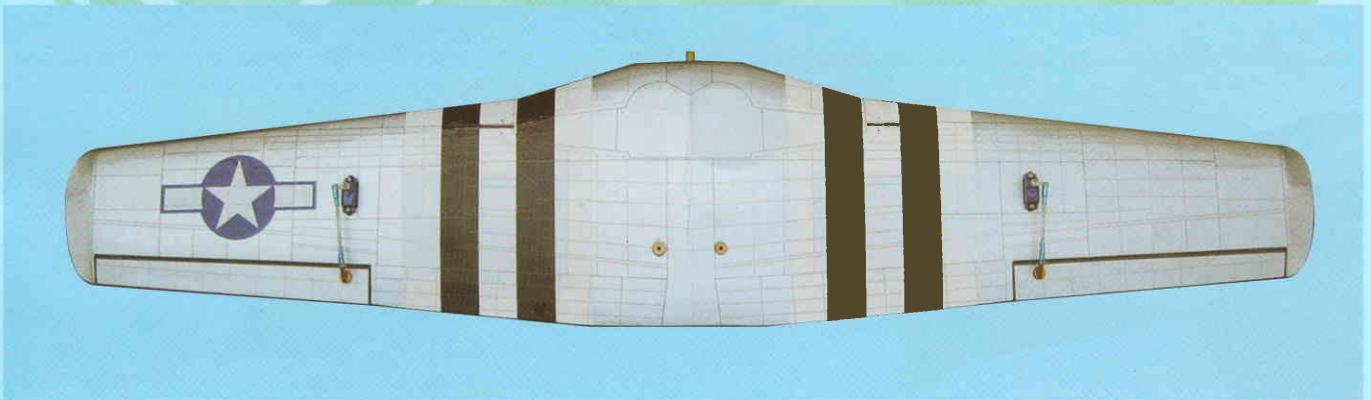
1D - Aileron servo



1G- Connect the aileron control rod one end to the servo arm and other end to the control horn



1H- Aileron control rod assembly



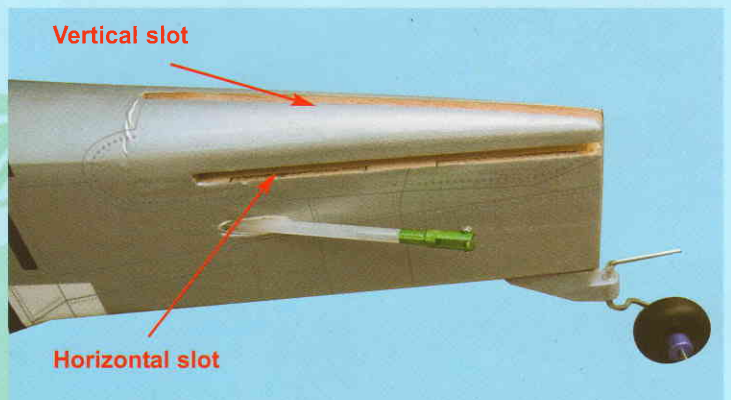
1I- Install the aileron control to the left and right wing panel

## STAGE 2

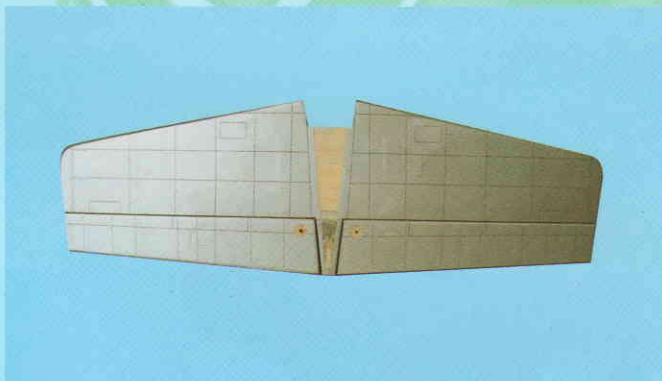
## FITTING THE HORIZONTAL AND VERTICAL STABILIZERS

To install the stabilizer into the fuselage you will need:

- Fuselage
- Vertical stabilizer with pre-install rudder
- Horizontal stabilizers with pre-installed elevator



2A - The fuselage slots for the vertical and horizontal stabilizer



2B- Horizontal stabilizer with pre-installed elevator



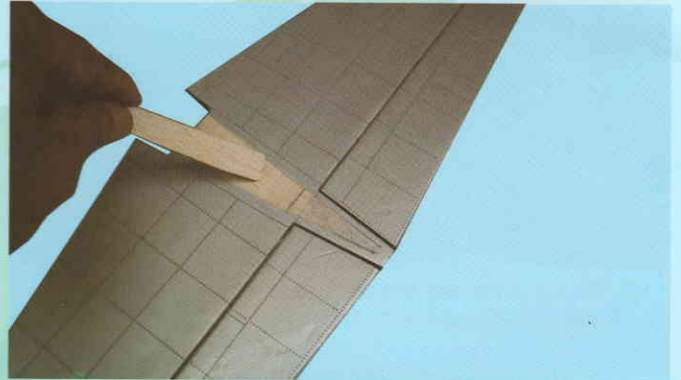
2C - Vertical stabilizer with pre-installed rudder

## STAGE 3

### INSTALL THE HORIZONTAL STABILIZER



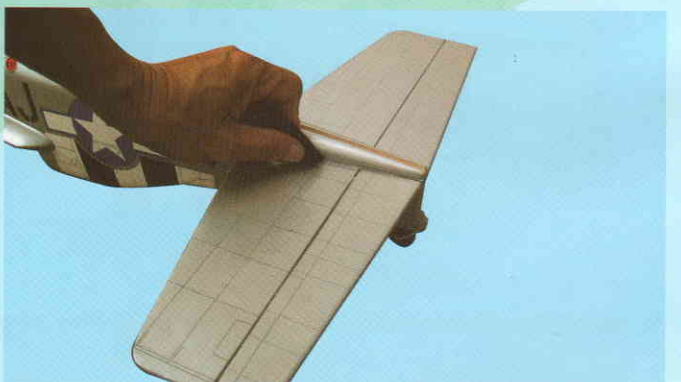
3A- Trial fit the horizontal stabilizer to the fuselage



3B- Apply sufficient 30 minute epoxy glue to the expose wood area on the both side of horizontal stabilizer



3C- Apply sufficient 30 minute epoxy glue to the horizontal slot



3D- Insert the horizontal stabilizer to the slots then wipe off the excess epoxy

## STAGE 4

### INSTALLING THE VERTICAL STABILIZER



4A- Trial fit the vertical stabilizer to the vertical slot



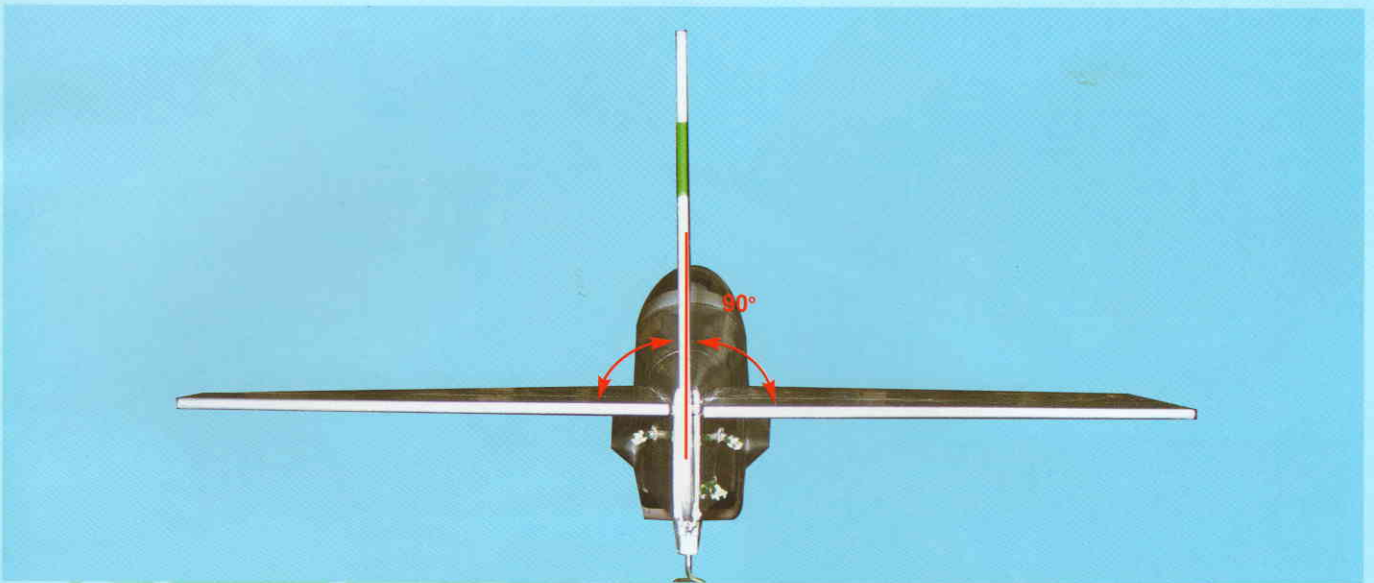
4B- Apply sufficient 30 minute epoxy to the expose wood area on both side of the vertical stabilizer



4C- Apply sufficient 30 minute epoxy to the vertical slot



4D- Insert the vertical stabilizer into the slot, then wipe off the excess epoxy

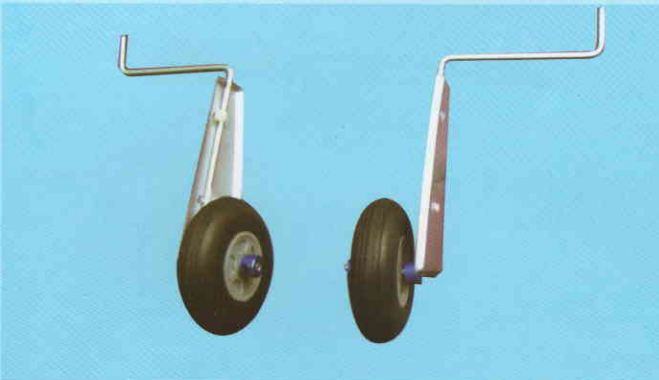


4E- Vertical stabilizer straight with the fuselage and square with the horizontal stabilizer

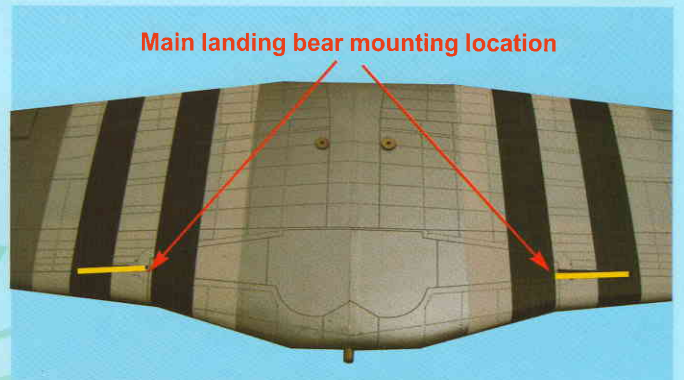
## STAGE 5 INSTALL THE MAIN LANDING GEAR

The P51D Mustang has a tail dragger (tail wheel) configuration using a tail wheel and main landing gear  
 Identify the main landing gear components show below

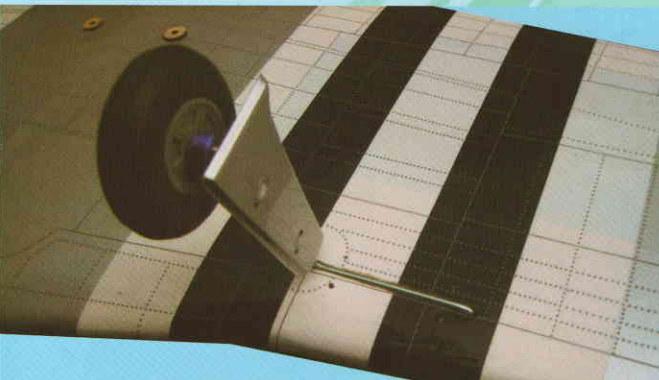
- 2 Pre-bent main landing gear sets pre-assembled
- 8 sheet metal screws (2 x 10 mm)with 4 traps



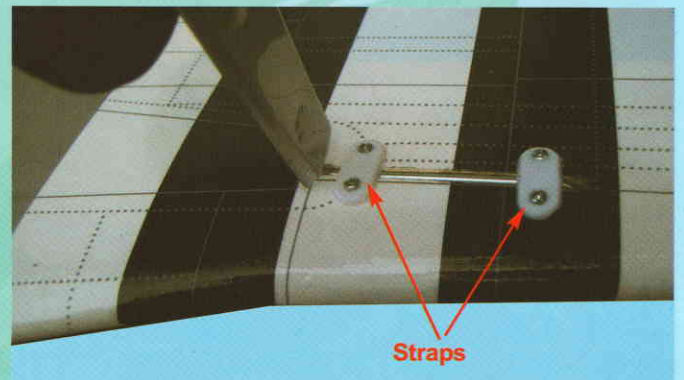
5A- Main landing gear assembly



5B- Main landing gear mounting location



5C- Insert the main landing gear into the wing



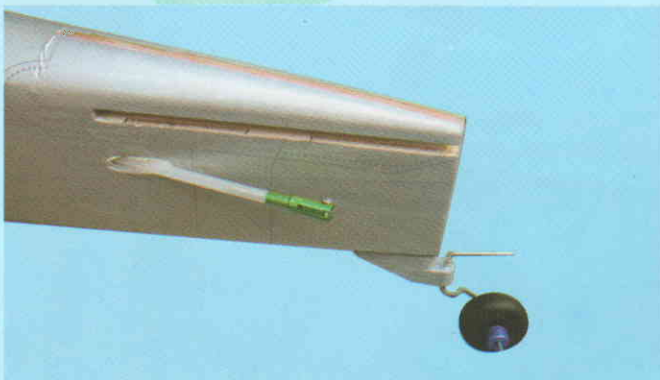
5D- Use 4 sheet metal screws and 2 trap to mount the main landing gear onto the wing



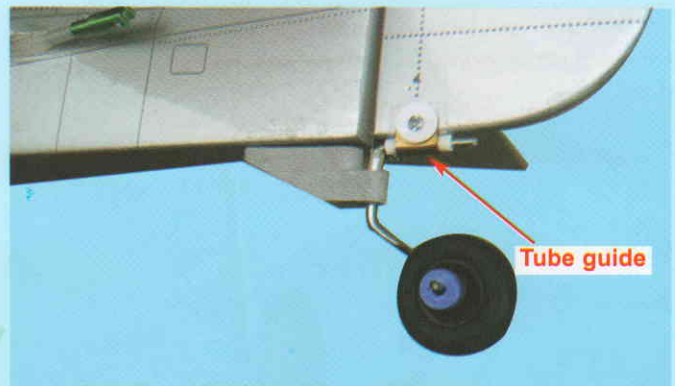
5E- The 2 main landing gear mount onto the wing

## STAGE 6 INSTALL THE TAIL WHEEL

The tail wheel pre-installed onto the fuselage, insert the tail wheel to the guide tube pre-installed to the rudder



6A- The tail wheel Pre-installed onto the fuselage

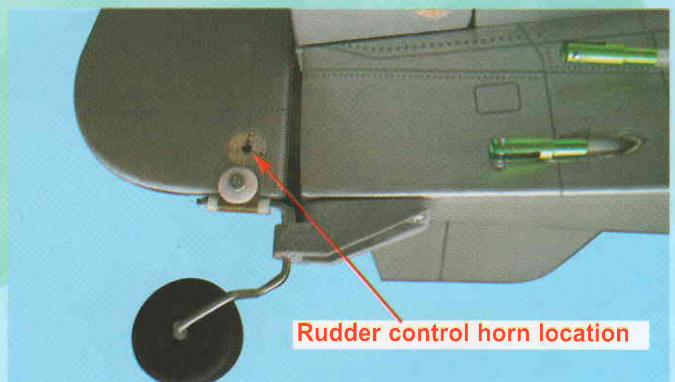


6B- Insert the tail wheel control into the tube guide pre-installed

## STAGE 7 FITTING ELEVATOR AND RUDDER CONTROL HORNS



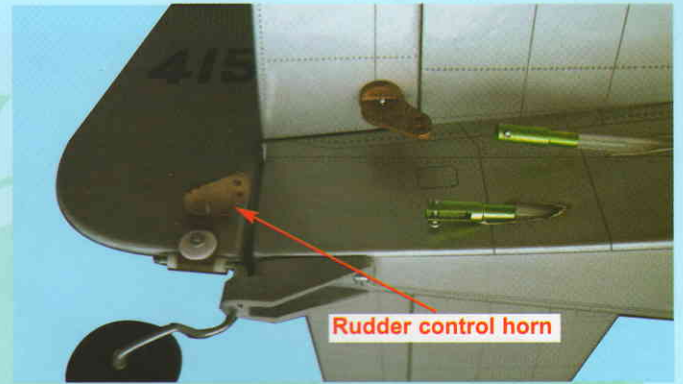
7A- Elevator control horn location



7B- Rudder control horn location



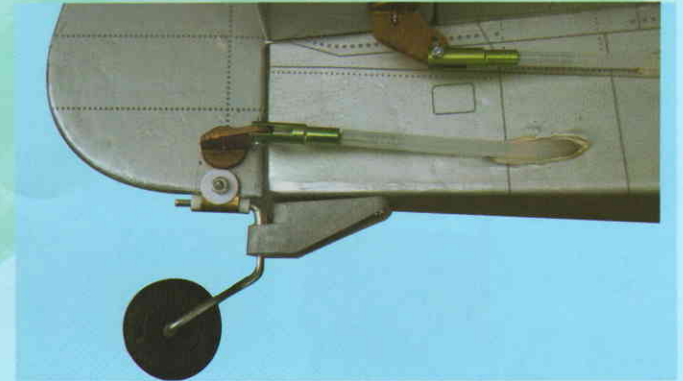
7C- Elevator control horn mount to the elevator



7D- Rudder control horn mount to the rudder



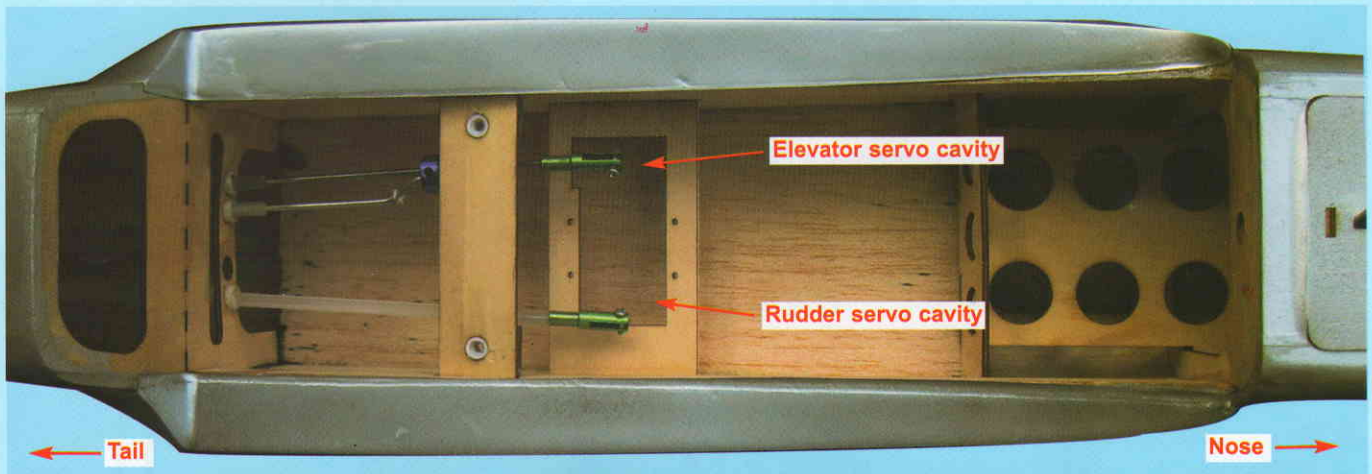
7E- Elevator control horn connect to the control rod



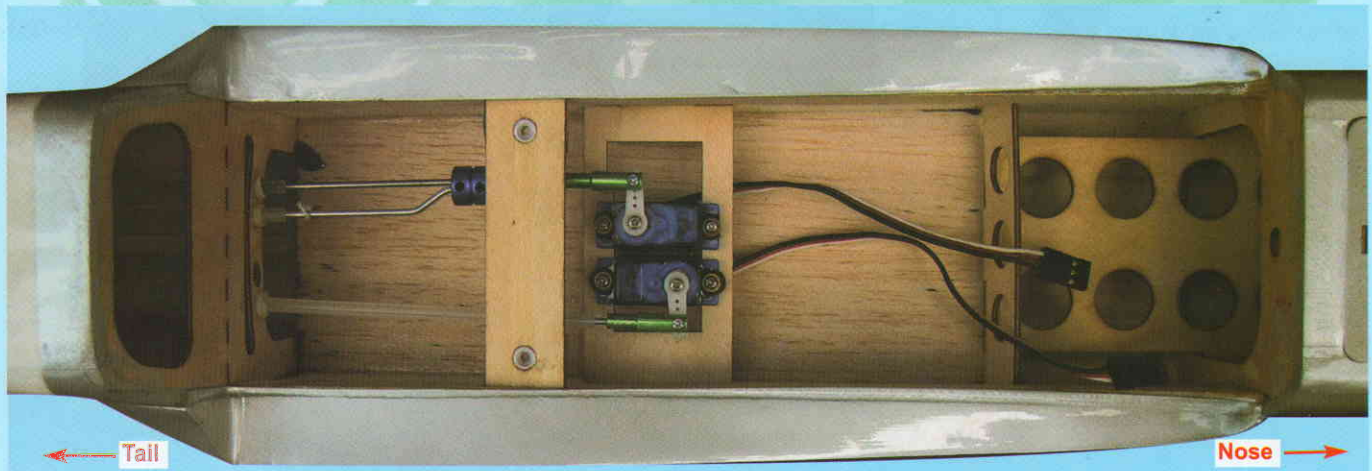
7F- Rudder control horn connect to the control rod

## STAGE 8

## INSTALLING THE ELEVATOR & RUDDER SERVOS



8A - Elevator & rudder servos location



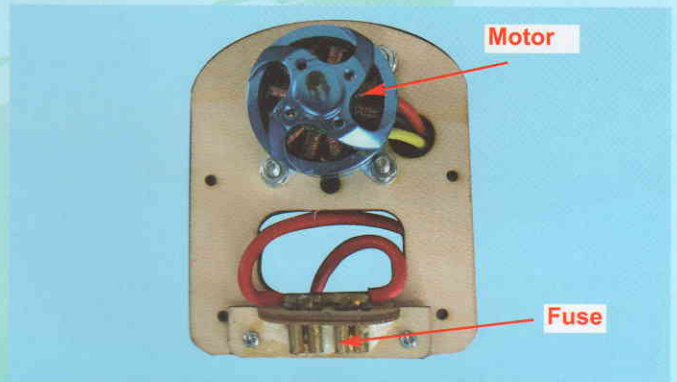
8B- Elevator & rudder servos install to the servo tray and connect to the control rods

# STAGE 9

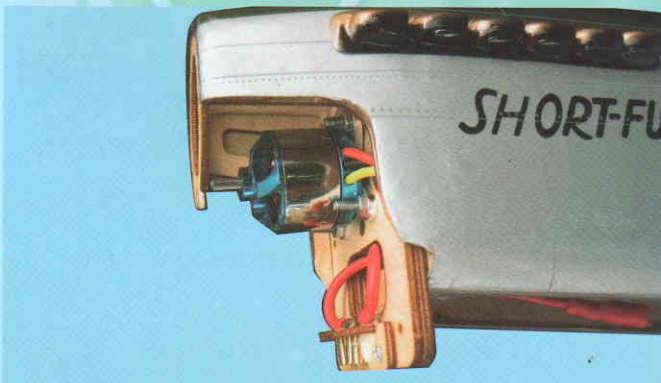
## INSTALLING THE MOTOR & ESC (Electronic Speed Control)



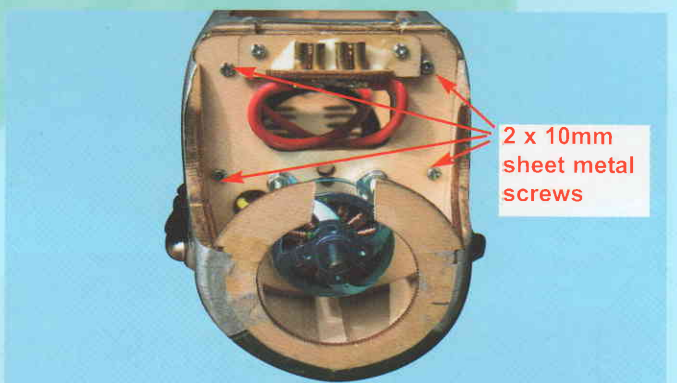
9A- Power module



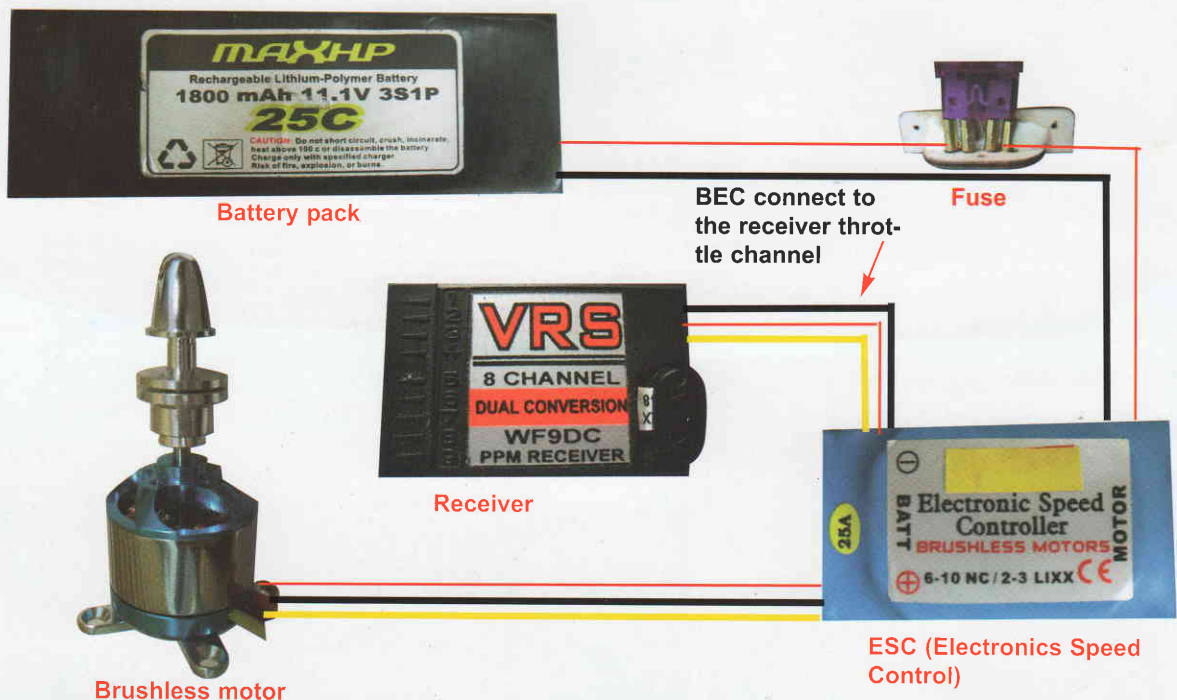
9B- Mount the motor & Fuse holder to the power module



9C- Power module insert onto the fuselage



9D- Secure power module to the fuselage by using 4 sheet metal screws 2 x 10mm

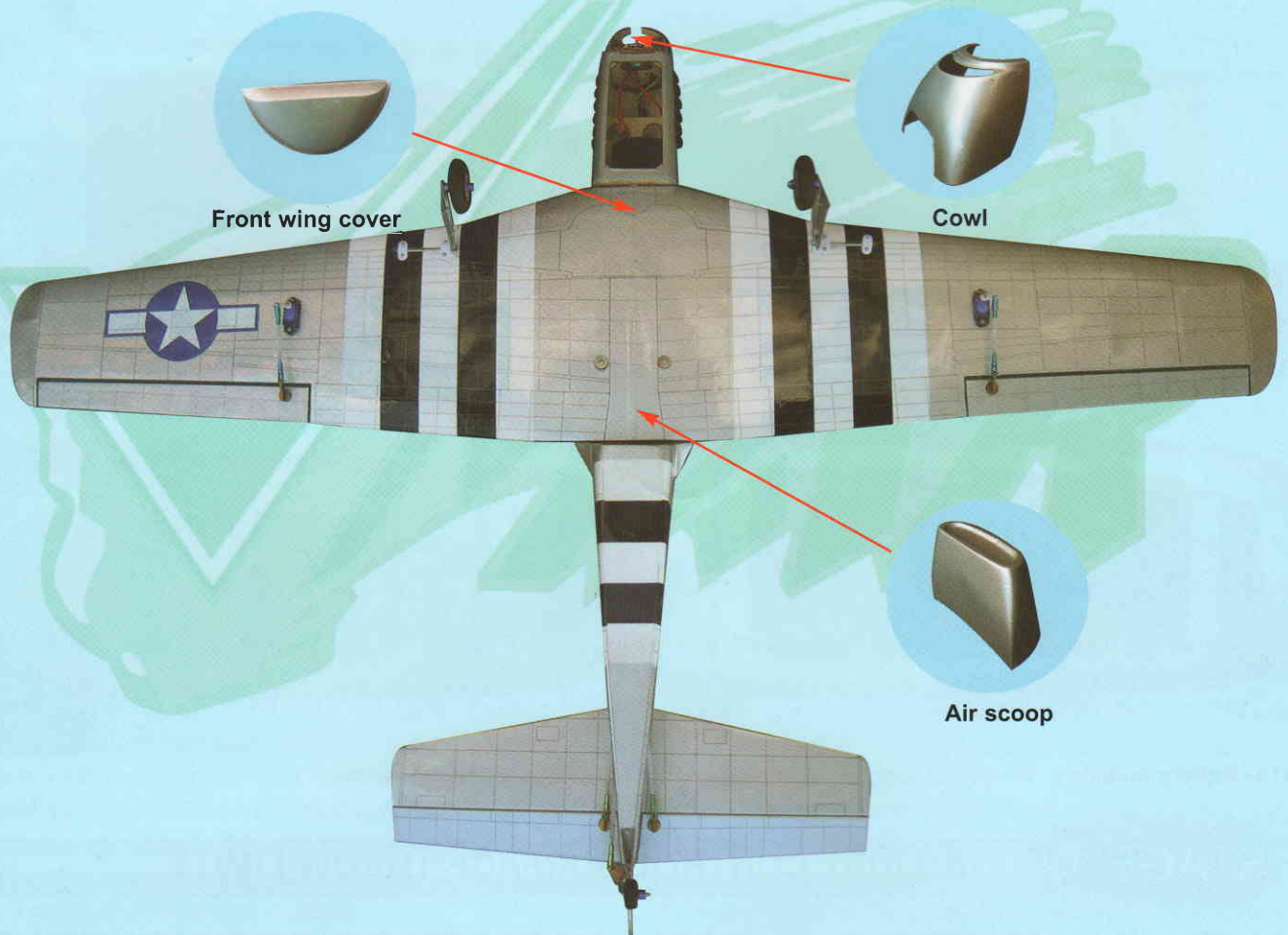


15A- Typical wiring diagram of the brushless motor systems

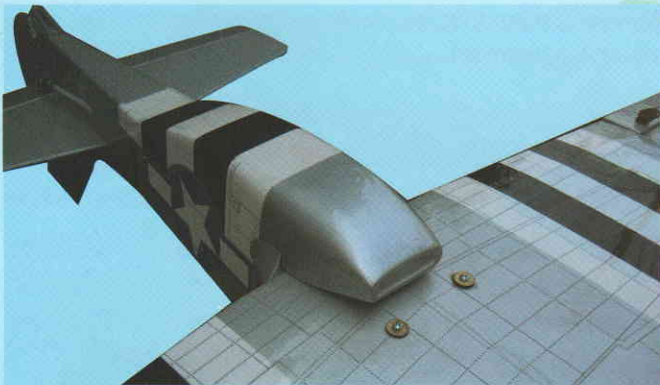


# STAGE 10

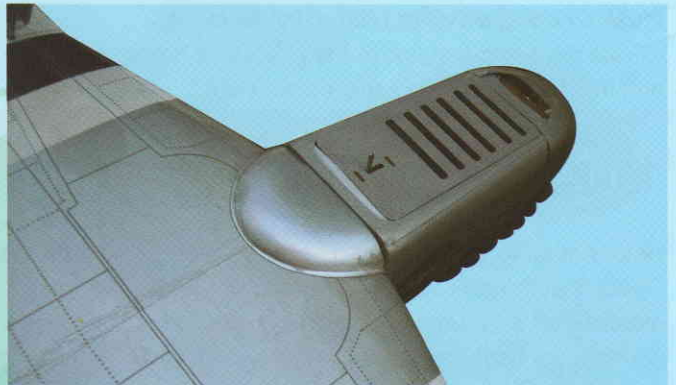
## INSTALL THE COWL AIR SCOPE AND FRONT WING COVER



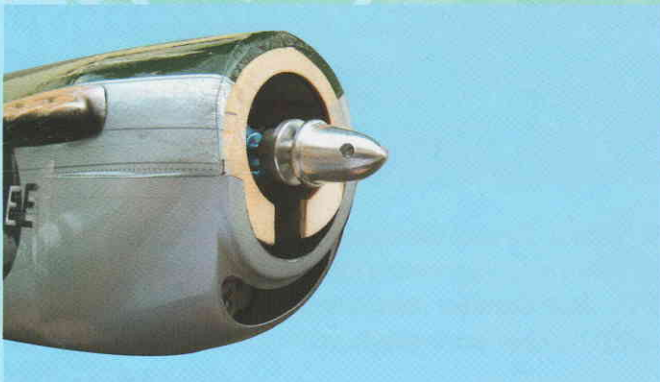
10A- Mounting location for Cowl, front wing cover and air scoop



10B- Use thin CA glue to mount the air scoop to the wing



10D- Use thin CA glue to mount the front wing cover to the wing

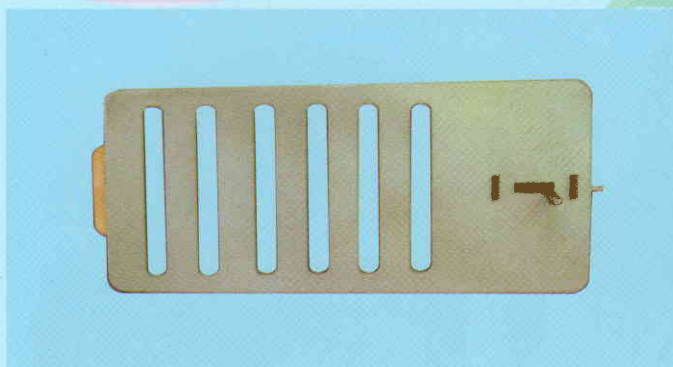


10E- Use transparent tape to mount the cowl to the fuselage



10F- Install the suitable propeller and spinner

## STAGE 11 BATTERY LOCATION



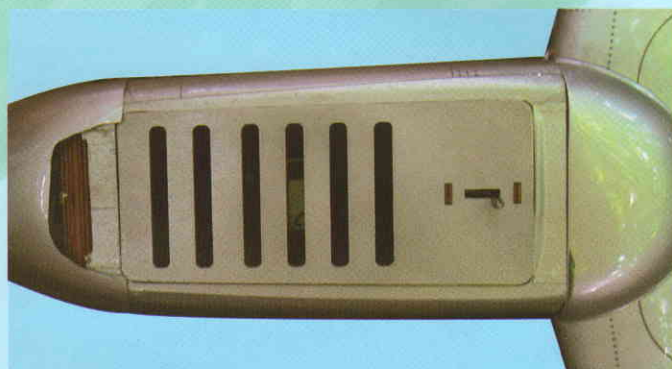
11A- Battery hatch



11B- Battery location



11A- Battery installed



11A- Battery hatch installed

## STAGE 12 ADJUST CONTROL SURFACE THROW LIMITS

Adjust the deflection of the control surfaces to match the specifications on page 12. You can reduce the amount of throw by doing either or both of the following:

- From the servo end, move the clevis to a hole in the servo arm that is closer to the servo output shaft.

- From the control horn end, move the control rod/clevis further out on the horn (away from the control surface). Always confirm that the clevis is firmly attached after making any adjustment.

## STAGE 13 FINAL RC SET-UP

Before starting the final set-up of the model, switch on the radio and ensure that all trims are in their neutral positions. Check that the ailerons, elevator and rudder are centered. If any adjustments are needed, do these by uncoupling the relevant clevis and turning it clockwise to shorten the linkage or counter - clockwise to lengthen it. Only when each control surface has been centered mechanically in this way should you begin adjusting the surface movement (or throw)

Now confirm that the control surfaces are moving in the correct direction. Use the servo reversing switches on your transmitter to reverse the direction of a servo if necessary. The most popular transmitter mode (with the throttle on the left, with ailerons and elevator on the right) is shown here.

## STAGE 14 INSTALLING THE RECEIVER BATTERY

**Step 14.1** Consult your radio manual for instructions about hooking up your receiver battery, receiver and switch harness

**Step 14.2** Wrap the battery pack securely in foam suitable for RC equipment and wrap the foam insulated pack in a plastic bag or cling wrap.

**Step 14.3** Thread the battery pack connector forward in preparation for connecting to your switch harness

**Step 14.4** Connect the battery pack connector to your switch harness according to your radio manual

## STAGE 15 INSTALLING THE RECEIVER

**Step 15.1** Consult your radio manual for instructions about hooking up your receiver.

**Step 15.2** Plan where you are going to put the receiver with consideration for routing the antenna safely.

**Step 15.3** Wrap the receiver securely in foam suitable for RC equipment and wrap the foam insulated receiver in a

plastic bag or cling wrap.

**Step 15.4** Generally in the absence of specific instructions from the radio manufacturer, it is recommended that the receiver should be placed where it is least likely to have impact during a crash. Keep the battery pack and other heavy loose items ahead of the receiver.

## STAGE 16 CONFIRM RADIO OPERATION

**Step 16.1** Consult your radio manual for instructions about testing and operating your radio system.

**Step 16.2** Pay particular attention to charging your batteries and range testing your system before and after each

flight.

**Step 16.3** Check that all controls are working correctly before and after each flight.

## STAGE 17 BALANCING THE AIRCRAFT

**Step 17.1** The CG for your P51D Mustang is located at 3.1/2 in to 4 in (90mm - 102mm) back from the leading edge of the wing when the wing has been attached to the fuselage as per illustration 27A.

**Step 17.2** For the initial flight, the CG should be located at 3.1/2" (90mm) back from the leading edge of the wing when the wing has been attached to the fuselage.

**Step 17.3** The CG is measured with the engine, radio gear and all other components installed

**Step 17.4** Set up the CG as it will be when you fly it.

**Step 26.5** It is very important to have the CG correct. Flying your model with the CG too far back will likely lead to loss of control and a crash. If you discover that after you have

assembled your model and installed your radio, motor and battery that the CG of your model is incorrect you must bring the CG to the correct location by doing the following BEFORE FLYING :

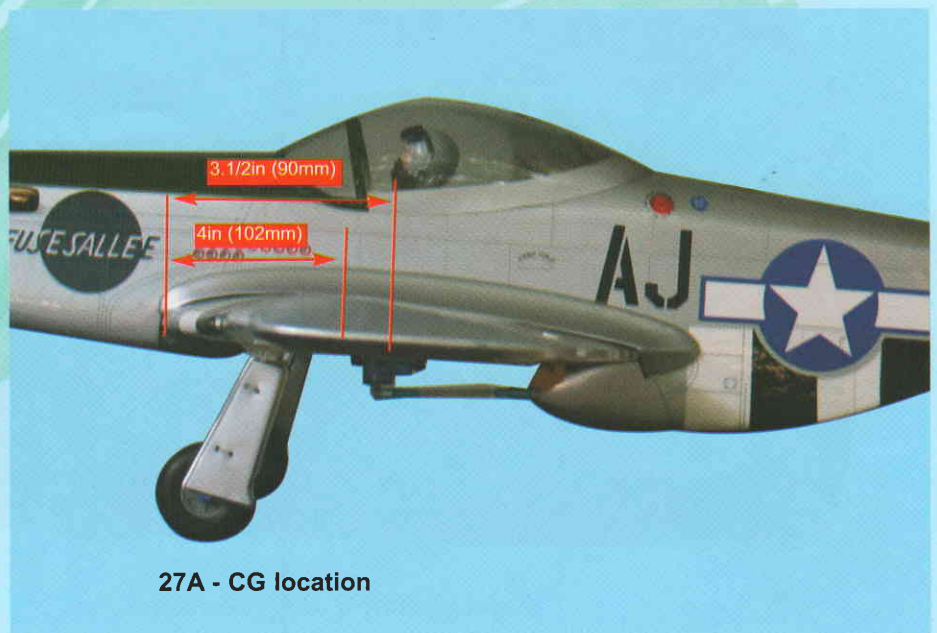
- Move the battery pack fore or aft
- Move other components fore or aft
- Change engine to a lighter or heavier model
- Add weight to the nose or tail. If adding it to the nose, try to make it useful by going to a heavier duty engine or adding a spinner with a heavy metal backing plate. As a last resort, add stick on "dead" weight where appropriate

## STAGE 18 CONFIRM MECHANICAL INTEGRITY

**Step 18.1** Once you have confirmed that the CG is correct, you should do a thorough review of the entire model before your first flight. Check everything twice! Every hook up, every coupling, everything! Do it twice!!

**Step 18.2** Before your first flight, have an experienced flyer review your work. Do not fly your model until it has been checked out by a third party who knows how to fly and how to set up a model aircraft. Do not fly alone. Seek experienced help.

**Step 18.3** Once you have completed your first flight, get in the habit of checking your model over before and after each flight! Don't fly if you find something that is not right!

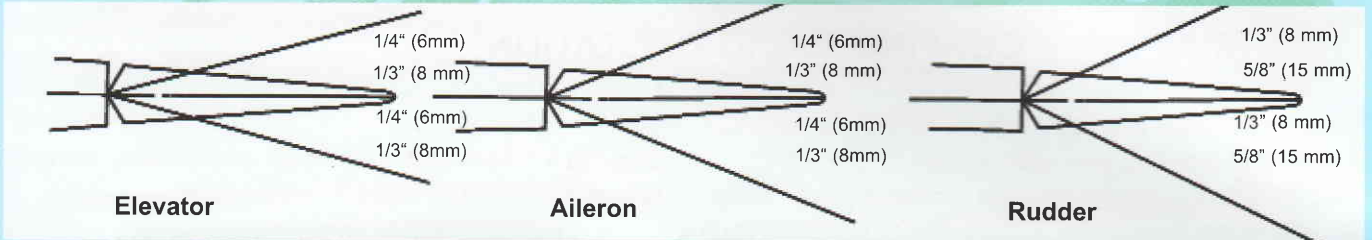


**CONTROL SURFACE THROW SPECIFICATIONS:**

The throws are measured at the widest part of the control surface. Adjust the position of the pushrods at the control and/or servo horns to control the amount of throw. You may

also use ATV's if your radio has them but the mechanical linkages should still be set so that the ATV's are near 100% for best servo resolution.

	Low rate	High rate
ELEVATOR	1/4" (6mm) up	1/3" (8 mm) up
	1/4" (6mm) down	1/3" (8 mm) down
AILERON	1/4" (6 mm) up	1/3" (8 mm) up
	1/4" (6 mm) down	1/3" (8 mm) down
RUDDER	1/3 " (8 mm) right	5/8" (15 mm) right
	1/3 " (8 mm) left	5/8" (15 mm) left



**Notes**

Vertical line for notes.

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Order Item #VMA-F490N



Order Item #VMA-F490U

### PHANTOM F4



Order Item #VMA-F690B



Order Item #VMA-F690N

### F 18 HORNET



Order Item #VMA-M490R





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Order Item #VMA-A460B

**A4 45-52 Semi Scale ARF**  
**SKYHAWK**



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Order Item #VMA-A340Y

**ARROW TIGER**



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**ESCAPE**



Order Item #VMA-T210W

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