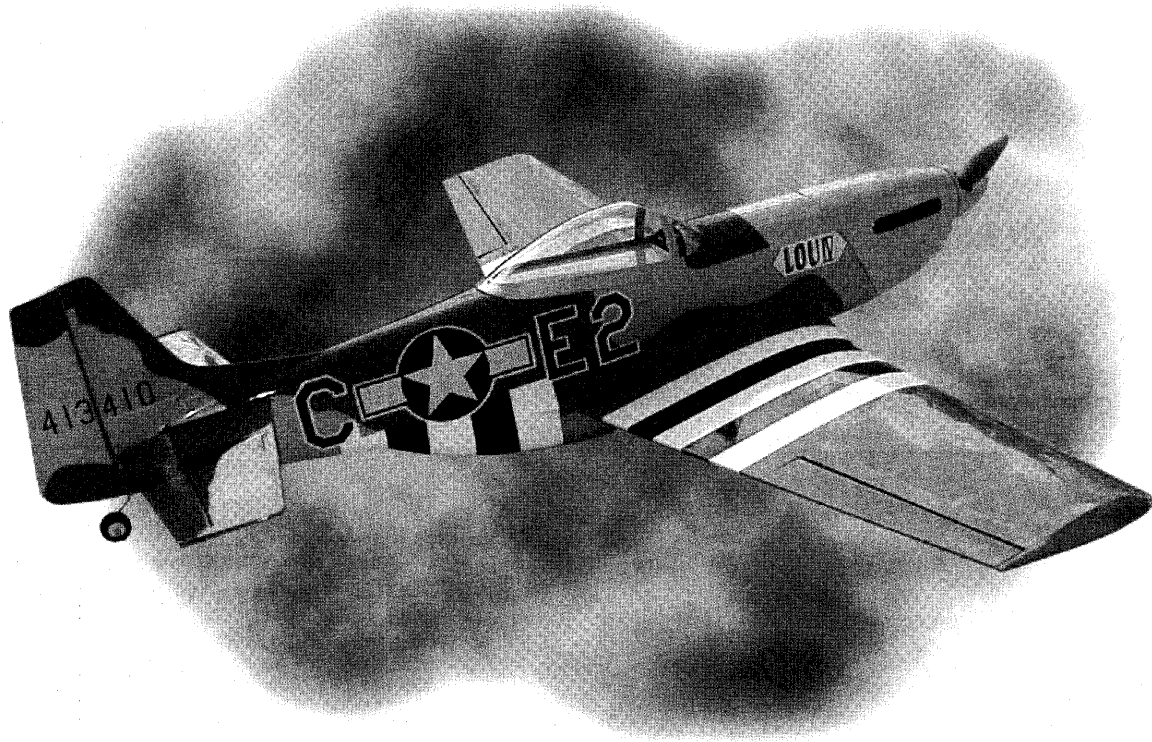


HYPERION GLASS SCALE P-51D MUSTANG "25"



**INSTRUCTION
MANUAL**



**Electric Motor: Hyperion Z3025
2-Cycle Engine: 0.25 cubic inch**

Length: 1052mm (41.4 inch)

Wingspan: 1206mm (47.5 inch)

Wing Area: 25.6dm² (397 sq inch)

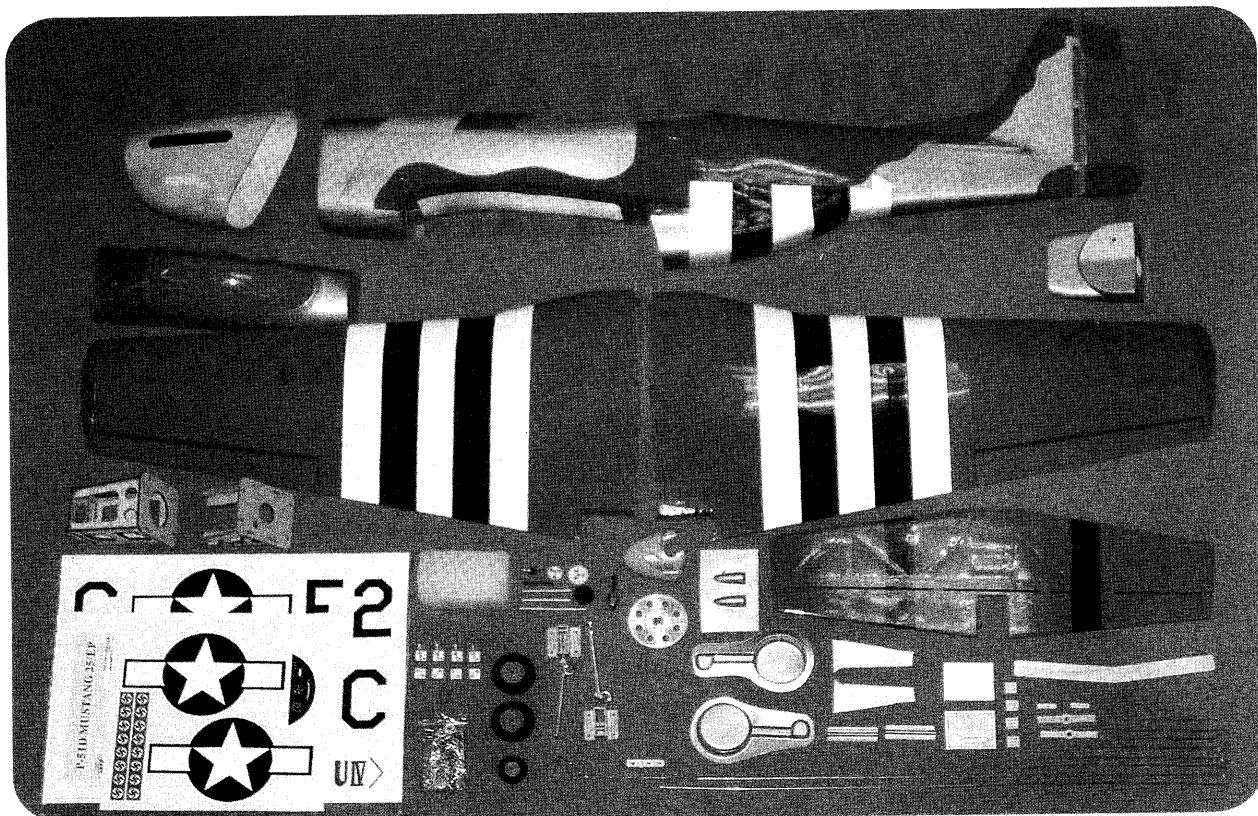
Flying Weight: 1.45~1.65kg (3.2~3.6lbs)

Suggested ESC: HP-TITAN-50P BEC

Suggested Battery: HP-LVX3300-3S

Servos: 5 (2 aileron, 1 retract, 1 elevator, 1 rudder)

Transmitter: 5 Channels or more





Part List:


1. FUSELAGE & AIR SCOOP ~ 1 set
2. MAIN WING ~ 1 pair
3. STABILIZER & ELEVATOR ~ 1 set
4. RUDDER ~ 1 pc.
5. CANOPY ~ 1 pc.
6. DECALS ~ 1 set
7. COWLING ~ 1 pc.
8. FUEL TANK 190cc ~ 1 set
9. MAIN LANDING GEAR ~ 1 set
MAIN LANDING GEAR COVER ~ 1 set
10. SPINNER 61mm ~ 1 Set
11. TAIL LANDING GEAR ~ 1 set
12. MAIN WHEEL Ø45mm ~ 2 pcs
13. TAIL WHEEL Ø25mm ~ 1 pc.
14. PUSHROD: ~
METAL ROD Ø1.5 x 100mm (For Aileron Servo) ~ 2 pcs
METAL ROD Ø1.5 x 570mm (For Rudder Servo) ~ 1 pc.
METAL ROD Ø1.5 x 530mm (For Elevator Servo) ~ 1 pc.
METAL ROD Ø1.5 x 185mm (For Landing Gear Servo) ~ 1 pc.
METAL ROD Ø1.5 x 150mm (For Landing Gear Servo) ~ 1 pc.
15. THROTTLE PUSHWIRE Ø1.2 x 350mm
w/Plastic tube D2.5 x 120mm ~ 1 set
16. WING JOINER 208 x 18 x 3mm ~ 1 pc.
17. WOODEN PARTS : ~
PLYWOOD 208 x 18 x 3mm (Wing Joiner) ~ 1 pc.
PLYWOOD 51 x 42 x 1.5mm (Aileron Servo Cover) ~ 2 pcs
WOODEN 12 x 12 x 7mm (For Aileron Servo) ~ 4 pcs
ENGINE MOUNT 0.25 ~ 1 pc.
MOTOR MOUNT ~ 1 pc.
18. PLASTIC PARTS : ~
TRI-HORN ~ 4 set
RING ~ 2 pcs
SCREW M4 x 40mm ~ 2 pcs
AILERON SERVO COVER 0.5mm PVC ~ 1 pair
19. METAL PARTS : ~
LINKAGE STOPPER 2.1mm ~ 7 set
COLLAR 2.1mm w/set screw ~ 2 set
COLLAR 3.1mm w/set screw ~ 2 set
WASHER 3mm ~ 4 pcs
SCREW PA2.3 x 8mm ~ 2 pcs
SCREW KA2.3 x 8mm ~ 8 pcs
SCREW PWA2.3 x 8mm ~ 8 pcs
SCREW PWA2.3 x 8mm ~ 8 pcs
SCREW PM2 x 12mm ~ 4 pcs
SCREW PM2 x 20mm ~ 4 pcs
SCREW PM3 x 12mm ~ 4 pcs
20. MANUAL ~ 1 pc.

AB Apply epoxy glue.

CA Apply instant glue.

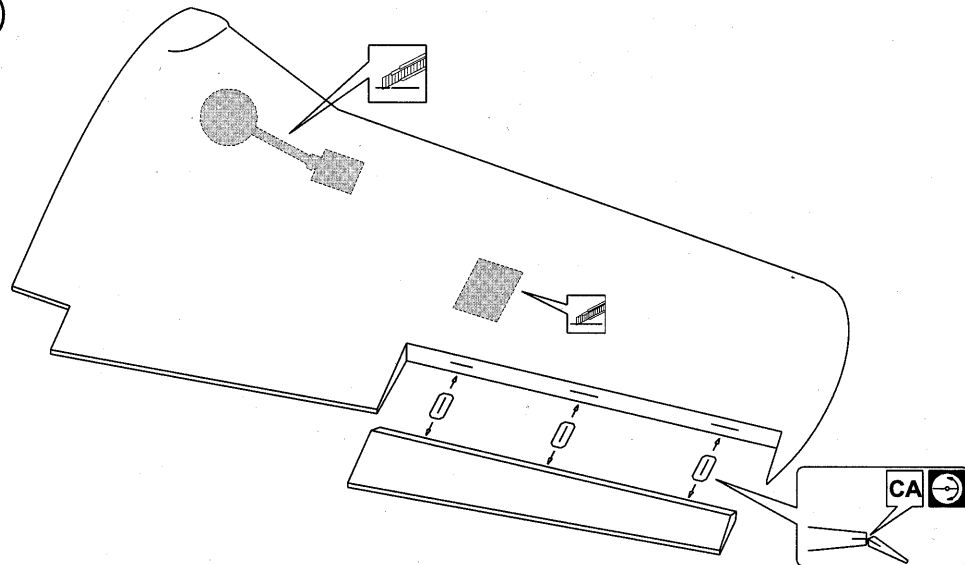
 Ensure smooth non-binding movement while assembling.

 Remove covering here
Do not cut wood

 Drill holes with the specified diameter (here : 1.5mm)

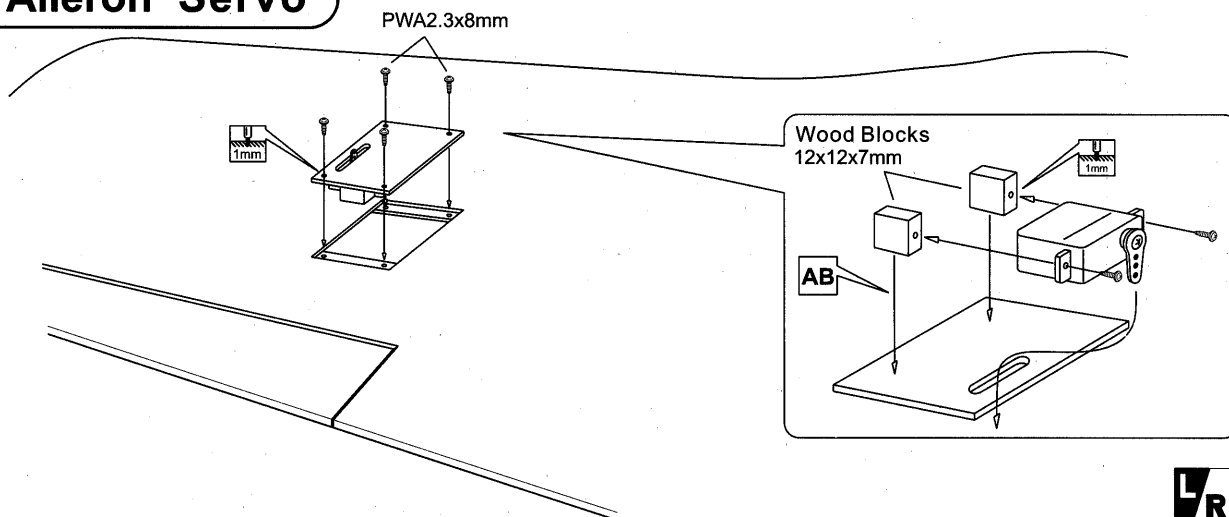
L/R Assemble left and right sides the same way.

1 Aileron



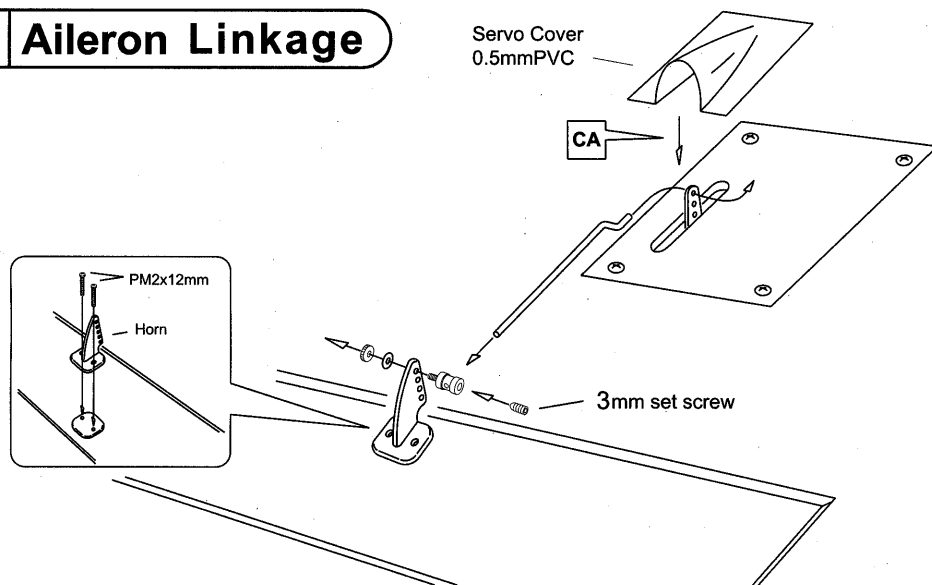
L/R

2 Aileron Servo



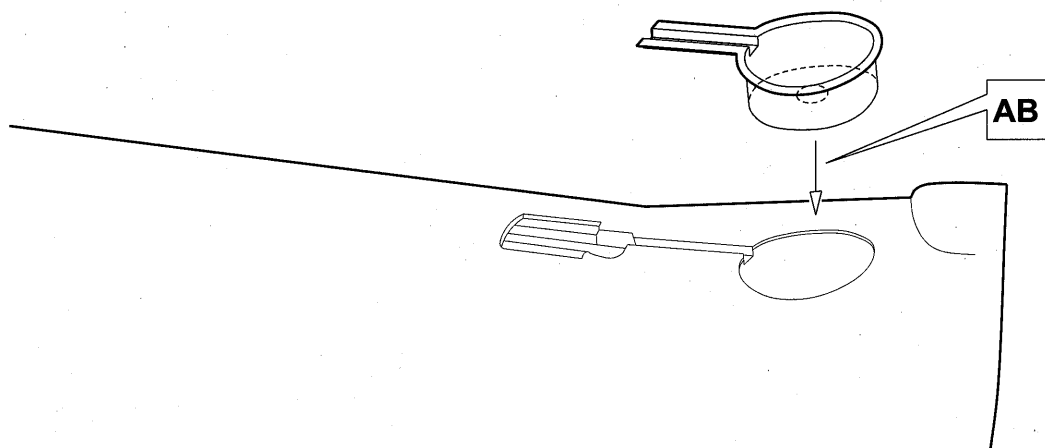
L/R

3 Aileron Linkage

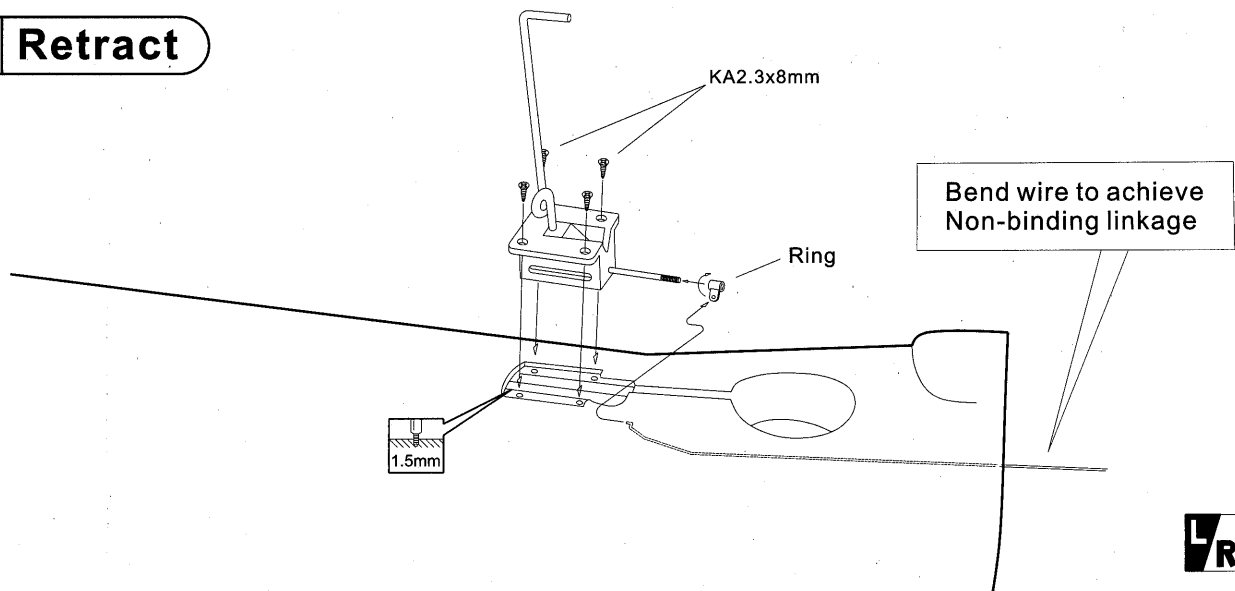


L/R

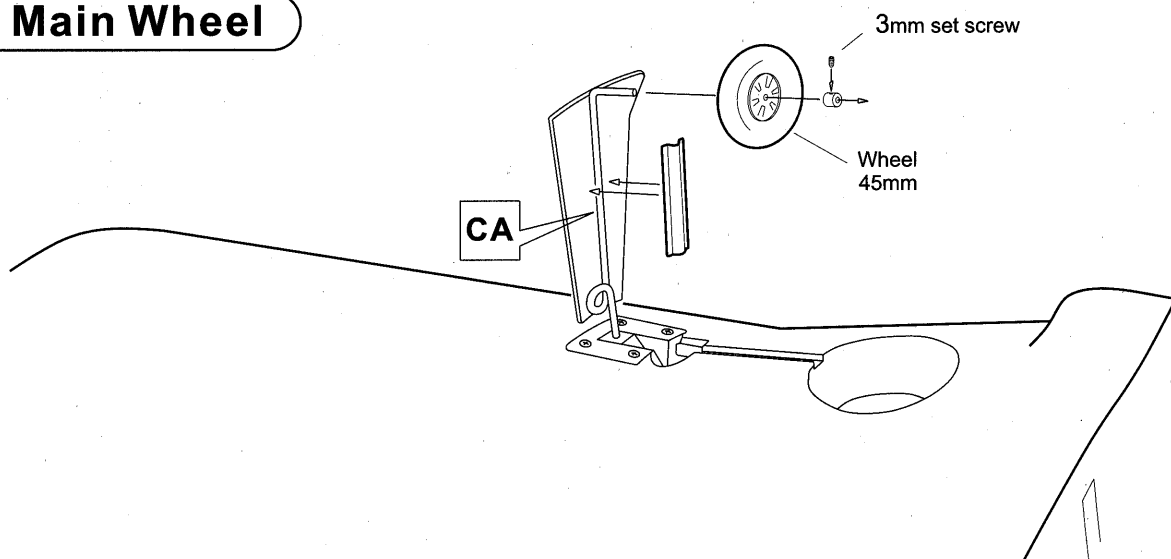
4 Wheel Well



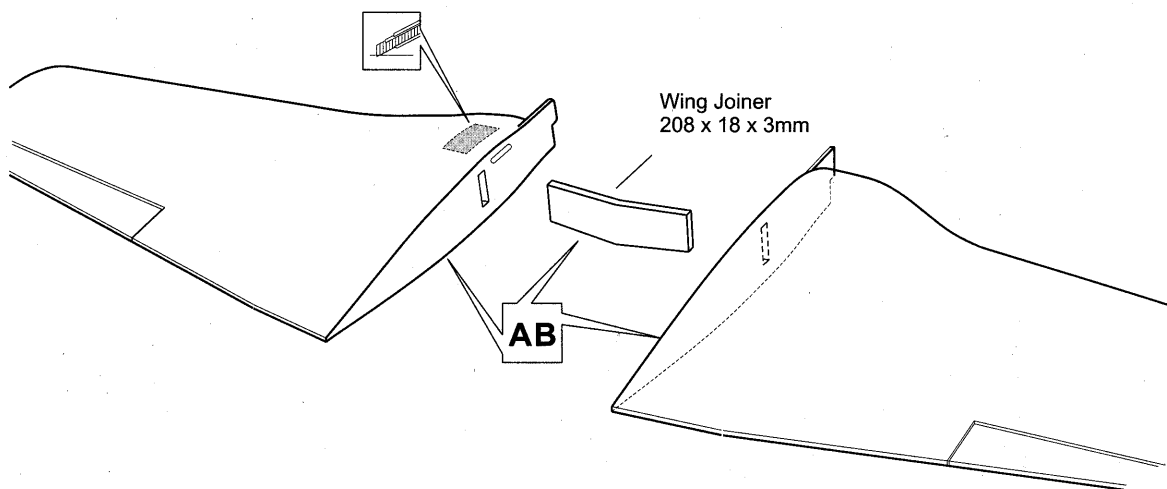
5 Retract



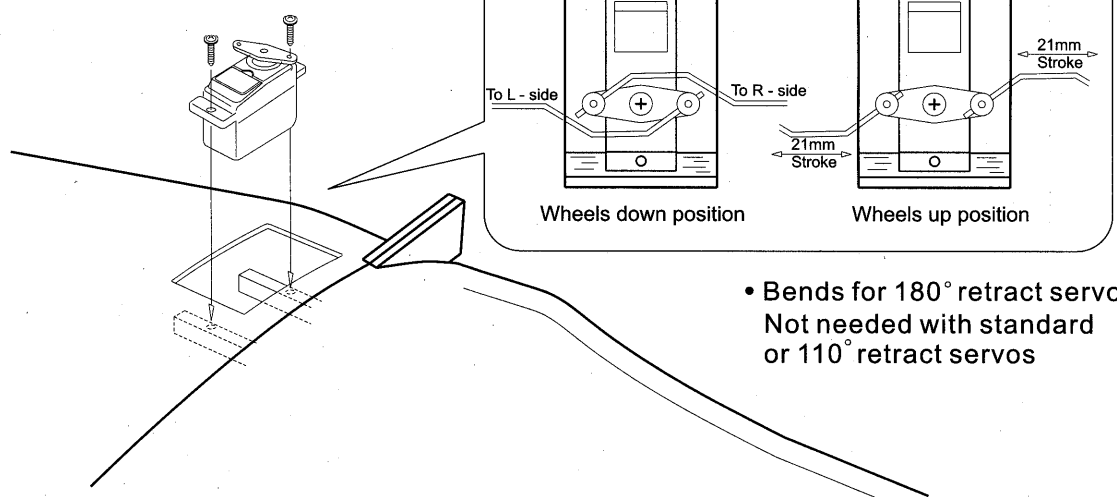
6 Main Wheel



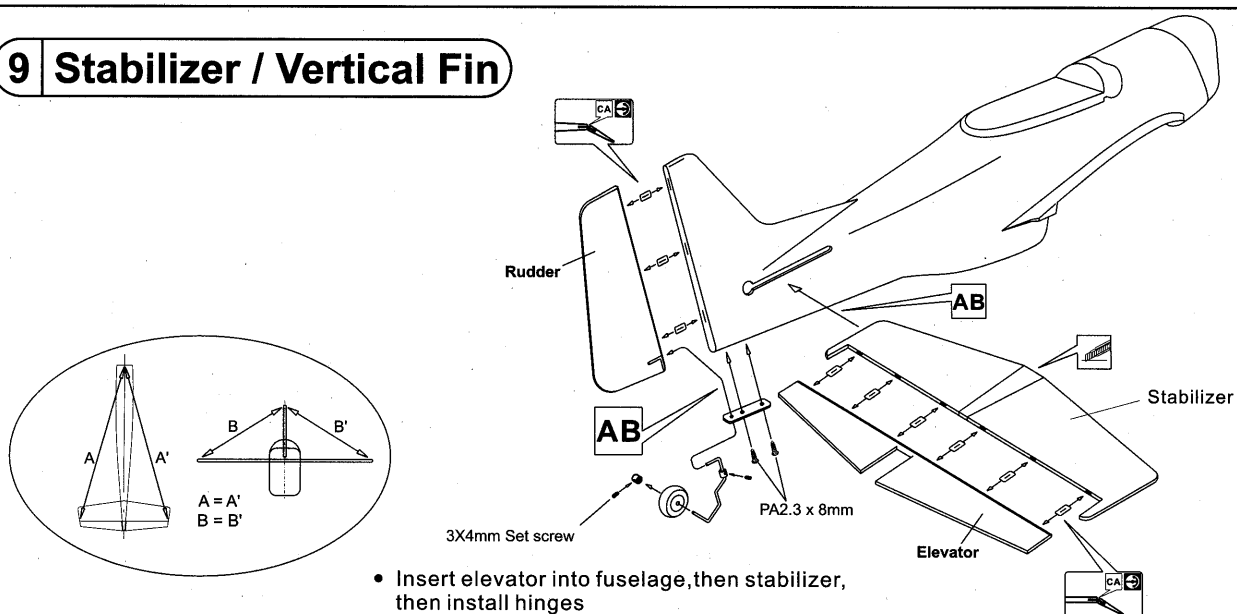
7 Main Wing



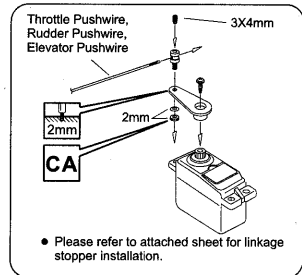
8 Landing Gear Servo



9 Stabilizer / Vertical Fin



10 Radio Equipment



Front

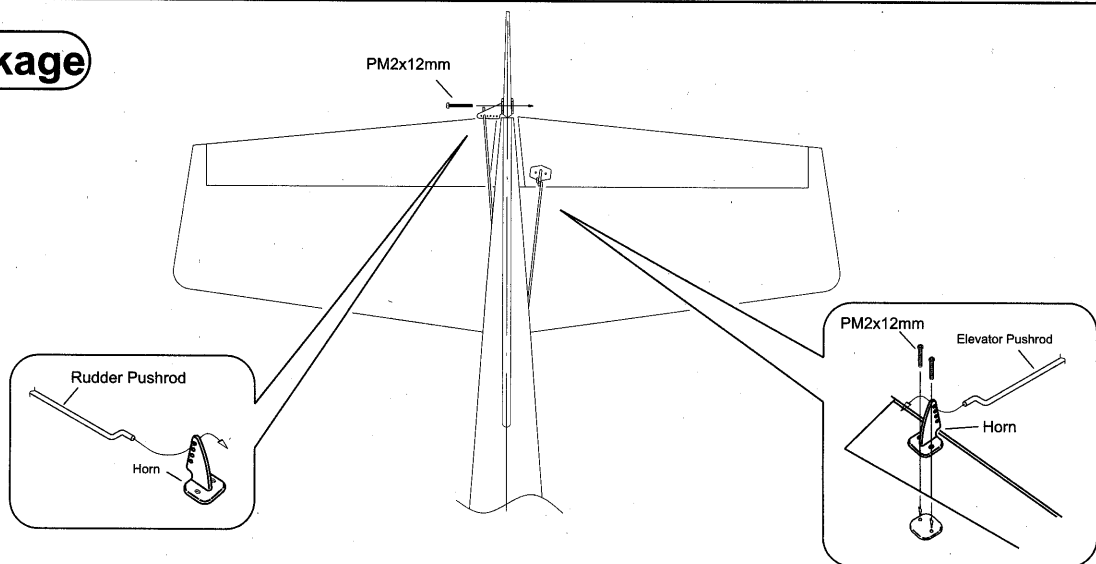
Throttle pushwire for glow engine

Rudder Pushwire

Elevator Pushwire

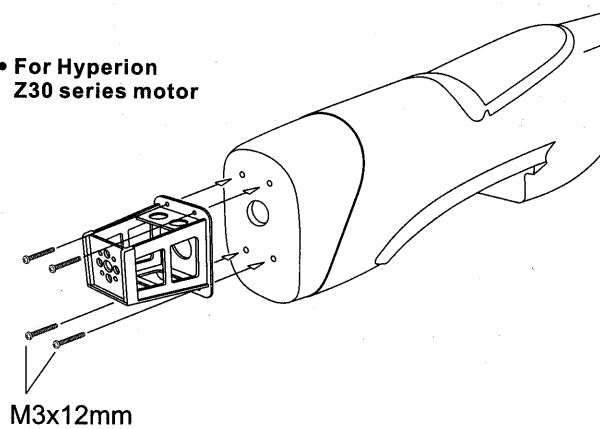
• Bottom View

11 Linkage

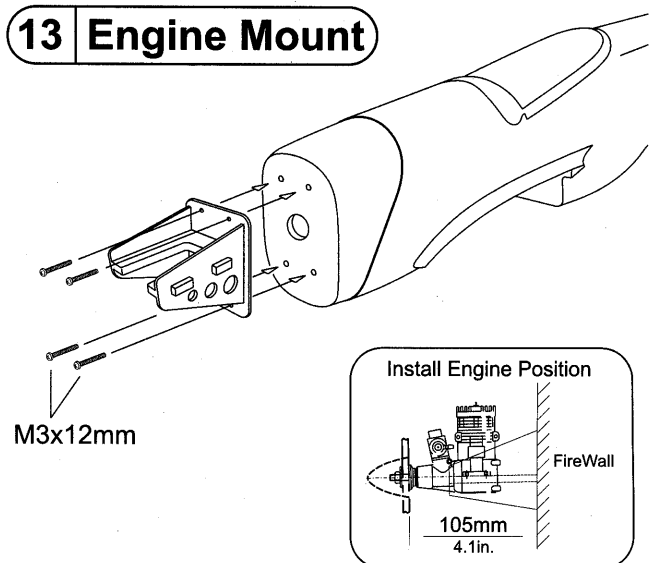


12 Motor Mount

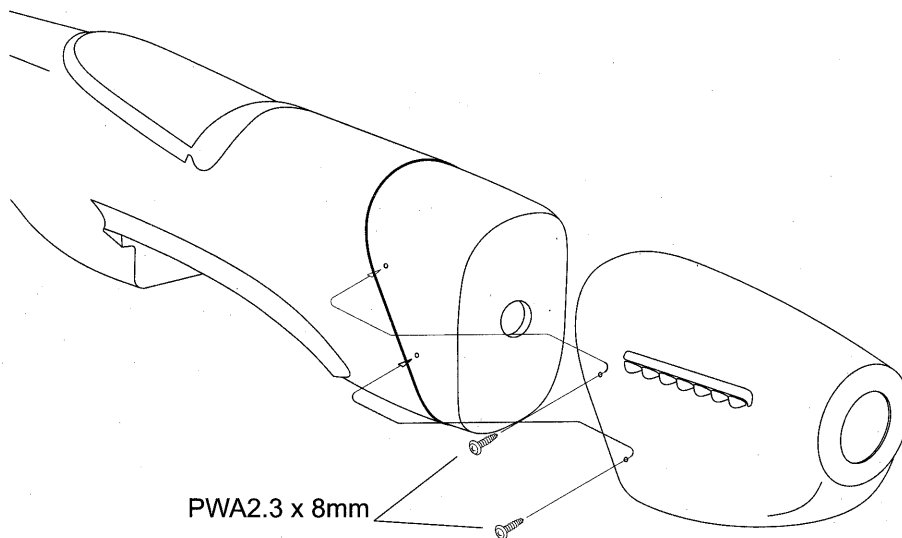
• For Hyperion Z30 series motor



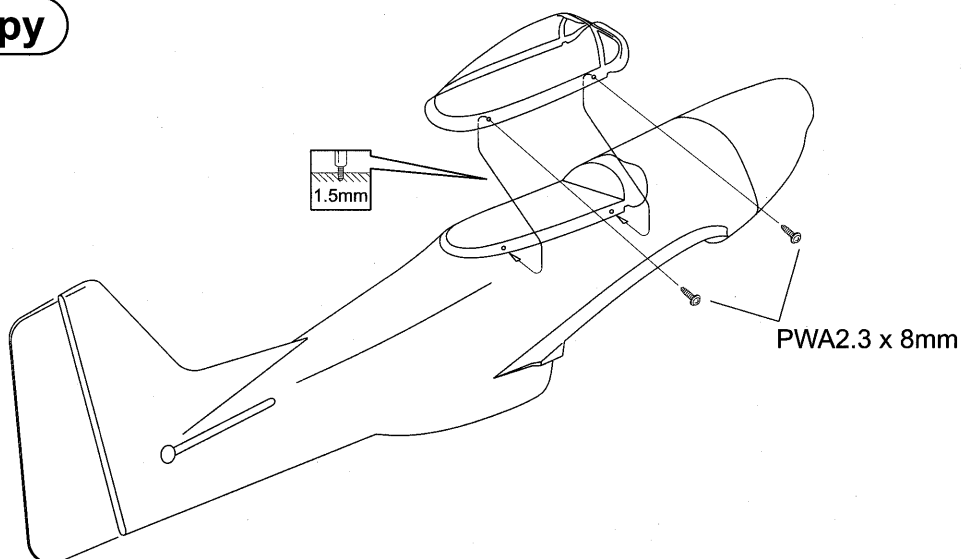
13 Engine Mount



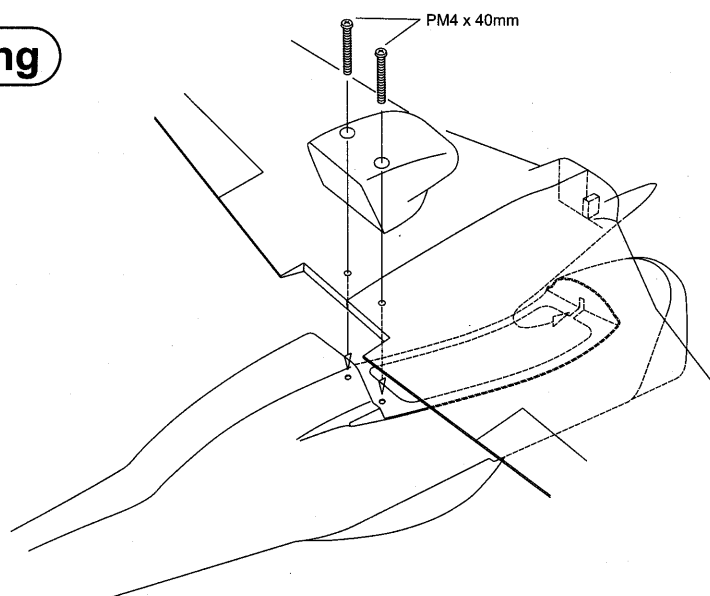
14 Cowing



15 Canopy

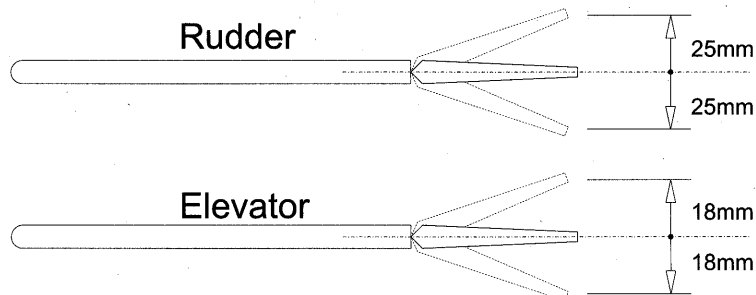


16 Main Wing



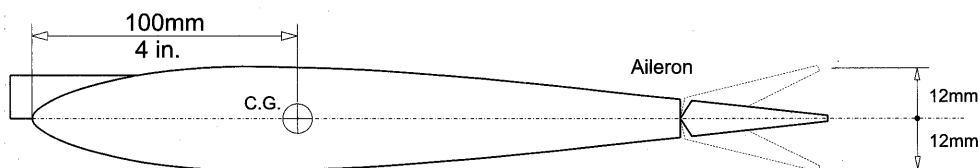
17 Control Throws

- ▷ Adjust maximum control throws as shown in these diagrams. Set your radio dual-rate switches for 60% on both elevator and aileron throws for first flights. Adjust according to your preference thereafter.



18 C.G.

- ▷ Set balance position (CG) to 100mm (4") from leading edge of wing, measured where the wing meets the fuselage. To obtain this balance, move the battery forward or backward as required. Add weight to nose or tail only as last resort. Maximum rearward position should not exceed 112mm (4.4")



Hyperion "Super-Scale Glass Series" P51-D Mustang 25

(see picture addendum at end before starting)

Before beginning construction please carefully read the following safety notes.

- The Hyperion P51-D is a fast and highly maneuverable airplane. It is NOT intended for beginners. However, anyone with experience building and flying a few models, including one with aileron control, will be able to master the P51. We suggest setting Transmitter Dual Rate LOW switches to 70% of recommended throws for aileron and elevator for the first few flights. If you have any worry about the first flight, don't hesitate to ask an experienced friend to check the model setup and test fly.
- Never fly a model airplane without a current membership in the R/C organizing body in your country. That may be the AMA in the USA, or the FAI in many other countries. Membership should include liability insurance. Check to be sure that you have it.
- Always check your flying field to be sure that it is safe before launching your model. Do not fly where others, especially children, may come into the flight path without your notice, such as a public park.
- Be sure that your transmitter, receiver, batteries, and servos are in good condition before every flight. Check carefully to see that no one else is using your frequency near your flying site.
- Many crashes are due to poor connectors or improper soldering between battery and ESC, or ESC and Motor. Experienced builders: Don't let pride stop you from checking to be sure that EVERY solder joint is good. Re-solder with a HOT iron if you have any doubts. Use only quality gold-plated connectors.
- Test motor/controller/battery setup without propeller attached first. When propeller is attached and battery is connected, be sure that the model is restrained at all times. Never put any part of your body in front of a spinning propeller.
- ALWAYS do a range test before first flight. With antennae DOWN, range should be at least 30M (100') before servos jitter. With antennae UP, 120M minimum (400'). When flying, keep your transmitter antennae pointed near vertical; never point directly at the model.
- Model airplanes are powerful and can be dangerous. Think and move carefully; never rush.

Required Gear:

Transmitter: 4-Channel minimum, 6-Channel preferred	*With 4-Ch system, a "Y" harness is required to connect the two wing servos. Servo mixing is not possible, and retract gear must be locked in the "down" position.
Receiver: 4-Channel minimum, 6-Channel preferred	
Servos: 4 Micro 13g~30g in weight	*Suggest Waypoint W-150 x3, W-150MG x2
Servo extension wires: 2x 50cm extensions for Wing Servos (2x 30cm, 2x10cm best) 1x 20cm extension for Retract Servo	*Elevator and Rudder servos mount under canopy w/pushrods to rear, so no extension required.
Brushless Motor and controller set: For super performance, use... Hyperion HP-Z3025-08 motor, TITAN 50A Brushless ESC (BEC or OPTO), and HP-ADAP-8-50XL prop adapter (this is available as a "full set" with discount in most shops) Use 10x7 to 10x10 APC E Prop. Note: HP-ADAP-8-50XL prop adapter is required to fit Spinner, no matter which motor you use. Available separately.	
Battery: 2500~3700mAh 20C LiPo 3S 9~10 cell 2200+mAh NiMH	*Suggest Hyperion 3300XP-3S
Suggested connectors: Motor<>ESC : 3.5mm Gold Short Bullet Connectors ESC<>BATTERY : Dean's Ultra™ Connectors	
Other: Some "Velco" hook-and-loop tape, and double-sided sticky tape is handy to secure radio gear	

Required Tools:

- | | |
|--|--|
| *Small and Medium-sized phillips (+) screwdrivers | *Sharp hobby knife, Sharp scissors |
| *Small "needle-nosed" pliers and Strong Wire Cutters | *Metric Hex Wrench set |
| *Metric Drill bits (1.0, 1.5, 2.0, 2.5mm) | *A black marker pen |
| *Epoxy 2-Part Glue, 5-Minute and 30-minute types | *CA Thin (fast setting) and Medium CA super glue |
| *Straightedge ruler (thin metal type is best) | *Electricians elastic tape |
| *Measuring Tape | *Silicone sealant (or bath caulk) |

BUILD GUIDE - Following the numbered diagrams

Diagram #1 - AILERON

*Remove the ailerons from right wing side. Insert hinges in the wing side half way, and be sure that each is 90 degrees to the trailing edge. Secure each with a drop of fast CA glue. Fit Aileron onto the hinges. Hold aileron to full deflection one way, and secure aileron side with one SMALL drop of CA glue on each hinge. Be careful not to use too much CA. Repeat hinge fitting for left wing side.

*Open the covering around the aileron mounting wells with sharp knife.

Diagrams #2 and #3 - AILERON SERVO & LINKAGE

*Drill 1.0mm holes in the wood blocks for the servo screws. Apply a TINY bit of fast CA glue to each screw hole to harden it.

*When mounting the servos to the top plates, we recommend sanding (about 220 grit) the servo case side which contacts the plate and using a little silicone sealant between servo and plate.

*There are circular holes in the wing TOP just behind the main spar, to allow servo leads out. Remove the covering from these holes.

*Attach servo extensions to the servos, and feed the extensions through the wing until they come out the holes we just opened in the step above. Test fit the servo plates into the wing (use a little tape if you like)

*Plug servos into the correct channel positions in your receiver. Turn on transmitter, and check to be sure that servo mixing is properly set (if using 6ch setup), that trims are "zero". Connect 4.8V test battery to receiver. Check that servo rotation direction is correct.

*With servos centered, install servo horns, with arm pointing 90 degrees to the servo mounting plate.

*Install servo plates into wing as shown, with supplied screws. (strong transparent tape works well as an alternative)

*Install Z-Bend piano wires in the servo horns, top hole. Assemble aileron linkages to horn as shown, top hole.

* IMPORTANT: The Model uses "QuickLink" Pushrod adjusters for all control surfaces, and for the retract servo. See the diagrams. The servo horns must be drilled to 2.0mm to fit the adjusters. **YOU MUST use a tiny drop of THIN CA glue to secure the Nuts on the adjusters, after you have adjusted them so that they are free of slop, yet non-binding.**

*Slowly test aileron travel. Reduce servo travel via transmitter setting if required. (12mm throw, max)

*Disconnect power from receiver, turn off transmitter.

Diagram #4 - WHEEL WELL

*Trim with scissors/knife and TEST fit, but DO NOT GLUE IT IN YET! Open a hole in the center of wheel well larger than shown, about 15mm in diameter. Glue only after step #7 is completed.

Diagrams #5 and #8 - RETRACT and LANDING GEAR SERVO

*The order of RETRACT steps in the manual is a bit off. Step #8 should be finished before #7, for example.

*FIRST, see addendum for some tips on retract installation, and make the suggested modifications. There are various ways to set it up, using either a dedicated retract servo or standard servo.

TIPS...

*Install the Z-Bend wires into the horns on the retracts FIRST, then slide the retract into position while feeding the wire through the holes in the wing ribs.

*If you do not want to use retracts, install the pushrod wire and clip so they have a few centimeters overlap when both wheels are locked fully DOWN. Slip a 4mm wheel collar over the two, and lock down the setscrew.

Diagram #6 - MAIN WHEEL

*If you are satisfied with retract installation, install the gear covers, but do not use the supplied pieces shown in the manual. They can interfere with retract operation. Instead, hold in position and "tack" the covers to gear wires with CA glue. Then use silicone sealant to "fillet" on either side of the gear legs. The silicone allows the gear legs to flex, but still retains the covers well... (degrease gear legs before applying silicone)

Diagram #7 - MAIN WING

*The retract servo gear hole has already been cut, so ignore that part...

*Lightly sand the covering away from faces of the wing root, so the two wing halves fit together with no gap.

*Cut 6 pieces of electricians tape, about 10cm (4") long each.

*Mix up some 30-minute epoxy, and dab some inside the spar slot on each wing side. Coat both wing root faces with some epoxy (not too much!)

*Insert the wing joiner into each wing half, and slide the assembly together.

*Stretch the electricians tape a bit as you use it to hold the wing halves together at front, center, and rear - on both top and bottom of the wing.

*Set aside on some blocks to hold wing shape, but stay nearby to make sure the wing remains tight and properly aligned until dry.

Diagram #8 - STABILIZER

***Note the diagram in lower left corner showing proper alignment of stabilizers.**

*Remove covering from Horizontal Stabilizer area shown. IT IS EXTREMELY IMPORTANT THAT YOU DO NOT CUT INTO THE BLASA. Use a VERY sharp knife along a straightedge with very light pressure, then test to see if the covering can be pulled away. If not, make another LIGHT pass with the knife and test again.

*Check the Elevator slot in the fuselage to insure that it is free of burrs that might scrape covering. Deburr with hobby knife if needed.

*** DO NOT INSTALL HINGES YET!** Remove and set the hinges aside

*Slide the **Elevator** through the slot in the fuselage

*Slide the **Horizontal Stabilizer** through the slot in the fuselage

*Now install hinges for the Horizontal Stabilizer and Elevator:

- Fold each hinge in half so you have a reference line. Install the hinges in Stab half way, and fix with fast CA.
- Bend the protruding hinges and wiggle them into the Elevator
- Push Stab and Elevator firmly together until no gap exists, then deflect the Elevator 30 degrees down, hold in position, and fix hinges with a drop of CA glue on each.
- There should be a hairline gap between the two parts, and no CA should be allowed anywhere but on the hinges.

*Align the Horizontal Stabilizer in the fuselage and measure Right/Left sides to front-center of fuselage as shown **B-B'**, to be sure that it is aligned properly in yaw axis. A few straight pins are handy to temporarily fix the Stabilizer. When satisfied, Glue only ONE intersection of Stabilizer and fuselage with CA.

*Now check that the Horizontal Stabilizer alignment is 90 degrees to Vertical Stabilizer, **A-A'**. When satisfied, glue the other three intersections with CA Glue. ("medium" CA Glue is useful here to fill gaps)

* Note: The manual says use Epoxy glue for Horizontal Stab, but this is not practical, nor necessary.

Diagram #9 - VERTICAL FIN

*Assemble the Tail-Wheel Assembly as shown. Glue tail wheel wire into Rudder using 5-minute epoxy, as shown.

*Now install hinges for the Vertical Stabilizer and Rudder:

- Fold each hinge in half so you have a reference line. Install the hinges in Vertical Stab half way, and fix with fast CA.
- Push Stab and Rudder firmly together until no gap exists, then deflect the Rudder 30 degrees right, hold in position, and fix hinges with a drop of CA glue on each.
- There should be a hairline gap between the two parts, and no CA should be allowed anywhere but on the hinges.

Diagram #10 - RADIO EQUIPMENT

*For Electric-powered models, we suggest placing Elevator and Rudder servos in far right and far left positions in the servo tray (nearest the fuselage).

*See Addendum for information on arranging pushrod tubes to align with the servos.

* IMPORTANT: The Model uses "QuickLink" Pushrod adjusters for all control surfaces, and for the retract servo. See the diagrams. The servo horns must be drilled to 2.0mm to fit the adjusters. **YOU MUST use a tiny drop of THIN CA glue to secure the Nuts on the adjusters, after you have adjusted them so that they are free of slop, yet non-binding.**

Diagram #11 - LINKAGE - Assemble as Shown

TIP: Install the pushrods into their tubes, fit the horns to the Z-Bends, and THEN screw the horns onto the Elevator and Rudder.

Diagrams #12 and 13 - MOTOR MOUNT

#12 Electric mount: Install the Hyperion Z3025 motor through the hole in the back of the mount. Insert motor wires into hole, wiggle shaft through hole, and slide motor in. Secure the motor using M3 screws and all four mounting hole locations. Use some anti-vibration thread-locking compound (loctite) on the screws.

#13 Engine mount: Use motor mounting screws with washers on both sides, and ny-loc nuts.

Diagram #14 - COWL

TIP: For better scale appearance, locate one each screw just behind the rearmost "exhaust stacks" (in the black area) and paint the screw heads black. Use one more screw at bottom center of cowl, where it can't be seen.

Diagram #15 - CANOPY

* Don't forget to apply the instrument panel decals first!

* The included victory symbols (swastika) may be applied to the lower rear section of the cowl, over the painted area, but should not ride up on the clear area of canopy.

TIP: For better scale appearance, instead of screws use a **thin** bead of GREY silicone sealant around the lower painted areas of cowl, and hold down until dry using electricians tape. If you mess it up, wait till the sealant is fully dry before peeling it off and trying again. Scuff the inside of cowl with sandpaper (but not the clear areas!) before applying the sealant.

Diagram #16 - MAIN WING

* **If your kit has 30mm Nylon wing bolts included, do NOT use them.** They are too short. Instead use the additional 35mm-long steel screws. If your kit has 35mm Nylon, they are fine to use...

Diagrams #17 and 18 - CONTROL THROWS AND CG

The suggested control throws are more than adequate for spirited roll rates, loops, and performance in general. For less experienced pilots, we suggest that you set these on the "high rate" switches of your radio, and do your first flights on "low rate" switches set for about 65~75% of max throws, with some exponential (20% or so) on elevator and aileron to make it less sensitive.

Keep in mind that the Mustang is a scale model, with fairly high wing loading compared to many "park fliers" and sport electric aircraft. As such, you'll want to maintain good airspeed at all times, and be sure that your landing zone is long enough for approaches at 22~25 miles per hour. The P51D is a real sweetheart to fly though, with excellent low-speed handling and no bad habits... so don't be nervous....

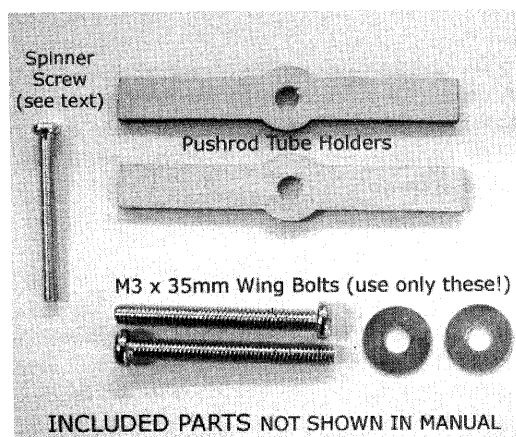
FINAL SETUP

*Install your transmitter, motor, controller and battery as recommended by the manufacturers.

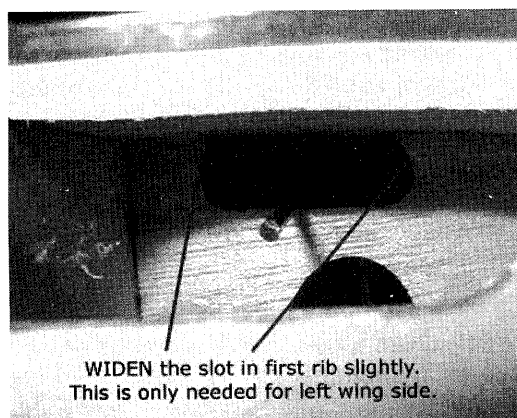
- See Setting, Control Throws, and CG sections for recommended setup. Also check that the model is balanced Right/Left (roll axis) and add lead weight to one wingtip if necessary.
- Set your DUAL RATE LOW Switches for Elevator and Aileron to 65%~75% of recommended throws, and use DUAL RATE LOW for the first flights.
- Range Check your radio system before flight
- Have a friend confirm correct deflection of all control surfaces before flight.
- Fly off hard packed dirt, asphalt, or closely cropped grass

HAVE FUN FLYING!

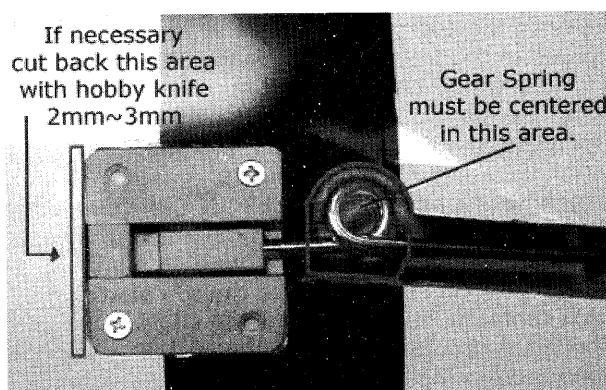
ADDENDUM:



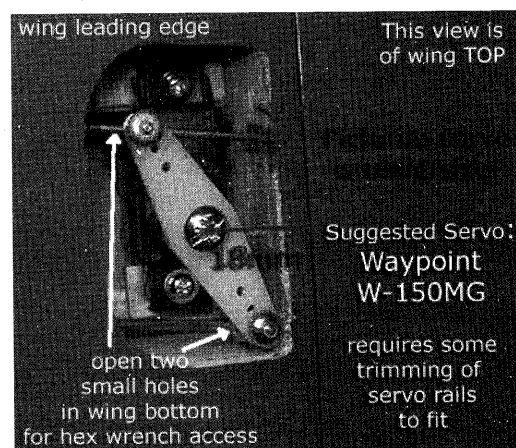
Use the spinner screw with HP-ADAP-8-50XL directly. A special nut is included with the Mustang spinner, but with this screw the special nut is not used, and thus saves some weight.



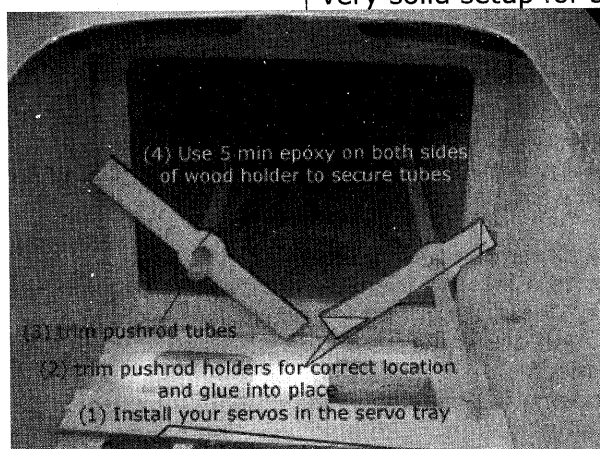
If using a standard servo (not 180 retract servo) a long servo arm is required to get enough throw. Throw must be 2cm, so servo arm must have 32mm spacing between the two rod adjusters. Servo travel may need to be adjusted at transmitter to 115% to 120%.



Check this first, before continuing with retract gear installation.



Picture showing setup with standard-type servo. To fit the W-150MG servo, the servo rail on the **leading-edge side** must be trimmed a few millimeters. Use a spot of silicone sealant on servo bottom when installing. This cements the servo to the bottom wing sheet, and makes a very solid setup for smoother retract action.



Note steps above to set up Elevator and Rudder pushrod tubes. **Do these steps first**, then proceed to installation of the pushrods and control horns.