Pulse 125 ARF

Assembly Manual

HANGAR 9®

Fly First Class™

Specifications

Wingspan.. 76.0 in (193 cm)
Length... 62.5 in (159 cm)
Wing Area ....1050 sq in (68.0 sq dm)
Weight... 8.2–9.5 lb (3.7–4.3 kg)
Engine Size .... .61–1.20 2-stroke; .90–1.25 4-stroke
Motor Size ....90–110 brushless outrunner Motor
Radio .... 4-channels or more w/5 servos (4 w/electric option)

Table of Contents

Contents of Kit and Parts Layout

Replacement Parts

No.	Part Number	Description
1.	HAN517001	Fuselage with Hatch
2.	HAN517002	Fuselage Hatch
3.	HAN517003	Left Wing Panel
4.	HAN517004	Right Wing Panel
5.	HAN517005	Horizontal and Vertical Stabilizer
6.	HAN517006	Canopy
7.	HAN517007	Cowl
8.	HAN517008	Landing Gear, with Axles
9.	HAN517010	Wing Tube
10.	HAN517011	Wheelpants (2)
11.	HAN517012	Main Wheels
12.	HAN517015	Fuel Tank
13.	HAN517017	Tailwheel Assembly
14.	HAN517018	Wing Bolt Plate

Items not shown:

Part Number	Description
HAN517009	Landing Gear Axles
HAN517013	Engine Mount
HAN517014	EP Motor Mount
HAN517016	Hardware Package
HAN517019	Wing Mounting Nylon Bolts

LANDING GEAR & COWL MOUNT HARDWARE

3.35-inch rubber wheel	2	
1.35-inch rubber tail wheel	1	
2mm wheel collar with setscrew	1	
4mm wheel collar with setscrew	4	
5mm x 44mm steel axles with nut	2	
3mm x 15mm socket head cap screw	5	Landing gear
3mm x 10mm socket head cap screw	8	Cowl/wheel pants
3mm washer	13	

PUSHROD

$3\frac{1}{4}$-inch (2mm) pushrod with steel clevis and nut	2	Aileron
$26\frac{7}{8}$-inch (2mm) pushrod with clevis and nut	1	Rudder
$28\frac{1}{4}$-inch (2mm) pushrod with clevis and nut	1	Elevator
$21\frac{5}{8}$-inch (2mm) pushrod with clevis and nut	1	Throttle

FUEL TANK

16 oz (470cc) fuel tank	1
3mm x 50mm aluminum tube	2
3mm x 70mm aluminum tube	1
Rubber stopper	1
Self-tapping screw	1
Silicon tube	1
Nylon stopper piece	2
10mm x 10mm x 110mm tank brace	1

WING AND TAIL HARDWARE

5/16 x 2-inch dowel with aluminum sleeve	2	
6mm x 40mm nylon wing bolt	2	Wing bolts
3mm washer	2	Tail attachment
3mm nylon lock nut	2	Tail attachment

MOTOR MOUNT

Nylon motor mount	2	
75mm aluminum standoff	4	
4mm x 25mm socket head cap screw	8	Mount to firewall/EP mounts
4mm blind nut	4	Mount to firewall
4mm washer	4	Mount to firewall
4mm x 25mm socket head cap screws	4	Engine to mount
4mm locknut	4	Engine to mount
4mm washer	8	Engine to mount

CONTROL HORNS

Nylon clevis	4	
2mm x 20mm machine screw	8	
Brass pushrod connector with backplate	1	Throttle
Silicon clevis keeper	4	
Plywood firewall template	1	

Using the Manual

This manual is divided into sections to help make assembly easier to understand, and to provide breaks between each major section. In addition, check boxes have been placed next to each step to keep track of each step completed. Steps with a single box (□) are performed once, while steps with two boxes (□□) indicate that the step will require repeating, such as for a right or left wing panel, two servos, etc. Remember to take your time and follow the directions.

Important Information Regarding Warranty Information

Please read our Warranty and Liability Limitations section on Page 36 before building this product. If you as the purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

UltraCote® Covering Colors

• Orange	HANU877
• Silver	HANU881
• White	HANU870

Before Starting Assembly

Before beginning the assembly of your model, remove each part from its bag for inspection. Closely inspect the fuselage, wing panels, rudder and stabilizer for damage. If you find any damaged or missing parts, contact the place of purchase.

If you find any wrinkles in the covering, use a heat gun or covering iron to remove them. Use caution while working around areas where the colors overlap to prevent separating the colors.

HAN100 – Heat Gun

HAN150 – Covering Glove

HAN101 – Sealing Iron

HAN141 – Sealing Iron Sock

Transmitter Requirements

The Pulse 125 ARF requires a minimum of a 4-channel radio to operate the functions of your aircraft. We suggest the following radio systems available through Horizon Hobby or your local hobby distributor.

Spektrum DX6i with receiver	SPM6600
Spektrum DX7 with receiver	SPM2710
JR Systems X9303 2.4GHz with receiver	JRP2915

Radio Equipment Requirements

The following items are recommended when installing the receiver in your aircraft:

AR7000 7-Channel Receiver	SPM6070
DS821 Digital Sport Servo (5) (Note: Only 4 servos required for EP version)	JRPS821
9-inch Servo Extension (2)	JRPA097
3-inch Servo Extension (2)	JSP98100 or
Y-harness	JSP98020
JR Switch, Chargeswitch	JRPA004
Receiver battery, 6-volt, 2700mAh	JRPB5008

Aileron option 1:
DS821 Servo (2) (No mixing required)

   • Y-harness (plugged into receiver)
   • 9-inch extension (connected to servo) (2)

Aileron option 2:
DS821 Servo (2) (requires mixing of aileron servos)

   • 3-inch extension (plugged into receiver) (2)
   • 9-inch extension (connected to servo) (2)

Rudder: DS821 Servo
Elevator: DS821 Servo
Throttle: DS821 Servo (Not required for electric version)

Recommended Setup–2-Stroke Glow

• Evolution® 120NX Engine (EVOE1200)
• Evolution Propeller 15 x 6 (EVO15060)

Recommended Setup–4-Stroke Glow

• Saito™ 1.25 AAC (SAIE125A or SAIE125AGK)
• Evolution Propeller 16 x 6 (EVO16060)

Recommended Setup–4-Stroke Gas

• Saito™ FG20 (SAIEG20)
• Evolution Propeller 15 x 6 (EVO15060)
• Ignition Battery (JRPB5008)
• Ignition Switch (JRPA004)
• Evolution 2-stroke Oil (EVOX1001Q)

Recommended Setup– Electric Power (EP)

• E-flite® Power 110 BL Outrunner Motor (EFLM4110A)
• Phoenix HV-85 High Voltage ESC (CSEPHX85HV)
• Thunder Power 4S 3850–4500mAh Li-Po Battery Pack
• APC Propeller 16 x 12E (APC16012E)

Field Equipment Required

• Fuel (15% recommended)
• Propeller
• Long Reach Glow Plug Wrench (HAN2510)
• Metered Glow Driver w/Ni-Cd & Charger (HAN7101)
• 2-Cycle Sport Plug (EVOGP1)
• Manual Fuel Pump (HAN118)

Optional Field Equipment

• Selfstick weights, 6 oz (HAN3626)
• PowerPro 12V Starter (HAN161)
• 12V 7Ah Sealed Battery (HAN102)
• Power Panel (HAN106)
• Blue Block After Run Oil Applicator (EVOX1001)
• Blue Blocker After Run Oil Refill (EVOX1002)
• Cleaner and towels

Additional Required Tools

- Cardstock
- Double-sided tape
- Felt-tipped pen
- Low-tack tape
- Mixing cup
- Nut driver: 5.5mm
- Petroleum jelly
- Pin drill
- Rubbing alcohol
- Straight edge
- Phillips screwdriver: #1, #2
- Hobby knife with #11 blade
- Rotary tool with sanding drum
- Box or open end wrench: 10mm (2)
- Hex wrench or ball driver: 1.5mm, 2mm, 4mm
- Drill bit: 1/16-inch (1.5mm), 5/64-inch (2mm), 5/32-inch (4mm), 3/16-inch (5mm)
- Covering iron
- Drill
- Hobby scissors
- Medium grit sandpaper
- Mixing stick
- Paper towel
- Flat file
- Pliers
- Side cutter
- Tapered reamer
- T-pins

Additional Required Adhesives

- Canopy Glue   (PAAPT56)
- Thin CA   (PAAPT08)
- Threadlock   (PAAPT42)
- 30-Minute Epoxy   (HAN8002)

FS One®

With FS One (HANS2000) you get more than photorealistic fields, gorgeous skies and realistic-looking aircraft. You get incredibly advanced aerodynamic modeling that simulates every possible aspect of real-world flight.

The first Hangar Pack (HANS4010) will add even more aircraft to FS One. This latest edition includes ten new planes and helis from your favorite brands, including Hangar 9, E-flite and Align. You'll be able to fly aircraft that are only available on FS One such as the T-REX, Blade CX2, Blade CP Pro, Hangar 9 P-51 and F-22 PTS. And as always, with the Hangar Pack, you still get all the same great features that you did with the original aircraft.

HANS2008   **HANS4010**

Rudder and Fin Preparation

Required Parts

Rudder	Fin
Tail wheel bracket	CA hinge (3)

Tools and Adhesives

|	
T-pins	Petroleum jelly
Hobby knife with #11 blade	Thin CA
30-minute epoxy	Mixing stick
Mixing cup	Medium grit sandpaper
Rubbing alcohol	Paper towel
Drill bit: 1/16-inch (1.5mm	Pin drill

☐ **Step 1**

Use medium grit sandpaper to roughen the tail gear wire. This provides a better surface for the epoxy to adhere to.
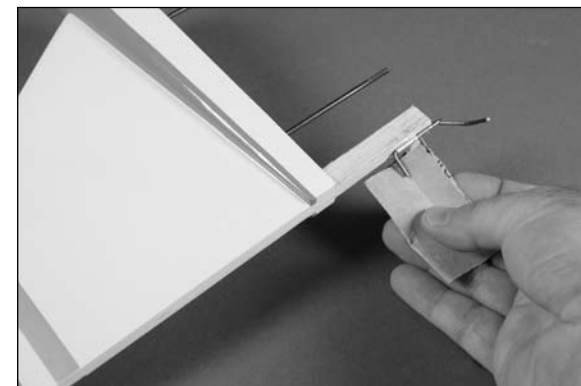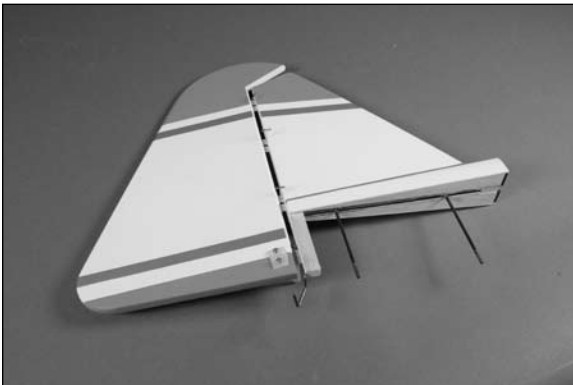
☐ Step 2

Apply a small amount of petroleum jelly to the tail gear wire. This will keep the epoxy from gluing the wire to the bracket.
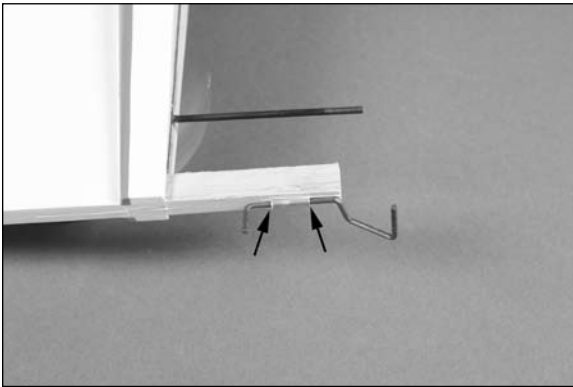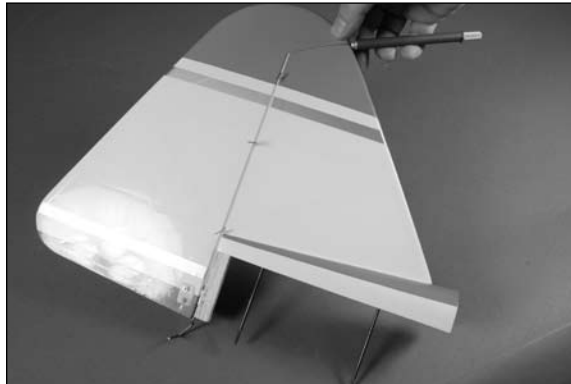

☐ Step 3

Test fit the rudder on the hinges. Make sure the tail gear fits into the pre-drilled hole in the rudder.
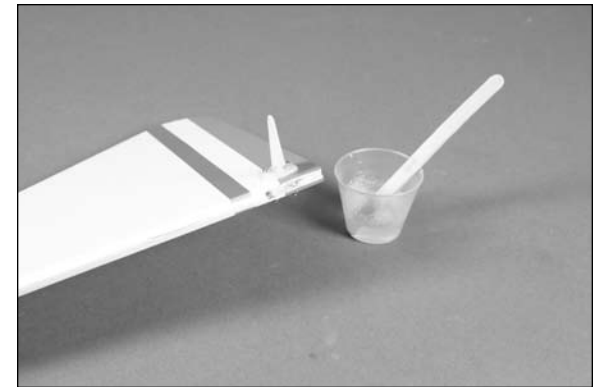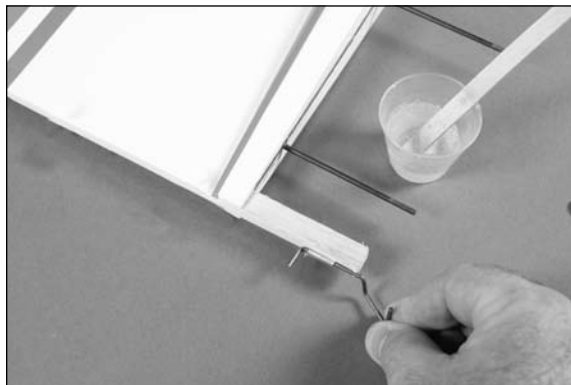

☐ Step 4

When fitting the rudder, make sure there is a sufficient gap between the rudder and fin. Use a hobby knife to set the correct spacing.


☐ Step 5

Mix a small amount of 30-minute epoxy. Apply the epoxy to both the tail gear wire where it enters the rudder and to the hole in the rudder.

Note: Use a paper towel and rubbing alcohol to remove any excess epoxy before it cures. Excess epoxy could cause the rudder and fin to bind and increase the load on the rudder servo.

☐ Step 6

The rudder and fin can now be joined together. While the epoxy cures, wick thin CA into each hinge. Apply the CA to both sides of the hinge. Allow the CA to cure WITHOUT using accelerator as this will not allow the CA to wick full into the hinge. Continue once the CA and epoxy have both cured.
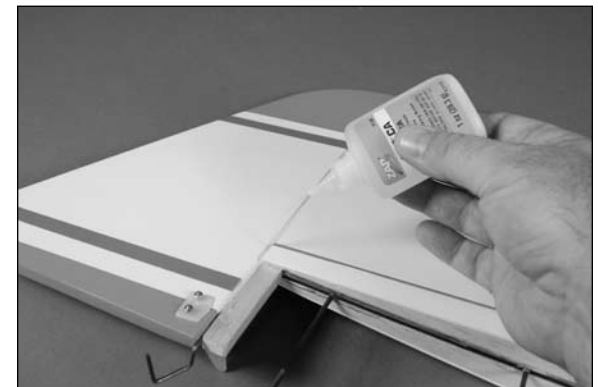
☐ Step 7

Gently pull on the rudder and fin to make sure the hinges are secure. If any of the hinges break loose, reapply CA to the hinge.
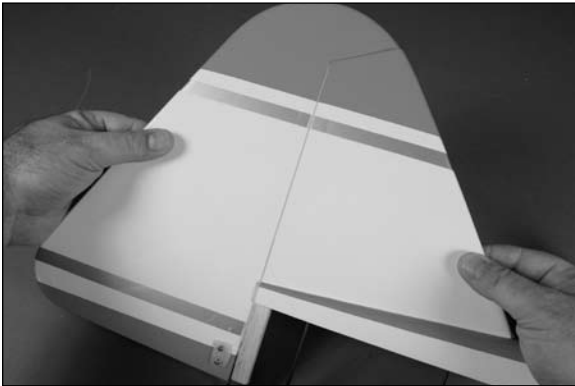
☐ Step 8

The last step is to break in the hinges. Move the rudder through its range of movement a few times until it moves freely.

Tail Installation

Required Parts

Fuselage	Rudder/fin assembly
Elevator/stabilizer assembly	3mm washer (2)
3mm locknut (2)	

Tools and Adhesives

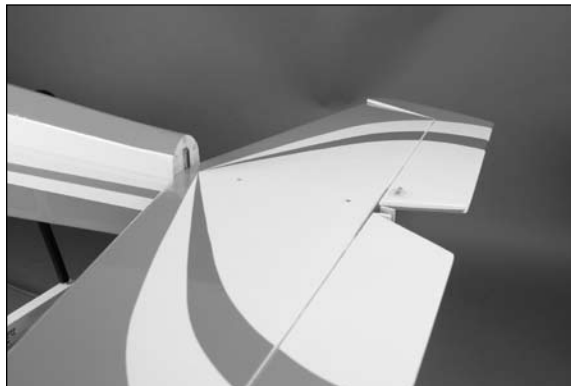|	
Nut driver: 5.5mm	Thin CA

Important: Check and break in the elevator hinges before starting this section of the manual. Apply thin CA to any loose hinges.
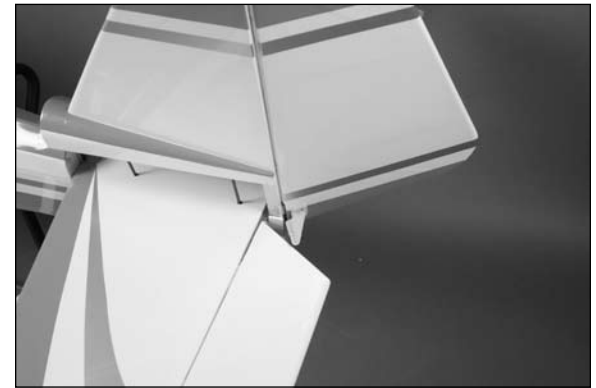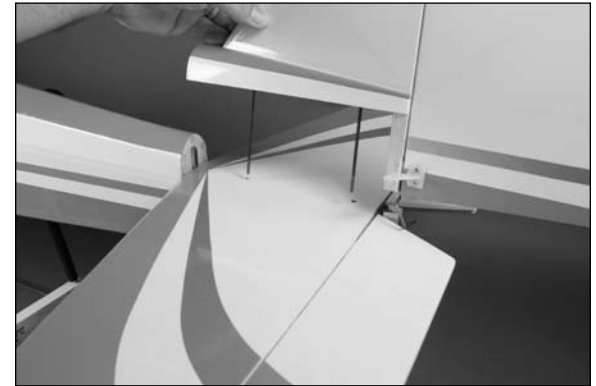
☐ Step 1

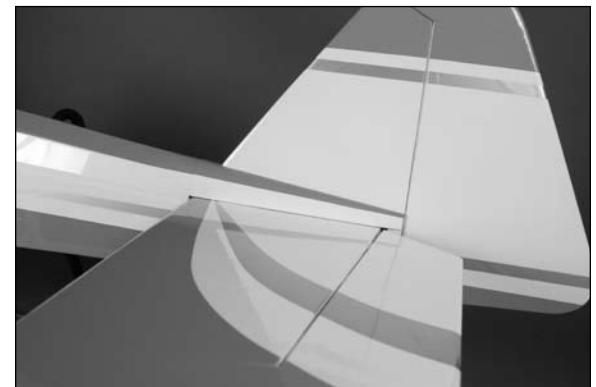Position the stabilizer on the stabilizer saddle at the rear of the fuselage.

☐ Step 2

Insert the threaded rods from the fin through the holes in the stabilizer and into the holes in the fuselage. You will need to deflect the rudder so the control horn can pass the elevator.

☐ Step 3

When installed, the fin will fit tight against the stabilizer.

☐ Step 4

Place two 3mm washers on the threaded rods.

☐ Step 5

Thread two 3mm locknuts on the threaded rods. Use a 5.5mm nut driver to tighten the nuts.

Important: Do not over-tighten the nuts and damage the fuselage. The nuts only need to be tightened enough so the stabilizer and fin are secure and do not move on the fuselage.

Radio Installation

Required Parts

Fuselage	Metal clevis (2)
2mm nut (2)	Clevis retainer (2)
Servo with hardware (2)	Switch harness
Receiver battery	Receiver
1/4-inch (6mm) foam	Y-harness
Elevator linkage wire, 27.5-inch (698mm)	
Rudder linkage wire, 28.5-inch (724mm)	

Tools and Adhesives

Phillips screwdriver: #1, #2	
Side cutters	Straight edge
Thin CA	Pin drill
Drill bit: 5/64-inch (2mm)	

☐ Step 1

Slide the hatch on the fuselage forward to disengage the magnets at the rear of the hatch. Lift the hatch up at the rear and remove it from the fuselage.

☐ Step 2

Use a #1 Phillips screwdriver to thread a servo mounting screw into each of the holes in the radio tray. This will cut the threads for the screws in preparation of the next step.
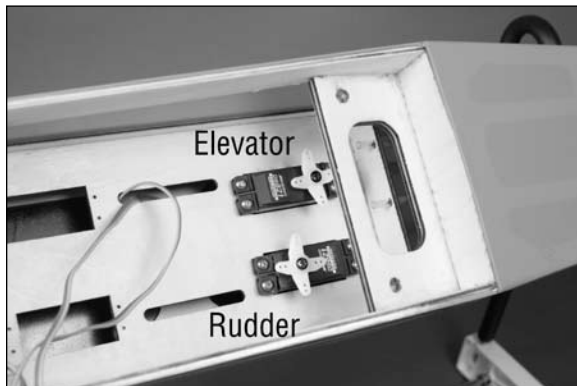

☐ Step 3

Place 2–3 drops of thin CA in each hole to harden the surrounding wood. This harder surface will make the screws less likely to vibrate loose.

Step 4

After preparing the rudder and elevator servo with the appropriate hardware, secure them in the radio tray using the screws provided with the servos.

Step 5

Remove the covering from the side of the fuselage to mount your particular switch. There are a few different locations, so choose the correct one for your application.
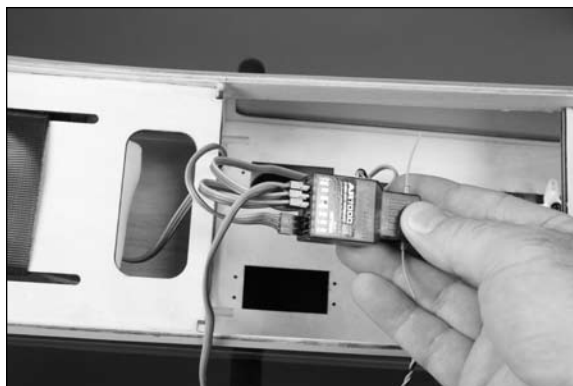

Step 6

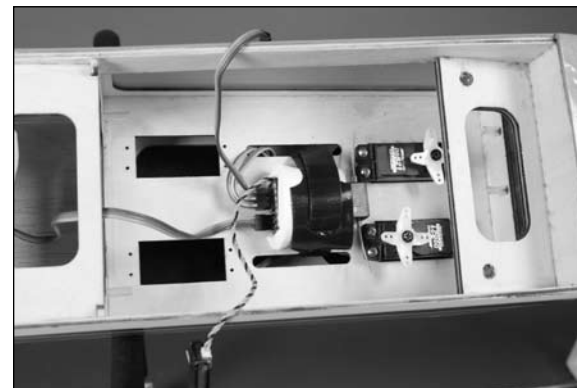Wrap the receiver battery in foam and secure it in position using a hook and loop strap (not included).

Step 7

Plug the rudder and elevator servo leads in the correct ports of your receiver. Also plug the aileron Y-harness and lead from the switch harness at this time.
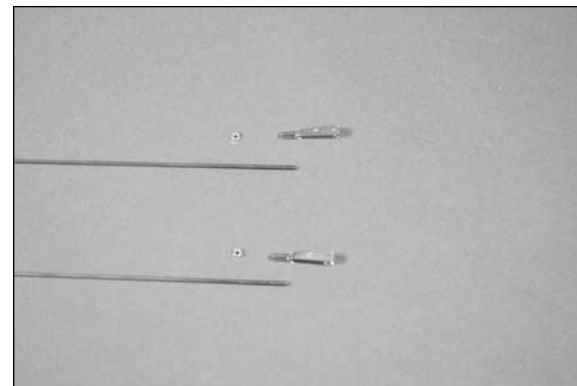

Step 8

Wrap the receiver in foam and secure it in position as shown.

Note: The remote receiver will be mounted later in the manual. Its location will be determined by your particular motor selection.

Step 9

Remove the clevises and nuts from the 27.5-inch (698mm) and 28.5-inch (724mm) linkage wires. Set the hardware aside so it doesn't get lost.

☐ Step 10

Remove the stock servo horns from the servos. Center the servos using the radio system. Use a 180-degree servo horn on the servos. You may need to rotate the horns 180-degrees to get them to align perpendicular to the servos.
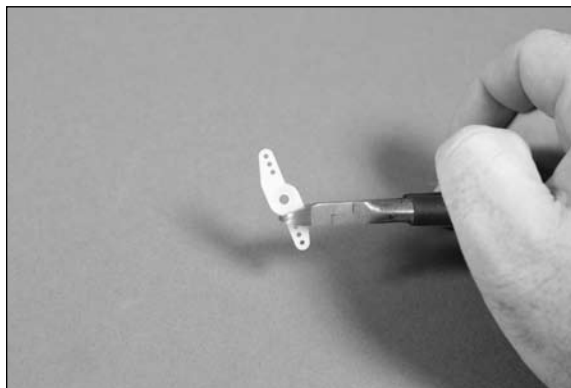

☐ Step 11

Use a pin drill and 5/64-inch (2mm) drill bit to enlarge the holes that are 9/16-inch (15mm) from the center of the servo horn for the pushrod wires.

☐☐ Step 12

Remove the horns from the rudder servo and use side cutters to trim the arm from the horn that will not be used.

Note: Removing the excess arm will help in preventing interference between the arm and other components inside the fuselage.

☐☐ Step 13

Insert the Z-bend from the 28$\frac{1}{2}$-inch (724mm) pushod in the hole enlarged earlier.
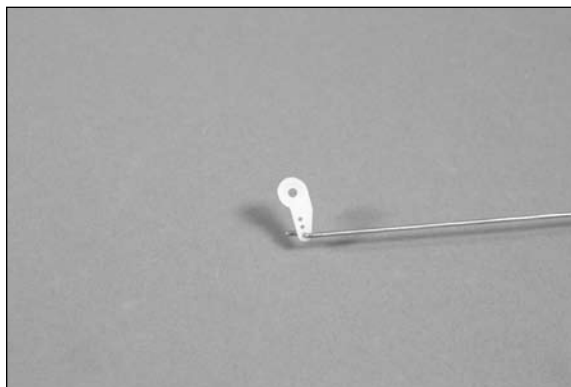
☐☐ Step 14

Slide the pushrod wire into the tube near the rudder servo.

☐☐ Step 15

With the rudder servo still centered, secure the servo horn to the rudder servo using the screw provided with the servo.

☐☐ Step 16

Use a straight edge to make sure the rudder is aligned with the fin.

☐☐ Step 17

Slide a clevis retainer on the clevis. Thread the 2mm nut and clevis back on the pushrod wire. Attach the clevis in the center hole of the control horn. Tighten the nut against the clevis, then slide the clevis retainer over the forks of the clevis to keep it from popping loose in flight.

Important: Make sure to use threadlock on all metal-to-metal fasteners.

☐ Step 18

Repeat Steps 12 through 17 to install the 27.5-inch (698mm) linkage wire for the elevator. Attach the clevis to the center hold on the elevator control horn.

Aileron Servo Installation

Required Parts

Wing panel (right and left)	Metal clevis (2)
Clevis retainer (2)	2mm nut (2)
Wing dowel (2)	Servo with hardware (2)
9-inch (228mm) servo entension (2)	
Aileron linkage wire, 3.5-inch (90mm) (2)	

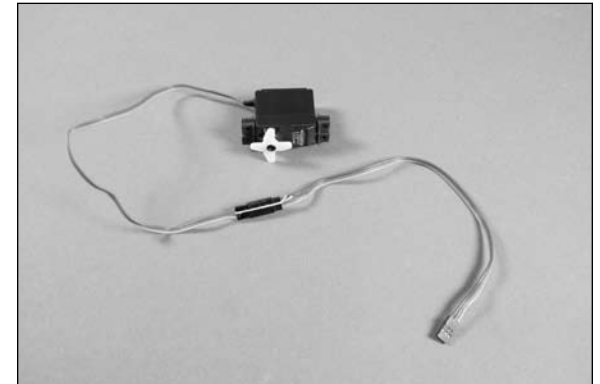**Tools and Adhesives**

Thin CA	Mixing cup
30-minute epoxy	Mixing stick
Rubbing alcohol	Paper towel
Phillips screwdriver: #1	Side cutters
Thin CA	

Important: Check and break in the aileron hinges before starting this section of the manual. Apply thin CA to any loose hinges.
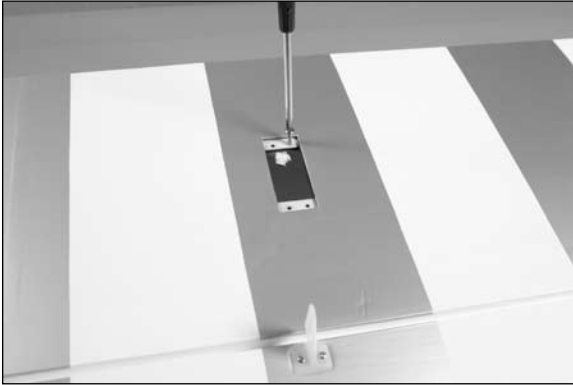
☐☐ Step 1

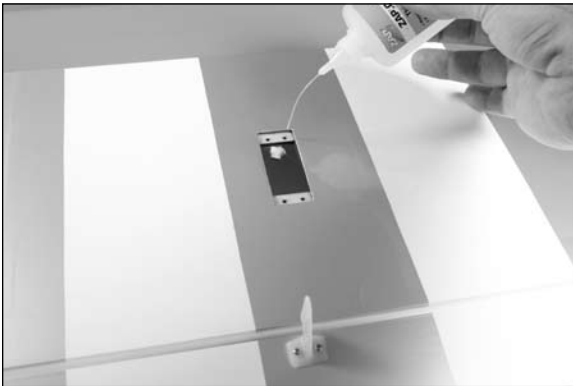Secure a 9-inch (228mm) servo extension to the aileron servo.

☐☐ Step 2

Thread a servo mounting screw into each of the holes for mounting the servo. This will cut the threads for the screws in preparation of the next step.
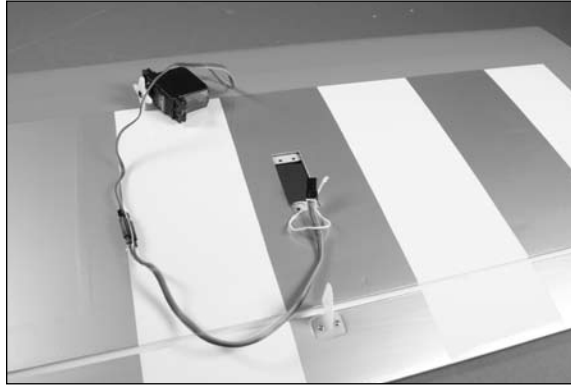

☐☐ Step 3

Place 2–3 drops of thin CA in each hole to harden the surrounding wood. This harder surface will make the screws less likely to vibrate loose.

☐☐ Step 4

Remove the tape that secures the string inside the wing. Do not remove the string from the wing. Tie the end around the servo extension.

☐☐ Step 5

Use the string to pull the servo lead through the wing and out the hole as shown.

☐☐ Step 6

Secure the servo in the wing using the screws included with the servo. Make sure the output of the servo faces the aileron.
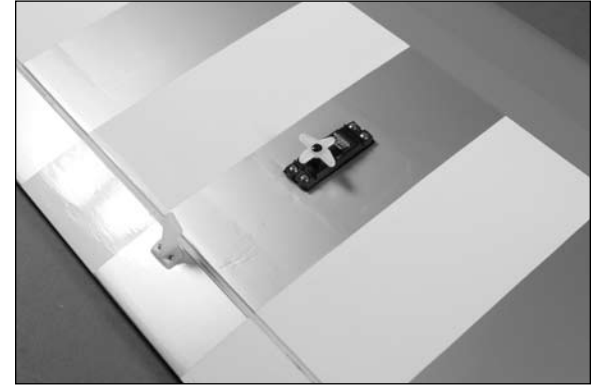
☐☐ Step 7

Remove the stock servo horns from the servo. Center the servo using the radio system. Use a 180-degree servo horn on the servo. You may need to rotate the horn 180-degrees to get it to align parallel to the aileron hinge line. Use a pin drill and 5/32-inch (2mm) drill bit to enlarge the hole that is 9/16-inch (15mm) from the center of the servo horn for the pushrod wire.

Wing Tip
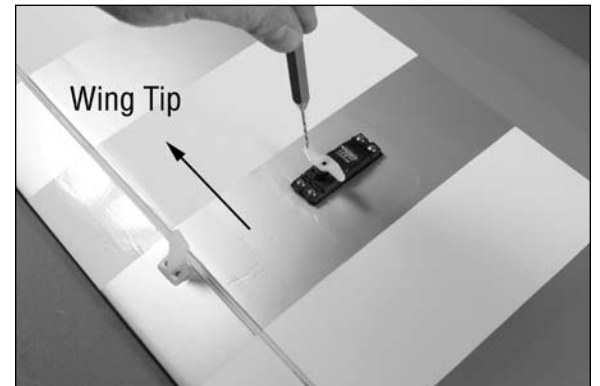
☐☐ Step 8

Remove the horns from the aileron servo and use side cutters to trim the arm from the horn that will not be used.

☐☐ Step 9

Secure the servo horn to the servo using the screw removed earlier. Insert the Z-bend in the 3.5-inch (90mm) pushrod wire in the hole enlarged in the servo horn.

☐☐ Step 10

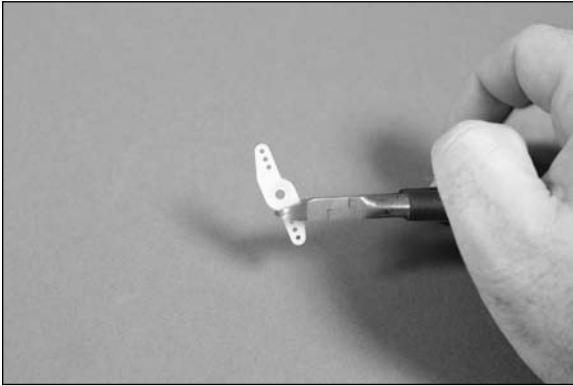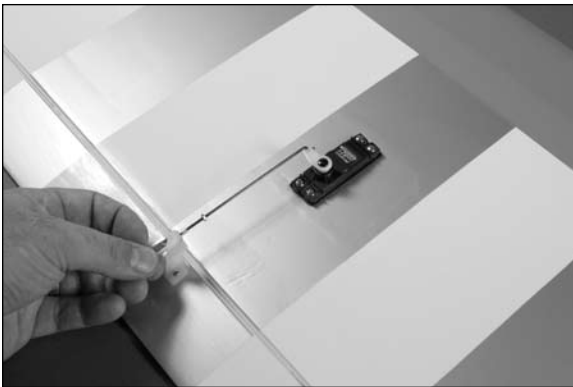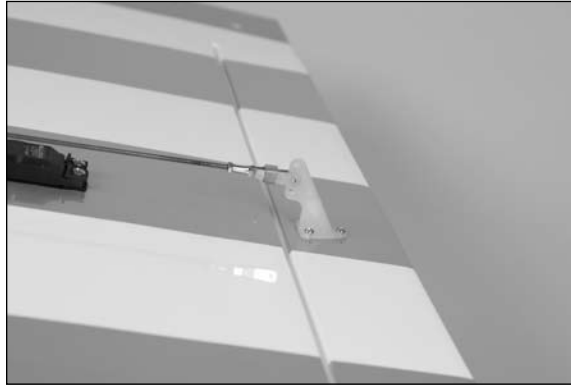Connect the clevis to the center hole in the aileron control horn. Tighten the 2mm nut against the clevis, then slide the clevis retainer over the forks of the clevis to keep it from popping loose in flight.

Important: Make sure to use threadlock on all metal-to-metal fasteners.

☐☐ Step 11

Use 30-minute epoxy to glue the wing dowel in the leading edge of the wing. Remove any excess epoxy using a paper towel soaked in rubbing alcohol.
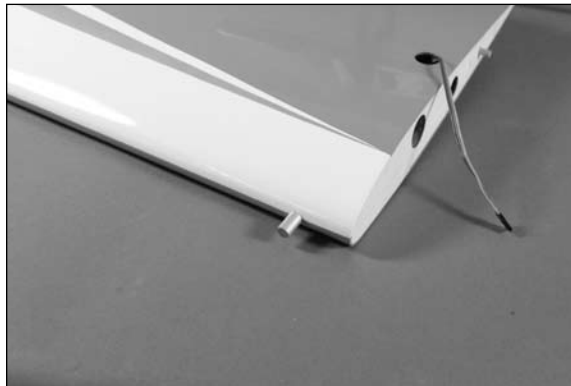
☐ Step 12

Repeat Steps 1 through 12 to prepare the opposite wing panel.

Landing Gear and Wheel Installation

Required Parts

Fuselage	Aluminum landing gear
Wheel axle with nut (2)	Main wheel (2)
Tail wheel	Wheel pant (right and left)

3mm x 8mm button head screw (4)
2mm wheel collar with setscrew
4mm wheel collar with setscrew (4)
3mm x 16mm button head screw (5)

Tools and Adhesives

Threadlock	Flat file
Box or open end wrench: 10mm (2)	
Hex wrench or ball driver: 1.5mm, 2mm	

☐ Step 1

Attach the landing gear to the fuselage using five 3mm x 16mm button head screws. The gear will angle back on the fuselage as shown in the image below. Make sure to use threadlock on the screws so they don't vibrate loose.

☐☐ Step 2

Use two 10mm wrenches to install the wheel axle. Make sure to align the nut vertically so the wheel pant will fit over the nut.
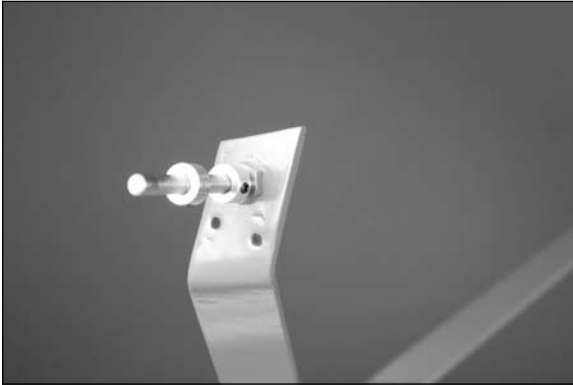
☐☐ Step 3

Remove the collars from the axle. Use the edge of a flat file to make two flat areas on the bottom of the axle. This will provide an area for the setscrew making the collars more secure on the axle.
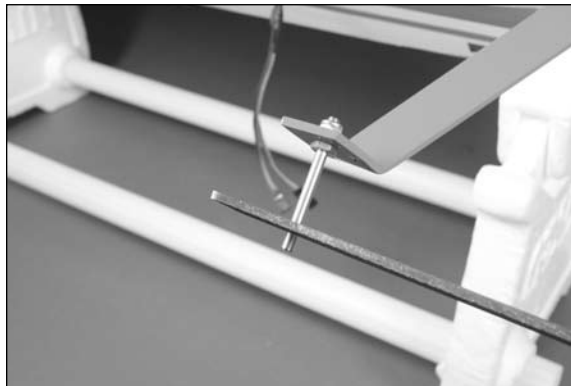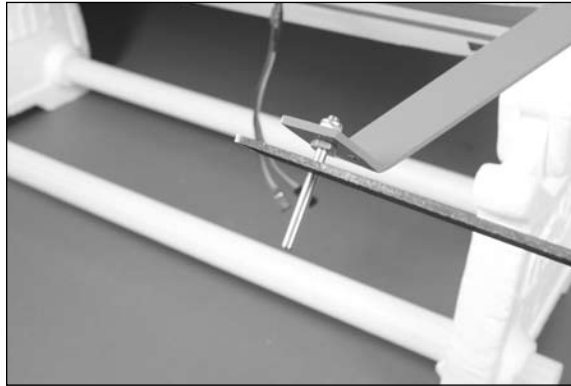
☐☐ Step 4

Position one of the wheel collars 3/8-inch (9.5mm) from the edge of the gear as shown. Tighten the setscrew to secure the collar to the axle.
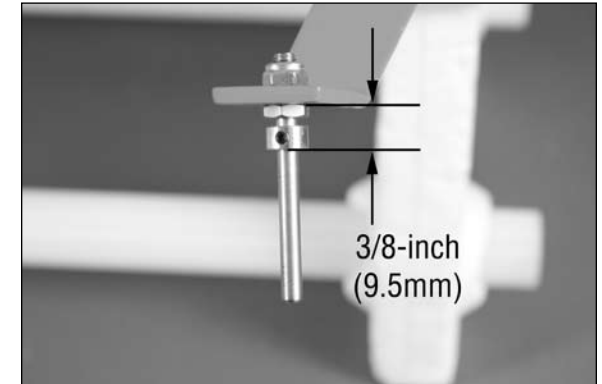
Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

☐☐ Step 5

Place the wheel on the axle, then use another wheel collar to secure the wheel. Make sure the collar is not too tight against the wheel by making sure the wheel can rotate freely on the axle.

Hint: Place a drop of machine oil on the axle so the wheel will roll freely.

☐☐ Step 6

Use two 3mm x 8mm button head screws to secure the wheel pant on the landing gear.

Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

☐☐ Step 7

Check to make sure the wheel is centered in the opening in the bottom of the wheel pant. If not, loosen the wheel collars and reposition the wheel.
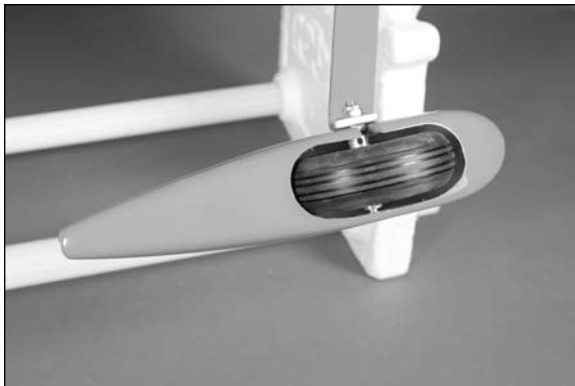
☐ Step 8

Repeat Steps 2 through 7 to install the remaining wheel and wheel pant.

☐ Step 9

Slide the tail wheel on the tail gear wire.

☐ Step 10

Use a 2mm wheel collar to keep the tail wheel on the tail gear wire.

Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

Four-Stroke Engine Installation

Required Parts

Fuselage	4mm washer (8)
4mm locknut (4)	
Throttle pushrod with clevis	
Brass pushrod connector with backplate	
4mm x 25mm socket head bolt (8)	
Engine mount rail (right and left)	
Plywood engine mount template	

Tools and Adhesives

Drill	Low-tack tape
Pin drill	Felt-tipped pen
Hobby knife with #11 blade	
Rotary tool with sanding drum	
Hex wrench or ball driver: 1.5mm, 4mm	
Drill bit: 1/16-inch (1.5mm), 5/32-inch (4mm), 3/16-inch (5mm)	

☐ Step 1

Slide the hatch on the fuselage forward to disengage the magnets at the rear of the hatch. Lift the hatch up at the rear and remove it from the fuselage.

Step 2

Use low-tack tape to attach the firewall template to the firewall. Use a drill and 1/16-inch (1.5mm) drill bit to drill the appropriate holes into the firewall.

Step 3

Remove the template and use a 5/32-inch (4mm) drill bit to enlarge the four holes drilled in the previous step.

Step 4

Use four 4mm x 25mm socket head screws and four 4mm washers to secure the nylon mounts to the firewall. Note the positioning of the mounts as shown in the photos.

Step 5

Position the engine on the mount so the front face of the driver washer is $5\frac{1}{2}$-inches (140mm) forward of the firewall.

$5\frac{1}{2}$-inches (140mm)

Step 6

Use a felt-tipped pen to mark the mount for the engine mounting hardware.

Step 7

Use a felt-tipped pen to mark the mount if necessary so the carburetor arm can move freely.
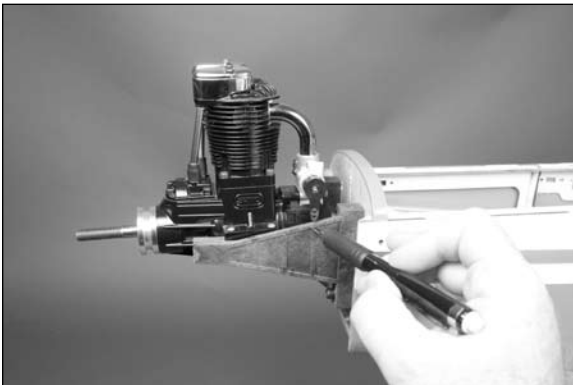
Step 8

Remove the engine from the mount. Use a rotary tool and sanding drum to remove enough material from the mount so the carburetor arm can move freely.
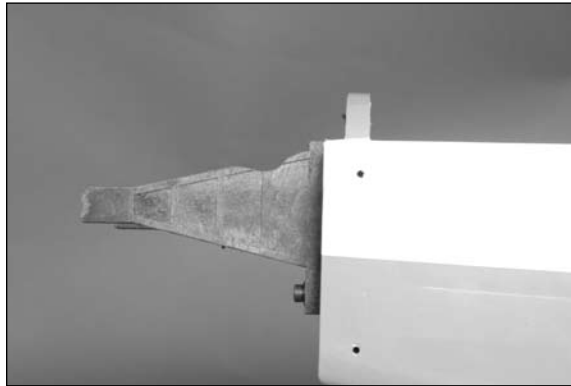
Step 9

Use a drill and a 5/32-inch (4mm) drill bit to drill the four holes through the mount to secure the engine.
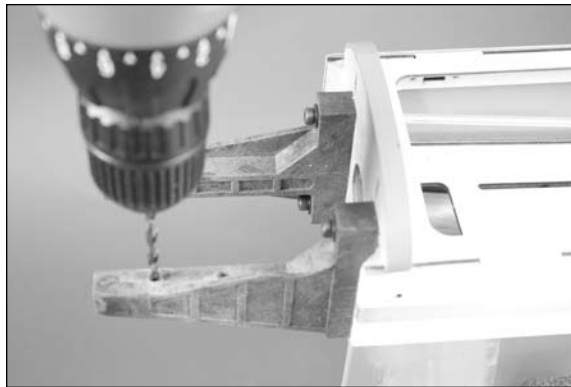
Hint: It is suggested to use a drill press to drill these holes. This will guarantee they are aligned straight in the mount.

Step 10

Check the direction of the carburetor in relationship to the engine. If it does not look like the position in the photo below, follow the instructions provided with the engine to reposition the carburetor.
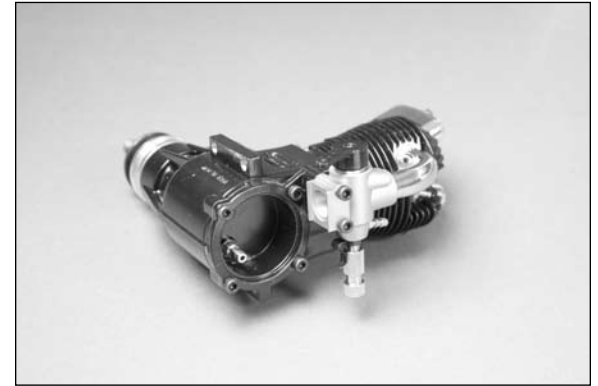
Step 11

Use a pin drill and 1/16-inch (1.5mm) drill bit to enlarge the center hole of the carburetor arm.

Step 12

Insert the brass pushrod connector in the hole. Use the nylon backplate to secure the connector to the carburetor arm.

Step 13

Secure the engine to the mount using four 4mm x 25mm socket head screws, four 4mm washers and four 4mm nylon locknuts. The washers will be on the bottom side of the mount between the locknut and nylon mount.
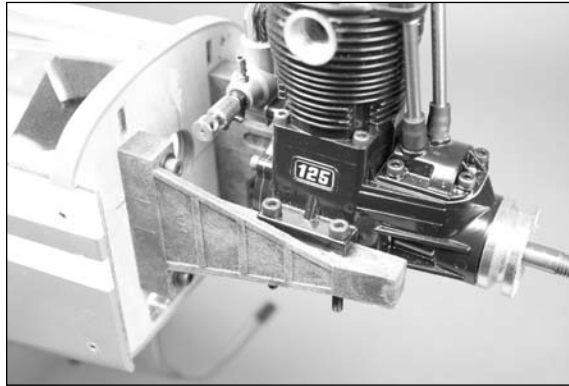
Step 14

Thread a servo mounting screw into each of the holes in the radio tray. This will cut the threads for the screws in preparation of the next step.
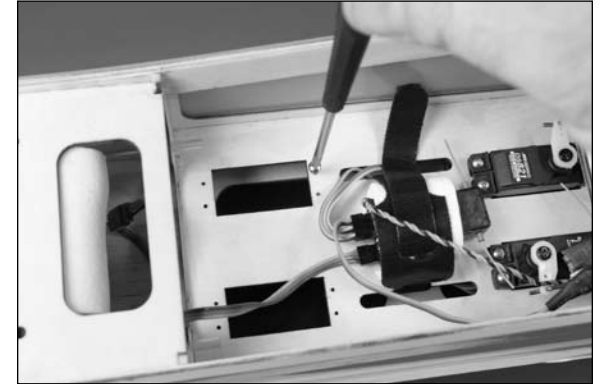
Step 15

Place 2–3 drops of thin CA in each hole to harden the surrounding wood. This harder surface will make the screws less likely to vibrate loose.
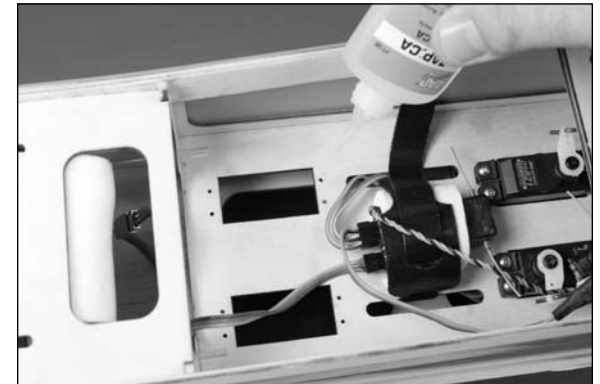
Step 16

After preparing the throttle servo with the appropriate hardware, secure it in the radio tray using the screws provided with the servo.

Step 17

Remove the servo horn provided with your servo. After using the radio to center the servo, install a 180-degree servo horn as shown in the image below.

Step 18

Connect the clevis from the throttle pushrod to the hole of the throttle servo horn that is 9/16-inch (15mm) from the center of the servo horn. Use the radio system to move the throttle servo to the low-throttle position. Use side cutters to remove any unused arms from the throttle servo.

Remove unused arm

Step 19

Tighten the setscrew in the pushrod connector to secure the wire to the carburetor arm. Use side cutters to trim any excess wire extending beyond the connector.
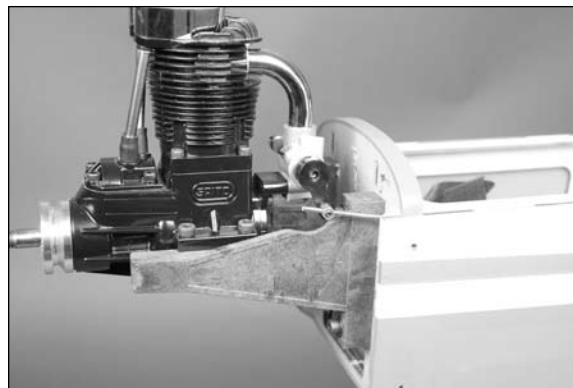
Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

Two-Stroke Engine Installation

Required Parts

Fuselage	4mm washer (8)
4mm locknut (4)	
Throttle pushrod with clevis	
Brass pushrod connector with backplate	
4mm x 25mm socket head bolt (8)	
Engine mount rail (right and left)	
Plywood engine mount template	

Tools and Adhesives

Drill	Low-tack tape
Pin drill	Felt-tipped pen
Hobby knife with #11 blade	
Rotary tool with sanding drum	
Hex wrench or ball driver: 1.5mm, 4mm	
Drill bit: 1/16-inch (1.5mm), 5/32-inch (4mm), 3/16-inch (5mm)	

Step 1

Slide the hatch on the fuselage forward to disengage the magnets at the rear of the hatch. Lift the hatch up at the rear and remove it from the fuselage.

Step 2

Use low-tack tape to attach the firewall template to the firewall. Use a drill and 1/16-inch (1.5mm) drill bit to drill the appropriate holes into the firewall.

Step 3

Remove the template and use a 5/32-inch (4mm) drill bit to enlarge the four holes drilled in the previous step.

Step 4

Use four 4mm x 25mm socket head screws and four 4mm washers to secure the nylon mounts to the firewall. Note the positioning of the mounts as shown in the photos.

Step 5

Position the engine on the mount so the front face of the driver washer is $5^1/_2$-inches (140mm) forward of the firewall.

$5^1/_2$-inches (140mm)

Step 6

Use a felt-tipped pen to mark the mount for the engine mounting hardware.

Step 7

Use a drill and a 5/32-inch (4mm) drill bit to drill the four holes through the mount to secure the engine.
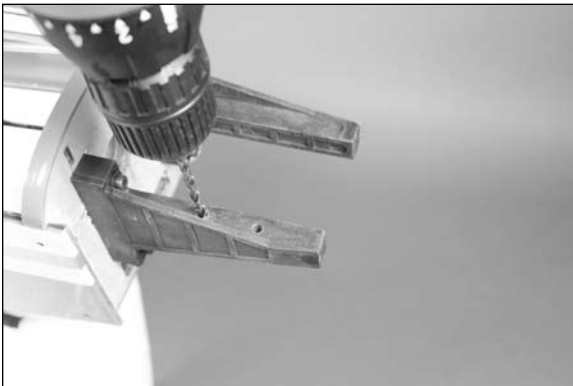
Hint: It is suggested to use a drill press to drill these holes. This will guarantee they are aligned straight in the mount.

Step 8

Secure the engine to the mount using four 4mm x 25mm socket head screws, four 4mm washers and four 4mm nylon locknuts. The washers will be on the bottom side of the mount between the locknut and nylon mount.
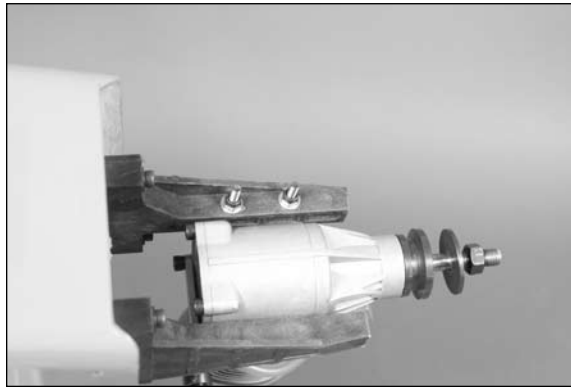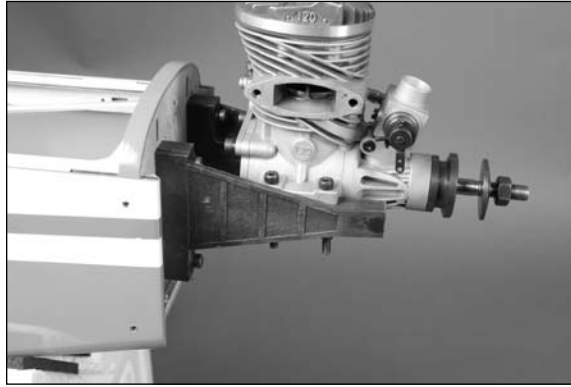
Step 9

Slide the throttle pushrod in the pushrod tube. Bend the pushrod so the clevis can be connected to the innermost hole of the carburetor arm. Slide the clevis retainer over the forks of the clevis so it won't accidentally open in flight.
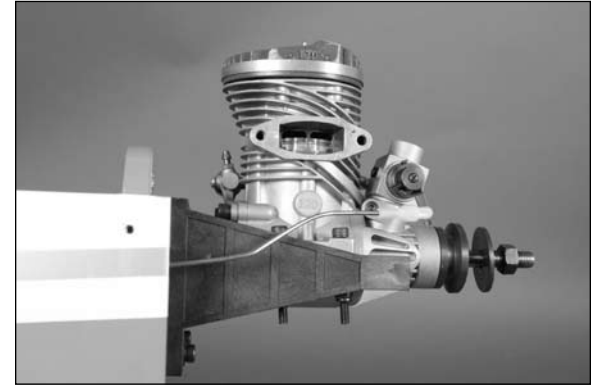
Step 10

Thread a servo mounting screw into each of the holes in the radio tray. This will cut the threads for the screws in preparation of the next step.

Step 11

Place 2–3 drops of thin CA in each hole to harden the surrounding wood. This harder surface will make the screws less likely to vibrate loose.

Step 12

After preparing the throttle servo with the appropriate hardware, secure it in the radio tray using the screws provided with the servo.

Step 13

Remove the servo horn from the servo. Use a pin drill and 5/64-inch (1.5mm) drill bit to enlarge the hole that is 1/2-inch (13mm) from the center of the center of the horn.
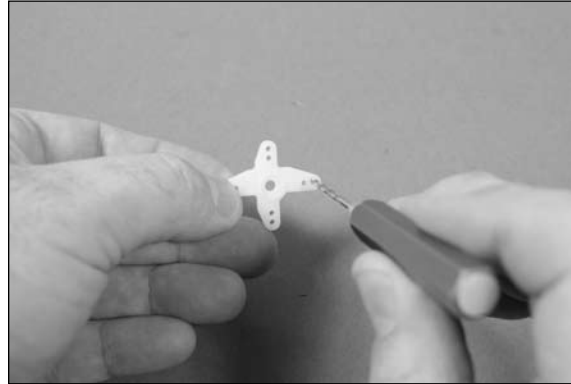
Step 14

Use side cutters to remove any excess arms from the servo horn so they don't interfere with the operation of the throttle.
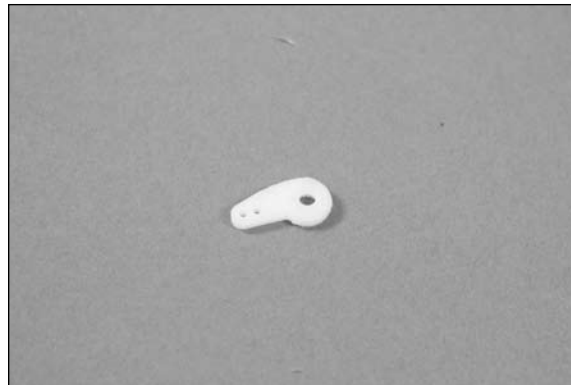
Step 15

Insert the brass pushrod connector in the hole enlarged previously. Use a connector backplate to secure the connector to the servo horn.
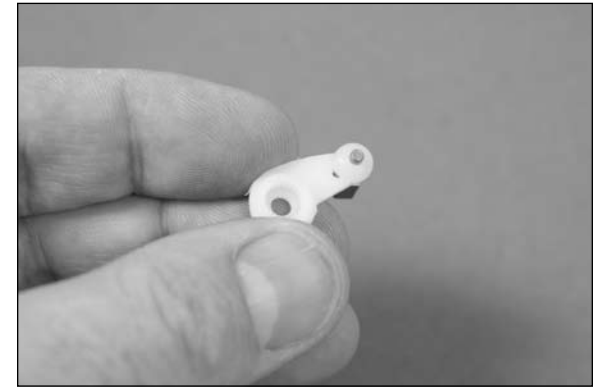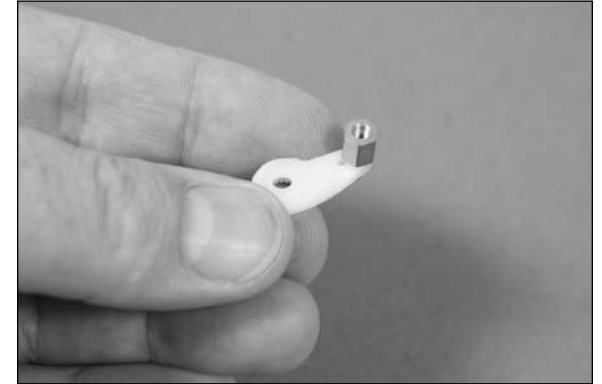
Step 16

Use the radio system to center the throttle servo. Install the arm perpendicular to the servo centerline. This will provide an equal amount of throw from low to high throttle.

Step 17

Tighten the setscrew in the pushrod connector to secure the wire to the servo arm. Use side cutters to trim any excess wire extending beyond the connector if it interferes with the operation of the throttle or rudder servos.

Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

Fuel Tank Installation

Required Parts

Fuselage	Copper fuel tube (straight)
Copper fuel tube (bent)	Fuel tank stopper
Steel clunk	Clunk fuel line
Stopper clamp	2mm locknut
Nylon tie-wrap	Fuel tubing (gas or nitro)
2mm x 12mm machine screw	
1/4-inch (6mm) foam rubber	

Tools and Adhesives

Phillips screwdriver: #1	Pliers
Side cutter	Double-sided tape
Hobby knife with #11 blade	

Important: Two types of fuel tubing have been included for your model: One is for use with nitromethane (pink) and one is for use with gasoline (yellow). Before beginning the assembly of your fuel tank, make sure you have selected the correct tubing for the type of fuel you will be using.

Step 1

Insert the two brass tubes in the stopper. You will need to use a hobby knife to open two of the holes to insert the tubes through the stopper.
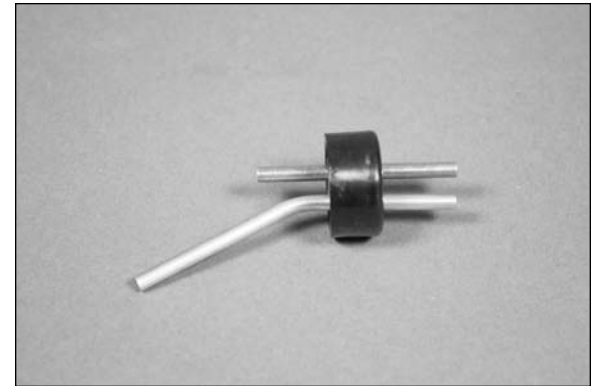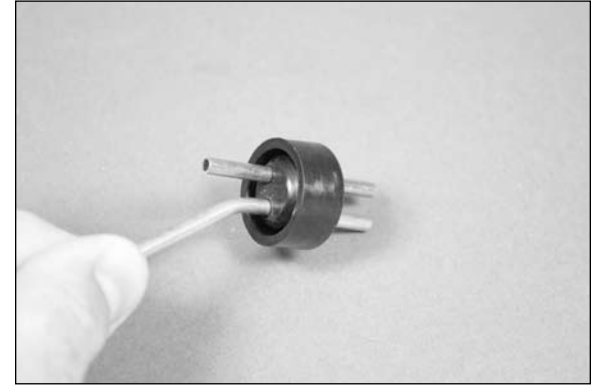
Note: The stopper supplied is compatible with both gas and nitromethane fuels.

Step 2

Attach the fuel tube designated for the inside of the tank to the straight brass tube. On the other end of the fuel line attach the clunk.
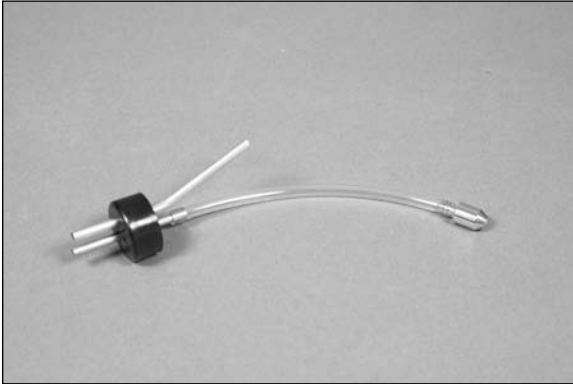
Step 3

Insert the stopper on the tank. Make sure the clunk can move freely inside the tank by having the clunk 1/4-inch (6mm) from the back of the tank. If the clunk does not move freely you may experience fuel draw problems. Remove the stopper and shorten the fuel tube slightly; check and repeat until it can move freely inside the tank.

Step 4

Use a 2mm x 12mm machine screw and 2mm locknut to secure the stopper clamp around the stopper. This will keep the stopper secure on the neck of the fuel tank.

Step 5

Attach the fuel line to the clunk and vent lines of the tank. The line will be trimmed when it is connected to the engine.

Step 6

Slide the tie wrap through the fuel tank floor as shown.
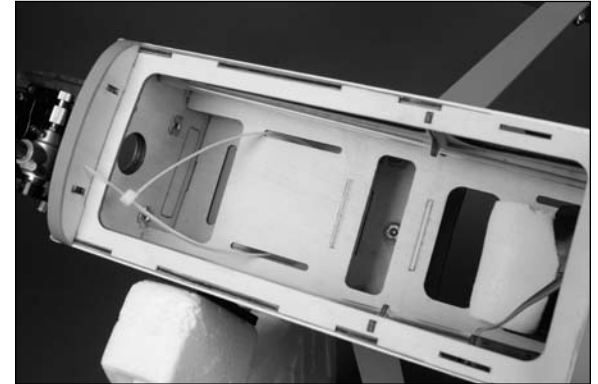
Step 7

Insert the fuel tank in the fuselage. Make sure the vent line faces the top of the fuselage. Guide the fuel line through the hole in the firewall.

Step 8

Use the tie wrap to secure the fuel tank in the fuselage. Trim the excess using side cutters.

Step 9

Glue a brace at the rear of the tank to keep it from sliding back in the fuselage. A piece of foam on the brace will help hold the tank securely.
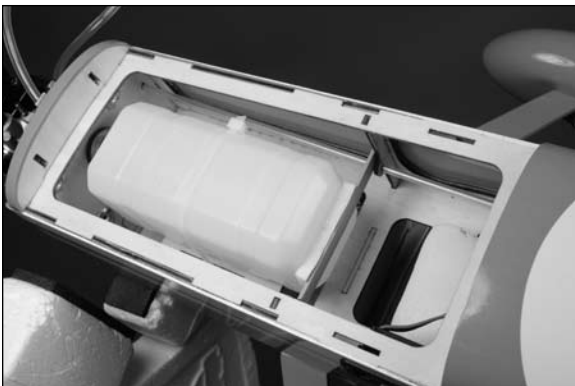
Step 10

Attach the hatch back on the fuselage.

Step 11

Use double-sided tape to attach the remote receiver on the side of the fuselage opposite the throttle servo. The antenna wires should face up and down for the best reception of your radio system.

Remote receiver location

Cowling and Spinner Installation - Four-Stroke Engine

Required Parts

Fuselage	Cowling
Spinner backplate	Spinner cone
3mm x 10mm self-tapping screw (2)	
3mm x 8mm button head screw (4)	

Tools and Adhesives

Cardstock	Low-tack tape
Felt-tipped pen	Hobby scissors
Phillips screwdriver: #2	
Rotary tool with sanding drum	
Hex wrench or ball driver: 2mm	

Step 1

Cut a piece of cardstock to fit around the engine as shown. This will be the template for trimming your cowling.

Step 2

Remove the engine from the firewall. Use four 3mm x 6mm button head screws to secure the cowl to the fuselage.

Step 3

Use a felt-tipped pen to transfer the outline from the template on the cowl.

Step 4

Use a hobby knife to trim the line coming from the clunk to attach it to the carburetor.

Step 5

Remove the cowl and trim it using the lines made in the previous step. With the engine back on the firewall, check to make sure the cowl will fit over the engine. Take your time trimming the cowl to achieve the best fit. Use a rotary tool and sanding drum to smooth any rough edges around the engine.

Step 6

Use the instructions provided with the engine to attach the muffler. Trim and connect the pressure line from the fuel tank to the muffler.

Step 7

Slide the spinner backplate on the engine shaft.

Step 8

Slide the propeller on the engine shaft. Use the hardware provided with the engine to secure the propeller. The small standoffs on the spinner backplate will help in aligning the propeller.

Step 9

Secure the spinner cone to the backplate using two 3mm x 10mm self-tapping screws.

Cowling and Spinner Installation - Two-Stroke Engine

Required Parts

Fuselage	Cowling
Spinner backplate	Spinner cone
3mm x 10mm self-tapping screw (2)	
3mm x 8mm button head screw (4)	

Tools and Adhesives

Cardstock	Low-tack tape
Felt-tipped pen	Hobby scissors
Phillips screwdriver: #2	
Rotary tool with sanding drum	
Hex wrench or ball driver: 2mm	

Step 1

Cut a piece of cardstock to fit around the engine as shown. This will be the template for trimming your cowling.

Step 2

Remove the engine from the firewall. Use four 3mm x 6mm button head screws to secure the cowl to the fuselage.

Step 3

Use a felt-tipped pen to transfer the outline from the template on the cowl.

☐ Step 4

Use a hobby knife to trim the line coming from the clunk to attach it to the carburetor.

☐ Step 5

Remove the cowl and trim it using the lines made in the previous step. With the engine back on the firewall, check to make sure the cowl will fit over the engine. Take your time trimming the cowl to achieve the best fit. Use a rotary tool and sanding drum to smooth any rough edges around the engine.

☐ Step 6

Use the instructions provided with the engine to attach the muffler. Trim and connect the pressure line from the fuel tank to the muffler.

☐ Step 7

Slide the spinner backplate on the engine shaft.

☐ Step 8

Slide the propeller on the engine shaft. Use the hardware provided with the engine to secure the propeller. The small standoffs on the spinner backplate will help in aligning the propeller.

☐ Step 9

Secure the spinner cone to the backplate using two 3mm x 10mm self-tapping screws.

Electric Motor Installation

Required Parts

Fuselage	4mm washer (8)
Motor and related hardware	Motor battery (2)

Hook and loop strap (not included)

4mm x 25mm socket head bolt (8)

Aluminum motor standoff, 75mm (4)

Plywood engine mount template

Tools and Adhesives

Covering iron	Drill

Low-tack tape

Drill bit: 1/16-inch (1.5mm), 5/32-inch (4mm)

Hex wrench or ball driver: 4mm

Hobby knife with #11 blade

☐ Step 1

Use a hobby knife to remove the covering on the bottom of the fuselage to allow air to pass though the fuselage. Use a covering iron to seal the edges around the opening so the covering does not come loose.

☐ Step 2

Slide the hatch on the fuselage forward to disengage the magnets at the rear of the hatch. Lift the hatch up at the rear and remove it from the fuselage.

☐ Step 3

Use a hobby knife and #11 blade to remove the air cooling tab from the firewall.

Remove for cooling

☐ Step 4

Use double-sided tape to mount the remote receiver as far forward in the fuselage as possible. Make sure the antenna wires are facing vertically when the remove receiver is installed for the best reception.

Remove receiver location
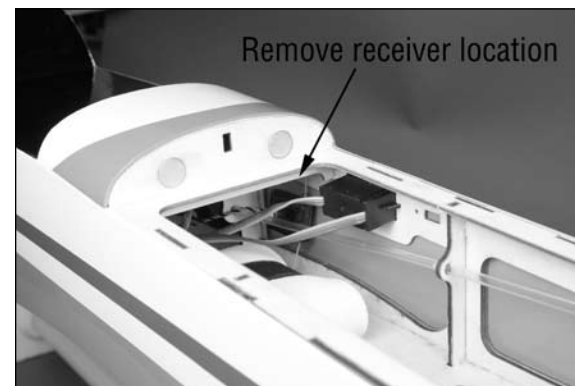
☐ Step 5

Use low-tack tape to attach the firewall template to the firewall. Use a drill and 1/16-inch (1.5mm) drill bit to drill the appropriate holes into the firewall.

☐ Step 6

Remove the template and use a 5/32-inch (4mm) drill bit to enlarge the four holes drilled in the previous step.
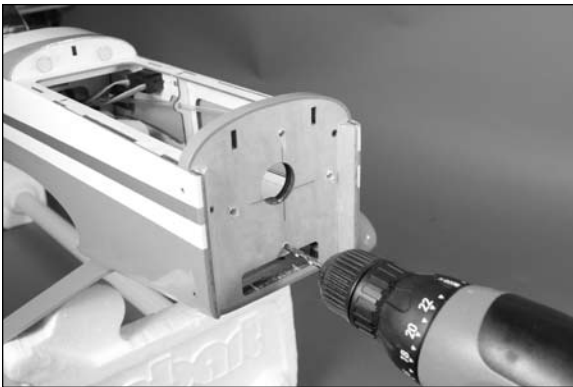
☐ Step 7

Use four 4mm x 25mm socket head screws and four 4mm washers to attach the four aluminum motor standoffs to the firewall.

Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

☐ Step 8

Prepare the motor by installing the X-mount and propeller adapter.

Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

☐ Step 9

Secure the speed control to the firewall. You may drill a couple holes in the firewall so tie wraps can be used to fully secure the speed control position.

Step 10

Attach the motor to the aluminum motor standoffs using four 4mm x 25mm socket head screws and four 4mm washers.

Note: Always use threadlock on metal-to-metal fasteners to prevent them from vibrating loose.

Step 11

The motor batteries can now be placed in the fuselage. Use a hook and loop strap (not included) to secure the batteries. Hook and loop tape can be placed between the batteries and battery tray to keep them from sliding in the fuselage.
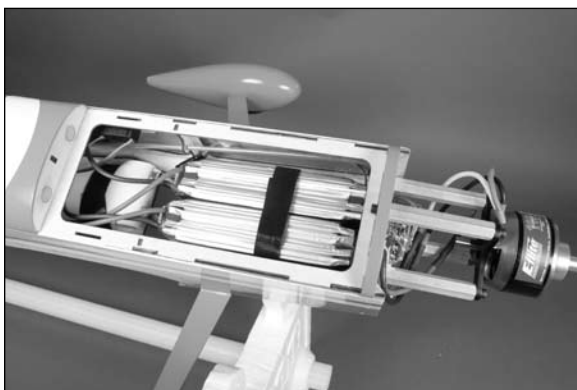
Cowling and Spinner Installation - Electric Motor

Required Parts

Fuselage   Cowling
Spinner backplate   Spinner cone
3mm x 10mm self-tapping screw (2)
3mm x 8mm button head screw (4)

Tools and Adhesives

Tapered reamer   Phillips screwdriver: #2
Hex wrench or ball driver: 2mm
Rotary tool and sanding drum

Step 1

Use a rotary tool and sanding drum to remove a small amount of material from the front of the hatch as shown to clear the upper motor mount bolt.
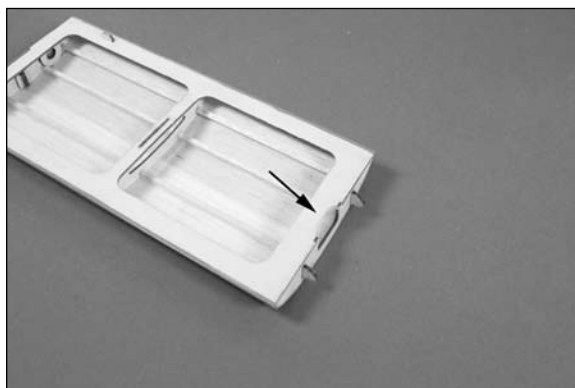
Step 2

Place hatch back on the fuselage.
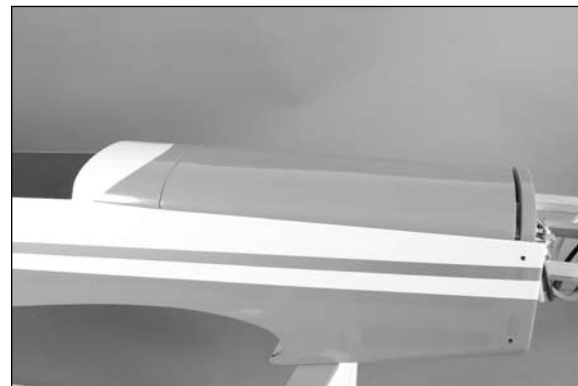
Step 3

Use four 3mm x 8mm button head screws to secure the coaling to the front of the fuselage.
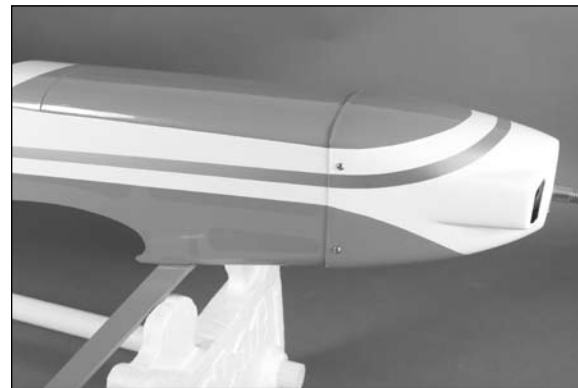
Step 4

Slide the spinner backplate over the propeller adapter. It may be necessary to enlarge the hole in the center of the spinner backplate using a tapered reamer so it will fit on the propeller adapter.
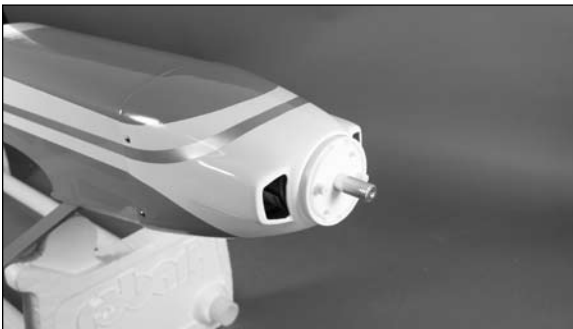
Step 5

Slide the propeller on the propeller adapter. The small standoffs on the spinner backplate will help in aligning the propeller.
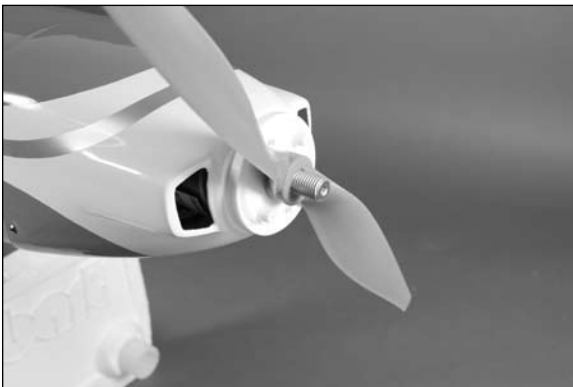
Note: It may be necessary to enlarge the hole in the center of the propeller using a tapered reamer so it will fit on the propeller adapter.

Important: Always balance your propeller right before mounting it to prevent vibrations that could damage the airframe or motor bearings.

Step 6

Secure the propeller using a box wrench and the hardware from the adapter.

Step 7

Secure the spinner cone to the backplate using two 3mm x 10mm self-tapping screws.

Final Assembly

Required Parts

Fuselage	Canopy
Wing panel (left and right)	Wing bolt plate
Aluminum wing tube	
6mm x 40mm nylon wing bolt (2)	

Tools and Adhesives

Canopy glue	Medium grit sandpaper
Paper towel	Rubbing alcohol
Low-tack tape	

Step 1

Use medium grit sandpaper to lightly sand the inside edge of the canopy where it contacts the fuselage. Use a paper towel and rubbing alcohol to remove any oil or debris after sanding. Apply a thin bead of canopy glue to the inside edge of the canopy. Use low-tack tape to hold the canopy securely on the fuselage until the glue fully cures.

Step 2

Slide the aluminum wing tube into one of the wing panels. It will only slide in so far: don't try and force it further than it will easily slide.
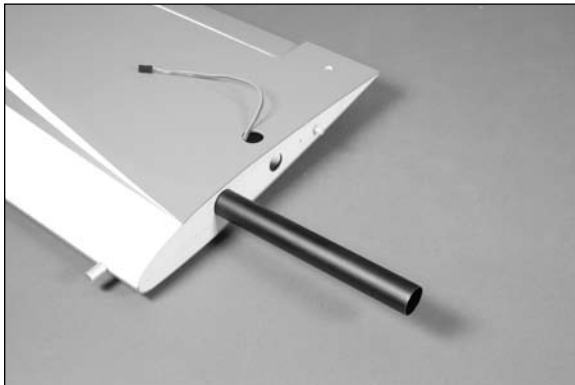
Step 3

Slide the remaining wing panel on the tube. The two panels will fit tightly together.
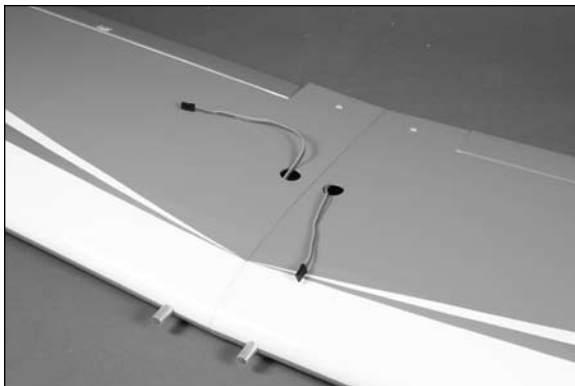
Step 4

Connect the leads from the aileron servos into the leads coming from the aileron port of the receiver.

Step 5

Place the wing on the bottom of the fuselage. Slide the wing forward so the wing dowels go into the hole in the fuselage.
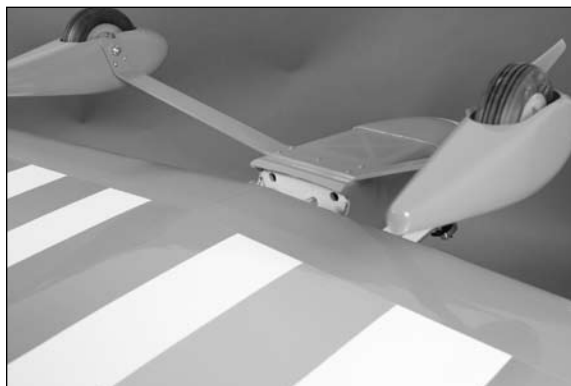
Step 6

Place the wing bolt plate in position. The rounded edges of the plate face to the front of the aircraft.

Step 7

Secure the wing to the fuselage using two 6mm x 40mm nylon wing bolts.

Center of Gravity

An important part of preparing the aircraft for flight is properly balancing the model.

Caution: Do not inadvertently skip this step!

The recommended Center of Gravity (CG) location for the your model is $3^{11}/_{16}$-inch (93mm) back from the leading edge of the wing. Mark the location for the Center of Gravity on the bottom of the wing next to the fuselage as shown. The CG range for your model is $3^1/_2$ to $3^7/_8$ inches (90mm to 98mm) from the leading edge of the wing

When balancing your model, support the plane upright at the marks made on the bottom of the wing with your fingers or a commercially available balancing stand. This is the correct balance point for your model. You might find you may be required to add a small amount of weight to either the front or back of the fuselage to achieve the correct balance.
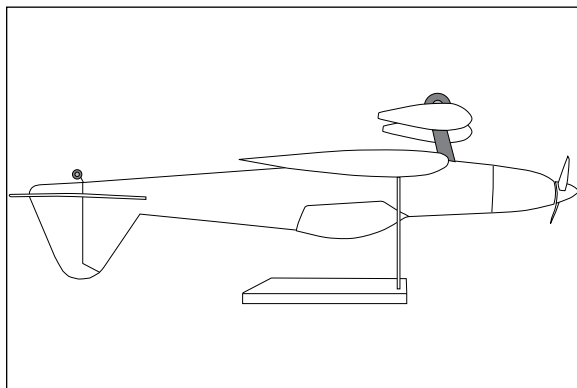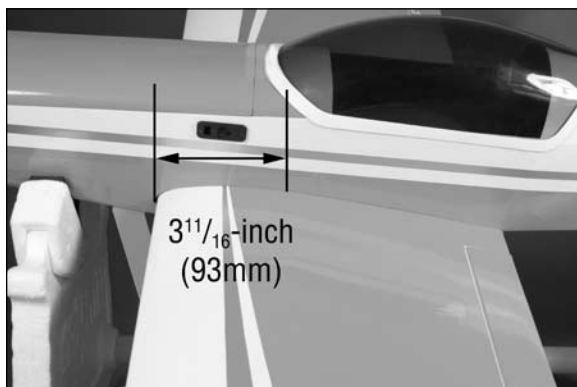
After the first flights, the CG position can be adjusted for your personal preference.

Control Throws

☐ Step 1

Turn on the transmitter and receiver of your model. Check the movement of the rudder using the transmitter. When the stick is moved right, the rudder should also move right. Reverse the direction of the servo at the transmitter if necessary.

☐ Step 2

Check the movement of the elevator with the radio system. Moving the elevator stick toward the bottom of the transmitter will make the airplane elevator move up.

☐ Step 3

Check the movement of the ailerons with the radio system. Moving the aileron stick right will make the right aileron move up and the left aileron move down.

☐ Step 4

Use a ruler to adjust the throw of the elevator, ailerons and rudder.

Aileron High Rate

Up	3/4-inch	(20mm)	22 Degrees
Down	3/4-inch	(20mm)	22 Degrees

Aileron Low Rate

Up	1/2-inch	(15mm)	16 Degrees
Down	1/2-inch	(15mm)	16 Degrees

Elevator High Rate

Up	3/4-inch	(20mm)	22 Degrees
Down	3/4-inch	(20mm)	22 Degrees

Elevator Low Rate

Up	5/8-inch	(16mm)	17 Degrees
Down	5/8-inch	(16mm)	17 Degrees

Rudder High Rate

Left	3/4-inch	(20mm)	22 Degrees
Right	3/4-inch	(20mm)	22 Degrees

Rudder Low Rate

Left	1/2-inch	(15mm)	16 Degrees
Right	1/2-inch	(15mm)	16 Degrees

Note: Measurements are taken at the inner or widest point on the control surface.

These are general guidelines measured from our own flight tests. You can experiment with higher rates to match your preferred style of flying.

Note: Travel Adjust, Sub-Trim and Dual Rates are not listed and should be adjusted according to each individual model and preference.

Flight Preparations

Flight preparations must be checked each time you travel to the flying field. Because your model will encounter a variety of situations, it is best to keep an eye on the various components of your model to keep it in the best flying condition.

☐ Checking the Frequency

When using a Spektrum radio system, follow the guidelines for use of DSM radio systems at your particular field.

☐ Checking the Controls

Before starting your engine, check to make sure the controls are operating in the correct directions and the linkages and surfaces are not binding anywhere. Also look at the clevises and clevis retainers to make sure they are secure and will not come loose or fail in flight.

☐ Fueling your Model

Fill the fuel tank with the proper fuel. Fill the tank by connecting the fuel pump to the line going to the needle valve or to the fuel dot on the side of the cowling. Disconnect the fuel line attached to the pressure fitting of the muffler; your tank is full when fuel begins to run out of the pressure line. Reconnect the fuel lines to the needle valve assembly or insert the plug into the fuel dot and connect the line to the muffler.

> **Note**: It is very important to reconnect the lines to the correct place. If they are reconnected incorrectly, the engine will not run properly.

Safety Do's and Don'ts for Pilots

- Ensure that your batteries have been properly charged prior to your initial flight.

- Keep track of the time the system is turned on so you will know how long you can safely operate your system.

- Perform a ground range check prior to the initial flight of the day. See the "Daily Flight Checks Section" for information.

- Check all control surfaces prior to each takeoff.

- Do not fly your model near spectators, parking areas or any other area that could result in injury to people or damage of property.

- Do not fly during adverse weather conditions. Poor visibility can cause disorientation and loss of control of your aircraft. Strong winds can cause similar problems.

- Do not point the transmitter antenna directly toward the model. The radiation pattern from the tip of the antenna is inherently low.

- Do not take chances. If at any time during flight you observe any erratic or abnormal operation, land immediately and do not resume flight until the cause of the problem has been ascertained and corrected. Safety can never be taken lightly.

Dual Rate Recommendations

- We recommend that the rudder dual rate be set to Low for takeoff to help minimize overcorrection during the takeoff roll.

- We recommend the rudder dual rate be set to High for landing to help maintain heading as the model transitions from flying speed to taxi speeds.

- Elevator and Aileron dual rates should be adjusted for personal feel and also if there is any unusual wind conditions.

Daily Flight Checks

☐ Step 1

Check the battery voltage on both the transmitter and the receiver battery packs. Do not fly below 4.3V on the transmitter if you are using a Spektrum transmitter that uses 4-cells to power the transmitter. Do not fly below 9.5V on the transmitter if you are using a JR or Spektrum transmitter that uses 8-cells to power the transmitter. Do not fly if the receiver pack is at or below 4.7V. To do so can crash your aircraft.

> **Note**: When you check these batteries, ensure that you have the polarities correct on your expanded scale voltmeter.

☐ Step 2

Check all hardware (linkages, screws, nuts, and bolts) prior to each day's flight. Be sure that binding does not occur and that all parts are properly secured.

☐ Step 3

Ensure that all surfaces are moving in the proper manner.

☐ Step 4

Perform a ground range check before each day's flying session.

☐ Step 5

Prior to starting your aircraft, turn off your transmitter, then turn it back on. Do this each time you start your aircraft. If any critical switches are on without your knowledge, the transmitter alarm will warn you at this time.

☐ Step 6

Check that all trim levers are in the proper location.

☐ Step 7

All servo pigtails and switch harness plugs should be secured in the receiver. Make sure that the switch harness moves freely in both directions.

Age Requirements

Age Recommendation: 14 years or over. This is not a toy. This product is not intended for use by children without direct adult supervision.

Safety, Precautions and Warnings

As the user of this product, you are solely responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.

This model is controlled by a radio signal that is subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is necessary to always keep a safe distance in all directions around your model, as this margin will help to avoid collisions or injury.

- Always operate your model in an open area away from cars, traffic or people.
- Avoid operating your model in the street where injury or damage can occur.
- Never operate the model out into the street or populated areas for any reason.
- Never operate your model with low transmitter batteries.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) that you use.
- Keep all chemicals, small parts and anything electrical out of the reach of children.
- Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.

Warranty Information

WARRANTY PERIOD

Exclusive Warranty- Horizon Hobby, Inc., (Horizon) warranties that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

LIMITED WARRANTY

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims. Further, Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

DAMAGE LIMITS

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

SAFETY PRECAUTIONS

This is a sophisticated hobby Product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the Product or other property. This Product is not intended for use by children without direct adult supervision. The Product manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or injury.

QUESTIONS, ASSISTANCE, AND REPAIRS

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a service technician.

INSPECTION OR REPAIRS

If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. A Service Repair Request is available at www.horizonhobby.com on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

WARRANTY INSPECTION AND REPAIRS

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

NON-WARRANTY REPAIRS

Should your repair not be covered by warranty the repair will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of 1/2 hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. Please note: non-warranty repair is only available on electronics and model engines.

United States:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Service Center
4105 Fieldstone Road
Champaign, Illinois 61822
USA

All other Products requiring warranty inspection or repair should be shipped to the following address:

Horizon Product Support
4105 Fieldstone Road
Champaign, Illinois 61822
USA

Please call 877-504-0233 or e-mail us at productsupport@horizonhobby.com with any questions or concerns regarding this product or warranty.

United Kingdom:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Hobby UK
Units 1-4 Ployters Rd
Staple Tye
Harlow, Essex
CM18 7NS
United Kingdom

Please call +44 (0) 1279 641 097 or e-mail us at sales@horizonhobby.co.uk with any questions or concerns regarding this product or warranty.

Germany:

Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Technischer Service
Hamburger Strasse 10
25335 Elmshorn
Germany

Please call +49 4121 46199 66 or e-mail us at service@horizonhobby.de with any questions or concerns regarding this product or warranty.

CE Compliance Information for the European Union

INSTRUCTIONS FOR DISPOSAL OF WEEE BY USERS IN THE EUROPEAN UNION

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.
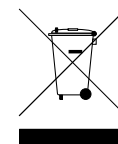
2009 Official Academy of Model Aeronautics Safety Code

GENERAL

1. A model aircraft shall be defined as a non-human-carrying device capable of sustained flight in the atmosphere. It shall not exceed limitations established in this code and is intended to be used exclusively for recreational or competition activity.

2. The maximum takeoff weight of a model aircraft, including fuel, is 55 pounds, except for those flown under the AMA Experimental Aircraft Rules.

3. I will abide by this Safety Code and all rules established for the flying site I use. I will not willfully fly my model aircraft in a reckless and/or dangerous manner.

4. I will not fly my model aircraft in sanctioned events, air shows, or model demonstrations until it has been proven airworthy.

5. I will not fly my model aircraft higher than approximately 400 feet above ground level, when within three (3) miles of an airport without notifying the airport operator. I will yield the right-of-way and avoid flying in the proximity of full-scale aircraft, utilizing a spotter when appropriate.

6. I will not fly my model aircraft unless it is identified with my name and address, or AMA number, inside or affixed to the outside of the model aircraft. This does not apply to model aircraft flown indoors.

7. I will not operate model aircraft with metal-blade propellers or with gaseous boosts (other than air), nor will I operate model aircraft with fuels containing tetranitromethane or hydrazine.

8. I will not operate model aircraft carrying pyrotechnic devices which explode burn, or propel a projectile of any kind. Exceptions include Free Flight fuses or devices that burn producing smoke and are securely attached to the model aircraft during flight. Rocket motors up to a G-series size may be used, provided they remain firmly attached to the model aircraft during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code; however, they may not be launched from model aircraft. Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Air Show Advisory Committee Document.
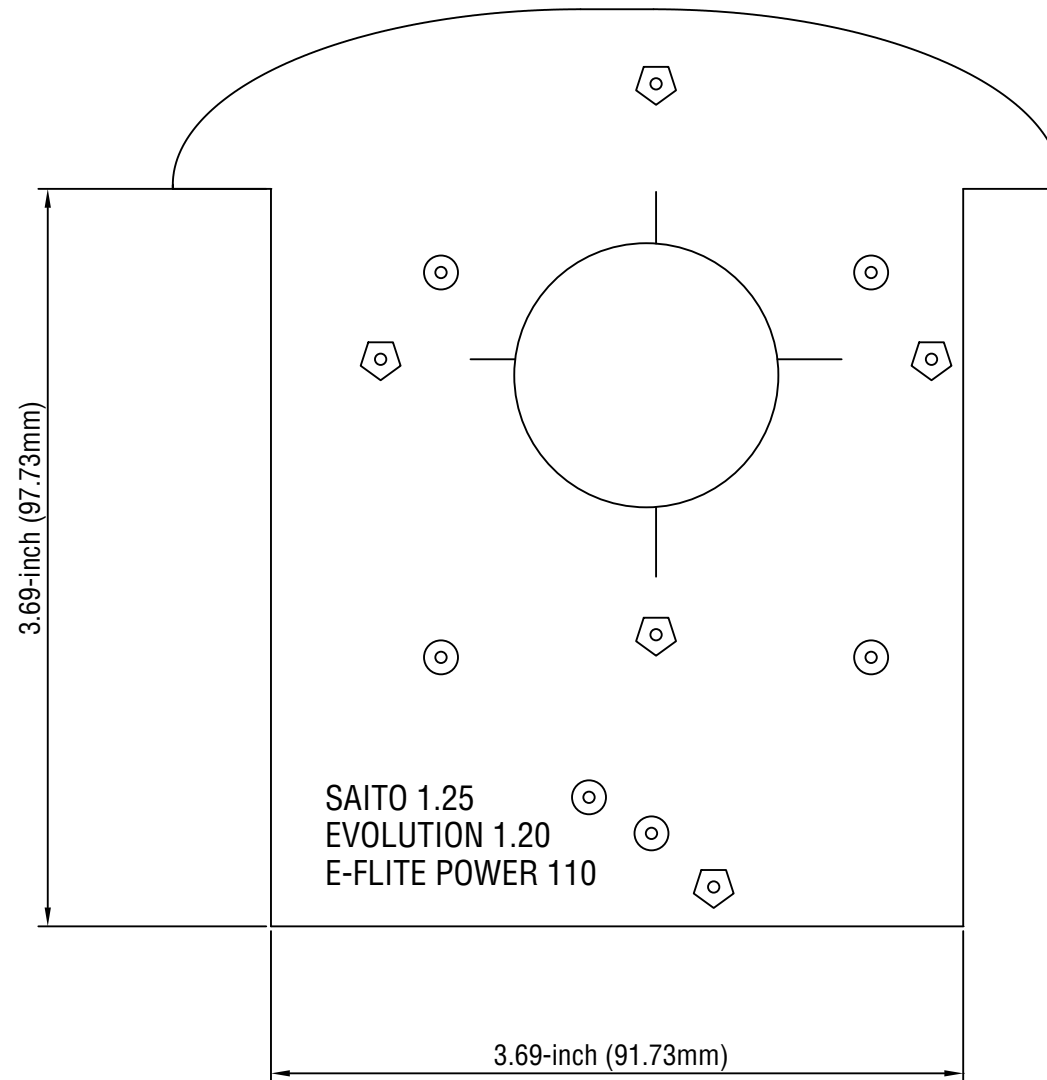
9. I will not operate my model aircraft while under the influence of alcohol or within eight (8) hours of having consumed alcohol.

10. I will not operate my model aircraft while using any drug which could adversely affect my ability to safely control my model aircraft.

11. Children under six (6) years old are only allowed on a flightline or in a flight area as a pilot or while under flight instruction.

12. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

RADIO CONTROL

1. All model flying shall be conducted in a manner to avoid over flight of unprotected people.

2. I will have completed a successful radio equipment ground-range check before the first flight of a new or repaired model aircraft.

3. I will not fly my model aircraft in the presence of spectators until I become a proficient flier, unless I am assisted by an experienced pilot.

4. At all flying sites a line must be established, in front of which all flying takes place. Only personnel associated with flying the model aircraft are allowed at or in front of the line. In the case of airshows demonstrations straight line must be established. An area away from the line must be maintained for spectators. Intentional flying behind the line is prohibited.

5. I will operate my model aircraft using only radio-control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.

6. I will not knowingly operate my model aircraft within three (3) miles of any preexisting flying site without a frequency-management agreement. A frequencymanagement agreement may be an allocation of frequencies for each site, a day-use agreement between sites, or testing which determines that no interference exists. A frequency-management agreement may exist between two or more AMA chartered clubs, AMA clubs and individual AMA members, or individual AMA members. Frequency-management agreements, including an interference test report if the agreement indicates no interference exists, will be signed by all parties and copies provided to AMA Headquarters.

7. With the exception of events flown under official AMA rules, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and located at the flightline.

8. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from striking an individual.

9. Radio-controlled night flying is limited to low-performance model aircraft (less than 100 mph). The model aircraft must be equipped with a lighting system which clearly defines the aircraft's attitude and direction at all times.

10. The operator of a radio-controlled model aircraft shall control it during the entire flight, maintaining visual contact without enhancement other than by corrective lenses that are prescribed for the pilot. No model aircraft shall be equipped with devices which allow it to be flown to a selected location which is beyond the visual range of the pilot.

SAITO 1.25
EVOLUTION 1.20
E-FLITE POWER 110

3.69-inch (97.73mm)

3.69-inch (91.73mm)

HANGAR 9®

Fly First Class™

HORIZON HOBBY