

Staudacher S-300

Assembly Manual



Specifications:

Wing Span:	1650mm 65"
Wing Area:	780 in ²
Length:	1400mm 55.2"
Weight:	3400-3600g 7.5-8 lbs
Engine:	.61 2 Cycle .91 4 Cycle
Radio:	4 Channel w/5 Servos

ACE Staudacher-60 ARF Airplane (TTR4563)

Distributed in North America by Ace Hobby Distributors, Inc. • 2682 Walnut Avenue, Tustin, CA 92780
Phone: 714-544-0330 • www.acehobby.com • email: service@acehobby.com

Warranty

This kit is guaranteed to be free from defects in material and workmanship at the date of purchase. It does not cover any damage caused by use or modification. The warranty does not extend beyond the product itself and is limited only to the original cost of the kit. By the act of building this user-assembled kit, the user accepts all resulting liability for damage caused by the final product. If the buyer is not prepared to accept this liability, it can be returned new and unused to the place of purchase for a refund.

Notice: Adult Supervision Required

This is not a toy. Assembly and flying of this product requires adult supervision.

Read through this book completely and become familiar with the assembly and flight of this airplane. Inspect all parts for completeness and damage. If you encounter any problems, call us for help.



INTRODUCTION



Congratulations on the purchase of one of our finest ARFs to date. This scale replica of the famous Staudacher S-300 is as faithful in its appearance as it is in its flight characteristics. Beautifully reproduced using balsa and ply construction. Covered in durable and easily repairable UltraCote®, this plane is highly visible in the air and strikingly recognizable on the ground.

PRE-ASSEMBLY NOTES

Before beginning the assembly read the instructions thoroughly to give an understanding of the sequence of steps and a general awareness of the recommended assembly procedures.

By following these instructions carefully and referring to the corresponding pictures, the assembly of your model will be both enjoyable and rewarding. The result will be a well built, easy to assemble ARF model, which you will be proud to display.

This Staudacher S-300 is designed for intermediate to advanced pilots, and this manual assumes a basic knowledge of R/C model construction.

Before you begin, check the entire contents of your kit against the parts list and photos to make sure that no parts are missing or damaged. This will also help you to become familiar with each component of your plane. If you find that any of the parts are either missing or damaged, please contact Ace Hobby Distributors, Inc., Customer Service immediately for replacements.

Please read the entire manual before beginning construction.

Neither your dealer nor Ace Hobby Distributors, Inc., can accept kits for return if construction has begun.

Trial fit each part before gluing it in place. Make sure you are using the correct part and that it fits well before assembling. No amount of glue can make up for a poor-fitting part.

TABLE OF CONTENTS

Introduction	.2
Items Needed Check List	.3
Kit Contents	.4
Wing Assembly	.5-8
Stab, Fin Assembly	.8-10
Engine Installation	.11
Fuel Tank	.11
Landing Gear	.12
Servo Installation	.12
Cowl & Canopy Installation	.13-14
Prop & Spinner	.14
Control Throws	.14
CG, Flight Tips	.14-15
Spare Parts	.15
Other Accessories	.15
Other Planes	.16

Adhesives:

- Instant setting cyanoacrylate adhesive (thin CA)
- Slower setting cyanoacrylate adhesive (medium CA)
- 5 Minute Epoxy (fast)
- 20-30 Minute Epoxy (slow)
- R/C 560 Canopy Glue
- Zap-A-Dap-A-Goo II™

Tools:

- Model knife, T-Pins, 1/2" vinyl tape
- Small screwdrivers, medium screwdrivers
- Lexan Scissors
- Steel straight edge
- Long nose pliers and diagonal cutting pliers
- Drill and drill bits
- Sanding block
- Fine felt tip pen and soft lead pencil
- Straight building board

R/C System:

- 4 channel radio with 5 standard servos
- Two 12" aileron extensions
- One "Y" style extension wire

Engine:

- 2 cycle: .60
- 4 cycle: .91

Propeller (appropriate for engine type and preferred performance)



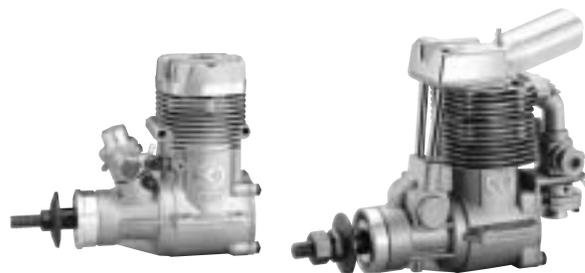
Radio - A 4-channel radio with 5 STD servos and are required.



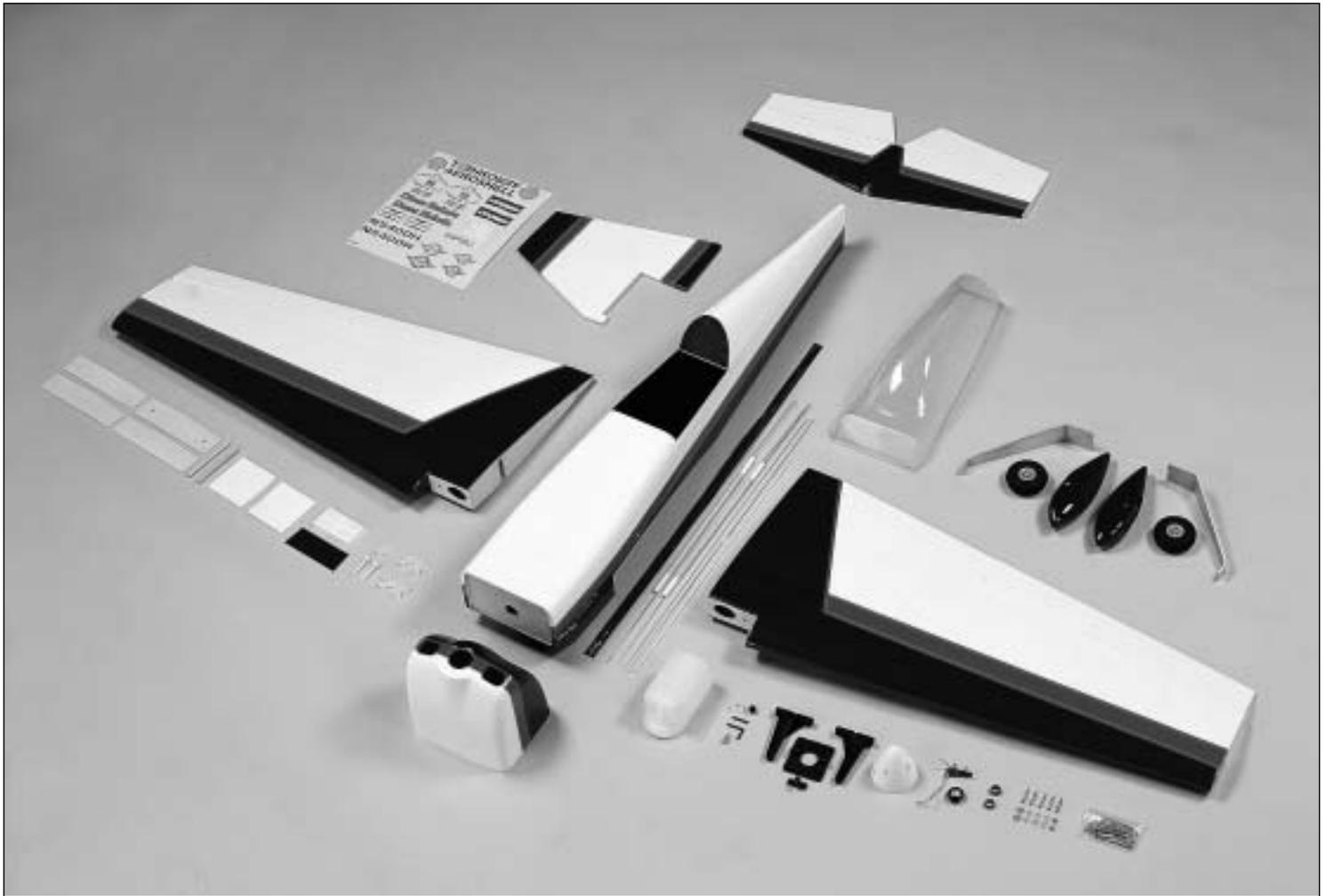
Adhesives - You will need two types of adhesives for the Staudacher S-300 - Epoxy and Instant (cyanoacrylate) adhesives. We recommend that you purchase both 5-minute and 30-minute epoxy to cut down on assembly time, but you can get by with only 30-minute epoxy if time is not important. You will also need a small bottle of both "Thick" and "Thin" instant CA adhesive.



Tools - Model assembly can be much easier if the proper tools are used. Therefore, we have included in our checklist to the left, a complete listing of all the tools we used to assemble our prototype models. As you will notice, many household tools can be utilized during construction.



Engine - The Thunder Tiger PRO-61 & F-91S are the ideal engines for this airplane. These quiet-running engines are easy to start, require no special break-in periods, are very easy to maintain and will last for years.



Kit Contents:

Main Wing

- Left Wing x 1pc
- Right Wing x 1pc
- Hatch Cover Plate x 2pcs
- 2x8mm Mounting Screw x 8pcs
- Dowel x 2pcs
- Dihedral Wing Joiner x 3pcs
- Wing Dowel Plate x 1pc
- Wing Protector x 1pc

Wing Bolt x 2 pcs

Fuselage x 1pc

Spinner

- Spinner x 1pc
- Backplate x 1pc
- 3x16mm Self-Tapping Screw x 4pcs

Pushrod

- Rudder Pushrod x 1pc
- Elevator Pushrod x 1pc
- Aileron Pushrod x 2pcs
- Throttle Pushrod x 1pc
- Plastic Tube Guide x 1pc
- Clevis x 5pcs

Tail Gear Set

- Tail Gear x 1pc
- Tail Wheel x 1pc
- Collar x 1pc
- Set Screw x 2pcs
- 3x12mm Mounting screw x 1pc
- 3x15mm Mounting screw x 1pc

Control Horn

- Control Horn & Backplate x 5pcs
- 2x22mm Screw(for aileron) x 4pcs
- 2x15mm Screw(for rudder and elevator) x 6pcs

EZ Connector

- Connector x 1pc
- M2 Nut x 1pc
- 3x3mm Set Screw x 1pc

Fuel Tank

- Tank x 1pc
- Clunk x 1pc
- Nipple x 1pc
- 90-degree Nipple x 1pc
- Fuel Stopper x 1pc
- Fuel Tube x 1pc
- Cap x 1pc

Engine Mount

- Beam x 2pc
- Backplate x 1pc
- Anti-Vibration Rubber x 2pcs
- 4x24mm Engine Mounting Screw x 4pcs

Engine Cowl

- Engine Cowl x 1pc
- 2.6x8mm Mounting Screw x 4 pcs
- Trim Tape x 1pc

Main Landing Gear

- Main Gear x 2pcs
- 4x15mm Mounting Wood Screw x 6pcs
- 4x40mm Socket Head Screw x 2 pcs
- M4 Nut x 2pcs
- M4 Locknut x 4pcs
- M4 Washer x 8pcs(2 for wheel pants, 6 for mounting gear)

Wheel x 2pcs

Wheel Pant L/ 1pc R/ 1pc

Canopy x 1pc

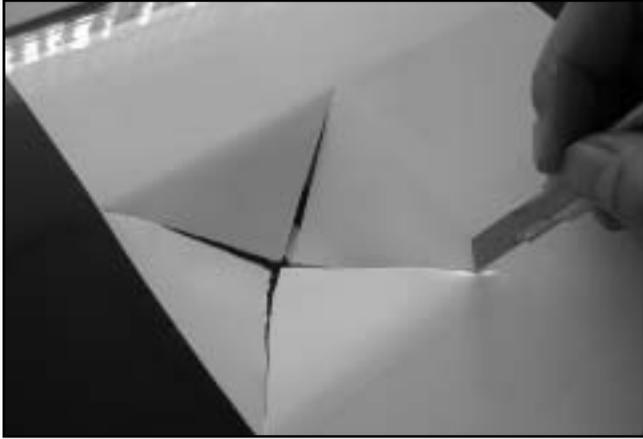
CA Hinges x 18pcs

Decal x 1pc

Pushrod Fairing x 4pcs

WING ASSEMBLY

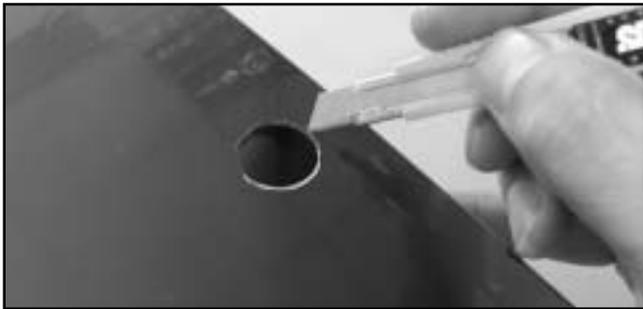
I. Mount Servos



- With the wing panel upside down, locate the servo well and cut an X from corner to corner using a hobby knife.



- Use a sealing iron to tack down the covering inside the servo well.



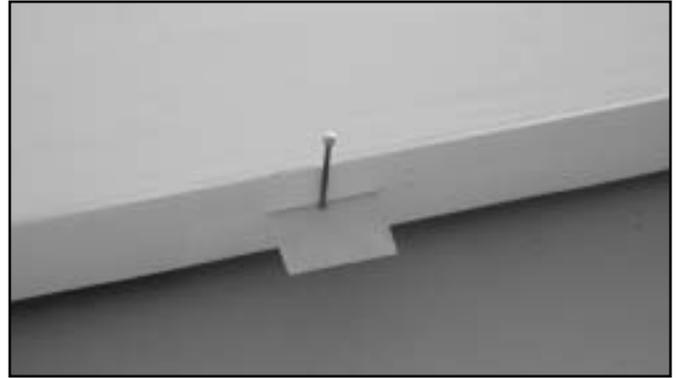
- With the wing rightside up, locate the servo wire exit hole and remove covering.



- Attach the 12" aileron extension lead to the servo and thread the wire through the ribs until you can see the wire connector in the first wing panel. Secure the servo.



- Use Needle-nose Pliers or Tweezers to take connect out. You might wisely use a piece of clear tape to temporarily hold the servo pigtail to the wing to prevent it from slipping back into the wing while you are working.



- Remove the aileron and insert Pins into the centers of the hinges.



- Apply thin CA to Hinges (both sides).

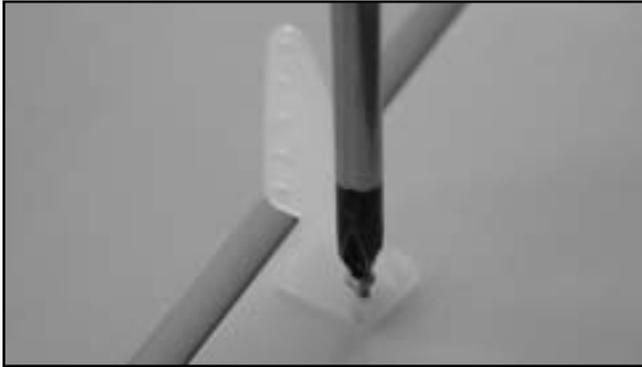


- Locate the two Hatch Cover Plates, cut away the covering as shown.

II. Join the Wing Halves



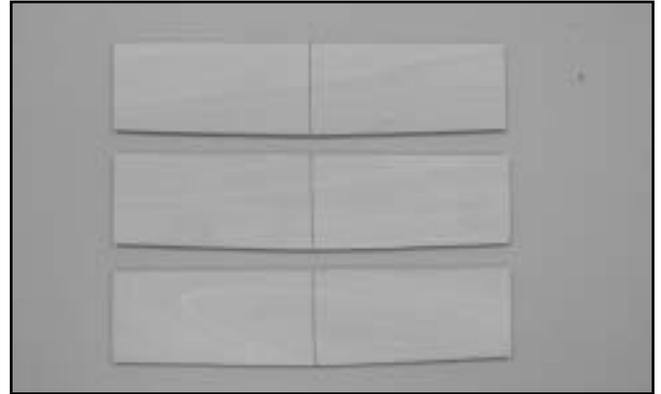
- ☐ Secure the Hatch Cover Plates with four 2x8mm Wood Screws. Use a pen or marker to mark the positions for the Aileron Control Horn. Drill out the 2mm holes as shown.



- ☐ Attach the control horn using the 2x22mm Screw and Control Horn Back Plate.



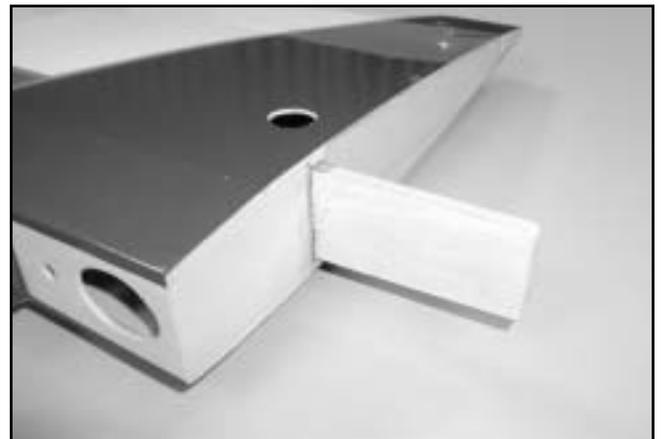
- ☐ Attached the Clevis to the threaded end and snap on to the control horn. With the servo at neutral position mark the pushrod for Z-bend end. Insert the Z-bend end to servo horn and secure the servo horn onto the servo.



- ☐ Locate the three Dihedral Wing Joiners and stack them. Trial fit the joiners in each wing panel. If needed, sand the edges lightly so that the joiner fits in each wing smoothly.

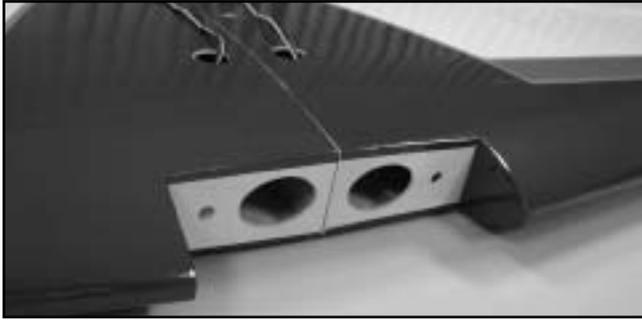


- ☐ Mix some 5 minute epoxy and laminate the three Dihedral Joiners together and clamp for 30 minutes.



- ☐ Mix up some more 5 minute epoxy and glue the Dihedral Joiner into one of the wings and let it dry for 30 minutes.

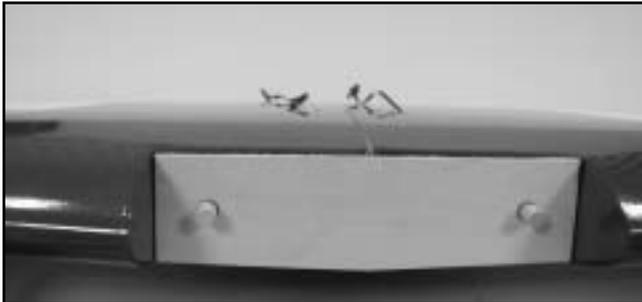
WING ASSEMBLY



□ Mix up an ample amount of 30 minute epoxy and apply to the inner ribs on each wing panel and Dihedral Joiner and make sure you have plenty inside the wing joiner slot. Slide the wings together, tape around the joint, and wipe off any excess epoxy. Set aside for 1 hour.



□ Apply a liberal amount of medium CA to the exposed wing panel and place the Wing Protector on it, holding it until the CA sets.



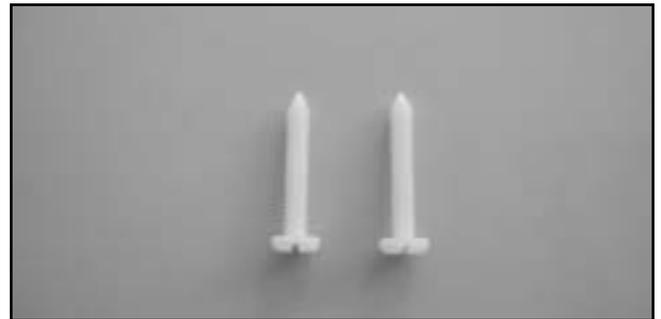
□ Using 5 minute epoxy, attach the Wing Dowel Plate and wing alignment Dowels and let sit for 30 minutes.



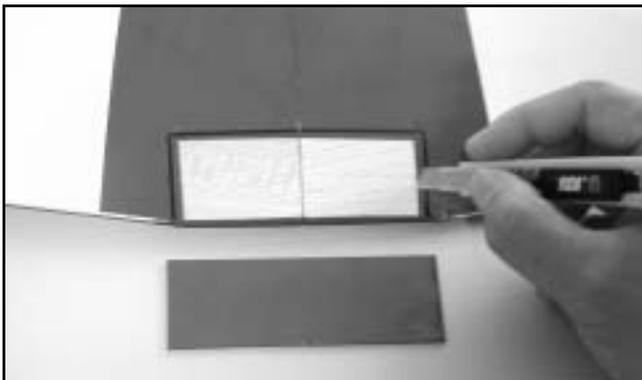
□ Iron the enclosed Trim Tape at the wing joint.



□ Measure the top and bottom to find center of the Wing Protector. This will be used to center the protector on the trailing edge of the wing panel. Place the protector on the wing panel and mark around the three sides with a pen or marker.



□ Sharpen the Wing Bolts as shown.

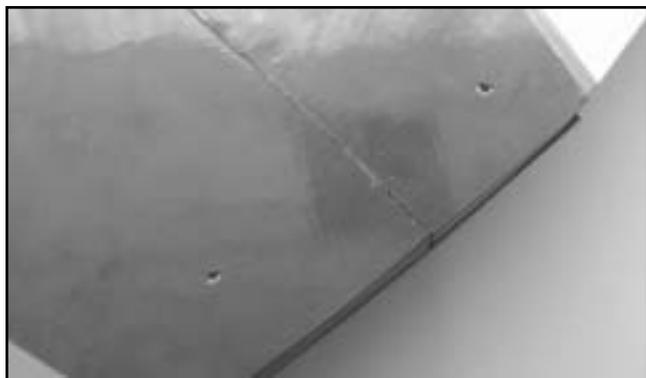


□ Remove the protector and then remove the covering material inside the lines. Be careful not to push through the balsa; remove only the covering.

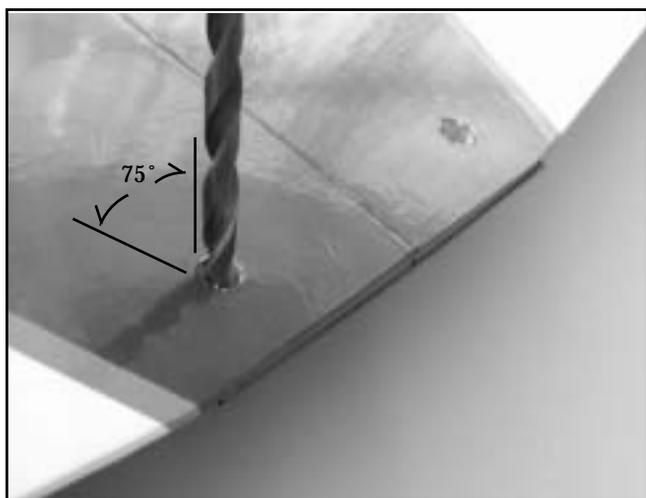


□ Screw the Wing Bolts inversely so the sharp ends just a little higher than the saddle of fuselage.

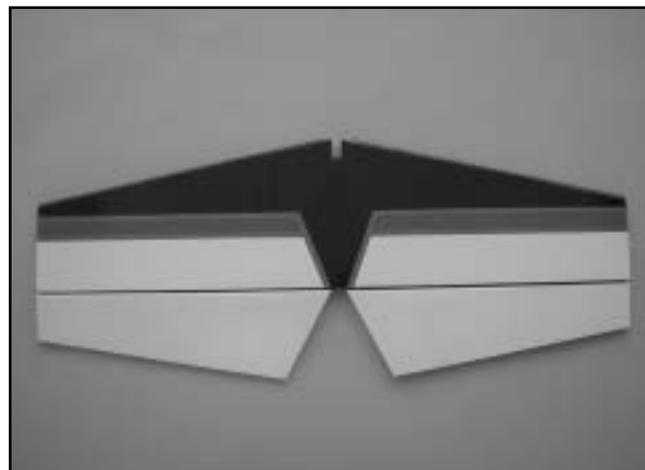
III. Install the Stab, Fin & Rudder



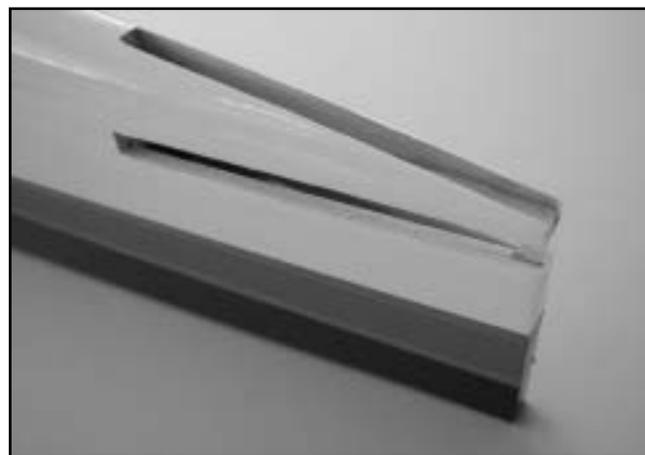
- ❑ Be careful install the main wing on the fuselage and not to touch the sharp end of wing bolts. Push it to mark the points on the wing when wing is aligned. You can see the two points at the trailing edge of wing panel.



- ❑ Drill 6mm(1/4") holes at the points. Note: The bit should be 75-degree angled to the wing surface when you are drilling the hole.



- ❑ Glue the CA hinges on the stab as what you did for aileron.

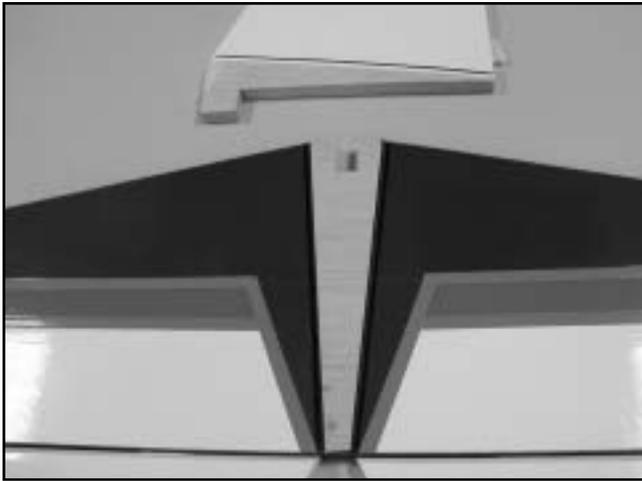


- ❑ Cut away the covering at the rear fuselage where stab located. Also remove the covering from the 10mm (3/8") wide flat strip at the top rear end of the fuselage. Carefully cut 1/2" deep on either side of the exposed area and remove the block inside (this block should be loose from the factory but is only there for strength during sanding and covering.)



- ❑ Place the stab and vertical fin in place then mark them against the edge of fuselage.

STAB, FIN & RUDDER



- ❑ Cut and remove the covering material about 3mm inside the stab and fin. Be careful only cut the covering or it will hurt the structure of the stab and fin. Using Rubbing Alcohol to remove the mark.



- ❑ With the main wing installed, make sure the stab and fin are parallel and perpendicular to the main wing. If not, adjust them then glue them in place when satisfied.



- ❑ Install the Tail Gear by drilling 3mm(1/8") holes for the tail gear retaining pins. Insert the tail gear in place then secure with 3x12mm and 3x15mm Wood Screws.



- ❑ Trial fit the Rudder. Cut the slot and drill a hole for tail gear torque rod on the rudder at the proper position as shown.



- ❑ Install the Rudder in place, glue the CA hinges and tail gear torque rod.

IV. Elevator / Rudder Servo Linkage and Control Horns



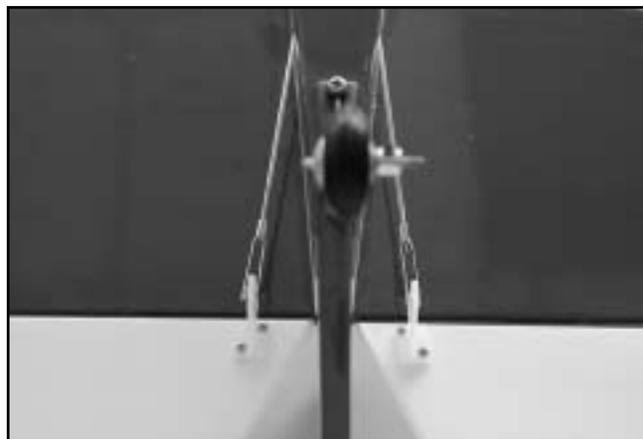
- ❑ Cut away the covering of pushrod exit holes.



- ❑ Install the elevator pushrod, you might wisely to bend the pushrod to Y style and two threaded ends go out the exit holes. Install the clevis on the threaded end.



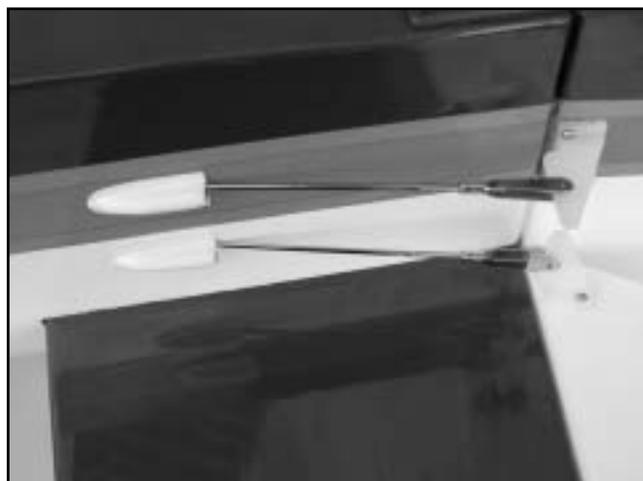
- ❑ Place the control horn on the bottom side of the elevator and mark screw holes with a pen or marker. Drill the holes all the way through the elevator.



- ❑ Secure the control horn using 2x15mm screws provided.



- ❑ Install the rudder control horn. Similar procedure to elevator control assembly.



- ❑ Trim the Pushrod Fairing and glue them at the pushrod exits.

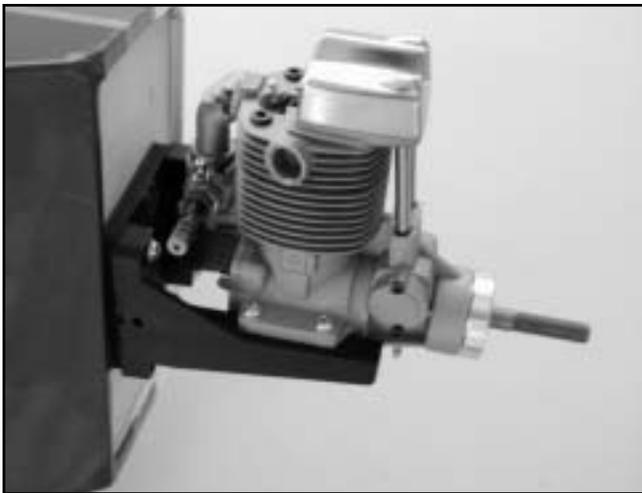
ENGINE & FUEL TANK INSTALLATION



V. Engine Installation



□ Locate the motor mount hardware: two beams, backplate, two anti-vibration rubber and four machine screws. Install the adjustable engine mount. Remember to install anti-vibration rubber to reduce the engine vibration. Set the engine on engine mount as shown, measure from the firewall to the front of thrust washer at 13.5cm(5 5/16"). Mark the engine mounting hole position on the engine mounts.



□ Drill the engine mounting hole with 3.5mm bit(3/16") then using the four 4x24mm Mounting Screws to secure the engine.

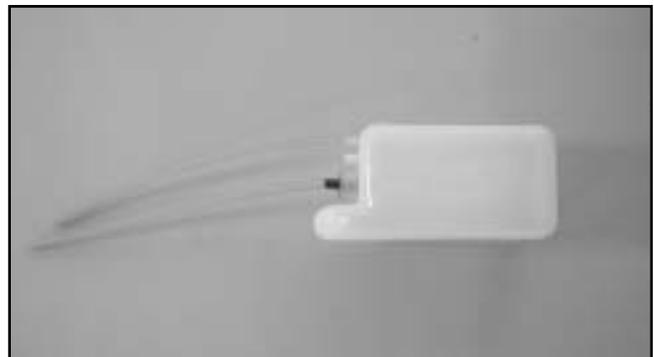


□ Drill a 3mm(1/8") hole for throttle pushrod guide tube. Install the pushrod tube and use a couple of drops of medium CA to hold in place in the firewall.



□ Install the throttle pushrod. You might need to screw off the throttle lever first then attach to Z-bend throttle pushrod end.

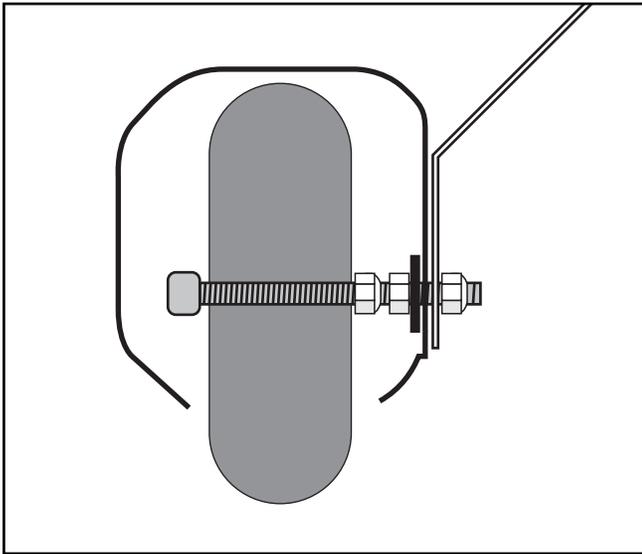
VI. Fuel Tank Assembly



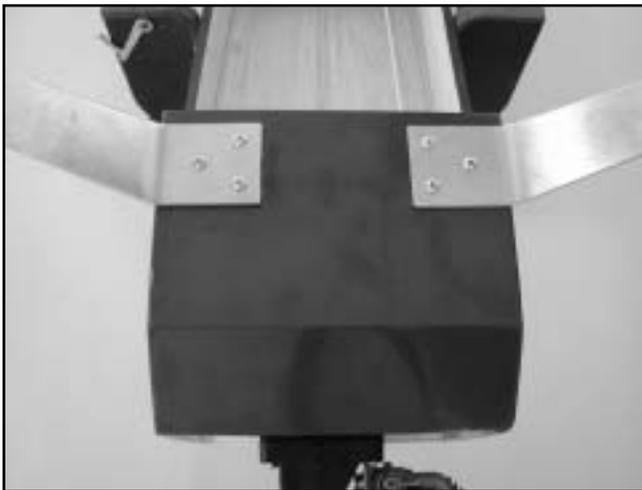
□ Assemble the fuel tank and install the fuel tank in fuselage.

VIII. Radio Installation

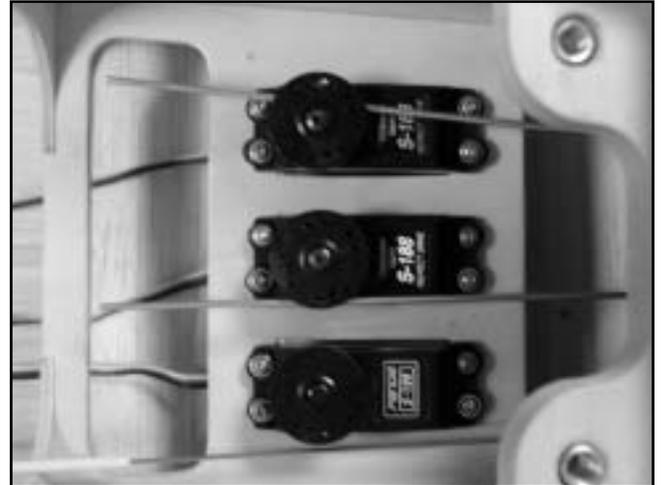
VII. Landing Gear Assembly



- Run the 4 x 40mm Socket Head Bolts through the large wheels followed by a 4mm locknut. Tighten just enough so that the wheel can turn freely. Then thread another 4mm nut and a washer then push it all through the landing gear and wheel pant. Adjust the wheel is centered in the wheel pant then tighten down with another 4mm locknut. Repeat for other side.



Locate the six 4x15mm wood screws and washers to attach the main landing gear to the fuselage.



- Install the throttle, rudder and elevator servos. The upper one in the photo is rudder servo, middle one is elevator servo and the bottom one is throttle servo.



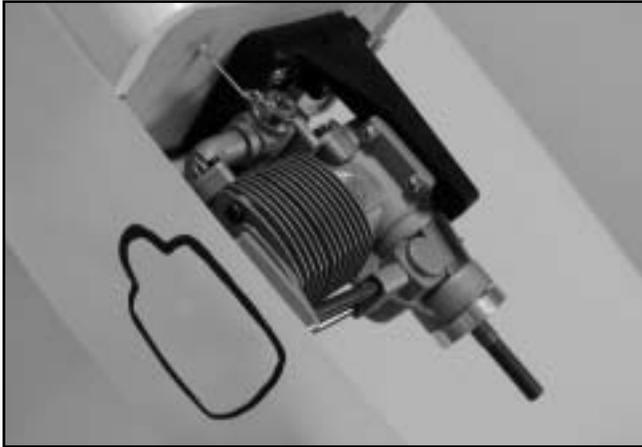
- With the servos are in the neutral position, use Z bend pliers to bent the pushrod and insert the Z bend end into the servo horn. Install throttle servo & attach the EZ Connector to the throttle servo arm with the servo in the neutral position and the carburetor at half throttle. This will give you an excellent starting point for radio setup.



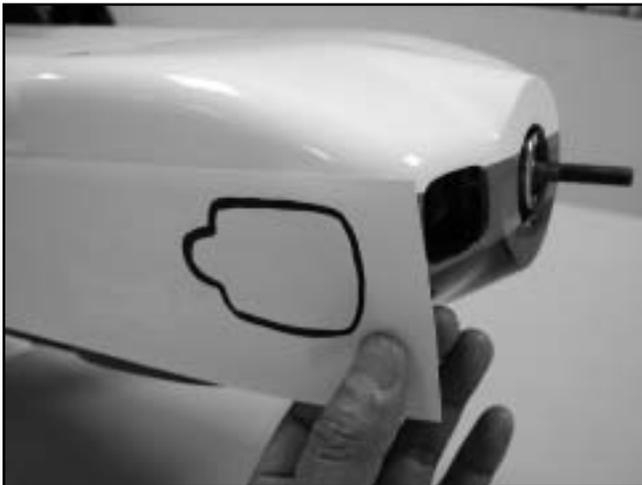
- Set the switch plate against the left side of the fuselage and scribe a line inside the switch plate with an Xacto knife. Remove the switch plate and cut through the covering and balsa. We have placed our switch against the pink stripe. Wrap the receiver and battery pack in foam padding and secured to the servo tray.

COWL ATTACHMENT

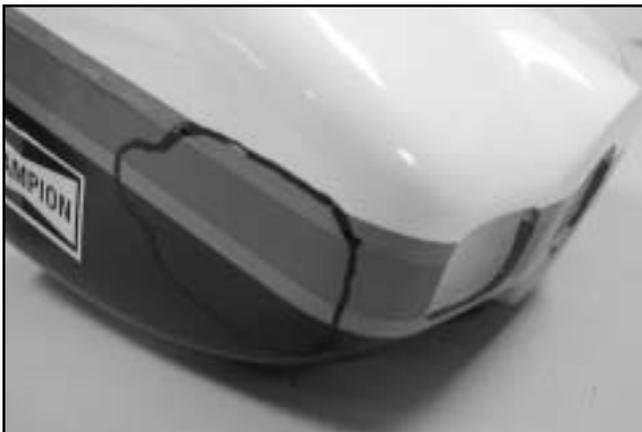
IX Cowl Attachment



□ With the engine of your choice installed, it will be necessary to cut holes in the cowl to accommodate cylinder heads, needle valves, glow plug access, etc. In order to do this, create a template in the following fashion: With engine in place, tape strips of standard paper to the fuselage over the area that will need to be removed from the cowl. Make sure the pieces of paper are long enough to cover the cowl. Tape the paper into place against the fuselage and carefully draw around the necessary areas. Now using an Xacto knife, cut out the drawn area.



□ Now remove the engine, put the cowl into place and tape the template against the cowl.



□ Use a marker to draw inside the template on the cowl.



□ Trim away the mark position you drew and trial fit on the fuselage as shown.



□ Install the muffler and use the same way to trim the cowl.



□ Before permanently installing the cowl, we have opted to install a Thunder Tiger #1115 Precision Fueler Valve. Set the cowl in place. Mark the holes for the cowl attachment screws and drill using a 1/16" drill bit. Attach the cowl using the four 2.6x8mm Wood Screws.

CANOPY INSTALLATION

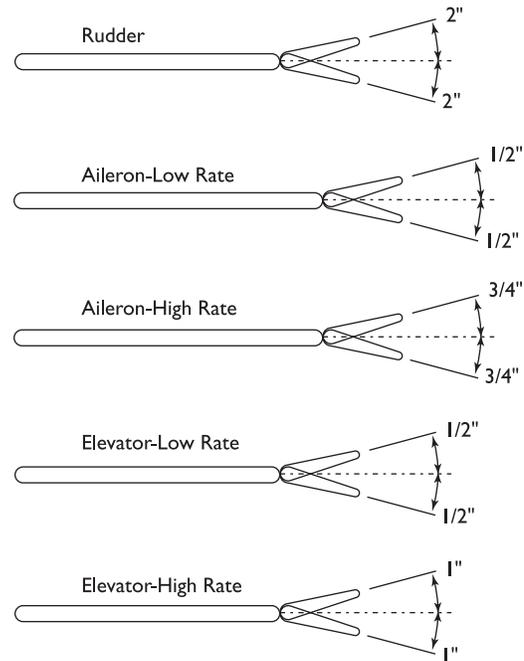
XI. Prop and Spinner

Install the prop. As we using Thunder Tiger F-91S four stroke engine, we would recommend to us an APC 13x6~14x6.

Attach the spinner. Depending on the prop you use, you may have to modify the spinner openings.

XII. Control Throws

These control throws are merely a starting point for your radio setup and can be tailored to fit your flying style.



These control throws are merely a starting point for your radio setup and can be tailored to fit your flying style.

XIII. Center of Gravity

IMPORTANT- Do not attempt to fly your model before completing this very important section. A model that is not properly balanced will be unstable and could cause serious damage and/or injury. Balance the airplane right side up with your index finger tips in the center of the main spar. Adjust the battery location or add weight as needed to achieve level balance. Once you have everything positioned as necessary, wrap your battery pack in 1/4" or 1/2" thick foam for protection.

The balance point is about 5" from the leading edge, 1" out from the fuselage.



☐ Since the needle valve was not long enough to extend outside the cowl, we had to install an extension. Depending on the engine you use this may be necessary. We made ours out of the excess wire from the Aileron pushrod.

X. Canopy



☐ Trim the canopy by using a pair of lexan scissors.



☐ Trial fit the canopy on cockpit. When satisfied with fit, glue it in place with Formula 560 Canopy Glue.

SPARE PARTS & ACCESSORIES



XIV. Locate A Good Flying Site

Generally, the best place to fly your model is at an AMA (Academy of Model Aeronautics) chartered club field. Your local hobby dealer can tell you if there is such a club in your area or write the AMA for information. It is also a good idea to join this organization before flying your model since they offer liability insurance that can protect you if your model causes damage or injury to others.

Academy of Model Aeronautics
5151 East Memorial DR
Muncie, IN 47302-9252

If there is not a chartered club field in your community, you will need to find a large area free of obstructions, and has a smooth grass or asphalt surface to be used as a runway. For safety's sake, it should be located well away from houses, buildings, schools, power lines and airports. If you will be flying within 6 miles of an airport, you should check with the airport manager before flying your model.

XV. A Note On Batteries

The batteries are the heart of your radio system. Make sure you have fully charged batteries! With rechargeable batteries, follow the manufacturers instructions to make sure the batteries are fully charged, especially the first time the radio is used.

We have used a 700mAh battery pack as the servos we installed are only standard servos. We would recommend you use larger capacity(1000mAh) if you use high performance servos as they will draw more current than ordinary servos.

XVI. Flying Your Staudacher

We recommend that you take it easy on your first few flights and get a feel for your new airplane. We test flew our Staudacher on low rates for the first two flights to get a feel for how it tracked and handled. We also found that landings were smooth and uneventful on low rate. On high rate our plane was very aerobatic, maneuvers were crisp and clean, and incredibly responsive.

XVII. Notes

Date	Date	Date
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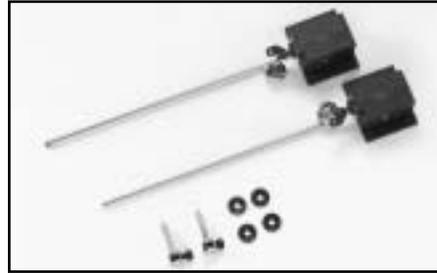
Dual rate setup:

Elevator low:	_____	_____	_____
Elevator high:	_____	_____	_____
Aileron low:	_____	_____	_____
Aileron high:	_____	_____	_____

XVIII. Spare Part

#AS6174 FRP Cowl
 #AS6175 FRP WHEEL PARTS
 #AS6176 MAIN LANDING GEAR SET
 #AS6177 CANOPY

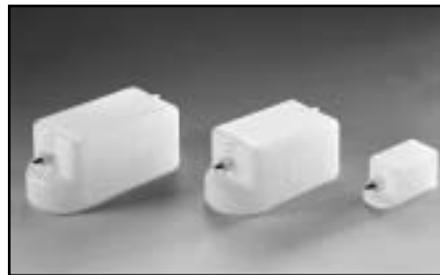
Look at Thunder Tiger Accessories



Superlite Retracts

ITEM NO	DESCRIPTION
TTR3005	Retract, .10 Size
TTR3006	Retract, .30 Size
TTR3007	Retract, .40 Size
TTR3008	Retract, .60 Size

- Durable mechanism & light weight for contest use
- Super thin design for maximum versatility
- Smooth and safe locking system
- No bending necessary, adjustable axle included for 30, 40 and 60 size.



Fuel Tank Sizes

ITEM NO.	DESCRIPTION
TTR3271	2.5oz.(75cc)
TTR3272	24oz.(720cc)
TTR3273	32oz.(960cc)

Contents:

Silicone Pick-up Tube
 Straight Tank Nipple & 90° Tank Nipple
 Plastic Locking Cap
 Rubber Stopper
 Pick-up Clunk

Features:

- Straight and 90° tank nipples are both included for ease of installation.
- Extended lip design protects fuel line from being pinched against firewall.
- Molded-in pull tab at rear of tank allows easy tank removal.



Engine Mounting Guides

ITEM NO.	DESCRIPTION
TTRPN0197	Guide, GP-07
TTRPN0198	Guide, GP-42
TTRPN0199	Guide, PRO-40/46
TTRPN0200	Guide, PRO-25/36
TTRPN0201	Guide, PRO-61

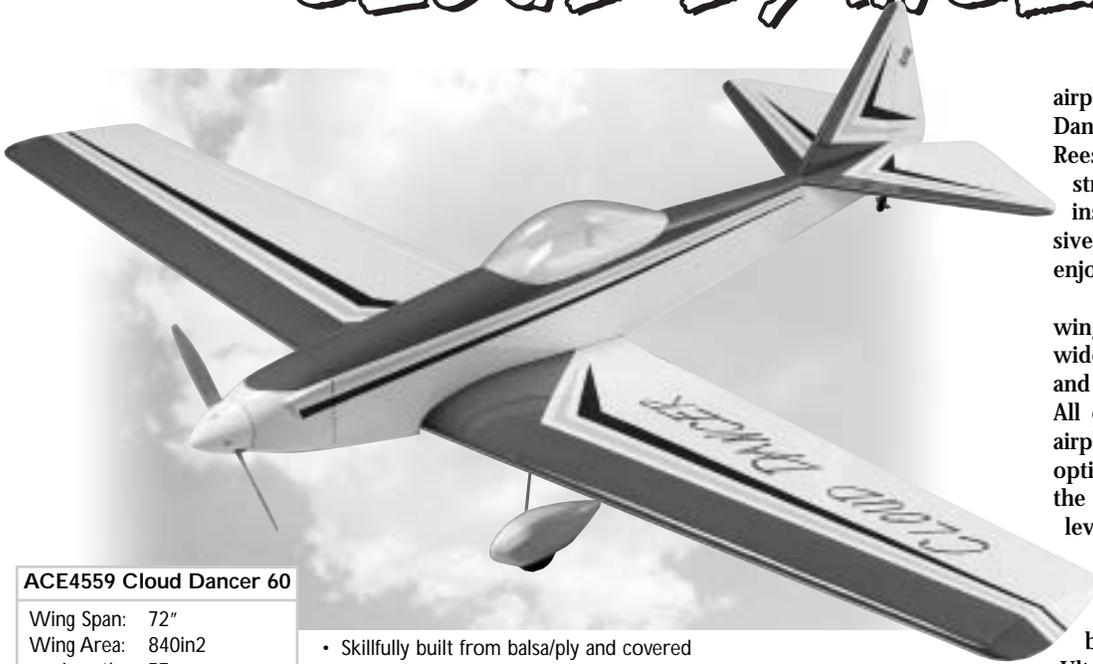
Drilling exact holes in your engine mount plus properly locating the prop shaft/thrust washer for positioning the spinner ring is always a hassle, until now.

Thunder Tiger's new Engine Mounting Guides make installation of our most popular engines a snap; more importantly, you can leave your brand new engine in the box and not expose it to sawdust, drill shavings, glue, and paint.



CLOUD DANCER 60 ARF

ACE4559



ACE4559 Cloud Dancer 60

Wing Span: 72"
 Wing Area: 840in²
 Length: 57"
 Weight: 6-7 lbs.
 Engine: .61 2 cycle
 .91 4 cycle
 Radio: 4-5 channel

- Skillfully built from balsa/ply and covered with UltraCote
- Sleek lines and tapered wing provides clean, smooth performance
- Set-up for fixed gear or optional retracts

If you are looking for a perfect sport airplane, you can't go wrong with a Cloud Dancer 60. Designed by the late Fred Reese, the Cloud Dancer 60 incorporates a strong lightweight frame that provides instant acceleration and nimble responsiveness for very impressive and truly enjoyable performance.

Cloud Dancer sports a double-tapered wing, a unique diamond-shaped tail group, wide-stance landing gear and wheel pants, and sleek fuselage with bubble canopy. All of which results in a truly handsome airplane you can be proud of. Install the optional retractable landing gear, and watch the Cloud Dancer transform into the next level of awesome performance and good looks.

The Cloud Dancer 60 comes Almost-Ready-To-Fly, completely built from balsa/ply and skillfully covered with UltraCote®.



GILES G-202 140 ARF

TTR4550 G-202 140

Wing Span: 70"
 Wing Area: 1022in²
 Length: 70"
 Weight: 10-10.5 lbs.
 Engine: 1.08-1.6 2cycle
 1.2-1.8 4cycle
 Radio: 4 channel
 w/6 Servos

Wild blue yonder" takes on a whole new meaning when you are pushing either of these ARF Giles 202 through the sky. Crisp aerobatics are what these replicas of the world famous airplane is all about.

This Almost-Ready-To-Fly airplanes is meticulously built from balsa/ply and covered with UltraCote. A few hours of final assembly plus radio and engine installation and you are ready to head for the tarmac and wave to the crowd after a successful airshow performance.



- Skilled craftsmen completely build this model from top quality balsa and plywood.
- Covered in Ultracote, the G-202 color scheme is bright, tough, and repairable.
- A flawlessly painted fiberglass cowl, blow molded wheel pants, and bottom wing cover are furnished.
- Quality accessories include pilot figure and instrument panel. The 1.40 includes scale tail-wheel assembly, flexible engine mount, and heavy duty linkage.