

**ADVANCED
SCALE
Models**

A-26 INVADER



Twin .52-Size ARF

ASSEMBLY INSTRUCTIONS

A Semi-Scale ARF R/C Model of the Douglas A-26 Invader

The A-26 Invader, the fastest U.S. bomber of WWII, saw multi-national military service from 1944 WWII through 1975 serving as everything from a bomber, to a target drone tug, to a Vietnam-era counter-insurgency fighter. In an unusual event, it saw a name change from A-26 to B-26 in 1948 when the B-26 Marauder was decommissioned. The aircraft then saw some aircraft switched back to the A-26 designation in 1965. In civilian use its services ranged from a luxury corporate transport to a firefighter known as a Borate-Bomber seeing service all the way through to 1985. Indeed the A-26 proved to be a versatile design that found usefulness through four decades of service. Today only a few A-26 aircraft are flyable. However, many remain in museums throughout the world.

The ASM A-26 is an exciting replica of the original A-26. Its impressive 2.3m (92 inch) wingspan and 1.6m (66 inch) length results in a great flying model that is easy to see and easy to fly, yet because of its three-piece wing, the model breaks down to fit nicely into most vehicles. And while we certainly do not intend for this model to be flown or built by the novice modeler, experienced modelers will find the ASM model easy to assemble and versatile.

ASM A-26 INVADER SPECIFICATIONS AND FEATURES

- **Wing Span:** 2237mm (92 Inches)
- **Wing Area:** 63.87dm² (990 Square Inches)
- **Length:** 1676mm (66 Inches)
- **Weight RTF:** 6.6~7.9kg (14.5~17.5 Pounds)
- **Wing Loading:** 102~123gr/dm² (34~41 Ounces/Square Foot)
- **Functions:** Elevator, Ailerons, Rudder, Flaps, and Throttles (Retracts Optional)
- **Radio Required:** 5~6 Channel or More with Ball Bearing Servos
- **Engines Required:** 2x .52 Two-Stroke / .52~.70 Four-Stroke / KMS 4120/05BL
- Plywood, Balsa and Carbon Fibre Airframe with Moulded ABS Skins
- Factory-Covered Wings and Factory-Painted Fuselage, Nacelles and Cowls
- 3-Piece Wing for Easy Transportation
- Accepts a Wide Range of Power Systems: Two-Stroke, Four-Stroke or BL Electric
- Exceptional Flying Qualities for a Twin-Engine Scale Warbird
- Strong, Prebent Wire Landing Gear and Lightweight Stand-Off Scale Wheels
- Generous Hardware Package
- Pneumatic Retractable Landing Gear and Oleo Struts Available Separately

FULL-SCALE DOUGLAS A-26 INVADER SPECIFICATIONS

Wing Span: 21.3m (70ft) • **Wing Area:** 50m² (540ft²) • **Length:** 15.6m (51ft 3in) • **Height:** 5.6m (18ft 3in)
Gross Weight: 12,519kg (27,600lb) • **Maximum Takeoff Weight:** 15,900kg (35,000lb) • **Engines:** 2 x Pratt & Whitney 2000hp Radials
Maximum Speed: 570km/h (355mph) • **Combat Range:** 2,250km (1,400mi) • **Service Ceiling:** 6,700m (22,000ft)

CUSTOMER SERVICE INFORMATION



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SAFETY WARNINGS

THIS R/C MODEL IS DESIGNED FOR EXPERIENCED PILOTS ONLY! IF YOU ARE NOT AN EXPERIENCED PILOT COMFORTABLE WITH FLYING HIGH-PERFORMANCE MODEL AIRCRAFT, DO NOT CONTINUE.

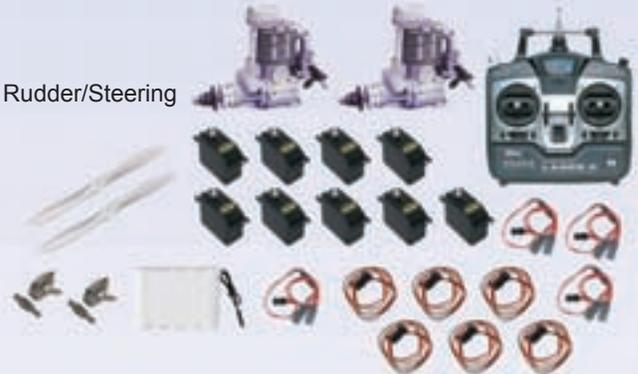
LIKE THIS R/C MODEL, THESE INSTRUCTIONS ARE WRITTEN WITH THE EXPERIENCED MODELER IN MIND. ALL MAJOR STEPS ARE OUTLINED; HOWEVER, THE INSTRUCTIONS ARE WRITTEN KEEPING IN MIND THAT YOU'RE EXPERIENCED IN BASIC MODEL ASSEMBLY TECHNIQUES AND AIRCRAFT SETUP. IF YOU HAVE QUESTIONS DURING ASSEMBLY, PLEASE CONTACT YOUR LOCAL DISTRIBUTOR USING THE CUSTOMER SERVICE INFORMATION ABOVE.

This R/C aircraft is not a toy! If misused or abused, it can cause serious bodily injury and/or damage to property. Fly only in open areas and preferably at a dedicated R/C flying site. We suggest having a qualified instructor carefully inspect your aircraft before its first flight. Please carefully read and follow all instructions included with this aircraft, your radio control system and any other components purchased separately.

ADDITIONAL ITEMS REQUIRED TO COMPLETE ASSEMBLY

For more information about using an electric power system, including the brushless motors, ESCs, LiPO batteries, and the necessary steps for installation, please refer to the Brushless Power System Installation section on page 20.

- 1 x 5~6 Channel or More Radio Control System
- 2 x .52~.70 4-Stroke Engines and 12 x 6" or 13 x 6" Propellers
- 7 x High-Torque, Standard Servos for Ailerons, Flaps, Elevators and Rudder/Steering
- 2 x Standard Servos for Throttles
- 4 x 12" Servo Extension Leads for Flaps and Throttles
- 2 x 24" Servo Extension Leads for Ailerons
- 1 x Y-Harness with Electronic Reverser for Elevators
- 3 x Y-Harnesses (Standard) for Ailerons, Flaps and Throttles
- 1 x 5 Cell 1100mAH or Greater Capacity Receiver Battery
- 2 x Remote Fueling Valves
- Five and Thirty Minute Epoxy
- Thin and Thick C/A
- C/A Debonder and Rubbing Alcohol
- Assorted Modeling Tools (i.e., Modeling Knife, Screwdriver, Hex Wrenches, Etc.)
- Assorted Modeling Supplies (i.e., Sandpaper, Sanding Block, Aircraft Stand, Paper Towels, Etc.)



Because of the number of servos and servo extension leads used, we strongly suggest the use of a 5 cell (6 Volt) 1100mAH or greater capacity receiver battery.

As an alternative to purchasing multiple servo extension leads, you may want to purchase a bulk spool of servo wire and connectors and make your own custom-length extension leads.

Optional Phneumatic Retract Installation

- 1 x ASM Retract Set and Control System for A-26 Invader (P/N ASM-ARS05)
- 1 x ASM Landing Gear Strut Set for A-26 Invader (P/N ASM-AVSS05)
- 1 x Standard Servo for Retract Air Control Valve



TIPS FROM THE PROS

- During the covering process, colour may sometimes smear slightly from the seams. If you see any smeared colours on the covering material, it can be quickly removed by simply wiping it off with a paper towel and a small amount of acetone.
- Make sure to test-fit the parts before applying glue. This will ensure that the parts fit together properly before gluing them together.
- When gluing anything that has a smooth surface, it's important to lightly roughen the gluing surfaces with 220 grit sandpaper. This will allow the glue to stick better. Also, never glue directly to the covering material. Always remove the covering material from the gluing surfaces prior to gluing the parts together.
- When cutting away the covering material from the gluing surfaces, be careful to cut only through the covering material. Try not to cut down into the balsa structure because that can compromise the integrity of the airframe.
- We do not suggest storing your aircraft in an extremely hot environment (like the back of your car in direct sunlight) for any length of time. The extreme heat could cause the covering material to wrinkle or sag and possibly damage the fragile components of the radio control system.
- Epoxy can be cleaned up before it dries using rubbing alcohol, and C/A can be cleaned up before it dries using C/A Debonder.
- Make a U-Shaped bend in one end of a long piece of scrap pushrod wire and use it to help pull the servo extension leads through the wing panels.
- The control horns are mounted to the control surfaces using wood screws. Even though the wood screws thread into plywood plates, apply a small amount of 5 minute epoxy to each wood screw before you install it for extra security.
- When you plug servo extensions onto the servo leads, apply masking tape or heat-shrink tubing over the plugs to prevent any chance of them pulling apart during assembly, or worse, during flight.
- Apply threadlocking compound to any screws that thread into metal. This will ensure the screws don't vibrate loose during flight.
- Apply lightweight oil or petroleum jelly to the pivot point of the control surface hinges and the landing gear door hinges (if applicable) to prevent epoxy from gluing the hinges solid.
- Before flying the aircraft for the first time, make sure to go through and double-check everything. Check that all the hinges are glued solidly, all bolts and screws are tight, etc. Double-check the operation of the landing gear, too, if using the optional retractable landing gear.

ASSEMBLING THE TIGERCAT ARF

STEP 1: HINGING THE AILERONS AND FLAPS



- ❑ Apply a thin coat of machine oil or petroleum jelly to the pivot point of each of the three aileron hinges from one wing panel. Be careful not to get any on the gluing surfaces of the hinges.

IMPORTANT The machine oil or petroleum jelly will prevent epoxy from gluing the hinges solid when they're installed.



- ❑ Apply a thin layer of 5 minute epoxy to one half of each hinge, then glue the hinges into the ailerons.

IMPORTANT Install the hinges so that the centre of each hinge (the pivot point) is even with the leading edge of the aileron.





- ❑ After the epoxy sets up, apply a thin layer of 5 minute epoxy to the exposed half of each hinge, then hinge the aileron to the wing.

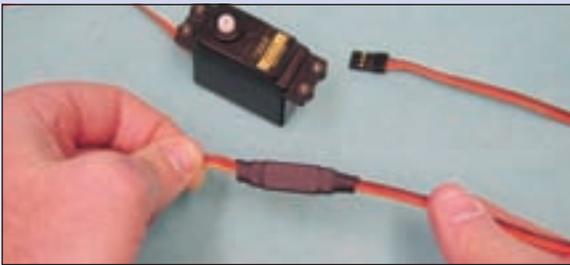
IMPORTANT Push the aileron firmly into place to ensure that the hinge gap is as tight as possible. The hinge gap should be no more than 1mm (~1/32").



- ❑ Hinge the flap to the wing panel, using the same techniques that you used to hinge the aileron to the wing panel. The only difference is that the flap is hinged along the bottom.

- ❑ Repeat the previous procedures to hinge both the aileron and the flap to the opposite wing panel.

STEP 2: INSTALLING THE AILERON AND FLAP SERVOS AND CONTROL LINKAGES



- ❑ Plug one 305mm (12") servo extension into each of your two aileron servos.

IMPORTANT Secure the two plugs together using a piece of 10mm (3/8") diameter heat-shrink tubing or a piece of masking tape.



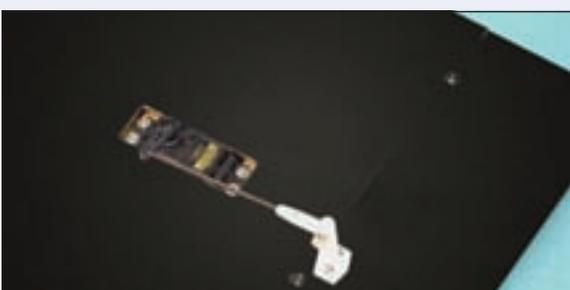
- ❑ Install one aileron servo into each wing panel. Use the preinstalled length of thread to pull the servo extension leads through the wing panels.

IMPORTANT Both servo output shafts should be toward the **leading edge** of the wing panels.



- ❑ Install the aileron control linkages, using the **longer** threaded pushrod wires, two control horns, two clevises and four wood screws provided. The control horns should be positioned 95mm (3-3/4") out from the inboard edge of each aileron (measured at the hinge line).

IMPORTANT Install the pushrod wires into the hole that is 19mm (3/4") out from the centre of the servo horns and install the clevises into the **fifth hole up** from the base of the control horns.



See the important note at the top of the next page about positioning the flap control horns.

- ❑ Install the flap servos and control linkages, using the same techniques that you used to install the aileron servos and control linkages. **Make sure to see important note at the top of the next page prior to installing the flap control horns.**



IMPORTANT The flap control horn on the **left wing panel** should be positioned approximately 137mm (5-3/8") out from the inboard edge of the flap (measured at the hinge line) and the servo arm should point toward the **root end**. The control horn on the **right wing panel** should be positioned approximately 154mm (6") out from the inboard edge of the flap (measured at the hinge line) and the servo arm should point toward the **wing tip**. Having both servo arms point in the same direction will allow you to use a standard Y-Harness and still make both servos move the same direction.

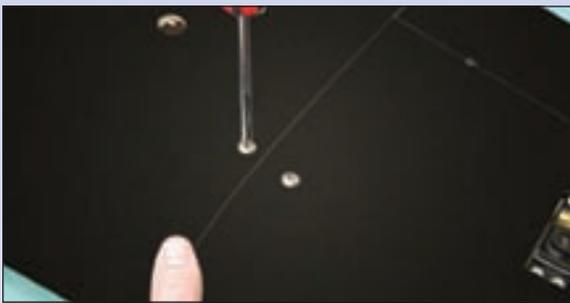
STEP 3: INSTALLING THE WING JOINER TUBES

IMPORTANT The two aluminium wing joiner tubes are labeled "R-Outer" and "L-Outer" to indicate which side of the wing they should be installed into. "Outer" indicates the end that should be installed in the outer wing panels.



Slide the aluminium wing joiner tube labeled "R-Outer" into the right outer wing panel.

Line up the outermost predrilled hole in the aluminium tube with the predrilled hole in the bottom of the wing panel, then carefully thread one long self-tapping screw through the wing panel and into the aluminium wing joiner tube. Tighten the screw gently to prevent crushing the wing.



Slide the outer wing panel assembly onto the centre wing panel.

Firmly push the outer wing panel against the centre wing panel, then carefully thread one long self-tapping screw through the predrilled hole in the centre wing panel and into the aluminium wing joiner tube. Again, tighten the screw gently to prevent crushing the wing.

Repeat the previous procedures to install the second aluminium wing joiner tube and outer wing panel onto the centre wing panel.

STEP 4: INSTALLING THE HORIZONTAL STABILISERS



Slide the plywood stabiliser spar into the fuselage.

Make sure that the two angled cuts are lined up with the fuselage sides, then tack-glue the spar into the fuselage, using thin C/A.

IMPORTANT Make sure that the ends of the spar are angled **up** when the spar is installed.

IMPORTANT The stabiliser panels will fit properly only one way. If you slide the stabiliser panels onto the spar and there is a gap between the top of the stabiliser panels and the fuselage, the stabiliser panels are upside down.



Test-fit and glue the two stabiliser panels to the fuselage, using 30 minute epoxy. Make sure to first sand away the paint from the gluing surfaces to ensure a strong bond.

IMPORTANT So that the stabiliser panels fit firmly up against the fuselage sides, you may need to sand the ends of the spar slightly shorter.



STEP 5: INSTALLING THE VERTICAL FIN



- ❑ Test-fit and glue the vertical fin to the fuselage, using 30 minute epoxy. Again, make sure to first sand away the paint from the gluing surfaces to ensure a strong bond.

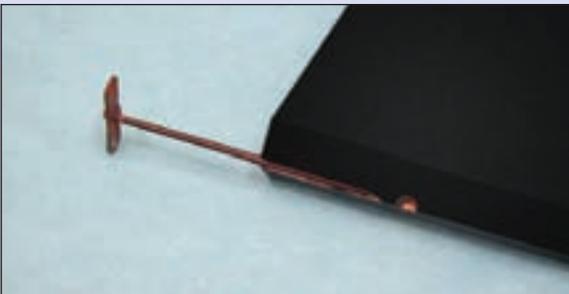
STEP 6: HINGING THE ELEVATOR HALVES

IMPORTANT A plywood control horn mounting plate is installed in the bottom of each elevator half. Make sure that when you hinge the elevator halves that the plywood mounting plates are toward the bottom.



- ❑ Hinge the elevator halves, using the same techniques that you used to hinge the ailerons and the flaps.

STEP 7: HINGING THE RUDDER



- ❑ Test-fit and glue the rudder torque rod into the leading edge of the rudder, using 5 minute epoxy.

IMPORTANT Make sure to roughen the torque rod wire to ensure a strong glue joint.



- ❑ Cut the longer length of stranded pull-pull cable exactly in half.
- ❑ Secure one end of each cable to each side of the rudder torque rod tiller arm, using two crimp collets.

IMPORTANT After squeezing the crimp collets down tightly, apply a couple of drops of thin C/A to each crimp collet to provide an extra measure of security.



- ❑ Drop the two pull-pull cables into the fuselage, then slide the torque rod tiller arm down into the fuselage.
- ❑ Hinge the rudder to the vertical fin, using the same techniques that you used to hinge the elevator halves to the stabiliser halves.

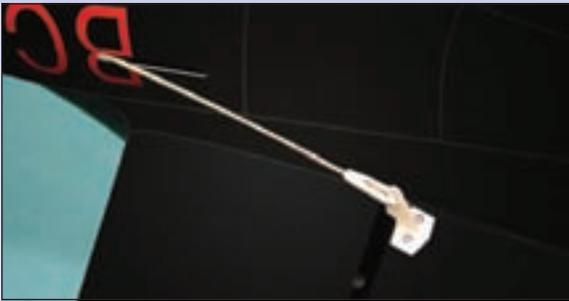


STEP 8: INSTALLING THE ELEVATOR SERVOS AND CONTROL LINKAGES



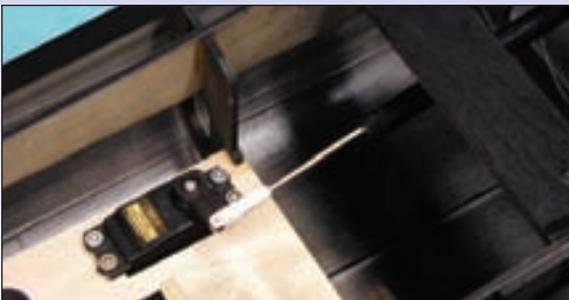
- ❑ Install one elevator servo into each of the two elevator servo mounting holes in the servo tray.

IMPORTANT Both servo output shafts should be toward the **back** of the fuselage.



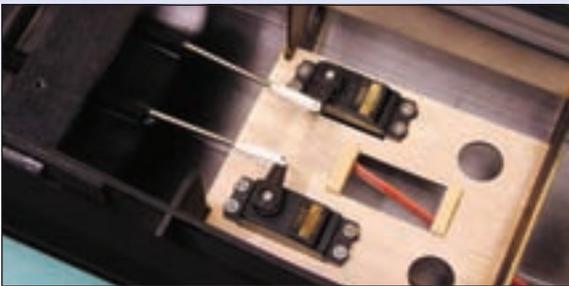
- ❑ Install one elevator pushrod into the fuselage, using one control horn, two wood screws and one clevis provided. The control horn should be positioned even with the inside edge of the elevator half (at the hinge line) and it should be angled toward the fuselage to line up better with the pushrod wire.

IMPORTANT Install the clevis into the **fifth hole up** from the base of the control horn.



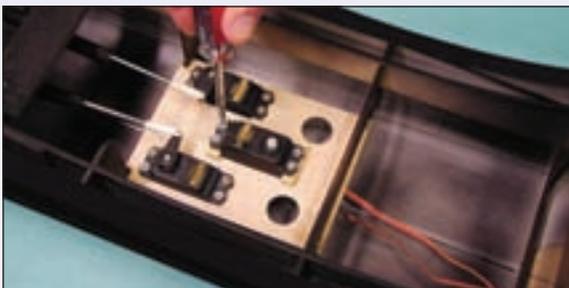
- ❑ Connect the pushrod to the servo on the **same side of the fuselage as the control horn**, using one clevis provided.

IMPORTANT Install the clevis into the hole that is 19mm (3/4") out from the centre of the servo horn.



- ❑ Repeat the previous procedures to install the second elevator control linkage assembly.

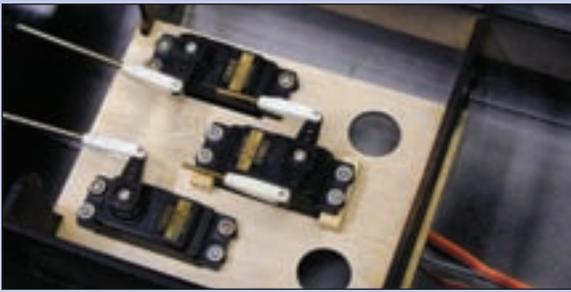
STEP 9: INSTALLING THE RUDDER SERVO AND CONTROL LINKAGE



- ❑ Install the rudder servo onto the servo mounting blocks.

IMPORTANT The servo output shaft should be toward the **front** of the fuselage.





- ❑ Thread one clevis onto two threaded couplers, then attach the clevises into the holes that are 19mm (3/4") out from the centre of the servo horn.
- ❑ Install the servo horn onto the servo, making sure that it's centred.
- ❑ Hold the rudder centred, using several pieces of masking tape.



- ❑ Attach the cable from the **left side** of the rudder tiller arm to the threaded coupler on the **left side** of the servo arm, then attach the length of cable from the **right side** of the rudder tiller arm to the threaded coupler on the **right side** of the servo arm, using the same techniques that you used to attach the two cables to the rudder tiller arm.

IMPORTANT Make sure that both lengths of cable are pulled tight. There should not be any slack in the cables.

IMPORTANT Remember to apply a couple of drops of thin C/A to the crimp collets.

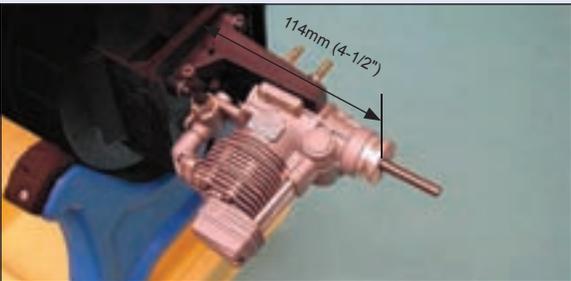
- ❑ Check the tension of the cables. To do this do the following: move the rudder control stick to one side. Let the control stick go and check to see if the rudder returns to centre. Do this a couple of times in each direction. If the rudder does not return to centre, one or both cables are too tight. You can adjust the tension of the cables by adjusting the clevises. Ideally, the cables should be as tight as possible, while still allowing the rudder to return to centre. The cables should not have slack in them, yet they should not be so tight that the linkage and/or the servo bind.

STEP 10: INSTALLING THE ENGINES



- ❑ Install two engine mounting beams onto one nacelle, using four socket-cap screws and four washers provided. Make sure to space the engine mounting beams the same width as your engine and notice that the engine mounting beams are installed angled down.

IMPORTANT The engine mounting beams are adjustable to fit the width of different sized engines. Make sure when you adjust the width of the engine mounting beams to fit your engine that you keep the mounting beams centred on the firewall.

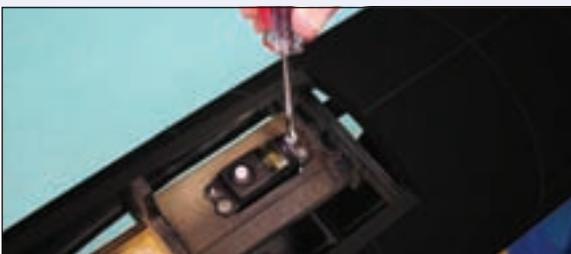


- ❑ Install your engine onto the engine mounting beams, using the four machine screws, four flat washers, four split washers and four hex nuts provided.

IMPORTANT The front of the your engine's drive washer should be 114mm (4-1/2") in front of the firewall.

- ❑ Repeat the previous procedures to install your second engine onto the other nacelle.

STEP 11: INSTALLING THE THROTTLE SERVOS AND CONTROL LINKAGES



- ❑ Working with the right-side nacelle for now, install one throttle servo into the servo mounting hole in the servo tray.

IMPORTANT The servo output shaft should be toward the **back** of the nacelle.





❑ Mark and drill a hole through the firewall for the throttle pushrod wire, then install the throttle pushrod wire onto your engine.

❑ Double-check that the pushrod doesn't bind.

IMPORTANT You will need to make a shallow bend in the pushrod wire so that it will line up with the servo arm and not interfere with the bulkhead in front of the throttle servo.



❑ Connect the throttle pushrod wire to your servo horn, using the adjustable connector provided. The servo arm should point away from the landing gear mount, as shown.

IMPORTANT Apply a drop of thin C/A to the nut on the adjustable pushrod connector to keep it from coming loose during flight.

IMPORTANT When you install the throttle control linkage assembly into the left-side nacelle in the next procedure, you will notice that the pushrod wire crosses the nacelle at an angle. You will need to make a slight bend in the pushrod wire so that it won't interfere with the fuel tank when it's installed later.



❑ Install the servo and the throttle control linkage assembly into the left-side nacelle, using the same techniques that you used to install the throttle servo and control linkage assembly into the right-side nacelle.

IMPORTANT Make sure that you install and connect both throttle control linkages exactly the same way, so that both throttles will be synchronised as closely as possible during flight.

STEP 12: ASSEMBLING AND INSTALLING THE FUEL TANKS

IMPORTANT If you're using in-cowl fueling valves, one of the 90° tubes included with each fuel tank is not used. If you're not using in-cowl fueling valves, use two 90° tubes per stopper assembly - one for the vent and the second for the fill tube.



❑ Assemble each of the two fuel tank stopper assemblies, using one straight tube and one 90° tube. The straight tube is the fuel pick-up tube and the 90° tube is the vent tube.

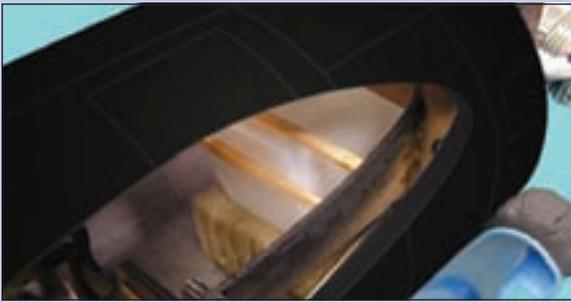
IMPORTANT The fuel tanks are assembled and installed on their side. The side with the moulded lettering is the top of the fuel tank. Make sure to assemble both fuel tanks with the vent tube toward the moulded lettering (up).



❑ Install the stopper assemblies into the fuel tanks, making sure that the 90° vent tubes are positioned toward the **top** of the fuel tanks (toward the moulded lettering).

IMPORTANT Double-check to make sure that the clunks can move freely inside the fuel tanks.





- ❑ Install one fuel tank into each nacelle, making sure that the top of each fuel tank is toward the top of each nacelle. The front of each fuel tank should fit into the predrilled hole in each firewall and the back of each fuel tank should be angled down enough to clear the centre wing panel when the nacelles are installed.

IMPORTANT To secure the fuel tanks in place, put a thick piece of foam rubber under the back of each fuel tank and glue one strip of scrap balsa or light plywood over the top of each fuel tank and one strip of scrap balsa or light plywood against the back of each fuel tank, then secure the front of each fuel tank to the bottom of the firewall box, using one nylon cable-tie each.

STEP 13: INSTALLING THE ENGINE COWLINGS



- ❑ Install four cowl mounting brackets onto each nacelle, making sure that the end of each bracket is 6mm (1/4") beyond the surface of the nacelles. Use the sixteen smaller wood screws provided to secure the cowl mounting brackets into place.

IMPORTANT Position each cowl mounting bracket directly opposite the corners of the engine mounting boxes - approximately the 2 o'clock, 4 o'clock, 8 o'clock and 10 o'clock positions.

IMPORTANT When you install the cowlings, the moulded radiator intake scoop should be toward the top of the nacelles.

- ❑ Test-fit and cut out each cowling for your engines and mufflers. When aligned properly, the back edge of each cowling should overlap the front of the nacelles 3mm (1/8") and the front of the cowlings should be centred around your engine's crankshaft.

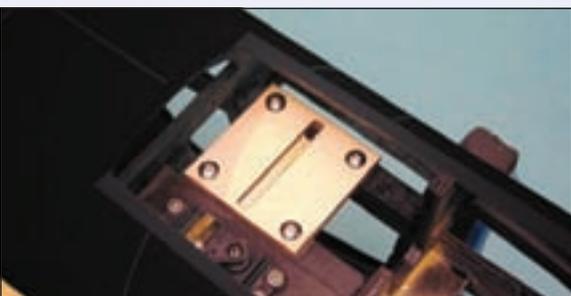
👉 For our four-stroke engine installation, we routed the mufflers out the bottom centre of each cowling. If you're using two-stroke engines, you'll need to use Pitt's style mufflers.



- ❑ Locate and drill 4mm (5/32") diameter holes through each cowling for the mounting screws.
- ❑ Install a remote fueling valve into each cowling to make it easy to fuel the aircraft, then install the cowlings onto the nacelles, using the eight large wood screws provided.

STEP 14: INSTALLING THE FIXED MAIN LANDING GEAR

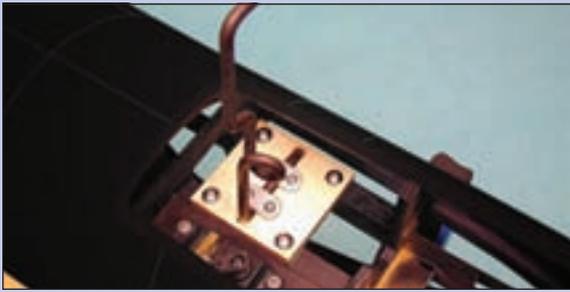
IMPORTANT This step details the installation of the fixed main landing gear. If you will be installing the optional retractable landing gear, please skip this step and refer to page 16 at this time.



- ❑ Install one plywood main landing gear mounting plate onto the landing gear mounting rails in each nacelle, using the eight large wood screws provided.

IMPORTANT Make sure to line up the hole in the slot in each landing gear mounting plate with the corresponding predrilled hole in each landing gear mounting rail.





- ❑ Insert the landing gear wires into the mounting slots and secure them into place, using the four landing gear mounting straps and eight small wood screws provided.

IMPORTANT The coil in each landing gear wire should be toward the **back** of the nacelles.



- ❑ Slide one nylon spacer onto each axle, then install the wheels, using the two wheel collars and two grub screws provided.

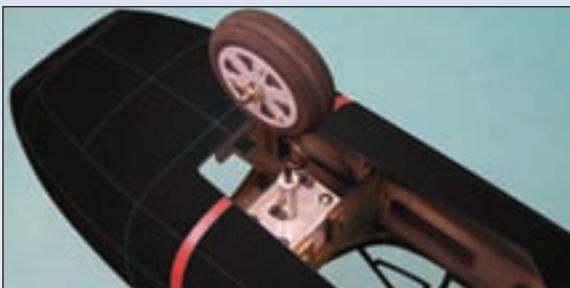
STEP 15: INSTALLING THE FIXED NOSE LANDING GEAR

IMPORTANT This step details the installation of the fixed nose landing gear. If you will be installing the optional retractable landing gear, please skip this step and refer to page 16 at this time.



- ❑ Install the steering rod assembly onto the nose gear strut, using the two hex nuts and two adjustable links provided.
- ❑ Mount the strut assembly to the nose gear mounting plate, using the two flat washers and the socket-cap screw provided. Install one flat washer on each side of the mounting plate and tighten the socket-cap screw firmly.

IMPORTANT With the socket-cap screw tightened firmly, the strut assembly should be able to rotate without binding or excessive play.



- ❑ Install the nose gear onto the nose gear mounting rails in the fuselage, using the four large wood screws provided. The two rear holes in the nose gear mounting plate should be aligned with the two rear predrilled holes in the mounting rails. You will need to drill two pilot holes through the mounting rails for the two forward mounting holes.
- ❑ Install the wheel, using the nylon spacer, wheel collar and grub screw provided.

STEP 16: INSTALLING THE STEERING CONTROL LINKAGE



- ❑ Cut the remaining length of stranded pull-pull cable exactly in half.
- ❑ Secure one end of each cable to each adjustable control horn on the nose gear, using two crimp collets. Use the same techniques that you used to secure the cables to the rudder tiller arm.

IMPORTANT After squeezing the crimp collets down tight, apply a couple of drops of thin C/A to each crimp collet to provide an extra measure of security.





- ❑ Centre both the nose gear and the rudder servo arm, then connect the two cables to the **inner hole** in each servo arm, using the two threaded couplers, two crimp collets and two clevises provided. Use the same techniques that you used to install the rudder cables to the servo arms.

IMPORTANT Make sure that the cables are adjusted tautly, but not so tight that they put strain on the servo or nose gear. Also, make sure to apply a couple of drops of thin C/A to the crimp collets.

STEP 16: INSTALLING THE COCKPIT FLOORS AND GLASS

IMPORTANT This step details the installation of the cockpit floors and glass. If you are installing the optional landing gear doors, along with the optional retractable landing gear, do not install the cockpit floors and glass until after installing the nose gear landing gear door assemblies and the air tank. Having access through the fuselage to install these parts is helpful. Please refer to pages 16-19 to install the air-control valve, the air tank and the landing gear doors at this time. Once completed, refer back to this step to install the cockpit floors and glass.

- ❑ Align and glue the front lower piece of fuselage glass to the inside of the fuselage, making sure not to get any glue on the visible parts of the glass.



- ❑ Align and install the front upper piece of fuselage glass to the fuselage, using the six small wood screws provided.

PRO TIP When you install the two cockpit floors, we suggest only tack-gluing them into place so that they can be easily removed in case you need access below them for maintenance in the future.



- ❑ Test-fit and tack glue the longer of the two cockpit floor pieces to the top of the two plywood support rails
- ❑ Test-fit and glue the piece of fuselage glass to the inside of the fuselage, making sure not to get any glue on the visible parts of the glass.

IMPORTANT Before installing the cockpit glass in the next procedure, you will need to trim the base of the cockpit glass to fit around the sides of the dashboard.



- ❑ Test fit and glue the moulded dashboard to the underside of the fuselage, making sure to line up the moulded line in the top of the dashboard with the front of the cockpit opening.
- ❑ Test-fit and tack glue the remaining cockpit floor to the top of the two plywood support rails
- ❑ Test-fit and glue the piece of fuselage glass to the inside of the fuselage, making sure not to get any glue on the visible parts of the glass.



STEP 17: INSTALLING THE CENTRE WING PANEL

IMPORTANT Below we describe the layout of the servo extensions. We've done it in a way to make it more convenient when assembling the aircraft. All the servo leads feed into the fuselage, where the receiver will be located. The servo leads then run through the centre wing panel and into each of the nacelles to plug into the throttle servos. Other servo leads run through the centre wing panel and out the tips to plug into the aileron and the flap servos. This allows easy plug-in installation of all the servo leads when assembling the nacelles, fuselage and the outer wing panels. All the servo extension leads stay in the centre wing panel.

- ❑ Holes are precut in the bottom of the centre wing panel to run your servo extension leads through. The hole in the top of the centre wing panel is for the optional retract air lines. Run the servo extensions through the centre wing panel as listed below:

Throttles: One Y-Harness and two 305mm (12") extensions from the centre hole to the outer holes

Ailerons: One Y-Harness and two 305mm (12") extensions from the centre hole to the tips

Flaps: One Y-Harness and two 305mm (12") extensions from the centre hole to the tips

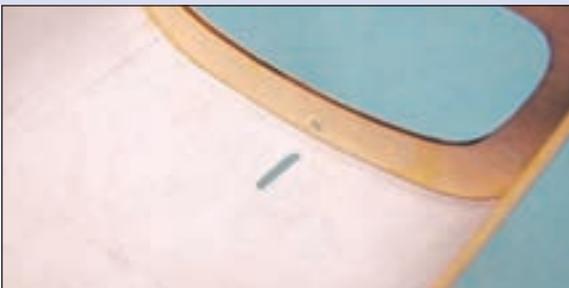
- ❑ Mount the centre wing panel onto the fuselage, using the two socket-cap screws and two washers provided.

STEP 18: INSTALLING THE HATCH COVER



- ❑ Glue each of the two dowels into the machine gun turret, then secure the machine gun turret to the hatch cover, using the wood screw provided.

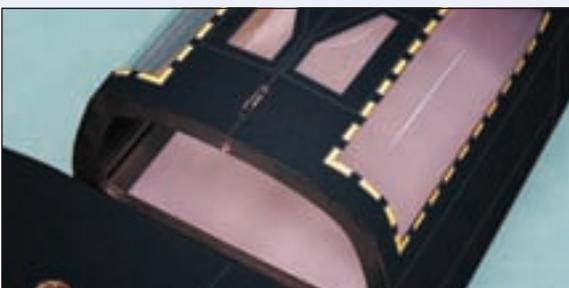
IMPORTANT The hatch cover is held in place using two hatch latches. One is installed in the front of the hatch cover and the other is installed in the fuselage, at the back of the hatch cover.



- ❑ Cut a slot through the top front of the hatch cover for the latch handle, then drill a hole for the latch pin through the plywood support bulkhead 5mm (1/4") down from the top of the hatch cover. Make sure that the slot and hole are both centred at the top of the hatch cover.



- ❑ Check the fit for smooth operation, then glue the hatch latch to the inside of the hatch cover, making sure not to get any glue in the latch mechanism.



- ❑ Install the second hatch latch into the top of the fuselage (at the back of the hatch cover), using the same techniques that you used to install the first hatch latch into the top of the hatch cover.





- ❑ Locate the positions of the latch pins onto the forward wing mounting bulkhead on the fuselage and the rear hatch cover support, then drill holes through the bulkhead and the hatch cover support for the pins to slide into.



- ❑ Install the hatch cover and double-check that the hatch latches hold the hatch cover securely in place.

STEP 19: INSTALLING THE NACELLES

IMPORTANT Each nacelle is secured to the centre wing panel, using two socket-cap screws and two flat washers. One longer socket-cap screw is installed up through the bottom of the nacelle and into the bottom of the centre wing panel and the second shorter socket-cap screw is installed through the front of the nacelle and into the leading edge of the centre wing panel.

In order to install the socket-cap screw at the front of each nacelle, you must remove the engine cowlings first. If possible, we suggest leaving the nacelles attached to the centre wing panel during transport and storage.

Blind nuts are preinstalled in the wing to accept the socket-cap screws.

IMPORTANT If you have installed the optional landing gear doors, you may need to remove the actuator arms from the main landing gear doors so that the actuator plate can be pushed up far enough to clear the wing and allow the nacelle to be slid onto the wing.



- ❑ Plug the throttle servo lead from each nacelle into the servo extensions in the centre wing panel, then install each nacelle onto the centre wing panel, using the four socket-cap screws and four flat washers provided.

IMPORTANT The two shorter socket-cap screws are installed into the leading edge and the two longer socket-cap screws are installed into the bottom of the centre wing panel.

IMPORTANT Make sure that the throttle servo leads and/or extensions are not pinched between the centre wing panel and the nacelles.

STEP 20: FINAL ASSEMBLY

- ❑ Install your airborne equipment (battery, receiver and switch) into the fuselage. If you need to mount your battery in the nose to balance the aircraft, mount the battery on the preinstalled plywood mounting plate.

👉 We ran the receiver aerial out the bottom of the fuselage and secured it to the back of the fuselage, using clear tape.

- ❑ Install your propeller and spinner nut onto each engine, making sure to balance the propellers before installing them.
- ❑ Connect the servo extension leads and mount the outer wing panels to the centre wing panel.

BALANCING, CONTROL THROWS AND FLYING TIPS

BALANCE POINT

The Centre of Gravity (C/G or Balance Point) is 102mm (4") back from the leading edge of the wing, measured at the sides of the fuselage. The C/G can be moved fore or aft to change the flight characteristics of the aircraft; however, the C/G should never be more than 114mm (4-1/2") back from the leading edge of the wing, measured at the fuselage sides.

IMPORTANT If you have installed the optional retractable landing gear, it's important to make sure that you balance the aircraft with the landing gear **retracted**.

CONTROL THROWS

Ailerons: 13mm~16mm (1/2"~5/8") Up and Down

Rudder: 25mm~41mm (1"~1-5/8") Right and Left

Elevator: 16mm~22mm (5/8"~7/8") Up and Down

Flaps: 50mm (2") Down

THE CONTROL THROWS ARE MEASURED FROM THE WIDEST POINT OF THE CONTROL SURFACES

FLYING TIPS

- If you're using a brushless power system and have followed the recommendations for parts and mounting locations, you may need to add approximately 12 ounces of nose weight to balance the aircraft. This is because the LiPO batteries must be mounted in the fuel tank compartments and can't be moved any farther forward. This added weight is no problem and does not affect the flying quality of the aircraft.
- With full flaps on landing, you may find that you need a little more elevator input than the 22mm (7/8") recommended.
- We suggest using low-rate rudder on takeoff.
- Because the landing gear retracts rearward, there will be a change in the aircraft's trim when the landing gear cycles up and down. While the change in trim is small, it is noticeable and you should be aware of it.
- When you deploy the flaps, the aircraft will have a tendency to balloon upward and will require some down elevator trim to counteract this. We suggest the first few times that you deploy the flaps at altitude until you are familiar with the flight characteristics of the aircraft with flaps down. You may want to program elevator/flap mixing in your transmitter so that the required amount of down elevator is automatically commanded when you deploy the flaps.

OPTIONAL RETRACTABLE LANDING GEAR AND LANDING GEAR DOORS INSTALLATION BEGINS ON THE NEXT PAGE

OPTIONAL BRUSHLESS ELECTRIC POWER SYSTEM INSTALLATION BEGINS ON PAGE 20

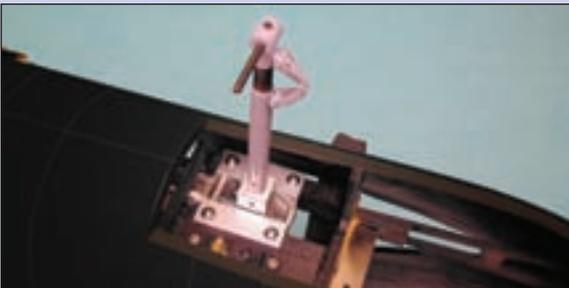
INSTALLING THE OPTIONAL RETRACTABLE LANDING GEAR

STEP 1: INSTALLING THE MAIN GEAR RETRACT ASSEMBLIES



- ❑ Install the two main gear struts into two retracts, making sure that the struts are lined up straight and that the scissor links are toward the **back** of the retracts. Tighten the large socket-cap screw and the small grub screw in the side of each retract to lock the struts firmly into place.
- ❑ Install one axle into each main gear strut, making sure to make one right and one left assembly.

IMPORTANT Notice that the axle strut hubs are offset so that when the wheels are installed, they won't hit the side of the struts. Make sure to install the axles toward the offset side of the strut hubs.



- ❑ Install one retract assembly onto the landing gear mounting rails in each nacelle, using the eight large wood screws provided. Notice that the air cylinders are positioned toward the front of the nacelles and that the scissor links are toward the back of the nacelles.

- ❑ Install the two main gear wheels, using the two wheel collars and two grub screws provided.

IMPORTANT Make sure to use the wheels and the wheel collars packaged with the retractable landing gear and not the ones included with the aircraft kit. The aircraft kit wheels and wheel collars will not fit the retract axles.

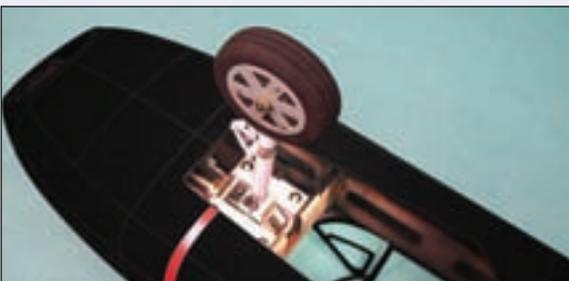
STEP 2: INSTALLING THE NOSE GEAR RETRACT ASSEMBLY



- ❑ Install the nose gear strut into the remaining retract, making sure that the nose gear strut is pushed down firmly and that the scissor link is toward the **rear** of the retract. Tighten the large socket-cap screw against the nose gear strut, then back it off slightly. The nose gear strut should be held in place securely, yet be able to rotate smoothly.

👉 Do not tighten the grub screw in the side of the retract. The grub screw should be flush with the side of the strut mounting block, though, so that it won't cause interference when the retract is retracted.

IMPORTANT Since you can't tighten the socket-cap screw up against the nose gear strut, we suggest applying threadlock to the socket-cap screw to keep it from vibrating out during flight.



- ❑ Install the retract assembly onto the landing gear mounting rails in the fuselage, using the four large wood screws provided.

- ❑ Install the nose gear wheel, using the wheel collar and grub screw provided, then install the pull-pull steering cables by following the procedures in step 16 on pages 11-12.



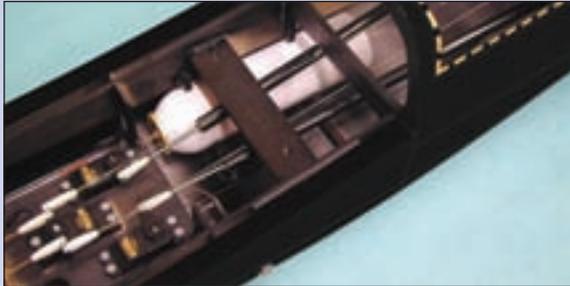
STEP 3: INSTALLING THE AIR CONTROL VALVE



❑ Install your air control valve servo and the air control valve to the centre wing panel, using the plywood mounting plate, threaded pushrod wire, clevis and four wood screws provided.

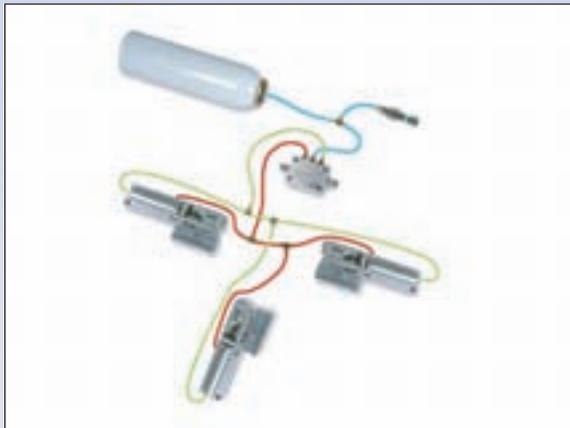
👉 Note the direction of the servo output shaft. It should be toward the trailing edge of the wing and the air control valve should be installed on the left side of the wing's centreline.

STEP 4: INSTALLING THE AIR TANK AND FILL VALVE



❑ Slide the air tank into the plywood mounts inside the fuselage, then secure it into place using a few dabs of silicone sealant.

❑ Install the fill valve onto the fuselage side (or the fuselage bottom), making sure to tighten the mounting nuts securely.



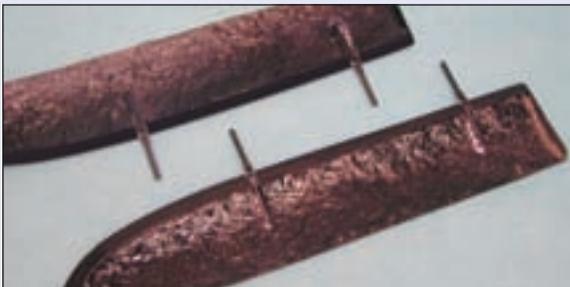
❑ Connect the air lines from the retracts, air tank and fill valve to the air control valve, using the diagram at left. Use quick-connectors on the air lines to make it easy to connect the air lines when assembling the aircraft.

IMPORTANT The air source is connected to the middle nipple on the air control valve.

The outer nipples on the air control valve are for the UP and DOWN air lines. It does not matter which one is used for which purpose. The only effect is that it changes which position is up and which position is down (which can be changed to the pilot's preference by reversing the retract switch on the transmitter).

The UP and DOWN air lines are connected with "T" Fittings.

STEP 5: INSTALLING THE MAIN GEAR LANDING GEAR DOORS



❑ Working with one pair of main landing gear doors for now, cut away the material from below the inside of the two pre-cut notches, so that the hinges can be glued flush against the inside of the landing gear doors.

❑ Glue two hinges to the inside of each landing gear door, making sure that the middle of each hinge pivot point is centred with the edge of the landing gear doors.



❑ Glue one balsa block underneath each hinge mounting location on the matching nacelle, then drill a 3mm (1/8") diameter hole into the nacelle and through the balsa blocks for the landing gear door hinges.

IMPORTANT Make sure to position the holes so that the edge of each landing gear door will be flush with the outside edge of the nacelle. The holes will need to be drilled right up against the edge of the nacelle.





- ❑ Test-fit and hinge the main landing gear doors to the nacelle. When aligned properly, the main landing gear doors should be flush with the nacelle when closed and they should pivot freely.

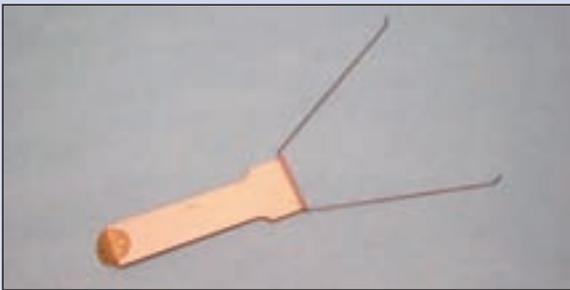
IMPORTANT You will need to cut shallow notches over the four holes that you drilled in the nacelle to recess the hinges, so that the bottom edges of the main landing gear doors can be mounted flush with the nacelle.

IMPORTANT After hinging the main landing gear doors, close both main landing gear doors and check the fit along the centreline. You may have to trim the outer edge of one or both main landing gear doors, so that they don't overlap each other when closed.

- ❑ Repeat the previous procedures to hinge the remaining two main landing gear doors onto the other nacelle.

STEP 6: INSTALLING THE MAIN GEAR LANDING GEAR DOOR ACTUATOR PLATES

IMPORTANT Three actuator plates and three actuator wire assemblies are provided. All three actuator plates are the same; however, there are two large actuator wire assemblies and one small actuator wire assembly. The larger actuator wire assemblies are used for the main landing gear doors.



- ❑ Install one hinge onto the top of one main landing gear actuator plate, using the two small wood screws provided.
- ❑ Glue the pivot bearing on one large prebent actuator wire assembly onto the opposite end of the top of the actuator plate.

IMPORTANT Note the orientation of the two ends of the actuator wire assembly when installed.



- ❑ Glue the hinge onto the main landing gear actuator plate into the precut slot in the plywood former in the back of one nacelle, making sure that the ends of the actuator wire assembly are toward the landing gear doors.



- ❑ Glue one actuator horn onto the inside of each main landing gear door. When positioned properly, the centre of each actuator horn should be 117mm (4-5/8") in front of the back edge of the main landing gear doors and the top edge of the actuator horn should be 8mm (5/16") down from the outer edge of the main landing gear doors.

IMPORTANT Note that each actuator horn should be installed in the down position.



- ❑ Slide the two ends of the actuator wire assembly into each actuator horn, then repeat the previous procedures to install the second main landing gear door actuator assembly into the other nacelle

IMPORTANT See the next page for information on fine-tuning the operation of the main landing gear doors.



STEP 7: INSTALLING THE NOSE GEAR LANDING GEAR DOORS

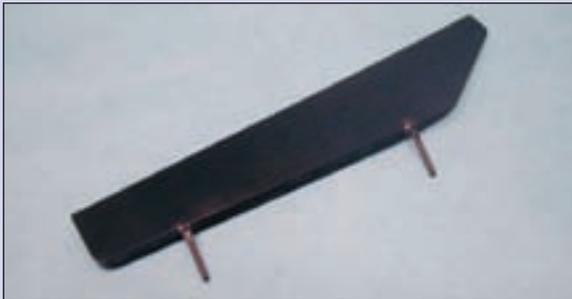


- ❑ Cut two 3mm (1/8") square notches in both edges of the landing gear opening, using the landing gear doors themselves to position the notches so that they are aligned with the precut notches in the landing gear doors.



- ❑ Drill one 3mm (1/8") diameter hole through the centre of each precut notch in both landing gear doors.

IMPORTANT Drill the holes at a 45° angle so that when the hinges are installed, the middle of each hinge pivot point is centred with the outside edge of the landing gear doors.



- ❑ Glue two hinges to each landing gear door, making sure that the middle of each hinge pivot point is centred with the outside edge of the landing gear doors.

- ❑ After the glue cures, cut the excess hinge material from the inside of the landing gear doors.



- ❑ Glue one balsa block underneath each hinge mounting location on the fuselage, then drill a 3mm (1/8") diameter hole through the balsa blocks for the landing gear door hinges.

IMPORTANT As with the landing gear doors, make sure to drill the holes through the balsa blocks at a 45° angle.



- ❑ Test-fit and hinge the nose landing gear doors to the fuselage. When aligned properly, the landing gear doors should be flush with the fuselage when closed and they should pivot freely.

IMPORTANT After hinging the nose landing gear doors, close both landing gear doors and check the fit along the centreline. You may have to trim the outer edge of one or both landing gear doors, so that they don't overlap each other when closed.

STEP 8: INSTALLING THE NOSE GEAR LANDING GEAR DOOR ACTUATOR PLATE

- ❑ Install the hinge and actuator wire assembly onto the remaining actuator plate, using the same techniques that you used to install the hinges and actuator wire assemblies on the other two actuator plates.





❑ Install the actuator plate assembly and the two actuator horns, using the same techniques that you used to install the actuator assemblies and actuator horns for the main landing gear doors.

IMPORTANT The actuator plate assembly is hinged to the forward bulkhead and the two actuator horns should be mounted 35mm (1-3/8") in front of the back edge of the nose landing gear doors and 8mm (5/16") down from the outer edge of the nose landing gear doors.

IMPORTANT You can fine-tune the operation of both the main gear and the nose gear landing gear doors using several different methods. If one or both of the landing gear doors need to be opened more when the landing gear is down, carefully bend one or both actuator assembly wires apart. If one or both landing gear doors don't close completely when the landing gear is retracted, bend one or both actuator wires shorter where they attach to the actuator horns.

INSTALLING AN OPTIONAL BRUSHLESS POWER SYSTEM

The A-26 Invader is an excellent platform for electric power. In this section, we list the power system that we suggest, along with photographs showing the basic installation of the motors, electronic speed controls and batteries. We have performed extensive flight testing using the suggested power system and have found it to fly the aircraft amazingly well. If you decide to use different brands of products, please make sure the specific products that you use are comparable in specification to what we suggest. Using anything too far outside of our specifications can result in poor performance.

- 2 x KMS Quantum 4120/05 Brushless Outrunner Motors
- 2 x Castle Creations Phoenix 60 Amp Brushless Electronic Speed Controls
- 2 x Impulse Power 4 Cell 11.1 Volt 4000mAH LiPO Batteries
- 8 x Aluminium Motor Mounting Posts (4-40 Threaded Rods, Lock Nuts, Aluminium Tubing and Heavy Duty Washers)
- 2 x APC 13 x 6 Two-Blade Propellers or 12 x 6 Three-Blade Propellers
- 4 x Xtra 4mm Gold Connector Sets
- 2 x ASM Hatch Latches

❑ **Install each of your two brushless motors, using four aluminium motor mounting posts.**

To line up your motors, simply hold each motor up to the firewall and centre it, then mark the four mounting hole locations. When installed.

The drive washer on each propeller shaft should be 114mm (4-1/2") in front of the firewall. You will need to cut your motor mounting posts to the correct length to achieve the proper spacing between the drive shaft and the firewall. Different brands of motors are different lengths, therefore require different length motor mounting posts. Mounting posts can be made from 4-40 threaded rod, aluminium rod, heavy duty washers and lock nuts.



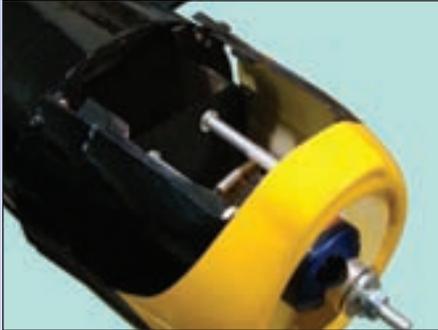
❑ **To access the LiPO batteries, you will need to cut a hatch in the top of each cowling.**

Cut a hatch in the top of each cowling. Cut along the grooves in the cowling flaps, then cut up to and along the yellow and black painted edge.

Glue a 0.5mm (1/64") plywood frame along the sides hatch opening in the cowling.

Glue a piece of 0.5mm (1/64") plywood to the front of the hatch cover to make a "tongue" to hold the hatch cover in place.

Glue two balsa or light plywood ribs to the hatch cover to help the hatch cover keep its shape, then install one hatch latch at the back of the hatch cover. The hatch latch allows easy removal of the hatch cover. You might want to glue a thin piece of plywood between the hatch cover and the hatch latch to provide a flat base for the hatch latch to be mounted to.



❑ **The LiPO batteries and ESCs should be mounted in the fuel tank compartment.**

Install a 3mm (1/8") thick plywood plate into each fuel tank compartment to support the LiPO battery. The LiPO batteries can be held in place using a large strip of hook and loop material.

Use a rotary tool with a sanding drum to open up the bottom edge of each firewall and fuel tank bulkhead to allow access to slide the LiPO batteries in and out.

It's important to install the LiPO batteries as far forward as possible. The front of each LiPO battery should be directly behind the firewall.

❑ Connect your ESCs to your receiver and connect your LiPO batteries to your ESCs. Make sure to use high-quality connectors.

IMPORTANT The red wire from each ESC to the receiver must be removed from the plug and you must use a separate receiver battery. This is IMPERATIVE! The aircraft has too many servo to use the BEC function found in most ESCs.



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OUR GUARANTEE

Advanced Scale Models guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This does not cover any component parts damaged by use, misuse or modification. **In no case shall Advanced Scale Models' liability exceed the original cost of the purchased kit.**

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