



QUIKRAY-500



INSTRUCTION & ASSEMBLY PROCEDURE

Manufactured by Andrews Aircraft Model Co.

A Division of

Great Planes Model Manufacturing Co., Inc.

Urbana, Illinois 61801

General notes on the QUIKRAY 500:

The Quikray 500 has been engineered to meet the need for a model that could be built fast, strong and meet the requirements of AMA Sport Pylon racing, Quikie 500 Pylon racing, Fun Fly events and for all around sport flying - trainer flying and general pattern events.

Important pre-work hints:

Remove all die-cut parts from the die-cut sheets and orient the parts with the plan. Note that for die-cutting reasons, some parts on the sheets are not die-cut completely and must be continued with an X-Acto modelers knife or razor blade before removing from sheet. Check all trailing edges, leading edges etc. for straightness and if necessary, straighten them by passing over steam for a long enough time to soften them a little at which time you should bend them in the opposite direction and a little bit further and hold till dry.

FUSELAGE:

1. The two full length outer fuselage sides are identical and can be used on either side but the two Box-Lok parts are different in that they are a left and right Box-Lok. Cement the Box-Lok to the main fuselage side being sure that you have a right and a left assembly. From the strip stock, fit and cement the horizontal and vertical stiffeners to the rear of the main fuselage sides as shown on plan.
2. Cement the plywood firewall, plywood former No. 1 and the plywood former No. 2 into their respective slot in the Box-Lok. Be sure these parts are at right angles to the Box-Lok & let dry.
3. When assembly of the above is dry, cement the opposite side to the plywood firewall, former No.1 and No.2 - either weight down or hold this assembly together with rubber bands till dry.
4. Cement landing gear into the slots on the gear mount and then cement the gear mount to the rear of plywood former No. 1 and against the left and right Box-Lok leaving the bottom of the gear mount as much below the former as the thickness of the bottom ply. that goes in front and to the rear of the gear mount. See the plans.
5. Cement the bottom plywood pieces in place. Cement the balsa bottom sheet in place after cementing the cross stiffeners at the rear of the fuselage. Be sure that both fuselage sides are parallel to each other and also square by checking with a straight edge or by laying one fuselage on the edge of your work bench for a check.
6. Cement all the corner stock into place as shown on the plan. Be sure to allow clearance of the corner stock at plywood former No. 2 where the plywood wing hold down block will be placed.
7. Cement the wing hold down block into place against former No.2 and to the Box-Lok leaving the top of the block 1/8" below the top of plywood former No.2. When dry, drill and install the two No. 4 sheet metal screws into the block through the former.
8. Cement the top cross stiffeners including the one at the top & rear of the plywood former No. 2 for the front of the top rear balsa sheet to bond to. After cementing the fin support strips to the inside of the rear top sheet on each side of the fin slot, cement the top sheet to the top of the rear fuselage sides and to the top of the center of the plywood former No.2. Cement a piece of the strip stock into the opening at the rear of the fuselage.
9. Prepare the fin and stabilizer parts, sand top and bottom and round the front of the fin and stabilizer only. Set aside to dry.
10. Before proceeding any further on the fuselage, construct wing.

WING:

1. The wing has no dihedral and can be built complete on the work board that can handle it or the wing can be built in two halves and joined together after. These instructions refer to the complete wing.
2. Cut both left and right wing drawings from the plan and tape together so the center line of both wing plans are right over each other. Also, check by sighting or using a straight edge such as your work board to insure that the two wing plans are straight across the whole leading edge. Tape the plan to the work board and tape wax paper over the whole wing plan to keep cement from sticking to the plan.
3. Prepare the main spars, leading edge and trailing edge by cementing their respective center ends together and cementing the balsa ties to the main spars and the plywood ties to the leading and trailing edge. NOTE: be sure that the ties are centered on these parts inboard and outboard. Be sure also that these assemblies are straight for the total length by cementing the ties while these assemblies are on the board.
4. Pin the main spar (bottom) to the work board with the tie forward. Be sure the center of the spar is dead center on the wing plan. Cement the two R1 center ribs together and cement two R2 riblets to each side of the front of the two center R1 ribs. Refer to the wing cross section drawing for reference! Refer also to top wing drawing!
5. All of the R4 ribs have the slot for the aileron bellcrank bed die-cut into them for die layout purposes but only two R4 ribs with the slots removed are needed on each wing panel. The slots in the rest of the R4 ribs can either be cemented and left in place or removed.
6. Cement all of the ribs into their respective places onto the bottom main spar. Pin them in place and be sure they are vertical and on the lines on the plan. Cement and pin the leading and trailing edge to each rib and also cement the top main spar into each rib slot. Cement one plywood bellcrank bed into the slots of the two inboard R4 ribs on each wing panel. Cement and pin the top leading and trailing edge sheet in place. NOTE - fit and cement only the top rear center section sheet in place at this time! Leave the top front center sheet off.

--wing instruction continued --

7. When cement is dry, remove entire wing from work board and turn over. Fit and cement the webbing between the ribs and main spars using the 3/32" stock furnished and fit and cement the webbing between the ribs and to the top rear trailing edge sheet using the 1/16" stock furnished. Cement and pin the bottom leading and trailing edge sheet in place. Cement and pin the rear bottom center section sheet in place but DO NOT cement the bottom front center sheet in place at this time. The aileron bellcrank pushrod slots should be marked and prepared at this point. Also, remove the balsa die-cut portion of the two center R1 ribs and cement the plywood aileron servo bed into place. Fit and cement the balsa S1 part against the edge of the plywood bed and against the rear of the opening and against the double R1 center ribs. When all the cement has dried, remove all pins. -----

8. Prepare and install the wire aileron servo pushrod, the aileron bellcrank pushrods and bellcranks. Be sure to cover the nut and end of bellcrank bolt with heavy contact cement to secure them to the plywood and to keep them from coming loose! NOW you can cement and pin the bottom front center section sheet into place. Also for saving time, fit and cement the cap strips to the bottom ribs where they are required. When dry, remove all pins and lay the bottom of the wing onto the work board with the rear of the wing up to the aileron pushrods hanging over the edge of the board. This will allow enough of the flat of the bottom of the wing to be in contact with the work board to insure a true wing. At this time and in this position, fit and cement and pin the top front center section sheet in place. This locks the wing true. Fit and cement top cap strips into position.

9. Cement and pin the die-cut tips and tip supports to each wing panel - be sure the tip runs from the center of the trailing edge and to the center of the leading edge. Cement the wing center section trailing edge extension to the rear of the wing - be sure it is centered and also follows a straight line at the bottom of the rear of the wing. Cement the two quarter riblets to the inside of each tip and to the rear of the trailing edge. Round the leading edge of the wing as is shown on the rib cross section drawings - do not round the trailing edge! Sand the complete wing at this time and fit the ailerons so there is a 1/16" gap at both ends for clearance. Sand the ailerons smooth, mark them for left and right and put them aside for now.

10. Fit and cement the wing leading edge fairing to top front center of the front of the wing - a series of fine saw cuts about 3/4 of the way from the bottom up on the fairing with a Zona saw will allow the fairing to bend easily to the top curve of the wing. Cement the 1/16" plywood wing bolt supports to the top and bottom of rear center of the wing - the bottom plywood support should be 1/8" forward of the trailing edge to clear the top of former F2 on the fuselage. See cross section view of the wing section. Remove the balsa at the aileron servo bay now. --

FINAL ASSEMBLY:

1. Center the wing on the fuselage and hold in place firmly while drilling the 5/16" hole into the leading edge of the wing using a 5/16" drill and the drilled hole in plywood former No.1 - drill straight into the wing and only as deep as is shown on the plan. See cross section drawing for reference. Remove the wing, clean out any chips from the drilled hole in the wing - round the front of the 5/16" maple dowel and break the edge of the rear of the dowel. Epoxy the dowel into the wing drilled hole. When dry, again put the wing onto the fuselage with the dowel in the former and while lined up and held firmly against the former and down against the wing bed, drill the rear nylon bolt hole with a 3/16" or No. 7 drill through the wing plywood bolt supports and on through the plywood wing hold down block. Be sure you drill this hole at right angles to the top plywood bolt support - see drawing of wing on fuselage. Remove wing and open the hole in the wing to 1/4" and tap the hole in the bolt support block with a 1/4-20 tap.
2. Study the drawings related to the plywood top front hatch and the related parts. Cement related plywood parts to the top of the nose and to the hatch cover - when all fit, drill and work in the two No.4 sheet metal screws that holds the hatch in place. Cement the top fuselage fairing into place on top of the plywood and against plywood former 1.
3. Round all edges of fuselage as shown on plan except where the stabilizer is located on the bottom of the fuselage. Sand completely smooth.
4. Line up and cement stabilizer to bottom rear of fuselage being sure the rear of the stabilizer is flush with the end of the fuselage. Cement the fin into the machined slot and onto the top of the stabilizer inside the fuselage - The rear of the vertical stiffener on the rear of the fin is even with the end of the fuselage. Be sure the fin is straight vertically. Cement the stabilizer fairing to the front of stabilizer and fuselage.
5. Prepare and make any necessary cut-outs for fuel lines, throttle control rod etc. and then cover complete model with your choice of material or method. Install ailerons, elevator, rudder with hinges furnished. Remove covering at area where tail skid bed is located and after making up the tail skid as shown on drawing, epoxy in place where shown at bottom of stabilizer. Locate and cement the servo rail die-cut supports and servo rails as shown on side view to fit your servo arrangement. --- Install R/C gear, engine and make up push rods as shown or of your choice and install same - cutouts at rear top of fuselage is for installation shown on plan - you may have to vary this to suit your installation. Install all horns as shown and install switch and antenna also.
6. The center of gravity as shown on the plan is pretty much in the ball park for pylon and all around flying. Move flight battery around - either where shown on plan or it can be moved and placed in the radio compartment up against the gear bed and or add weight to the front or to the rear of model to get proper center of gravity. Check CG carefully.
7. The AAMCO QUIKRAY 500 control movement dimensions for pylon flying are as follows: Ailerons - 1/4" up & 1/4" down. Elevator - 5/8" up & 5/8" down. Rudder - 1 3/16" right & 1 3/16" left. For fun fly and aerobatics increase the elevator to 1 1/16" up & down and the rudder to 1 5/8" right & left. Keep Her On Course --- Turn Left At The Pylon