

Don't know whether this is a typical English moor, but the weather is typical as note the clothing and fogged out trees in background; however, our intrepid author is about to make a takeoff with his Armar Gorrion. Size of the aircraft is quite apparent in this photo.

THE ARMAR GORRION

BY DENNIS TAPSFIELD . . . still another outstanding R/C Scale project from our prolific friend in England—this one a One-Quarter Scale version of a well-known Argentine home-built. Only 75-inch wingspan and ¼ scale.

• You will no doubt agree that part of this hobby of ours involves browsing through various aviation magazines, and thinking what marvelous models some of the full size planes would make; unfortunately, only a few of these dreams ever come to fruition, but some do, and this model is one of them, being a home-built from Argentina, designed in 1971. It was originally intended to have a C.V. 3 Citroen car engine, but this one, 002, was fitted with a 40-HP Continental A.40.

I chose to build it for its rarity and general appeal, simple lines, e.g., a simple box fuselage, constant chord wing, lastly, a small plane which could be

A neat power-on landing or touch-and-go is about to take place.



Lovely flight shot shows the amount of detail that helps so much.





Author poses proudly with his big little machine in ¼ scale!



Smooth takeoff—not typical jump up and away. Looks almost real.



A look inside the cockpit shows the instrument layout; very neat.



Aft end of the aircraft shows the finish detail, lettering, etc.

THE ARMAR GORRION

built to my favorite scale of ¼-full size, producing a large model which I prefer. It is very relaxing model to fly, ideal for display work since the ground handling with the steerable tail wheel leaves little to be desired. If these factors attract to you, we can start by building the WINGS.

First, cut out all the ribs, including the plywood root ribs; before going any further, cut out the main center section ply rib, and the two obeche ribs, glue them together and allow to set. Drill the two ply root ribs for the ⅜″ dowels, (it's best to drill them together) then carefully drill the center section by spotting through the ply root ribs. This is a very critical part of the model, so take your time, and get it right! The wings are built on the plan, leaving off the sheeting, and not forgetting the dihedral angle on the root ribs. Remove from the plan when set, and pin the top trailing edge to the plan. Turn the wing upside down, and using a piece of packing to ensure that the ribs sit flat on the trailing edge, glue the ribs to the sheet, and build in the aileron spar and ribs. When this is dry, add the lower trailing edge sheet whilst the wing is still on the building board; this will ensure a good straight wing. When dry, the wing can be completed to drawing, and the aileron carefully cut away.

TAIL ASSEMBLY. This is a very simple structure, so requires little in the way of explanation. Choose the wood with care, especially the 1/32″ sheet which should be medium-hard and don't forget the blocks for the hinges, etc.

FUSELAGE. First cut out all the formers, sides, the 1/32″ doublers, and the ⅛″ ply stiffeners. Glue the side components together, add the longerons and vertical spacers; set aside to dry. Next join the sides with formers 1-2-3 & 4. Glue the ¼″x¼″ blocks behind F1. Now the glue is wet, then allow to set fully. Draw the tailends together, making sure that all is true, and glue. Add the spacers, remaining formers, fuel tank box, and the undercarriage and wing strut mounts. At this point, make the cabane and bolt to the center section, using 6 b.a. nuts and bolts. This assembly can now be clamped in position on the fuselage; take great care to do this correctly, checking the incidence, (the top of the fuselage sides is the datum) and that it is central and parallel to the sides when viewed from above. When you are satisfied, drill through the sides of the fuselage and just spot the aluminum so that the assembly can be removed for drilling. Complete the fuselage to drawing, not forgetting to put in the control runs for rudder and elevator and motor; I use Bowden cable in nylon tube bound and glued to ⅛″ by ¼″ balsa; this keeps the tubing straight and the cockpit clear. Build in any hatches you need, and the servo rails; finally, glue in a nylon tube for the RX aerial; exit this near the tail.

Make the engine mount spacer the correct thickness to position the spinner to suit the cowl length. The cowl can be built up as drawn, and when complete, lined with glass cloth and resin for strength and fuel proofing. Glue on the tailplane, making sure it is square and parallel to the top of the fuselage. DO NOT FIT THE FIN YET! Only when

the taiplane is covered, and the elevator is covered and fitted can the fin be glued in place.

Having got this far, the struts can be made, and the model assembled and trued up prior to covering.

NOTE! The quick links must be bound and soldered at the outer ends to ensure that they do not detach in flight! Also use some convenient method at the fuselage end.

COVERING. The model is covered with iron on film. I always use this material as it is light, clean, and easy to use, as well as quick. (When I get to this stage, I want to see my brain child doing its thing!) However, go the way you want.

PILOT'S SEAT. This was made from 3/32" sheet balsa, and covered with very thin skiver leather, as was the head rest.

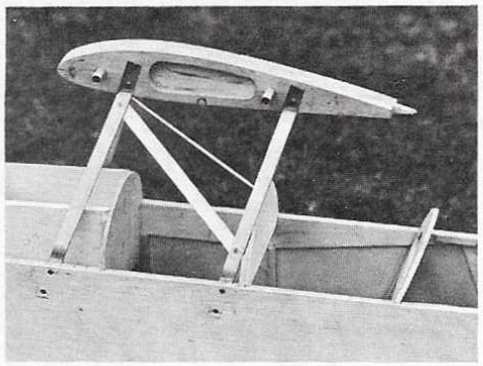
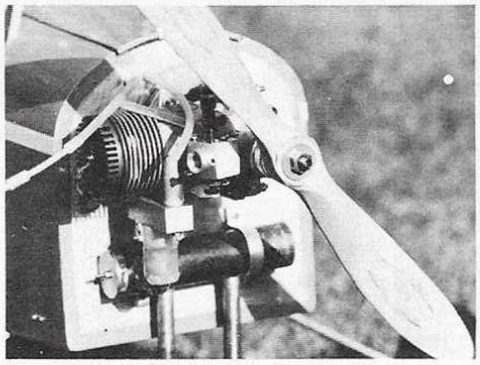
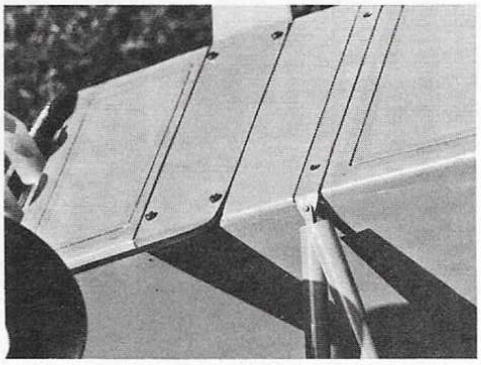
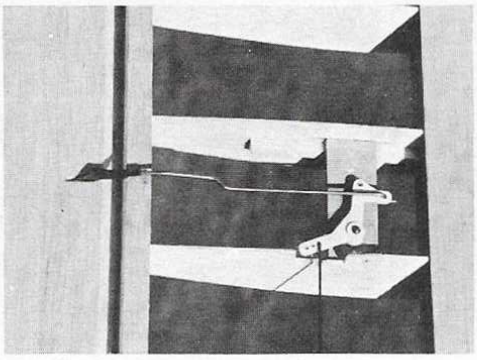
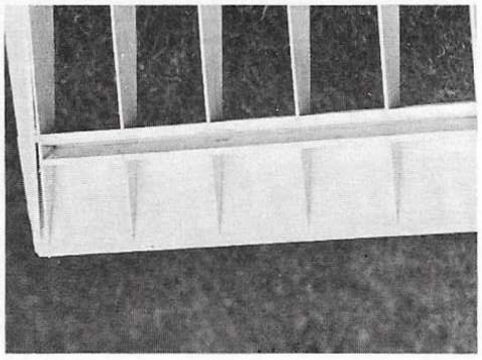
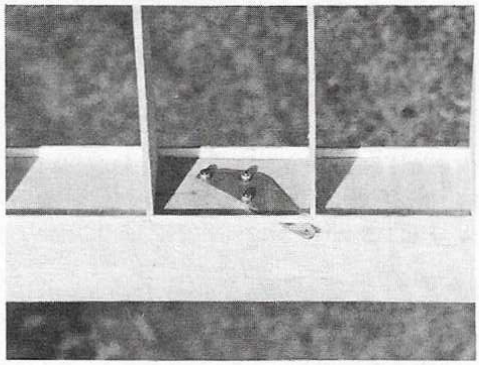
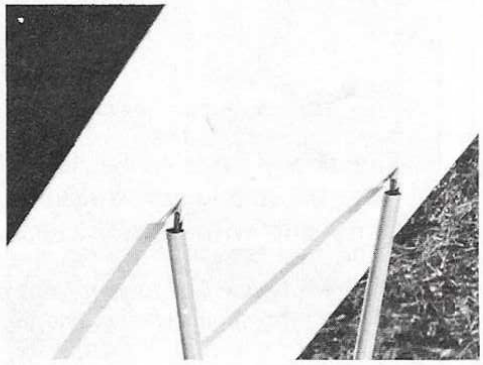
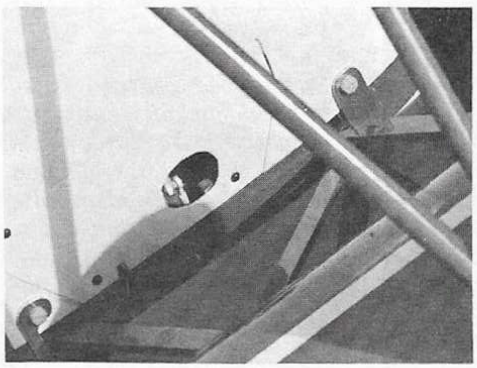
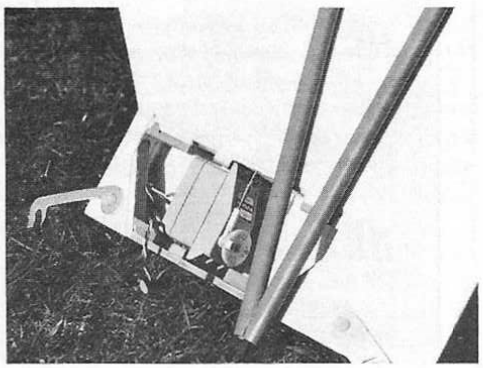
PILOT. This chap had to be made, as I have not yet found a source for ¼ full-sized pilots. The head can be carved from balsa, and the body made from polystyrene, with wires through the arms to fit them to the body, and also for flexibility. A few soft words with your lady friend or your wife could result in a flying suit for the guy! I must say that mine bears more than a resemblance to the chap who flies in my "LITTLE TOOT!"

INSTRUMENT PANEL. A visit to your local art shop should produce a small packet of black scraper board. Cut out the shape for the panel, and practice on the offcuts until you can produce a reasonable looking instrument with your scriber. Mark out the instruments on the panel, epoxy on suitable rings to represent the besels, then epoxy in clear acetate discs for the glasses. I find this method works very well, and worth every bit of the couple of hours it takes. Stick the result on the balsa former and fix in place. With any luck, your pilot will now be able to see what he is up to!

WINDSCREEN. Offer this into place, and mark the area it touches. Remove the covering down to the bare wood and using balsa cement, (this is why I use an acetate sheet) fix in place.

RADIO. The disposition of this will depend on several factors; the plan shows the position of the radio in the prototype. If for psychological reasons, you wish to change the position of the rudder and elevator servos for the deac, please do so, but it won't make much difference in the long run!

FLYING. This is the best part! Make sure that the model balances at the point shown on the plan; if you err at all, go a little nose heavy. Be sure that all the controls are working in the right sense, and get the engine idle as slow as you can, commensurate with reliability. Taxi

1. Framed-out plane ready to cover. 2. Details for cabane struts and wing attachment. 3. Engine installation; note muffler. 4. Details for landing gear and wing strut attachment. 5. Aileron bellcrank and push rod arrangement. 6. Details for making aileron. 7. Details for wing strut attachment fitting on wing. 8. Details showing strut attachment to wing. 9. Details for attachment of wing to cabane struts. 10. Aileron servo mounting.

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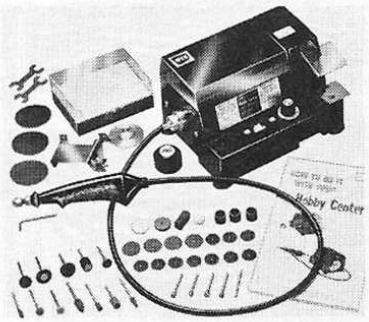
the model around to get the feel of it, and when you can pluck up courage, set her up for takeoff. Open the throttle gently; you will find it necessary to hold in some right rudder during the run, but she will trim out when airborne. There is, as one would expect with this type of aircraft, some power-on power-off trim change, due to the separation of the thrust-drag lines, which you can offset to some extent by building in about 2 degree down thrust and 2 degree right thrust; personally, I prefer to fly the plane as intended. Now she is up there in her natural element. Throttle back and trim her out. You will find that with care on a calm day, you can get her circling around in such a stable situation that you can place the transmitter on the ground, and carry on a conversation, confident that when you have finished she will still be up there, awaiting further instructions! The big ailerons are surprisingly effective, and she will even roll, though albeit rather barrelly! Spins can be induced by using all the controls, and since it is a very stable model, it recovers instantly when the controls are neutralized. Loops are easy, but you will need full power. Slow fly pasts are really impressive; you can bring her in really close, usually producing some nice comments from an appreciative audience, like:—"Keep it there while I get my camera." She really potters around nicely on about half-power; I believe that it would fly well on a "40" if you would not mind a rather long takeoff run, it might even be more to scale!

You will notice that when full power is applied, after having trimmed out at cruise power, the nose will rise, together with a tendency to turn left. This is quite normal as previously mentioned.

Now for the landing! First, throttle back and trim out for a good stable rate of descent, and all you have to do is steer it and get the height right. You can easily produce the sort of landing that will evoke sighs of pleasure from those that know what flying is all about. One word of caution, I have had, on one occasion, aileron reversal when trying to pick up a wing at what was almost stalling speed when landing. What happens is, those big ailerons increase the angle

of attack of the already low wing to the point where it stalls. So be forewarned, at low speeds, pick up a wing with the rudder! In my experience this is her only idiosyncrosy. She will do all that her full-size counterpart will do, plus some, and what's more, does it almost like the real thing. I like to start the engine alongside the model box, taxi out, take off, fly, land, and taxi back to park in the spot she started from. For me, at the risk of being called lazy, that's how it should be. You, too, could enjoy this type of very rewarding flying with your own "Gorrion." I hope that you receive as much pleasure from yours as I have from mine. Happy Landings. ■

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