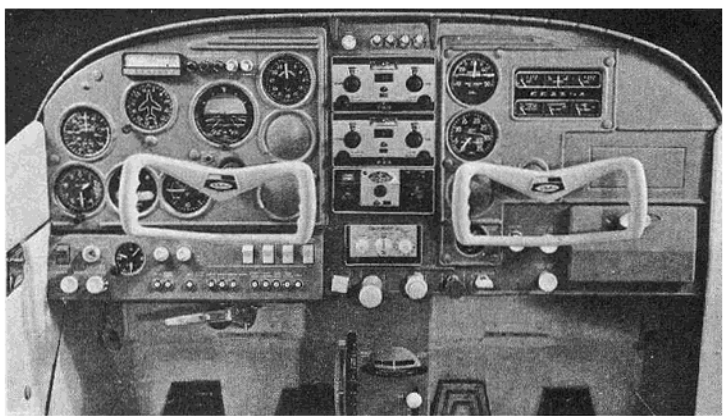
First Of Several Magnificent RC Scale Ships To Be Featured In RCM . . . The Popular Cessna 182

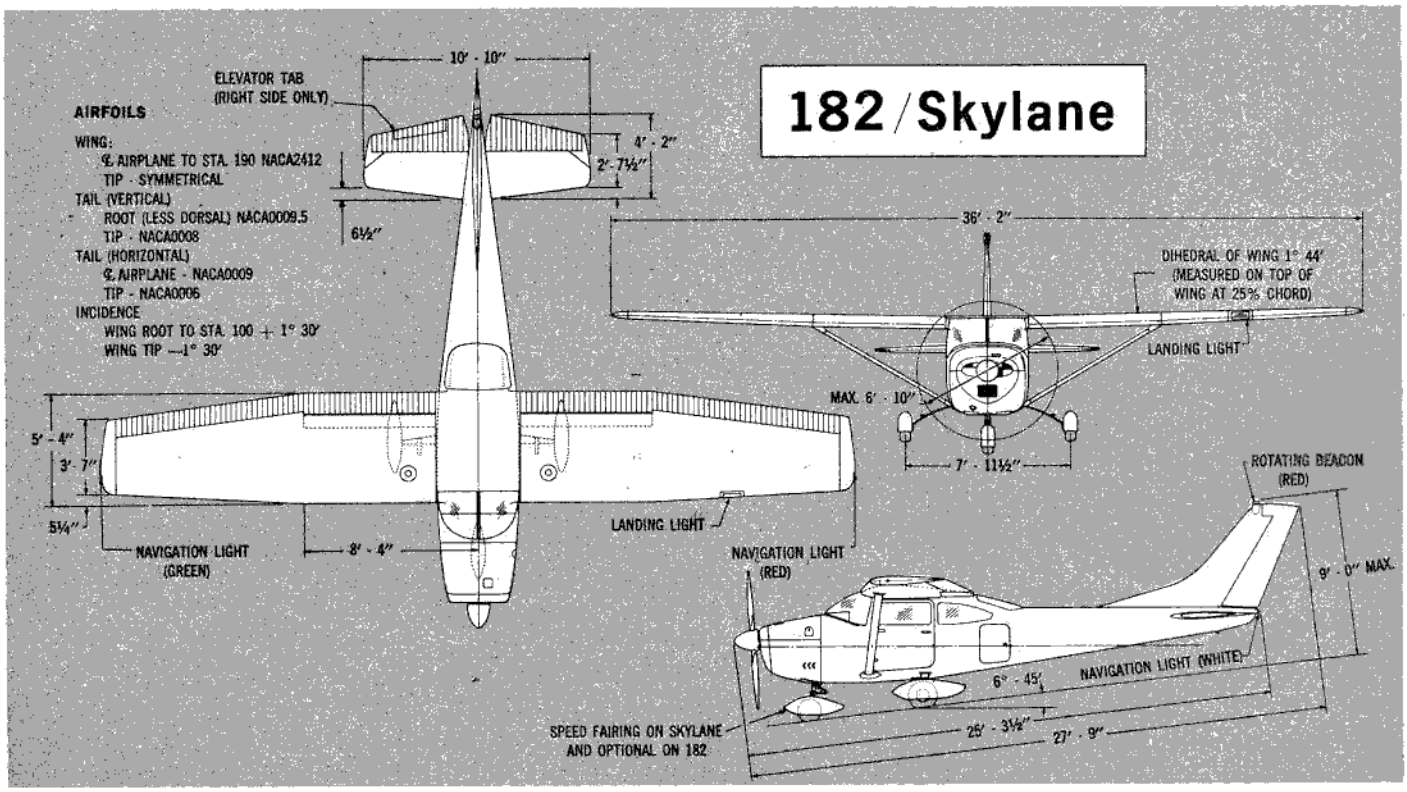


Cessna®

182/SKYLANE

PRIOR TO 1962, four thousand, five hundred and ninety Cessna 182/Skylane aircraft were built by the Cessna Aircraft Company, Wichita, Kansas. Then came a new model of the Skylane (the deluxe version of the 182) with a new fuselage, glass all around giving 360° vision, flight-sweep tail, and a very attractive color scheme. On my way to the bluff where I had been slope soaring gliders, I passed the Orange County airport and saw a, then new 1962 model in blue and white. One look, and I was convinced that there was an aircraft with lots of room in the newly designed fuselage — room for almost any amount of radio gear!

Wheel pants (now called wheel speed fairings) added to the well proven single leaf main landing gear and nose wheel made this a very attractive airplane to duplicate. Due to the fact that large scale control models always seem to look nice and impressive I chose the scale of 2″=1′. In February 1962, Torbet Aircraft provided some full color



Above lt: Miss Reggie Pierce, RCM's March-April cover girl, with full-size Cessna 182 and Dale's RC prototype.

BOLD BEAUTY, EXCITING ELEGANCE

brochures and a blue-and-white Skylane for photographing. I went away with 24 detailed shots of this ship from all aniles. While in Japan my last time, and in association with Masahiro Kato, the design and construction of two prototypes was completed, then test flown using a new Orbit 10 superhet furnished by Bob Dunham. Since that time I have received a number of requests for the plans to this ship, and decided to have them published by R/C Modeler.

A number of improvements have been made to this model since the original was test flown. Modifications include exact scale flying surfaces plus the addition of flaps, lights, and full sheeted wings to simulate the metal covering. Inasmuch as this scale model is not for the beginner, I will forego a step-by-step construction article but by following the numbered sequence of the parts the average model builder should experience no difficulty in building this beautiful model. Of

182/Skylane

The model or the real thing? Only a few details reveal that this is the author's prototype.

course, the high wing design requires careful selection of balsa and plywood, as strength is a necessity around the cabin area due to the extenive use of glass. For this reason, good 5-ply, 3/32" thick spruce plywood was used for all formers and cabin bracing. I highly recommend the use of white glue, which gives a tough resilient joint that will dry in 20-25 minutes on a warm day. Balsa is then used to fill in, plank, and round out the contours of this scale model.

When cutting out formers #1 through #14 from 3/32" plywood and using this as a guide, cutting was simplified. In removing the center of the former, cut exactly on the line — do not allow any more for "strength" as it will add unwanted weight. Make sure, however, that the notches are cut sufficiently deep so that the rock-hard ¼" square balsa which serves as a crutch does not protude. Cut two doublers from ⅛" ply (#15) and, using Weldwood Presto-Set glue, apply cement generously, then rubber-band these parts to the fuselage, using a T-square for alignment. Select the motor you intend to use and space the hardwood mounts accordingly. I used an OS .49 R/C for scale appearing flights, although choice of a motor should be governed by the amount of extras you intend to include and the degree of finish you desire.

The main landing gear mount (#17), cut from ⅛" plywood, fits snugly between bulkheads #7 and #8 and rests on three ¼" square bottom stringers, held down with two pieces of ¼" square glued to #7 and #8 by the width of the fuselage. Notice that former "6 has an elongated slot. My receiver was contact cemented to a piece of sturdy foam rubber, then cemented to ⅛" plywood. One end of this assembly is inserted into the slot and two wood screws used to hold the opposite end in place. Later, when I repaired and renovated the fuselage and built a second ship for passengers (one a blonde named Midge), a Kraft Custom 10 receiver and Medco power pack was rolled in sponge, bound with a rubber band, and stuck beneath the floor board that the seats rested upon. The servos are installed flat.

Completely shape the nose, then cut the engine hatch out with a razor blade or sharpened hack-saw blade. With lots of room up front, I inverted the engine and installed the engine servo forward of the main bulkhead.

Now we come to a point where ingenuity is required — the duplication of the scale nose gear. A close look at the plans and photos will reveal a small diameter length of steel tubing telescoping into a slightly larger length tube and compressing a spring. The wheel is held by a "U" shaped dural strut, fixed to the lower end of the nose strut. A small rubber band is employed to keep the assembly from hanging down more than 1½", as a fast landing on rough ground can knock your gear off if it is extended too far. Of course, you can "dummy" this gear quite well by using a conventional nose gear and hiding the coil spring inside the fuselage, with a non-operating scissors.

When selecting wood for the straightforward and warp-free tail assembly, choose the balsa with care and keep it light! Notice that the tail assembly is fastened with screws (as is the wing), an innovation fast be-

Tail section detaches for accessibility.

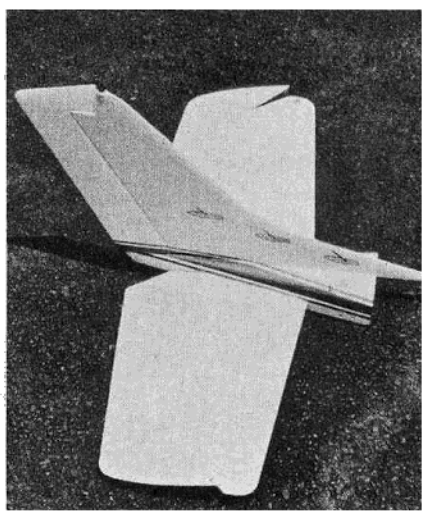


Photo shows removable cowling section.

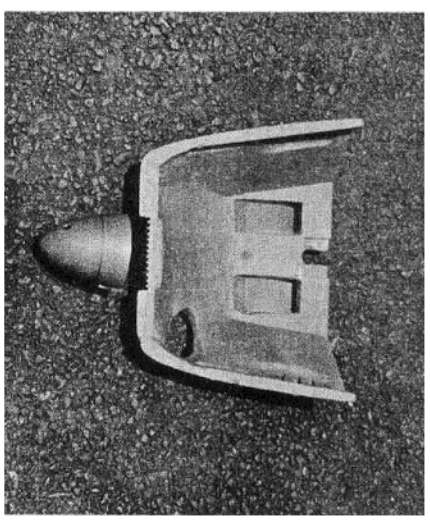


Photo from Cessna Aircraft Corp. illustrates clean, forward sweep of 182/Skyline.

coming popular with the West Coasters. In addition to the fact that there are no rubber bands to cut and mar the finish, this feature should contribute to more scale points at contests. Again, all the parts are numbered. The soft hollowed block #26 cannot be shaped until the fuselage is completely planked and sanded. This block is also split lengthwise to accommodate the stab. Shape the airfoil, sand **all** bumps out, then apply a light second coat of cement and set aside to dry in a jig made of books or magazines. I recommend lightweight silk for covering the fuselage and a good grade for the wings. Use at least three coats of sanding sealer, cutting it back every time in order to save weight. Then apply two coats of thinned dope, sanding it smooth with 600 wet-or-dry and water.

Tatone Scale Instruments were used in the cockpit and located in exactly the same position as the instrument panel on the full scale aircraft. I sat in the back seat of the Cessna Skylane and shot the instrument panel, then enlarged it to scale size. The correct size right and left decal for the fin is also included on the plans. Mine were drawn on "Briskit paper" with Pactra enamels, then the backing removed and the gummy side pressed against the desired surface.

I mentioned my passengers . . . Ken and Midge dolls from Mattel. Ken was too long to fit the cabin, so 2″ was cut from his midsection, then he was fiberglassed together again, a la Ben Casey. I wanted to dress him in suitable flight clothing, but settled for sailing clothes instead. Double up their legs, wrap rubber bands around them to hold in position and put in the freezer. In a couple of hours, place them in the plane on seats cut from foam rubber, and they will fit exactly.

The wing is straightforward, conventional construction with selected sheet stock for duplication of the metal skin. Prior to sheeting the top surface, install the wiring for the lights, hinges for the ailerons and flaps, and wire both servos. The plans show rock-hard balsa for the center section mid-spar tongue-and-groove section and the trailing edge spar. More strength will be gained, however, by using a length of Sig spruce and a liberal application of white glue. Because of the large scale area in the flaps, quite a bit more down trim will

Above the clouds — factory view shows aft section for scale details.

CESSNA

be necessary, limiting the throw to 30°. The landing and anti-collision lights are from an HO gauge railroad layout, but General Electric has subminiature bulbs in both 3 and 6 volt ratings. Wing struts are shown actual length, but do not bind the top wire to the strut until the wing is finished and properly installed. For streamline fillets, I used "Green Stuff," a heavy green lacquer-based compound, manufactured by Rinshed-Manson Company (R-M #74 Putty) with plants in Detroit, Michigan; Anaheim, California; and Windsor, Ontario, Canada. This material is primarily sold for repairing dents in car fenders and other types of body work. It has very little shrinkage and is easily molded with a wet finger. In order to achieve a good fillet, I cut four pieces of .005" aluminum larger than the required area, drilled a hold for the 1/16" wire to pass through, slipped it over the wire abutting the end of each strut, and inserted the strut wire into the 1/16" I.D. brass tubing. I then traced the outline of the fillet on the sheet aluminum for contour, removed the sheet, and cut to the line with a pair of scissors. With a piece of heavy bond paper I masked off the area, so as not to overrun the aluminum, then applied a medium thick coat of "Green Stuff." When dry, it was sanded to a nice round contour, doped twice, then sprayed.

To stimulate the corrugated metal stiffeners used on the flaps and ailerons, I took a piece of ¼" pine, drilled a 1/16" hole about ½" from the end, and filed it into a diamond shape with a square Swiss pattern file. This allowed the 1/16" square balsa to pass snugly through the hole. I then forced a thin, double-edged razor blade down so that it would split the 1/16" square balsa exactly in half, making an isosceles triangle. It was then an easy matter to push a strip of balsa through the hole, grasp the two cut pieces on the other side of the razor blade and pull — neatly stripping all the balsa needed in about twenty minutes. The job of attaching it, however, is a different matter! I had counted the number of stiffeners on each surface and found there were nineteen on the elevator and thirty-five on the aileron and flap. So I took my trusty old metric scale, and by division, found that they were spaced 12 mm apart (roughly 17/32"). To save sanding, I merely touched each end of the balsa with heavy dope then taped them down with Scotch Tape (see photo). When dry, the tape was removed, and two coats of sanding sealer applied, sanding with 400 grit between coats. You will find that this holds the strips down quite well.

The canopy was blown from butyrate sheet in Japan. If you have difficulty making this windshield, write to me in care of R/C Modeler and I will try to furnish the blown windshield at a nominal cost.

The final finish was a combination of Aero Gloss aluminum mixed with Corsair Blue, to match the colors in the Cessna brochure. White Fuller Plast was the base color, then the blue was applied. When fully dry (72 hours), a top coat of clear gloss Fuller Plast was added. While the directions are quite complete, a word of caution is in order about this type of paint—don't mix more than needed, use a 300 thinner, and when spraying cover with a wet coat, but **do not** let the paint run. If it should run, quickly wipe it once with a thinner soaked rag, let dry, then cut back with 400 or 600 sandpaper and repaint.

Let the finish dry at least twenty-four hours, then rub down and polish with a good rubbing compound. And don't quit in the middle of the job! Fuller Plast can be buffed to a gloss comparable to fiberglass finishes. Jim Jensen, a fellow member of the Radio Control League of Orange County, said that Fuller's new Jet Skin was superior to Plast in ease of application and toughness — might be worth a try.

As for flying, only the normal precautions are necessary—fully charged power pack, receiver checked, vibration check-out... and don't try a tail-slide on the first flight! This model has scale flying surfaces and therefore will not be a floater! Just remember, with flaps and trim, it can be greased onto the runway every time.

If you get stuck on details, may I suggest that you phone your local Cessna dealer, explain your predicament, show him a copy of the magazine, and perhaps he will even give you a "check ride" in addition to providing a good detailed rundown on the Cessna Skylane. There are no structural changes in the 1963 Skylane/182 models, just a different color scheme. As yet, I haven't seen any data on the newer '64 models. The Skylane prototype for this article was recently modified to include a parachutist, or "sky-diver" much like the one on the TV program "Ripcord." I found that a scale jumper was hard to throw out of the door, even with a mousetrap rigged for such. With the increased interest in flying off water, this Skylane will soon sport those scale floats that have been gathering dust in my garage. Details for this modification will be furnished by writing to me in care of this magazine.

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