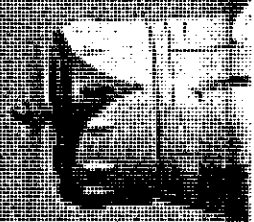


# Schoollyc

■ Don Srull

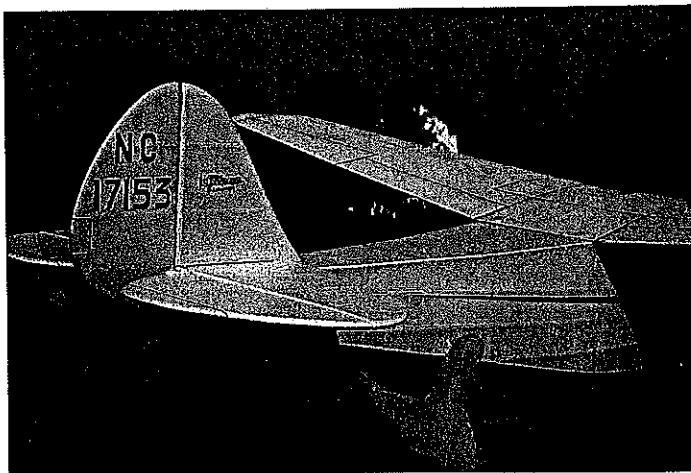
Small Scale models have a way of tugging at the heart strings like no other type. Maybe they take us back to our younger days when we built smaller models, or maybe it's just that they can sit around our workshops completely assembled—always ready to be admired. Whatever the reason, this model embodies all those qualities, and it is also a great flier. For a small two-channel radio system and an .049 engine.



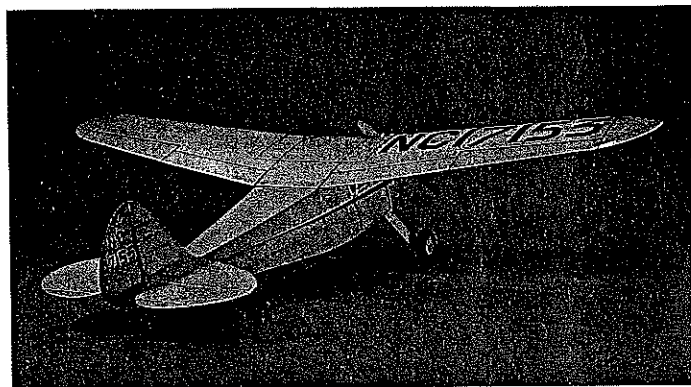
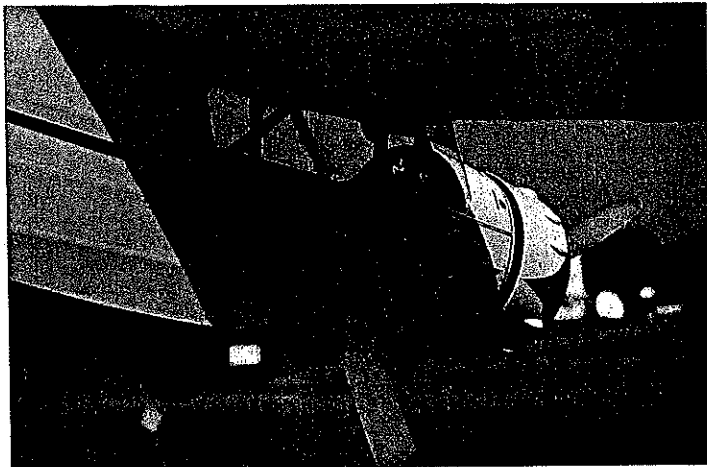
Big Plans: With an over-powered .049 going along, the C-37 cruises at a steady level. Any .049 to .10 gva. engine or 1cc diesel would be suitable power for the 20-oz. Plan. Above: Paul Matt's line drawings were used as the basis for our author's reproduction of the C-37. The relatively accurate small model's good performance is in part due to the remarkable efficiency and stability that went into making its full-size ancestor famous.

# World Scale Cessna C-37

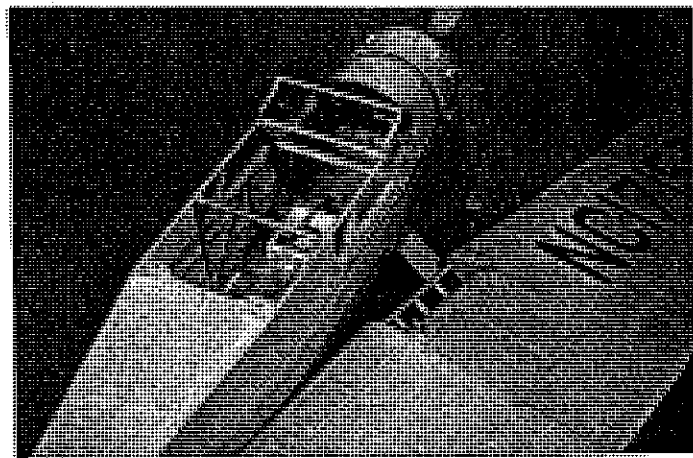




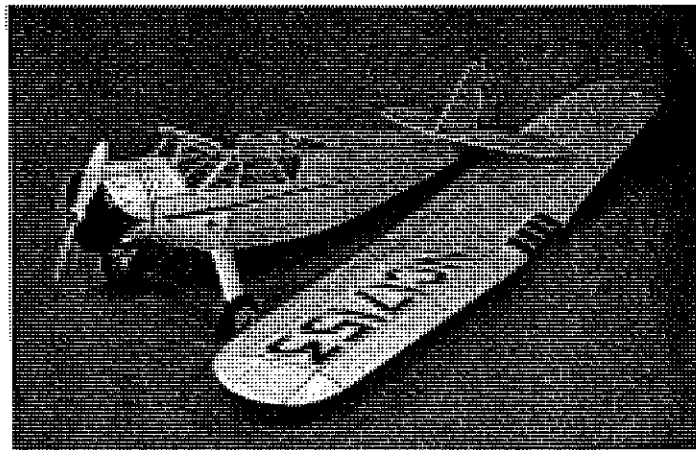
Left: Typical tail markings and paint trim add the final touches. Panel lines and the Cessna logo are inked on the model and given a sprayed coat of clear butyrate for protection. Right: The gap between the cowl and fuselage allows plenty of cooling air through the engine area.



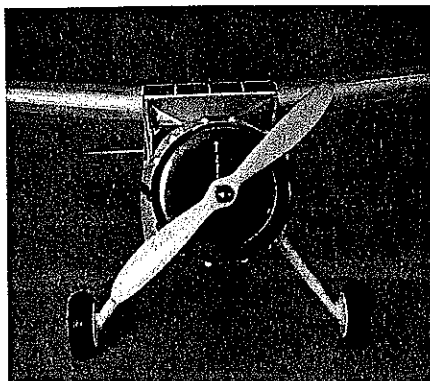
Left: Clean lines, no struts, and graceful shapes are hallmarks of the famous Cessna Airmaster series. If you like Cessnas, you'll love this little Schoolyard Scale flier. Right: The cabin-to-wing joint must be built carefully to preserve the scale cabin lines and get a good fit. To simplify the model, the wing could be permanently attached and a radio access hatch added in the fuselage bottom.



Left: Internal plywood hooks, with the help of two small nylon screws, hold the wing in place. The wide fuselage provides ample room for any radio installation, although lightweight mini airborne systems are recommended. Right: With the wing removed the diminutive Cessna can be transported in the smallest of cars. Assembly takes only a few seconds, and access to radio gear and linkages makes servicing simple.



IN 1934 the Cessna Aircraft Company reopened for business after a three-year interruption caused by the Great Depression. A dramatic and permanent change was about to take place in civil aviation. The first aircraft of the new Cessna line was designed by Dwane Wallace, President Clyde Cessna's nephew, who was a recent aeronautical engineering graduate of Wichita University. Sticking with the old Cessna tradition of a high wing cabin monoplane,

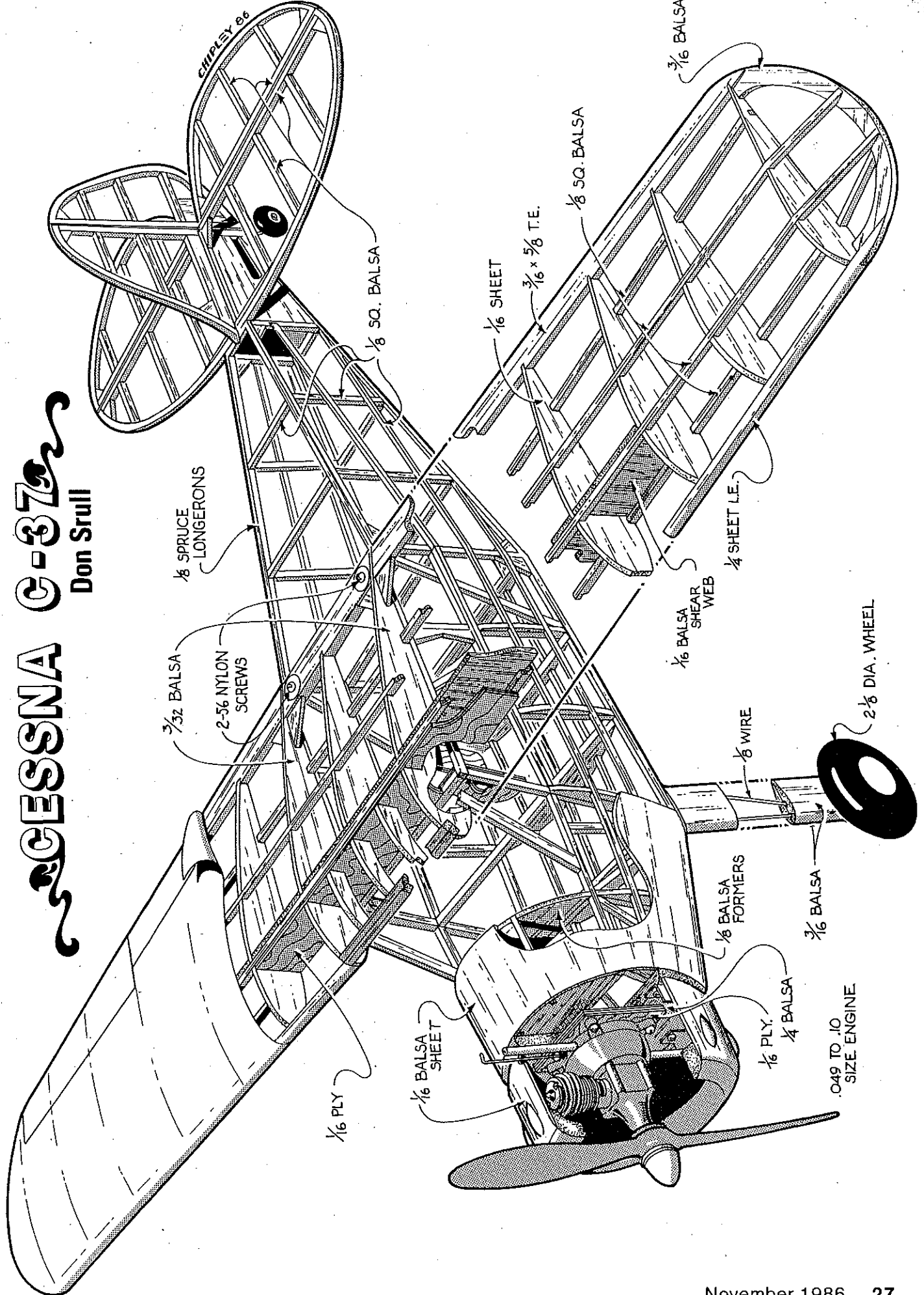


but bringing all the latest technology to bear, Wallace designed a slick four-place aircraft—the C-34. Its graceful lines and clean, efficient aerodynamics would survive in the form of the uniquely Cessna

The Cox Black Widow .049 peeks out from behind the dummy Warner Scarab engine. Any Cox .049 (preferably one with a silencer) will do. Use a 7-in. to 8-in. prop to subdue the power for more scalelike performance.

# CESSNA C-37

Don Strull



"Airmaster" series through 1973.

The C-34 quickly won the attention and respect of the aviation world. Many competitions, races, and awards, including the "World's Most Efficient Airplane" title, were garnered by the C-34. The attention didn't hurt business either—a total of 42 aircraft being sold in the midst of the lingering Depression; that wasn't bad. In 1937 the design was upgraded slightly—including a widened cabin, electrically-operated wing flaps, improved shock absorbers, and a cleaner cowl shape. External appearance, however, was virtually unchanged, and the 145-hp, seven-cylinder Warner Scarab engine was retained. Ultimately, 47 model C-37s were sold, and the series progressed through C-38, C-145, and C-165 models up to World War II.

It is the C-37 version that our little Schoolyard Scale RC model emulates. It is designed at a scale of about a 10th of the full-size machine, yielding a wingspan of 42 in. and a wing area of 290 sq. in. With a mini two-channel radio and an .049 power plant, the total weight should come out under 20 oz. The result is an ideal wing loading for a Schoolyard Scale model of about 10 oz./sq. ft. Our model, even using silk-and-dope covering, weighs in at 19 oz. With an .049 and an 8 x 3 prop, it is really a good flier. More on that later. Let's build!

**Fuselage structure.** The C-37 is a typical "stick-and-tissue" model. While it is not an ideal beginner's model, it can easily be built by anyone with a few models under his belt. We will describe only the few unusual or difficult construction features to help speed

up this phase of the project.

First build two identical fuselage sides using firm, straight, 1/8-in. sq. spruce for longerons. Do *not* add the 1/8 x 1/16 forward cabin brace or the 1/8-in. sheet C-1 former at this time. Also note that the lower longeron at the nose is about 1/8 in. longer than the top longeron. This extra length is required because the lower longerons are pulled in to a narrower width at the firewall than the upper longerons.

Join the fuselage sides after cracking the longerons at the wing trailing edge. Keep the fuselage straight and square as cross-pieces are added. Finally, add the formers, gussets, and stringers, and sheet the nose with 1/16 balsa. After installing the landing gear and tail wheel, set the fuselage aside.

**Lay out the wing** on the plans, excluding the top spars. Raise the tips 1 in., and add the top spars and the 1/16 ply dihedral brace. Next, add the center section nose ribs and 1/8-in. sq. spruce crosspiece.

At this point, fit the wing to the top of the fuselage, and drill and tap holes in the trailing edge for the two 2-56 hold-down screws. Screw the wing on temporarily, and epoxy the ply hold-down hooks to the wing spar, engaging them in the plywood sockets and making sure the wing is lined up and tightly held to the fuselage.

With the wing in place, glue in the front 1/8 x 1/16 cabin brace and the C-1 formers. Make sure the C-1 formers fit tightly and accurately alongside the wing nose ribs R1A. Add the 1/8-in. sq. spruce crosspiece brace which joins both C-1 formers. When these parts are dry, the wing should slide smooth-

ly off the fuselage when the 2-56 screws are removed.

The cowl is built up from 1/16 balsa sheet wrapped around the two 1/4-in. sheet nose rings and a temporary rear disc of balsa 3/8 in. in diameter. After sanding the cowl to shape, cover it with light fiberglass cloth. When dry, remove the rear temporary disc, and glass the inside of the cowl for further strengthening and fuel-proofing. Carve 14 streamlined "bumps" from 1/8-in. sheet balsa, and glue them onto the cowl as shown. Cut three clips out of sheet brass; drill them, and epoxy them inside the cowl to attach the cowl to the firewall.

**Covering and finishing.** Our model was covered with lightweight silk and finished with butyrate dope. If you prefer, a plastic film covering can be used, although the cowl will have to be painted in any case.

Typical color schemes are overall yellow, cream, or red, with trim in blue, green, red, or white. Our model was painted with Sig Dianna Cream and trimmed in dark metallic green. Panel lines, control surface outlines, and the Skymaster logo on the fin were drawn with drafting ink and given a spray coat of clear butyrate for fuel-proofing.

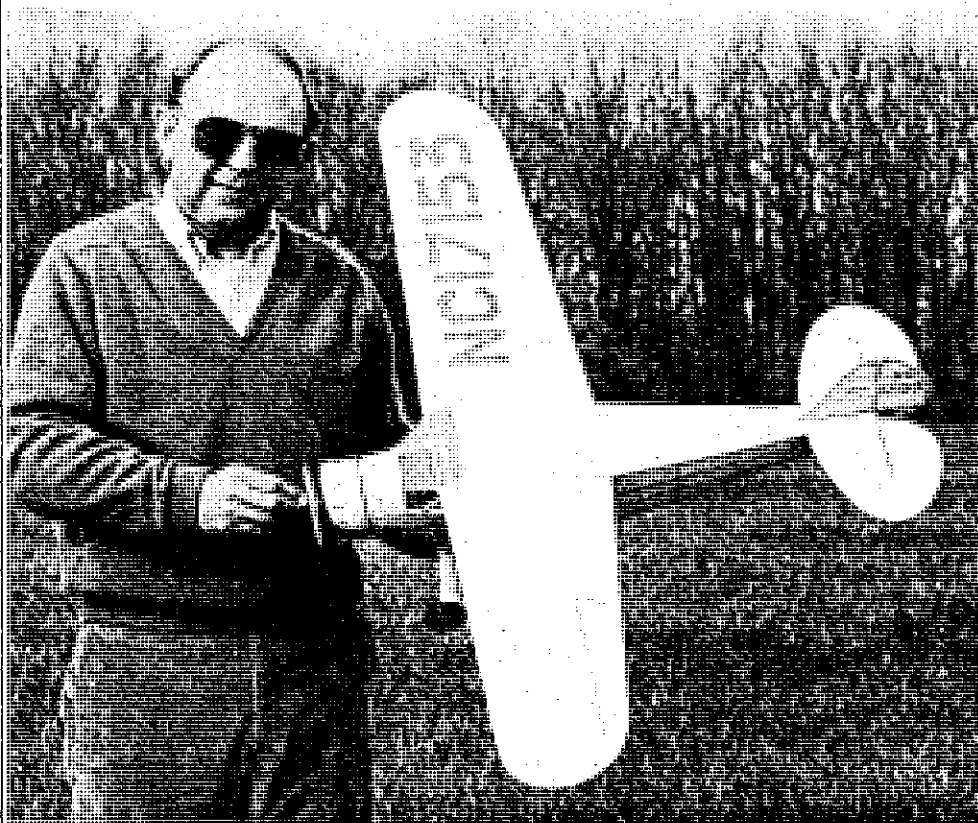
**Radio and engine.** Two channels are all you need if an .049 is used. Three channels and .10 power could be used for real aerobatic performance, but an .049 provides more than enough power for leisurely schoolyard flight. Speaking of power, in order to tame the Cox Black Widow, an additional head gasket was added and an 8 x 3 prop was used. The extra gasket reduces the compression of the Black Widow and makes it much easier to use a large prop and set the needle valve. Works like a charm—try it!

You will have to add a needle valve extension, fuel tank filler, and overflow extensions to reach outside the cowl. Also, rig up a remote attachment to the glow plug. We wired the plug to a miniature phono jack plug which was attached to the bottom of the cowl.

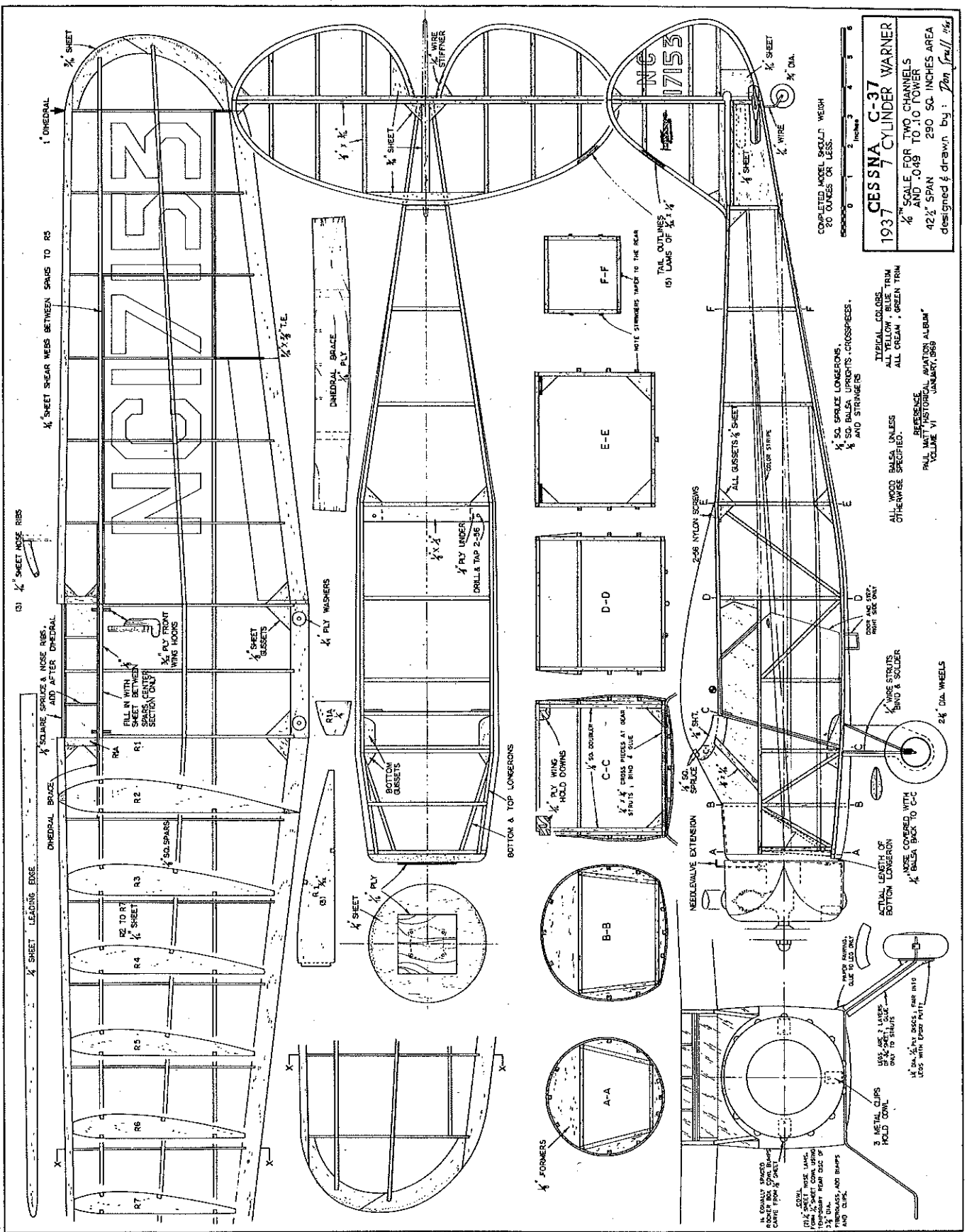
The radio installation should be made such that the completed model's center of gravity (CG) is as shown on the plans. Shift the battery and receiver positions until you get the right CG.

**Before flying,** make a final check to be sure you have the correct CG, no warps, and a working radio (this includes a range check and a test to make sure the control movement is in the right *direction*). Finally, attach a balanced 7 x 4 or 8 x 3 prop to the engine. If the engine is brand new, run a few tankfuls of fuel through it to break it in and find the right needle valve settings for starting and running. The control throws should be about 1/2 in. for the elevator and 1/4 in. for the rudder.

When all is well, fill up the tank, start the engine, and tune for a smooth, rich run. Hand launch gently into the prevailing wind, and carefully feel out the control



Generous tail area and nice moments make the Cessna C-37 an ideal Schoolyard Scale subject. Designer Don Srull shows off his 42-in.-span version of this Golden Age beauty.



**CESNA C-37**  
**1937 7 CYLINDER WARNER**  
 1/8" SCALE FOR TWO CHANNELS  
 AND .049 TO .10 TOWERS  
 42" SPAN 280 SQ. INCHES AREA  
 designed & drawn by: Don Swall 1/64

TYPICAL COLORS:  
 ALL YELLOW, BLUE TRIM  
 ALL GREEN, GREEN TRIM  
 OTHERWISE SPECIFIED.  
 REFERENCE:  
 PULL NUT HISTORICAL AVIATION ALBUM  
 VOLUME VI  
 JANUARY, 1969

response of this little beauty. The C-37 should track like an arrow and handle like a dream. If it has any vices, I haven't found them yet; it's as easy and smooth a Schoolyard Scale flier as I have ever handled. Depending on the engine and propeller selection (and please experiment here to

find what suits your taste), the slick little C-37 can be anything from a zippy racer (on a Cox gray 6 x 4) to a smooth, scalelike floater (on a Graupner 8 x 4). In any case, I'm sure you will enjoy this classic Cessna Skymaster addition to your Schoolyard Scale fleet.

**Safe Flying Is  
 No Accident!**