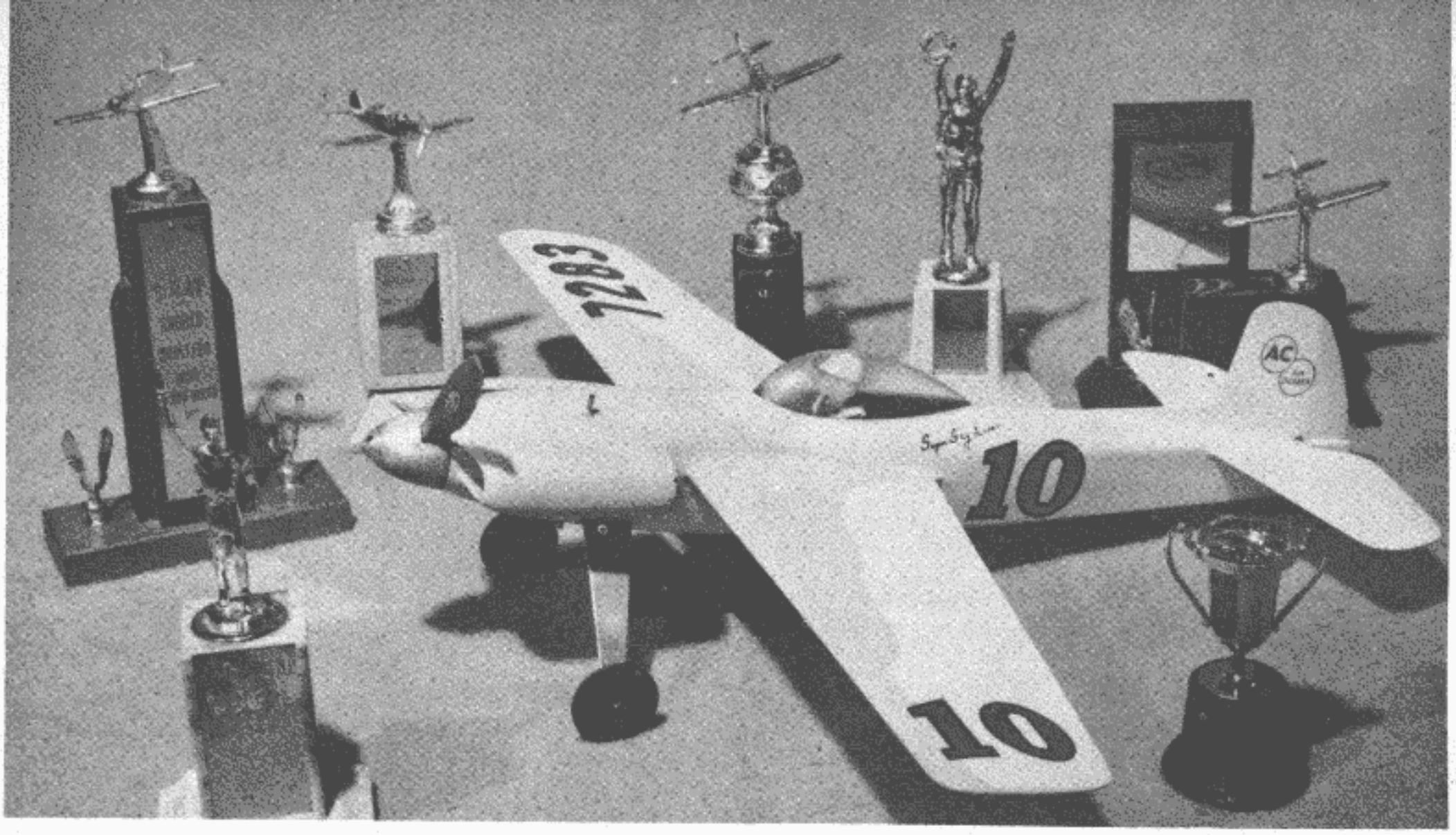
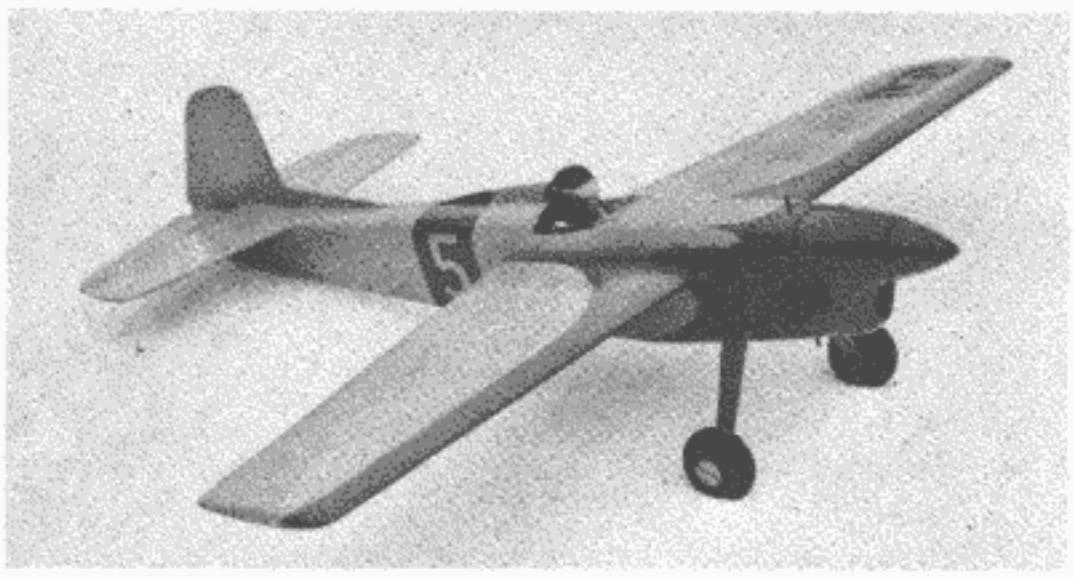
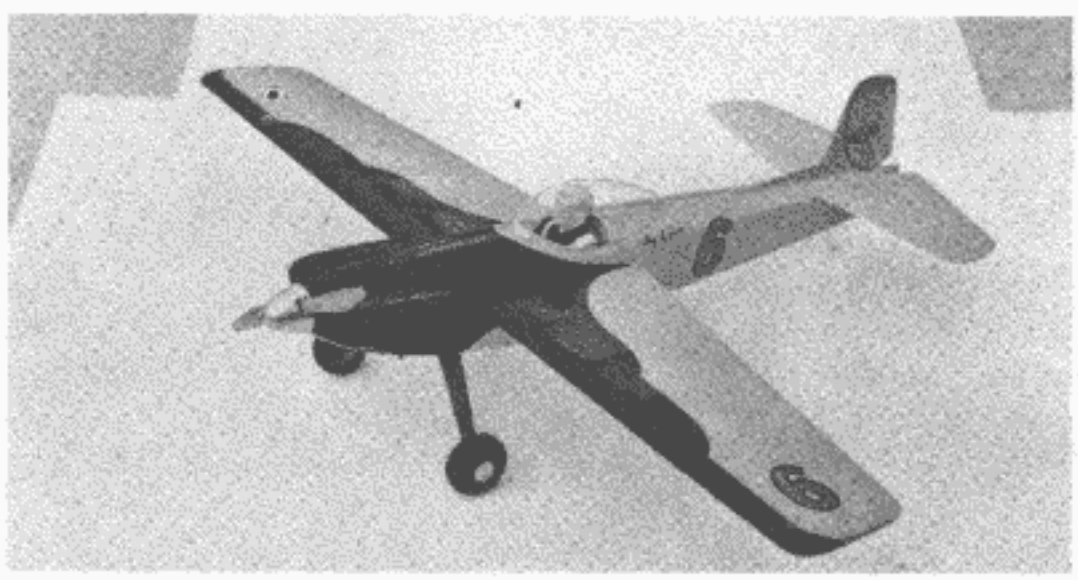


After three years of service and hundreds of miles logged, Number 10 is still a threat to team races. Trophies from team, proto.

Super Sky Lancer



The Super evolved from 1/2A Sky Lancer. Number 5 shown, turned 115 laps at 60 mph on Mac .049 Diesel, got speed flier dizzy on test.



Final version of 1/2A, Number 6, was taken to meets to confuse the competition. Well finished ship a pleasure to fly just for sport.

by EDWARD HARP and JOSEPH NEDELA

Prettiest by far, and most real looking control-liners are proto and team-race jobs. This .29er excels in both events.

► The Super Sky Lancer is the result of a long line of ships. The first Sky Lancer was a hot ½A job. Number 10, the first "Super", has proved itself by logging hundreds of miles in three years of racing, and has had to fly only one consolation race (snagged some taut lines taking off after a pit stop in a heat race). It has two firsts in Proto, even though it is basically a team racer. Best qualifying time has been 106 mph. The 140-lap 10-mile feature race has been flown in 7:50. Two pit stops were required. The Super Sky Lancer flies 48-50 laps at 93 mph and does 98-106 mph for 35 laps, using *Super Sonic 1000* fuel.

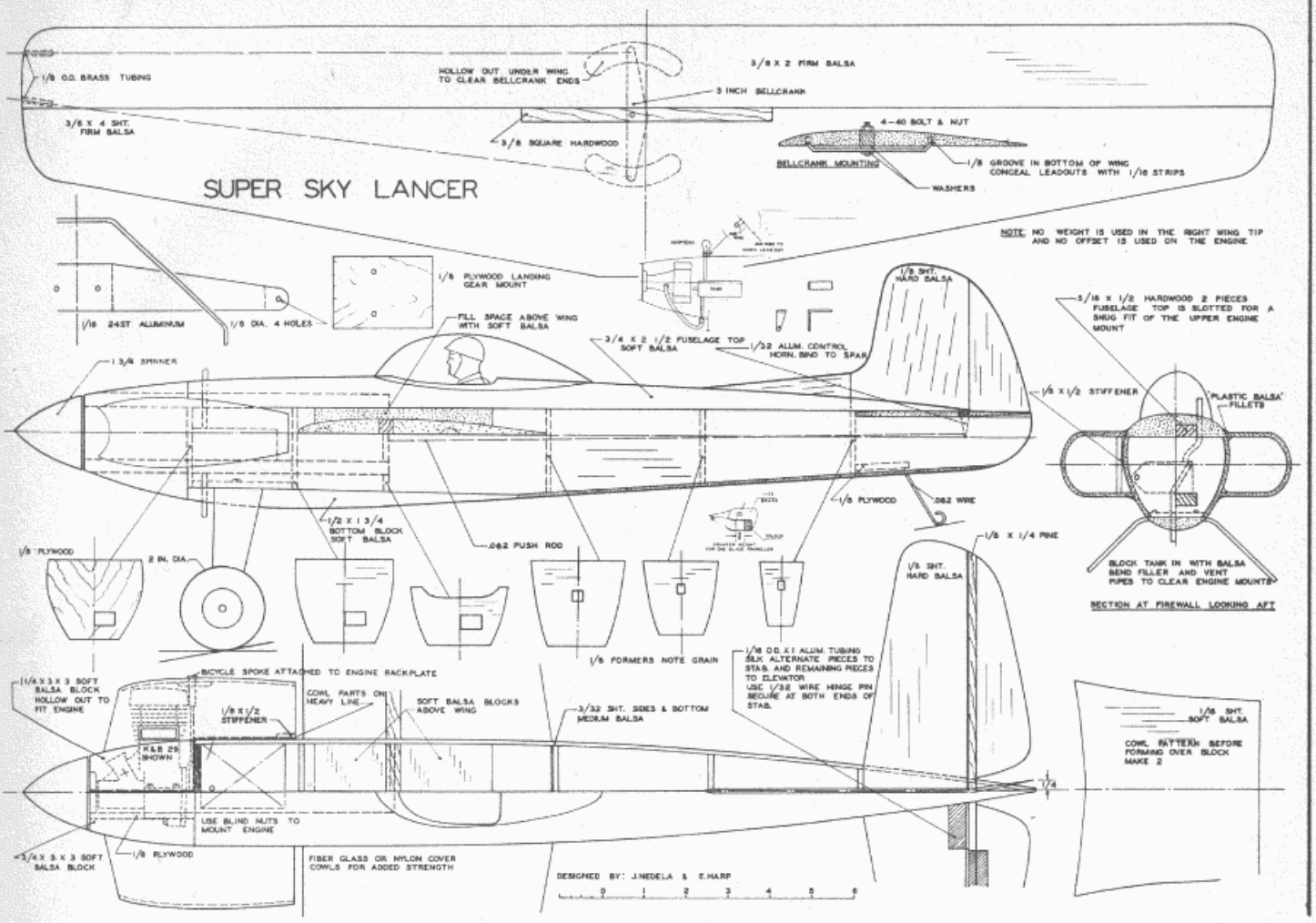
Through experience, many features were built into the later versions to ensure trouble free operation and desirable flight characteristics. Symmetrical wing sections had a tendency to drop the ship out of the air, making spot landing more difficult. Built up wings saved little weight and had a floating tendency due to extra thickness.

Vibration and oil seepage are the deadliest enemies of a plane that is intended to fly a grueling 20 miles an afternoon many times during the flying season.

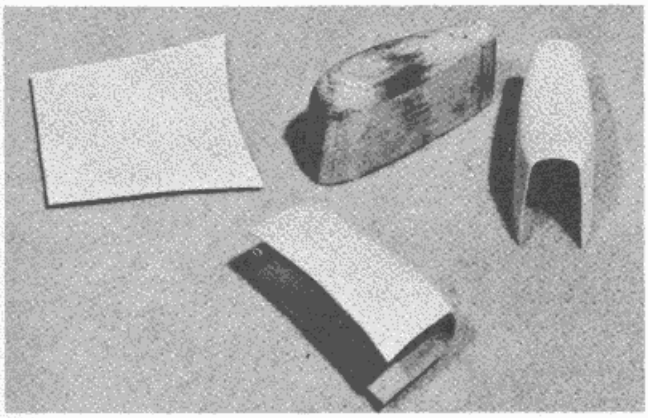
The plane is completely sealed from the firewall back, including a sealed-in tank that has caused no trouble. Vibration is dampened and kept to a minimum by using the shortest engine mount overhang, and by embedding the upper mount into the top fuselage block. The lower mount is secured by the cowl blocks.

A "side-winder" was decided on early in the series—the reason is obvious to anyone who has flooded an inverted engine. The apple-cheek cowls appear to be excess frontal area, but the performance did not suffer. The long fuselage length is also a departure from the usual team racer. The long moment arm helps it stay in any groove. It's a smooth flying, easy to handle ship.

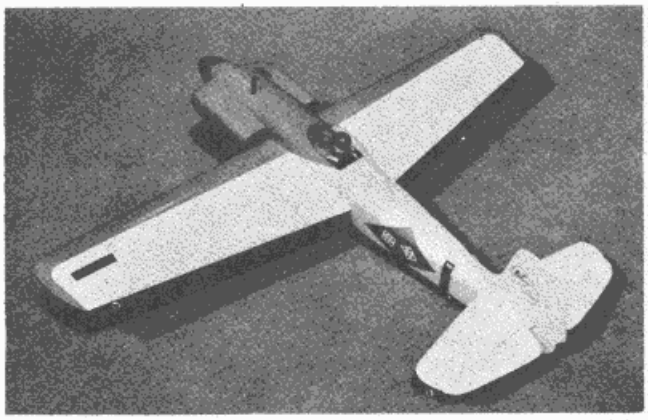
A pressure tank is used—sometimes at a disadvantage. Speed and mileage are definitely increased and starting is easier. You must decide if it is worth the disadvantages. Once started, you can't add fuel to tank, and run the risk of using too much fuel on the ground. The extra "plumbing" also requires a little more time on pit stops. The pressure take off jet is a 4-40 bolt with head removed, and a 1/32 hole drilled through its length. One end is soldered



FULL SIZE PLANS AVAILABLE. SEE PAGE 60.



Light-weight apple-cheek cowls are formed over a pine form after soaking in water. Allowed overnight dry, while wrapped ⅛ rubber.



Number 11 is the latest and, although all the bugs aren't out of the engine, crate shows promise of achieving record similar the 10.

closed, and a small hole punctured through with a pin, approximately .010" diameter. Some experimenting may be required to obtain the proper size hole. We could find no commercial cut-off that wouldn't leak pressure, so the simple cut-off shown was evolved. When the short line from the down lead-out pulls the wire, the neoprene tube unkinks, bleeding off pressure and engine stops. Our pressure jet was located opposite intake on front of crankcase.

Qualifying runs and short heats are flown with the engine wide open, no restricters. Intake restricters are used for all the other races. The engine used is a four year old KB-29 Regular. The major reworking was to radius off and polish the inside.

To Build: Cut two fuselage sides from matched sheets of 3/32" medium balsa. All bulkheads are ⅛" balsa. The firewall is ⅛" plywood. Bevel rear of fuselage sides and cement together. When dry, cement in bulkheads, starting from the rear, holding them in place with pins and rubber bands. The fuselage top may be built up of balsa blocks or solid, with a groove added for the upper mount. Cement mount securely in place. Cement lower mount in place and block with scrap balsa. Spot glue the top to fuselage and carve and sand to approximate shape, then remove. Cement in ⅛" plywood for landing gear support. Gear is .062" (1/16) 24 ST aluminum cut to dimensions shown. Mount tank in place as shown after changing filler and vent. (*Froom* 1 oz. tank was used). Filler tube was bent to avoid going through the upper mount. Vent must be longer to extend through fuselage. Block tank on all sides with scrap balsa.

(*Continued on page* 47)

squeeze the ends of the ribs and push them into the leading edge and then into the trailing edge. Sight along the wing to line everything up and apply a drop of cement to each rib. When this is dry, sand the ribs and leading edge to shape with a rough, and then a finer, sanding block.

The wing joints are now covered with "Duratite" plastic wood. Smooth this into place with lacquer thinner so that the wing appears to have been made in one piece. The tail assembly is made similar to the wing. The wing is held in place by internal rubber bands. The fuselage above and forward of the wing is sliced off and cemented to the wing permanently and filleted with the plastic wood. The wings and tail are covered with yellow silk and clear doped and the wood parts are sprayed with white enamel over the usual six-coat filler-and-dope finish. Towing and flying are conventional, of course. Try a scale towliner soon for a new thrill in modeling!

Super Sky Lancer

(*Continued from page* 21)

Wing is of ⅜" firm balsa. Cement ⅜" square hard wood spar to 2" sheet in proper position. Notch ⅜" sheet to fit around spar and cement in place to build up remainder of wing. Cut to outline shape. Cut grooves for lead-outs. Carve and sand wing to shape. Cement wing in place. Add strips or blocks to inside of fuselage at wing junction. Fasten lead-outs to bellcrank. Slide lead-outs through grooves in wing and bolt down bellcrank. Solder nut in place.

Cut tail assembly from ⅛" hard balsa. Cement elevators to 1/8" x 3/16" hard wood spar. Sand to shape and add horn and hinges. Aluminum tubes as shown with 1/32" wire hinge pin make a hinge far superior to cloth. It is much easier to make pushrod in two pieces and bind with thin copper wire and solder than to try to bend it to correct length in one piece. Slide pushrod in place and cement stabilizer securely to fuselage, using lots of cement. A cement fillet in the inside should be added. Bind both pieces of pushrod with wire, align bellcrank and elevator, then solder. Attach landing gear. Use solder, lock nuts, or lots of cement to prevent nuts from loosening. Cement top to fuselage. Cement fin and dorsal fin in place then add rudder with ¼" offset. No offset is used on engine, and no weight is necessary on wing tip. Mount tail skid in place, then all ⅛" sheet fuselage bottom. Cement block to bottom of nose. Cement ⅛" plywood to left side of engine mounts to dampen vibration. Use *Weldwood* glue and clamp. "Blind nuts" are ideal to hold engine. Cement balsa block to left side of nose. Hollow it out enough to mount engine in place; cut and hollow a block to fit right side of nose, then draw a line around back plate of spinner and remove engine. Carve and sand fuselage top and nose to shape. Finish off rest of fuselage with a long narrow sanding block.

Cowl cheeks may be carved from solid balsa, or easily formed from 1/16" sheet balsa, by soaking piece in water and carefully binding it to a carved block with rubber. It is very light and surprisingly strong when covered with fiberglass. Model cement may be used in place of resin very satisfactorily. Trim cowls to shape and cement in place. Generous "plastic balsa" fillets should be added to inside and out-

side of cowls. Cover cowls and nose with fiberglass. A coat of clear dope all over makes a good base for filler. Fill in and sand. Add pilot and canopy. By lashing canopy in place with a rubber band after trimming, apply clear dope around edge several times to form a good fillet—it's neater and holds better than cement. A bicycle spoke is suggested to hold cowl in place. A D.E. cutoff may be mounted to a plate and fastened to rear of engine. A short "third line" from the down lead-out is used as a trip.

A one bladed prop is sure to cause comment—in spite of the convincing results. All types and sizes were tested. Speed and mileage were both improved with a single blade 10-8 cut down to 9⅜" diameter. Prop breakage is greatly reduced—a big factor in a race. The blade usually stops out of the way for those occasional rough refueling stops (avoiding another ship or a pit crew that shouldn't be there). An 8-8 two blader has been our second choice. There is *no* substitute for safety and a poorly made one blader can be dangerous. If you decide to make one, bend a 1/32 thick brass or steel strap to a "U" shape to fit around prop and drill hole for shaft. Use soldering paste orflux and "tin" the surface for a good bond. Assemble prop and "u" strap with shaft through hole. Use adhesive tape to close off opening on one side. Now carefully fill with melted solder. When cool remove tape and check to see that weight is bonded to strap. File excess weight off to balance blade and to fit in spinner. A simple balancing rig can be made by slipping a snug fitting metal rod that has both ends sharply pointed through the prop. Hold lightly between thumb and forefinger. It is surprisingly accurate and handy for field checks.

I Collect Old Engines

(*Continued from page* 19)

advertised the two Elf Singles in an accompanying photograph for $45, each. To his amazement, he received two offers.

On the other hand, we recently heard of a fellow who practically "stole" a Morton M-5, in running condition, for ten dollars. It was easily worth six times that amount. Such bargains are rare, but they do happen. In the past year, the author has purchased, from dealers, a brand new Arden .099 and .199. Both were still "in the box" and were picked up for a total of $8.00

Since most vintage motors haven't been seen on the old flying field for many a moon, the problem of identification enters in. We find the best way to become familiar with these old types is to study the engine adverts in old copies of Model Airplane News. If you can beg, borrow or buy a 1936–1941 issue, you'll have an invaluable reference aid. The April, 1938 issue, for example, has photos and descriptions of over twenty, including the Bunch Warrior, Pee Wee, Precision 820, Bat, Condor Midget, Trojan and the ever-familiar Tlush Super Ace. Even when you can recognize everything from a Meteor to a Mite Diesel, though, you can still get thrown for an occasional loss because of the large numbers of "home built" jobs that appeared in the '30s.

Now, how do you go about finding motors which have been out of circulation some twenty years? It's really not too difficult, providing you look in the right places. Much more fruitful than Grandma's attic are the older hobby shops, particularly those that accept used motors in trade. Many dealers give a dollar or so on used engines and they can be picked up for very reasonable prices. Occasionally, really rare motors show up along with the usual wornout ½A's. Recently, we followed several leads to a dealer who was supposed to have a "bushel basket full of junk motors." This turned out to be correct but, unfortunately, the entire works had been sold to another collector for $5.00. The lucky purchaser was Clifford McMillan, of Akron, who acquired among the "junk", a James .60, Condor Midget, M&M, Ranger "B", Ajax and an Elf Single. The dealer told me that Cliff looked rather pleased when the motors were dumped on the counter. I'll bet he was!

Another excellent source is the "retired" model builder who has long since flicked his last Flo Torque. Some of these ex-modelers are loathe to part with an old motor for sentimental reasons, but just as many others have all but forgotten that they have a few stashed away in the cellar.

Old engines can also be obtained from trade-in marts that specialize in selling used ones. Generally, you will pay slightly more, but there is an advantage in that they usually guarantee the stated condition of their motors. Collectors utilize many other sources in addition to those already mentioned, including, trading with other collectors, placing small "want" ads in newspapers and model mags, and leaving