

# construction

## KERSWAP: .020 REPLICAS OLD TIMER

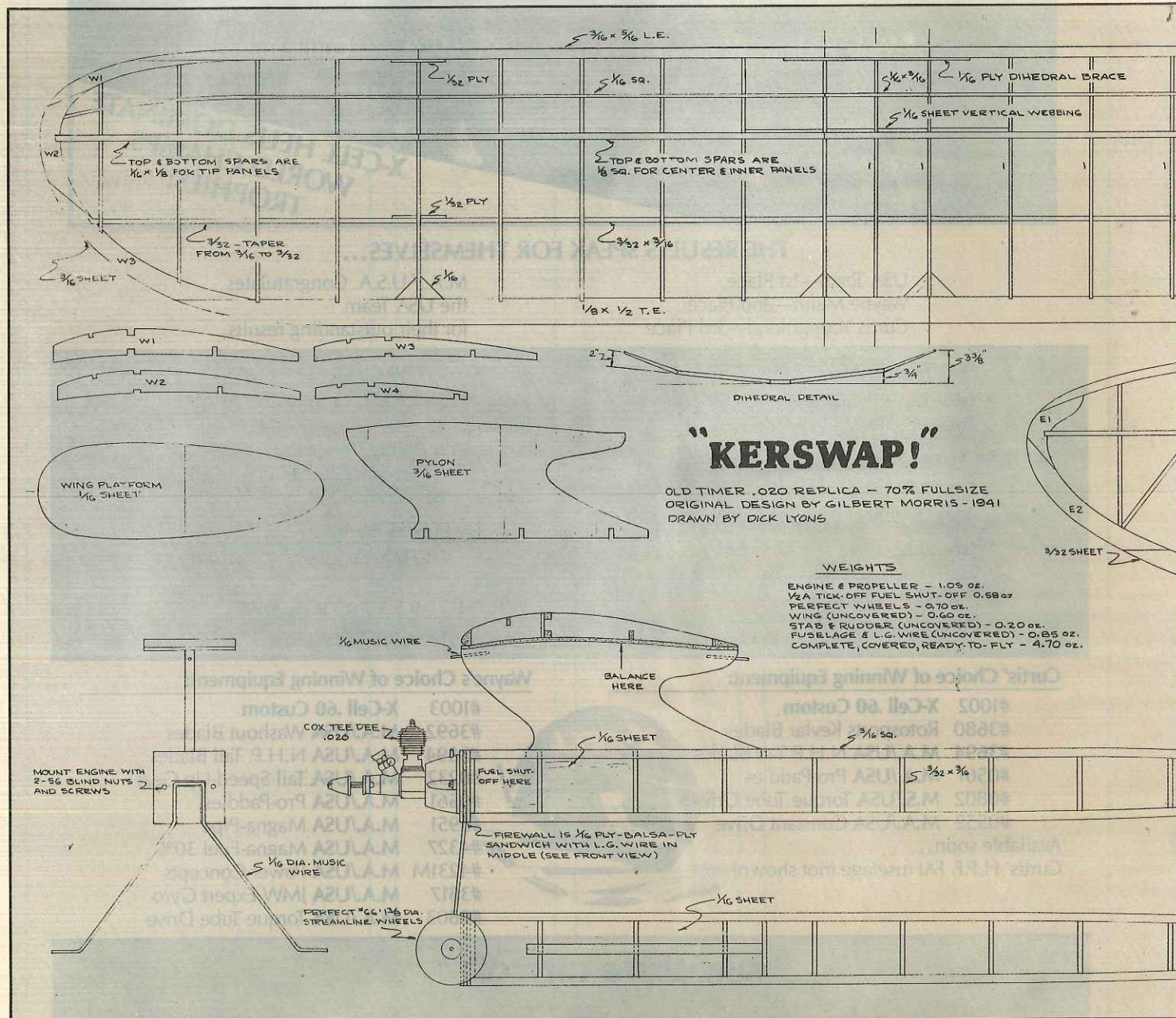
BY DICK LYONS

One of the most popular of the SAM Old Timer events is .020 Replica. It is open to any gas powered model designed, kitted, or plans published prior to January 1943, scaled down to be powered by a Cox Tee Dee .020 engine. It is an easy way to get into the fun of O.T. flying without the hassle of acquiring a spark ignition engine and learning how to make it run.

The Cox .020 always starts and these little models have

amazing performance and make great small field fun fliers.

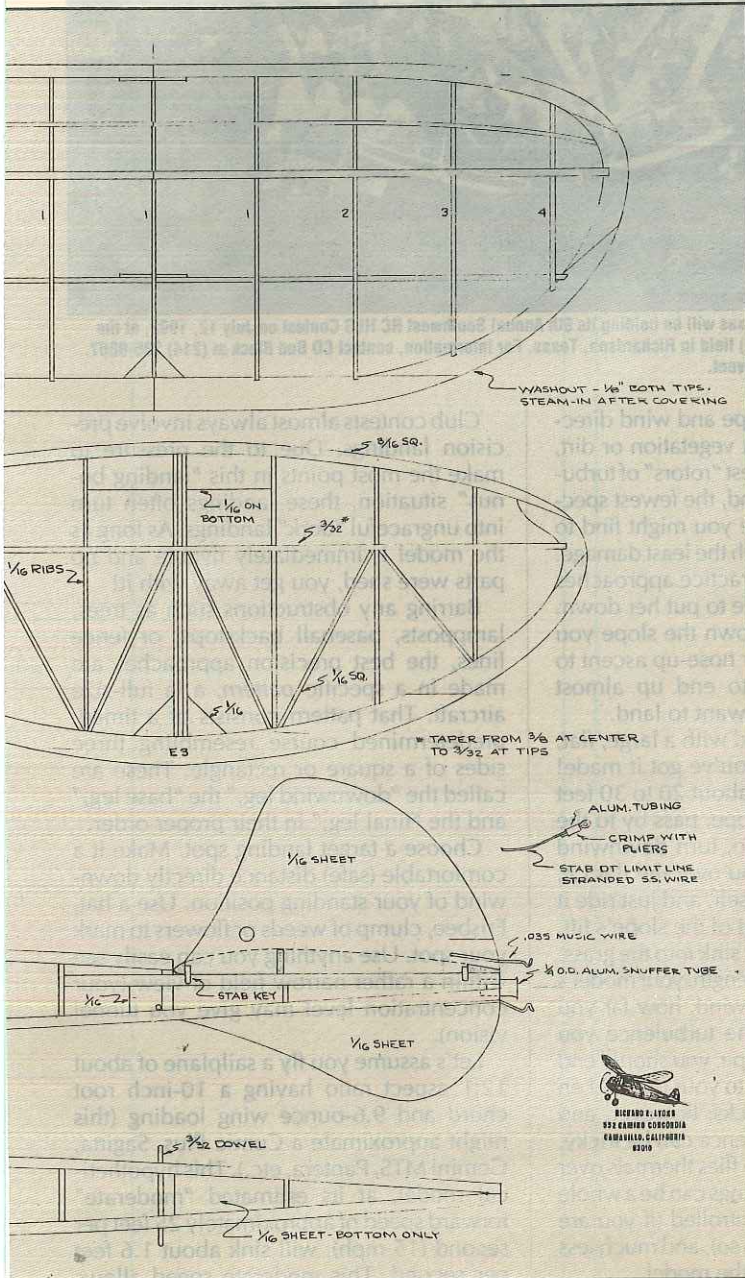
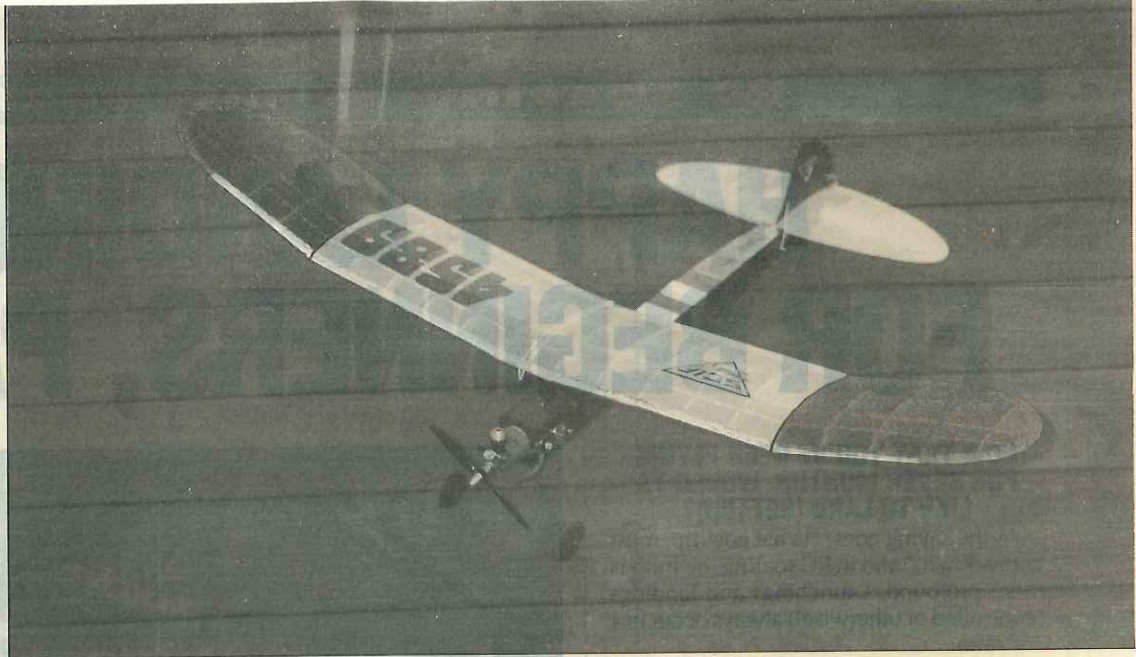
The Kerswap was designed in 1941 by Gil Morris, to be powered by an Ohlsson .19 or .23. I had built a full-size Kerswap and it was far and away the fastest climbing O.T. model I had ever seen. Of simple construction, it was a natural to be scaled down for .020 Replica. The original was scaled to about 70% of full-size and results in a 150 sq. in. wing, which is about the ideal size for .020s.



## CONSTRUCTION

The secret to a really good performing .020 Replica is light weight. All wood should be carefully selected of 4 to 6 lb./cu. ft. balsa to meet the weights shown on the plan. If you cannot find really light 3/16 square for the fuselage longerons, you can use 1/8 square. Use CA glue for all joints.

The basic construction is similar to that of a small rubber-powered model and should be obvious from the plan. There are no rib patterns for the stabilizer, as it is constructed the "old time" way. The full depth spar is put into place and then a rectangular piece of 1/16-inch sheet is cut and glued in place



for each rib. Then you cut and both wingtips. Add weight to the stabilizer airfoil shape. The stabilizer must also be keyed to the fuselage. I used short pieces of 3/32-inch dowel on each side at the leading and trailing edges. Fabricate a fire-proof DT limit line from fine stranded stainless steel fishing line leader, obtained from a sporting goods store. The method I used to make the limit line loops, using small pieces of aluminum tubing, is shown on the plan. The stab should pop up to 45 degrees for DT.

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The model is covered with Japanese tissue and was given four coats of Aero Gloss fuelproof clear dope. In addition, the firewall, pylon, sheeted areas on the front of the fuselage, and the underside of the wing for two rib bays from the pylon were given a coat of clear epoxy for increased resistance to high-nitro fuel.

## FLYING

Teaching the model to fly should be easy. Make sure all flying surfaces are flat, except for the 1/8-inch washout on

the nose or tail to obtain the balance point shown on the plan. The use of the rather heavy Perfect #66 wheels was used on the original for nose weight.

Hand glide the model and shim the stab as required to obtain a good glide. Make your first power flights with short engine runs (three to four seconds). Use rudder trim a little at a time to obtain a right turn power pattern. When the power pattern is okay, use stabilizer tilt for glide turn adjustment as required. The original was flown with a right-right flight pattern. It did not require any thrust adjustments, but others who have built the model found they needed some downthrust.

To obtain the maximum performance use a high-nitro fuel (50 to 65%), which will make your Tee Dee .020 really hum. The best I have found is Aero Dyno Mite, which is especially formulated for 1/4A and 1/2A engines. One other tip is to use the old original black Cox 4-1/2x props if you can find them. The blades are thinner and more flexible and they "unload" in flight like a good FAI prop. Aero Dyno Mite can be obtained from Aerodyne Fuels (Al Heinrich), 603B San Michel N., Costa Mesa, CA 92627; telephone (714) 646-8864.

I think you will find the Kerswap to be a great flier. It has been built and flown by quite a few others with great success. It is able to compete with any other Old Timer model, a great tribute to the original design. Thanks Gil! **MB**