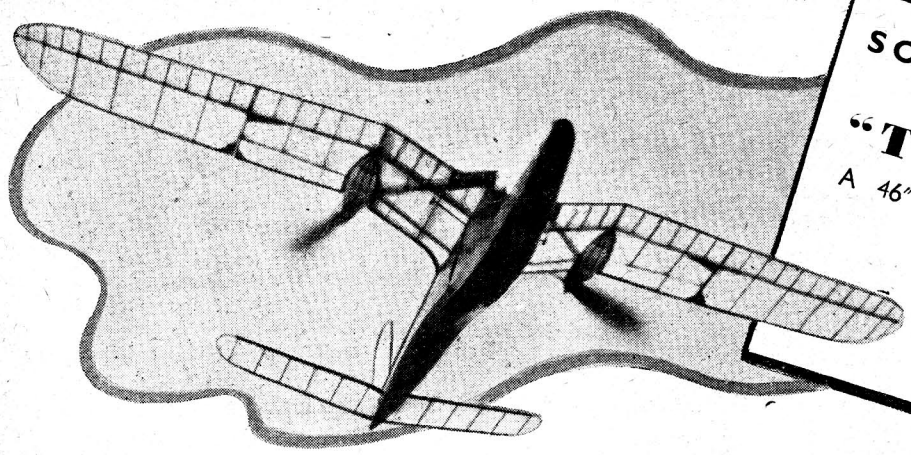

SOME NOTES ON THE "TWIN GULL"

A 46" SPAN "WAKEFIELD" TWIN PUSHER

DESIGNED BY C. RUPERT MOORE, A.R.C.A.

AS FEATURED ON FRONT COVER.

BEFORE starting, I refer you to the following articles in previous AERO MODELLERS :—" Flying Scale Blenheim," December, 1942, page 557 ; " Short Popjoy Scion," February, 1943, page 697 ; a " Wakefield Twin Gull " and " Soldering Simplified," both July, 1943, pages 945 and 974.

The fuselage sides, spars, centre section halves, wings and tail are all built on boards. The fuselage is assembled minus the top stringers. The two separate centre section halves are built flat, *omitting all riblets and ribs R2 and R3* until the shafts D2 and box spars are in place when the sections are completed.

The stirrups on shafts D2 are made from untempered steel and being soft with no spring in it, it is very easy to work. Shafts D1 and D2 can also be made of silver steel (mine are), but piano wire is better. The " Fork " prongs *must* be piano wire. Three tools are essential to make this drive : *small* round-nosed pliers, *small* square pointed-nosed ones, and a small steel cutting file.

The stirrups are bent to shape on the plan and cut to length. The necks are opened slightly to enable the flats to be filed and then closed again. Bind necks of stirrup with fuse wire and solder solid. There are four hardwood bearings made by making a bit of scrap shaft red hot and burning half away into the wood. The four bottom halves are cemented in. The brass bearing plates should be bent into square U's to fit the spar and the spar cut long enough to force the bearings against the stirrup necks and prevent end slap. The box spar ends should be well cemented and the shaft lowered into the box when the lid with the other half of the wood bearings is cemented in place. Bind over bearing plates with cotton and cement.

The distance between shafts D1 and D1 is determined by the distance between the centres of the stirrup bars as are the bushes in the gear box (regardless of the plan !).

In order that the nose block can be " broken " for stretch winding, the two top gears are soldered to shafts D1 and D1, leaving $\frac{5}{8}$ in. projecting to locate the two top bushes of the gear box. The other two gears are fixed to the nose block and the tension of the rubber holds them in mesh.

The front bearings for the shafts D1 should be made, the shafts put in the gear box and the bearing slotted on. The shafts should be threaded up the fuselage and the gear box pinned in place. Mark exactly length of shafts to central marks on stirrups, cut bearing spar from hard balsa and mark position for holes for shafts. The brass " fork plates " should be made in pairs by folding brass strip and drilling. Put a pair on each shaft end and bind between with fuse wire. Line up " prong " holes with match sticks and solder. Re-assemble gear box and shafts in fuselage and pin in place. Push " closed fork prongs " into " fork plates " over stirrup bars and solder lightly. Cement all bearings and bearing spar and while wet revolve the shafts, moving bearing plates for cutting or packing bearing spar until " *fork prongs* " *engage* " *sitrrup bar* " *during the complete revolution.* The propeller shafts and forks are built but the prongs are soldered and cut off to form " open forks." The joint is aligned as before.

The Starter.

In place of the box tube and brass square, which are not easy to get, use a screwed bush for the square and file to a square after soldering on the shaft. For the box tube bend tin round this bush and bind with fuse wire till it fits the starter spindle plug with wood and solder, then heat the spindle and push it right inside.

Rigging.

The model should balance on, or in front of, the marked C.G., *but not behind.* Unless very far forward or behind don't use ballast, trim by tail.

When gliding, properly learn to use the starter, NEVER WIND BY OR HOLD THE AIRSCREWS.

To wind, push the starter into the nose and locate the " Winder bar." Pull out the nose and wind as with airscrew. Replace nose, grip bobbin in the right hand and remove " Winder bar." Thread left wrist through the string loop and grasp bobbin in the left hand, remove the right hand and hold model with it as usual for launching. *Gently* release grip on bobbin and pull the revolving bobbin from the nose *by the string loop.* Downthrust is added by packing the top of the nacelle ends. If she turns look to the thrust lines and give side in one or both if necessary.

Before winding always make sure the open fork prongs are on opposite sides of the stirrup bars—it pays !