

Model 'n Tip

A special instructional feature for wingmen, with FULL-SIZE plans to build a flying model CESSNA 210 by **Ray Malmstrom**

Downthrust Angle

HAVING carefully balanced that rubber job and achieved a really flat glide how often has the first "power-on" flight resulted in a stall

or loop? The way to cure this trouble is *not* to add more weight to the nose, or move the wing back, but to incline the propeller driving shaft at an angle to the centre (or datum) line of your model. This angle is called the *downthrust* angle and is obtained by inserting a small piece of balsawood ($\frac{1}{8}$ - $\frac{3}{32}$ in. or so) between the top of the noseblock and the fuselage. Rubber powered models need more downthrust than engine-powered jobs and approximate degrees of downthrust for both types are shown in the diagram below. Remember when adjusting your downthrust, do so by a *small* amount at a time.

Now build the fascinating little Cessna 210 sheet model featured below. Incidentally you will notice that this little "fly-for-fun" job has

downthrust already built in. The real Cessna 210 American light plane is one of the few high-wing designs to feature a retractable U/C. Our model, therefore, has no undercarriage to build and you will find it a real "quickie." It is just the thing for that small patch of grass (or a large hall). Take your time, and build this little job accurately—and lightly (decorate it with coloured ball pens). Buy a 5 in. dia. plastic propeller from your model shop. Test on a calm day over long grass. With lubricated rubber, maximum turns are 350.

POWER:
9" LOOP $\frac{1}{8}$ STRIP

WING TIP \rightarrow

GIVE MODEL 1 COAT CLEAR DOPE. PIN DOWN PARTS WHILE DRYING TO AVOID WARPS

B1 JOIN TO B-B

CESSNA 210

ALL PARTS FULL SIZE

PIECE X $\frac{1}{8}$ SHT 2 OFF

BALANCE POINT \rightarrow

DOWNTHRUST ANGLE STOPS STALLING UNDER POWER

RUBBER JOBS \rightarrow 2°-4°

POWER JOBS \rightarrow 1°-2° OR NONE

WING

FUSELAGE $\frac{1}{8}$ SHT

18.SWG SHAFT AND BUSH \rightarrow

HOOK 18.SWG

PIECES X BOTH SIDES

WEIGHT RECESS

5" DIA. PLASTIC PROP \rightarrow

REAR FUSELAGE JOIN TO A1-A1 VERY ACCURATELY

SELLOTAPE OVER A1

WING JOIN

FIN FAIRING

OUTLINE OF TAILPLANE \rightarrow

FIN AND TAILPLANE $\frac{1}{16}$ SHT

CEMENT BUSH INTO SLOT

ADD SIDE PIECES X

PIECE Y

FIN

ADD SHAFT

TAILPLANE IN SLOT \rightarrow

STRIP OF SELLOTAPE

HOOK

TAPE \rightarrow