Indoor Motor Adjusting

by
Jack McGillivray
From a photocopy given to me by Nick Leonard Sr.

The object is to utilize the maximum number of turns wound into the rubber motor during an efficient flight. It should land upon the floor, just as all the turns are used up. The following are the methods of achieving this:

Problem #1: Model runs out of turns above the floor (Overpowered)

Solutions: A: Use another motor with a smaller cross-section, maintaining or increasing it's overall length.
B: Use another motor with the same cross-section, but with increased length.
C: Increase the propeller pitch, and/or prop diameter.
D: If the motor is new, the problem will diminish somewhat on the next flight.

Problem #2: The model lands upon the floor with unused turns left in the motor (Underpowered)

Solutions: A: Shorten the existing motor.
B: Use another motor with a larger cross-section, maintaining or shortening it's overall length.
C: Decrease propeller pitch, and/or propeller diameter.

Other factors:
If possible, the motor should exceed the airframe weight, but should not exceed double the airframe weight. On many models, though, motors this heavy cannot be utilized because of the high wing loadings. When the motor length exceeds the motorstick length by more than 2.5 times, vibration or rubber bunching can occur, spoiling the flight due to CG shift, and/or prop stoppage.

With each successive windup of the motor, power output will fall, particularly when maximum turns are applied, and insufficient rest periods are allowed between windings.