11. Dynamically balancing control surfaces and sealing hinge line gaps are highly recommended to prevent flutter. The absence of flutter must be demonstrated at the time of certification by flight through a representative sample of the normal maneuvers and speeds appropriate for the subject model airplane.
12. Self-launching sailplanes must conform to the powered LMA requirements, whether propeller or turbine powered, for the appropriate power type and weight classes.
13. If the model airplane is built from a commercially available kit, all servos installed must meet or exceed the kit manufacturers' specified torque.
    (a) A commercially available kit is defined as:
        - Any LMA built or assembled from a set of parts, instructions, specifications and plans that has been tested and subsequently made available to the public in kit form provided by a manufacturer.
        - Any LMA built from unaltered commercially published plans, either by parts being cut by the modeler/builder, or from the purchase of a "parts kit" from a commercial "kit cutter".
        - Proof of the manufacturer's servo recommendation is required for the Temporary Authorization to Fly. In lieu of that, servo torque calculations must be submitted.

    (b) All model airplanes with a Permit to Fly issue date prior to April 25, 2009 are exempt from complying with these requirements and will be grandfathered under the program rule approved by the EC on December 18, 2008.
    (c) If the airplane is not built from a commercially available kit then minimum servo torque required for the primary flight control surfaces that control pitch, roll, and yaw need to be computed per the following formula. Exceeding this minimum is always recommended.
    (d) The minimum torque requirement formula a conventional control surface is calculated as follows.

    Minimum torque = A *Chord *Span * Chord/3 * Servo Arm/Control Arm

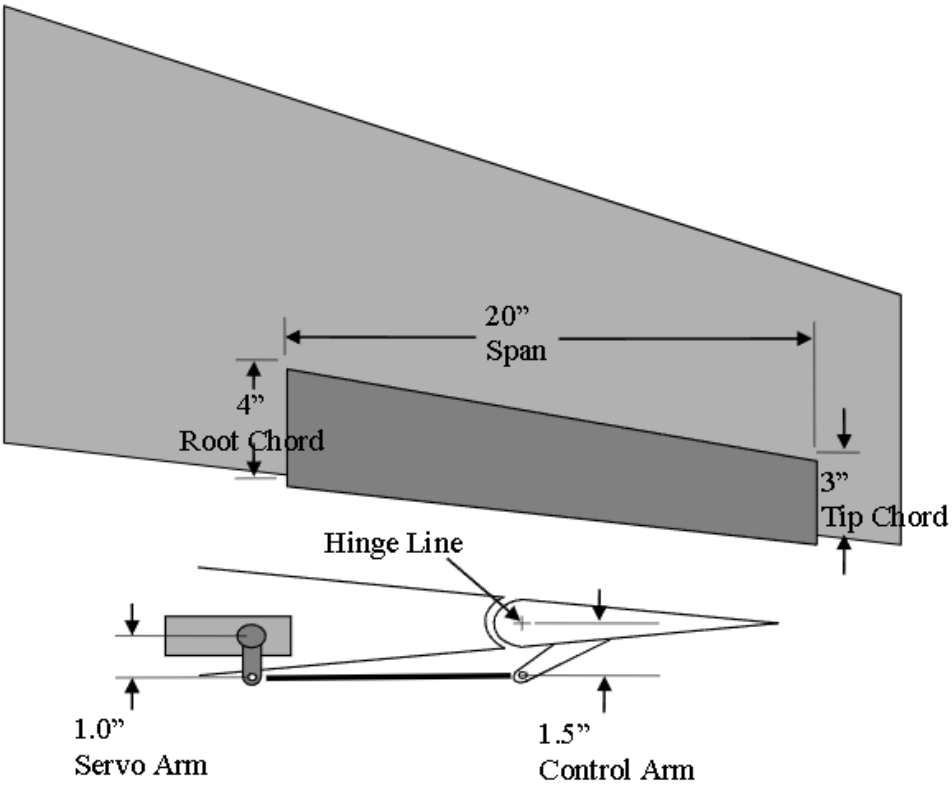
A =	Airspeed factor (see Table 1)
Chord =	average control surface chord (root chord + tip chord) / 2
Span =	control surface span
Servo Arm:	the distance from the center of the servo arm to the control linkage attachment.
Control Arm:	the distance from the hinge line to the control linkage attachment

Airspeed factor for use in both conventional and full flying formulas	
Propeller and soaring/gliding airplane whose flight regime will only include level flight, flat turns, gentle climbs and moderate dives	A = 1.25
Propeller and soaring/gliding airplane whose flight regime includes modest aerobatics, including loops, rolls, inverted flight and spins	A = 1.5
Propeller and soaring/gliding airplane whose flight regime includes unlimited aerobatics	A = 3.0
Turbine airplane whose flight regime will only include level flight, flat turns, gentle	A = 1.75

Airspeed factor for use in both conventional and full flying formulas	
climbs and moderate dives and whose speed will not exceed 140 mph (Also applies to sailplane/glider models with turbine self-launch systems)	
Turbine airplane whose flight regime includes unlimited aerobatics (Also applies to sailplane/glider models with turbine self-launch systems)	A = 4.0
Full flying control surfaces on airplane whose speed is limited to 140 mph or less (Applies to all LMA)	A = 3.0
Full flying control surfaces on airplane whose speed exceeds 140 mph (Applies to all LMA)	A = 6.0

Table 1

(e) The following sketch uses an example to show how the measurements are made. Cut outs in control surfaces should be ignored, such as a clearance in an elevator to make room for rudder movement. The calculation should be made as if the clearance had not been made. All measurements are in inches, the minimum torque is in oz-in.



This example uses the airspeed factor for a propeller aircraft whose flight regime includes unlimited aerobatics: A = 3.0

Chord = (4+3)/2 = 3.5

Minimum torque = A * Chord * Span * Chord/3 * Servo Arm/Control Arm
Minimum torque = 3.0 * 3.5 * 20 * (3.5/3) * (1/1.5) = **163.33**