Class II and III gliders should, in view of their use as trainers, be as free as possible from any spinning tendencies. Adequate control should be provided to aid in quick recovery as well as spin prevention.

All classes of gliders should have good control at speeds below the stall. There should be no tendency to fall off to one side after an accidental stall in straight flight. If such tendency exists, it should be possible to prevent it by normal use of the controls.

Gliders that will not spin may fall into a spiral dive. Since the speed in this maneuver is not limited as it is in a spin, the results may be serious. High-performance gliders, due to their clean design, may build up dangerous speeds in spiral dives with great rapidity. Hence, there should be adequate control to recover from this condition, as well as to prevent it.

FLUTTER AND VIBRATION.

Tail buffeting at speeds close to the stall, or in turns in the low speed range will not be considered objectionable, provided that it does not occur regularly at speeds normally used, and further provided that its magnitude is small and not harmful.

GROUND CHARACTERISTICS

Dangerous ground handling characteristics include the following:

a. Undue tendency to nose over.
b. Undue tendency to ground loop.
c. Possibility of injury to ground crew during normal operation.

FLIGHT TESTS

See CAAM 05.053c.

INSTRUMENT CALIBRATION

In the average glider flight test, the only instrument that must be accurately calibrated is the airspeed indicator. It must be possible to accurately determine the readings at the placard V_g, V_{taw}, V_{sf} and V_s (see also CAAM 05.713).

05.711 LOADING CONDITIONS (See also CAR 05.90)

In flight testing two place gliders, the weight of the passenger and equipment should be simulated by ballast placed in such a manner that the normal loading conditions are represented as closely as possible.

In cases where the pilot is too heavy to make flight tests at extreme aft C.G. positions, such as might be encountered in a single place ship with a light pilot, dumpable ballast may be added to the tail, provided the allowable gross weight is not exceeded. Since this procedure may cause the glider to enter a flat spin, extreme caution should be observed.

Tests will be considered unsatisfactory if tail heaviness or unfavorable spinning characteristics are evident. Tests should include C.G. locations resulting from the following loading conditions:

a. For Single Place Gliders: Pilot weight 100 lbs.; all equipment in rearmost position.
b. For Two Place Gliders, Tandem: 100 lb. person in front seat, 220 lb. person in rear seat, and all equipment in rearmost position. (It is assumed that the rear seat is aft of the C.G.)
c. Two Place Gliders, Side by Side: Same as a except that the C.G. position should be satisfactory with a 100 lb. pilot and a 100 lb. passenger without the use of removable ballast.

If the above conditions cannot be met, the glider should be placarded to prevent unfavorable combination of pilot and passenger weights. (See also CAR 05.730 and CAAM 05.7110).

05.7110 BALLAST

The use of weights for balancing is not recommended except in the case of two place gliders when the absence of a passenger will cause the C.G. to fall outside the certified limits. In such cases, a standard weight, or set of weights, should be supplied with the glider. A standard means of installation of these weights should be provided and plainly marked.

If permanent ballast be used, it should be so marked and installed in such a location and in such a manner that it is in no danger of being disturbed.

05.713 AIRSPEED INDICATOR CALIBRATION

One of the acceptable methods of calibration for airspeed indicators is to install an additional airspeed indicator which has been previously calibrated. The pitot-static or pitot-venturi unit for this indicator should be mounted on a long rod about four feet ahead of one wing tip. The readings given by this indicator will be correct, within the required limits, and may be used to calibrate the one supplied with the glider. All calibration should be made in free flight. In certain cases it may be advantageous to use a trailing bomb to calibrate the airspeed indicator.

05.730 CENTER OF GRAVITY LIMITATIONS

See CAAM 05.711.