

## 2.10. USHPA Hang Gliding Aerotow Ratings

The following requirements apply to the equipment and pilots employed in the towing of unpowered by powered ultralight vehicles, hang gliders by tugs respectively.

### A. Vehicles

1. The tug must have a rated thrust of at least 250 lbs.
2. The glider must meet the Hang Glider Manufacturers Association's airworthiness standards.
3. The tow attachment mountings on both vehicles must be able to sustain without damage 700 pounds of tow tension.

### B. Connections

1. The tow line and/or bridle connections must be configured so as to not unduly impede control of either vehicle. Where connections incorporate the use of one or more bridles these are considered to be extensions of the tow line.
2. Tow lines and their extensions must be constructed of braided low stretch materials.
3. All components other than weak links which transmit tension between the vehicles (attachment hardware, bridles, releases) must reliably withstand a minimum of 675 pounds of tow tension. The tow line and rings must have rated 1000 pound minimum safe working loads.
4. Tow rings at the ends of the tow line must be of designs which minimize the tendency of a bridle to wrap or snag, cause no undue wear or abrasion of bridles, and minimize the probability of snagging the glider.
5. Bridles
  - a. The length of a bridle spanning upper and lower attachment points (two point) must be of sufficient length to form an apex angle of 60 degrees or less and of a design which minimizes the tendency to wrap at the tow ring.
  - b. A bridle which is a component of an assembly spanning the shoulders of the glider pilot (one point) must be configured such that the distance between a releasable end and the apex does not exceed 12 centimeters.
  - c. A sailmaker's thimble must be installed in the lower eye of a two point (primary) bridle where it interfaces with a secondary (one point) bridle.

### 6. Weak Links

- a. Weak links must be installed at both ends of the tow line proper and/or its extensions.
- b. Any bridle long enough to present a hazard must have weak links installed above and below the tow ring.
- c. Weak links at the glider end must be rated to maximize the tow line tension at between 1.0 and 2.0 times the glider's maximum recommended operating weight, with a factor of 1.4 being strongly recommended, and limit the tow line tension to a maximum of 675 pounds.
- d. On bridles having upper and lower attachment points weak links installed below the tow rings must be a minimum of 20 percent stronger than those above.
- e. Tug end weak links must be reliably stronger but no more than 25 percent above those of the aft ratings.

### 7. Releases

- a. Any release design employed in the connections which engages a bridle end must:
  - i. have demonstrated to function infallibly, easily, and instantly under direct loading from 0 to 390 pounds without damage and with the required actuation effort recorded and not exceeding 25 pounds;
  - ii. be configured such that they are operational by the pilot in command without necessitating the moving of a hand or foot from a control (joystick, rudder pedal, basetube, downtube) except that in a slack line situation it is allowable to employ a one point / secondary release which requires one hand to be removed from the basetube for a maximum period of two seconds;
  - iii. have been demonstrated to reliably retain connections in all circumstances, releasing only upon pilot actuation; and
  - iv. have no components which present a potential for interference with the travel of a bridle or tow line or necessitate the removal of a glider's basetube wheels for installation.
- b. Any release which is subjected to the undivided tow tension must meet all of the above relevant requirements with the range extended to 675 pounds.
- c. When the glider incorporates a bridle with a releasable upper attachment point it is required that a secondary release be employed below the tow ring. This release must adhere to all the specifications of the primary release and be used only in the event that the bridle wraps at the tow ring following an upper point separation.

8. Whenever a configuration is employed in which the tow line is exposed to a possibility of significant twisting a swivel must be installed at its front end.

### C. Aerotowing Operational Standards

1. Aerotowing operations shall be conducted in compliance with the requirements of FAA Exemption #4144 (see Addendum 2).
2. No pilot may intentionally release a tow line in a manner so as to endanger life or property.
3. The tug and glider pilots must have an agreed upon general course of action including airspeeds and emergency procedures.

4. The glider must stay well clear of the tug after release and during landing so as to avoid wake turbulence.

5. Free flying ultralight gliders should stay clear of the towing pattern.

#### D. Aero Tug Pilot Rating (ATP)

To attain the Aerotow Tug Pilot rating required to tow a glider a candidate must complete the following requirements.

1. Satisfy Aerotow Special Skill Requirements 1 through 6 (below).

2. Either:

a. posses an FAA private pilot license with single engine rating; or

b. log 100 hours of powered ultralight airtime, however for weight shift trike tugs half of the time may be qualified with hang gliding experience.

2. Log:

a. 10 hours in tug type; and

b. 5 flights each on an aerotowed hang glider, solo or tandem, and as a tug pilot towing an Advanced rated pilot highly experienced in aerotowing, with practice of turns in both directions, control of airspeed and throttle to correct for glider position, and simulated emergency procedures.

3. Successfully complete the Intermediate and Advanced pilot written examinations.

#### E. Aerotow Special Skill (AT)

The Aerotow Special Skill is an endorsement of one's ability to safely launch and tow behind a tug, is available to Novice and above rated pilots, may be demonstrated through foot or dolly launch procedures, and is required for pilots not under the supervision of an aerotow official. The applicant must:

1. carry a copy of FAA Exemption No. 4144;

2. be familiar with the signal standards illustrated in the FAA Glider Flying Handbook (FAA-H-8083-13 - [www.faa.gov/library/manuals/aircraft/glider\\_handbook/](http://www.faa.gov/library/manuals/aircraft/glider_handbook/)) and the USHPA Aerotowing Guidelines;

3. demonstrate complete understanding of aerotow vehicle operations including checklists, the importance of proper positioning and tension management, indications of impending emergencies, and normal and emergency procedures;

4. fully understand the components of the tow system (connections, tow line, releases, weak links) and their potential effects on the vehicles, both in general and specific to the systems being employed, and demonstrate their assembly and preflight;

5. convince the aerotow official of ability to execute emergency procedures;

6. understand and adhere to the protocols described in this Section 10 and the USHPA Aerotowing Guidelines;

7. demonstrate an understanding of the correct use of airspeed to achieve maximum distance in various conditions and the likely presence of wind, lift, and sink over various types of terrain; and

8. demonstrate in typical soaring conditions a minimum of five confident, properly controlled launches with smooth transitions and under tow flights including turns.

#### F. Aerotow Instruction

1. All Instructors of aerotowing must possess a USHPA Instructor certification and be either an AT Administrator, AT Supervisor, or Advanced Instructor with the AT Special Skill.

2. The AT Special Skill may be issued by an AT Administrator, AT Supervisor, or Advanced Instructor or Observer with the AT Special Skill.

3. All instructors who utilize aerotowing for instruction shall keep a written log of all such flights, including dates, students' names, and locations.

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Petitioner's Supportive Information  
Paragraphs 1-12

The following requirements must be understood and adhered to.

1. Both vehicles (powered and unpowered ultralight) must meet the vehicle standards of Part 103.

2. Both vehicles must meet the requirements specified in the Hang Gliding Aerotow Ratings section of the USHPA's Standard Operation Procedures.

3. While towing, both vehicles may be used for recreational purposes only.

4. The pilot of the powered ultralight vehicle (tug) must have in his possession a current tow rating issued by the USHPA.

5. The pilot of the unpowered ultralight vehicle (glider) must have in his possession a current pilot rating issued by the USHPA. This rating shall be at least Intermediate (level 3) for a recreational pilot or Novice (level 2) for a student pilot under the supervision of a USHGA certified instructor.

6. The glider may be used for two place instructional purposes if the instructor possesses a current USHGA instructor rating and is operating under the conditions of the two place exemption.

7. Prior to a student's first flight in a towed glider the tug pilot and instructor must inform him that instruction under aerotow is conducted under an exemption granted to the USHPA by the FAA.
8. The instructor must maintained for 12 calendar months a written record of all operations conducted under this exemption including the date, location, and student's name and shall present this record for inspection upon reasonable request by the USHPA or FAA.
9. The instructor shall within 30 days notify the USHPA of any accident occurring while operating under this exemption. This information shall be made available upon reasonable request by the FAA.
10. The structural integrity of the tow hitch and line must be substantiated in accordance with the specifications of the Standard Operating Procedures and recorded in the tug's records by the owner.
11. The capability of the tug to satisfactorily tow and release a glider must be demonstrated to a USHGA observer in an assigned test area under actual operational conditions and be recorded in the tow vehicle records.
12. Both tug and glider pilots must obey operational procedures set forth in the Standard Operating Procedures.

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