



Tow Procedures and Signals



The Regs: 14 CFR § 91.309

(a) No person may operate a civil aircraft towing a glider unless --

~~(1) The pilot in command of the towing aircraft is qualified under § 61.60 of this chapter;~~

(2) The towing aircraft is equipped with a tow-hitch of a kind, and installed in a manner, that is approved by the Administrator;

(3) The towline used has breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not more than twice this operating weight. However, the towline used may have a breaking strength more than twice the maximum certificated operating weight of the glider if --

(i) A safety link is installed at the point of attachment of the towline to the glider with a breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not greater than twice this operating weight.

(ii) A safety link is installed at the point of attachment of the towline to the towing aircraft with a breaking strength greater, but not more than 25 percent greater, than that of the safety link at the towed glider end of the towline and not greater than twice the maximum certificated operating weight of the glider;

(4) Before conducting any towing operation within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport, or before making each towing flight within such controlled airspace if required by ATC, the pilot in command notifies the control tower. If a control tower does not exist or is not in operation, the pilot in command must notify the FAA flight service station serving that controlled airspace before conducting any towing operations in that airspace; and

(5) The pilots of the towing aircraft and the glider have agreed upon a general course of action, including takeoff and release signals, airspeeds, and emergency procedures for each pilot.

(b) No pilot of a civil aircraft may intentionally release a towline, after release of a glider, in a manner that endangers the life or property of another.



Signals: In the Air

SSF Soaring Safety Foundation

Blanik L-13 ACCIDENT

- PIC was a 52 year old private pilot with approximately 450 hours total time and 4 hours in the L-13.
 - Pilot was giving a young person his first aircraft ride.
 - At 1100 feet AGL the tow plane signaled the glider that his spoilers were out.
 - He released and returned to the airfield.
 - Landed hard.
 - Aircraft totaled - no injuries.
- The PIC was a 52 year old private pilot with 450 hours of total time and 4 hours in the L-13. His time was a combination of powered and glider time.
 - He was giving a young lady her first aircraft ride.
 - At 1100 feet AGL the tow plane, a Piper Pawnee, signaled the glider that his spoilers were out.
 - The PIC misread the signal and immediately released and turned toward the field.
 - After arriving at the field the PIC executed a non-standard pattern and landed hard.
 - No one was injured but the aircraft was totaled.

Signals: On the Ground


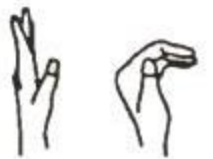










ASK-21 Accident

- PIC was experienced commercial pilot giving a ride
- Tow pilot was highly experienced with several thousand tows given
- Tug experienced power loss on take-off roll, released glider and **rolled right** off the runway;
- Glider turned also **rolled right** and hit the tug;
- Glider substantially damaged – No injuries

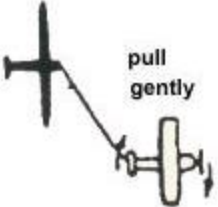
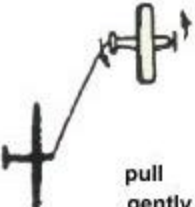
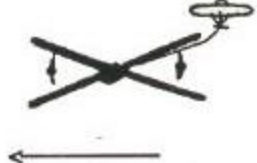




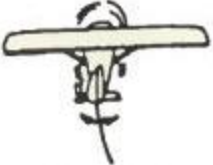
- Why did both aircraft turn off the runway in the same direction?
- What are the standard Procedures in this situation?

On the Ground

<p>1. CHECK CONTROLS</p> 	<p>2. OPEN/CLOSE</p>  <p>TOW RELEASE</p>	<p>3. TAKE UP SLACK</p> 	<p>4. HOLD</p> 	<p>5. PILOT READY, LEVEL WINGS</p> 
<p>6. BEGIN TAKE-OFF</p>  <p>GROUND CREW</p>	<p>7. BEGIN TAKE-OFF</p>  <p>waggle rudder GLIDER PILOT</p>	<p>8. STOP ENGINE/ RELEASE TOWLINE</p> 	<p>9. STOP OPERATION</p>  <p>EMERGENCY!</p>	<p>10. TOWPLANE READY</p>  <p>waggle rudder</p>

ON GROUND

In the Air

<p>1. TURN RIGHT</p>  <p>pull gently</p>	<p>2. TURN LEFT</p>  <p>pull gently</p>	<p>3. SAILPLANE CANNOT RELEASE</p>  <p>move out, then rock wings</p>	<p>4. INCREASE SPEED</p>  <p>rock wings</p>
<p>5. DECREASE SPEED</p>  <p>fishtail</p>	<p>6. RELEASE <u>NOW</u>!</p>  <p>rock wings</p>	<p>7. TOWPLANE CANNOT RELEASE</p>  <p>towplane fishtail</p>	<p>8. WARNING – SPOILERS OUT</p>  <p>waggle rudder</p>

IN AIR



Remember

- Both of these incidents reviewed in some manner involved a lack of coordination/understanding between glider and tow pilot;
- § 91.309 requires the glider pilot and tow pilot to have an agreed upon course of action;
- We use standardized signals and our club procedures as a means of achieving this requirement.
- So, know the signals and the procedures and remember:
 - Don't Confuse the Wing rock (get off now) and rudder waggle (something wrong/check spoilers);
 - We generally will not use the rudder waggle if we are still climbing and not going to hit something because it has been misinterpreted more than once;
 - Procedures on the ground are the same as in the air after release:
 - Tow Plane rolls: Left (obstacles permitting) or straight ahead;
 - Glider rolls: Right of tow plane.