# TSC TOW PILOT NOTES

The purpose of this document is to provide basic guidance on preferred procedures and those specific to the Toronto Soaring Club. Nothing in this document may be construed to supersede CARs or good judgment.

**General**

**Qualification**

1. To act as Tow Pilot, (s)he:
    a. Must be eligible for coverage under the TSC Insurance Policy;
    b. Must hold a valid Private Pilot License or higher;
    c. Must have a current and valid medical,
    d. Must have had a towing and/or recency check-flight by the Chief Tow Pilot (CTP) or appointed Check Pilot within the previous six months. This flight must be identified in the pilot's personal logbook.
    e. For pilots with less than 25hrs on type, have flown the same type within 60 days.
    f. Pilots with less than 25hrs towing on type should not conduct aero retrieves without permission from the CTP or a designated check pilot.
    g. Should have a minimum of 100 hours flight time as P1 on powered aircraft;
    h. Should hold, or be working on their Glider Pilot License
    i. Must have a logbook entry indicating that they have been checked out in taildragger-type aircraft;

**Duties**

1. The Duty Tow Pilot is expected to manage the tow plane operations on their scheduled days, usually by performing them or arranging assistance in their performance. If unable, (s)he is expected to find a replacement for the duty day, normally by (in order of preference):
    a. Arranging substitution with one of the "Relief Tow Pilots", or
    b. Trade days with another willing Tow Pilot, or
    c. Advise the CTP and/or CFI that the day will not be covered.

    The scheduled duty tow pilot must advise the duty instructor and CTP of any trades before the duty day.

2. Given that safety of flight is paramount, Tow Pilot daily responsibilities include:
    a. Rollout of the tow plane from the hanger before the start of operations;
    b. Perform the Daily Inspection of the tow plane;
    c. Ensure the tow plane is clean;
    d. Make go/no-go decisions about tow plane/tow-load performance/field condition;
    e. Minimize tow cycle times; Test flights are generally NOT required at the beginning of the day.
    f. Refuel the tow plane as needed throughout the flying day and at the end of flying operations;
    g. Eat and hydrate throughout the day, taking breaks as necessary. If able, find a replacement Tow Pilot during breaks.
    h. Clean-off bugs at the end of the day and return the tow plane to the hangar after the end of flight operations;
    i. Fill and sign the journey logs; and

j. Advise the Director of Maintenance and/or the CTP of snags.

3. The duty tow pilot is not required to tow all flights. The duty tow pilots can invite others to share the workload. A tow pilot should not fly more than 2hrs continuous without a rest period. Qualified tow pilots can offer to help the duty tow pilot with towing duties.

4. Every flight must be recorded in the daily flight sheet with pilot's names when not towing (e.g. annual check , training, currency flight, etc). (CARS requirement to record each flight.)

5. Uses of the TSC tow plane:
    a. Towing, YES! (Always has priority over other uses.);
    b. Annual/recurrency checks, and tow-pilot training – yes;
    c. Aero-retrieves from suitable fields – yes;
    d. Taildragger training – no;
    e. Aerobatics – NO! (the Citabria does not have the required spar or strut AD completed); and
    f. Familiarization/pleasure flights – with prior permission of a member of the Board of Directors.

**Operations Notes**

**Engine Starting**

Contrary to popular belief, warming the engine oil by idling is not good for the engine. 2-3 shots of primer may be required, particularly during the first start of the day. Start with both mags on. Radio on after the engine is running. The engine is ready for service once the oil pressure has stabilized in the green. Mag-check is required only before the day's first flight.

**Take-Off**

Identify the glider type and pilot being towed. (student? tow speed? water ballast? – ask if uncertain)

| | **Typical Tow Speed (mph)** |
|---|---|
| K13 | 60 |
| Puch | 65 |
| Junior | 65 |
| | |
| KA6,SF27 | 60 |
| Single - glass | 70 |
| Single – glass + water | Ask Glider Pilot |

Select appropriate flap for take-off. Usually none is required for singles, while 1 or 2 notches may be desired for heavy/hot conditions to shorten the take-off roll.

After tow rope hook-up, follow signals to "Take Up Slack", without pulling the glider forward as it could roll over the rope.

Upon receiving the "All Out" signal, smoothly apply full power. Do not slam it. If desired to shorten take-off roll on hot/heavy days, hold with brakes until full power is developed. Be careful not to jerk the rope.

Accelerate to take-off speed, lift off, and then hold in ground-effect to accelerate to tow speed.

**Tow**

Climb at maximum power until a safe altitude is reached. On hot/heavy days watch the EGT and reduce power and/or the nose to maximize cooling.

Use any available lift to reduce the climb time. Coring thermals while towing requires experienced pilots in both aircraft. Know who is on tow and act accordingly. Thermalling with students on tow is prohibited. Entering any thermal occupied by another glider is prohibited within 1000'.

Avoid overflying the same houses. Avoid overflying the turkey farm (and St. Patrick's Church whenever cars are present). Avoid the glider circuit. Try to keep the glider in range of the airstrip while on tow.

Keep an active lookout.

**Release**

Make a reasonable attempt to tow the glider towards lift when approaching release height. The glider should release at or before the pre-arranged tow height when lift has been encountered.

Plan the tow so that the release point allows both planes to turn without conflicting with other planes. Upon reaching the release height, level and reduce power to maintain speed. When the release is felt, visually confirm the departure before reducing power and diving to the left. Maintain visual contact with the glider throughout.

**Descent**

Maintain partial power in descent to keep from shock-cooling the engine – approx. 1900-2100 RPM for at least 30 seconds. Descent in sinking air; steep turns can help increase descent rate. Plan the descent path away from the glider circuit while minimizing the tow cycle time. Maintain an active lookout.

**Journey Log Book**

Check the previous log entry for accuracy. Be neat!

**Flight Time = New Tach Time – Previous Tach Time (record in 1/100$^{th}$)**

**Air Time = 0.85 * Flight Time (record in 1/10 hr)**

(use sheet below if no calculator is available)
**Example:** Increase in Tach = 3.36
Air time = 2.6 + 0.3 = 2.9

| **Tach time** | **Air Time** | |
|---|---|---|
| 5.00 | 4.3 | |
| 4.00 | 3.4 | |
| 3.00 | 2.6 | |
| 2.00 | 1.7 | |
| 1.00 | 0.9 | |
| **Find Closest Tach** | **Air Time** | |
| 1.06 | 0.9 | |
| 0.94 | 0.8 | |
| 0.82 | 0.7 | |
| 0.71 | 0.6 | |
| 0.59 | 0.5 | |
| 0.47 | 0.4 | |
| 0.35 | 0.3 | |
| 0.24 | 0.2 | |
| 0.12 | 0.1 | |
| 0.00 | 0.0 | |