

## **2019 Big Spring Risk Management Plan**

The purpose of this Risk Management Plan is to minimize the risks of injury to pilots, staff, and spectators, and of property damage, as they relate to the hang gliding activities in 2019 during USHPA and CIVL Category 2 sanctioned competition (including the official practice day) at the Big Spring McMahon-Wrinkle Airport (<https://www.airnav.com/airport/KBPG>)

This plan identifies the actions required to mitigate the risks identified in the Big Spring site risk assessments worksheet using the USHPA Hang Glider Site Risk Assessment Worksheet.

We have run competitions for fifteen years at Big Spring without mishap including the 2007 World Championship.

### **1. Site Overview**

Big Spring McMahon-Wrinkle Airport is a former air force training base. The Big Spring McMahon-Wrinkle Airport, owned and operated by the City of Big Spring, is a general aviation airport. The airport, which occupies approximately 2,200 acres of land, operates two runways: Runway 17/35, which measures 8,802 feet in length and 100 feet in width; and Runway 06/24, measuring 4,601 feet in length and 75 feet in width.

We will take off not from the runways but from the taxi ways. Our preferred site is the south end of the west taxi way. We use a small runway for east or west launches, which are very rare.

Coordinates for the competition are 32° 12.883'N, 101° 31.614'W.

The maps of the launch areas and the anticipated goals are included in Section 6.

## 2. Personnel

**Meet Organizers-** Davis Straub and Belinda Boulter

**Meet Director** – Belinda Boulter

**Tow Plane Director** – Jim Prah

**Safety Director** – Jim Prah and Mick Howard

**Safety Committee** – Davis Straub, Rudy Gotes, Tom McHowan

**Launch Director** – Thor Froh

**Weather Forecasting** – Davis Straub

**Task Committee** – Bruce Barmakian, Kevin Carter, Dan Lukaszewicz, Mitch Shipley

**Scorekeeper** - Kate Griffin

**Launch Line Assistants** – TBD

**Protest Committee** – None unless required and then by the meet director

**Staff Volunteers** – Big Spring citizens committee

**Pilots** – up to 150 pilots in all classes.

### 3. Position Descriptions

#### A. Meet Organizers

Responsible for ensuring that the competition is safe and successful, and meets all requirements set forth in the USHPA Sanction Manual, USHPA Race To Goal Competition Rulebook and the FAI Sporting Code Sections 7 and 7A for hang gliding, as well as the local rules (see below). They are responsible for all organizational matters before, during, and after the event including but not limited to the following:

1. Complete and submit USHPA and CIVL Sanction and bid applications.
2. Gather all the information listed in the Event Insurance Preparation List.
3. Complete the Big Spring Site Risk Assessment Worksheet with all the appropriate signatures.
4. Develop the Risk Management Plan for Big Spring.
5. Complete Tow Device Supplemental Application.
6. Complete USHPA Event Insurance application and work with the USHPA and the RRRG to get it approved.
7. Complete CIVL Category 1 and 2 Sanction applications, where applicable.
8. Communicate the Risk Management Plan to all participants prior to the event.
9. Provide information about emergency facilities nearest to launch. The information can be included in the registration package or posted at the meet. When the information is posted, competitors and drivers must be notified of where to find the emergency information at the pilot briefings.
10. Develop and communicate the Emergency Response Plan (Appendix A) to all participants.
  - a. Ensure Incident Information Collection Form (Appendix B) and CIVL Incident Report Form are used as part of the response. These forms are printed and used to collect the incident reports in the field for later use in filling out the on-line reports.
  - b. Submit accident reports to USHPA using the USHPA incident report page: <https://www.ushpa.org/page/incident> and here: <https://www.ushpa.org/page/incident-report> and as an additional option here: the Accident Incident Reporting System (<http://airs.ushpa.aero>) and to CIVL (on-line here: [http://civlrankings.fai.org/FL.aspx?a=357&person\\_id=6143&](http://civlrankings.fai.org/FL.aspx?a=357&person_id=6143&)) immediately after the competition.
  - c. Report all accidents and incidents using the Potential Claim Notification form (available on the AIRS "Thank You" page) within 7 days after the conclusion of the competition.
11. Communicate to responsible parties of increased air traffic during the event.
12. Validate on-line pilot USHPA membership, FAI Sporting License, and that pilot proficiency ratings meet the minimum requirements for the event.
13. Provide thirty-day USHPA membership forms to be filled out and paid for by foreign pilots. Check foreign pilot proficiency ratings on-site using the International Pilot Proficiency Identification (IPPI) card.

14. Provide document access to all participants for FAR 103 (<https://www.eaa.org/en/aaa/aviation-communities-and-interests/ultralights-and-ultralight-aircraft/getting-started-in-ultralight-flying/about-faa-part-103-for-ultralights>), CIVL Sporting Code, USHPA Competition Rule Book, and Sanction Manual (<https://www.usHPA.org/page/download.aspx?DocKey=526> and the local rules.
15. Provide maps of the airport delineating parking, camping, spectator viewing, set up/teardown, tow plane, staging/launch and landing areas.
16. Provide maps of the task area controlled airspace.
17. Procure competition staffing team.
18. Make sure that all competitors, staff, volunteers and persons involved with the running of the meet sign the then-current USHPA competition/event waiver (available at [http://www.usHPA.aero/forms/Info\\_USHPA\\_Release\\_Waiver\\_Competition.pdf](http://www.usHPA.aero/forms/Info_USHPA_Release_Waiver_Competition.pdf)) prior to assisting or participating in, any meet activities. Make sure that anyone under 18 have the signed consent of a legal guardian on the waiver.
19. Have all competitors, staff, volunteers and persons involved with the running of the meet sign all additional waivers.
20. Offer site briefing to all participants prior to the start of the competition.
21. Provide a first aid kit.
22. Provide adequate restroom facilities.
23. Provide the required number of trophies and recognition.
24. Procure sufficient tow planes and pilots to handle the pilot demand.
25. Submit all official meet results to USHPA within 10 days and to CIVL within 30 days of the end of the competition.
26. Provide awards to the top three finishers in the Open/Sport classes and the top finishers in the rigid class and women in both classes. Identify the top 10 overall.
27. Notify the pilots that they will be requested to complete an on-line survey from USHPA to improve future competitions.
28. Provide list of participants, their USHPA numbers, and their email addresses to the USHPA office for NTSS scoring and the Online Survey.
29. Convene with the Meet/Safety Director each day to evaluate whether the conditions (i.e. wind speed, direction, gust factor) for the upcoming day will support safe towing operations.

## B. Meet Director

Works in concert with the Meet Organizers to ensure the competition is safe, successful and meets all requirements in the USHPA Sanction Manual, USHPA Race To Goal Competition Rulebook, the FAI Sporting Code Sections 7 and 7A, and the local rules. She is responsible for the overall safe conduct of the competition including but not limited to the following:

1. Work closely with Meet Organizers prior to the competition to ensure all organizational aspects are being adequately addressed.
2. Conduct the initial mandatory pilot briefing referring to the Risk Management Plan and the local rules as necessary. Parts of this briefing may be delegated.
3. Conduct daily pilot briefings covering safety first, daily winners, weather conditions and tasks for the day.
4. Provide oversight for the implementation of the Emergency Response Plan (Appendix A) for any significant safety event.
  - a. Ensure Incident Information Collection Form (Appendix B) and CIVL Incident Report Form are used as part of the response. These forms are printed and used to collect the incident reports in the field for later use in filling out the on-line reports.
  - b. Submit accident reports to USHPA using the USHPA incident report page: <https://www.ushpa.org/page/incident> and here: <https://www.ushpa.org/page/incident-report> and as an additional option here: the Accident Incident Reporting System (<http://airs.ushpa.aero>) and to CIVL (on-line here: [http://civlratings.fai.org/FL.aspx?a=357&person\\_id=6143&](http://civlratings.fai.org/FL.aspx?a=357&person_id=6143&)) immediately after the competition.
  - c. Report all accidents and incidents using the Potential Claim Notification form (available on the AIRS "Thank You" page) within 7 days after the conclusion of the competition.
5. Continually assess conditions at Big Spring McMahon-Wrinkle Airport for newly created hazards that could possibly impact the safety of the pilots, staff, spectators, public and property. Immediately implement actions to mitigate those hazards and communicate to all personnel as soon as practical.
6. Closely monitor weather reports and changing conditions. When adverse conditions arise consult with the Safety Director to possibly suspend towing operations and/or stop/cancel the task. The Meet Director has the final authority for stopping or cancelling a task.
7. Maintain a list of pilot radio frequencies and driver cell numbers to aid in notifying all pilots of a stopped or cancelled task.
8. If a task is stopped or cancelled, broadcast it on the pilot radio frequencies and notify their drivers via cell phone.
9. Provide oversight regarding safe effective towing operations and provide feedback to the Safety, Towing and Launch Directors as needed.
10. Provide oversight to the Task Committee and Weather Forecaster with an emphasis on safety and provide feedback as needed.

11. Provide oversight to and direct staff and pilots as necessary to ensure safe effective towing operations.
12. Verify that the competition compiles with FAR's, local and state regulations as applicable.
13. Ensure that a NOTAM (Appendix C) is issued for every day of the competition, including practice days if applicable.
14. Track the automated pilot landing notices to verify that all pilots have been accounted for at the end of each day.
  - a. At ~7:00pm, contact drivers for any pilots not accounted for to ensure they are safe.
  - b. Take actions up to and including implementing the Emergency Response Plan should pilots not be accounted for or that need additional aid.
15. Consult with Meet Organizers to interpret unclear rules.
16. Document, evaluate and make final decision on verbal protests. Written protests will be evaluated and resolved by the Protest Committee.
17. Notify pilots of any protests made and their status.
18. Debrief with the Tow, Safety and Launch Directors at the end of each day to identify improvements and implement actions to ensure safe towing operations.
19. Convene with the Meet Organizers, Weather Forecaster and the Safety Director each day to evaluate whether the conditions (i.e. wind speed, direction, gust factor) for the upcoming day will support safe towing operations.
20. Act as the final authority for penalties regarding rules violations and unsafe behaviors up to and including disqualification.

## C. Safety Director

Primarily responsible for ensuring pilots, staff and spectators are managing any risks that may compromise their safety and are conducting themselves in a safe manner during the competition.

1. Meet with the Task/Safety Committees to verify that the task for the day is safe for all pilots.
2. Hold a Safety Briefing included in the first Pilot Briefing, using the Risk Assessment outlined in the USHPA Sanctioning Manual, and including weak links, bridles, launching and towing issues
3. Determine the launch staging and launch box placement prior to the safety briefing and communicate this to the pilots and Launch Director.
4. Provide safety input at each pilot briefing, identifying any adverse conditions or behaviors and the mitigating actions that personnel need to be aware of.
5. Brief the Launch Director and launch staff prior to the start of each day to review expectations regarding towing operations and pre-launch checks (Appendix D).
6. Brief the Towing Director prior to the start of each day to review expectations regarding towing operations and tow plane pre-flight checks (Appendix E).
7. Ensure hang glider staging and launch box location and wind indicators are setup properly to support safe towing and landing.
8. Authorize the start of towing operations at the beginning of each task by meeting with the Safety Committee just prior to the launch open time to validate that the tasks and conditions are safe to start towing operations.
9. In the event of a significant safety incident, implement the Emergency Response Plan (Appendix A) and coordinate first responders to the scene.
10. Continually assess weather conditions, air traffic, towing operations, equipment and pilot readiness to identify unsafe conditions and take actions to mitigate including suspending tow operations.
11. Consult with the Meet Director when unsafe conditions arise and provide input on stopping or cancelling the task
12. Prohibit the use of any item that may create a safety hazard.
13. Consult with Meet Organizers and Meet Director to interpret unclear rules regarding safety.
14. Convene with one of the Meet Organizers and the Meet Director each day to evaluate whether the conditions (i.e. wind speed, direction, gust factor) for the upcoming day will support safe towing.

## D. Towing Director

Responsible for ensuring that the aerotow operations are conducted in a safe and effective manner including but not limited to the following:

1. Ensure tow pilots are at the initial pilot briefing and subsequent daily briefings. If not available, cover critical information with them prior to the start of towing operations.
2. Conduct a daily briefing with the tow pilots to discuss safety issues, tow plane readiness including pre-flight checks, the day's task and any comments or concerns that need to be addressed.
3. Ensure planes are pre-flighted using the Dragonfly Checklist (Appendix E). He will oversee pre-checking all the tugs. He will "green tag tugs" for flight operations each day, and "red tag" any not ready.
4. Ensure tow planes are fueled up prior to the start of each day.
5. Provide feedback to the Meet Director regarding safe towing operations and actions needed to improve them.
6. Provide Spectra tow ropes of approximately 150'
7. Counsel tow pilots not to take pilots over 2000' AGL unless authorized for Sport Class.



## E. Launch Director

Responsible for ensuring that the hang glider towing operations are conducted in a safe and effective manner including but not limited to the following:

1. Ensure all launch staff are at the initial safety briefing and subsequent daily briefings.
2. Set up the launch staging lines and launch box and wind indicators based on the guidance from the Safety Director.
3. Make sure that all hang gliding vehicles are clear of the launch area and runways 15 minutes before the launch opens.
4. Continually assess conditions, equipment and pilot readiness from a safety perspective and recommend to the Safety Director to suspend tow operations if safety concerns arise.
5. In the event of an emergency, suspend towing operations and perform actions as directed by the Meet Director (i.e. Ensure clear path for EMS vehicles to the scene).
6. Perform pre-flight checks on all carts prior to the start of each day including wheel rotation, tire pressure, glider hold down hose/rope, saddle integrity and tail configuration. Check launch carts: grease the wheels, check tires for air pressure, check cradles, check keel height adjuster clips and have extra clips. Carts will be set to the right height for pilots. Carts will be kept in good condition and with proper tire pressure during the competition; an air pressure tank will be available at the cart setup area.
7. Communicate expectations to the staff regarding pilot pre-flight checks referencing the Hang Glider Pilot Aerotow Checklist (Appendix E) at the start of towing operations each day.
8. Provide oversight to launch staff and give feedback as necessary to ensure safe towing operations.
9. Verify new weak links are available at the launch area prior to the start of towing operations each day. Appropriate pilot weak links will be made up in advance. Pilots must use weak links provided by the meet organizers and in a manner approved by the meet organizers. All weak links will be checked on launch, and use of inappropriate weak links will require the pilot to go to the end of the launch line to change the weak link.
10. Weak links should be placed at one end of a shoulder bridle. The tow forces on the weak link will be roughly divided in half by this placement. Pilots will be shown how to tie the weak link so that it more likely breaks at its rating breaking strength.
11. Conduct a launch staff debrief at the end of towing operations each day to identify improvements and actions needed to improve safety and provide feedback to the Meet and Safety Directors as needed.
12. Wind direction and velocity determine the launch area and launch direction. South wind speeds up to 25 mph can be accommodated. Westerly winds up to 15 mph can be accommodated from the southeast launch. East winds up to 15 mph can be accommodated out of the west launch. Northerly winds 15 mph can be accommodated out of the south launch.

13. Variations in wind direction and gust factors below 5 mph will be evaluated to determine launch safety. Gusting over 10 mph will keep the launch suspended or closed.
14. Towing operations protocol at Big Spring is to check for other tow vehicles prior to launching each glider.

## F. Safety Committee

Responsible for continually assessing weather conditions and evaluating the task selections as they relate to safety risk including but not limited to the following:

1. Act as a check and balance to the Meet and Safety Directors relative to safety.
2. Provide input to the Task Committee regarding task safety concerns. The Safety Committee will assess each task for safety aspects including weather, airspace and potential hazards after the task is first determined by the Task Committee. The task can be disapproved at that point and would have to go back to the task committee for revision.
3. Provide input to the Safety Director regarding the tasks and weather conditions for the day. The Safety Committee will determine maximum wind speeds (or speeds depending on direction) for the competition in conjunction with the Safety Director.
4. Meet with the Safety Director just before the launch window opens for a final assessment on weather conditions and task safety.

## G. Weather Forecaster

Responsible for assessing weather conditions and providing input including but not limited to the following:

1. Brief the Task Committee on the weather conditions and any potential hazards for the day. The weather forecaster will be a member of the Task Committee. He will discuss at each Committee meeting any anticipated potentially hazardous conditions for that day. The Task Committee will take these conditions into consideration in the setting of each task.
2. Provide a daily briefing to all participants of the weather conditions and any potential hazards for the day. The Weather Forecaster and Task Committee cannot predict every circumstance that a pilot may encounter during the task. It is ultimately the pilot's responsibility to observe conditions and fly in a safe manner, or to land if necessary.
3. Provide frequent weather updates as requested by the Meet Director, Safety Director and Safety Committee when conditions are suspect or evolving.

## H. Task Committee

Responsible for setting safe achievable tasks during the competition including but not limited to the following:

1. Setup each day's tasks by evaluating weather conditions, controlled airspace issues and topographic features (i.e. water, trees) to select routes that minimize safety risks.
2. In planning each day's task, the Task Committee will use such tools as SeeYou and Google Earth to assess such potential hazards as airspace, bodies of water, forested areas and other topographic features. They will take pilot safety into consideration in planning every task, and tasks will be reviewed by the Safety Committee as described above.
3. Provide a daily task briefing to all participants regarding each task by discussing the routes and pointing out any potential hazards along the course line.
4. Establish backup tasks when conditions warrant to minimize safety risks.
5. Communicate with the Meet and Safety Directors and rebrief all pilots when conditions warrant a task change.

## I. Protest Committee

Responsible for reviewing and resolving formal written protests made during the event including but not limited to the following:

1. For informal protests, evaluate and provide input to the Meet Director.
2. For written protests, review the document to ensure it clearly states the reason, evidence supporting the protester's position and the desired outcome. Reject any that don't meet these criteria.
3. Evaluate the merits of the written protest within 24 hours and provide the Meet Director with the committee's final ruling.

## J. Scorekeeper

Responsible for scoring each day in an accurate and timely manner.

1. Provide feedback at the safety briefing each day regarding timeliness of track log submittal.

## K. Pilots

Solely responsible for their own safety and conducting themselves in a safe manner always including but not limited to the following:

1. Must be a current USHPA member. Foreign pilots must obtain a 30-day temporary USHPA membership.
2. Must have a pilot proficiency rating of H3 with Aerotow (AT) special skill rating or foreign equivalent (IPPI card). H2 for Sport Class with permission from the meet organizers.
3. Must have aerotowed with the glider that he/she is flying or similar at least ten times. Practice tows will be available onsite on Saturday before the first competition day.
4. Pilots under the age of 18 must have a parent (or guardian) written consent (notarized) to participate in the competition.
5. Sign the USHPA, Quest Air, and competition waivers.
6. Notify the Safety/Meet Director of any accident or emergency as soon as possible.
7. Notify the Meet Director (through their driver) of unsafe conditions on course.
8. Perform a pre-flight of his/her own glider, harness and equipment prior to launch. It is advisable to have another pilot perform a second check. All gliders and associated equipment shall be of sufficient performance and standard of airworthiness to meet the demands of international championships and shall be flown within the airworthiness limits established by the manufacturer. Pilots are responsible for proper setup and pre-flight checking of all equipment.
9. Competitors must use appropriate aerotow bridles as determined by the Meet Director and Safety Director and their designated officials. Bridles must include secondary releases (as determined by the Safety Director). Bridles must be able to be connected to the tow line within two seconds. The only appropriate bridles can be found here: <http://OzReport.com/9.039#0> and <http://ozreport.com/9.041#2>. Pilots with inappropriate bridles may purchase appropriate bridles from the meet organizer or Quest Air.
10. Perform a hang glider aerotow pre-flight check (Appendix D) in front of launch staff prior to launch.
11. Provide your own tie down stake and line for securing your glider in the staging area.
12. Control your glider always whether at the setup/teardown area or in the staging area. The glider must be tied down when not in attendance.
13. Stage all equipment at the launch position number 30 minutes before the launch window opens.
14. Fly within your own abilities. Choose not to fly, release from tow or terminate the flight any time conditions are unsafe.
15. Land in designated areas only during aerotow operations, unless there is a premature release.
16. Follow generally accepted right of way and thermal etiquette rules including identified turn direction within the start circle.

17. Understand and comply with the requirements of FAR 103 and all applicable local, state and federal laws, landowner and site restrictions. Cloud flying is strictly prohibited and will be penalized up to and including disqualification.
18. Attend all briefings and stay informed of schedule changes, task changes, rule amendments and protest outcomes.
19. Use Flymaster Trackers to send a message to the Meet Director as soon as possible after landing for safety accountability purposes.
20. Provide feedback to the meet officials on areas of concern and improvement opportunities.
21. Pilot Code of Conduct – responsible for conduct according to the following:
  - a. Along with ground crews maintain a standard of conduct that does not discredit fellow pilots, the Meet Organizers and Officials, landowners or the sport of hang gliding.
  - b. Act in a manner that will promote the continued good will toward hang gliding in the area.
  - c. Act in a sportsmanlike manner consistent with the spirit of fair play and responsible conduct in accordance with the rules of the contest.
  - d. Treat all meet officials and volunteers with respect and kindness.
  - e. Treat all landowners with utmost respect.
  - f. Ensure gates and property are left as they were found.
  - g. Keep vehicles on roads unless landowner permission is given.
  - h. Exercise care when moving personnel and gliders across fence lines to prevent damage.
  - i. Land well clear of livestock.
  - j. Do not land in crops. If it is unavoidable, offer to pay the landowner for any damages.
  - k. Be aware that complaints from property land owners may result in penalties.
  - l. Should landowners get upset, call 911 for assistance from the sheriff.
  - m. Pilots are responsible for the actions of their ground crew.
22. Both the Meet Director and the Towing Director have the power to exclude from the competition pilots who demonstrate a lack of the necessary skills for safe launching, flight or landing, or who lack the fitness to fly safely due to injury, drugs or medication that might affect the pilot's performance in the air.
23. It is the responsibility of every pilot to fly in such a way that personal safety and the safety of others is always maintained. Directors may penalize competitors who fail to observe this rule or exclude them from the results.
24. Pilots are required to follow instructions given to them by meet officials expeditiously or risk penalty. Pilots will be instructed where to set up their gliders in the staging lines, where to enter the launch lines, and how to be prepared to launch safely. Pilots need to follow these instructions carefully.
25. Helmets and parachutes are mandatory
26. Pilots will be encouraged to fly with radios, and a list of pilot radio frequencies will be maintained by the Meet Director.
27. Pilots must fly with a 3D GPS or flight instrument equivalent.
28. Provide driver cell phone number and radio frequency to the meet director.

29. Pilots are responsible for uploading their flights to the scorekeeper if asked by the scorekeeper.
30. Pilots must fly with a live tracking device provided by the Meet Organizers. The pilots must leave the tracking device on during their flight.
31. Pilots must use provided weak links.
32. Pilots must stay away from the launch crew and are not allowed talk to this launch crew while they are setting up the launch/staging lines. Any pilot who in any way interferes with the launch crew setting up the launch/staging area will be subject to the penalty of having his/her launch delayed or moved to the end of the line.
33. Pilots must be in the staging area one half hour before the launch opens.
34. The members of the task committee including the weatherman and task committee wrangler may be staged right behind the top 1/4 or 1/3 ranked pilots (by cumulative results) who have been staged in reverse order unless they are among the top ranked pilots and then they will be staged as per their ranking.
35. The pilots in the launch box at the head of the launch line must be ready to launch five minutes before the launch window opens. Ready is defined as: pilot is completely suited up with helmet on, hooked in with vario, GPS and other instruments turned "on." Once in the launch line the pilot must advance forward to the end of the launch line (towards the ready-to-launch box).
36. Pilots must release when waved off by the tug pilot. Pilots will be released upwind unless they make it known to the tug pilot to take another course.
37. Pilots must read, understand, and follow the local rules.
38. Willful violation of any of the above shall be subject to penalties up to and including disqualification.



## 4. Risks

### A. Site Risk

All personnel must be cognizant of and comply with the following information as it relates to minimizing the risk of injury to pilots, staff, and spectators, and to property damage.

1. Maps will be provided of the airport depicting parking, spectator viewing, camping, setup/teardown, staging, launch box, landing, and tow plane areas including relative distances from the runways.
2. Airport Access Controls:
  - a. Parking will be allowed in the designated areas.
  - b. The spectator viewing area is behind the airport fence or in the provided stands.
  - c. All personnel must have signed the USHPA, Quest Air, and Event waivers prior to accessing the staging, launch areas and the runways. This includes pilots, launch volunteers, drivers and meet officials.

Big Spring physical characteristics:

All physical obstacles are located far enough away from the runways and towing operations that no significant risks were identified that require mitigating actions. However, it is prudent to communicate these features to all pilots.

The taxiways are removed from physical objects as follows:

- a. Airport fence to the west of the taxi way.
- b. Prairie dog holes east of the taxi way.
- c. Main runway to the east of the taxiway.

### B. Towing Operations Risks

The following actions must be complied with to minimize the risk of bodily injury to pilots, staff, and spectators, and property damage as they relate to hang glider towing activities.

1. Pre-flight all equipment prior to the start of each day.
  - a. Tow planes
  - b. Hang gliders
  - c. Launch carts
2. Pre-flight the hang glider cart interface prior to each flight.
3. Weak links shall be used on the tug and pilot ends of the tow line.
4. Aerobatics for both hang gliders and tow planes are prohibited during the competition towing window.
5. Pilots who have a low weak link break or abort the flight early have the right of way to land safely anywhere that is suitable.
6. Pilots who are above several hundred feet should land in the designated landing areas during towing operations. Do not attempt to land in the tow plane taxi or

towing lanes. Golf Carts will be designated to retrieve pilots who land in the designated landing areas.

### C. Task Flying Risks

Big Spring, Texas and surrounding area generally consists of flat agricultural land that offers many safe landing options. There are still many risks that pilots need to be aware of when flying cross country. These include but are not limited to:

1. Airspace and Air Traffic – at the Big Spring airfield and on approach to Midland/Odessa airfield
2. Helicopter air lift at the Big Spring airfield
3. Goals near air space, especially Town airfield.
4. Tasks will be selected with consideration for controlled airspace such that the pilots will have ample margin to avoid or maneuver around those airports that have Class B, C or D zones.
5. A Notice to Airmen (NOTAM) will be issued each day to alert other pilots of increased hang glider traffic in the task area.
6. Pilots should have airspace loaded into their instruments/GPS to provide sufficient warning to impending airspace entry.
7. Terrain – there are several hazards in this area that pilots must be aware of, including but not limited to:
  - a. Nonagricultural areas.
  - b. Always box your selected landing field to assess potential hazards such as power lines and fence lines that may be difficult to see.
  - c. Engage your spatial awareness always.

## 5. Local Rules

The local rules are to be found and downloaded from here: [https://airtribune.com/2019-big-spring-nationals/info/details\\_info](https://airtribune.com/2019-big-spring-nationals/info/details_info)

## 6. Site Maps

Launches at Big Spring:

Coordinates: 32° 13.056'N, 101° 31.494'W



Headquarters at the terminal building. Goal is 400-meter cylinder around this waypoint. Land east of the taxi way across from the north hangar. Do not cross low over the prison, northwest of the waypoint.

Launch coordinates: 32° 12.592'N, 101° 31.579'W  
Landing coordinates: 32° 12.635'N, 101° 31.678'W  
Landing coordinates: 32° 12.638'N, 101° 31.479'W



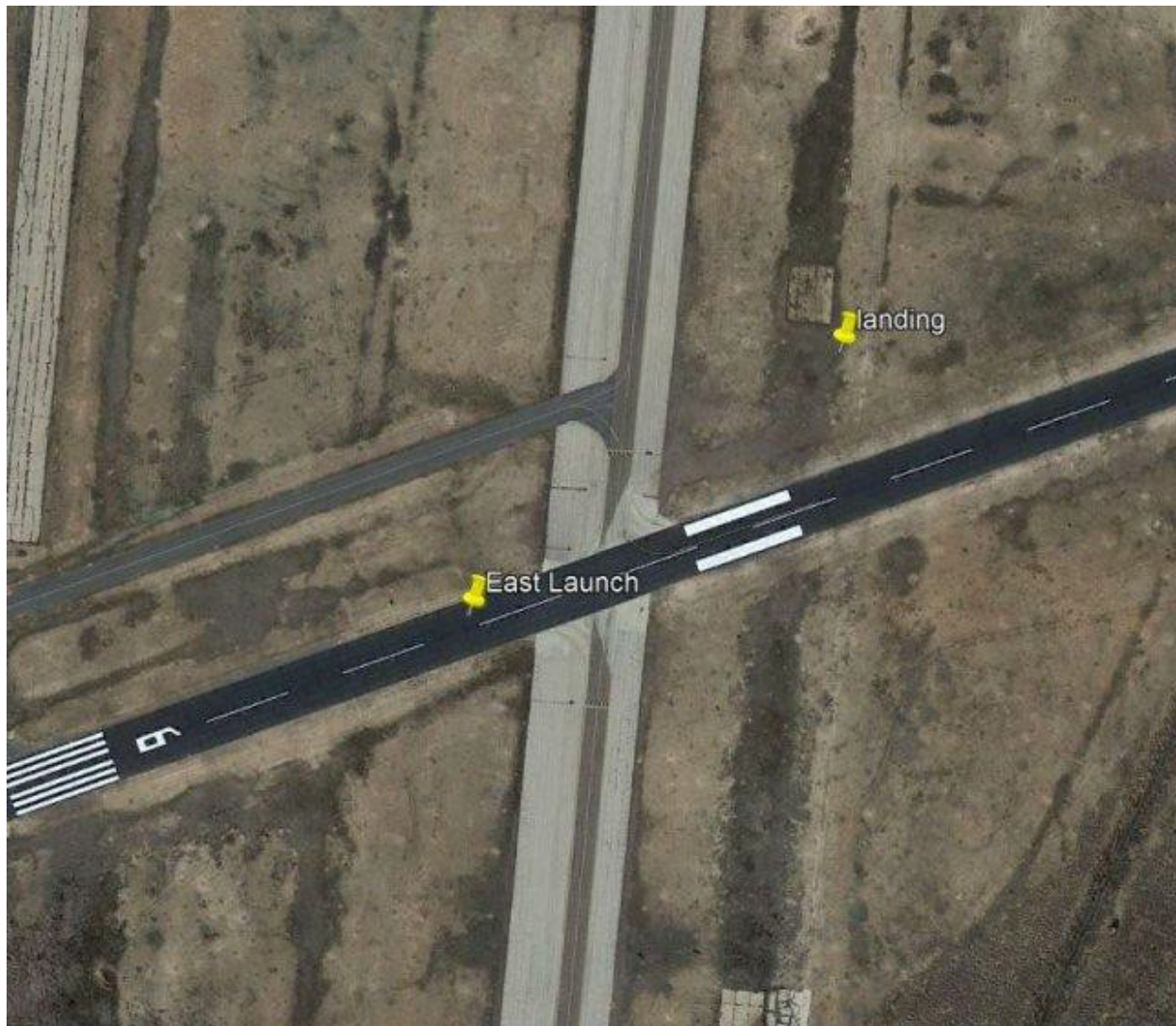
These landing areas are for pilots during the launch. Land to the west of the car parking and east of the airport fence. Or land east of the taxiway but south of the launch box to stay away from the tugs landing north of the launch box.

Caution: Prairie dog holes in landing areas east of the taxi way..



East facing launch:

Coordinates: 32° 12.413'N, 101° 31.623'W



Land on the north side of the east/west runway east of the west taxiway so stay away from approaching tugs.

West-facing launch:

Coordinates: 32° 12.503'N, 101° 31.385'W

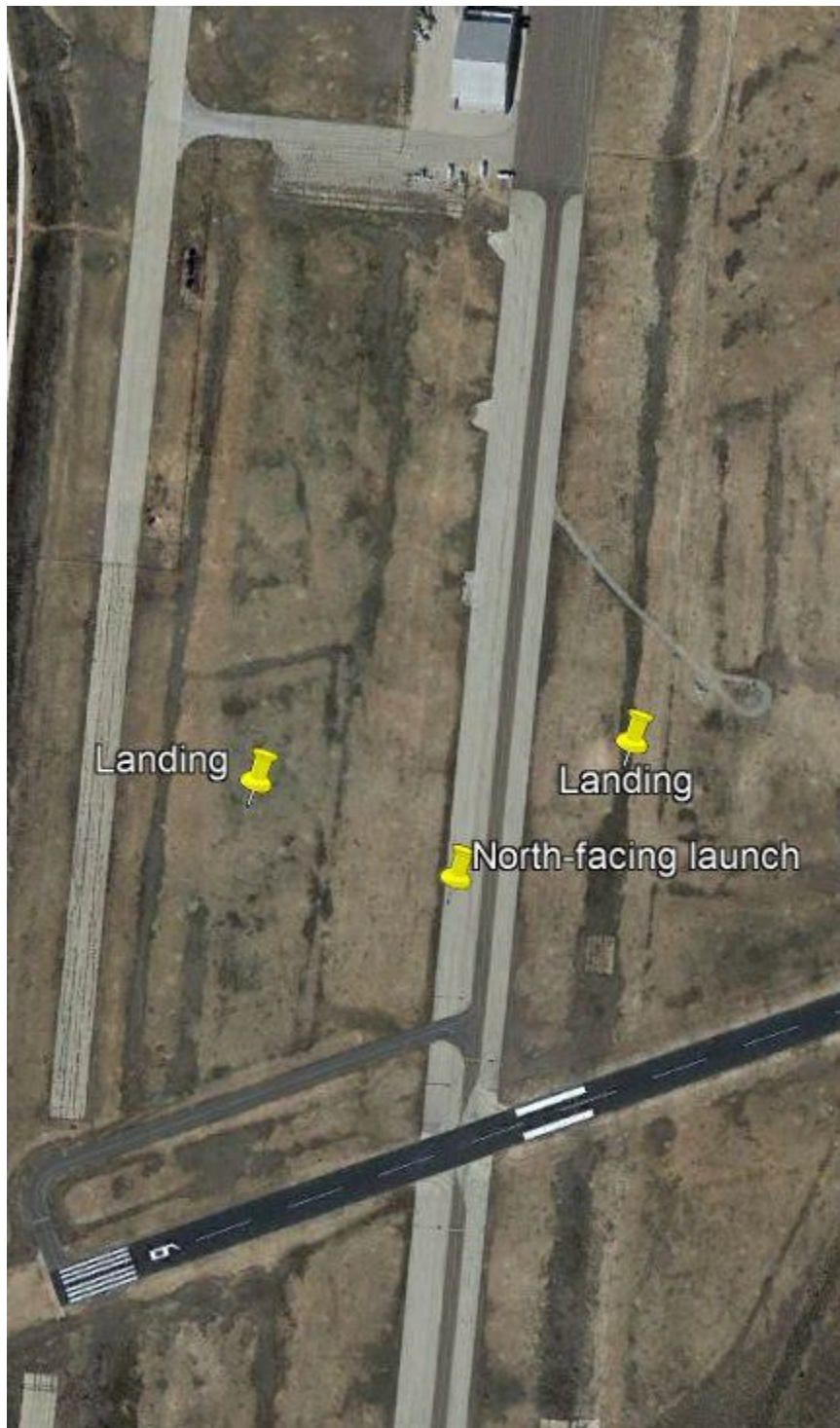


Launch from west of the main runway. Land on the north side of the minor east/west runway. Do not cross the main runway



North-facing launch

Coordinates: 32° 12.505'N, 101° 31.599'W



Proceed to the south of the main south-facing launch area to the north-facing launch area. Land to the west of the cars parked next to the setup area or east of the taxiway

north of the launch box.

## Goals:

All goals will be discussed at the pilot briefing. All obstacles and hazards associated with the goals and getting to the goals will be highlighted. Satellite photos of the goals and surrounding area and named obstructions for airfields found at <http://www.airnav.com/airport/> will be presented.

The airfields are very lightly used. We instruct pilots not to cross the runways. We don't land on the paved runways or taxi ways. If there is an obvious approach area we inform pilots of that at the pilot briefing.

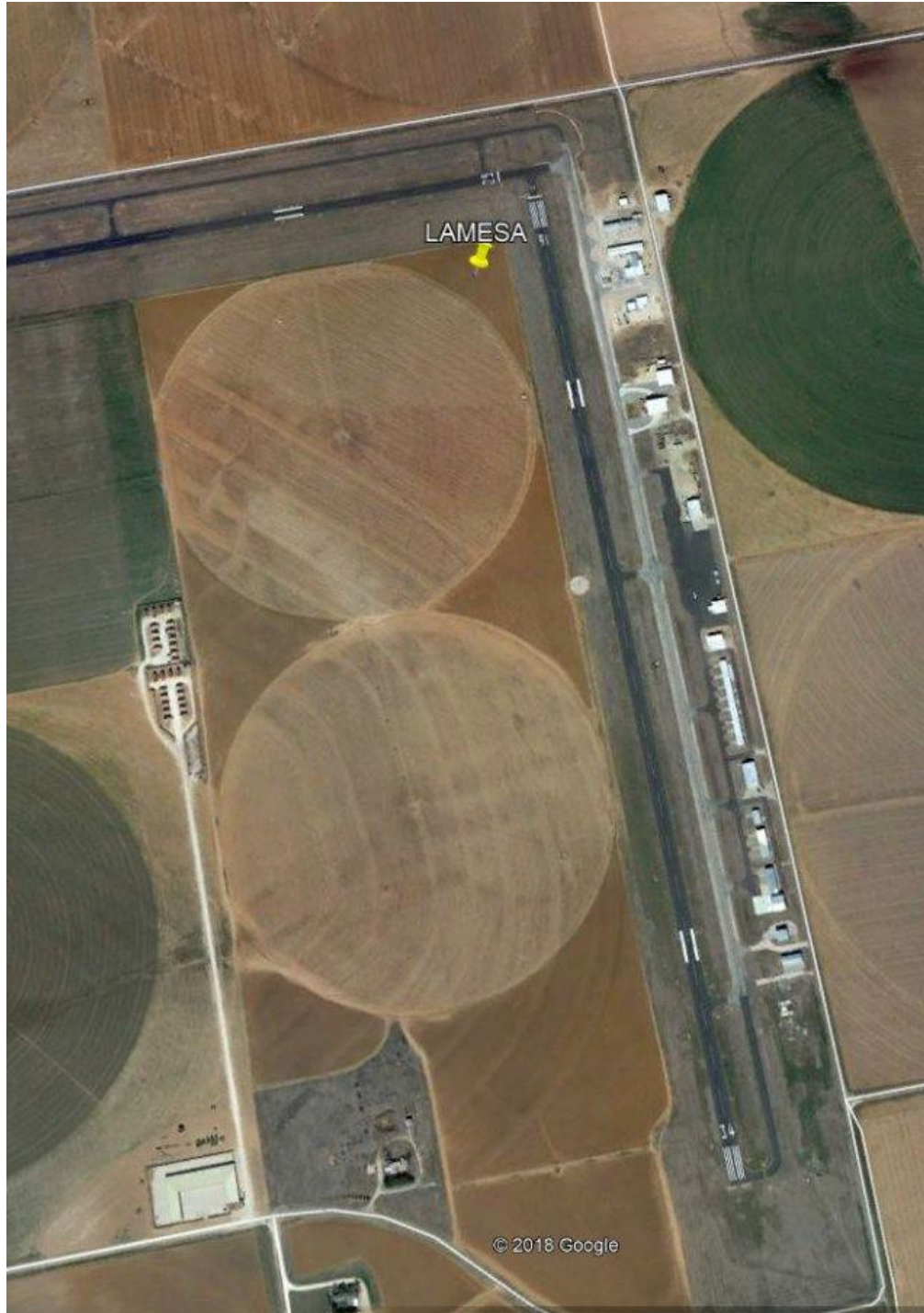
We call the airports in advance to make sure that we have permission to land there. We ask them about any operations that would be ongoing that day and the approach pattern for the wind conditions. We tell pilots where to land, where the wind sock is located if it is an airfield goal.

All our goals are either airfields or fields associated with airfields. We therefore have access to detailed information about the airfields and what obstacles there may be, which will be presented to the pilots. Pilots are not required to land at these fields and may land at nearby fields.

La Mesa:

Coordinates: 32° 45.552'N, 101° 55.152'W

400-meter cylinder. Land on the west side of the runway. Watch for landing aircraft coming in from the north on final and avoid. Land on either side of the north/south runway.





Brownfield airfield:

Coordinates: 33° 10.470'N, 102° 11.700'W

400-meter cylinder. Land north of the runway intersection. Power lines on the east/west road on the northside of the airfield. Goat heads in the field. Land as close to the hangars as possible.



Tbar:

Coordinates: 33° 10.458'N, 101° 49.404'W

400-meter cylinder, Fence on the west side of the runway. Land parallel to the runway on either side. Only crop duster activity.



Garza:

Coordinates: 33° 11.940'N, 101° 20.484'W

400-meter cylinder, land in the southwest field if not planted. You can also land parallel to the north/south runway. Rough area to the south.





Fish:

Coordinates: 32° 49.428'N, 100° 24.786'W

400-meter cylinder, land anywhere. Inside fence on east side.





Town:

Coordinates: 33° 29.004'N, 101° 48.702'W

400 -meter cylinder, task committee call to get permission, ask where to land.



Crosby:

Coordinates: 33° 37.296'N, 101° 14.430'W

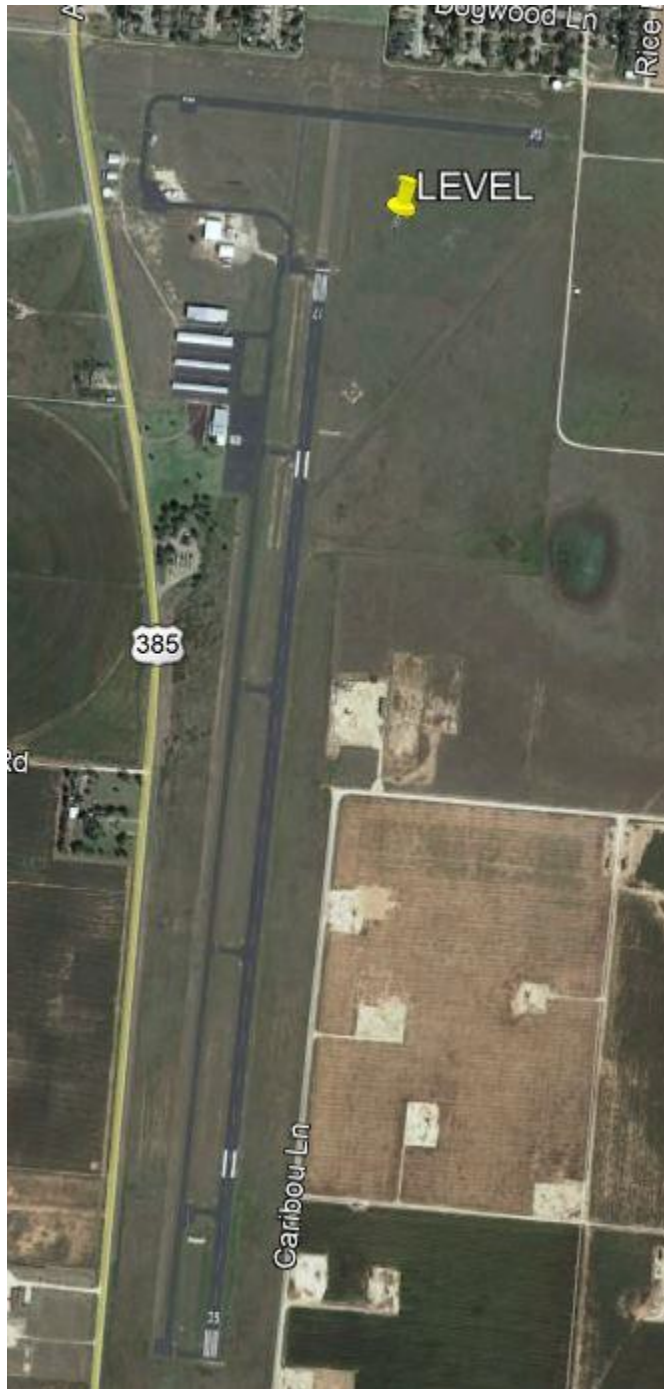
400-meter cylinder, land on either side of the runway near hangar.



Levelland

Coordinates: 33° 33.534'N, 102° 22.272'W

400-meter cylinder, land in the northeast field.





Littlefield:  
Coordinates: 33° 55.218'N, 102° 23.022'W  
400-meter cylinder, land on the east side.



Muleshoe:

Coordinates: 34° 11.190'N, 102° 38.748'W

400-meter cylinder, land on the south side.



Gaines:

Coordinates: 32° 40.260'N, 102° 38.790'W

400-meter cylinder, land on the east side south of the terminal





Andrew:

Coordinates: 32° 19.494'N, 102° 31.554'W

400-meter cylinder, land on the south side, parallel to the north/south runway.



Rankin:

Coordinates: 31° 13.374'N, 101° 57.228'W

400-meter cylinder, land within the two fences, east and west, close to and along the runway





Big Lake:

Coordinates: 31° 11.760'N, 101° 28.410'W

400-meter cylinder, land along the north/south runway to the south, inside the fences.



Yoakum:  
Coordinates: 33° 12.798'N, 102° 49.998'W  
400-meter cylinder, land along north/south runway



Floydada:

Coordinates: 33° 59.958'N, 101° 19.860'W

400-meter cylinder, land parallel to the runway on the east side



Stamps:

Coordinates: 35° 19.914'N, 101° 23.172'W

400-meter cylinder land west of the runway to the north





Guthrie:

Coordinates: 33° 38.166'N, 100° 20.964'W

400-meter cylinder near the south end



## 7. Pilot Briefing Content

### **Obstacles:**

The obstacles are displayed in the accompanying satellite photo. There can be prairie dog holes in any landing area.

There are wind indicators along the taxi way as well as the airport wind sock to the north.

The designated landing area is west of the taxi way and west of the parking area and east of the west fence. You can also land east of the taxi way if you set up south of the approach area for the tugs. The designated landing areas are shown on the accompanying photo.

There are prisons near the airport. Do not go over them any lower than 5,000' MSL. See accompanying satellite photo.

There is a main north/south runway. Do not go over it at less than 5,000' MSL. See accompanying satellite photo.

### **Launch procedures:**

Launch crew will keep spectators in the stands.

Pilots are required to be at the staging areas a half hour before launch opens.

Pilots are to preflight their gliders before being attached to them and before getting into the launch line.

Weaklinks will be available from the launch director or his/her assistants.

There will be one launch line and three accompanying staging lines. You set your glider in the staging line according to your launch order number for the day. Put your base tube on the number.

Pilots are to ensure that the back cradle of the cart is adjusted for the proper angle before getting into the cart. Pilots may test for the proper angle while in the cart and then lift their glider to have it adjusted by the launch crew, well before their time to launch.

The launch crew and the pilot are to check each cart to make sure that they are in operating condition before getting on the cart.

The first five pilots are required to be in the launch line five minutes before the launch opens.

Pilots will be checked in the launch line by the launch crew. However, they must be completely ready to launch by the time they get to the launch box. This means all distractions must be eliminated by the time the pilot is ready to launch.

There will be an open launch (“early bird”) window of 10 minutes for open class pilots.

The rigid wing pilots will launch first followed by the open launch window.

There is an implied push rule for launch. Pilots who do not wish to launch in their order will go to the back of the staging line.

You must hold onto the hoses and keep the cart with you until you are ready to come off it

If you have wheels (like the Wills Wing forward projecting wheels) make sure that they can’t get jammed into the cart if you come off crooked.

Wind direction and velocity determine the launch area and launch direction. South-wind speeds up to 25 mph can be accommodated. Westerly winds up to 15 mph can be accommodated from the east launch. East winds up to 15 mph can be accommodated out of the west launch. Northerly winds 15 mph can be accommodated out of the south launch.

Variations in wind direction and gust factors below 5 mph will be evaluated to determine launch safety. Gusting over 10 mph will keep the launch suspended or closed.

Pilots breaking a weaklink (let off below 1,000’) will be shuffled into the launch order by the launch crew. Otherwise pilots who land will go to the back of the staging line and enter the launch line after the last of the pilots launching for the first time.

There will be a maximum 15-minute relaunch window for open class pilots (only those in the launch line) after all the open class pilots have launched once, to allow for relaunched. Then after the maximum of 15 minutes has elapsed, the sport class launch will open, and other open class pilots must launch behind them. This may be adjusted if many pilots are not sticking.

Towing operations protocol is for the launch directors to check for tugs or hang

gliders in the air above launch prior to launching each glider. It is up to the tow plane and hang glider pilots to check for traffic in the event they are landing back at the airport and take the necessary actions to put their aircraft down safely

Emergency personnel are on site at launch

Pilots must comply with all requests from the meet personnel.

### **Incidents we wish to avoid:**

Be prepared on launch: Fly the glider off the cart and do not try to make any adjustments to your instruments and gear until you are off tow. Always continue to fly the glider.

Do not get pulled off the cart onto the taxi way. Push the cart forward as you are pulled by the tow line. Hold onto the hoses to push the cart. Do not straight arm to push the cart but let yourself be pulled forward but no further than with your chest over the base tube.

Unidentified risks and obstacles: We will identify any safety issues that come up during the competition and relay those to the pilots during the pilot meeting.

Getting stuck in the cart: If you have wheels make sure that they can come free of the cart if you are lifted off the cart. If you have wheels that extend down from the basetube, use a cart that has cradles that are set high above the cart tubes. There is one cart with cradles 3" above the cart tubes.

Additional information about this can be found in the Oz Report: <http://ozreport.com/22.064#1>, <http://ozreport.com/22.066#3>, and <http://ozreport.com/22.067#2>.

Improper cart launch control technique: If your glider rises up to one side or the other while you are on the cart, shift your whole body to the side of the lifting wing, not just your shoulders and head. Pivot around a point about three feet in front of the center of your base tube getting your legs and feet to the side of the rising wing. Before your start make sure that the cart's cradles are as far to the left and right as possible and hold on tight to the hoses. Cross controlling does not work.

### **Launch order:**

WPRS and then after that it will be determined by cumulative score.

### **Scoring:**



See local rules

### **Task Briefing:**

There will be a task briefing each morning at the pilot briefing. The task briefing will include a description of the goal and any obstacles or hazards that may be found there including obstacles on the course line coming into goal, but not at goal. If the goal is an airfield, we will present information about the airfield from <http://airnav.com>.

We will display the task on a large TV screen and show the satellite photos of the goal and other areas along the task.

### **Tie downs:**

Bring your own anchors and straps to tie down your glider in the staging line if unattended.

### **Parking:**

The parking area is on west side of the staging area. There is a gate that requires an access code to get to the parking area.

### **Landing Out:**

The area around Big Spring and the airport in general has many wide-open farming areas that make for great landing fields. Power lines are obvious, and the wind direction is obvious. There is little to no need to force yourself into a small landing area or dangerous situation.

Do not have your driver drive into a field unless you have permission from the land owner. Stay outside the fences, even if there is no lock on the gate.

### **Weather conditions:**

There will be a weather briefing each morning at the pilot briefing. It will include the forecasted average lift, TOL, cloud base, winds on the ground and aloft, chances of rain and/or thunderstorms, temperature at cloud base or top of lift, changes over the afternoon in these values.

The normal August conditions are for strong lift, light or strong winds, 7,000' to 10,000' TOL, cu's, surface temperatures in the mid-nineties. Some chance of

thunderstorms.

**Weather links:**

<https://forecast.weather.gov/MapClick.php?site=MAF&textField1=32.24&textField2=-101.479&e=1>

<https://radar.weather.gov/radar.php?rid=maf&product=N0R&overlay=11101111&loop=no>

<https://forecast.weather.gov/MapClick.php?lat=32.24&lon=-101.479&unit=0&lg=english&FcstType=graphical>

<http://www.intellicast.com/National/Surface/Mixed.aspx?enlarge=true>

[https://rucsoundings.noaa.gov/gwt/?data\\_source=Op40&latest=latest&start\\_year=2017&start\\_month\\_name=Mar&start\\_mday=10&start\\_hour=4&start\\_min=0&n\\_hrs=18&fcst\\_len=shortest&airport=32.13,-101.32&qwt=Interactive%20plot&hydrometeors=false&start=latest](https://rucsoundings.noaa.gov/gwt/?data_source=Op40&latest=latest&start_year=2017&start_month_name=Mar&start_mday=10&start_hour=4&start_min=0&n_hrs=18&fcst_len=shortest&airport=32.13,-101.32&qwt=Interactive%20plot&hydrometeors=false&start=latest)

<https://www.xcskies.com/map>

**Safety on the course line:**

The meet director and the Safety Director will monitor conditions using local radar in the task area for thunderstorms. If thunderstorm activity is nearby the meet director will contact the safety committee through their drivers and ask for reports from the pilots. 1 = safe, 2 = watching conditions, 3 = unsafe, time to stop the task.

Pilots will be contacted through their drivers if the task is stopped.

**Flymaster Trackers:**

Obtain your Flymaster tracker at the pilot briefing.

Half an hour before launching press the upper right-hand button and then the upper left -hand button on the Flymaster Tracker before the red flashing timer times out (do this procedure again if it times out). This starts the tracking. You'll see a yellow light on the left side that indicates that the tracker is on.

Place the tracker in your harness (or glider) where it has a good view of the satellites.

As soon as you land, first thing, again press the upper right-hand button and then the upper left -hand button on the Flymaster Tracker before the red flashing timer times out (do this procedure again if it times out). The Tracker will not turn off, that is by design. Three red LED's, will flash, which means that it is in competition mode and is ready to be charged.

This procedure tells the meet director that you are okay and have checked in.

Bring the Flymaster Tracker to the HQ Hotel in the evening as soon as you return from your flight. We will charge it for the next day.

If you land and need medical assistance, press and hold the SOS button for ten seconds. Also, if you don't check in (see above) we will call your driver to see if you are okay. We should have your location from XC Guide app on Belinda's Android phone.

You do not have to send in your track log as it is automatically sent to the Flymaster server which the scorekeeper accesses.

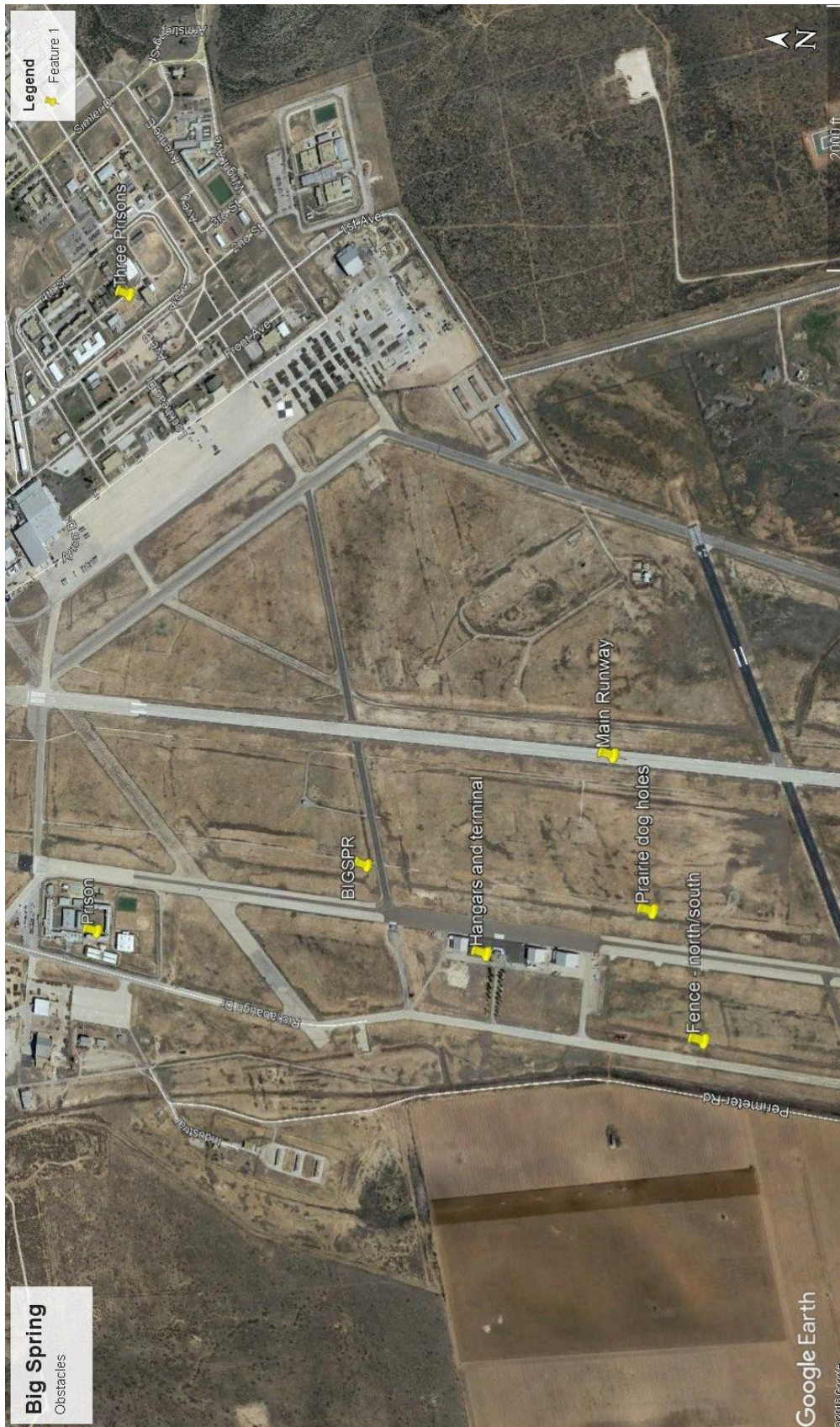
Sending in your track log if the Flymaster tracker wasn't turned on:

If there was some glitch with your Flymaster Trackers you can upload your tracklog from your flight instrument to the scorekeeper. Send the IGC file to [hangglidingcompetition@gmail.com](mailto:hangglidingcompetition@gmail.com). The scores will be up quite early on line (around 7 – 8 PM) so check them to be sure they are correct for your flight. If not send up your track log. Do not use Airtribune to determine if your track log is okay.

If you were absent or did not fly send an email to [hangglidingcompetition@gmail.com](mailto:hangglidingcompetition@gmail.com) informing the scorekeeper of that fact.

### **Notices from the Meet Director:**

What's App will be used for communication between the meet director and the pilots and other personnel.



## 8. Emergency Response Plan (See Appendix A)

### EMS – on site EMS personnel

The following guidelines have been established to assist the Meet and Safety Directors in effectively responding to an emergency. They should consider delegating responsibilities to competent individuals and take the following actions in the event of an accident:

1. Meet Director takes command at the scene until relieved by on-site EMS personnel.
2. Meet Director immediately suspends towing operations to attend to the injured person.
3. Once relieved of command, the Meet Director investigates the accident by implementing the Incident Information Collection Form (Appendix B) and CIVL Incident Report Form are used as part of the response. These forms are printed and used to collect the incident reports in the field for later use in filling out the on-line reports.

# Appendix A

## Emergency Response Plan

### Meet Director

1. Take command at the scene until relieved by the on-site EMS personnel.
2. **Immediately** suspend towing operations.
3. Investigate the accident by implementing the Incident Information Collection Form (Appendix B) and CIVL Incident Report Form are used as part of the response. These forms are printed and used to collect the incident reports in the field for later use in filling out the on-line reports.

**Launch Director** ensures that a path is cleared for emergency vehicles and personnel.



# Appendix B

## Incident information Collection Form

Provide the following information for the incident investigation:

Location:

Time/Date:

Nature of Incident (check all that apply):

<input type="radio"/> Injury Pilot	<input type="radio"/> Injury Spectator	<input type="radio"/> Property Damage	<input type="radio"/> Non-Injury
<input type="radio"/> Fatal	<input type="radio"/> Hospital Visit	<input type="radio"/> Hospital Overnight	<input type="radio"/> Immediate Care
<input type="radio"/> Flying	<input type="radio"/> Non-Flying	<input type="radio"/> Hang Glider	<input type="radio"/> Solo Pilot
<input type="radio"/> Aerotowing	<input type="radio"/> At Launch	<input type="radio"/> At LZ	<input type="radio"/> XC
<input type="radio"/> Mid-Air	<input type="radio"/> Aerobatics	<input type="radio"/> Parachute Thrown	

Persons Injured:

Name:	Name:
Address:	Address:
Cell Phone:	Cell Phone:
Email:	Email:
Injury Description:	Injury Description:

Pilots Involved:

Name:	Name:
Address:	Address:
Cell Phone:	Cell Phone:
Email:	Email:
USHPA #:	USHPA #:

[illegible]

## Appendix C

### Issuing a NOTAM

1. Call the NOTAM Flight Service Office at **877 487-6867**
2. Provide your Name: \_\_\_\_\_ Cell number: \_\_\_\_\_
3. Activity: hang gliders operating out of the Big Spring McMahon-Wrinkle Airport (32° 12.883'N, 101° 31.614'W)
4. Within a \_\_\_\_\_ NM radius of this location (for tasks ending back at Big Spring McMahon-Wrinkle Airport) OR
5. \_\_\_\_\_ NM either side of a line from Big Spring McMahon-Wrinkle Airport (232° 12.883'N, 101° 31.614'W) to
  - a. Next Waypoint Coordinates N \_\_\_\_\_ W \_\_\_\_\_ to
  - b. Next Waypoint Coordinates N \_\_\_\_\_ W \_\_\_\_\_ to
  - c. Next Waypoint Coordinates N \_\_\_\_\_ W \_\_\_\_\_ to (add additional waypoints as needed) to
  - d. Goal coordinates N \_\_\_\_\_ W \_\_\_\_\_
6. Altitudes: Surface to \_\_\_\_\_ msl (maximum altitude) expected for the day
7. From \_\_\_\_\_ - \_\_\_\_\_ Central Daylight Time
8. The FS person will issue a NOTAM number which can be viewed at <https://Pilotweb.nas.faa.gov>

## Appendix D

### Hang Glider Pilot Aerotow Checklist

1. Check that the glider has been pre-flighted.
2. Check cart integrity; adequate air pressure in tires, keel support at proper height, glider hold down mechanism adjusted properly and wheels are straight.
3. Check that glider is properly seated in cart saddles with wheels on the outside (if applicable) and keel is centered on the support.
4. Perform a hang check.
  - a. Check that harness is connected to the glider main and backup hang loops and the carabiner is locked. If using a direct connect harness, check that harness is hooked in to direct connect system inside the sail.
  - b. Check proper height above bar.
  - c. Check that harness lines are straight, leg loops are connected, chest buckle is connected and parachute pins are in place.
  - d. Check that lines are fully retracted especially the pod harness line at the harness boot.
  - e. Check that helmet is buckled.
5. Check that the bridle is free of all restrictions and is routed above the basetube.
  - a. Check bridle connection to release closure mechanism.
  - b. Check bridle line for knots.
  - c. Check weak link(s) and replace if necessary.
6. Check glider VG line is set for anticipated tow speed and desired bar pressure and is properly stowed.
7. Check instruments are properly attached to base/downtubes and turned on.
8. Check that all electronics (radio, phone, camera) are on and working properly.
9. Connect tow rope to bridle. Check tow rope clip for proper closure.
10. Signal for "take up slack".
11. Check final line tight configuration of release, bridle, tow rope and clip for routing, knots and assembly/closure.
12. Check tow rope is clear and no knots are visible.
13. Check that wind conditions are suitable for launch.
14. Check for air traffic.
15. Mentally prepare for tow and emergency actions.
16. Say "Go go go!" to start the launch.

**REMEMBER, as the pilot of a Hang Glider, YOU are responsible for checking everything! A crew person is only an assistant, and a second pair of eyes. Attention to detail is paramount. Should there be any problem that you did not catch, you must take responsibility for your own safety! Releasing is the only way to abort a tow!**

# **Appendix D**

## **Pilot Checklist Short Version**

1. Glider pre-flight complete
2. Cart pre-flight complete
  - a. Wheels straight, tires pressurized and rotating freely
  - b. Saddles centered and hold down hose connected
  - c. Keel support adjusted properly
3. Glider seated on saddles and keel support
4. Harness Check complete
  - a. Main and backup loops connected
  - b. Leg loops and chest buckles connected
  - c. Parachute pins in place
  - d. Harness lines straight and retracted (check boot)
  - e. Helmet buckled
5. Bridle and weak link check complete
6. Instrument on and radio check complete
7. VG cord set and stowed
8. Tow line connection and “line tight” check complete
9. Launch conditions check complete

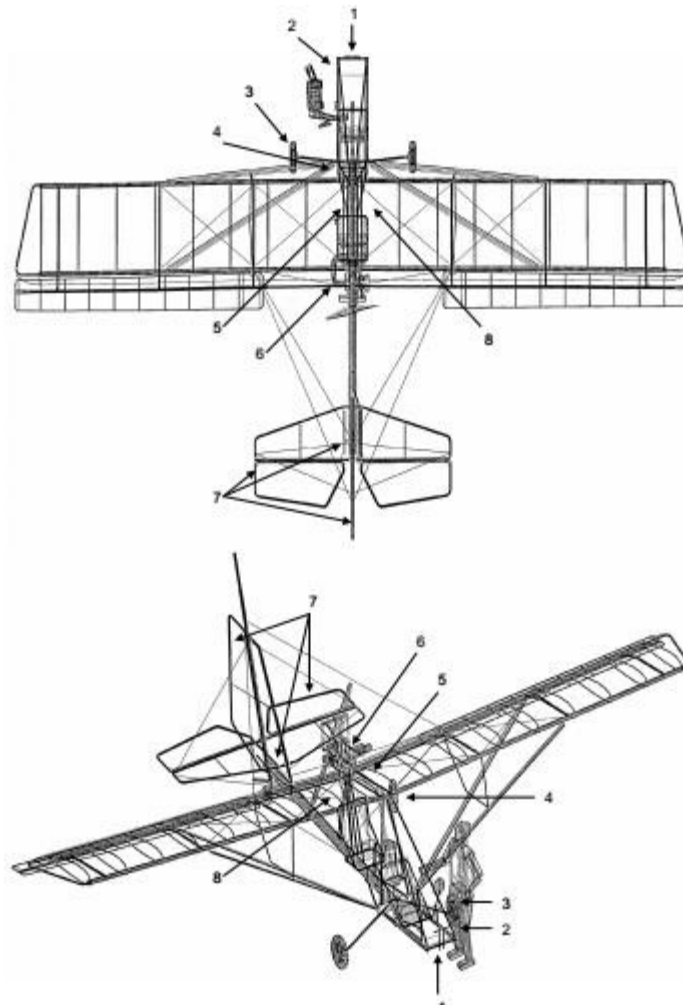


# Appendix E

## Dragonfly Checklist

### Preflight Check (The same type of inspection should be done as Post Flight Inspection)

Every time the plane is prepared for flight the entire aircraft must be subjected to a pre-flight check whereby the pilot visually checks the aircraft to ensure that the aircraft is in a condition for “Safe Operation”. Conduct the pre-flight check as a walk around the aircraft starting at the same point each time, to ensure that every part of the structures, cables, attachments and components are inspected. Every part or component must be free of excessive wear, defect, tears, cracks, Loose or missing bolts, hardware etc. etc. refer to Figure 4 Pre-Flight Areas.



#### 1.1 Aircraft and engine controls

For each seat check that the rudder pedals and stick move freely into all extreme positions. Check the links and connections on the stick and rudder to ensure that they are connected correctly and secured.

Check the condition of the seats and check that the seatbelts are securely fastened. Check that the fuel tank is securely fastened and with the cap screwed tight and containing the sufficient amount of fuel for the intended flight time.

## **1.2 Instruments**

Check the Pitot tube orifice is clear of obstructions. *(A simple test can be done to check that airspeed indicator works by blowing from several inches away, across the Pitot tube, **NEVER BLOW DIRECTLY INTO THE PITOT TUBE** as this can permanently damage the ASI & ALT instruments. Ensure that the indicator returns to zero position.)* Check the correct indicating positions of the other instruments also.

## **1.3 Undercarriage and main wheels**

Check (visually and by hand) that the tires have the correct air pressure. Check that the tires are free of any damage. Check that the wheel nuts are in place and not loose, and that the undercarriage legs/axles are securely fastened to the fuselage.

## **1.4 Emergency parachute**

Check that the emergency parachute is securely fastened to the aircraft with the cover sitting in the correct position and with the bridle secured around the main root tube. Remove the safety pin from the release handle and stow in a secure position. Re Insert the safety pin in Post Flight Inspection. Minimum Pressure 4200 psi

## **1.5 Left part of the wing**

Remove the inspection panel behind the parachute and inspect the inside of each side of the wing ensuring that all battens are in place and that all tubing and support cables are undamaged. Replace the inspection panel and secure using the Velcro strips. Check that the Dacron wing surface is free of holes or other damage. Check that each end of the strut and outside support cables are securely fastened on the fuselage, tail and wing respectively. Check that the aileron is securely fastened to the wing and that it moves freely between the extreme positions. Check that the linkages and connections to the control surface are securely fastened.

## **1.6 Engine and propeller (Left Side)**

Check that the propeller is free of damage, especially delamination of the composite material. Check that the engine and muffler is securely fastened to the engine assembly plate and that this is securely fastened to the aircraft. Ensure that all safety wires are in place as required on the propeller, gearbox and engine bolts. Check that the oil tank and the radiator are filled to proper level (overflow bottle should have fluid at minimum mark cold) and check that the ignition cables are securely in place on the spark plugs. Insure Propeller bolts are secure, and inspect prop for damage.

## **1.7 Tail**

Check that the rudder and elevator moves freely between the extreme positions. Check that the linkage and connections for the control surfaces are securely fastened. Check (visually) that the tail wheel tire has the correct air pressure and is free of damage. Check that the wires from the rudder pedals are connected correctly to the steering plate. And that supporting cables are free of defect or wear.

Repeat **1.6 Engine and propeller for Right Side of Engine**

## **1.8 Right part of the wing.** Same as for the inspection of the left wing. 1.5 above

Inspect each side of the wing ensuring that all battens are in place and that all tubing and support cables are undamaged. . Check that the Dacron wing surface is free of holes or other damage. Check that each end of the strut and outside support cables are securely fastened on the fuselage, tail and wing respectively.

Check that the aileron is securely fastened to the wing and that it moves freely between the extreme positions.  
Check that the linkages and connections to the control surface are securely fastened.

## 2 Engine starting

**WARNING:** Do Not attempt Hand starting by turning the propeller, it is Very Dangerous. Always use the electric start system.

**FUEL:** Approved types of fuel, 90+ octane quality unleaded auto gasoline (10% ethanol is approved) (No Methanol Content). \* (use of 100 LL may require additional provisions listed in current Rotax manuals)

\* refer to Rotax Operators Manual or [www.flyrotax.com](http://www.flyrotax.com) for current recommendations.

**OIL: 582 Approved\*** types and brands of TCW-III mixed 50:1

**912 Approved\*** types and brands listed in the Current Rotax 912 manuals

\* refer to Rotax Operators Manual or [www.flyrotax.com](http://www.flyrotax.com) for current recommendations.

### STARTING THE ENGINE;

1. Ensure rear seat belt is fastened so that it will not fly into prop and no other item is loose that will be drawn into the propeller stream.
2. Pump fuel to the carburetors by operating the squeeze bulb in the fuel line till the bulb is firm.
3. Ensure that the throttle is in **Idle Position (Closed)**
4. Choke on (Cold Start)
5. Check that prop is clear of bystanders.  
(When you are ready, look both sides and call loudly **“CLEAR PROP”**)
6. Ensure that the front of the aircraft is clear.
7. Operate brakes. (On)
8. 582 Pump bulb until it becomes hard. Pump primer 2-3 times.  
912 Equipped with Electric Boost Pump, run pump until fuel is seen returning to tank through the return line.
9. **Call “CLEAR PROP” to warn observers, & look to insure it is clear.**
10. Turn IGNITION Switches ON and Press Starter Switch to Start.

Normally the engine will start within 2 seconds. **Do not crank the engine more than 10 seconds if it does not start.** Longer operation may overheat the starter motor.

(582 only -- Cold conditions require more priming. Pump primer twice more and try again.)

The behavior of the engine will indicate the problem. In most cases it is too much or too little fuel to suit the temperature.

Should the engine not start after three or four attempts then it is possible that the engine is flooded with fuel. To balance this situation, open the throttle to allow more air to be drawn in.

**CAUTION:** With the throttle open the aircraft may surge forward when it starts. **Be ready to Close Throttle.**

Operate the starter with one hand on the throttle to immediately pull the **throttle back to idle or low power** if the engine starts and be ready to **SWITCH OFF** if an emergency arises.

When the engine starts allow it to idle at 2000 – 2200 rpm for a full minute or longer to allow the engine to reach operating temperature. Let the engine warm up properly before applying too much power!

**582 Coolant to 140 degrees F, before exceeding 3000 rpm's.**

**912 Oil Temperatures to 120 degrees F, before exceeding 3000 rpm's.**

**IMPORTANT NOTE:** *A thorough warm up is essential to the longevity to the engine life and performance.*

### 4.3 Taxiing

The Rudder pedals operate rudder and tail wheel steering. Control is easy and turning radius is average. Taxiing in cross wind up to 15 mph creates no problem.

Both the rudder and tail wheel turn the aircraft in the same direction.

For a left turn    **PUSH LEFT PEDAL**

For right turn    **PUSH RIGHT PEDAL**

At times Low Speed Taxiing can be improved by pulling up elevator to hold the rear wheel firmly on the ground.

When taxiing down wind keep the stick in Neutral Position.

When attempting to taxi across wind lean the stick into the wind to reduce lift on the upwind flaperon. Failure to keep the aircraft balanced can lead to Ground Loops.