

SSB/KBDU Glider Ground School Handout

This document is for all SSB members, but especially new and prospective members. As we welcome new members into SSB, they need to know and follow Club guidelines. KBDU is a difficult airport for glider operations due to high traffic, limited space and fickle winds. This document is not intended to teach glider flying, but rather how to use club and airport resources. Its topics include SSB Club procedures, aircraft care, runways, traffic patterns, winds, sink, the Box and other features unique to KBDU. There are a lot of guidelines and procedures that are unique to operating gliders at Boulder Municipal Airport. This document addresses many of the guidelines and procedures.

This document is a supplement to the live presentation recorded at a Zoom meeting September 9, 2020. A question, answer and comment period followed the formal presentation. The video will be made available online. The speakers were:

Armand Charbonneau, CFI-G host

Gary Steube, SSB President,

Nick Koukoutsakis, CFI Candidate

Ryan Harris, CFI Candidate

John Stewart, SSB Chief Tow Pilot

Graphics in the presentation included:

- Flightlog website demonstration
 - <https://ssb.michirado.com/flightlog/login/all>
- Google Earth views of KBDU with overlays of tow and landing patterns
- Glider 8 PTT outlanding fields video clip
 - <https://www.youtube.com/watch?v=QofGwDWMvFM&feature=youtu.be>

1. Introduction

- Welcome to all SSB members, but especially new and prospective members. This document is intended to orient glider pilots to SSB and KBDU policies and procedures. It is not flight training. How to fly is between you and your Club Instructor.
- KBDU is a difficult airport for glider operations due to high traffic, limited space and fickle winds. This document covers the “ground rules” for operating at KBDU.
- The Soaring Society of Boulder (SSB) was founded in 1959
- SSB has about 150 members
- SSB currently owns the following aircraft:
 - K-21 2-place training glider
 - DG 505 2-place high performance glider
 - Two Discus single place high performance gliders
 - Pawnee tow plane
 - Super Cub tow plane
- It is managed by a Board of Directors and Club Officers
- Membership types
 - Full – appropriate for most members
 - Associate – private ship owners often choose this membership
 - Limited – tow pilot only
 - Other – Family, Youth, Life, etc
- SSB Instructors are available on a fee basis
- Supplies and equipment are housed in two shacks and a cabinet
- SSB has a wide range of activity levels among pilots
 - Annual check required
 - Endorsement is required for each aircraft and operation
 - **Members must be SSB current to fly an SSB glider. That is 3 flights in the last 90 days or fly with an SSB Instructor before piloting Club ships.**
 - **This rule applies to SSB Instructors as well. SSB Instructors must have made 3 glider launches and landings in the last 90 days as sole manipulator of the controls.**
- Courtesy and cordiality is expected
- Most rules and policies are enforced via the Honor System
- Volunteers are always needed. Learn more about soaring and sailplanes by pitching in to help your Club.
 - Board membership
 - Instructors – CFI-G training incentives
 - Ship Managers
 - Retrieve Group
 - Periodic help with rigging/de-rigging, lawn mowing, and general maintenance tasks

2. Flightlog

- Flightlog is SSB's Ship Reservation and Member Software
 - <https://ssb.michirado.com/flightlog/login/all>
- It is SSB's custom software
 - Very well suited to SSB operations, but members must learn it features
- Notices
 - Things to know about the fleet
- Reserving a glider
 - Choose glider, time and instructor if required
 - You can only make one reservation at a time. You can make a new reservation as soon as the old one is completed (or deleted).
 - **Immediately delete your reservation and send an email if your plans change**
 - **Delete all reservations that are not flown by the end of the day**
- On the day of your flight
 - Allow ample preflight time
 - Getting on and follow the "Ready for Tow" List
 - You get on the tow list by signing in on the shack computer or on your smartphone when connected to the shack computer's wifi system. (You cannot get on the tow list from home.)
 - Courtesy requires that you remain at the airport to prepare your glider and assist others once you have signed in. (E.g., it is not acceptable to sign in early and then leave for breakfast.)
 - Pull out only when it is your turn on the tow list (honor system)
 - If the electronic tow list is not working, we use a paper list
- Logging your flight
 - Glider pilot puts in time, tow pilot puts in altitude
 - Altitude must match tow plane log
 - Duplicate feature for multiple flights
- 30 Days
 - SSB flights in the last 30-days
- Reports and Admin
 - Your member profile page
 - Full history of your flights
 - Endorsements required to fly or use club equipment
 - You must be endorsed in the ship you plan to fly
 - You must have a current Annual Check
 - Other Endorsements
 - Oxygen
 - Wave
 - West wind
 - Parachute
 - Rigging

3. Endorsements

You must have a checkout and endorsement to use or fly:

- K-21
- DG505
- Discus
- Parachute
 - What to check
 - Keep clean and dry
 - Do not set on ground
- O2 Checkout
 - Filling bottles from the cart
 - Have your own aviation cannula
 - Flared nose pieces and tab
- Rear seat
 - Not really needed unless you will instruct
 - Best for PIC to be in front seat if passenger in rear seat
- Rigging
 - Know how to rig and derig a glider
 - Need to know for cross country flights
 - Three or four members are needed to rig the DG505 and K-21
 - Need to know how to use trailer for retrieves
- West Wind
 - Need to be endorsed by an instructor
 - No good land out fields to the west
 - Tow plane - Pawnee only
- Cross-country
 - Before flying cross-country
 - Need rigging/de-rigging checkout
 - Learn use of trailer – hookup, legs, tie-down
 - Tracking
 - Glideport.aero
 - Flightradar24.com
 - Retrieve List Group
 - Stay in glide range with K-21 as we do not have a trailer

4. Supplies and Aircraft Maintenance

- In the shack
 - Computer
 - Filing Cabinet
- Maintenance shack
 - Parachutes
 - Air pump
 - Batteries
 - Tools and supplies
 - Supplies locker
 - Cleaning supplies
 - Tape
- Oxygen cart
 - Requires oxygen checkout
 - Have your own aviation cannula
- Report problems to the Ship Manager
 - New system for tracking supplies is under construction
 - Red tags for aircraft that is grounded

5. Uncovering and Preflight

- First, get and follow the checklist
- Tie one wing and slip off opposite cover loosely into the barrel
- Air in tires to be checked with a gauge before first flight of the day
- Vacuum and clean the cockpit if dirty
- Report maintenance issues to the Ship Manager
- Use tail dollies to move the DG and Discii
 - Do not leave gliders with tail dollies unattended
- Canopies require the utmost care
 - Canopies break easily and are very expensive to replace while the aircraft is grounded for an extensive period of time.
 - Do not leave a canopy open if you are more than 3 ft or 3 seconds away from it. That means within arm's reach.
 - Keep the canopy covers on until the ship is ready for launch. Put covers back on when parked.

6. Glider Staging on Runway - Preparation, Traffic, and Communicating with the Tow Pilot

- Be fully pre-flighted before pushing out. If there is a delay once on the runway, push back off the active runway
- Sit in the cockpit before pushing out, and check:
 - Ballast correct?
 - Pedals set?
 - Parachute and belts fit correctly?
 - O2 system set up and checked if needed
 - Radio check, AWOS, FLARM
 - Variometer sound and function correct?
- Make sure a tow plane is ready for you and check traffic before pushing out
 - Keep radio on, loud, and listen
 - Parachutes on
 - Check for glider and tow plane traffic cross-wind, downwind, base and final
 - Check for gliders staging at west end of the field
 - Check for gliders staging at Mile High Gliding
 - If you start to pull out and traffic is approaching, push glider back into its space
- No simultaneous launches or landings with Main runway
 - Call the tow pilot and clearly state your billing initials in alpha format: i.e. Nick Koukousakis say “November, India, Kilo” and where you want to be towed
 - Pattern, box, northwest, southwest, Nugget Ridge, Gold Hill, Eldorado Canyon, Thorodin Mountain, Gross Reservoir, etc

7. The Rope

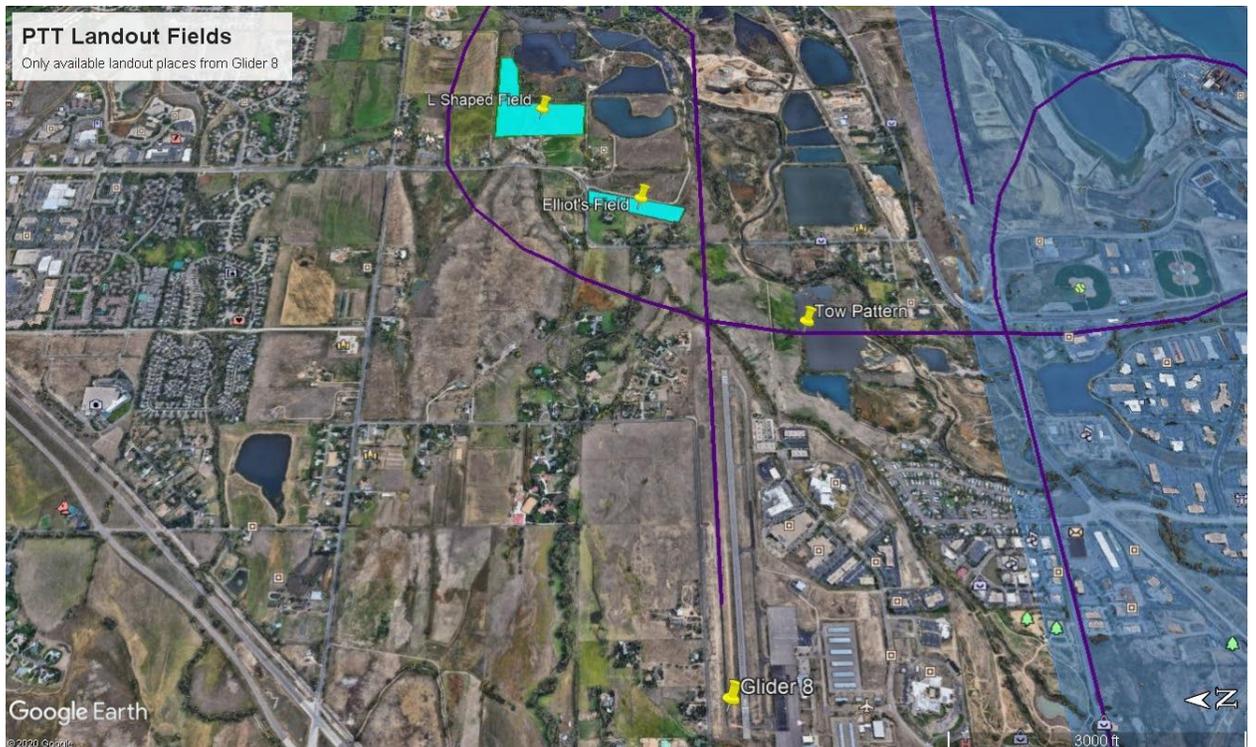
- Our rope is tested to be within the proper strength range for most gliders
 - It has a bowline knot on the glider end
 - It has a figure 8 knot at the tow plane end
 - Inspect the rope for “necking” near the knot
 - Inspect the knot for general wear
 - A cut whiffle ball is on the rope to decrease wear
- Reject if you do not like the way it looks
- Rope is cheap. Have it replaced if you think it is time.

8. Wing Running

- Members are encouraged to take the SSF Wing Runners Course
 - <http://www.soaringsafety.org/learning/wingrunner/wingrunner.html>
- Help the pilot(s) get harnessed and equipped in the cockpit
- Keep the south wing down until ready to launch
- Do not rush the PIC
- Retrieve the rope using a hook
 - Clear the hook away from being a trip hazard, but do not throw it so as to break it
 - Short stick kept in wing well of the K-21
- Keep watching traffic until the pilot gives you a thumbs up
 - If a glider is entering downwind, and the pilots are ready, pick up the wing and have them launch without delay
 - If glider, tow plane or any aircraft is on final, drop south wing and stop the launch
 - If a glider or tow plane is on base, use your best judgement
- Hold the back of the wing balanced. Let it float in your hand so the pilot can get a feel for the lift in each wing
- Learn the correct ground signals per above [soaringsafety.org](http://www.soaringsafety.org) link

9. East Launch PTT Land Out Fields and Turnarounds

- We mostly launch to the east as that is where the gentle winds come from
- From Glider 8, there are only two available off site fields for landing following a premature termination of tow (PTT)
- Elliot's Field - If very low
- L-Shaped Field - If below 200' (turn around altitude)
- Clemens' video on Glider 8 PTT land out options
 - <https://www.youtube.com/watch?v=QofGwDWMvFM&feature=youtu.be>
- Only practice turnarounds with an Instructor
- We only practice turns to the left so as not to interfere with Main 08
- In a true emergency PTT, turn into the wind or use best judgement
 - During pre-launch checklist, say direction of emergency turn



10. West Wind Launches

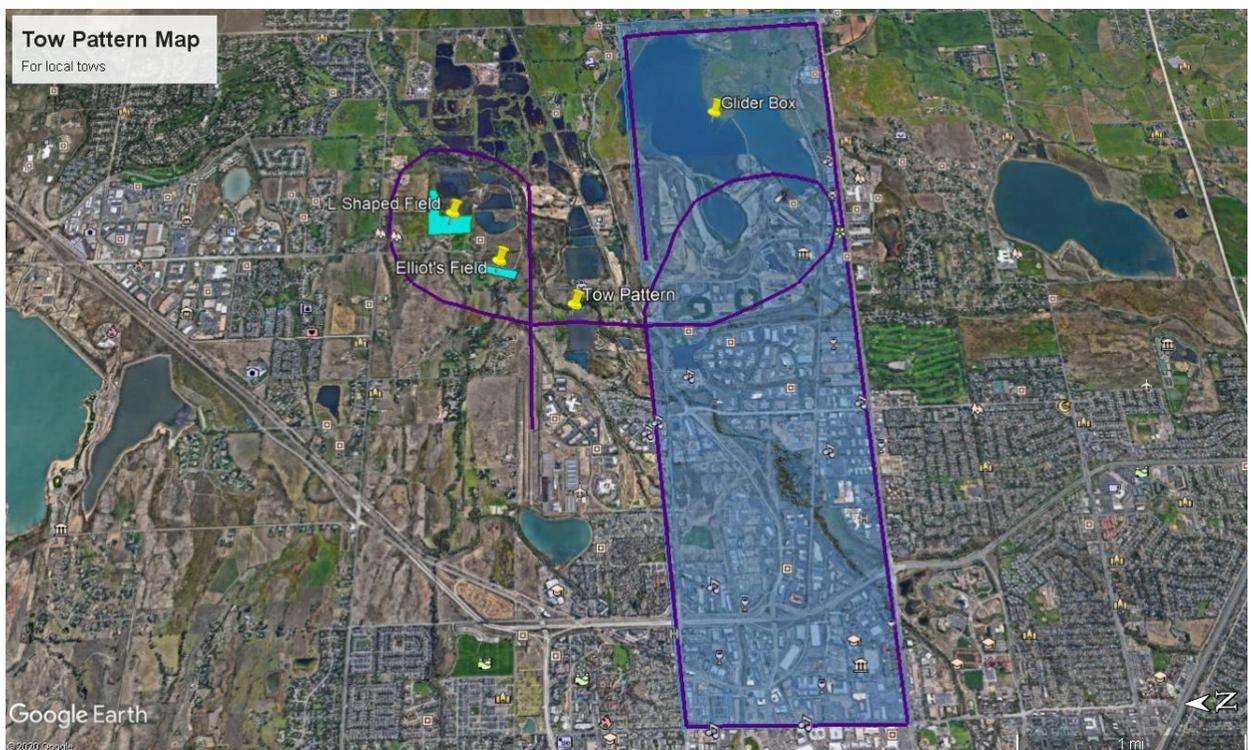
West wind launches require a specific check out and Endorsement in Flightlog.



- PTT land out fields in this direction are marginal
- Better with strong than moderate west wind

11. The Glider Box, Tow Traffic Pattern and Crossover Zone

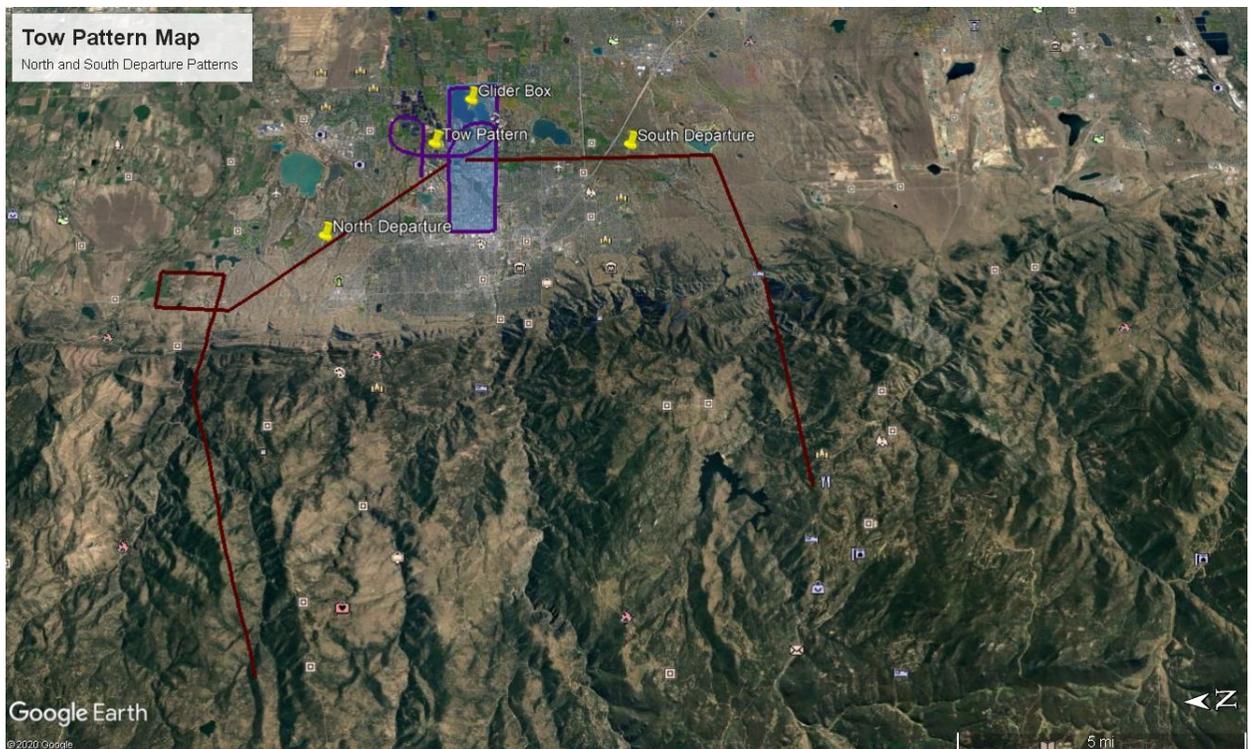
- Upon gaining 300 - 400 ft the tow plane turns left 270 degrees
- Tow plane turns another left 270 degrees after crossing Valmont Road
- Tow is flown in a race track pattern within the Box
- The Glider Box is bounded by:
 - Valmont on the north
 - 30th street on the west
 - Arapahoe on the south
 - 75th on the east
- The Glider Box is for training and space for gliders to loiter while awaiting a landing sequence. If multiple gliders are on arrival to the Box, use the radio to sequence landings
- Returning cross-county pilots should arrive in the Box at least 7,000' MSL to accommodate a landing sequence.
- Gliders on crosswind approach and tow planes fly at 90 degree angles, near pattern altitude over Valmont road. Be alert. Use collision avoidance scanning.



12. Tow Pilot Operations – Where They Can Tow You and Why

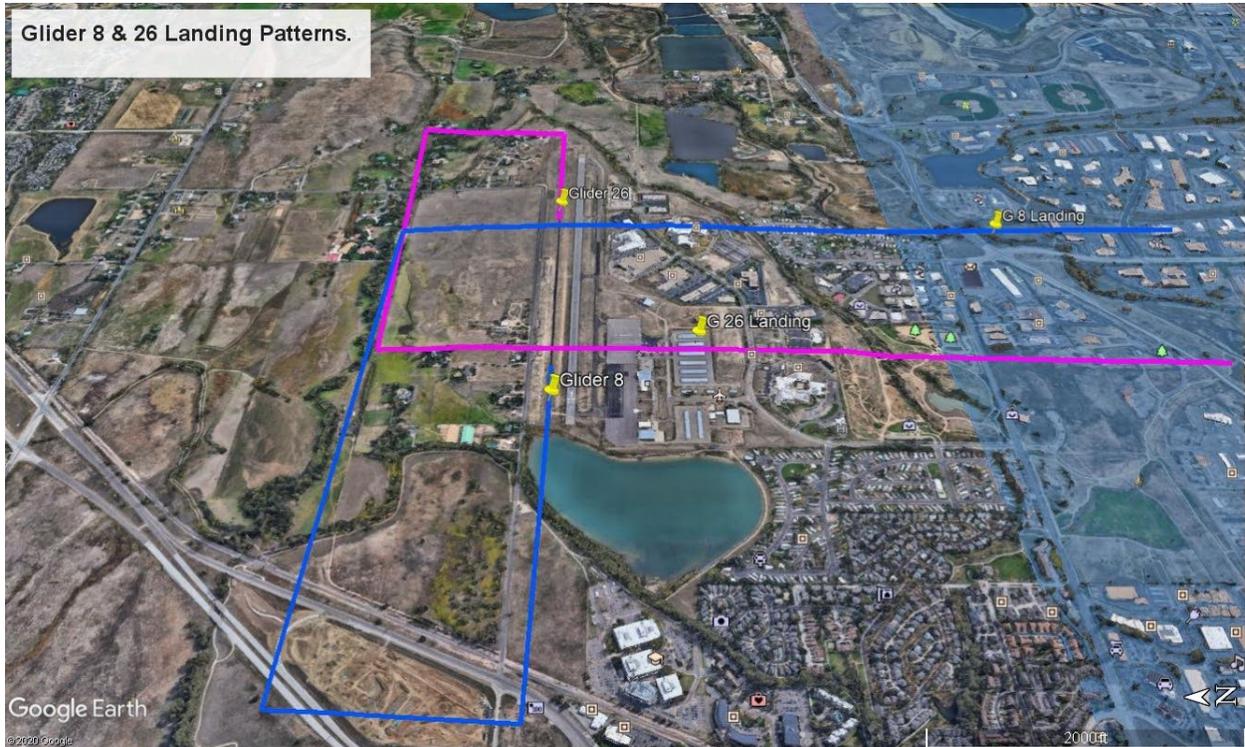
- **Gliders must solely focus on the towplane especially below 1,500 ft. No adjusting vents, instruments, computers, water, etc. Beware of KITING..that is flying so high above towplane that towplane loses elevator control. If you kite during takeoff roll or soon after takeoff, expect the towplane to release you regardless of position**
- East Launch:
 - Tow pilots aim to cross the gravel pit at or above 200 feet agl...5500 msl or higher. If unable to get to that altitude, they turn before the gravel pit to give the glider a better chance to land on the airport.
 - Tow pilots must cross Valmont road at 6500 msl or above to turn west in the Box...if below this, they do another left 270 degree turn to get 6500 feet before turning west along Valmont. Reason: this puts the tow plane and glider above the gliders and tow planes entering from the south...vertical separation to statistically reduce potential conflict.
- West Launch:
 - Stage the glider well east of the end of chip seal, so towplane can stage at end of chip seal: Reason: Due to turbulence and sink, common at west end of field, towplane and glider need to be as high as possible.
 - Towplane begins right turn to avoid flying past the west side of the soccer field. Reason: avoid flying over dense housing at low altitude. Note: this means the 180 turn to parallel Jay Road will be at low altitude. Also, this gives a glider a better chance of safe landing if rope breaks.
- Southwest Departures:
 - Tow pilots must be at 7500 or higher before crossing Arapahoe Ave at the golf course. Reason: at that point we are "flying over Boulder" and Boulder requests all aircraft avoid flying below 7500 over Boulder.
 - South Departures fly straight south until at Marshall Lake before turning west into the canyon. Reason: South Boulder is a major source of noise complaints
- Northwest Departures:
 - Tow pilots must be at 6500 or higher when crossing Valmont and crossing the field to the northwest. Reason: puts tow planes and gliders above traffic returning from the south, and all the normal traffic in the normal traffic pattern, which is at or below 6300 MSL

- Northwest departures do not enter the mountains until approximately at the entrance to Left Hand Canyon...then fly up north side of Left Hand Canyon. Reason: Increased dense housing in Pinebrook Hills and Lee Hill became a major source of noise complaints several years ago. Note: pilots complain that this takes too long...but most times tow pilots do not reach 8500 until near Left Hand Canyon...time and distance is very similar. See comments on why we do not cross into foothills below 8500.
- Crossing the foothills (the ridge):
 - Tow planes will not head west into the mountains unless at 8500 or higher. Reason: tow planes' rate of climb is insufficient to maintain a safe altitude over the rising terrain. This practice has been the standard since at least 2003. Once into the hills west of Lee Hill or through Eldorado Canyon, tow pilots will take you anywhere.



13. Landing on Glider 26

- In a west wind, there is a lee side sink monster lurking behind the hill east of the threshold
- Turn base at the (imaginary) 26, the runway is plenty long from there
- High performance gliders often land (fast) on runway 26 even if slightly downwind, so stay away from the runway
- Clear the runway promptly



14. Landing on Glider 8

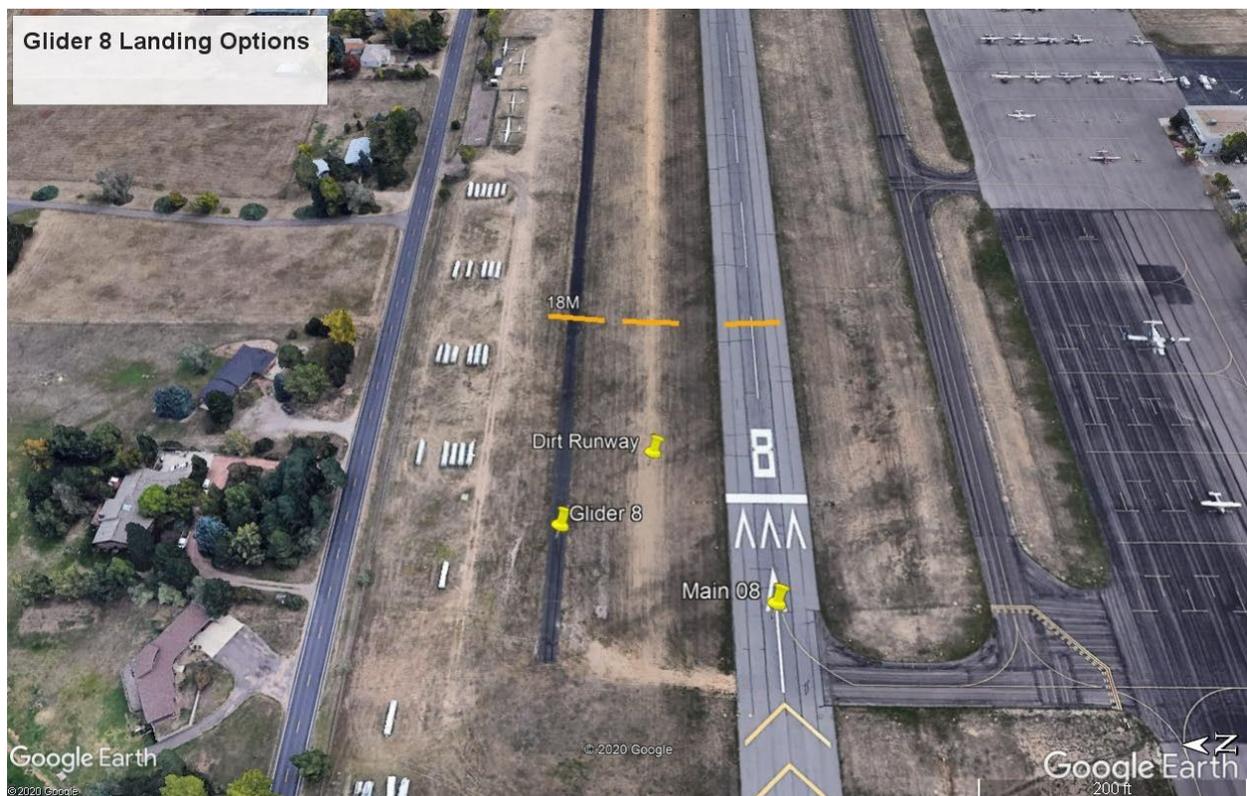
- Keep the approach close in to the runway
- Glider 8 is about 4,000 ft long. Think of it as eight 500' strips end to end. You do not have to land on the first strip.
- There might be sink over the lake, wind shear, trees, runway blockage
- Changing runways on final may be necessary
 - **STAY HIGH - Do not fly a low approach to Glider 8**
- North wind can contribute to overshooting turn to final
- Switch to Dirt or Main Runway if necessary
 - Dirt runway is narrow - barely enough room for a glider to pass another glider staged on Glider 8
 - Land short and stop, or close spoilers and land long to avoid passing other aircraft on the ground
 - Rolling onto Glider Runway only if clear
 - Discouraged
 - If landing on Main stay on centerline until stopped
 - Do not steer glider off runway – Stop and ground handle
 - Reason: runway edge lip, lights, signs and “Dirt” is an active runway
- The Glider runway is tapered to have a smooth transition to the ground. Rolling on or off is acceptable, but try to keep the glider on the runway
- Do not worry about landing long. It is no big deal to push back
- Clear the runway promptly after stopping

15. The Dirt Runway - Staying Between Two Active Runways

- Officially, this runway is named the grass runway. If an instructor tells a pilot to “land in the grass”, they do, but that is not where this runway is located. The place to land is a dirt strip between the Main and Glider runways.
- Keep the stick back/nose high to minimize rocks kicking up and hitting the underside of the glider
- Stay on the imaginary centerline of the dirt strip. There is very little clearance between the wings of a glider lined up for launch and lights on the Main runway.
 - This is why south wing is kept down when staging a launch
- If possible, land and stop before the aircraft on the glider runway. Otherwise, close spoilers and fly past aircraft on the ground before touching down.
- You may see some pilots cross over from the Dirt to the Glider runway. Often, this is the fastest way to clear the Dirt runway, but is not encouraged.
- Clear the runway promptly

16. Main Runway - Stay On the Centerline and Do Not Turn Off

- The Main runway can be landed on if needed. Do not hesitate to use it if traffic has the Glider and/or Dirt runway in use
- Make a radio call that you will be landing on the “main runway”
- Keep the Glider on the centerline. The runway is 23 meters wide. It has lights and signs on both sides. The K-21 has 18 meter wings and the DG505 has 20 meter wings. There is a very little clearance on each side of the wing tips.
- The Main runway has a lip keeping it above ground level. Ground rolling off is not acceptable. Hitting lights and signs is costly and has caused damage to gliders.



17. Parachute Operations and Alternate Landing Patterns

- Sky diving is a new traffic use at KBDU
- When jumping is in progress, do not fly over mid-field, but rather over the east end of the field (over the numbers 26)
- Jumpers land on the south central part of the airport grounds
- Jump Landing Zone north of hangars
- Jump planes are active when the green tarp is displayed on the landing zone.
- The Jump plane is supposed to call when two minutes away from jump and “jumpers away”



18. Clearing Runways Promptly - Members on the Ground Should Help

- If you are at the shack when a glider lands, go out and help the pilot clear the runway
- Bring a handheld radio and constantly watch for traffic
- Bring the tail dolly out for the DG or Discii

19. Covering, Stowing, Flight Logging and Tie Down

- Be careful when putting on the covers not to rip the covers or damage the glider
- Follow the checklist for stowage
- Keep the tie down ropes tight so the glider does not bounce around in the wind
- Tie down the west wing slightly lower than the east wing. The strongest winds come from the west and we do not want wind getting underneath the wing, trying to roll the glider.
- Keep tie down rope tight so glider does not bang around in the wind
- Ground ship if there is a significant problem – call Ship Manager
- Each flight has to be logged separately in Flightlog
- The Glider Pilot logs each flight and the time flown
- The tow pilot enters the tow height. The height in Flightlog has to match what is on the tow plane log.

20. Before You Leave the Gliderport

Especially if you are the last to leave the Shack area:

- Ensure all club gliders are properly stowed
- Ensure the shack, maintenance shack, supply cabinet and refrigerator is locked
- Check for loose items and put personal belongings in the shack
- Pick up any trash on the ground. It goes in the trash cans.
- Close the pedestrian gate and ensure the drive through gate is locked (check for others on field first)
- As a member, you are responsible to keep SSB assets and grounds in good condition

Questions and Answers from the Zoom Ground School:

Q: Is SSB 90 day currency requirement covered by use of private gliders?

A: Yes.

Q: How do we know when to pull out for tow list sequencing?

A: Know who is just ahead of you and launch next. Honor system for following the tow list

Q: If wind is out of the west and a glider ahead of you takes Glider 8 (downwind), but you want to land upwind, should you take Dirt 26?

A: No, take Main 26

Q: Is towing available seven days per week?

A: Yes. If no tow pilot is listed for a future date, reserve a glider anyway and a tow pilot may come out if they know there is demand. Also, you can get a tow from Mile High Gliding. Go to the Mile High Gliding office and put your credit card on file.

Q: When will Club Instructors be available again?

A: Not certain. It depends on the course of the pandemic or a vaccine.

Q: When can non-members come out to the field and watch?

A: Non-members are welcome and encouraged to come out, watch and talk soaring anytime

Q: Will a recording of this ground school be available?

A: Yes. A handout will also be provided

Q: Can we have golf carts at KBDU?

A: No. There is not enough room. Golf carts left out on the field would be a hazard.

Q: Can members take friends and family for rides?

A: Yes, if you hold a pilot (not student) license, glider rating and are SSB current. The pilot in command should be in the front seat as "passengers" will unlikely be able to operate the radio, vario and other instruments.