

# OPMF19 - STUDY GUIDE - HANG GLIDER TANDEM

## PART 1 - RECREATIONAL

This guide will help pilots understand the requirements for safe passenger operations and the discussion of the answers relates to the written examination for HG Tandem Recreational, and HG Tandem Professional Ratings. All pilots flying passengers have an increased responsibility above that of the pilot. Your passenger is putting their life in your hands! Be aware of this at all times and don't ever become complacent or over-confident. Remember to make conservative safe decisions - always.

### *Question 1.*

Ideally, gliders used for passenger flights should be specifically designed for this purpose, such as the Pacific Airwave Double Vision or Ultralight Products Dream 220. Clubs should consider purchasing such a glider if enough pilots are keen on tandem flying. However it is recognised that for recreational passenger flights other gliders will be used. The qualities required are large sail area, "roomy" control bar, light handling, gentle stall characteristics, easy launch and landing habits and 100% airworthiness. Due to higher loads, flying wires, downtubes and all structural components must be in perfect condition.

### *Question 2.*

Solo gliders flown tandem are likely to have excessive bar pressure (it may be difficult to put on enough speed for a good landing approach), high stall speed due to increased wing loading, reduced space inside the control bar, and difficult landing in light winds.

### *Question 3.*

Launch speed, stall speed and landing speed are all increased.

### *Question 4.*

Maximum safe wing loading is 2lbs per square foot of wing area.

### *Question 5.*

For Tandem Recreational rated pilots, it is recommended they limit their passenger weight to 120% of their own weight. Above this weight the control required to shift around a heavy passenger, especially if a solo glider is being used, could become excessive and compromise safety.

### *Question 6.*

The control of the glider is more restricted with two people inside the A-frame and the response time of the tandem glider is slower than solo flight so it is important to get the wings level on landing approach earlier than would be required for solo flight.

(continued over)

**Question 7.**

- (a) Don't touch the control bar or down-tubes unless instructed to by the pilot.
- (b) Run hard on launch and keep running until lifted into the air.
- (c) If landing on the feet, manoeuvre into a position behind and close to the pilot prior to landing, and be ready to run when the pilot instructs.

A thorough pre-flight briefing is essential but it shouldn't be too complicated. The passenger should be given parts of the pilot's harness to grip onto during launch, and immediately prior to launch should be reminded not to let go of the harness, not to grab any part of the control frame, and to keep running until in the air. Landing briefing should be repeated during the flight prior to landing approach. If the landing area is smooth, then the safest option for landing is to land on the wheels. A good set of pneumatic wheels is ideal.

**Question 8.**

The passenger's harness should be carefully checked especially leg loops and back straps, and a dual hang check always carried out, ensuring both pilot and passenger are hanging from main and backup suspensions, and karabiners are locked. (There has been at least one case where a tandem pilot has launched without being clipped in, leaving their passenger to fly alone!)

## PART 2 – PROFESSIONAL

NOTE: In accordance with OPM Section 4 Operations - SAFETY OF HANG GLIDERS AND PARAGLIDERS commercial tandem paraglider flights must use a documented NZHGPA accepted procedure or system over and above the standard pre-flight check to ensure “clip-in”.

### *Question 1.*

Characteristics of a suitable launch site for instructional passenger flight are -

- (a) Convex slope, starting gently and dropping away, this is not daunting to the passenger and allows a gradual build-up to the full launch run.
- (c) Obstruction-free area in front of launch, especially important for tandem as the pilot may have to sort out problems with the passenger as well as fly the glider, or the passenger may not run properly resulting in a difficult launch in light winds with more than usual height loss.
- (c) Smooth breeze directly up the slope. The extra speed needed to launch tandem means nil wind take-offs should be handled with caution and after careful consideration of the passenger's weight and running ability.
- (d) A well-constructed ramp with a good ground clearance (greater than 30ft at the end) would be the ideal launch site. (Unfortunately there aren't too many of these available!)

### *Question 2.*

- (a) These should be as large as possible, free from obstacles within the area and turbulence-causing obstructions around the perimeter.
- (b) A large easily spotted windsock should be present. Tail wind landings are not an option unless landing on wheels.

### *Question 3.*

The trim speed will be reduced due to increased sail twist caused by the heavier wing loading.

### *Question 4.*

By shifting the suspension loop forward on the keel. Unless this is done the increased bar pressure required to keep the glider flying above stall will be extremely tiring, especially in strong winds.

### *Question 5.*

- (a) Their weight
- (b) What sports or outdoor activities do they participate in?
- (c) Do they have any disabilities that may affect their run on launch or landing?  
(e.g. knee or ankle injuries)

It is important to assess your passenger's capabilities and the likelihood of them not carrying out your instructions properly prior to launch. All passengers will be nervous to some degree but if you have serious doubts about a passenger's abilities then don't fly with them.

### *Question 6.*

Whenever a suitable landing area is available (i.e. smooth enough for the wheels to operate) and when the wind is less than 5 knots, or your passenger is not capable of running. All instructional tandem gliders should be fitted with suitable wheels, as wheel landings are definitely the safest option.

**Question 7.**

- (a) You can maintain better control in the prone position, all the way to the ground.
- (b) Due to the weight of pilot and passenger being so far back, it is almost impossible to drop the nose, hence there is a reduced chances of damage to glider or flyers.
- (c) No input needed from the passenger.

**Question 8.**

Increased stall speeds means faster launch and landing, so a heavy passenger must be capable of a fast run in light or nil wind conditions. Nil wind landings are very difficult when not on the wheels. Tall passengers may still be running when the pilot is flying - not a problem provided they keep running, but it could cause problems on foot landing if they try to run as the pilot is bleeding off speed prior to flare.

**Question 9.**

- (a) When they're in the air for a long time - greater than 20 minutes.
- (b) When the air is turbulent.
- (c) When the pilot is doing a lot of circling in thermals or aerobatic manoeuvres.

To combat air sickness –

- (a) Take medication 30 minutes prior to flight e.g. Dramamine
- (b) Limit the time in the air.
- (c) Let the passenger fly the glider with the pilot - having their hands on the control bar seems to reduce airsickness.

**Question 10.**

Due to slower response times of gliders with passengers extra care should be taken when flying with other gliders. Ensure other pilots understand the VFR, especially concerning right of way and don't launch immediately behind another passenger-carrying glider. Tandem gliders have extra large wake turbulence, and on light wind launches the disturbances caused by the wing tip vortices can last up to 60 seconds after launch.

**Question 11.**

The most common faults on launch are -

- (a) Grabbing the control bar or the pilot's arm.
- (b) Failing to run properly.

Thorough pre-flight briefing on the importance of these areas, stressing the grip on the pilot's harness and a totally committed run until lifted into the air will reduce the chances of failed launches. Extra care is needed with heavier passengers, light winds, less than perfect launch sites and passengers unable to run strongly.

**Question 12.**

Maintenance requirements should be based on the manufacturers recommendations. Special attention to pre-flight inspections and regular full strip-downs should be made. Replacement of side wires at least every hundred hours is recommended. Accurate logging of all flights is essential.