

Revision 0

26 July 2016

Adventure Aviation—Parachute Drop- Aircraft Operations

General

Civil Aviation Authority advisory circulars contain guidance and information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rules and legislation.

However, the information in the advisory circular does not replace the requirement for participants to comply with their obligations under the Civil Aviation Rules, the Civil Aviation Act 1990 and other legislation.

An advisory circular reflects the Director's view on the rules and legislation. It expresses CAA policy on the relevant matter. It is not intended to be definitive. Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable, they will be added to the appropriate advisory circular. Should there be any inconsistency between this information and the rules or legislation, the rules and legislation take precedence.

An advisory circular may also include **guidance material** generally, including guidance on best practice as well as guidance to facilitate compliance with the rule requirements. However, guidance material must not be regarded as an acceptable means of compliance.

An advisory circular may also include **technical information** that is relevant to the rule standards or requirements.

Purpose

This advisory circular provides guidance material on parachute-drop aircraft operation, to assist adventure aviation operator to meet Civil Aviation Rule Part 115 *Adventure Aviation—Certification and Operations*.

Related Rules

This advisory circular relates specifically to Civil Aviation Rule Part 115 – Subpart J — Parachute-Drop Aircraft Operations but also refers to Part 91 and Part 105.

Change Notice

This is the initial issue.

Table of Contents

Rule 91.513 VFR Communication and navigation equipment.....	3
Rule 115.555 Maintenance	3
Seating Configuration and Restraint System Safety.....	3
Specific Seating/Restraint Configurations	4
Rear-Facing Floor Seating	4

Rule 91.513 VFR Communication and navigation equipment

- (a) Radio and navigation equipment must be certificated in accordance with a technical standard order (TSO) issued by the FAA or ETSO certificated by EASA (TSO'd).
- (b) To establish if an avionic component is TSO'd, refer to the component data label, manufacturer or avionic service provider.

Rule 115.555 Maintenance

Rule 115.61 requires the operator to maintain the aircraft and its equipment in accordance with an approved maintenance programme. Where the aircraft is fitted with role specific equipment such as handles and steps, parachuting doors and restraints etc., the operator must include Instructions for Continued Airworthiness (ICAs) for such items, in the maintenance programme.

Seating Configuration and Restraint System Safety

Not all seating and restraint system configurations used in jump aircraft provide the same level of safety in the event of an emergency landing or load shift. This advisory circular provides general information concerning the relative safety of commonly used seating configurations and restraint systems. These safety assessments are based on available research data and in-service experience.

- (a) **Quick release track fittings.** Single stud quick release track fittings have been shown to release from the track at dynamic loads much lower than their rated strength. Dual stud quick release fittings did not exhibit this behaviour in dynamic tests. Therefore, dual stud quick release track fittings provide a much more reliable restraint anchorage than single stud fittings.
- (b) **Lap belts.** Lap belts are only effective if there is a solid support surface behind the occupant, such as a seat back, aircraft sidewall, or bulkhead. Otherwise, a tether restraint that attaches to the parachute harness provides more effective restraint.
- (c) **Restraint for aft-facing parachutists.** Research has shown that to restrain aft-facing parachutists, the most effective point to attach a tether restraint to a parachute harness is at the junction of the leg straps, main lift web, and the horizontal back strap. One way to achieve this is to route the tether loop under the upper leg strap, then under the main lift web before latching the loop. Since these two components of the harness are easily accessible and visible to, by the wearer, this attachment method should not be prone to misuse. It also provides more effective restraint than attaching at other points on the parachute harness since the restraining force is applied near the seated occupant's centre of gravity (CG).
- (d) **Restraint belts or tethers.** Past experience and testing have shown the validity of attaching a restraint belt(s) or tether(s) to the parachute harness as part of the overall integrated restraint system. However, most manufacturers have not tested their parachute harness configurations to see if they can accept the load vectors that would be experienced during the actual use of this type of restraint configuration. Because of this, any parachute harness that has been subjected to actual use as part of an integrated restraint system must be removed from service and inspected by the manufacturer or a parachute rigger designated by the manufacturer to determine

the continued airworthiness of that parachute harness. If the inspection shows that the harness is airworthy, it may be returned to service.

Specific Seating/Restraint Configurations

- (a) **Side-facing.** Conventional side-facing bench seats employing dual point lap belts are a superior means of carrying parachutists in aircraft large enough to accommodate them. They offer the advantages of being simple to use and can be designed to provide significant vertical energy absorption. They effectively prevent movement forward and aft of the parachutist.

Rear-Facing Floor Seating

- (1) Restraints are more effective if attached to the floor instead of the sidewall. Only use sidewall attachments if floor attach points are not available.
- (2) Effectiveness of this system is not as good as the side facing lap strap for restricting rearwards movement (take off) but effectiveness can be increased if overall tether length is kept as short as possible and the tether attachment to the aircraft is aft of the harness attachment point and as near to vertical as possible.
- (3) Single point, single tether restraints are not recommended.
- (4) Dual point, dual tether restraints offer superior restraint compared to single point, single tether restraints. This restraint method consists of two straps, each connecting the parachute harness to the aircraft floor on both sides of the parachutist..

Use of oxygen if operators intend to conduct operations above 13000ft AMSL then the aircraft must be fitted with an approved supplementary oxygen system meeting the requirements of rule 91.209 and Part 91 Appendices A.16, A.17, A.18 and A.19, and each person on board is to use the supplementary oxygen above 10000ft AMSL.