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INSTALLATION INSTRUCTIONS FOR P/N: G025 SINGLE-POINT PARACHUTIST RESTRAINT (SPR)

BACKGROUND

CAR (1988) Regulation 251 requires that personnel carried in aircraft be restrained during take off, for landing, during flight below 1000 ft and in turbulent conditions. The default standard, CAO 108.42 covering seat belts and restraints has been repealed effective late 2007. Henceforth newly designed restraints must comply with FAA FAR TSO C22 or CASR Part 21.305A or be approved by some other mechanism other than CAO 108.42.

APF Operational Regulation 5.2.4 requires that: An aircraft used for parachute operations (other than a balloon) must be:

a) fitted with sufficient single point restraints manufactured to a standard approved by CASA and labelled accordingly and accessible to all parachutists aboard the aircraft, or
b) fitted with sufficient aircraft seats and seatbelts; and
c) used in accordance with O.R. 7.2.2 and O.R. 11.2.8.

APF Op Reg 7.2.2 requires that a parachutist must not be carried in an aircraft during parachuting operations unless the parachutist:
(a) has been instructed in the use of the parachutist restraints fitted to the aircraft; and
(b) wears the parachutist restraint at all times below 1,000 feet AGL and at any other time as directed by the pilot.

APF Op Reg 11.2.8 requires that unless otherwise approved in writing by the STM, tandem parachutists must be restrained in the aircraft at all times while in flight in such a manner that enables them to be attached to the tandem instructor before being detached from the restraint.

SINGLE-POINT PARACHUTIST RESTRAINT (SPR)

The Air Safety Solutions Part G025 SPR is designed to restrain a parachutist as an alternative to an approved seat belt or approved restraint harness – where the seats and seat belts have been removed from the aircraft. Parachutists using the G025 SPR may be seated on the floor or on a bench seat specifically built for carrying sport parachutists.

The G025 SPR is CASA-approved under the provisions of CASR Part 21.305A and is rated to restrain one only parachutist wearing a parachute. When tandem parachuting operations are conducted, the Tandem Passenger is to be restrained using one G025 SPR and the Tandem Master with his/her parachute using a separate G025 SPR.

The G025 design SPR meets the requirements of Australian Parachute Federation Equipment Standard APF ES 060307-F.

AIRCRAFT INSTALLATION CONSIDERATIONS

The G025 SPR is attached to the aircraft via an existing seat belt anchorage point, or floor hard point, or to the seat track. Three alternative fittings are available: 1) a triangular flat or bent plate H146 for a floor-mounted seat belt anchorage, 2) floor-track cargo ring SF17 for a Davis floor track, or 3) seat belt flat snap H203 for a seat belt mounting bracket or a floor-mounted cargo tie-down ring. If planning to use the triangular flat or bent anchor plate the mounting bolt size needs to be determined.

A FWSR25 side-release plastic buckle must to be fitted to the side wall of the aircraft using a sheet metal screw and tinnerman nut, or equivalent. This allows the SPR free end to be plugged into the FWSR25 side-release buckle to keep the free end of the G025 off the floor and away from the feet of parachutists when the restraint is not connected to the parachutist. The restraint remains attached to its anchor point, at all times, and side-release buckle when the parachutist exits the aircraft.

Each SPR anchor point needs to be approved. For this reason, the installation of the SPR to a particular aircraft requires separate approval. Anchor points to be used must take account of: 1) the number of parachutists onboard the aircraft, 2) parachutist's positioning on the floor, 3) the location of suitable hard points, and 4) floor-loading limitations.

The parachutist should be beside or forward of the restraint anchor point - but never aft.

Webbing used in the G025 restraint is Mil-W-4088 Type 24 which is in common use for seat belts in aircraft originating from the USA. This webbing meets the burn-rate requirements of FAR 25.853 (b-2).

When supplied, the G025 SPR will be accompanied by an Authorized Release Certificate with a notation that installation in an aircraft requires a separate approval.

DETERMINING SPR OVERALL LENGTH REQUIREMENTS

The G025 SPR design allows for fixed lengths of 200mm minimum to a maximum of 800mm between the anchorage and buckle to allow: 1) for the height of the seat, and 2) provide for a hard point that is located some distance behind the parachutist's sitting position. With the G025 SPR design – the user cannot adjust the length.

The G025 design relies on the aircraft operator establishing: 1) the proper positioning of each parachutist, 2) an appropriate strength-rated anchor point for the restraint, and 3) selecting an overall restraint length to suit that position. Careful selection of restraint length and placement should minimize the forward movement of the parachutist during a rapid deceleration such as aborted take off or crash landing.

The connector adjustment length is 300mm and just sufficient to pass around the parachutist's harness and connect to the buckle. When the SPR is disconnected from the parachutist's harness at 1000 ft AGL the buckle and connector are plugged together and the SPR free-end stowed on the side wall of the aircraft using the small Fastex® buckle. This reduces, substantially, the chance of entanglement with the parachutist's feet when moving around the cabin.