

This document is EASA approved
EASA-approval number: 10065243

This appendix describes the proceedings for the utilization of the occupant restraint for Schroeder fire balloons hot air balloons baskets.

1. General information

The information of this appendix replaces deviant information of the Theo Schroeder fire balloons GmbH flight manual concerning this specific application. If national or European laws should change or deviate from the information in this appendix, the deviant information in this appendix must be neglected

The recommendation is to put on the pelvic belt before the start as described in section 4, prepare the restraint belt so that a rapid connection of the restraint belt and the pelvic belt is possible and connect the belts early enough before the landing. The manufacturer explicitly declares, that it is not a must to wear the system throughout the whole flight. The system can be used by pilots or other occupants, but it is meant to be worn by the pilot in the first place.

2. Limitations

The described system is exclusively to be used for persons only. The system must only be installed by the manufacturer or a maintenance organization (MO) with a national approval. Damaged parts of the restraint system must be replaced. Only original Schroeder fire balloons parts must be used.

3. Parts of the occupant restraint

The equipment for the occupant restraint consists of the following assembly groups:

1. Pelvic belt
Adjustable circumference
2. Restraint belt
Adjustable length
3. Anchor (V-bolt)
For the installation to the basket floor.

The parts are illustrated in picture 1 and defined in the following text.

The pelvic belt is available in two different lengths. The restraint system is matched in length to allow the pilot to step forward to the front end of the basket with the restraint belt in free length, in order to get a better view over the landing site for example, without being forced to take off the restraint.



Picture 1: Parts of the restraint systems

To part 1: The pelvic belt consists of a Quick-Lock-Buckle, the belt and a D-Ring with separation for the belt. The Quick-Lock-Buckle consists of two parts, the buckle tongue and the buckle lock. The lock can be unlocked by pressing both knobs of the lock at the same time in order to be able to remove the buckle tongue from the lock and put on the pelvic belt. The buckle tongue must be pushed into the buckle lock for interlocking until a click sound is audible.

To part 2: The restraint belt is equipped with Aluminum karabiners attached to each end in order to establish a connection between the anchor and the pelvic belt. It consists of a short belt with a clasp and long belt that is worked into the clasp which can be used to adjust the length of the restraint belt. Generally, the long belt of the restraint belt is connected to the anchor on the floor.

To part 3: The floor anchor consists of V-bolt including a welded-on plate, a counter plate and two self-locking nuts for the floor installation.

4. Operation of the system

Precondition for a boundless use of the restraint system is a professional installation of the system inside the basket. Further information to the installation is given in section 7 of this appendix.

The restraint system should be connected to the anchor on the floor with the karabiner of the long and adjustable side of the restraint belt. We recommend to make sure that the open side of the karabiner shows in direction of the wicker wall. Is the restraint belt not connected to the pelvic belt, the restraint belt should be laid over the basket rail or attached to one of the basket handles inside the basket, to assure that a rapid and uncomplicated connection is possible. We advise not to deposit the restraint belt onto a fuel cylinder to avoid inadvertent actuation or damaging of the cylinder equipment.

The pelvic belt should be positioned on the hip with the Quick-Lock-Buckle on the front side of the body, to be able to reach the buckle any time. The belt should not be twisted and will be locked as shown in picture 2 and tightened (picture 3). The loose end of the belt can be laid into the D-ring of the pelvic belt. For the better utilization of the system we

recommend to position the D-ring on the side of the handedness of the wearer. (left handed → left side / right handed → right side).



Picture 2: Locking the Quick-Lock-Buckle



Picture 3: Tightening the pelvic belt

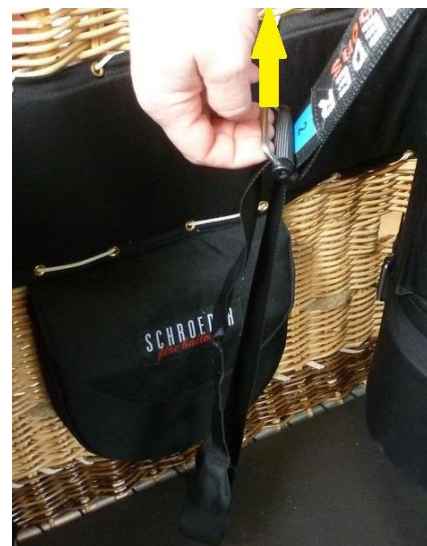
If the pelvic belt is tightened and adjusted to the needs of the wearer, the pelvic belt can be connected to restraint belt that was already connected to the anchor. The karabiner attached to the restraint belt is used for the connection. For better use, the opening of the karabiner should be facing to the back. The restraint belt must be running free from obstructions.

For a better flexibility of the restraint occupant, the pelvic belt can be loosened a little.

The pelvic belt can be worn “a little loose” for more flexibility during flight with the restraint belt connected to the pelvic belt. Before the landing, the restraint belt should be shortened for a more stable position. The change in length can be achieved by grabbing the long side of the restraint belt directly underneath the buckle, and pulling the belt through, and away from the buckle. The procedure is shown in picture 4.



Picture 4: Adjusting the restraint belt



Picture 5: Releasing the restraint belt

For releasing or extending the restraint belt again, the buckle can be pulled upwards as shown in picture 5. The belt of the restraint belt easily slides through the retainer of the buckle when pulled and the restraint belt releases. For releasing the pelvic belt, the buckle tongue must be pushed away from the body at the outer end of it, so that the belt slides through the buckle tongue’s locking device. For taking off the pelvic belt, both knobs of the

buckle lock must be pressed at the same time as indicated in picture 6. After taking off the pelvic belt, the buckle tongue should be inserted into the buckle lock to avoid unnecessary twisting of the belt.

5. Emergency procedures

If a hard landing is to be expected, the pelvic belt must be checked for sufficient tightness on the hip and retightened if necessary. A position inside the basket must be taken from where all necessary operating controls of the envelope burners and fuel cylinders can be operated, so as the emergency equipment (fire extinguisher and fire blanket) can be taken from the retainers or brackets. The restraint belt must be tightened at this point.

The recommendation is to have the V-bolt of the restraint system in flying direction behind the person that must be restrained. If the orientation of the basket does not allow that, a very close position to the V-bolt is recommended to be achieved, with the above mentioned aspects.

In case of a rapid evacuation of the basket, the quick-lock-buckle must simply be unlocked for the escape from the basket. This procedure is shown in picture 6 below and needs to be learned by the restraint person through repeating exercises during the safety instruction before the flight.



Picture 6: Releasing the pelvic belt

6. Preflight check

Before taking off, the pelvic belt and the restraint belt must be checked for damages, wear or fatigue. The metallic parts of the complete restraint system must not show any kind of tears, bending or changes of colour. The karabiners must be easily operated and completely locking without any external influences. The quick-lock-buckle of the pelvic belt must also be easily and immaculate operated.

The two self-locking nuts of the V-bolt underneath the basket must be tight and the floor plate must not show any tears or damages in a radius of 30 cm distance to the V-bolt.

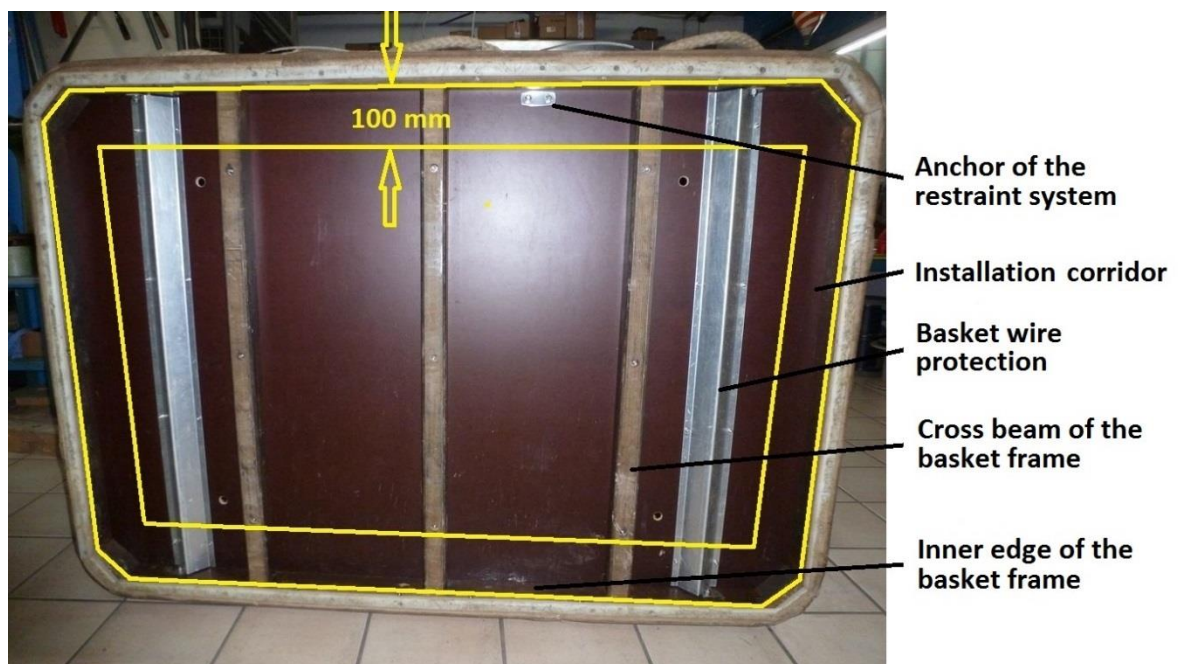
7. Installation

The occupant restraint must only be installed by the manufacturer or a maintenance organization with a national approval. The measures described in this flight manual appendix must be obeyed.

At first, a suitable position for the installation of the occupant restraint must be found. The following aspects must be considered. The restraint occupant must be able to reach all operations and emergency installations of the hot air balloon. Operations and emergency installations would be for example burner valve handles, cylinder valve levers or handles, fire extinguisher, fire blanket, radio etc..

Further considerations must be laid to parts of the basket in the bottom area that must not be interfered with like cross beams of the basket frame, basket wires and covers of the basket wires. The anchor (V-bolt) of the restraint system should be mounted as close as possible to the inner edge of the basket frame. The interference or possibility of injuries (stepping onto it or twisting ankles) by the protruding V-bolt inside the basket should be minimized by that. The anchor must not be covered by installations inside the basket or mounted in areas where fuel cylinders can be strapped to the wicker. The accessibility of emergency equipment as fire extinguishers, fire blankets or first-aid-kits must not be obstructed when the restraint systems is worn and strained. The recommendation is also to install the anchor on the floor plate near attachment screws of the floor plate. If it is not possible, due to installed equipment to the wicker, to mount the V-bolt close to the inner edge of the basket frame as recommended, it can be installed within the tolerance corridor of 100 mm inside the basket frame as drawn in picture 7.

The anchor of the restraint system for baskets of the M-sizes must be installed between and close to the basket runners.



Picture 7: Anchor installation corridor

The V-bolt consists of the actual V- formed bolt, a counter plate and two self-locking nuts. If a suitable position, considering the before mentioned aspects, for the V-bolt is located, the counter plate of the V-bolt can be used to mark the holes for the V-bolt from underneath the basket. The holes with a diameter of 8,5 mm can be drilled with only few pressure and high rotation speed of a freshly sharpened HSS-drill into the floor plate at the marked positions. It is recommended to hold up the opposite side of the floor plate with a wooden board during the drilling to avoid splintering of the plate surface in the inside of the basket. The wood fibers of the bore should slightly be cut away with a countersink on both sides with only few pressure.

!Attention! The risk of injuries increases when working with rotating tools in machines!

The V-bolt can now be inserted into the holes from the inside of the basket. The counter plate must be put onto the threaded ends that poke from the floor plate underneath the basket. The two self-locking nuts must be used to mount the V-bolt to the floor plate. The tightening torque of the nuts is 25 Nm.

If a padded floor mat is used for the basket, the corresponding spot must carefully be cut out so that the V-bolt can peak through the padded mat for use.

If more than one restraint system is to be installed in the same basket, the manufacturer must be consulted for available options.

8. Maintenance and care

If the occupant restraint is dirty, it can be cleaned with water and a mild cleaning detergent. If the belt gets in contact with oil or aggressive chemicals, the manufacturer must be consulted.

There is no necessary maintenance.