AC 121-6-3(Rev 1)
20 September 2019

Civil Aviation Authority of Singapore

Advisory Circular

ACCEPTABLE CHILD RESTRAINT DEVICES

GENERAL
Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 3C of the Air Navigation Act (Cap. 6) (ANA), to demonstrate compliance with a statutory requirement. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

PURPOSE
This AC provides guidance to demonstrate compliance with, and information related to, requirements regarding the use of acceptable child restraint devices in the aircraft passenger cabin in accordance with ANR-121.

APPLICABILITY
This AC is applicable for an AOC holder operating in accordance with ANR-121.

RELATED REGULATIONS
This AC relates specifically to regulations 59 and 87 of ANR-121.

RELATED ADVISORY CIRCULARS
- AC 121-6-4 Acceptable Restraint Devices for Passengers with Restricted Mobility

CANCELLATION
This AC supercedes AC 121-6-3 (Rev0). In this Revision 1, paragraph 1 is amended to add a reference to the related advisory circular on acceptable restraint devices for passengers with restricted mobility.

EFFECTIVE DATE
This AC is effective from 20 September 2019.

OTHER REFERENCES

- ICAO Guidance Document 10049 – Manual on the Approval and Use of Child Restraint Systems.

DEFINITIONS

For the purpose of this AC, the following definitions apply:

- **Child Restraint Device** - A device designed to safely restrain a child to prevent or minimise injuries resulting from inertia forces or other in-flight forces such as turbulence. A child restraint device may be a seat belt, a supplemental loop belt, safety harness or child restraint system.

- **Child Restraint System (CRS)** - A child restraint device, other than a seat belt and supplemental loop belt, that is designed specifically to protect and restrain an infant or child during all phases of flight. Typically, it has an internal harness and belt combination. The device needs to interface with the aircraft seat. This includes devices that are secured using the aircraft seat belt as well as systems that secure the device to the aircraft seat.

- **Supplemental loop belt** – A child restraint device in the form of an abdominal belt that restrains an infant on an adult's lap by inserting a segment of the adult's seat belt through a loop on the abdominal belt. It may also be known as a supplemental belly or loop belt, or infant seat belt.

1 INTRODUCTION

1.1 This AC advises an AOC holder on the acceptable means of compliance to the following requirements:

(a) Regulation 59(1) of ANR-121 requires the AOC holder to ensure that all passengers are to be seated and restrained in accordance with Regulation 51 of ANR-91. This includes that a child below the age of two, in accordance with regulation 51(3) of ANR-91, must be securely restrained with a seated adult, or be secured in a seat equipped with an approved child restraint system.

(b) Regulation 87(3) of ANR-121 requires the AOC holder to provide a seat belt or harness for each seat in use, and a child restraint device for every child below the age of two.

1.2 This AC also recommends the preferred choices of acceptable child restraint devices.

1.3 The AOC holder should also refer to AC 121-6-4 Acceptable Restraint Devices for Passengers with Restricted Mobility.

2 ACCEPTABLE CHILD RESTRAINT DEVICES

2.1 The child restraint devices that are acceptable to CAAS are listed in **Appendix A**. A AOC holder should ensure that the use of an acceptable child restraint device is in accordance with the manufacturer's instructions regarding the user's age, size, weight, height and/or other physical limitations.

2.2 Among the acceptable devices, the CRS is considered by the International Civil Aviation Organisation (ICAO) as the "safest way to secure an infant or child on board an aircraft" [1]. An AOC holder should therefore facilitate the use of CRS as a means to secure an infant or child and develop policies on the proper use of CRS.

3 OPERATIONAL POLICY AND PROCEDURES

3.1 An AOC holder should develop a policy on the acceptance and use of child restraint devices on board its aircraft. The policy should be based on safe operating practices and take into consideration guidance set out in this section of the AC.

3.2 When a child restraint device is carried on board an aircraft, the AOC holder's policy should address the following:

(a) **Stowage**. When not in use, a child restraint device should be stowed in an approved stowage location that would not impede the crew in their duties, obstruct floor level emergency exits and access to emergency equipment, hinder aircraft evacuation or pose as a tripping or falling object hazard to the crew or passengers.

(b) **Installation**. A child restraint device should be installed on an aircraft seat in accordance with the manufacturer's instructions, utilising approved or certified interlacing connector(s)/device(s), if applicable. The child restraint device

[1] ICAO published the Manual on the Approval and Use of Child Restraint Systems (Doc 10049) to provide guidance to States and operators and encourage a globalised harmonised approach for the use of approved CRS and other child restraint devices. The manual also presented the analyses from studies by different authorities on the various forms of child restraint devices.

should not be used if the aircraft seat is not equipped with similar connector(s)/device(s) that will enable it to be installed correctly.

(c) **Operation**. When in use, a child restraint device should remain installed on an aircraft seat for all phases of flight. In the case of a CRS, which can be reclined, it should remain in an upright position for the same circumstances where an aircraft seat is required to be upright in flight.

(d) **Accompanying caregiver**. An accompanying parent, guardian or caregiver should be present and available to attend to the safety of the child who is using the child restraint device.

3.3 In addition, the AOC holder should develop accommodation policies to facilitate the use of a child restraint device to cater for situations such as the seat chosen restricts or disallows the use of that child restraint device. Such a situation may arise due to emergency exit seat allocation restrictions or the design variation of the seat. Accommodation policies may include offering alternative seat options, in the same class of service or as determined by the operator, where the child restraint device may be installed or used without losing its functionality to ensure the user's safety.

3.4 Using the CRS and its design variation as an example, the following are some scenarios and the corresponding accommodation policies that an AOC holder could consider:

(a) A CRS with a base that is too wide to fit properly in a seat with rigid armrests.

Possible Accommodation: The CRS should be moved to a seat with moveable armrests that can be raised.

(b) An aft-facing CRS that cannot be installed properly because of limited pitch (distance between seats) between rows.

Possible Accommodation: The CRS can be moved to a bulkhead seat or a seat in a row with additional pitch.

(c) A harness type CRS with an upper strap that is not able to encircle some business class sleeper seats or very large first class seats.

Possible Accommodation: The CRS can be moved to another seat that can accommodate the strap.

(d) Aft facing CRS that have a detachable base that may keep the CRS from fitting properly in the seat.

Possible Accommodation: If there is a belt path on the aft facing CRS and the CRS is properly labelled, then it does not need to be used with the detachable base on the aircraft.

3.5 An AOC holder should also address other areas such as the management, acceptance and training on the use of different types of child restraint devices on board an aircraft. These include but are not limited to the following:

(a) staff training programme to enable operational personnel to understand regulatory requirements, policy and procedures, responsibilities and duties as well as limitations related to the use of acceptable child restraint devices;

(b) Safety and Emergency Procedures (SEP) specific to the use of acceptable child restraint devices;

(c) promotion of proper usage and educational initiatives to equip passengers with information and limitations on the use of acceptable child restraint devices; and

(d) as part of the Safety Management System (SMS), the monitoring of policies, procedures and practices for any potential gaps, hazards or areas of improvement pertaining to the use of acceptable child restraint devices.

3.6 An AOC holder should promote its policy for its use of acceptable CRS so that a passenger can be more informed about the availability and the proper use of such devices.

4 CONCLUSION

4.1 An AOC holder should take the content of this AC into account when developing its policies related to the use of child restraint devices on board an aircraft.

5 CONTACT INFORMATION.

5.1 Should you have any queries relating to this subject, please contact CAAS at CAAS_AFO_Infocenter@caas.gov.sg.

APPENDIX A ACCEPTABILITY OF CHILD RESTRAINT DEVICES

1 CHILD RESTRAINT DEVICES ACCEPTABLE BY CAAS

1.1 Child Restraint Systems Approved by Foreign Authorities

A CRS approved by the following foreign authorities and labelled or marked as appropriate is acceptable by CAAS.

(a) Aviation Child Safety Device – The FAA and EASA publish the minimum performance standard that a CRS will need to comply with, namely, FAA TSO-C100 – Aviation Child Safety Device (ACSD) and EASA ETSO-C100 – Aviation Child Safety Device. A CRS (regardless of whether they are forward-facing or aft-facing) that complies with the minimum performance standards will be labelled by the manufacturer that it has met the appropriate minimum performance standard.

CRS that is approved under an FAA TSO or ETSO will be labelled by the manufacturer and will contain the following wordings along with the associated TSO or ETSO revisions (i.e. a, b, c…):

- "Approved under FAA TSO-C100"; or
- "Approved under EASA ETSO-C100"

(b) CRS that comply with the following motor vehicle CRS standards are also acceptable provided that they are labelled to be acceptable for use on board an aircraft.

(i) Canada Motor Vehicle Safety Standard (CMVSS) 213 – Restraint Systems or CMVSS 213.1 – Infant Restraint Systems.

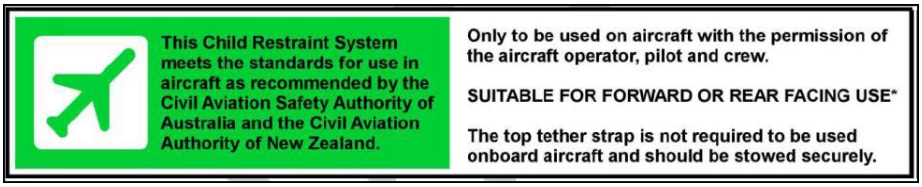
<u>Example of label for CRS approved under CMVSS No. 213 or CMVSS No. 213.1</u>

(ii) United States Federal Motor Vehicle Safety Standard (FMVSS) 213 – Child Restraint System.

Example of label for CRS approved under FMVSS No. 213

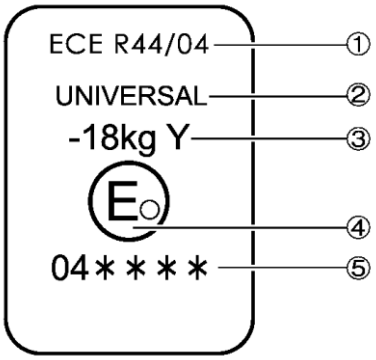
(iii) Australian/New Zealand Standard (AS/NZS) 1754:2013 (or later amendment) – Child restraint systems for use in motor vehicle.

Example of label for CRS approved under AS/NZS 1754:2013



(iv) United Nations (UN) Economic Commission for Europe (ECE) Regulation No. 44 Revision 3 (or later amendments) – Uniform Provisions Concerning the Approval of Restraining Devices for Child Occupants of Power-Driven Vehicles.

Example of label for CRS approved under ECE Regulation No. 44



Note:

① The ECE regulation number and revision series number;

② The child seat category;

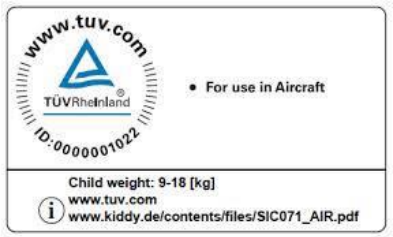
③ The mass range for which the child restraint has been designed (the symbol “Y” in the case of a device containing a crotch strap);

④ A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval;

⑤ The approval number of the device.

(v) CRS that are qualified in accordance with German TÜV Doc. TÜV/958-01/2001 – Qualification Procedures for Child Restraint Systems for Use in Aircraft.

Example of label for CRS approved under TÜV/958-01/2001



1.2 Child Aviation Restraint System (CAReS)

CAReS is a belt and harness-type restraint child safety device with weight restrictions. CAReS is a CRS approved by the FAA and is acceptable to CAAS for use on board an aircraft. This device provides an alternative to using a hard-backed seat CRS and is approved only for use on aircraft. Such a CAReS is labelled:

(i) "FAA Approved in Accordance with 14 CFR 21.8(d), Approved for Aircraft Use Only"; or

(ii) "FAA Approved in Accordance with 14 CFR 21.305(d), Approved for Aircraft Use Only".

1.3 Supplemental loop belt

A supplemental loop belt is acceptable to CAAS. An acceptable supplemental loop belt should be manufactured with the same methods and fabricated with the same materials as the approved aircraft seat belts.

1.4 Other restraint devices

For the use of other restraint devices not listed above, the AOC holder may consult CAAS on its acceptability.

2 DEVICES NOT ACCEPTABLE FOR USE AS A CHILD RESTRAINT DEVICE

The following child restraint devices are not acceptable for use as a child restraint device on board an aircraft:

2.1 Booster seat

A booster seat is an extra cushion or foam positioned on an existing seat for a child to sit on. The main purpose is to lift the child and help to correctly position the seat belt over the child's body; it is usually used for a child who is too small to correctly fit an aircraft seat belt.

2.2 Infant sling

An infant sling, which may also be known as ring sling, pouch sling or wrap is a device made of lengths of fabric used to support and holds an infant close to the wearer's body, sometimes coupled with fastener or ring.