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**Safety frames for tri-wheel vehicles -- Requirements and test  
methods**

三轮汽车安全架 要求和试验方法

**(English Translation)**

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### Foreword

All the technical contents of this standard is mandatory.

The standard proposed by China Machinery Industry Federation.

The low standard by the National Automotive Standardization Technical Committee (SAC/TC234) centralized.

### 1 Scope

This standard specifies the installation and strength requirements and test methods for three-wheeled automobile safety cage.

This standard applies to unsecured cab three cars.

### 2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 7121.1 wheeled agricultural and forestry tractors guard strength test methods and

acceptance criteria - Part 1. Rear static test the method (GB/T 7121.1-2008, ISO 5700:2006, Tractors for agriculture and forestry-Rol-over protective structures (ROPS) - Static test method and acceptance conditions, MOD) GB/T 19498-2004 guards agricultural and forestry tractors - Static test method and acceptance technical conditions GB/T 23931 Test Method for three cars

### 3 Terms and Definitions

The following terms and definitions apply to this standard.

Shelter area clearance zone in the longitudinal center plane of the seat occupants and seating signs point to a combination of the spatial extent of shelter for the occupants of reference specified.

[Single-seat shelter area see GB/T 19498-2004,3.3] 3.2 Overturning guard rol-over protective structure Means a cab or security skeleton frame, column and other components, able to shelter occupants in the area to provide security protection Means.

Safety Cab Overturning have guards that can occur in three cars overturning accident, the occupants in the area to provide shelter security of driving Cab.

Safety cage safety frame in order to prevent the goods under pressure, and/or pediment, three car occupants cause damage when tipping a rigid frame.

Rated load mass maximum design payload Three car factories allow maximum loading of goods quality.

Safety cage width width of safety frame the distance between the outermost end of the three-wheeled automobile safety cage two tangent plane.

#### 4.1 Safety cage installation requirements

##### 4.1.1

three cars front cargo box should be installed at least 70mm higher than the cab safety frame. None of the three cab car cargo box front should Installation height above the plane of at least 800mm seat occupants safe aircraft.

##### 4.1.2

safety cage width should not be less than the width of the container.

##### 4.1.3

safety cage connection method should ensure a solid and reliable, not because of vibration and loosening of three-wheeled vehicles.

## **4.2 Safety cage strength requirements**

### **4.2.1**

safety cage should be able to withstand the required tests and crushed the rear longitudinal loading test load. After the test, the safety cage and connections and/or welding Disconnect connection, fault, safety cage and the fixed member detachment destruction should not appear.

### **4.2.2**

safety cage and its related components may not result in the testing process or test invade occupants shelter area or shelter area for protection failure.

Single seat shelter area, see the provisions of GB/T 7121.1, the double seat or seat row occupants shelter area for the combined area of the outer envelope.

## **5.1 General Requirements**

### **5.1.1**

safety cage shall be installed in accordance with the test specified by the manufacturer is installed.

### **5.1.2**

When necessary, should be removed prior to testing all kind of glass or fragile materials. The test chamber may result in unnecessary damage, and does not affect safety Full frame strength and size of the parts can be removed before the test.

### **5.1.3**

Each part of the test device when loaded with respect to the safety cage without significant deformation. In addition to supporting the initial connection test apparatus, the loading Test equipment should not have any support from the outside.

### **5.1.4**

crushed longitudinal loading test and post-test shall be carried out in the same security rack. It should not be repaired during the test or alignment.

### **5.1.5**

test, the first test were crushed, and then after the longitudinal loading test. If the test does not overwhelm meet the requirements, it is determined that the strength safety cage Non-compliance, can not be after longitudinal loading test.

### **5.1.6**

Unless otherwise specified, the measurement accuracy of the various parameters should be consistent with the provisions of GB/T 23931 of.

### **5.2.1 Crush test**

Provisions 5.2.1.1 crush test apparatus according to GB/T 7121.1 of.

#### **5.2.1.2**

crush test device should be able to press the safety cage mounted or installed on three vehicles, along with the cargo compartment safety cage, or with Safety cage frame, chassis and cargo bed or in conjunction with a rigid safety cage is firmly fixed on the test bench.

#### **5.2.1.3**

crush test apparatus shall be applied to the device with a vertical downward load acting on the safety of aircraft, including a width of just 250mm of beams.

#### **5.2.1.4**

crush test device shall have a continuous measuring and recording equipment with a total vertical an applied load.

### **5.2.2 After the longitudinal loading test**

#### **5.2.2.1**

After the longitudinal loading test apparatus according to the provisions of GB/T 7121.1 of.

#### **5.2.2.2**

After the longitudinal loading test apparatus should be able to press the safety cage mounted or installed on three vehicles, along with the cargo compartment safety cage, or together with safety cage frame, chassis and cargo bed or in conjunction with a rigid safety cage is firmly fixed on the test bench.

#### **5.2.2.3**

After the longitudinal load the device test device horizontal load applied to the security holder should ensure that the load is evenly distributed and load side the vertical action face.

After the longitudinal load test for use in loading the beam length should not be less than three-quarters of the width of the safety cage, and no larger than the width of the safety cage; loading Beam width and height, respectively, should be 150mm; the edge of the load beam radius should be less than 50mm.

After the longitudinal loading test apparatus should have a ball hinge or similar device to ensure that the loading device does not interfere with the safe loading direction along the outside of the frame Rotate or move in any direction.

After the longitudinal loading test and measuring equipment load deformation along the loading direction, the installation location should ensure that the loading point and along