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# INTERNATIONAL STANDARD



# 223

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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*Withdrawn*

*Replaced by ISO 6858 : 1982*

## **Aerospace — Ground power units — Safety features for d.c. aircraft servicing and engine starting**

*Aéronautique — Groupes électrogènes au sol — Dispositifs de sécurité pour l'alimentation des aéronefs au sol  
et le démarrage des moteurs*

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## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 223 was drawn up by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, and circulated to the Member Bodies in November 1973.

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It has been approved by the Member Bodies of the following countries :

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Belgium	Japan	Spain
Canada	Mexico	Thailand
Czechoslovakia	Netherlands	Turkey
Egypt, Arab Rep. of	New Zealand	United Kingdom
France	Poland	U.S.A.
Germany	Romania	U.S.S.R.
Italy	South Africa, Rep. of	Yugoslavia

No Member Body expressed disapproval of the document.

This International Standard cancels and replaces ISO Recommendation R 223-1961, of which it constitutes a technical revision.

# Aerospace – Ground power units – Safety features for d.c. aircraft servicing and engine starting

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a number of essential safety features which are to be embodied in ground power units used for d.c. aircraft servicing and engine starting at airports. It also details information that is to be stated on data plates fitted to the units.

## 2 REFERENCES

ISO/R 461, *Connections for aircraft ground electrical supplies.*

ISO 1540, *Aerospace – Characteristics of aircraft electrical systems.*<sup>1)</sup>

## 3 SAFETY FEATURES

Ground power units shall embody the following safety features :

### 3.1 Voltage control

Voltage control shall be such as to give at the socket connector voltage tolerances in accordance with the standard laid down for aircraft busbars in ISO 1540, up to the continuous rating of the unit. Precautions shall be taken to avoid pulsation of the voltage supplied by the ground power unit.

### 3.2 Instruments

Illuminated moving-coil voltmeters and ammeters shall be provided for each service.

### 3.3 Socket connectors

Socket connectors for use with the aircraft plug shall comply with ISO/R 461.

### 3.4 Overload

Suitable arrangements shall be made to protect the ground power unit against electrical overload.

### 3.5 Reverse current protection

Means shall be provided to safeguard against flow of reverse current from aircraft to unit. The value of reverse current permitted under any circumstances shall be limited to 5 % of the continuous rating of the unit. In no circumstances shall the generator be permitted to motor the prime mover. The reverse current cut-out circuit shall be such as to require a manual operation to reclose the contactor.

### 3.6 Reverse polarity protection

Means shall be provided to make it impossible to close the unit output contactor if it is receiving a supply of reverse polarity from the unit generator, for example by the provision of a rectifier in the operating coil of the contactor.

### 3.7 Voltage protection

It shall not be possible to close or maintain closed the output contactor unless the generated voltage is within the limits laid down in ISO 1540 for the aircraft busbars.

### 3.8 Anti-arcing protection

Means shall be provided to ensure that the ground supply socket connector is not live at the moment when the main electrical connections are made or broken.

### 3.9 Precautions against maltreatment

The main switch, and any device which breaks the main supply under fault conditions, shall be so designed that an operator cannot readily override the safety features.

### 3.10 Main switch safety trip

All units shall incorporate a prominently situated tripping device, coloured red, to enable the main supply to be broken immediately a dangerous situation is noticed.

1) At present at the stage of draft.

**3.11 Radio noise**

The emission of radio noise by the unit shall be suppressed to the satisfaction of the national regulating authorities.

**3.12 Earthing facilities**

Means shall be provided to earth the unit chassis. The output supply shall not be connected to the frame of the unit, or to an earth external to the aircraft.

**3.13 Engine exhaust**

All units using internal combustion engines shall incorporate an efficient spark arrester in the engine exhaust system.

**3.14 Fire-fighting equipment**

All units shall permanently carry a fire extinguisher, adequate to deal with any fire supported by a breakage in the unit's fuel pipe line.

**4 LABELLING**

All units shall be fitted with a data plate giving the following information :

- a) busbar voltage or voltages;
- b) continuous rating or ratings of unit;
- c) permissible 30-second peak output in amperes and volts;
- d) the number of this International Standard.

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