
International Standard



6966

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

Aircraft — Basic requirements for aircraft loading equipment

Aéronefs — Caractéristiques de base des systèmes de chargement

First edition — 1982-12-01

STANDARDSISO.COM : Click to view the full PDF of ISO 6966:1982

UDC 621.869.3 : 629.7

Ref. No. ISO 6966-1982 (E)

Descriptors : aircraft industry, aircraft equipment, loading, specifications.

Price based on 5 pages

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 6966 was developed by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, and was circulated to the member bodies in April 1981.

It has been approved by the member bodies of the following countries :

Australia	Ireland	South Africa, Rep. of
Austria	Italy	Spain
Belgium	Japan	United Kingdom
Brazil	Korea, Rep. of	USA
Czechoslovakia	Netherlands	USSR
France	Pakistan	
Germany, F.R.	Romania	

The member body of the following country expressed disapproval of the document on technical grounds :

Sweden

Aircraft — Basic requirements for aircraft loading equipment

1 Scope and field of application

This International Standard specifies the basic requirements applicable to aircraft loading equipment.

This International Standard applies to equipment for which functional specifications have been laid down. It is to be read in conjunction with ISO 4116, *Ground equipment requirements for compatibility with aircraft unit load devices*, whenever the equipment involved is designed to handle such units.

2 Materials

2.1 Materials shall be selected which experience and/or tests have demonstrated to be suitable and dependable for use on aircraft ground handling equipment.

2.2 Materials used shall be corrosion-resistant and protected by plating or other surface treatment (for example, to resist the action of de-icing and hydraulic fluids).

2.3 Wherever possible, standard commercially available components shall be used.

3 Workmanship

Workmanship and methods of fabrication shall be of a high standard.

4 Codes of practice

The design, manufacturing processes, and use of materials shall conform to national codes of practice.

5 Safety

5.1 All personnel platforms and walkways shall have a high traction surface and be adequately protected with handrails and guards.

5.2 All equipment or any component thereof, the failure of which could be hazardous, shall be designed to fail safe.

5.3 Vehicle operators should have clear and unimpaired visibility during operation.

5.4 Any part of a vehicle coming close to or liable to touch the aircraft shall have suitable padding.

5.5 All fluid replenishing points are to be specifically identified.

5.6 Engine kill buttons. These should be installed at convenient positions on the unit to enable immediate shut down in the event of an emergency.

6 Environment

6.1 The vehicles shall be so designed and constructed of materials that will allow unrestricted use in all climates with the minimum of modifications. The unit shall have provisions to easily adapt to temperature variations ranging from -40 to $+60$ °C (-40 to $+140$ °F) and humidity of up to 100 %. Consideration shall be given to ambient temperature variations, rain and freezing precipitation, dust, salt-sea air, and reasonable variations in atmospheric pressure.

6.2 The unit shall be capable of being operated by day and night.

6.3 The noise level shall be kept to a minimum but shall not exceed 85 dBA at a distance of 4,6 m (15 ft) from the perimeter of the vehicle and 1,5 m (5 ft) above the ground.

7 Mobility

7.1 A braking system (commensurate with the user's requirements) shall be provided to adequately stop vehicles up to and including full load conditions.

7.2 A parking brake shall be provided that will restrain the vehicle when fully loaded on an incline of 5° or more if specified by the user.

7.3 The vehicle shall be manoeuvrable in ice and snow and the driving wheels should have a sufficient clearance to permit installation and use of chains.

7.4 A means shall be provided to tow a stalled vehicle clear of an aircraft.

7.5 The fuel tank (gasoline, diesel or LP gas) capacity shall be sufficient for at least eight hours continuous operation. Operational time requirements for electrically driven units are to be determined by the purchaser.

7.6 Hydraulic valves and electrical circuits shall be provided with a by-pass system for manual operation in case of failures.

8 Transport

It shall be possible to transport the unit by road, rail or sea. Parts may have to be removed to achieve the dimensions required by rules/regulations governing such transportation.

9 Mechanical

9.1 Water traps and gulleys permitting dirt to collect shall be avoided. Where this is not practical, adequate drainage shall be provided.

9.2 Vibration shall be kept to a minimum and shall have no adverse effect on the unit or the operator.

9.3 The mechanical efficiency of powered or non-powered monodirectional conveyerized surfaces (such as roller beds) used to move unit load devices shall be in excess of 98 % when measured at maximum allowable load, on a horizontal surface and in a good equipment condition. (See the annex.)

9.4 The mechanical efficiency of powered or non-powered multidirectional conveyerized surfaces (such as caster beds or ball mats) used to move unit load devices shall be in excess of 96 % when measured at maximum allowable load, on a horizontal surface and in a good equipment condition.

10 Electrical

10.1 Wiring shall be grouped in cable or harness form and shall be routed to provide maximum protection from abrasion, road splash, grease, oil, fuel, and excessive heat.

10.2 All electrical fittings, wiring and components shall be easily accessible.

10.3 All wiring shall be coded with markings for ease of repair and maintenance.

10.4 Electrical buttons, switches, etc. shall be suitably water-proofed.

11 Hydraulic and pneumatic

11.1 All pipe lines shall be coded with markings for ease of repair and maintenance.

11.2 All fittings, lines, and components shall be located to provide maximum accessibility, consistent with good design practice, to attain ease of maintenance.

11.3 Relief valves shall be installed in all systems to protect against pressures in excess of the rated working pressure of each system component.

11.4 System pressures shall be kept as low as possible, consistent with practical and economic design.

12 Maintenance

12.1 Equipment, components and systems requiring routine or periodic inspection and maintenance shall be readily accessible. The design shall also permit assembly, disassembly and maintenance with general-purpose tools and equipment normally commercially available.

12.2 Design shall be such as to eliminate loose parts as far as practicable. Where loose parts are unavoidable they should be attached to the equipment wherever possible, and fixed stowages should be provided for their storage.

12.3 All components, assemblies and subassemblies incorporated into the equipment shall be inter-changeable between similar units.

13 Controls

13.1 Controls and warning lights shall be grouped and located so as to be convenient to the operator from his normal operating station or stations. Where there is more than one station, interlocks should be provided at each station to render inoperative the controls of all other stations.

13.2 Controls and warning lights shall be properly and permanently identified.

13.3 Actuation of the controls shall be in the same direction as the controlled function, wherever possible.

13.4 Conventional automotive driving controls shall be used where possible.

13.5 Controls shall be designed for operation even if the operator is wearing heavy arctic-type gloves or overshoes.

13.6 Adequate illumination shall be provided for the controls of the unit.

14 Manuals

Documents covering operation, maintenance, and spare parts, shall be provided, preferably to ATA 101 standard.

15 Vehicle marking

Equipment limitations shall be clearly and permanently marked on the vehicle.

16 Optional features

NOTE — These options should be considered by the manufacturer in the design of the unit and may or may not be requested by the purchaser. Further specific requirements of the purchaser may be added.

- 16.1** Weather protection for driver and/or passenger.
- 16.2** Provide accommodation for a passenger.
- 16.3** Weather protection with a window for viewing vehicle approach to aircraft.
- 16.4** Seat belts.
- 16.5** Windshield wipers.
- 16.6** Automotive fresh air hot water heater and windshield defrosters.
- 16.7** Sun visors.
- 16.8** Instrumentation
- Ammeter.
 - Pressure gauge - engine oil.
 - Pressure gauge - hydraulic pump.
 - Temperature gauge - engine coolant.
 - Engine R.P.M. indicator.
 - Engine hour meter (oil pressure type).
- 16.9** Anti-slip treading material fitted to clutch and brake pedals.
- 16.10** Orchelon type adjustable parking brake level.
- 16.11** A gasoline or diesel engine.
- 16.12** Cold starting aids and/or tropicalization.
- 16.13** High output alternator capable of sustaining the maximum electrical load of vehicle +10 % with engine set at a desired r.p.m. through the use of an adjustable 'ON-OFF' hand throttle.
- 16.14** Full flow engine oil filter.
- 16.15** Fuel filter.
- 16.16** Key or keyless type ignition.
- 16.17** Manual or automatic transmission.
- 16.18** Power steering.
- 16.19** (See 5.6).
- 16.20** Non-slip differential.
- 16.21** An installed back-up battery. (This is to ensure electrical supply available should main battery become unserviceable.)
- 16.22** Amber flasher type light.
- 16.23** Wiring and plumbing schematic diagrams permanently affixed in convenient locations. All controls and instruments identified in like manner on the schematics as on the respective placards.
- 16.24** Metal nameplate specifying the following data :
- Vendors name and/or trademark.
 - Vendors part or model number.
 - Vendors serial number.
 - Date of manufacture.
 - Pertinent characteristics (such as ratings).
 - Weight.
- 16.25** Stabilizers marked with black and yellow reflective tape. Stabilizer pads painted red. Small red beacon light on top and at the end of any such 'outrigger'.
- 16.26** Reflectors on all corners at a height of 61 cm (24 in) above ground level. (On the front they should be amber and on the sides and rear they should be red.)
- 16.27** A fire extinguisher of suitable capacity and according to the applicable local regulations.
- 16.28** Automatic audible personnel warning for vehicle reversing and down movement of lift platforms.