



AEROSPACE RECOMMENDED PRACTICE

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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ARP 834

Issued 7-15-66
Revised

CANCELLED

MINIMUM REQUIREMENTS FOR SELF-PROPELLED PALLET-TRANSPORT AND LIFT VEHICLES

1. PURPOSE - It is the intent of this recommended practice to specify minimum requirements for handling of air-cargo pallets by vehicle between a fixed ground level cargo assembly facility and an airplane, or between aircraft of similar types.
2. SCOPE - The scope of this recommended practice covers three self-propelled vehicles that could be used in the transport and elevation of loaded air-cargo pallets.
 - 2.1 Transport Vehicle - This is a self-propelled vehicle capable of transporting one or more pallets between aircraft and/or other pallet-handling equipment.
 - 2.2 Lift Vehicle - This is a self-propelled vehicle capable of raising or lowering one or more pallets between a lower transport bed height and the pallet storage compartment floor level of an airplane.
 - 2.3 Transport/Lift Vehicle - This is a self-propelled vehicle which combines the capabilities of the transport vehicle (2.1) and lift vehicle (2.2) into one vehicle.
3. GENERAL REQUIREMENTS
 - 3.1 Materials
 - 3.1.1 All materials and components assembled and fabricated into the equipment are to be new and unused, first-grade quality, of current production and free from all defects and imperfections which might affect the serviceability or appearance of the finished product.
 - 3.1.2 Materials shall be selected which experience and/or test have demonstrated to be suitable and dependable for use on automotive-type aircraft ground handling equipment.
 - 3.1.3 Materials selected shall be corrosion-resistant or protected by plating or other surface treatment.
 - 3.2 Workmanship
 - 3.2.1 High standards of workmanship and methods of fabrication shall be basic requirements.
 - 3.2.2 All components, assemblies and subassemblies incorporated into the equipment shall be designed and manufactured to reasonable dimensional tolerances which will permit future interchangeability between parts.
 - 3.3 Codes - The design, manufacturing processes, and use of materials shall conform to established city, state, and national codes and industry standards.
 - 3.4 Safety
 - 3.4.1 Elevating and any positioning controls shall be of the deadman type. Driving controls may be of the deadman type.

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- 3.4.2 All personnel platforms and walkways shall have a high traction surface and be adequately protected with handrails and guards to prevent personnel injury.
- 3.4.3 Adequate lighting is to be provided for night operation of the equipment.
- 3.4.4 All equipment or any component thereof, the failure of which could be hazardous, shall be designed to fail-safe.
- 3.4.5 The operator of the vehicle should have a clear and unimpaired visibility during movement of the vehicle and, in particular, in the mating of the vehicle with the aircraft.
- 3.4.6 Any part of a vehicle coming close to or liable to touch the aircraft in normal transfer operations shall have a suitable padding.
- 3.5 Environment - The vehicles shall be designed and constructed of materials that will provide for maximum serviceability under environmental conditions intended. Consideration shall be given to ambient temperature variations, rain and freezing precipitation, dust, salt-sea air, and reasonable variations in atmospheric pressure.
- 3.6 Mobility
 - 3.6.1 The vehicle speed and acceleration shall be suitable for the purpose intended; however, provision should be made to apply a governed speed to suit local conditions.
 - 3.6.2 A braking system shall be provided to stop the vehicle under empty or full-load conditions commensurate with the user's requirements.
 - 3.6.3 A parking brake shall be provided that will restrain the vehicle when fully loaded on an incline specified by the user.
 - 3.6.4 The vehicle, while on a flat ramp, when loaded to its normal operating weight, shall have a minimum of 6 in. underclearance from any portion of the equipment to the ground.
 - 3.6.5 The vehicle, when loaded to its normal operating weight, shall have underclearance when negotiating two ramps that intersect at 5 deg.
 - 3.6.6 The vehicle shall be designed to negotiate grades at speeds specified by the user.
 - 3.6.7 Turning radius of the vehicle shall be commensurate with vehicle size and requirements of the user.
 - 3.6.8 The vehicle shall be designed to operate through a temperature range from -25 to +115 F without the requirement for heating devices. The vehicle shall be operable at lower temperatures with the aid of heating devices.
 - 3.6.9 The vehicle should be maneuverable under ice and snow conditions and the driving wheels should have sufficient clearance to permit installation and use of chains.
- 3.7 Automotive - Conventional automotive controls and equipment shall be used to the maximum extent possible. Consideration should be given to a positive disconnect of the prime mover from the driving wheels during pallet lift and transfer operation if the same prime mover is used for lift and/or transfer operations.
- 3.8 Mechanical
 - 3.8.1 Except where city, state, or national codes apply, the stresses to be used in design of equipment structure shall be no more than one-third of the yield stress of the material or one-fourth of the ultimate stress if the yield stress is not applicable to the type of material.