Australian Standard®

Motor vehicle controls—Adaptive systems for people with disabilities

Part 2: Hand controls—Product requirements

This Australian Standard was prepared by Committee ME/67, Mobility Appliances for People with Disabilities. It was approved on behalf of the Council of Standards Australia on 8 May 1991 and published on 12 July 1991.

The following interests are represented on Committee ME/67:

ACROD
Attorney-Generals Department
Australian Association of Occupational Therapists
Commercial Vehicle Industry Association of Australia
Confederation of Australian Industry
Crippled Childrens Association of South Australia
Department of Health, New South Wales
Department of Health, Queensland
Department of the Premier and Cabinet, South Australia
Department of Veterans Affairs
Disability Advisory Council of Australia
Disabled Peoples International (Australia)
Federal Chamber of Automotive Industries
Health Department, Victoria
Institution of Engineers, Australia
Metal Trades Industry Association of Australia
Natational Committee Independent Living Centres
Paraplegic and Quadriplegic Association of New South Wales
Paraplegic and Quadriplegic Association of Victoria
Royal North Shore Hospital
Royal Perth Hospital
Technical Aid to the Disabled
University of Adelaide
University of Canberra
University of Melbourne
WorkCover Authority, New South Wales

Additional interests participating in the preparation of this Standard:

Australian Association of Engineers for Disable Drivers
Commonwealth Department of Community Services and Health
Cumberland College of Health Sciences
Department of Motor Transport, South Australia
Disabled Motorists (Victoria)
The Salvation Army Bethesda Hospital, Victoria
VIC ROADS

This Standard was issued in draft form for comment as DR 90100.

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First published as AS 3954.2—1991.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 6965 4

PREFACE

This Standard was prepared by the Standards Australia Committee on Mobility Appliances for People with Disabilities following a request by the New South Wales Association of Occupational Therapists for an Australian Standard for the design, installation and maintenance of adaptive control systems for motor vehicles. This Association expressed concern that there currently was no regulation of such adaptations in motor vehicles and no document giving guidelines on minimum requirements for safety and quality of adaptive motor vehicle controls.

The Committee decided to publish a Standard in two parts: Part 1, *General requirements*, covering general design, construction and installation requirements for a wide range of adaptive motor vehicle controls, and this Standard specifically for hand controls. Whereas Part 1 specifies performance tests to be carried out on driving controls that have been installed in a vehicle, in this Standard, tests for determining strength and fatigue resistance are required to be conducted with the hand controls mounted in a test rig.

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FOREWORD

Driving a motor vehicle is a major step towards independence for people with disabilities. Without this, the opportunities for achieving a full and independent life are limited, along with the freedom of choice that such a level of independence gives.

Overall, in the past, low priority has been given to ensuring the quality and safety of products and services available to meet the mobility needs of disabled people.

Users of mobility appliances need the assurance that the product they choose will be reliable, will meet a satisfactory level of performance and will be able to be effectively serviced and maintained. This is particularly so because of the level of dependency on these products by the consumer, and the added difficulties often encountered by disabled people in gaining access to maintenance and repairs.

STANDARDS AUSTRALIA

Australian Standard

Motor vehicle controls—Adaptive systems for people with disabilities

Part 2: Hand controls—Product requirements

1 SCOPE This Standard specifies requirements for mechanical-type, manually operated hand controls offered for installation (other that those provided by the vehicle manufacturer) for use by drivers who are physically disabled, to enable them to operate vehicles. This Standard does not cover electromechanical-type controls.

2 APPLICATION This Standard shall be used in conjunction with Part 1.

3 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
1065 Non-destructive testing—Ultrasonic testing of carbon and low alloy steel forgings

1171 Methods for magnetic particle testing of ferromagnetic products and components

2062 Methods for non-destructive penetrant testing of products and components

2084 Non-destructive testing—Eddy current testing of metal tubes

2177 Radiography of welded butt joints in metal

2207 Methods for the ultrasonic testing of fusion welded joints in steel

2679 Vibration and shock—Mechanical vibration of rotating and reciprocating machinery—Requirements for instruments for measuring vibration severity

2775 Vibration and shock—Mechanical mounting of accelerometers

3954 Motor vehicle controls—Adaptive systems for people with disabilities
3954.1 Part 1: General requirements

4 DEFINITIONS For the purpose of this Standard, the definitions below apply.

4.1 Electromechanical-type control—a device that is electrically operated and has mechanical motion, such as relays or servos.

4.2 Hand control—a control which enables controls on a vehicle which are normally operated by foot to be operated by hand.

4.3 Shall—indicates that a requirement is mandatory.

4.4 Should—indicates a recommendation.

5 DESIGN AND CONSTRUCTION REQUIREMENTS Hand controls shall comply with AS 3954.1 and with the following:

(a) Hand controls shall be designed to require distinctly different motions for acceleration, brake actuation and clutch application where applicable.

NOTE: The intention is to prevent the inadvertent operation of these controls.

(b) Hand controls shall be designed so that neither the brake nor the accelerator is actuated in the 'hands-off' mode, and so that if released, the controls shall revert to a neutral position.

(c) Unless otherwise approved by the relevant authority, hand controls shall not permit actuation of the accelerator by forward inertial movement of the driver.

6 PERFORMANCE REQUIREMENTS

6.1 Strength When tested in accordance with Appendix A, there shall be no failure, no changes in alignment, no loosening of parts, and no permanent deformation of any part of the hand control.

6.2 Fatigue resistance When tested in accordance with Appendix B, there shall be no failure, no changes in alignment that would be likely to affect normal operation, no appreciable wear of structural components and no loosening of fasteners.

6.2.1 *Fatigue crack inspection* Following testing specified in Clause 6.1 and Clause 6.2, crack detection shall be carried out in accordance with either AS 1065, AS 1171, AS 2062, AS 2084, AS 2177 or AS 2207, as appropriate, and no cracks shall have occurred in any part of the hand control.