AS 4092—1993

Australian Standard®

Exercise cycles—Safety requirements

This Australian Standard was prepared by Committee CS/87, Safety of Exercise Cycles. It was approved on behalf of the Council of Standards Australia on 26 August 1993 and published on 11 October 1993.

The following interests are represented on Committee CS/87:

Child Accident Prevention Foundation of Australia
Department of Public and Consumer Affairs, S.A.
Federal Bureau of Consumer Affairs
Metal Trades Industry Association
Ministry of Consumer Affairs, Vic.
Retailers Council of Australia
South Australian Health Commission
Western Sydney Area Health Unit, Health Department, N.S.W.

This Standard was issued in draft form for comment as DR 92180.

Australian Standard®

Exercise cycles—Safety requirements

First published as AS 4092—1993.

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

ISBN 0 7262 8551 X

PREFACE

This Standard was prepared by the Standards Australia Committee on Safety of Exercise Cycles at the request of the Commonwealth/State Consumer Products Advisory Committee. The Standard arises from the reported incidence of domestic accidents involving the fingers and toes of young children caught in the rotating and other moving parts of exercise cycles when the cycles are being ridden by older persons and when put to unintended use by young children in the absence of an older person.

The requirements of this Standard are consistent wherever practicable with the corresponding requirements of—

ASTM F1250: *Standard Consumer Safety Specification for Exercise Bicycles*; and

DIN 32 932: *Home sports equipment, Pedal crank training equipment, Cycle trainers*.

However, the diameter of the probe simulating a child's finger, which is to be used to test guards on the sprocket and chain drive mechanism, has been set at 5.6 mm. Anthropometric data on the finger sizes of young children indicate that this size, which is also consistent with that recommended by the US Consumer Product Safety Commission, will provide a substantially greater level of safety protection than the 9.3 mm diameter probe specified in the ASTM and DIN Standards referred to above. Australian and international injury data indicate that the most serious safety hazard in respect of both incidence and severity is in the chain and sprocket drive mechanisms of exercise cycles, thereby justifying in the Committee's view, the departure from the ASTM and DIN Standards.

As regards protection of the flywheel and loading mechanism, the Committee was advised that it would be difficult to insist on use of a small diameter test probe to test the cages guarding these mechanisms, as the cycles are almost entirely imported and the cost of modifying the flywheel guards to Australian requirements would be prohibitive. Since injury data appears to show a noticeably less serious safety problem in this area, it was decided to retain the ASTM/DIN 9.3 mm diameter probe for this purpose. Child accident prevention interests on the Committee indicated that research in this area will continue, giving particular emphasis to any adverse effect of adoption of the larger probe size for testing the flywheel and loading mechanism guards.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

CONTENTS

FOREWORD

Statistics show that there is a significant incidence of injury to the fingers and hands of young children from unguarded exercise cycles in domestic use. These injuries have been shown to occur not only when the cycle is being ridden by another person, but also when put to some unintended use by a young child in the absence of supervision by an older person. Injuries in the main are associated with chains and sprockets, flywheel spokes and loading mechanisms, and the loading mechanisms associated with solid flywheels.

Whilst the primary emphasis in this Standard is on safety for young children, some aspects of user or rider safety have been included, notably the integrity of the seat and seat support. Although supported by some injury statistics, this inclusion is influenced by the extreme severity of likely injury rather than frequency.

No requirements have been included for locking the mechanism of an exercise cycle when not in use. It is believed that proper guarding at hazardous locations on the cycle is a more appropriate objective. However, manufacturers are encouraged to provide means for locking the mechanism as an added safeguard. A passive locking system, i.e. one which activates automatically when the cycle is not being ridden, is to be preferred.

STANDARDS AUSTRALIA

Australian Standard

Exercise cycles—Safety requirements

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies guarding and other safety requirements for all types of exercise cycles which are intended for domestic use. It does not apply to any system or assembly, part of which is a bicycle as defined in AS 1927, e.g. a trainer or simulator, nor does it apply to devices designed, labelled or marketed for use in other than domestic situations.

1.2 REFERENCED DOCUMENTS The following document is referred to in this Standard:

AS 1927 Pedal bicycles for normal road use—Safety requirements

1.3 DEFINITIONS For the purposes of this Standard the definitions below apply.

1.3.1 Exercise cycle—a stationary device designed to be used for personal physical exercise by means of an activity simulating bicycle riding.

1.3.2 Flywheel—the wheel to which the energy of the cycling activity is finally directed, and to which a loading device for absorbing that energy can be applied.