AS 2326.2—1991
IEC 542 (1976)

Australian Standard®

On-load tap-changers

Part 2: Application guide

[IEC title: Application guide for on-load tap-changers]

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Australian Electrical and Electronic Manufacturers Association

Confederation of Australian Industry

Electrical testing laboratories

Electricity Supply Association of Australia

Electricity Supply Engineers Association of New South Wales

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PREFACE

This Standard was prepared by the Standards Australia Committee on Power Transformers to supersede AS 2326.2—1980. It is identical with and has been reproduced from IEC 542 (1976), *Application guide for on-load tap-changers*, incorporating amendment No. 1 (1988). Variation to the IEC publication to suit Australian requirements is indicated by a marginal bar and detailed in Australian Appendix A.

This Standard is the second part of a two-part Standard, viz.

AS 2326 *On-load tap-changers*
Part 1: *Requirements*
Part 2: *Application guide*

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For the purposes of this Australian Standard, the IEC text should be modified as follows:

(i) *Clauses* In accordance with Australian Appendix A.

(ii) *References* Replace references to International Standards by references to Australian Standards as follows:

Reference to International standard		*Australian Standard*	
IEC		AS	
76	Power transformers	2374	Power transformers
76-1	Part 1: General	2374.1	Part 1: General requirements
76-4	Part 4: Tappings and connections	2374.4	Part 4: Tappings and connections
76-5	Part 5: Ability to withstand short circuit	2374.5	Part 5: Ability to withstand short-circuit
214	On-load tap-changers	2326	On-load tap-changers
		2326.1	Part 1: Requirements
354	Loading guide for oil-immersed transformers	1078	Guide to loading of oil-immersed transformer

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On-load tap-changers

Part 2: Application guide

1. Scope

This application guide is intended to assist in the selection of suitable on-load tap-changers for use in conjunction with the tapped windings of transformers or reactors which, in the following text, are referred to as transformers.

As in the second edition of IEC Publication 214, On-load Tap-changers (revision of Publication 214 (1966)), the designation "on-load tap-changer" is shortened to "tap-changer" in the remainder of this guide and all the tap-changers referred to shall be presumed to comply with the requirements specified in IEC Publication 214.

The recommendations of the application guide are not mandatory and only represent advice to the tap-changer manufacturer and purchaser. The responsibility for the correct application of the fully assembled tap-changer in connection with the transformer is with the manufacturer of the transformer.

2. Selection of a tap-changer

2.1 *General remarks*

Since the tap-changer represents only a small part of the total cost of the equipment in which it is used, it should be freely chosen to suit the equipment. However, account should be taken of the available standard types of tap-changers.

2.2 *Insulation level*

The following values occurring on all tapping positions of the transformer should be checked against the tap-changer manufacturer's declared values in accordance with Sub-clause 8.6.4 of IEC Publication 214:

1) Normal power-frequency operating voltages appearing on the tap-changer in service.

2) Power-frequency voltages appearing on the tap-changer during tests on the transformer.

3) Impulse voltages appearing on the tap-changer during tests on the transformer or in service.

Note. 1 — With some winding arrangements, the voltages appearing on the transformer can be abnormally high, e.g.:

— neutral point tappings in auto-transformers,

— line-end tappings, and

— booster transformer arrangements.

These voltages can be affected considerably by the choice of linear, coarse/fine or reversing tapping arrangements. Methods of catering for voltage variation which involve variations in the magnetic flux in the transformer core can also affect the voltages appearing on various parts of the tap-changer (see IEC Publication 76, Power Transformers)

2 — Switching operations may cause oscillating transient overvoltages in networks which may lead to oscillating overvoltage stresses