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# Australian Standard 2326, Part 1–1980

## ON-LOAD TAP-CHANGERS

## Part 1—REQUIREMENTS

[Title allocated by Defence Cataloguing Authority:
TAP CHANGING SET, TRANSFORMER (On-load, General Requirements) ... NSC 6110]

STANDARDS ASSOCIATION OF AUSTRALIA
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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian-British Trade Association

Australian Electrical and Electronic Manufacturers Association

Confederation of Australian Industry

Defence Standardization Committee

Electrical Testing Laboratories

Electricity Supply Association of Australia

Electricity Supply Engineers Association of N.S.W.

Railways of Australia Committee

The Institution of Engineers, Australia

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AUSTRALIAN STANDARD

# ON-LOAD TAP-CHANGERS

# Part 1

# REQUIREMENTS

## AS 2326, Part 1 -1980


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# PREFACE

This standard was prepared by the Association's Committee on Static Electrical Machinery as the revision of AS C378 — 1967, which it accordingly supersedes.

The standard is Part 1 of a two-part standard. It sets out requirements for on-load tap-changers for power transformers and their motor driven mechanisms; Part 2 is an application guide to assist in the selection of suitable on-load tap-changers.

This standard is based closely on IEC 214, On-load Tap-changers, and only minor changes have been introduced. Where the standard diverges from IEC 214, this is indicated by a rule in the margin.

It is intended that this standard should be used with reference to revisions of AS C61 — 1970, Power Transformers, and AS 1078, Part 1 — 1972, Guide to Loading of Oil-immersed Transformers; and to AS 1931, Part 1 — 1976, High Voltage Testing Techniques.

Attention is drawn to the following:

- AS C61 — 1970 is similar to superseded editions of IEC 76
- AS 1078, Part 1 — 1972 is a loading guide to AS C61 — 1963
- AS 1931, Part 1 — 1976 is based on IEC 60.

This standard may require reference to the following Australian standards:

AS 1265 Bushings for Alternating Voltages Above 1000 V

AS 1939 Classification of Degrees of Protection Provided by Enclosures for Electrical Equipment.

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# Australian Standard
# for
# ON-LOAD TAP CHANGERS

## PART 1 — REQUIREMENTS

## SECTION 1. SCOPE AND GENERAL

**1.1 SCOPE.** This standard applies to on-load tap-changers* for power transformers, and their motor-drive mechanisms. It relates mainly to insulating-liquid immersed tap-changers, but air-insulated tap-changers are not excluded and the conditions should be suitably modified.

NOTE: For the purposes of this standard, oil and synthetic insulating liquids are referred to as insulating liquids. This does not imply that a synthetic insulating liquid can be used in any liquid-immersed tap-changer regardless of whether it is designed for it.

Tap-changers for transformers for railway rolling stock are excluded from this standard.

In selecting a tap-changer for a particular application, reference should be made to AS 2326, On-load Tap-changers, Part 2 — Application Guide.

**1.2 SERVICE CONDITIONS.**

(a) *Temperature of tap-changer environment.* Unless more onerous conditions are specified by the purchaser, tap-changers are regarded as suitable for operation over the ranges of temperature given in Table 1.1.

TABLE 1.1
TEMPERATURE OF TAP-CHANGER ENVIRONMENT

| Tap-changer environment | Temperature | |
|---|---|---|
| | min. | max. |
| Air | −25°C | 40°C |
| Insulating liquid | −25°C | 100°C |

NOTES TO TABLE 1.1:

1. The tap-changer environment is the medium immediately surrounding the complete tap-changer i.e., if the latter is enclosed in a separate external container, intended for mounting outside the transformer tank, the tap-changer environment is 'Air'; if the complete tap-changer is intended for mounting inside the main transformer tank and not in a separate external container, then the tap-changer environment is 'Insulating liquid' (i.e. the liquid in the transformer tank).
2. The value of 100°C quoted above is based on a maximum ambient temperature of 40°C as specified in AS ...., Power Transformers.†

(b) *Temperature of motor-drive mechanism environment.* Unless more onerous conditions are specified by the purchaser, motor-drive mechanisms are regarded as being suitable for operation in any ambient temperature between −25°C and 40°C.

(c) *Overload conditions.* Tap-changers may be required to operate under conditions of transformer overload as specified by the transformer purchaser. Reference should be made to AS 2326, Part 2, Clauses 2.3.2 and 5.4 for further information.

NOTE: Tap-changers, like other switching devices, usually have a shorter thermal time constant than electromagnetic devices of the same current ratings.

**1.3 INFORMATION REQUIRED WITH TENDERS AND ORDERS.** For the information required with tenders and orders, see AS 2326, Part 2, Clause 5.

* See Note to Clause 2.1.1.

† Revised edition of AS C61 in course of preparation.