90110

1992 ed.

AS 1100.201—1992 Mechanical engineering drawing
(In Professional Package 56) 71pp J

Sets out recommendations for mechanical engineering drawing practice. Provides information on surface texture and welding, and the simplified representation of pipelines. Provides details on springs, gears, splines, rolling element bearings, seals and knurling. Appendices provide guidance on the tolerance of machined components and castings.

Committee ME/72: ***Supersedes AS 1100.201—1984:*** *Draft for Comment DR 90109:* ***Publication date 1992-11-16:*** *ISBN 0 7262 7805 X*

AS 1100, Part 101—1984
UDC 744:621.7

Amdt 1 - 1987

Australian Standard 1100, Part 101—1984

TECHNICAL DRAWING
Part 101—GENERAL PRINCIPLES

THERE ARE NO STANDARD DRAWING SYMBOLS - TO DESIGNATE AN AREA OFF LIMITS TO THE USE OF EQUIPMENT. - FOR BUILDING PLANS.

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

This Australian standard was prepared by Committee MS/32, Technical Drawing. It was approved on behalf of the Council of the Standards Association of Australia on 30 August 1983 and published on 3 January 1984.

The following interests are represented on Committee MS/32:

Association for Computer Aided Design Limited
Association of Consulting Engineers Australia
Australian Chamber of Commerce
Australian Gas Association
Bureau of Steel Manufacturers of Australia
CSIRO, Division of Applied Physics
Confederation of Australian Industry
Department of Conservation, Forests and Lands
Department of Defence
Department of Defence Support
Department of Housing and Construction
Department of Public Works, New South Wales
Electricity Supply Association of Australia
Institute of Draftsmen Australia
Institute of Industrial Arts
Institution of Engineers Australia
Institution of Production Engineers
Master Builders Federation of Australia
Royal Australian Institute of Architects
Society of Automotive Engineers Australasia
Telecom Australia
University of Melbourne
University of New South Wales
University of Queensland

This standard was issued in draft form for comment as DR 82134.

STANDARDS ASSOCIATION OF AUSTRALIA
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AMENDMENT No 1
to
AS 1100, Part 101—1984
TECHNICAL DRAWING
PART 101—GENERAL PRINCIPLES

CORRECTIONS

SUMMARY: This amendment applies to Preface, Clauses 1.4.7.1, 3.1, 3.2.1, 4.1.4.1, 5.1, 6.4.3.2, and 6.6.1, Figs [illegible] 1. [illegible] 3.2, 3.5, 3.7 6.7, 6.23, 6.25, 6.36, and 6.44, Tables 3.1 and 6.1, and Paragraphs B3.2, B3.3, and C2.

Published on 6 April 1987.

AMDT No 1 APR. 1987

Page 2. Preface.

14th paragraph: *delete* existing paragraph and *substitute*:

The requirements of this standard were based on a number of ISO documents Th[illegible] e as follows:

ISO 128	Technical Drawings—General Principles of Presentation
ISO/R 129	Engineering Drawing—Dimensioning
ISO 406	Technical Drawings—Linear and Angular Toleranci[illegible]ications on Drawings
ISO 1101	Technical Drawings—Geometrical Toleranci[illegible]ole ancing of Form, Orientation, Location and Run-out—Gene[illegible]itie[illegible] Definitions, Symbols, Indications on Drawings
ISO 3098/1	Technical Drawings—Lettering, Part 1—[illegible]urrently Used Characters.

AMDT No 1 APR. 1987

Page 10. Fig. 1.5.

Delete existing figure and *substitute*:

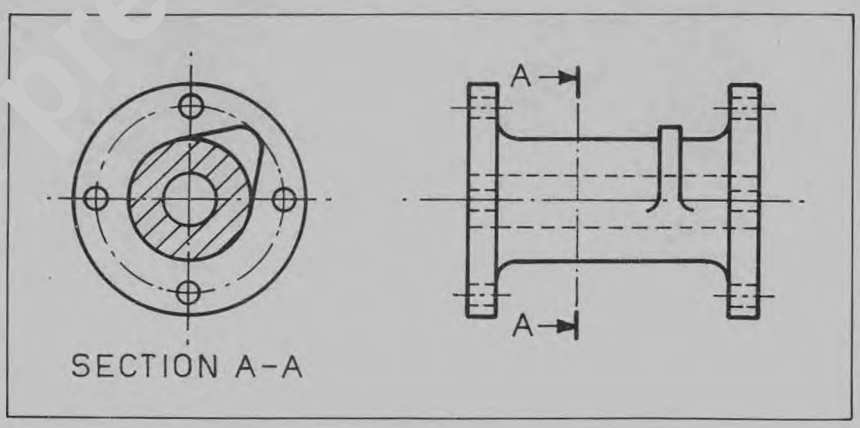


Fig. 1.5. SECTIONAL VIEW

AMDT No 1 APR. 1987

Page 16. Fig. 1.16.

Delete existing figure and *substitute*:

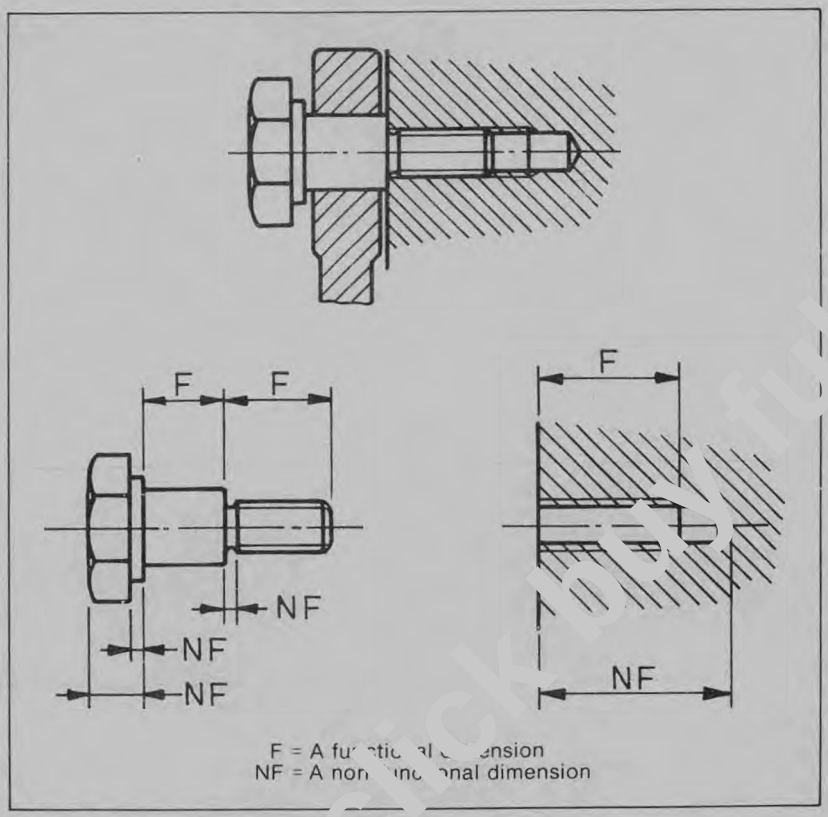


Fig. 1.16. FUNCTIONAL AND NON-FUNCTIONAL DIMENSIONS

AMDT No 1 APR. 1987

Page 18. Clause 1.4.3.

Second line: *delete* 'positional' and *substitute* 'positional'.

AMDT No 1 APR. 1987

Page 42. Clause 3.1.

Delete existing clause and *substitute*:

3.1 TYPES OF LINES. Lines on drawings shall be selected according to their application. Preferred types are shown in Table 3.1 where each type is designated by a letter. Line thicknesses shall be selected from one of the two groups shown in Fig. 3.1. Typical applications are shown in Figs 3.2 to 3.18.

AMDT No 1 APR. 1987

Page 42. Table 3.1.

Column 4, heading: delete '**Application**' and *substitute* '**Typical application**'.

Column 4, K type lines: *delete* 'Centroidel' and *substitute* 'Centroidal'.

Column 5, G type lines: *delete* '3.2' and *substitute* '3.3'.

Column 5, G type lines: *insert* '3.7' in column 5 opposite 'Developed views' in column 4.

AMDT No 1 APR. 1987 **Page 43. Clause 3.2.1.**

Fourth line: *delete* 'printed' and *substitute* 'reproduced'.

AMDT No 1 APR. 1987 **Page 45. Fig. 3.2.**

Delete existing Note at bottom right-hand corner of drawing.

AMDT No 1 APR. 1987 **Page 48. Fig. 3.5.**

Delete existing figure and *substitute*:

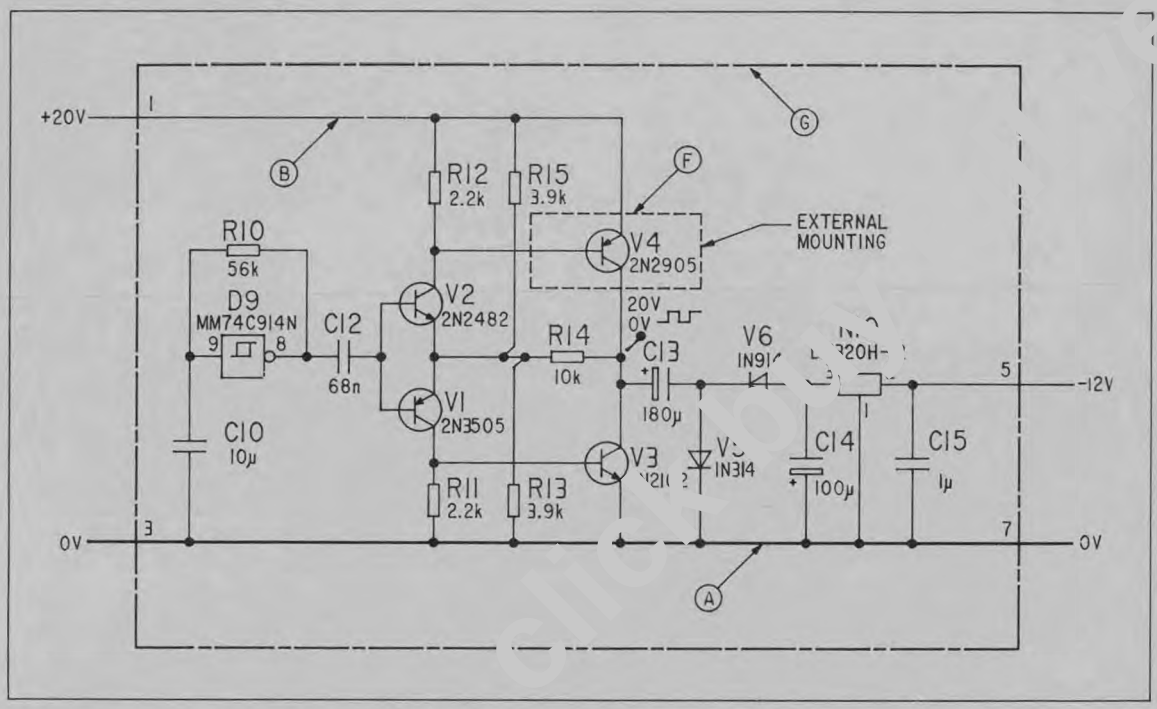


Fig. 3.5. TYPICAL APPLICATION OF TYPES OF LINES—ELECTROTECHNOLOGY

AMDT No 1 APR. 1987 **Page 49. Fig. 3.7.**

Delete existing figure and *substitute*:

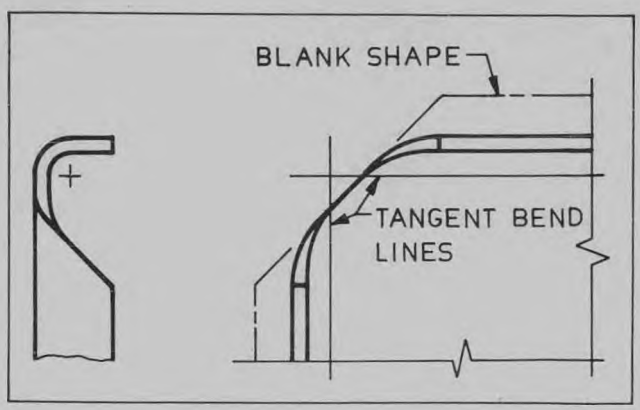


Fig. 3.7. TANGENT BEND LINES

AMDT No 1 APR. 1987

Page 57. Clause 4.1.4.1.

Last line: *delete* 'AS 1100' and *substitute* 'AS 1000'.

AMDT No 1 APR. 1987

Page 62. Clause 5.1.

First paragraph: *insert* new first sentence as under:

'Drawings should normally be drawn to scale.'

AMDT No 1 APR. 1987

Page 63. Table 6.1.

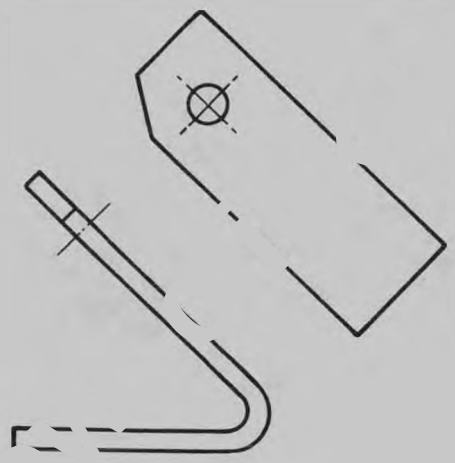
First column: *delete* Convering lines of sight and *substitute* Converging lines of sight

---

AMDT No 1 APR. 1987

Page 65. Fig. 6.7.

Delete existing figure (a) and *substitute*:



(a) NORMAL (Perpendicular)

AMDT No 1 APR. 1987

Page 69. Clause 6.4.3.2.

Fourth paragraph: *delete* existing paragraph and *substitute*:

This is obtained by selecting α and β so that $\tan \alpha = \sqrt{(1/63)}$ and $\tan \beta = \sqrt{(7/9)}$, i.e. $\alpha = 7°$ approximately, and $\beta = 41.5°$ approximately.

AMDT No 1 APR. 1987

Page 70. Clause 6.6.1(c).

Delete existing Note and *substitute*:

NOTES:

1. The only lines that can be readily scaled are those lines on the object that actually lie on the plane of projection.
2. The plane of projection is also known as the picture plane (see Fig. 6.19).

AMDT No 1 APR. 1987

Page 73. Fig. 6.23.

Delete existing figure and *substitute*:

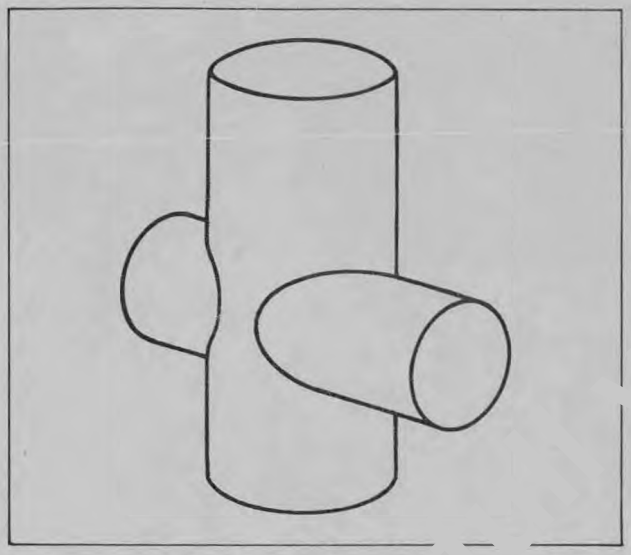
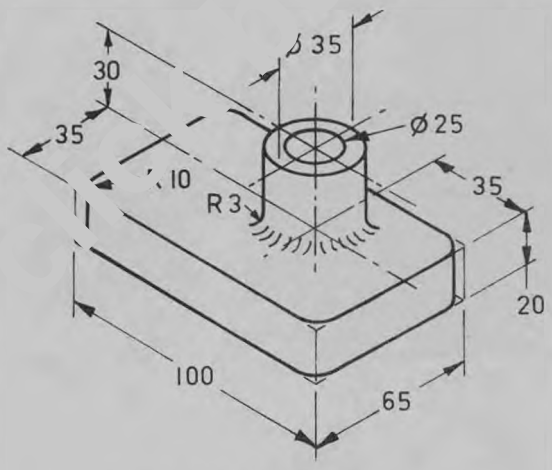


Fig. 6.23. INTERSECTION

AMDT No 1 APR. 1987

Page 74. Fig. 6.25.

Delete existing figure (a) and *substitute*:



(a) UNIDIRECTIONAL

AMDT No 1 APR. 1987

Page 77. Fig. 6.36.

Delete existing figure and *substitute*:

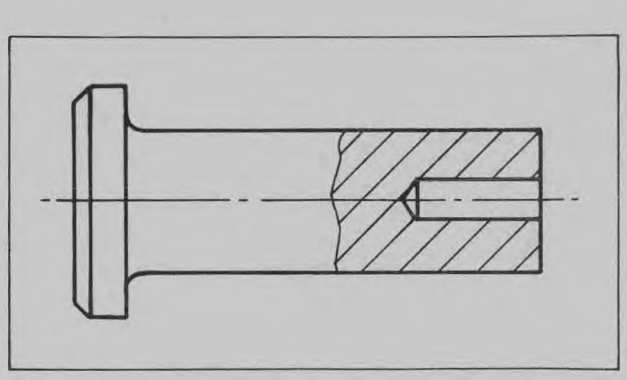


Fig. 6.36. LOCAL OR PART SECTION

AMDT No 1 APR. 1987

Page 80. Fig. 6.44.

Delete existing figure and *substitute*:

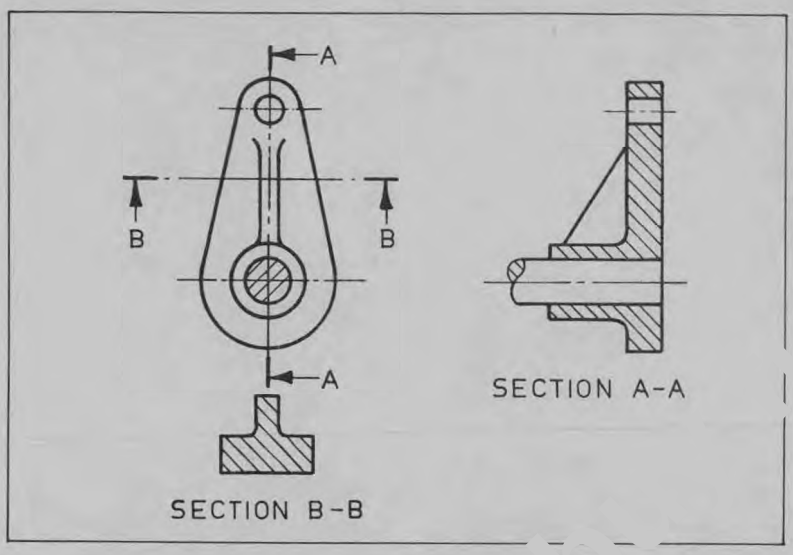


Fig. 6.44. WEB IN LONGITUDINAL SECTION NOT HATCHED

AMDT No 1 APR. 1987

Page 85. Paragraph B3.2.

First line: delete '$\alpha = \beta + 30°$' and *substitute* '$\alpha = 30°$'.

Second line: *delete* '$\sqrt{}$ (2/3)' and *substitute* '$\sqrt{(2/3)}$'.

AMDT No 1 APR. 1987

Page 85. Paragraph B3.3.

Delete existing paragraph and *substitute*:

B3.3 Dimetric.

Select $\alpha + 2\beta = 90°$ [illegible] $= \beta$ or $2\alpha + \beta = 90°$, provided that $\alpha \neq 30°$ and $\beta \neq 30°$.

In particular, select α [illegible] arctan $\sqrt{(1/63)}$ and β = arctan $\sqrt{(7/9)}$; i.e. $\alpha = 7°$ approximately and $\beta = 41.5°$ approximately to achieve the desired X:Y:Z ratio.

Then actual scale are $\sqrt{(8/9)}$, $\sqrt{(8/9)}$ and $\sqrt{(2/9)}$; i.e. 0.943, 0.943 and 0.471.

$\therefore$ X:Y:Z = 1:1:0.5.

AMDT No 1 APR. 1987

Page 86. Paragraph C2.

Third paragraph, last line: *delete* 'r = acot θ' and *substitute* 'r = a cot θ'.

Seventh paragraph: *delete* '$\theta = \cot^{-1} 1$' and *substitute* 'θ = arccot 1'.

Eighth paragraph: *delete* '$\theta = \cot^{-1} 0.5$' and *substitute* 'θ = arccot 0.5'.

Last paragraph: *delete* '$\theta = \cot^{-1} R$' and *substitute* 'θ = arccot R'.

file with AS 1100

Standards Association of Australia

INCORPORATED BY ROYAL CHARTER

HEAD OFFICE: STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.

Mail: P.O. BOX 458,
NORTH SYDNEY, N.S.W. 2060
Telephone: 929 6022
Telegrams: Austandard North Sydney
Telex: 26514

Your reference:
Our reference: ERJ/rjw

1982-11-24

Dear Customer

We note from your recent order that you have requested a copy of AS CZ1, Australian Engineering Drawing Handbook published by the Institution of Engineers, Australia, and advise that the publication is no longer available from SAA sales outlets. We would refer you to the following notice which appeared in the December issue of "The Australian Standard" -

DRAWING PRACTICE -

AS 1100 supersedes AS CZ1 — Part 2.

For some time there have been two Australian standards relating to drawing practice: AS CZ1, Australian Engineering Drawing Handbook (published by the Institution of Engineers, Australia, and first endorsed by SAA in 1941), and AS 1100, Drawing Practice.

The IEA handbook was first published in 1926 and SAA's endorsement of the 1941 (and subsequent) editions emphasized the national significance of the book. Thus, until the early 1970s, AS CZ1 was rightly regarded as the 'standard' textbook on engineering drawing practice. However, by that time, ISO had published a number of international standards on drawing practice, and SAA was thus in a position to produce an Australian standard which would both take account of the ISO work and provide for the change to metric - this standard was published as AS 1100. SAA recognized, however, that there was a need to supplement AS 1100 with additional information, e.g. drafting advice, examples, and it was acknowledged that the IEA handbook admirably filled this role and should continue therefore to be an Australian standard.

The Institution of Engineers has just produced a new edition of Australian Engineering Drawing Handbook, but primarily because of the revision and consolidation of AS 1100 that is now in hand, this edition of the handbook has not been endorsed as an Australian standard under the AS CZ1 designation, and will not be available from SAA sales outlets.

AS 1100 will shortly be reissued in three volumes to replace the existing 13 Parts. The new general title of AS 1100 will be 'Technical Drawing' and the three volumes will cover General Principles, Mechanical Drawing, and Architectural Drawing (the present Part 13). A fourth part is being prepared to deal with 'Engineering Survey and Design Drawing'.

Yours faithfully

G M Esgate
SALES MANAGER

Dear Cath,
This is the letter I spoke about. It is an extract from DEC. TAS.
It should read Part 2 ...

MESSAGE TELEX "ESS

*
ASTAN AA33877
ASTAN AA26514

TX 1322 1986-04-03 4.[illegible] P.M.

ATTENTION: MR R RAPHAEL.

RE: YOUR TELEX 1986-04-03.

TABLE 2.7 IS CORRECTIN AS 1100. 101. POINT OUT TO INQUIRER THAT TABLE REFERS TOZONES. LETTER M IS CORRECT AS THERE ARE 12 HORIZONTAL ZONES WITH LETTER I OMITTED REFER CLAUSE 2.4.4(B).

REGARDS,

REX BLATCHFORD.

*
ASTAN AA33877
ASTAN AA26514

MESSAGE TELEX MESSAGE

*
ASTAN AA33877
ASTAN AA26514

TX 1322 1986-04-03 4.00 P.M.

ATTENTION: MR R RAPHAEL.

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TABLE 2.7 IS CORRECTIN AS 1100. 101. POINT OUT TO INQUIRER THAT TABLE REFERS TOZONES. LETTER M IS CORRECT AS THERE ARE 12 HORIZONTAL ZONES WITH LETTER I OMITTED REFER CLAUSE 2.4.4(B).

REGARDS,

REX BLATCHFORD.

*
ASTAN AA33877
ASTAN AA26514

MESSAGE TELEX MESSA

GA
26514
ASTAN AA26514
ASTAN AA33877

ATT: MR. R. BLATCHFORD

HAVE RECEIVED INQUIRY RE. AS 1100.101-1984, TABLE 2.7. INQUIRER FEELS FIRST ITEM IN COLUMN ONE UNDER DETAIL SHOULD READ .... DESIGNATED A, B FOR VERTICAL AND ...1, 2 FOR HORIZONTAL AS IN FIG 2.5 AND 2.6. ALSO, RE FIG 2.5 AND 2.6., ANOTHER INQUIRER WONDERS WHERE LETTER 'M' SHOULD BE LETTER 'L'. CAN YOU ADVISE PLEASE.

TKS AND REGARDS

RAE RAPHAEL
MIC
1986-04-03:1355
*
ASTAN AA26514
ASTAN AA33877

SSAGE TELEX MESSAGE

AUSTRALIAN STANDARD

TECHNICAL DRAWING
Part 101
GENERAL PRINCIPLES

AS 1100, Part 101—1984

First published (as AS 1100, Parts 1 to 8) ..... 1971 to 1980
AS 1100, Part 101 first published 1984

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 3165 7

PREFACE

This standard was prepared by the Association's Committee on Technical Drawing. It represents a revision and consolidation of AS 1100, Parts 1 to 8—1971 to 1980.

It constitutes Part 101 of a new multi-part standard designated AS 1100, Technical Drawing, which supersedes Parts 1 to 12 of the 13-part standard AS 1100, Drawing Practice.

Concurrent with this Part 101, Parts 201 and 401 are also published, viz:

Part 201—Mechanical Drawing
Part 401—Engineering Survey and Engineering Survey Design Drawing

Part 301 of this standard, Architectural Drawing, is in course of preparation and until such time as it is published, AS 1100, Part 13—1978, Architectural Drawing, will remain current.

It was in 1976 that the above committee decided that rather than have a standard of many parts it would be better if all aspects of technical drawing were consolidated into fewer parts that would embrace the entire discipline.

The designation AS 1100 has been retained for this new multi-part standard since it is already well established throughout industry and technical colleges as the Australian standard number for technical drawing. However, to identify these new editions from the previous ones, the designation of 3-digit Part numbers has been employed.

In the preparation of this standard, the committee took account of changes in Australian technical drawing practice and recommendations of the International Organization for Standardization (ISO, see below). Also considered were the equivalent British, American and Canadian standards.

In its preparation many minor changes in the layout of the text and figures have taken place resulting in greater consistency and improved ease of use of the document.

Another improvement to the overall usefulness of the final standard is in the provision of a comprehensive contents list which will simplify the finding of required text and figures.

The committee also considers it important that this document will be applicable to all sectors of the technical field. For instance, although many of the examples are of a mechanical nature, the principles are applicable to all fields of technical drawing. Accordingly, wherever necessary, examples have been expanded to show other applications of the principles.

Much consideration was given to the increasing use of stencil and mechanical means of producing characters and symbols. The inclusion of further requirements on machine-made lettering will depend largely on developments of the various equipments and their availability and use in Australia. However, it must be emphasized that the recommendations herein are flexible enough to allow conformity, provided that the basic rules are followed:

The requirements of this standard will ensure that micrographic and reprographic requirements are complied with.

Clarity of expression in defining the designer's requirements and in the interpretation of these requirements has been considered at all times. The introduction of symbols now plays an important part in drawing practice so that language barriers in reading drawings are reduced to a minimum and valuable drafting time inserting notes is minimized.

The requirements of this standard were based on a number of ISO documents. They are as follows:

ISO R 128 ~~Engineering~~ Technical Drawings—~~Principles~~ General Principles of Presentation

ISO R 129 Engineering Drawing—Dimensioning

ISO R 406 ~~Inscription of~~ Technical Drawings — Linear and Angular Tolerances — Indications on Drawings

ISO R 1101 Technical Drawings—~~Tolerancing of Form and of Position~~ Geometrical tolerancing — Tolerancing of Form, orientation, location and run-out — generalities, definitions, symbols, indications on drawings
~~Part 1—Generalities, Symbols, Indications on Drawings~~

ISO 3098/1 Technical Drawings—Lettering,
Part 1—Currently Used Characters

See AMDT 1.

Acknowledgement is made of the assistance obtained from the following British standard:

BS 1192:1969 Recommendations for Building Drawing Practice

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard for TECHNICAL DRAWING PART 101—GENERAL PRINCIPLES

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard sets out the basic principles of technical drawing practice. It is in six sections as follows:

Section 1 explains the various words, terms and phrases used in technical drawing. The terms relate to types of objects and projects portrayed in technical drawings, the types of drawings, methods of projection, dimensions and tolerances that define the size of objects, and other related items.

The Section also provides information concerning abbreviations used in technical drawing.

Section 2 specifies materials, sizes and layout of drawing sheets.

Section 3 specifies the type and minimum thickness of lines to be used in technical drawing. It is equally applicable to ink and pencil linework. It shows typical examples of their application.

Section 4 sets out the provisions for distinct uniform letters, numerals and symbols used in technical drawing.

Section 5 specifies recommended scales for use in engineering drawings, for architectural and building drawings, and for surveying and mapping purposes.

Methods of indicating scales on drawings are also specified.

Section 6 specifies methods of projection and of indication of the various views of an object including sectional views.

Appendices provide information on the development of pictorial drawings for catalogues and similar purposes.

1.2 APPLICATION. The basic principles given in this standard are intended for adoption by engineers, architects, surveyors, draughtsmen and technologists in the preparation and interpretation of technical drawings, diagrams and charts for the purpose of conveying technical information.

Technical drawings may include such drawings as:

Detail drawings
Assembly drawings
Plans
Illustrations
Schematic diagrams
Pictorial drawings
Installation drawings

1.3 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1000	The International System of Units (SI) and its Application
AS 1100	Technical Drawing Part 201—1984 Mechanical Drawing Part 401—1984 Engineering Survey and Engineering Survey Design Drawing Part 13—1978 Architectural Drawing
AS 1101	Graphical Symbols for General Engineering
AS 1102	Graphical Symbols for Electrotechnology
AS 1203	Microfilming of Engineering Documents (35 mm)
AS 1654	Limits and Fits for Engineering
AS 2536	Surface Texture
ISO 3098	Technical Drawings—Lettering Part 1—Currently Used Characters