

Guide to

User's requirements for technical manuals (based on the principles of BS 4884) —

Part 1: Content

Committees responsible for this British Standard

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- Institution of Incorporated Executive Engineers
- British Institute of Management
- Chartered Institute of Management Accountants
- Consumer Policy Committee of BSI
- Department of the Environment (Building Research Establishment)
- Institution of Plant Engineers
- Ministry of Defence

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Adrian Field Ltd.
- British Council of Maintenance Associations
- Chartered Institution of Building Services Engineers
- Department of the Environment (Property Services Agency)
- Institute of Materials Management
- Institute of Scientific and Technical Communicators
- BDC Technical Services Ltd.
- Royal Institution of Chartered Surveyors

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Foreword

This Part of BS 4899 has been prepared under the direction of the Quality, Management and Statistics Standards Policy Committee.

This guide relates to technical manuals that explain the use and maintenance of products, ranging from the instructions supplied with a household appliance, written for the domestic user, to elaborate manuals supporting a complex engineering system or building, produced for a wide variety of users. This Part gives guidance on the technical content of such manuals. Part 2¹⁾ of this guide gives guidance on methods of presenting the information. Each Part complements the corresponding Part of BS 4884.

Manuals may vary in form, from a work of several volumes to a small card or booklet which is carried in the pocket. It is the intention of this guide to help authors of all types of technical manuals to provide information about products in a consistent and informative way. Such information should be easy to use and thus improve communication between manufacturers and suppliers and their product users. Technical manuals are primarily for the benefit of the user. Producers are reminded that a successful manual will be achieved only if the needs and experience of the user are constantly borne in mind.

Although the guide applies only to documents, e.g. manuals and wall charts, an effort has been made to ensure that its guidance on user's requirements does not impede developments in other methods of presenting technical information.

The whole range of information about a product, from its inception to its final disposal, may be grouped into the following headings:

a) Producer's internal information

Concept or need: a requirement expressed in functional terms.

Evolution: feasibility, design, research and development information.

Pre-production: trials, environmental and reliability reports, maintenance certification and design approval.

Production: manufacturing data, drawings, test specifications, flow charts, computer program listings and similar information.

b) Producer's external information

Described in BS 4884-1 and for which guidance is given in this publication.

c) Ancillary information

Supply organization: details of agents, distribution logistics and similar information.

Training support: film, diagrams, models, learning programmes and courses, film strips, simulators, text books, etc.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 20, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

¹⁾ In preparation.

Section 1. General

1.0 Introduction

1.0.1 Technical manuals

In modern life, at all levels, the acquisition of a physical asset or product generally brings with it the need for some specific information. As technology advances, this need increases. Only the most fundamental of man's tools and products have no need for information to be passed from the designer or supplier to the user.

For example, a gardener will need to learn the correct way to use a spade, but this will be by demonstration or trial and error rather than from a manual. However, give the gardener a simple plough and immediately he will require information on how to propel it, set it and repair it. In other words, there will be a need for a technical manual.

This need for a technical manual is a common feature, whether the acquired asset is a domestic appliance, a sophisticated process plant or a large office block. Consumer industries should remember their responsibilities to their customers under product liability and health and safety legislation. Industrial product manufacturers and suppliers have a clear legal obligation to make information available to users so that a user's employees and others may handle, install, operate, maintain, remove and dispose of products or equipment without risk to their safety or health. Technical manuals have much to contribute towards meeting these responsibilities and obligations.

1.0.2 Who needs technical manuals?

In general, the person(s) requiring technical information will be the potential user of an asset, i.e. the person(s) who will install, operate and maintain it. The user may or may not be the actual owner of the asset acquired, but is clearly the most important person in regard to the need for technical information. Technical manuals should thus be written in a way that satisfies all the user's needs for such information about a product.

NOTE Because of the vast range of possible assets that needs to be considered, in this document the term "product" is consistent with the definition given in BS 4884.

1.0.3 Objective of this guide

The objective of this guide is to assist those who provide and those who require technical manuals to achieve production of manuals to a high standard. It sets out to do this by augmenting the well established and widely accepted principles of BS 4884 with advice and comments for those who specify and use technical manuals, rather than for those who prepare them. Particularly, the guide is aimed at those who procure products (e.g. goods, equipment and buildings) and who wish to ensure that their requirements for technical manuals are understood and met by their suppliers.

BS 4884 is designed for authors of manuals and is about basic principles. Although these are, in the main, unambiguous, a user cannot request a supplier to "comply with BS 4884" and be certain that a satisfactory manual will result. There is a need for more positive direction and many organizations, both public and private, have found it necessary to produce their own general specifications for technical manuals. These general specifications do not preclude the need for a particular specification for the manuals for a given product. However, by specifying in detail the content, quality and presentation required overall in all technical manuals, they limit a particular specification to a synopsis of its contents and to matters peculiar to that product or contract.

Ideally, the contractual arrangements for the supply of a product's technical manuals should always be covered by a particular specification. This guide seeks to help those users who do not have the benefit of their own general specification and who need to rely on reaching a mutually agreed interpretation of BS 4884 with the authors of their manuals.

In the field of domestic products, too often a supplier fails to consider the practical problems of ownership throughout the life of a product and ends up providing an inadequate manual, if one is provided at all. This guide aims to help improve the situation by highlighting some of the measures which can be taken, measures which also feature in the Department of Trade and Industry's specialist publication "Instructions for consumer products" (HMSO, 1988).

1.1 Scope

This Part of this British Standard gives guidance on information needed by users in the application of the requirements given in BS 4884-1.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

1.2 Definitions

For the purposes of this Part of BS 4899 the definitions given in BS 3811 apply, together with the following:

1.2.1

author

the person or organization responsible for preparing a manual

1.2.2

drill

a mandatory procedure

1.2.3

manual specification

the specification of the user's needs for/in a technical manual

1.2.4

procedure

a collection of operations undertaken in a specified order

1.2.5

product

any material or item of any complexity, ranging from a raw material to a complete engineering system

NOTE In this guide it is understood that product includes consumer durables, plant, goods, buildings, vessels, etc.

1.2.6

product specification

the document containing the technical requirements of a product

1.2.7

service

the supply of air, electricity, gas, water, etc.

1.3 The role of technical manuals

The production of high quality technical manuals improves the confidence in, and therefore the commercial potential of, a supplying, manufacturing or constructing organization. Equally, it can provide real cost savings to both the user and the supplier. Accurately recorded information means less wasted time and cost for both, by reducing technical ignorance and removing the need to find out the hard way through trial and error.

Regrettably, many current technical manuals are often confused with commercial publicity material. Publicity is not the task of a technical manual though, good or bad, it is often one of its by-products.

It needs to be recognized that the preparation of good quality technical manuals will involve a manufacturer or supplier in costs that eventually have to be paid for by the user. These costs will be dependent upon the scope covered by a manual. However, significant benefits are likely to accrue. For the user these can arise from the following:

- a) reduced production losses stemming from a lower incidence of faults as a result of having a better knowledge of a product, be it equipment, plant or buildings;
- b) a reduced amount of exploratory work before embarking upon repairs or modifications;
- c) improved efficiency in the use of a product.

Manufacturers and suppliers can benefit from good technical manuals through lowering their exposure to risk, and by enhancing their reputation and standing in the market place. The former leads to lower costs and the latter should lead to increased sales through greater demand for their products. Such demand may even lead eventually to price benefits of scale being returned to their customers.

1.4 User considerations

From the user's point of view, information may be required by several separate functional divisions and differing levels of expertise and responsibility within the user's organization. In such cases a manual should be structured so that it will satisfy all requirements. This should have been given careful preliminary considerations by those responsible for commissioning preparation of a manual and developing the brief for the author.

Where it is not feasible for the supplier to discuss the content of a technical manual in advance with a specific user, such as in the consumer industries, it is hoped the consumer organizations will be able to cover the matter. Where no such organization exists, it is suggested that it is in the manufacturers' and suppliers' own interests to put themselves in the position of the user and use the guidance on the principles and practices of technical manuals given in this guide, perhaps testing their efforts on a panel of typical users.

In other cases, where the specifier of the manual is not to be the eventual user, the specifier should be fully aware of user requirements.

1.5 Manual specification

The contents, more than any other aspect, of a technical manual should be determined by the nature of the user, as well as by the nature of the product. Thus the relevant characteristics of the user need to be either well known to the author or communicated in some way. When the user is an organization, rather than an individual, and the product is complex, communicating the user characteristics is invariably the case. The method for such communication should be a manual specification which may range from a simple letter to a detailed contractual document in its own right.

It is necessary to differentiate clearly between the specification established for a product and the manual specification for the technical manual provided for that product.

When a potential user decides that special needs should be indicated to the supplier, the following aspects should be considered in drafting the manual specification.

- a) It is essential that in any contract to supply a product the responsibility for the production and provision of a technical manual is clearly defined. In the case of most products this will be straightforward, but in the case of buildings or large, complex installations it may require more careful consideration. It should be seen as a specific identified responsibility and not as a vague minor duty within a wider remit. If the manual is not supplied automatically with delivery of the product, a clear programme for the supply of draft and final versions should be established to meet the user's needs. In this respect, the use of the manual in training personnel should be taken into account.
- b) Differentials should be drawn between the content of a technical manual and other types of information such as as-built drawings, specifications, design submissions and contract documentation. Specification of the technical manual should be quite separate from that for other types of information. Nevertheless, the other documentation may be important supplements to the manual. In certain instances arrangements may be made with the supplier to provide documents of a highly confidential nature (e.g. dimensioned manufacturing drawings) which the user may need when refurbishing a product in his own workshops. Such information should not normally form part of a technical manual to which there is unrestricted access.
- c) Matters of copyright should be carefully resolved, particularly with regard to avoiding any limitation of use of information by the user, as should ownership and safe-keeping of originals.

d) The user's specification should take into account the needs and the technical skill of the manual reader and should define the level of technical content accordingly. A statement of the competence of the end user should determine the overall concept of content. In many complex products such as buildings and engineering installations there may be more than one level of end user, such as occupier, maintenance operative, supervisor or manager, each with their own activity, level of competence and consequent requirement for information.

For domestic products or commodities in large volume production, the supplier should consider these aspects from the point of view of the likely range of users. In these cases the supplier should produce the manual specification.

The format into which a manual should be structured needs to take into account the various needs of the different users. For a motor car this may mean a driver's handbook, a DIY maintenance manual and the agent's workshop manual. For a large complex plant it may be even more extensive.

e) The extensive capability of many householders for DIY repairs needs to be taken into consideration. General directions "to call upon a servicing contractor" when repairs are reasonably within the capability of a proficient DIY practitioner, should be neither acceptable as a condition of supply nor as an excuse for providing inadequate operation or maintenance instructions.

f) Guidance as to the competence of the end user should be given in terms of training and qualifications gained prior to use of the intended technical manual. This guidance should be given either by the supplier, stating what basic knowledge is required to use the manual, or by the user having a manual's specification adjusted to suit the competence available.

g) The international, national or other standards to be used in the compilation of the technical manual should be stated in the specification together with any other accepted reference information which may be used in support.

h) Essential criteria such as language, units of measurement, terminology, signs, symbols and abbreviations should be determined by specifying particular standards or by special statement.

i) The principal subject of a technical manual (the product) should be unambiguously identified and the manual should contain information relating only to that subject. It is not generally desirable to have a manual that covers several separate products or several substantially different versions of the same product. However, on some occasions different versions of a product may have much in common, so that a user having several versions can have them supported by a single manual. Where this is so, clear instructions should be provided on how to separate variants and to distinguish between them.

A complex product may contain many sub-systems or products. Its manuals should refer to the total product installation, incorporating details of the individual sub-systems in their overall context.

j) The programming of preparation, submission and acceptance of a manual by the user should be defined. It is essential that information is provided at the right time to the right quality. Matters relating to the logistics of preparing and updating a manual should be clearly specified with special regard to measures to facilitate rapid updating.

k) Unique identification of the manual for the purposes of reference, communication and amendment is important. There should be no opportunity for confusion over which manual (or element within a manual) is the subject of attention. Equally, a manufacturer or supplier of a product should be able to identify a manual, its version and its subject matter accurately at any time.

l) Those who have been commissioned to prepare manuals for products that contain sub-systems supplied by others will need to ensure that any standard documentation provided by such suppliers meets the user's requirements fully. If it does not, supplementary or alternative documentation will need to be prepared.

1.6 Preparation of technical manuals

The preparation of technical documentation is a skilled task requiring special knowledge and experience. Clear differentiation should be made between those responsible for designing and manufacturing a product, and those responsible for providing information about that product to its users. Too often the production of technical manuals is regarded as a minor task in departments that have responsibility for other mainstream activities. It should not be so relegated.

In many situations, and especially in major engineering installations, there will sometimes be a need to use external specialists to produce technical manuals under a separate contract. Where the technical manual is to be prepared in this way, enabling provisions need to be established. The manual's authors need to have a clear mandate to seek all necessary information and the suppliers of a product should be duty-bound to provide it.

Where provision of a manual is part of a contractor's, manufacturer's or supplier's general obligation, means should always be provided to identify the technical manual activity quite separately from other aspects of the supply. This should be done to allow a manual's progress and quality to be monitored.

Particularly in the field of building construction, a client commissioning the design and construction of a product may not be the eventual user. Also, those who build or construct the product may not be responsible for its design and specification, a feature that can be further complicated by the use of many specialist sub-contractors and suppliers. In such instances, usually only the client can order and finance the preparation of a manual. Such a manual would either be the subject of a separate contract, or specifically included in the contract for the construction or manufacture of the product. The decision to prepare a manual should have been taken at the time a design is commissioned, and it is important that only final, as-built information is incorporated into the finished document.