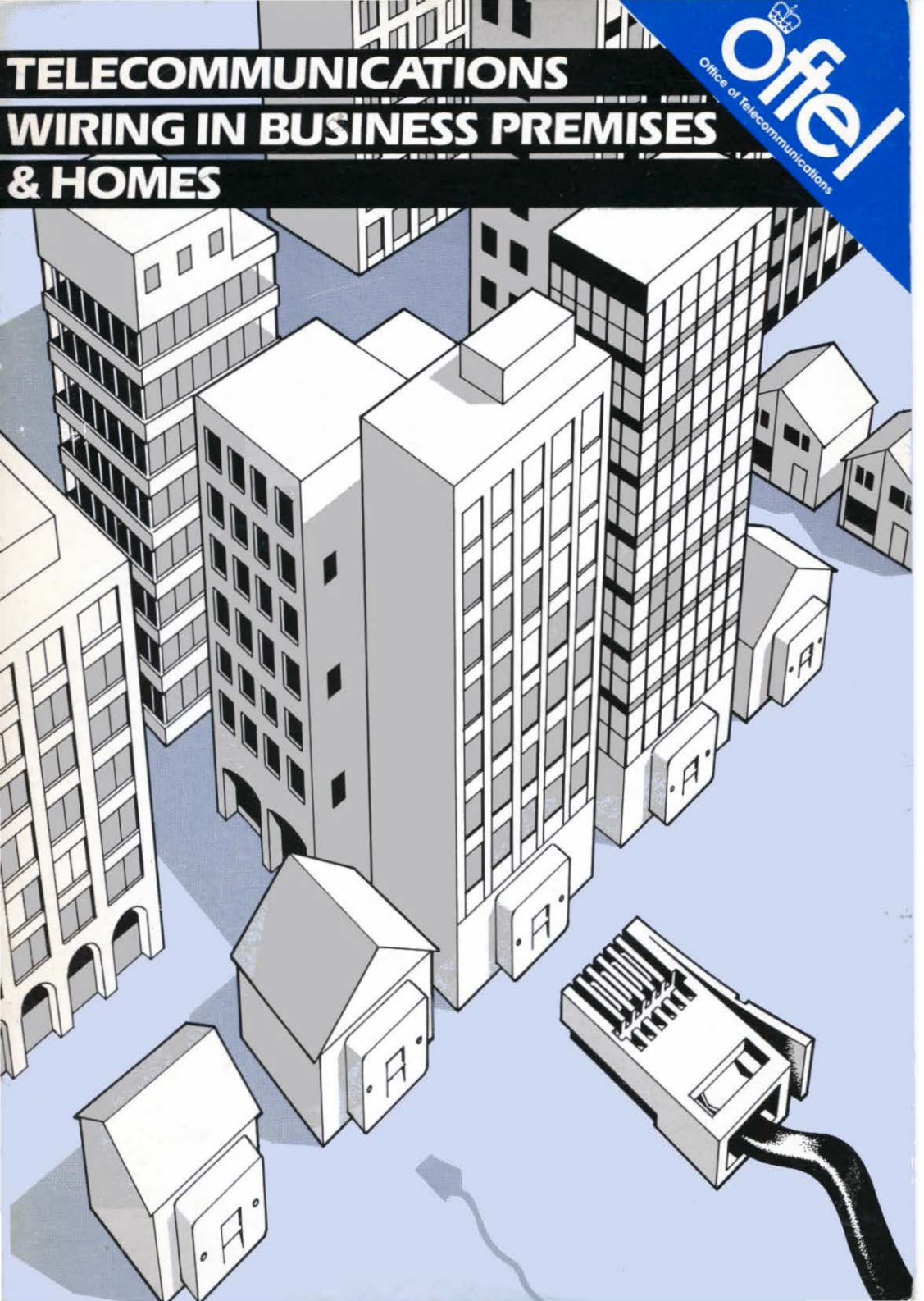
TELECOMMUNICATIONS WIRING IN BUSINESS PREMISES & HOMES



Telecommunications wiring in business premises and homes

Rules on wiring on customers premises

INTRODUCTION

1.1 The Telecommunications Act 1984 and licences issued under it allow competition in the supply, installation, bringing into service and maintenance of telecommunication wiring which is *not* part of any public telecommunication system. These notes explain the rules governing wiring and illustrate their application in some common situations.

1.2 In this note, "Wiring" does not include radio links nor flexible leads, permanently attached to and supplied with items of apparatus. (Such leads are treated as part of the apparatus to which they are attached). But it is taken to mean any other tangible link between separated items of telecommunication apparatus. Wiring includes any line terminating apparatus connected to it except where such apparatus is part of a public telecommunication system.

1.3 No rules apply to the wiring of private telecommunication systems *which are not connected, either directly or indirectly, to any public telecommunication system.* "Public telecommunication system" includes not only the switched telephone or telex networks run by British Telecom, Hull City Council or, in the future, Mercury Communications but also the new digital services now being introduced as well as private circuits of all descriptions (including "tie lines", "external extensions", digital and analogue circuits) run by any of these three operators. And for the purposes of these rules, telecommunication apparatus is regarded as being connected to one of these public telecommunication systems (directly or indirectly, according to the circumstances) if any kind of message or signal can pass between them.

1.4 The rules about wiring make an important distinction between wiring that forms part of a public telecommunication system and wiring forming part of a private system connected to it. This makes it important to identify the "boundary" of public telecommunication systems. Defining this boundary is complicated, because account has to be taken of many different forms of connection, including international cable links, satellite

communications, ship-to-shore services, public callboxes and interconnection between public systems such as those of BT, Hull City Council and Mercury Communications. But the point of connection to ordinary customer's apparatus is less complicated to define, whether the customer is a private residential user or a large business.

1.5 Public telecommunication operators' licences require the boundary between a public system and a customer's installation to be on the customer's premises. But public telecommunication operators often include points of connection *within* their public systems though located upon customer's premises. The junction between interior and exterior grades of cable is a typical example. So the boundary between public and private systems is seldom the last physical interconnection point before the public telecommunication system leaves the customer's premises.

1.6 Instead it is to be found at one or more connection points *at which approved apparatus may be connected and disconnected*, and which convey messages or signals to and from the public system without passing across any other such points of connection. Thus the point at which an extension telephone is connected to a private switchboard (PBX) is not the boundary of a public system because messages and signals to and from that telephone also pass across the point at which the switchboard itself (which is approved apparatus) is connected to its exchange lines. So in this case the boundary of the public system is the point at which the switchboard is connected to its exchange lines. Figure 1 illustrates this case.

1.7 In contrast, *all* the sockets provided for the usual extension telephone arrangements in homes and offices where there is only one exchange line form the public system boundary, because messages or signals to and from these sockets do not pass across any other connection point provided for approved apparatus. Figure 2 illustrates this case.

THE BASIC RULES

2.1 All the customer's installations discussed in this note are telecommunication systems and by statute must either be exempt from licensing or must be run under a licence. (Exempt systems cannot be connected, directly or indirectly, to public telecommunication systems, and as indicated above, are

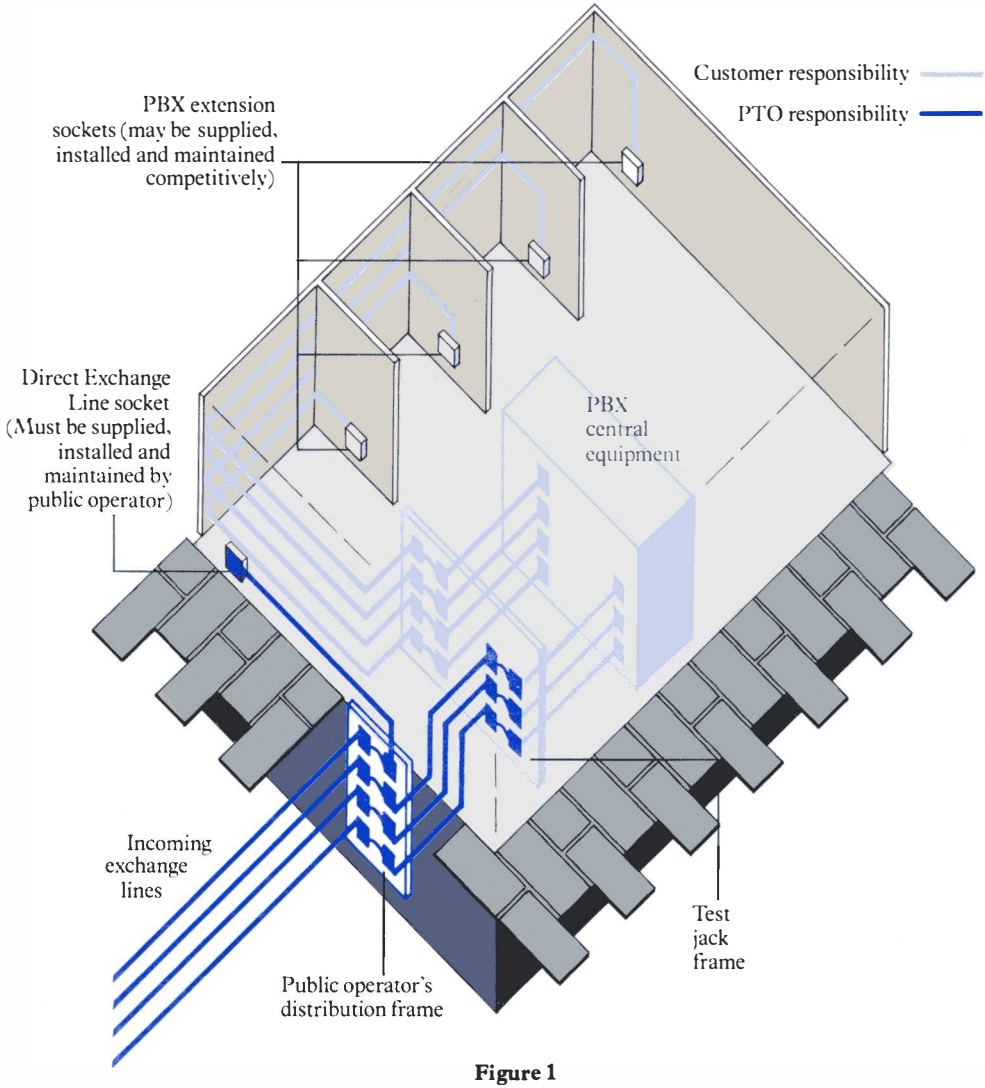


Figure 1

Notes

(1) Wiring shown light blue is *not* part of public systems and may be supplied and installed competitively. It must be maintained by the maintainer of the PBX or his sub-contractor.

(2) Wiring shown dark blue is part of public system and must be supplied, installed and maintained by the public operator.

(3) The PBX is defined as including its test jack frame and any wiring between the two. The standard for PBX stipulates that this wiring may not exceed 15m, or 30m if the public operator agrees.

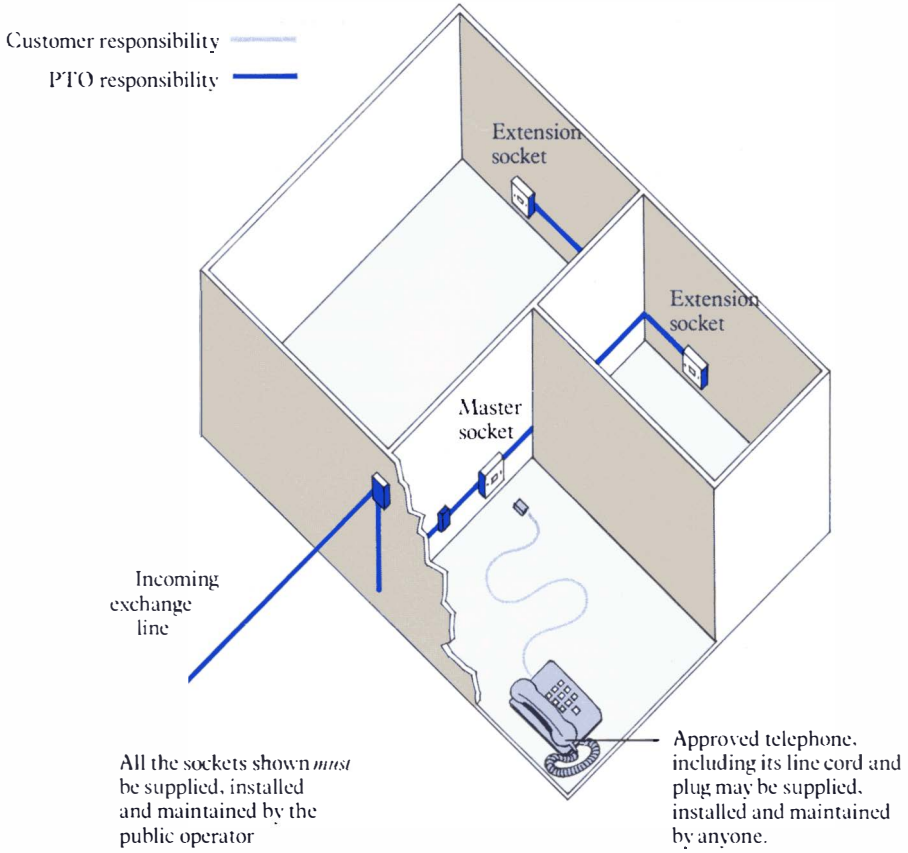


Figure 2

not subject to rules about wiring). In most cases the licence that applies is the "General Licence for the Running of Branch Telecommunication Systems." This licence specifies the circumstances in which customer's own wiring may leave any one set of premises. Those rules are very important for the construction of lawful telecommunication systems, but are beyond the scope of this note. OFTEL will be publishing a separate guidance note on them.

2.2 It is convenient to explain the rules in terms of four cardinal operations – the supply, installation, bringing into service and maintenance of wiring. The previous section has introduced the most basic rule of all:

RULE wiring that does not form part of a public telecommunication system may be supplied and installed by anyone.

The complement to this is:

RULE wiring that is part of a public telecommunication system is the exclusive responsibility of the licensed operator of that system.

2.3 Public telecommunication operators alone are responsible for supplying, installing, bringing into service and maintaining all wiring and other apparatus forming part of their public systems. They will normally insist that they themselves do all this work. But in some circumstances, for example in unusually hazardous places, public operators may agree to involve others in the provision of parts of their system.

2.4 In this note "bringing into service" is distinct from installation, and is used to mean the process of making a connection between an item of apparatus or wiring and a telecommunication system, so that the apparatus and wiring is ready in all respects to be put to use. The term also includes any inspection of the apparatus or wiring that may be necessary to make sure that it is in order to make the connection. An important rule applies to the bringing into service of wiring that is "hard-wired" directly to a public telecommunication system. (By "direct connection" is meant connection without intervening apparatus of any kind. Figure 3 illustrates this distinction.) The rule is:

RULE wiring that is directly connected to a public telecommunication system by means requiring the use of a tool must be brought into service by the operator of that system, or by a person authorised by him.

The complement to this is:

RULE wiring that is directly or indirectly connected to a public telecommunication system by means of an approved plug and a compatible socket may be brought into service by anyone.

2.5 The direct connection of private wiring to a public telecommunication system is not common. However certain types of apparatus, particularly for connection to leased circuits, may be approved for connection via detachable leads that may be either hard-wired or plug-and-socket connected to the public network

Figure 3a

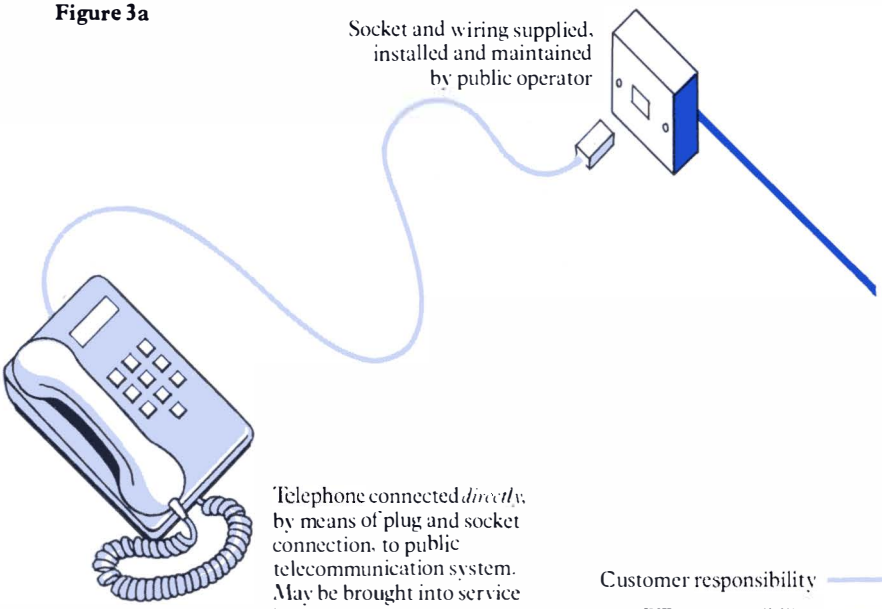


Figure 3b

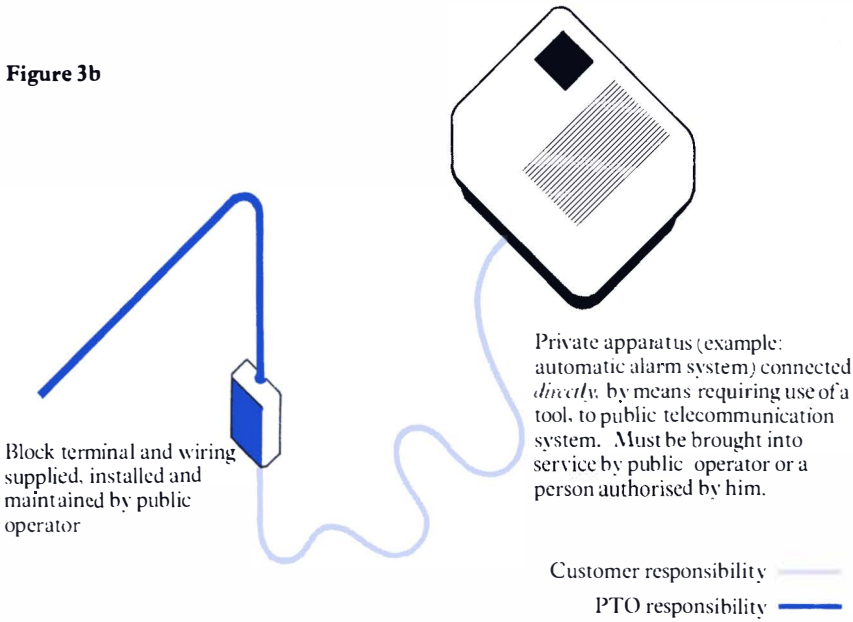
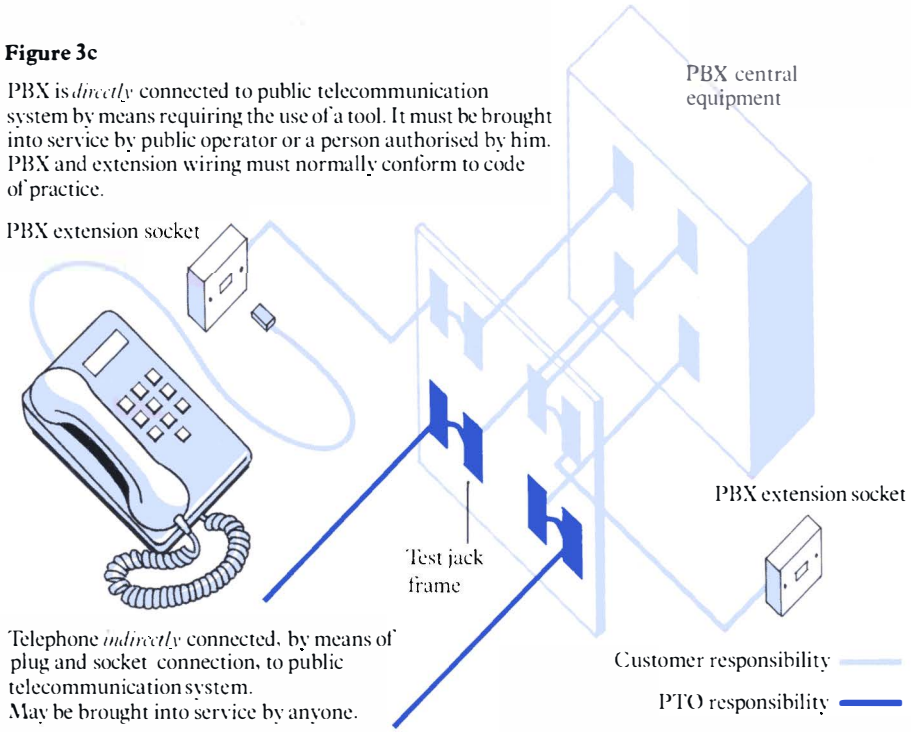


Figure 3c

PBX is *directly* connected to public telecommunication system by means requiring the use of a tool. It must be brought into service by public operator or a person authorised by him. PBX and extension wiring must normally conform to code of practice.



connection point. Wiring, other than detachable leads used in accordance with the approval of the apparatus connected to them, is not approved for direct connection to public telecommunication systems, for such wiring amounts simply to an electrical prolongation of the public network and, functionally speaking, is part of it. Because public network operators are under licence obligations to provide telecommunication services, they need to retain control of the means of providing those services. The rules have therefore been designed so that the legal and functional boundaries of public networks correspond as closely as possible. In particular, domestic and similar extension wiring, to be connected *direct* to a public network, may *not* be provided competitively and plugged into a public network.

2.6 These rules apply to all wiring. Some further rules apply only to wiring connected to telephone call routing apparatus.

Wiring connected to telephone call routing apparatus

2.7 In keeping with the previous paragraphs, wiring that is connected to telephone call routing apparatus and is on the

customer's side of a public network connection point may be supplied and installed competitively. But it is subject to some other rules. Some of these rules are specified as licence conditions, others derive from conditions in the approval of telephone call routing apparatus and in the designation of standards for such apparatus. Whilst anybody may supply this wiring, the first rule relates to installation:

wiring connected to telephone call routing apparatus must either be installed in accordance with the Code of Practice currently in force or be accepted as satisfactory by the public telecommunication operators whose systems convey communications that pass over that wiring and are directly connected to the private system that incorporates the wiring.

(This means that if a PBX is used to make calls to Hull via a connection to BT's telephone network, BT's but not Hull's acceptance of the wiring is required. But if a PBX is directly connected to circuits provided, say, by BT and Mercury then the wiring must be acceptable to both these public operators.)

2.8 At present an interim Code of Practice is in force, published by the Department of Trade and Industry, from whom copies may be obtained. It is expected that it will soon be superseded by certain (but not all) of the recommendations set out in British Standard Code of Practice BS 6506. Suitable publicity will be given to this change when it is made: the changeover will not require alterations to be made to any existing wiring installed to the interim Code of Practice.

2.9 When a public telecommunication operator is asked to connect to his system any private telephone call routing apparatus he will normally carry out a pre-connection inspection to verify that the apparatus is approved, and has been correctly installed in accordance with that approval. As part of this procedure, he will ask for a certificate of compliance with the Code of Practice. If such a certificate is provided, the operator will not normally carry out an inspection of the wiring (although he may do so, and charge accordingly, if he has reason to question the accuracy of the certificate). If no certificate can be provided, the telephone call routing apparatus with wiring connected to it may still be brought into service at the public operator's discretion eg when special circumstances make compliance with the Code of Practice

impracticable or even undesirable. (The rules governing the bringing into service of apparatus other than wiring are similar to those already stated for the bringing into service of wiring.) The public operator will normally wish to satisfy himself that the installation is safe and will not interfere with the proper operation of his public telecommunication system. These arrangements are intended to allow in-situ wiring, which is in good condition but does not comply with every detail of the Code of Practice, to be re-used when the call routing apparatus served by it is replaced.

2.10 A further rule applies to the maintenance of wiring connected to telephone call routing apparatus. Such apparatus *must* be maintained, and its maintenance must be done by a single "Designated Maintainer" who must either be the operator of a public switched telephone network to which the call routing apparatus is connected or a maintainer approved by the Secretary of State to maintain that particular model of apparatus.

RULE Wiring connected to telephone call routing apparatus must be maintained under a contract with the Designated Maintainer of that call routing apparatus. Where the same wiring is connected to more than one item of telephone call routing apparatus, it must be maintained by the Designated Maintainer of one of those items.

2.11 The Designated Maintainer may, if he wishes, sub-contract maintenance of the wiring to a specialist contractor provided that he retains overall responsibility and monitors the quality of the work done.

2.12 The final rule in this group relates to the bringing into service of wiring that is to be connected to telephone call routing apparatus.

RULE If, in order to bring into service wiring that is to be connected to telephone call routing apparatus, it is necessary to alter that apparatus or remove its outer cover, then only the Designated Maintainer of the apparatus may bring the wiring into service. In any other case anybody may bring the wiring into service provided that either

- the Designated Maintainer has agreed; or
- the Designated Maintainer has not brought the wiring into service following 14 days written notice specifying the person who is to bring the wiring into service.

Wiring not connected to call routing apparatus

2.13 No additional rules apply where the wiring is not connected to telephone call routing apparatus. However consideration is being given to a requirement that such wiring must be installed in accordance with an appropriate Code of Practice which is being prepared by the British Standards Institution. It will be modelled on BS 6506 and will replace an earlier British Standard Code of Practice, CP 1022.

USE OF WIRING BELONGING TO A PUBLIC TELECOMMUNICATION OPERATOR

3.1 It frequently happens that a user wishes to replace apparatus but to connect it to existing wiring. In many cases this wiring belongs to a public telecommunication operator, who may also be a supplier of apparatus. The terms on which the operator's wiring may be used can then become an important competitive element. To ensure fair competition, the public operator's licences granted to BT, Hull and Mercury Communications contain conditions designed to ensure fair competition. Public telecommunication operators are under the following obligation:

RULE when requested by a user, the operator must, wherever practicable, make available to the user any wiring that the operator owns, but which is not part of a public telecommunication system, and, except in the case of "integrated wiring", this must be on terms which permit the maintenance of that wiring by someone other than the operator himself.

3.2 The public operator can choose how he makes the wiring available, whether by selling, renting or leasing etc. If he retains ownership of the wiring, the terms of supply must be no less favourable when apparatus connected to it is not supplied by him than when he has supplied it himself.

3.3 If the operator chooses to sell the wiring, he must do so for a sum that fairly represents its capital value. If fair terms, along the foregoing lines, cannot be determined, then the terms on which the wiring is made available are to be agreed between the user and the public network operator.

UPGRADING OF EXISTING WIRING FOR USE WITH A NEW PBX

4.1 Where existing wiring is to be re-used with a new PBX some remedial work may be necessary, whether for reasons of general wear and tear changes to the customers site, or because the standards applying at the time of original installation have been superseded or because the system with which it was formerly used differs technically from the new one in a way that influences the kind of wiring that is appropriate.

4.2 When a customer approaches BT to purchase existing wiring for re-use with a new PBX (obtained from any supplier) BT will carry out a free survey to set the price for the sale. Where this survey indicates any significant defects which would prevent the proposed re-use without remedial work being conducted, BT will so advise the customer. Should a customer wish to have a more detailed inspection and written report for his own purposes, this will normally be arranged at a cost (payable by the customer) determined by the particular installation. The customer is then free to choose any contractor (including BT) to remedy the defects.

4.3 Where existing wiring continues to be used by BT, for services charged on a rental basis, any renewal work is the responsibility of BT and is included in the continuing rental charge for all the services run on that wiring. The criteria which determine the need for remedial work are not such that they seek to uplift an existing system to the technical standards or appearance of one newly provided. The purpose is to ensure safety (of the user, of staff working on the system, and of BT's network and staff), it also ensures that the system is technically acceptable when connected to the new PBX.

4.4 BT apply the criteria to determine whether or not existing wiring is satisfactory for use with a new PBX evenhandedly - without taking account of whether the new apparatus is expected to be supplied by BT or a competitor; and the price of wiring that is to be sold to a customer must be priced at a level that is fixed regardless of the source of supply of the new apparatus. BT normally expects wiring to comply with the relevant parts of the Department of Trade and Industry's Interim Code of Practice

or British Standard Code of Practice BS 6506, though it will generally accept existing wiring that does not fully comply provided that the essential safety and security safeguards are met.

Note:
This represents a statement of current British Telecom policy which could be subject to change. OFTEL would, however, need to be satisfied that any changes made were consistent with the requirements of the regulatory regime.

INTEGRATED WIRING

5.1 Wiring in office buildings is often integrated. That is to say, circuits which are part of a public telecommunication system, as well as circuits which are not, are combined in the same multi-core cable and share the same distribution frames, junction boxes etc. Such an arrangement provides flexibility for the re-arrangement of services as user needs change, but makes it impossible to separate the maintenance of public and non-public circuits. In practice, because the same person must maintain both the wiring and call routing apparatus connected to it (see above), any telephone call routing apparatus connected to such integrated wiring must be maintained by the public operator, even where the apparatus itself could quality for competitive maintenance. To overcome such anti-competitive effects of integrated wiring, two important rules will soon come into force.

RULE After 31 December 1985, no new integrated wiring (in the sense indicated above) may be installed so that it is to form part of a public telecommunication system

and,

RULE after 31 March 1985, public telecommunication operators must, where requested by the user of an existing integrated wiring scheme, provide separate wiring to carry the public network circuits required by the user.

5.2 These rules are not quite absolute. For example, the Director General of Telecommunications may issue guidelines for the continuing installation of integrated wiring or for the provision of separate wiring (and may do so if technical or other

changes make integrated wiring possible without anti-competitive effects).
And integrated wiring will be permitted if it is installed under a contract entered into before 31 December 1985, or where the structural provision for wiring has been designed before that date specifically for an integrated arrangement.

5.3 Of course, where a public operator provides new wiring in accordance with the second of these rules, he is entitled to charge for it as well as for any existing wiring which he is supplying to the user. Public operators' licences forbid unfair discrimination between different users in these charges, as in all other terms and conditions of service.

5.4 Once separate public network wiring has been provided, the user may then make use of the old integrated wiring, for example as extension wiring for his private switchboard, under the rules already described.

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