APPENDIX 1

(referred to in paragraph 10)

Cable Construction and Mode of Manufacture

Manufacturing processes are broadly similar for most types of cable though they may differ very considerably in detail. The routing and the stage at which the main processes stop depend on the design of the cable. The main processes are described below and the process flow of manufacture is shown in the form of a chart in the following table.

The stages are:

Formation of Conductors

Conductors are formed in one of two ways:

either *WIRE DRAWING & STRANDING (or bunching)*	Aluminium or copper rod is drawn into wire of appropriate diameter and continuously annealed (where necessary). It is wound on to bobbins for the next manufacturing process.
	The bobbins of wire are loaded into a stranding machine or into a bunching machine and the appropriate number of wires are twisted together to form a complete conductor in either circular or sectoral form. The conductor is wound on the drums for further insulation or occasionally for direct sale.
or *EXTRUSION OF SOLID CONDUCTORS*	By extrusion of solid aluminium billets into solid circular or sectoral shapes of appropriate size. (Solid conductors may also be produced by continuous casting processes.)

Insulation of Conductors

Insulation may be either of paper or of plastic (PVC) or polythene or cross-linked polythene or rubber (natural or synthetic) compounds according to the technical requirements of the usage, the ease of installation of the cables, or the wishes of the customer.

either *PAPER INSULATION*	
Paper slitting	This is a preparatory process to slit full width (1 metre) rolls into the narrow widths required for application to the conductor in the next process. (The paper is specially produced from selected wood pulp to impart the necessary mechanical and electrical properties.)
and *Conductor Insulating*	For paper insulated cables the requisite number of papers is applied to the conductor in a lapping machine with control of gap spaces and tensions to produce a satisfactory dielectric.
or *RUBBER, PLASTIC OR ELASTOMERIC*	Insulations other than paper are applied to the conductor by 'extrusion' to the appropriate thickness coupled in some cases with a vulcanisation process.
	The insulated core would be wound on to process or delivery drums as appropriate.

Laying-up of Conductors

LAYING UP and CORE BINDING or CORE INSULATION	The individual cores are where necessary assembled together to form a twin, 3 or 4 core cable in a laying-up machine, made circular with appropriate longitudinal fillings, and further insulation is applied or a binder provided. The assembled cable is then wound on to a drum or coiled into an annular tray for the next process.

Impregnation and Sheathing (*paper cables only*)

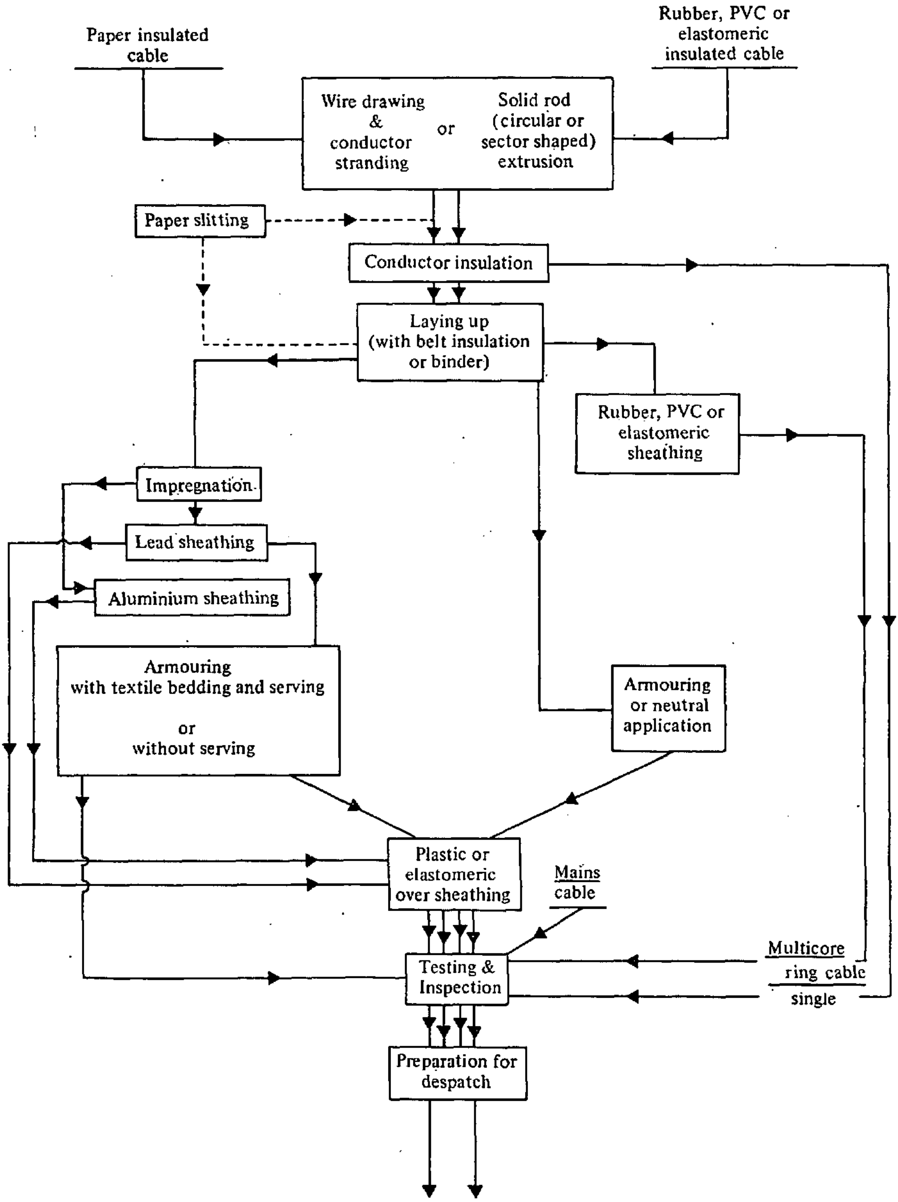
IMPREGNATION	The drums or trays are loaded into a pressure vessel forming part of a complete closed circuit impregnating plant where it is subjected to a drying treatment under heat and vacuum followed by impregnation under pressure and a controlled cooling cycle. The impregnation compound is either mineral oil or a blend of micro-crystalline wax and mineral oil etc. having non-migratory characteristics at normal cable operating temperatures.
and either	
LEAD SHEATHING	After impregnation the cable is provided with a lead sheath to protect the insulated core against the ingress of moisture. The lead sheathed cable is coiled on to a drum for delivery or further manufacture.
or	
ALUMINIUM SHEATHING	In certain constructions, for Area Boards only, aluminium sheathing is provided in either smooth or corrugated form. This sheath may act also as the neutral conductor in low-voltage cables, as well as to exclude moisture.

Protection and Finish of Cables

ARMOURING	For paper insulated cables this may consist of steel tapes or galvanised steel wires applied over a bedding of impregnated textile materials with bituminous compound. The armour may be left bare or protected with additional layers of textile materials and compound.
	For PVC or elastomeric insulated mains cables armouring (if required) is applied directly. Steel wires or aluminium strips may be used.
OVER SHEATHING OF PLASTIC	This is used on all PVC and elastomeric mains cables, aluminium sheathed cables and on paper insulated lead sheathed and/or armoured cables where required.
TESTING & INSPECTION	Before despatch every drum of cable is subjected to electrical tests and examined for correctness of construction and dimensions and in the presence of customer's representatives where this is required.
PREPARATION FOR DESPATCH	The cable ends are trimmed, adequately sealed and protected. The drums receive their outer lagging and are appropriately marked and labelled.

APPENDIX I

Process Flow of Manufacture



APPENDIX 2
(referred to in paragraph 18)

Views of Users and Minor Manufacturers

1. At the outset of our inquiry we sought evidence from all the electricity authorities in the United Kingdom, from the Post Office, the National Coal Board and other nationalised industries, from Government departments, a number of local and health authorities, electrical contractors, electrical wholesalers and manufacturers of a wide variety of products (from generators to ships and from lawn-mowers to motor cars) in which reference goods are used. We also sought the views of the smaller manufacturers of reference goods, some of whom were included in the group of persons in whose favour we provisionally concluded that a monopoly situation existed. We wrote altogether to some 400 companies or other bodies and received evidence, including oral evidence, from 135 users some of whom replied on behalf of more than one body, for example the Electricity Council on behalf of all Area Electricity Boards in England and Wales. Apart from a few complaints and an equal number of favourable comments made specifically about BICC, most of the comments and complaints were made about the industry as a whole. Some comments were made about a particular category of cable but most were expressed in general terms. Some of the complaints received related to the circumstances of the industry at the time the reference was made, for example, increases in copper prices and cable shortages due to shortages of PVC and the effect of the 3-day week (see paragraphs 288 and 300–302).

2. The views of the CEGB, the various other United Kingdom electricity authorities and the Post Office, about the supply respectively of supertension, mains and telecommunications cables, of which they are the dominant purchasers, are described in the relevant paragraphs of Chapters 5 and 8[1]. In this appendix we summarise the views of other users under the different headings on which we sought their comments. We also summarise the views of smaller manufacturers insofar as these relate to the activities, or the effects of the activities, of BICC and their other larger competitors.

USERS

Prices

3. Most users found the general level of prices reasonable in the light of recent increases in copper prices and the British Railways Board said that, excluding the effect of copper, prices for major contracts over the two or three years prior to 1974 had reduced. There were, however, complaints from three manufacturers of electrical products, five local authorities or local authority associations or consortia and one trade association that, whereas cable prices rose quickly when there was an increase in the price of copper, they fell only very slowly, if at all, when copper prices were reduced. One trade association complained that BICC's prices for mineral insulated cable continued at a relatively higher level after the prices for other types of general wiring cable had begun to

[1] Paragraphs 256 (mains cable), 269–270 (supertension cable) and 368 (telecommunication cable).

fall. Several manufacturers of electrical goods commented that United Kingdom prices compared favourably with those charged overseas, but one found Spanish and another Italian and Dutch prices competitive.

4. There were a variety of comments on the existence of parallel pricing or identical tendering in the industry. Many users commented on the similarity of list prices for general wiring cables and winding wires, but some of these also mentioned competition in discounts. Tender prices were variously described as showing marked similarity and differing considerably. Some users, including the National Coal Board (NCB), said that identical tendering had died away in recent years, before the start of our inquiry, and a very large industrial user commented that, although until the introduction of prices legislation gross prices were generally similar, there was enough variation in net prices to cause the company to change its buying pattern and negotiate terms with manufacturers.

Competition

5. Competition was generally described as ample, considerable or adequate, but three manufacturers of electrical products and five local authorities or local authority associations/consortia considered it limited or even non-existent. Three of these complaints, however, related to specialised cable types and one to shortages of supplies. Except for some specialised cable types, most users considered that there was an adequate number of potential suppliers (though one of the complainants referred to above thought five or six manufacturers inadequate). Two local authority associations commented on the lack of competition in the supply of mineral insulated cable, made in the United Kingdom only by BICC, and a local authority drew our attention to the intention expressed by BICC at the time of the BICC/Pyrotenax merger inquiry (see paragraph 105) that competition between Pyrotenax and BICC's Mineral Insulated Cables Division should continue. The complainant considered that the creation of BICC Pyrotenax Ltd (see paragraph 105) had effectively put an end to such competition. As well as competition in discounts, rebates and special prices for particular enquiries there was said to be competition also in delivery dates. Some manufacturers of electrical products commented that competition was limited by their own very high standards which not all cablemakers could meet. The NCB said that so far as their rather specialised requirements were concerned there was competition between cablemakers.

Quality

6. There were no complaints about quality which was described by many users in glowing terms.

Conditions of sale

7. Some large customers, including the NCB and British Railways Board, are able to impose their own conditions of purchase on cable manufacturers. Among the other cable purchasers the majority were satisfied with the cablemakers' conditions. A trade association and two local authority associations complained about the 25 per cent surcharge made for short lengths of cable and another trade association complained about the standard surcharge made on small orders for winding wires and strips and about what it described as non-realistic minimum ordering levels for cables. The association commented that the minimum weight

surcharge was payable on any repairing job and so resulted in increased costs for the repair trade. Two manufacturers of electrical products complained that the price paid for general wiring cable was the price ruling at date of despatch not date of order and one of these and an electrical contractor drew attention to the difficulty this caused them in fulfilling fixed price contracts.

Special terms: discounts and rebates

8. Some of the large users commented that they received high rates of discount and rebate. A manufacturer of electrical products complained of the manufacturers' reluctance to grant rebates on winding wires even to large purchasers and commented that smaller purchasers presumably had no opportunity of improving on list price. The level of discounts to electrical wholesalers attracted some criticism. Two electrical installation contractors commented that they could sometimes get better terms from wholesalers than from cable manufacturers, and a small wholesaler complained that some wholesalers received higher discounts than others and that contractors were able to buy cable more cheaply than some wholesalers. A local authority complained that only one cable manufacturer had offered a preferential discount to electrical contractors buying direct from the manufacturer rather than a wholesaler. A trade association said that a constant 5 per cent discount appeared to be available to all contractors irrespective of their purchasing power and was therefore meaningless.

Standards of service

9. Seven users complained of delivery delays and two about inadequate stockholding. Otherwise there were no complaints about service. BICC's standards of service were praised by a number of users.

SMALLER MANUFACTURERS

10. We asked smaller manufacturers for details of any difficulties they had experienced which in their view were caused through the activities of one or more of the major companies in the industry. The majority of the smaller manufacturers had experienced no difficulties or only those associated with a competitive market in which they were competing with the industry giants. Two of them had only recently entered the industry and neither had experienced any difficulty in doing so. Two smaller manufacturers of winding wires referred to the acquisition by the GEC Group of, and the consequent transfer of GEC business to, AEI's winding wire subsidiaries although one said that it had subsequently obtained business from other GEC companies. A medium sized manufacturer complained that the escalation of discounts and rebates given to wholesalers by BICC, and followed by the other three major manufacturers, had resulted in some wholesalers being able to undercut smaller manufacturers' prices.

APPENDIX 3

(*referred to in paragraphs 23 and 29*)

Principal Acquisitions of the Four Major Manufacturers 1955–1977

Year	*BICC*	*DELTA*	*PIRELLI GENERAL*	*AEI*
1955				AEI Ltd (AEI) acquired (85 per cent) balance of Siemens Bros & Co Ltd.
1958				AEI acquired Henleys Telegraph Works Ltd.
1959	BICC acquired Telegraph Construction & Maintenance Co Ltd and with it a 50 per cent share in Submarine Cables Ltd. BICC acquired Scottish Cables Ltd. BICC acquired AEI's interests in Connolly's and St Helens.	Enfield Rolling Mills Ltd (ERM) acquired Enfield Cables Ltd.		AEI acquired the London Electric Wire Co & Smiths Ltd and Liverpool Electric Cable Co Ltd. AEI sold its interests in Connolly's and St Helens to BICC.
1960		The cable interests of Enfield Cables Ltd and the non-telephone cables interest of STC merged to form Enfield-Standard Power Cables Limited—jointly owned.		
1961	BICC acquired Bessbrook Products Ltd.	ESPC acquired the business and certain of the assets of Mersey Cable Works Ltd, a subsidiary of Tube Investments Ltd (TI). TI allotted 12 per cent minority share of ESPC.		AEI acquired BICC's interests in Southern United Telephone Cables Ltd (renamed Telephone Cables Limited (TCL)).
1962			Pirelli General's parent company Pirelli acquired most of GEC's holding in Pirelli General (PG). PG/GEC trading agreement ceased to exist.	
1963	BICC acquired Long Eaton Cable Co Ltd and Armorduct Cable Co Ltd.	Delta Metal Co Ltd acquired ERM. ERM set up Enfield Phelps Dodge jointly with Phelps Dodge Corporation (US).		

Year	*BICC*	*DELTA*	*PIRELLI GENERAL*	*AEI*
1964	BICC acquired William Geipel Ltd.	Delta Metal acquired Johnson & Phillips. Delta Metal acquired TI and STC holdings in ESPC. ESPC acquired the cables interests of Barrow, Hepburn and Gale.		
1965	BICC acquired B & F Carter & Co Ltd (makers of cablemaking machinery).			AEI acquired the total holdings in Kent Electric Wire Limited.
1966	BICC acquired Pyrotenax Ltd. BICC sold its interests in Submarine Cables Ltd to AEI.			AEI acquired BICC's interests in Submarine Cables Ltd.
1967				AEI acquired Hackbridge Holdings Ltd. GEC acquired AEI.
1968	BICC acquired Fine Wires Ltd and F McNeill Holdings Ltd (parent of Britannic General Cables Ltd).			AEI Cables Ltd formed.
1969	BICC acquired AEI supertension cablemaking facilities. BICC acquired Reliance-Clifton Cables Ltd.	ESPC ceased manufacture of supertension cables and took a $25\frac{1}{2}$ per cent interest in Pirelli Enfield Supertension Cables Ltd, $74\frac{1}{2}$ per cent owned by Pirelli General.	Pirelli General's Swiss parent (SIP) acquired GEC's last remaining 5 per cent holding in Pirelli General. Pirelli Enfield Supertension Cables Ltd (Pirelli Enfield) formed by PG and ESPC.	AEI Cables sold to BICC its supertension cable manufacturing business. AEI acquired the total holdings in F D Sims Limited.
1970				Submarine Cables Ltd sold to STC.
1971		ESPC acquired Wandleside Warren Wire Co and Saxonia Electrical Wire Co. ERM bought out Phelps Dodge interest in EPD, renamed Enfield Winding Wires Ltd.	Pirelli General acquired Aberdare Cables Ltd.	
1973	BICC acquired Plessey Ltd manufacturing facilities for switchboard cables and cords.	Delta Metal acquired Aerialite Ltd.		
1974		ESPC and Aerialite cablemaking activities merged in Delta Enfield Cables Ltd.		
1977			Pirelli General acquired Delta's $25\frac{1}{2}$ per cent shareholding in Pirelli Enfield.	

APPENDIX 4

(*referred to in paragraph 31*)

Associations of Cablemakers[1]

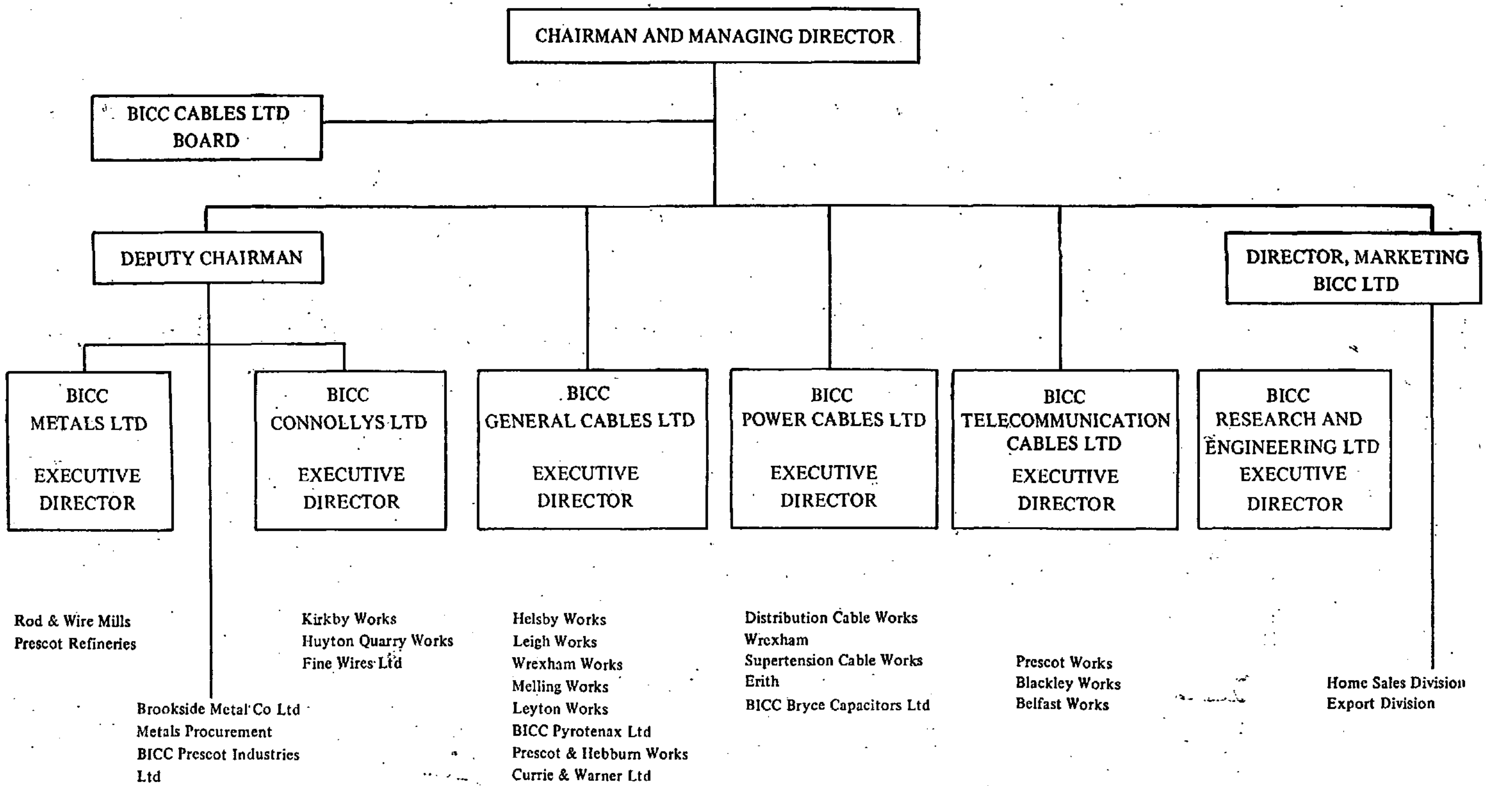
Membership	*ECMC*	*CMA*	*STCG*	*MCG*	*GWCG*	*TCMA*	*HTCMA*	*SCA*	*CCA*
Aberdare Cables Ltd [Pirelli General]	*								
Aluminium Wire & Cable Co Ltd	*			*					
AEI Cables Ltd [AEI]	*	*	*	*	*			*	
British Driver-Harris Co Ltd	*				*				
BICC Ltd [BICC]	*	*	*	*	*	*	*	*	
BICC Connollys Ltd [BICC]									*
BICC Pyrotenax Ltd [BICC]	*								
Cables and Plastics Ltd	*				*				
Communication & Control Engineering Co Ltd	*								
The Concordia Electric Wire & Cable Co Ltd	*								*
Crompton Parkinson Ltd	*	*		*	*				
J Day & Co (Derby Works) Ltd	*								
Delta Enfield Cables Ltd [Delta] (formerly Enfield Standard Power Cables Ltd)	*	*	*	*					
Delta Enfield Cables (Holdings) Ltd [Delta]	*								
Duratube & Wire Ltd	*								
Enfield Rolling Mills Ltd [Delta]									*
Fothergill & Harvey Ltd	*								
Greengate Cables Ltd	*	*		*	*				
Johnson & Phillips Ltd [Delta]	*	*							
Kent Electric Wire Ltd [AEI]									*
The London Electric Wire Company and Smiths Ltd [AEI]									*
Permanoid Ltd	*								
Pirelli General Cable Works Ltd [Pirelli General]	*	*	*	*	*	*	*	*	*
Plasticable Ltd	*								
Reliance Cords & Cables Ltd [BICC]	*							*	
Ripaults Ltd	*								
Rist's Wires & Cables Ltd	*				*				
Saxonia Electrical Wire Co Ltd [Delta]	*				*				
Standard Telephones & Cables Ltd	*	*				*	*	*	
Standard Telephones & Cables Ltd (Submarine Systems Division)	*								
Sterling Cable Co Ltd	*			*	*				
Telephone Cables Ltd [AEI]	*					*	*		
Thames Wire & Cable Company Ltd									*
Wandleside Cables Ltd [Delta]	*				*				
Ward & Goldstone Ltd (including Volex Electrical Products Ltd)	*				*				

[1] Abbreviations are given in paragraph 30.

APPENDIX 5

(referred to in paragraph 40)

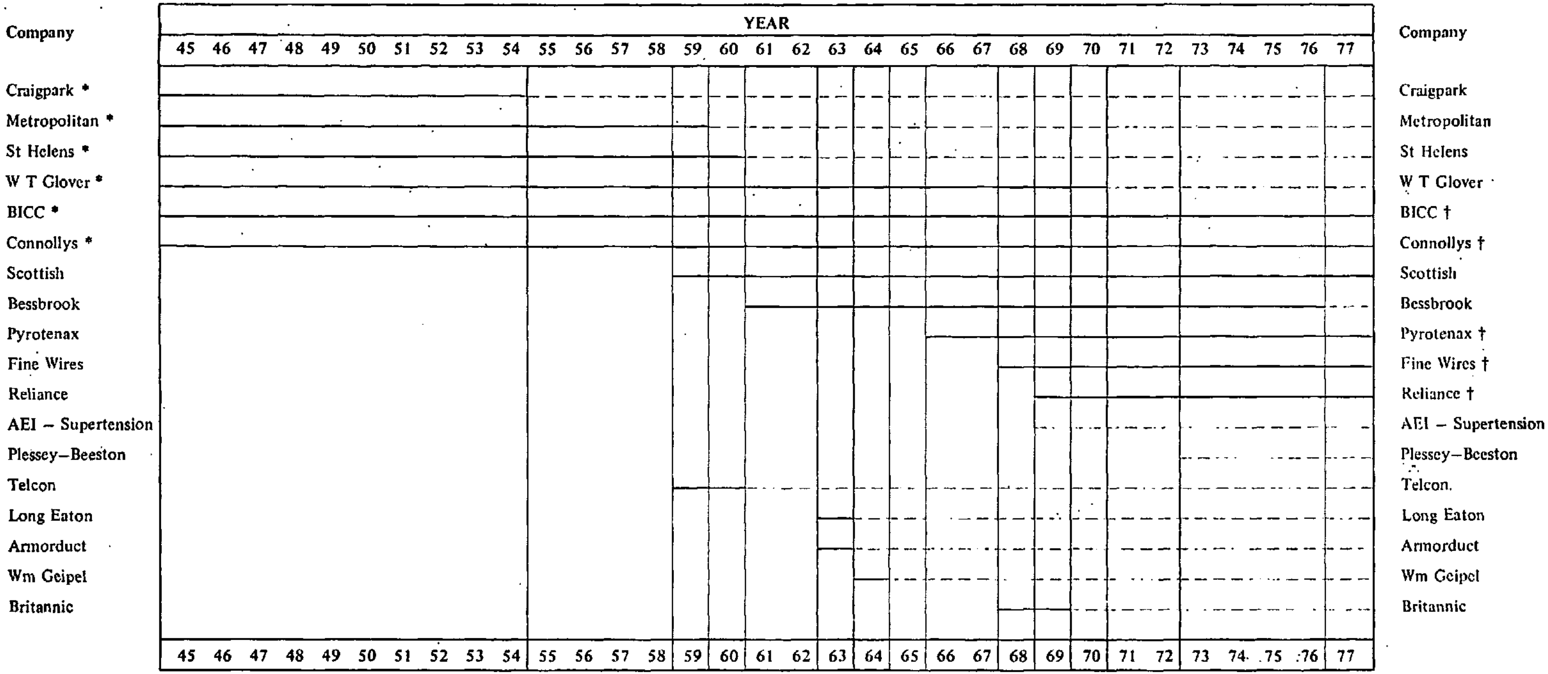
BICC Cables Ltd: Organisation—1 January 1978



APPENDIX 6

(referred to in paragraph 44)

BICC Acquisitions and Other Changes 1945–77



KEY ——— Manufacturing company.

– – – – Manufacture transferred to another Group Company.

* British Insulated Callender's Cables Ltd and its subsidiary companies manufacturing reference goods in UK in 1945.

† BICC Limited and its subsidiary companies manufacturing reference goods in UK at end of 1977.

APPENDIX 7

(*referred to in paragraphs 105 and 110*)

British Insulated Callender's Cables Ltd and Pyrotenax Ltd A Report on the Proposed Merger (*see Appendix 5*)

Assurances given to the Monopolies Commission by British Insulated Callender's Cables Ltd

(*a*) That the future commercial development (including the necessary research) and exploitation of mineral insulated cable in the United Kingdom and overseas will not be hampered by other BICC interests;

(*b*) that the cost reductions achieved as a result of the merger will be used to promote the use of and expand the sale of mineral insulated cable and to reduce net selling prices to customers (or to avoid increases that would otherwise have been necessary);

(*c*) that BICC will continue to supply wholesale distributors with mineral insulated cable on normal commercial terms;[1]

(*d*) that BICC will continue to supply other cablemakers with mineral insulated cable, and will do so at prices and on terms[1], and with service and continuity of supply, which will make it commercially practicable for them to participate in sales of mineral insulated cable;

(*e*) that BICC will not give its own electrical contracting organisation more favourable prices, terms,[1] service or continuity of supply for mineral insulated cable than it gives to other comparable electrical contractors;

(*f*) that BICC will not offer specially favourable prices or terms[1] for mineral insulated cable to customers for the purpose of winning business in other types of cable;

(*g*) that BICC will not offer uneconomic prices or terms[1] for mineral insulated cable to customers calculated to drive competitors out of the business of supplying mineral insulated cable;

(*h*) that BICC will publish its list prices and will make available to each category of customer its terms[1] for mineral insulated cable appropriate to that category;

(*i*) that, if at any time the Board of Trade should so request, BICC will grant licences under any patents relating to mineral insulated cable, including accessories, on reasonable terms.

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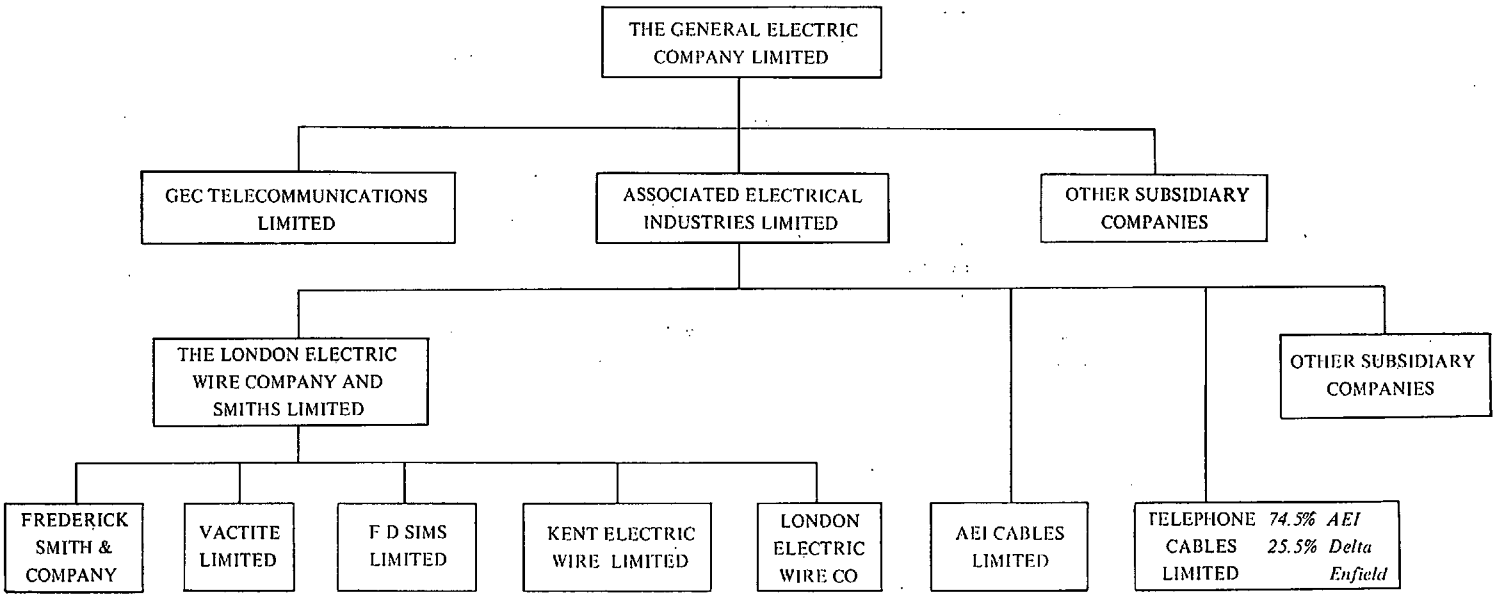
[1] The word 'terms' here includes terms and conditions as to discounts, rebates and credit.

APPENDIX 8

(referred to in paragraph 135)

GEC: Organisation

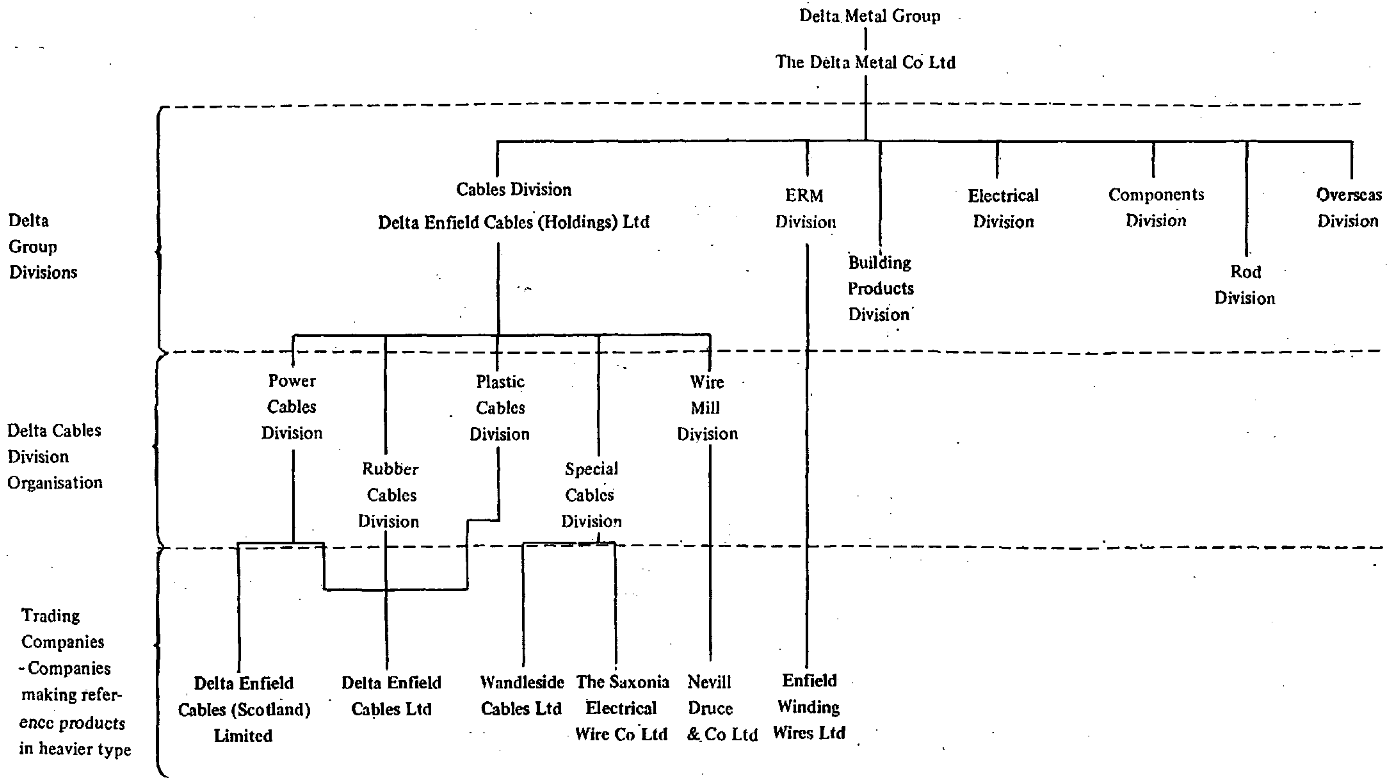


June 1978

Appendix 9

(referred to in paragraph 164)

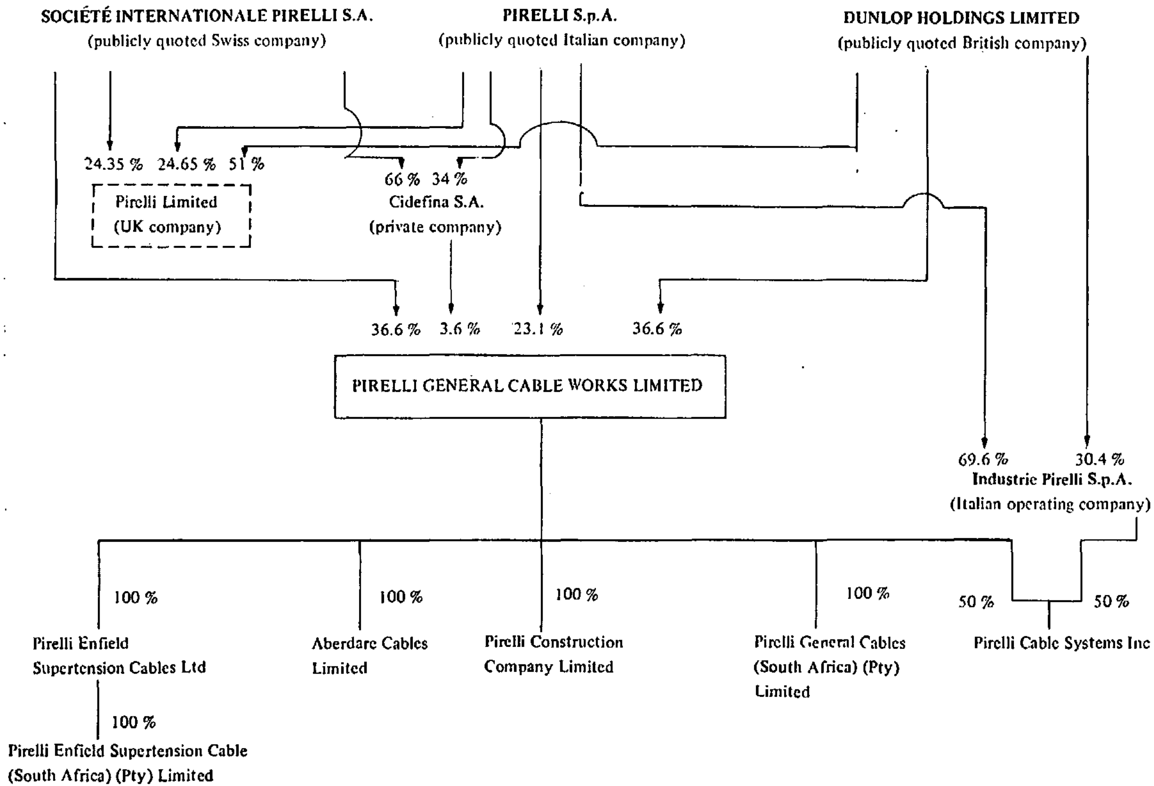
Delta Metal Group and Cables Division Organisation



APPENDIX 10

(*referred to in paragraph 189*)

Position of Pirelli General Cable Works Ltd within the Pirelli-Dunlop Union



APPENDIX 11

(referred to in paragraphs 299, 301 and 302)

List prices, copper prices, and actual prices

1. The chart in this appendix shows changes in BICC's list price (£'s per 1,000 metres) for 2·5 sq mm cable No 6242Y between January 1970 and December 1977, together with:

(*i*) fluctuations in the average monthly London Metal Exchange (LME) price of copper over the same period;

(*ii*) changes in the wholesale price index for electrical engineering over the same period (January 1970=100);

(*iii*) the lowest actual price of the cable less the value of its copper content on 1 January 1970 and on four subsequent dates inserted as bars.

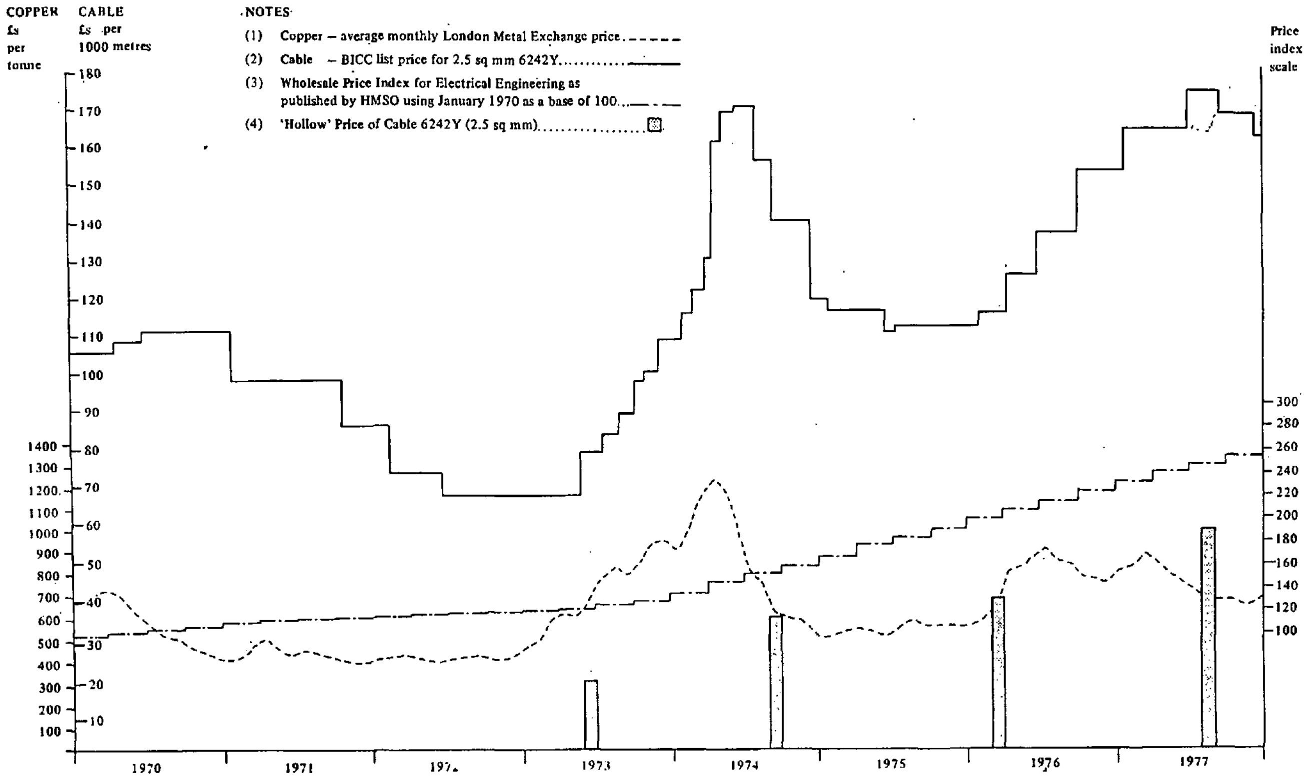
2. The value of the copper content of 1,000 metres of 2·5 sq mm cable No 6242Y on 1 January 1970 was just under £40 when the price of copper on the London Metal Exchange was £678 per tonne. This fact has been used to provide a starting point for the copper price line which therefore indicates changes in the current value of the copper content of the cable relative to its list price. The bars show estimates of the lowest actual prices of this cable sold on the dates selected less the value of the copper as priced by the cablemaker supplying the estimates[1], that is to say they show his lowest 'net net' 'hollow' price[2]. The lowest 'net net' price on 1 January 1970 was not the same for all cablemakers and, to our knowledge, varied between about £71 and about £73. As the value of the copper content of the cable on that date was about £40, the lowest 'net net' 'hollow' price of the cable lay between about £31 and £33 per 1,000 metres. £32, the intermediate figure, is used as the starting point for the wholesale price index based on 1970=100. In effect the bars compare changes in one cablemaker's lowest 'net net' 'hollow' price with changes in this index. If this cablemaker had calculated the 'net net' 'hollow' price by reference to the current average monthly price of copper it would have been lower by about £5 in June 1973 and March 1976, but higher by about £16 in September 1974 and by about £9 in August 1977.

[1] As his method of accounting for the cost of the copper content in the cable prices, the copper sometimes at a lower and sometimes at a higher level than that which would be indicated by the average monthly price, his actual (copper inclusive) price for the cable cannot be calculated precisely from the chart.

[2] The 'net net' price is the actual price of the cable after deduction of discount and rebate. The lowest 'net net' price is the lowest actual price at which a cablemaker sells the cable, involving the highest combined rate of discount plus rebate off list price. The 'hollow' price is the price of the cable less the value of its metal (in this case, copper) content.

APPENDIX 11—*contd.*

Changes in BICC's list prices



APPENDIX 12

(*referred to in paragraph 396*)

Export Association Working Instructions

Section I—Cables

DEFINITION

Conductors:

Non-flexible conductors of copper, aluminium or other metal (see Exclusion (*a*)).

Voltage:

Exceeding 80 volts up to and including 22,000 volts.

Specifications:

All cables having an outer protection formed by a sheath or a combination of sheaths of lead, aluminium, plastic, rubber, elastomers, textile or other material in substitution thereof with or without protection over the sheath.

Insulation	*Voltage*	*Cores*	*Sizes*
Impregnated paper or varnished cambric	All voltages	Any number of cores	All sizes
Rubber, elastomers or plastics	Up to and including 1100*V*	One to 7 core	50 sq mm and above
Rubber, elastomers or plastics	Up to and including 1100*V*	8 core and above	All sizes
Rubber, elastomers or plastics	Above 1100*V*	Any number of cores	All sizes

NOTE: The term 'elastomers' covers all forms of synthetic rubber.

Exclusions

The following are excluded:

(*a*) All cables and wires with flexible conductors.

A non-flexible conductor is a conductor corresponding to class 1, class 2 or class 3 of the IEC Recommendation 228.

When the class of the conductor is not specified the definition should be:

A non-flexible conductor is one composed of wires exceeding 0·35 mm in diameter for up to 7-strand conductors and exceeding 0·51 mm in diameter for other conductors, but excluding bundled conductors.

(*b*) All signalling cables for use at over 80 volts provided the construction is:

(*i*) Single strand conductors.

(*ii*) Insulation thickness not exceeding 0·6 mm.

(*iii*) Pair of quad formation.

(*iv*) With a specified mutual capacitance and/or capacitance unbalance.

(*c*) Long distance power submarine cables including underwater cables laid under estuaries, lakes and the like normally manufactured and supplied in long continuous lengths and not transportable on normal cable drums.

APPENDIX 13

(referred to in paragraphs 396 and 417)

Export Association Working Instructions

Section II—Cables

DEFINITION

Conductors:

Flexible or non-flexible conductors of copper, aluminium or other metal.
A non-flexible conductor is a conductor corresponding to class 1, class 2 or class 3 of the IEC Recommendation 228.
When the class of the conductor is not specified the definition should be:
A non-flexible conductor is one composed of wires exceeding 0·35 mm in diameter for up to 7-strand conductors and exceeding 0·51 mm in diameter for other conductors, but excluding bundled conductors.

Specification:

All wires, cables and flexible cords, insulated with rubber, elastomeric or plastic compounds or any combination of such materials.

NOTE: The term 'elastomeric' covers all forms of synthetic rubber.

Exclusions

1 *TYPE:* All cables having an outer protection formed by a sheath or a combination of sheaths of lead, aluminium, plastic, rubber, elastomers, textile or other material in substitution thereof with or without protection over the sheath.

Insulation	*Voltage*	*Cores*	*Sizes*
Rubber, elastomers or plastics	Up to and including 1100*V*	One to 7 core	50 sq mm and above
Rubber, elastomers or plastics	Up to and including 1100*V*	8 cores and above	All sizes
Rubber, elastomers or plastics	Above 1100*V*	All number of cores	All sizes

2 Wires, cables and flexible cords supplied directly to British Government Departments.
3 Wires, cables and flexible cords to British Government Department specifications.
4 All electric wires and cables insulated with mineral powder or asbestos paper, and metal sheathed.
5 Aircraft pattern cables.
6 Admiralty pattern cables.
7 High frequency cables.
8 Radio relay cables.
9 Telephone cables.
10 Telephone and bell wires.
11 Field telegraph and telephone cables, formerly known as 'D Type'.
12 Shot firing cables.
13 Automobile lighting and ignition cables.
14 PVC or PCP covered overhead wires.
15 Thermocouple extension and compensating cables.
16 Heating cables with conductors or resistance wires.
17 Wires, cables and flexible cords having fluorocarbon insulation.
18 Flexible cords sold direct to manufacturers of portable electric appliances.
19 Cables sold by one member to another except when resold by the purchasing member.
20 Flexible cords insulated (but not sheathed) having a radial thickness of insulation of 20 mils or less.
21 Connecting wires for internal wiring of radio and television sets or electronic equipment.

APPENDIX 14

[*Details omitted. See note on page iv.*]

APPENDIX 15

(referred to in paragraph 410)

Definition of Goods Covered by ICDC Export Schemes

The wires and cables covered by this definition are destined for the transmission of electric power in all its forms.

A. They are divided into the following three categories:

1st category

(*a*) Nominal pressure: over 80 up to and including 80,000 volts

(*b*) Insulation: Impregnated paper or varnished cambric

2nd category

(*a*) Nominal pressure: over 1,100 up to and including 80,000 volts

(*b*) Insulation: plastic, rubber or elastomers (*ii*)

3rd category

(*a*) Nominal pressure: over 80 up to and including 1,100 volts

(*b*) Insulation: plastic, rubber or elastomers (*ii*)

3.1 Cables with 8 cores or more

3.2 Cables with 1 to 7 cores: with a conductor section of 50 mm^2 or above

B. They have the following characteristics in common:

(*a*) Non-flexible conductors (*i*) of copper, aluminium or other metal.

(*b*) Outer protection formed by a sheath or a combination of sheaths, lead aluminium, plastic, rubber, elastomers (*ii*) textile or other materials in substitution thereof.

(*c*) With or without protection over the sheath.

C. The following are excluded:

1. All signalling cables for use at over 80 volts, provided the construction is:

(*i*) solid conductors;

(*ii*) insulation thickness not exceeding 0·6 mm;

(*iii*) pair or quad formation;

(*iv*) with a specified mutual capacitance and/or capacitance unbalance.

2. Long distance power submarine cables including underwater cables laid under estuaries, lakes and the like, normally manufactured and supplied in long continuous lengths and not transportable on normal cable drums.

NOTES

(*i*) A non-flexible conductor is a conductor corresponding to class 1, class 2 or class 3 of the IEC Recommendation 228.

When the class of the conductor is not specified, the definition should be:

A non-flexible conductor is one composed of wires exceeding 0·35 mm in diameter for up to 7-strand conductors, and exceeding 0·51 mm in diameter for other conductors, but excluding bundled conductors.

(*ii*) The term 'elastomers' covers all forms of synthetic rubber, including butyl, neoprene, etc.

APPENDIX 16

(referred to in paragraph 415)

Trade coverage of international associations

1. There are considerable problems in comparing different countries' trade statistics for insulated wires and cables. Commodity definitions can vary widely and there are a variety of different types of cable classification in the published statistics of the main cable trading countries. Consequently an attempt to compare different countries' trade statistics for insulated wires and cables usually involves some specific assumptions about how certain types of insulated wire and cable have been defined and classified. These problems restrict the type of comparisons which can be made from the published trade statistics from each country.

2. There are, however, several international sources of trade statistics on cables where the relevant figures are provided on a comparable basis. The main source of published trade statistics which permit international comparisons is the Organisation for Economic Co-operation and Development (OECD), in the Series 'C' or Statistics of Foreign Trade. These trade statistics are collected from a large number of countries who report the relevant trade figures to the OECD. Whilst these figures provide one of the most comprehensive statistical pictures of international cable trade currently available, there are still some limitations. In particular, the published statistics do not show separately different categories of insulated electric wire and cable. Moreover, there are some important cable producing countries who do not report their trade statistics to the OECD. Principal amongst the non-reporting countries is the USSR, but the figures provide only a partial coverage of other East European countries. Reporting countries include all EEC countries, Canada, United States, Japan, Australia, New Zealand, Austria, Finland, Greece, Iceland, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and Yugoslavia.

3. The following table shows the proportion of total OECD insulated wire and cable exports to non-producer countries[1] from countries with an ICDC national group membership:

Trade with Export Territories	*1970*	*1971*	*1972*	*1973*	*1974*	*1975*
ICDC 'member' countries	0·82	0·81	0·78	0·80	0·79	0·78
ICDC 'non-member' countries	0·18	0·19	0·22	0·20	0·21	0·22

Source: OECD Trade Statistics. Series C.

The figure for 1975 includes exports from Japan and Greece which withdrew from ICDC during 1975. If Japanese and Greek exports are excluded, the figures for 1975 become 0·67 and 0·33 respectively. The three largest cable exporting countries outside ICDC are the United States, Canada and Australia.

4. The table in the preceding paragraph includes *all* cable categories. This means that the proportion of mains cable exported by ICDC national group countries cannot reliably be derived from it, nor can reliable conclusions be drawn on the proportions of supertension cable and telecommunication cable

[1] Defined here as countries other than OECD reporting countries in 1975.

exported by national group countries of STEA and ICTDA. These proportions are over-estimates to the extent that the associations' national groups exclude certain cablemakers of the national group countries.

5. The following table indicates the importance of exports to non-producer countries[1] as a proportion of total OECD cable exports and ICDC 'member' countries' exports[2]:

	1970	*1971*	*1972*	*1973*	*1974*	*1975*
(*a*) Total cable exports to non-producer countries as a proportion of total OECD cable export trade	0·56	0·59	0·60	0·55	0·58	0·69
(*b*) Share of total cable exports to non-producer countries by						
(*i*) ICDC 'member' countries	0·82	0·81	0·78	0·80	0·79	0·78
(*ii*) ICDC 'Non-member' countries	0·18	0·19	0·22	0·20	0·21	0·22
Total:	1·00	1·00	1·00	1·00	1·00	1·00
(*c*) Cable exports to non-producer countries by ICDC 'member' countries as a proportion of total OECD cable export trade	0·46	0·48	0·47	0·44	0·46	0·54

Source: OECD Trade Statistics, Series C.

6. If the Japanese figures are taken out of the ICDC figures for 1975, exports by ICDC 'member' countries to non-producer countries as a proportion of total OECD trade in wires and cables would be 47 per cent rather than the 54 per cent specified in the above table.

[1] Defined here as countries other than OECD reporting countries in 1975.

[2] Cable exports by the Netherlands are excluded throughout because these are not classified by country of destination.

APPENDIX 17

(referred to in paragraphs 435 and 521)

Analysis of United Kingdom imports of cable

1. The following table shows that imports of cables into the United Kingdom as a proportion of the total domestic market for cables have tended to grow, but that the proportion of imports remains small. The domestic market has been defined as the total value of United Kingdom cable sales, minus cable exports, plus cable imports. The gaps in this series occur in those years for which Census of Production statistics are not available:

United Kingdom imports of cable

Year	*Value of imports CIF value £ million*	*Per cent of total UK market*
1964	1·7	—
1965	1·7	—
1966	2·2	—
1967	2·8	—
1968	3·8	1·6
1969	5·8	—
1970	6·3	—
1971	6·9	—
1972	10·3	—
1973	14·1	4·5
1974	18·8	4·8
1975	18·5	5·3
1976	23·9	6·3
1977	29·7	6·9

Source: UK Census of Production
UK Overseas Trade Statistics

2. The following table shows United Kingdom imports by type of cable. It suggests that a high proportion of cable imports are for specialist uses or are associated with local manufacture of electrical appliances by foreign companies in the United Kingdom:

UK imports of cable by type of cable (1976)

	£ million
Submarine telephone cable	0·606
Other telephone cable	1·100
Mains power cable	1·179
General wiring cable	1·661
Appliance wires	8·019
Winding wires	2·601
Miscellaneous	8·747
Total	23·913

Source: Business Monitor PQ 362, 1976

3. The following table shows the value of United Kingdom cable imports, expressed as a percentage of total cable imports classified by country of origin. Cable imports from Canada and the USA have fallen in per cent share terms over the period 1972 to 1977, whilst EEC countries have increased their share of total United Kingdom cable imports from 38 per cent in 1972 to 48 per cent in 1977.

Principal sources of imported cable 1972 to 1977

Country of origin	*Per cent 1972*	*Per cent 1973*	*Per cent 1974*	*Per cent 1975*	*Per cent 1976*	*Per cent 1977*
Canada and USA	40·7	38·6	35·2	31·8	30·8	31·0
West Germany	11·5	14·1	17·1	16·4	14·4	14·3
Netherlands	12·2	10·0	9·1	12·2	14·2	14·8
France	6·6	6·1	6·4	8·5	9·9	6·5
Irish Republic	1·1	2·3	5·9	6·0	7·0	5·1
Sweden	2·7	6·4	4·4	2·7	2·5	2·2
Switzerland	3·9	4·4	3·8	3·0	3·2	5·0
Spain	3·3	3·2	3·5	3·2	3·1	2·6
Belgium-Luxembourg	2·6	2·5	3·5	3·2	2·4	3·5
Japan	2·5	1·3	2·2	1·7	2·0	3·2
Italy	4·2	3·6	2·0	3·9	2·5	3·3
Norway	—	1·3	1·2	1·3	1·4	1·6
Denmark	—	0·7	0·8	0·9	1·1	1·0
Other	8·5	5·3	4·6	5·1	5·3	5·8
Total	100	100	100	100	100	100

Source: Annual Overseas Trade Statistics of UK, Department of Trade.

Index

References are to paragraph numbers, not page numbers

References are to paragraph numbers, not page numbers

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