

Post Office Engineering Department

TECHNICAL PAMPHLETS FOR WORKMEN

Subject

Standard List of Terms and Definitions used in Telegraphy and Telephony

ENGINEER-IN-CHIEF'S OFFICE
1931

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1934

== LIST OF == Technical Pamphlets for Workmen

GROUP A.

1. Magnetism and Electricity.
2. Primary Batteries.
3. Technical Terms.
4. Test Boards.
5. Protective Fittings.
6. Measuring and Testing Instruments.
7. Sensitivity of Apparatus.
8. Standard List of Terms and Definitions used in Telegraphy and Telephony. (*Not on sale.*)
9. Standard Graphical Symbols for Telegraphy, Telephony and Radio Communication. (*Not on sale.*)

GROUP B.

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2. Telegraph Concentrators.
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11. C.B. Exchanges—22 Volts.
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13. Trunk Telephone Exchanges.
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15. Telephone Testing Equipment.
16. Routine Testing for Manual Telephone Exchanges.
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(Continued on page iii. of Cover.)

FOR OFFICIAL USE.

STANDARD LIST OF TERMS AND DEFINITIONS
USED IN TELEGRAPHY AND TELEPHONY.

(A8)

This pamphlet is a reprint of the British Standard Institution's Publication No. 204—1930 entitled "British Standard List of Terms and Definitions used in connexion with Telegraphs and Telephones." These terms and definitions have been adopted by the Post Office for use throughout the British Post Office Telegraph and Telephone services and the standard nomenclature in accordance with the definitions contained in this pamphlet must be used in all official correspondence, instructions, circulars, specifications, drawings, diagrams, etc.

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EXPLANATION OF TYPE USED.

- The preferred term, *i.e.*, the term recommended for general use, is shown in heavy type, thus **Trunk Circuit**
- Synonyms of the term are shown in light capitals, thus LONG-DISTANCE LINE
- Abbreviations are shown in italics, thus ... *P.B.X.*

NUMBERING.

The Section is divided into Sub-Sections numbered 91, 92, etc.

The definitions in each Sub-Section bear the number of the Sub-Section followed by two figures representing their position in that Sub-Section: *e.g.*, No. 9107 indicates that the definition is the 7th in Sub-Section 91, which is the first Sub-Section of Section 9.

**BRITISH STANDARD LIST OF TERMS AND DEFINITIONS
USED IN CONNECTION WITH TELEGRAPHS AND
TELEPHONES.**

SUB-SECTION 91.

OFFICES, EXCHANGES AND STATIONS.

NO.	TERM.	DEFINITION.
9101	Public Call Office. PAY STATION, <i>U.S.A.</i>	A subscriber's station available for the use of the public on payment of a fee, which may be deposited in a coin box or paid to an attendant.
9102	Exchange. CENTRAL OFFICE, <i>U.S.A.</i>	A switching centre for inter-connecting the lines which terminate therein.
9103	Main Exchange.	An exchange which has satellite or sub-exchanges dependent upon it for their principal traffic outlets.
9104	Manual Exchange.	An exchange operating on a manual telephone system.
9105	Automatic Exchange.	An exchange operating on an automatic telephone system.
9106	Semi-Automatic Exchange.	An exchange operating on a semi-automatic telephone system.
9107	Rural Automatic Exchange.	An automatic exchange with no manual positions, which is designed for the service of small communities such as occur in rural areas.
9108	Local Exchange. LOCAL CENTRAL OFFICE, <i>U.S.A.</i>	An exchange in which subscribers' lines terminate.
9109	Trunk Exchange.	An exchange essentially devoted to the termination and working of trunk circuits. In Great Britain the term is restricted to exchanges in which the traffic is recorded, and is completed when the trunk circuit is free.

NO.	TERM.	DEFINITION.
9110	Toll Exchange.	In Great Britain an exchange essentially devoted to the termination and working of trunk circuits, the traffic over which is completed on demand.
9111	Sub-Exchange.	A manual exchange which is dependent on a main exchange for its principal traffic outlets.
9112	Private Exchange. <i>P.X.</i>	An exchange which serves a business or other organisation and is not connected to a public exchange.
9113	Private Automatic Exchange. <i>P.A.X.</i>	A private exchange operating on an automatic basis.
9114	Private Manual Exchange. <i>P.M.X.</i>	A private exchange operating on a manual basis.
9115	Private Branch Exchange. <i>P.B.X.</i>	An exchange which is usually installed on the premises of a subscriber and which is connected to a public exchange.
9116	Private Automatic Branch Exchange. <i>P.A.B.X.</i>	A private branch exchange operating on an automatic basis.
9117	Private Manual Branch Exchange. <i>P.M.B.X.</i>	A private branch exchange operating on a manual basis.
9118	Satellite Exchange.	An automatic exchange in which the lifting of the receiver by a calling subscriber takes possession of an outgoing junction to a main automatic exchange.
9119	Full Satellite Exchange.	A satellite exchange which is dependent upon a main automatic exchange for the routing of the whole of its originating traffic.
9120	Discriminating Satellite Exchange.	A satellite exchange which is dependent upon a main automatic exchange for the routing of a portion only of its originating traffic.

NO.	TERM.	DEFINITION.
9121	Hypothetical Exchange.	A projected exchange for which numbers are assigned to subscribers, but the subscribers' lines are temporarily connected to some other existing exchange.
9122	Multi-Exchange System. MULTI-OFFICE EXCHANGE, U.S.A.	A group of associated local exchanges.
9123	Exchange Area.	The district served by one exchange.
9124	Subscriber's Set. SUBSET, U.S.A.	An assembly of apparatus designed for originating and receiving telephone calls in conjunction with an exchange.
9125	Subscriber's Station. SUBSTATION, U.S.A.	A subscriber's set installed and connected to a public telephone system.
9126	Subscriber's Main Station.	A subscriber's station which is used for originating calls and on which incoming calls from the exchange or from an extension station are answered.
9127	Subscriber's Extension Station.	A subsidiary station which has access to the exchange for outgoing calls with or without the intervention of a main station. Incoming calls are received through the intervention of the main station.
9128	Apparatus Room.	In an automatic exchange. The room which contains the actual switching apparatus of the exchange. In a manual exchange. The room containing the I.D.F., relays and similar equipment.
9129	Operating Room.	In a manual or automatic exchange. A room in which the operators' positions are situated.
9130	Instrument Room.	A room in which telegraph apparatus is installed and operated.
9131	Calling Subscriber. <i>Calling sub.</i>	The subscriber who originates a telephone call.
9132	Called Subscriber. <i>Called sub.</i>	The subscriber required by the calling subscriber.

SUB-SECTION 92. SYSTEMS.

NO.	TERM.	DEFINITION.
9201	Single-Needle System.	A telegraph system in which Morse signals are indicated by the deflection of a vertical needle to left and right.
9202	Single-Current System.	A telegraph system in which signals are transmitted by means of uni-directional currents.
9203	Double-Current System.	A telegraph system in which signals are transmitted by reversing a current that is normally on the line during transmission.
9204	Wheatstone Automatic System.	A high-speed double current Morse system in which the signals are transmitted mechanically and recorded automatically.
9205	Simplex System.	A telegraph system in which the circuit is arranged for operation in one direction at one time.
9206	Multiple-Way System.	A telegraph system in which two or more messages are sent over the same wire simultaneously either (1) where each way has whole-time connection to the line, or (2) by allocation of the exclusive use of the line wire to each way in rapid succession.
9207	Duplex System.	A multiple-way system in which the circuit is arranged for simultaneous operation in opposite directions over a single circuit.
9208	Bridge Duplex System.	A duplex system in which the neutrality of the receiving apparatus at each end to the currents sent from that end is secured by a balance of potentials on the Wheatstone Bridge principle. Received currents actuate apparatus placed between the equi-potential points of the bridge.

NO.	TERM.	DEFINITION.																				
9209	Differential Duplex System.	A duplex system in which the sent currents divide through two sections of the receiving apparatus at the home end in opposite directions so as to balance their effects, whereas the currents received at the distant end pass mainly through the two sections in the same direction, and operate the apparatus.																				
9210	Quadruplex System.	A Morse code multiple-way system in which the circuit is arranged for the simultaneous transmission of two messages in each direction over a single circuit.																				
9211	Multiplex System.	A multiple-way system of sending two or more messages over the same wire simultaneously by the allocation of the exclusive use of the line wire in rapid succession.																				
9212	Printing Multiplex System.	<p>A multiplex system which provides for printing the messages other than by means of Morse code. It is described according to the number of ways prefixed by the name of the particular type of apparatus used, <i>e.g.</i></p> <table data-bbox="497 839 942 962"> <tr> <td>Baudot Double</td> <td>...</td> <td>...</td> <td>2-way.</td> </tr> <tr> <td>„ Triple</td> <td>...</td> <td>...</td> <td>3-way.</td> </tr> <tr> <td>„ Quadruple</td> <td>...</td> <td>...</td> <td>4-way.</td> </tr> <tr> <td>„ Quintuple</td> <td>...</td> <td>...</td> <td>5-way.</td> </tr> <tr> <td>„ Sextuple</td> <td>...</td> <td>...</td> <td>6-way.</td> </tr> </table> <p>If the duplex principle is applied, the word is added, <i>e.g.</i>, Baudot Sextuple Duplex.</p>	Baudot Double	2-way.	„ Triple	3-way.	„ Quadruple	4-way.	„ Quintuple	5-way.	„ Sextuple	6-way.
Baudot Double	2-way.																			
„ Triple	3-way.																			
„ Quadruple	4-way.																			
„ Quintuple	5-way.																			
„ Sextuple	6-way.																			
9213	Director System.	A system of step-by-step automatic telephony for use in large multi-exchange areas which permits the trunking between exchanges in the area to be independent of the subscribers' numbers. In this system the subscriber's number includes letters or figures which constitute the "code" for the exchange to which he is connected. This code, together with the remaining or numerical portion of the called subscriber's number, when dialled is received and stored on apparatus termed the director.																				

NO.	TERM.	DEFINITION.
9213	Director System—cont.	The director translates the code into one or more trains of impulses which are made effective on code selectors to connect the caller to the required exchange. The numerical portion is not translated, but is transmitted to selectors called numerical selectors and final selectors.
9214	Manual Telephone System.	A telephone system in which the calling subscriber's order is given to an operator who completes the call directly by hand, either with or without the assistance of one or more other operators.
9215	Automatic Telephone System. MACHINE-SWITCHING TELEPHONE SYSTEM.	A telephone system in which the calling subscriber is enabled without the aid of an operator to complete a call through remotely controlled selectors.
9216	Step-by-Step Automatic System.	A system in which the individual selectors are actuated step-by-step by their own driving mechanism operated by impulses controlling electro-magnetic ratchet and pawl devices.
9217	Semi-Automatic Telephone System.	A telephone system in which the calling subscriber's order is given to an operator who completes the call through remotely controlled selectors.
9218	Straightforward Junction Working.	A method of working a group of junctions between two exchanges in which any junction taken up by the operator at the outgoing end is connected by automatic means to the B operator's telephone circuit so that particulars of the call may be passed.
9219	Call Indicator Working.	A method whereby calls are passed to a manual exchange by dialling or equivalent means and the number required is displayed (by illuminated numbers or other means) in front of the operator at that manual exchange.

NO.	TERM.	DEFINITION.
9220	Coded Call Indicator Working.	Call indicator working is said to be "coded" when the step-by-step impulses are stored in and subsequently discharged in coded form from a coder or its equivalent.
9221	Non-Coded Call Indicator Working.	Call indicator working is said to be "non-coded" when the display apparatus is actuated directly by counted impulses.
9222	Electrophone.	A telephone system in which speech and music at public performances, etc., can be heard on specially equipped subscribers' line circuits.
9223	C.B. <i>Ab'n for Central Battery.</i>	In telephony. A system in which the whole of the energy for signalling and speaking is drawn from a power installation at the exchange. In telegraphy. A system in which the signalling power is located at a Central Office.
9224	C.B.S. <i>Ab'n for Central Battery Signalling.</i>	In telephony. A system in which the energy for signalling only is drawn from a power installation at the exchange.
9225	L.B. <i>Ab'n for Local Battery.</i>	In telephony. A system in which the energy for speaking is drawn from a battery located at the subscriber's instrument.
9226	Magneto System.	In telephony. A local battery system in which the energy for signalling is derived from a generator located at the subscriber's instrument.
9227	Tandem Working.	A method adopted in a multi-exchange area whereby the originating exchange routes the call via one or more intermediate exchanges.
9228	Automatic Tandem Working.	A method of tandem working in which automatic means are employed at the intermediate exchange. The calling and/or the called exchange may be either automatic or manual.

NO.	TERM.	DEFINITION.
9229	Semi-Automatic Tandem Working.	A method of tandem working in which semi-automatic means are employed at the intermediate exchange. The calling exchange is manual and the called exchange may be either automatic or manual.
9230	Carrier Wave Telegraphy.	Also known as carrier current telegraphy. A system of telegraphic signalling using carrier waves guided by an electrical circuit. The carrier waves may be of audio or ultra-audio frequency.
9231	Carrier Wave Telephony.	Also known as carrier current telephony. A system of speech transmission using carrier waves of ultra-audio frequency guided by an electrical circuit.
9232	Facsimile Telegraphy. Picture Telegraphy.	A system for the transmission of still pictures, printed matter, etc., over an electrical circuit.

SUB-SECTION 93.

CIRCUITS AND TRANSMISSION.

9301	Circuit.	A path in which an electric current may flow. Strictly speaking a circuit is a complete circulating path, but the term is commonly employed to designate (a) a specific part of a complete path and (b) an aggregation of paths.
9302	Earth Return Circuit. GROUND RETURN, <i>U.S.A.</i>	A circuit which has a conductor (or two or more in parallel) between two points and which is completed through the earth by connections to the earth at these two points.
9303	Metallic Circuit.	A circuit in which the fundamental portion is composed of metallic conductors without utilising the earth as a return circuit.

NO.	TERM.	DEFINITION.
9304	Two-Wire Circuit.	A metallic circuit formed by two adjacent conductors insulated from each other. They may be either twisted together or parallel to each other.
9305	Superposed Circuit.	An additional circuit obtained from a two-wire circuit or circuits in such a manner that the service over the additional circuit can be given simultaneously with the services over the other circuits and without interference with the latter.
9306	Phantom Circuit. <i>Ab'n for Metallic Phantom Circuit</i>	A superposed circuit having two sides, each of which consists of the two conductors of a two-wire circuit in parallel.
9307	Double Phantom Circuit.	A superposed circuit having two sides, each of which consists of the four conductors of the two sides of a phantom circuit in parallel.
9308	Quadruple Phantom Circuit.	A superposed circuit having two sides, each of which consists of the eight conductors of the two sides of a double phantom circuit in parallel.
9309	Octuple Phantom Circuit.	A superposed circuit having two sides, each of which consists of the sixteen conductors of the two sides of a Quadruple phantom circuit in parallel.
9310	Side Circuit.	A two-wire circuit forming one side of a phantom circuit.
9311	Composited Circuit.	A circuit in which are obtained simultaneously either one telegraph and one telephone channel from one line-wire and earth, or two earth-return telegraph channels and one telephone channel from two line-wires; segregation being effected by means of inductive coils and condensers
9312	Impulse Circuit.	In automatic telephony. A circuit through which impulses for controlling selectors are transmitted.

NO.	TERM.	DEFINITION.
9313	Open Circuit System.	In telegraphy. A system in which there is no current flowing in the circuit unless a signal is being sent.
9314	Closed Circuit System.	In telegraphy. A system in which current flows continuously in the circuit and in which the current is subject to control by any station for signalling purposes.
9315	Direct Circuit.	In telegraphy. A circuit in which the currents transmitted operate the distant signalling instrument without the intervention of a relay.
9316	Divided Circuit.	In telegraphy. A circuit on which one or more message channels are terminated at some point other than the terminal station of the circuit.
9317	Trunk Circuit. LONG DISTANCE LINE, U.S.A.	A telephone circuit providing communication between two multi-exchange systems, such communication involving the payment of a sum exceeding two unit fees. These circuits may be connected either to trunk positions, calls being reversed when the circuit is free; or to local or toll positions, calls being completed on demand.
9318	Local Junction Circuit.	A circuit directly connecting two exchanges, communication between the subscribers on which involves the payment of one unit fee only.
9319	Fee Junction Circuit.	A circuit directly connecting two exchanges, communication between the subscribers on which involves the payment of two unit fees.
9320	Trunk Record Circuit.	A circuit over which subscribers' circuits are extended to positions provided for the recording of particulars of trunk calls which will be completed later at a trunk position.

NO.	TERM.	DEFINITION.
9321	Trunk Junction Circuit.	A circuit which is connected at the outgoing end to trunk positions (see Trunk Circuit) and is used exclusively for extending long distance calls to local exchanges.
9322	Order-Wire Circuit.	A circuit over which junction connections are ordered either by manual or mechanical means.
9323	Split Order-Wire Circuit.	A circuit consisting of two or more order-wire circuits allocated to one B operator.
9324	Transfer Circuit.	A circuit between two operators' positions in an exchange.
9325	Phonogram Circuit.	A circuit between a local, toll or trunk exchange and a telegraph office, over which telegrams are received from and/or dictated to subscribers and other telegraph offices by telephone.
9326	Telephone-Telegram Circuit.	A circuit between two telegraph offices over which telegrams are passed by telephone.
9330	Neper.	<p>The neper is a unit used in the comparison of the magnitudes of powers, voltages or currents at two different points in a network of lines or apparatus.</p> <p>If two powers are concerned the number of nepers expressing their relative magnitude is half the natural logarithm of the ratio of the powers.</p> <p>If two voltages or two currents are concerned the number of nepers expressing their relative magnitude is the natural logarithm of the ratio of the voltages or currents. (It is implied that the impedances with which the respective voltages or currents are associated are identical or that the necessary corrections are made.) (See also Bel. 1 neper = 0.8686 bel.)</p>
9331	Decineper. <i>dn.</i>	One tenth of one neper.

NO.	TERM.	DEFINITION.
9332	Bel.	<p>The bel is a unit used in the comparison of the magnitudes of powers, voltages or currents at two different points in a network of lines or apparatus.</p> <p>If two powers are concerned the number of bels expressing their relative magnitude is the logarithm to the base 10 of the ratio of the powers.</p> <p>If two voltages or two currents are concerned the number of bels expressing their relative magnitude is twice the logarithm to the base 10 of the ratio of the voltages or currents. (It is implied that the impedances with which the respective voltages or currents are associated are identical or that the necessary corrections are made.)</p>
9333	Decibel. <i>db.</i>	One tenth of one bel.
9334	Master Telephone Transmission Reference System.	A high quality and stable telephone transmission system provided with means for calibrating its transmitting, attenuating and receiving components in terms of absolute units; and provided with distorting electrical networks enabling the system to simulate the quality of commercial telephone systems with a view to facilitating voice and ear comparisons between commercial systems and the reference system. The reference system for Europe is housed in Paris, at the Conservatoire des Arts et Métiers and is identical with the reference system held at the Bell Telephone Laboratory Incorporated, New York.
9335	Attenuation.	The decrease in magnitude of the transmitted power, voltage or current due to a line or apparatus. Quantitatively, the attenuation, which may be negative, is expressed in nepers or bels by comparing the magnitude of the received with that of the sent power, voltage or current (see Neper, Bel).

NO.	TERM.	DEFINITION.
9336	Attenuation Constant.	<p>(a) The attenuation constant of a uniform line of infinite length at a specific frequency is defined as the attenuation between points separated by unit length.</p> <p>(b) The attenuation constant of a line of periodic recurrent structure is defined as the attenuation at a specific frequency between corresponding points divided by the length of line separating these points.</p> <p>(c) In a network of periodic recurrent structure the attenuation constant is conveniently expressed as the attenuation per section: that is, the attenuation measured between successive corresponding points.</p>
9337	Artificial Line.	<p>In general, a network of resistances and/or capacities and/or inductances simulating some or all of the characteristics of a telephone or telegraph line. Attenuator and Balancing Network are particular cases of an artificial line.</p>
9338	Attenuator. <i>U.S.A. Pat.</i>	<p>An artificial line which usually consists of pure resistance elements, and is used solely for the purpose of introducing attenuation.</p>
9339	Balancing Network or Balance. IN TELEGRAPHY "DUPLIX BALANCE."	<p>A network of resistance and/or capacity and/or inductance which simulates the impedance characteristics of a line.</p>
9340	Characteristic Impedance.	<p>The limiting value towards which the impedance of a line tends as its length is indefinitely increased.</p> <p>In lines of periodic recurrent structure the characteristic impedance must be referred to a definite point in the structure.</p> <p>For example, in a coil loaded line the characteristic impedance is usually referred to the middle point of the section between two successive loading coils.</p>

NO.	TERM.	DEFINITION.
9341	Cross-Talk.	<p>Overhearing between telephone circuits.</p> <p>(1) Quantitatively it is the ratio at the frequency specified which the cross-talk current at the near or far end of the disturbed circuit bears to the current entering the disturbing circuit, taking into account the impedance difference which may exist between the two circuits concerned. This ratio is usually expressed in millionths; one millionth is referred to as one cross-talk unit.</p> <p>(2) The attenuation which would be measured, at the frequency specified between that terminal of the disturbing circuit at which the disturbing tone is entering and the near end or far end of the circuit upon which the cross-talk is observed. This attenuation may be expressed either in bels or nepers.</p>
9342	Cut-off Frequency. <i>Cut-off.</i>	<p>Also called natural frequency. This term applies only to lines or networks bearing a periodic recurrent structure and is a definite frequency calculated from the constants of the circuit, neglecting dissipation, <i>i.e.</i>, resistance and leakance. It is that frequency at which the attenuation of the structure ceases to be zero and the characteristic impedance becomes purely reactive.</p> <p>In practice owing to dissipation, the attenuation is never actually zero, and rises rapidly in the neighbourhood of the cut-off frequency.</p>
9343	Distortion.	<p>The change in shape of a transmitted wave which occurs between any two points of a transmission system.</p>
9344	Phase Distortion.	<p>The distortion due to unequal transmission times obtaining at different frequencies. In the steady state this is not harmful.</p>

NO.	TERM.	DEFINITION.
9345	Transient Phenomena.	(Sometimes loosely referred to as "Phase distortion.") An application or change of a voltage at the sending end of a line gives rise to an infinite number of different frequencies. The transient phenomena are the phenomena manifested between the time of arrival of the fastest travelling frequency and the establishment of the steady state.
9346	Attenuation Equaliser or Compensator.	A network, usually comprising resistance, inductance and capacity, which is designed to compensate for the variation with frequency of the attenuation of the line with which it is associated.
9347	Phase Equaliser or Compensator.	A network, usually comprising resistance, inductance and capacity, which is designed to compensate for the variation with frequency of the phase of the current or voltage in the line with which it is associated.
9348	Echo.	In telephony. The return by reflection of speech currents to the speaker or apparent repetition to the listener.
9349	Filter. <i>Ab'n for Frequency Filter.</i>	An electrical network so designed that the ratio of received current to sent current is as nearly as possible unity over a certain range of frequencies and negligibly low at other frequencies.
9350	Low Pass Filter.	A filter so designed that the ratio of received current to sent current is as nearly as possible unity below a certain frequency and negligibly low above that frequency.
9351	High Pass Filter.	A filter so designed that the ratio of received current to sent current is as nearly as possible unity above a certain frequency and negligibly low below that frequency.
9352	Band Pass Filter.	A filter so designed that the ratio of received current to sent current is as nearly as possible unity over a certain range of frequency and negligibly low above and below that range.

NO.	TERM.	DEFINITION.																
9353	Band Rejection Filter.	A filter so designed that the ratio of received current to sent current is as nearly as possible unity above and below a certain range of frequency and negligibly low over that range.																
9354	Propagation Constant.	The vectorial sum of the attenuation constant and the wave length constant at a specific frequency. The propagation constant is a vector expressing the change in magnitude (attenuation constant) and phase (wave length constant) per unit length of a transmission line.																
9355	Singing Point.	<p>(1) of a two-wire repeater. A measurement of the stability of a repeater against oscillation and harmful effect on articulation due to back coupling brought about by inexact balance between the balancing network and line. It therefore partially determines the maximum gain obtainable from a two-wire repeater.</p> <p>(2) of a line. In the case of a long line, the attenuation corresponding to the ratio of the power transmitted to the line at some specified frequency and the power returned to the sending end by reflection from irregularities. The term "Singing Point" has a number of other meanings including the loss corresponding to the reflection coefficient when, for example, two lines are joined together.</p>																
9356	Standard Cable.	<p>An arbitrary uniform line in terms of which the attenuation of a line or network may be specified. The standard cable used in Great Britain for telephone measurements is characterised by the following constants:—</p> <p style="text-align: right;"><i>Per loop mile.</i></p> <table data-bbox="512 1302 947 1402"> <tr> <td><i>Resistance</i></td> <td>...</td> <td>...</td> <td>88 ohms.</td> </tr> <tr> <td><i>Capacity</i></td> <td>...</td> <td>...</td> <td>.054μF</td> </tr> <tr> <td><i>Inductance</i></td> <td>...</td> <td>...</td> <td>.001 henry</td> </tr> <tr> <td><i>Leakance</i></td> <td>...</td> <td>...</td> <td>1μmho</td> </tr> </table> <p>This standard is now obsolescent.</p>	<i>Resistance</i>	88 ohms.	<i>Capacity</i>054 μ F	<i>Inductance</i>001 henry	<i>Leakance</i>	1 μ mho
<i>Resistance</i>	88 ohms.															
<i>Capacity</i>054 μ F															
<i>Inductance</i>001 henry															
<i>Leakance</i>	1 μ mho															

NO.	TERM.	DEFINITION.
9357	Reference Equivalent.	The reference equivalent of a telephone transmission system is the number of decibels as indicated by the Master Telephone Transmission Reference System (q.v.) when that system is adjusted to give the same volume of sound at the output of the receiver as that of the system considered, the acoustic pressure on the diaphragm of the transmitter being the same in both cases. This equivalent may also be expressed in nepers.
9358	Transmission Level. <i>Level.</i>	A measure of the ratio of the power at any point in a transmission line to the transmitted power or to a standard reference power. Transmission levels are expressed in decibels or nepers.
9359	Wavelength Constant.	<p>(a) The wavelength constant of a uniform line of infinite length at a specific frequency is defined as the change of phase, expressed in radians, of the current or voltage between points separated by unit length.</p> <p>(b) The wavelength constant of a line of periodic recurrent structure is defined as the change in phase of the current or voltage between successive corresponding points divided by the length of the line separating these points.</p> <p>(c) in a network of periodic recurrent structure the wavelength constant is conveniently expressed as the phase change per section, that is the phase change measured between successive corresponding points.</p>
9360	Repeater Gain.	The increase in magnitude of the transmitted power, voltage or current due to transmission through a telephone repeater. Quantitatively, the gain is expressed in nepers or bels by comparing the magnitude of the received power, voltage or current with that transmitted. (See Neper, Bel.)

NO.	TERM.	DEFINITION.
9361	Non-Linear Distortion Factor.	A measure of distortion due to non-linear transmission or response of a line or piece of apparatus. When a pure tone or combination of pure tones is subjected to non-linear distortion, derived components appear having frequencies corresponding with the multiples of, and the sums and differences of multiples of, the parent frequencies; so causing roughness and harshness in the received tone. The ratio of the total power in these derived components to the total power in the parent tones is called the "non-linear distortion factor." The German term "Klirrfaktor" is equivalent to Non-linear Distortion Factor.

SUBSECTION 94.**CALLING DEVICES AND CALLING SYSTEMS.**

9401	Magneto Bell.	An electric bell operated by alternating current.
9402	Trembler Bell.	An electric bell operated by direct current made intermittent by the operation of the bell.
9403	Night Alarm. NIGHT BELL.	An electric bell for use at night or during slack periods.
9404	Calculagraph.	A machine intended to measure and record lapse of time for a telephone call.
9405	Chronopher.	A switching instrument which transmits automatically over selected telegraph and other circuits standard time signals from an observatory.
9406	Calling Device.	A device used in automatic telephony for controlling automatic switches for the purpose of establishing a connection.

NO.	TERM.	DEFINITION.
9407	Keysender. <i>Sender.</i>	A group of apparatus which, when operated by the depression of digit keys, controls the operations of automatic apparatus. Its object is to facilitate speedy operation.
9408	Digit Key Strip.	A strip of keys which, when associated with a keysender, forms a calling device.
9409	Dial.	A calling device arranged in the form of a rotatable disc.
9410	Impulse Machine.	In automatic telephony. A machine for sending impulses.
9411	Dialling.	In automatic telephony. The act of applying impulses to a circuit by means of a dial.
9412	Simplex Dialling.	A system of dialling over both conductors of a telephone circuit in parallel, using earth return.
9413	Duplex Dialling.	A system of dialling over both conductors of a telephone circuit using a separate impulsing contact and battery with earth return on each conductor, the batteries being at opposite ends of the line.
9414	Calling-Subscriber Release. <i>Calling-sub Release.</i>	A method of release whereby all the switches in a connection are released by the replacing of his receiver by the calling subscriber.
9415	First-Subscriber Release. <i>First-sub Release.</i>	A method of release whereby some or all of the switches in a connection are released by the first subscriber to replace his receiver.
9416	Last-Subscriber Release. <i>Last-sub Release.</i>	A method of release whereby all the switches in a connection are held until both subscribers replace their receivers.
9417	Manual Hold.	A method of working from an automatic subscriber to a manual position in which, after the operator has plugged in, the connection is held by the operator.

NO.	TERM.	DEFINITION.
9418	Manual Ringing.	Ringing which is started and stopped by the operation of a key.
9419	Power Ringing.	Ringing which is produced by alternating current from a generator driven otherwise than by hand.
9420	Interrupted Ringing.	Power ringing which is periodically and automatically interrupted.
9421	Machine Ringing.	Interrupted ringing applied to a circuit, the circuit being closed by a key, relay, or other switching device and opened by the operation of a relay actuated by the reply of the called subscriber.
9422	Keyless Ringing.	Machine ringing which is effected by the insertion of the plug of the incoming junction or the calling cord into the jack of the called subscriber's line.
9423	Harmonic Selective Signalling.	Signalling a number of stations on one circuit by means of alternating or pulsating currents of different frequencies: each individual station being tuned to one frequency only. A calling station can call any selected station independently of the others by employing the frequency particular to the selected station.
9424	Pilot Signal.	An automatically operated supervisory signal, e.g. Pilot lamp or Pilot fuse, which indicates a change from normal in one or more circuits, signals or other devices forming part of the group with which it is associated.
9425	Superposed Ringing Current.	A ringing current consisting of a direct current superposed on an interrupted alternating current.

SUB-SECTION 95.

TRANSMITTERS, RECEIVERS, RELAYS AND REPEATERS.

NO.	TERM.	DEFINITION.
9501	Distributor.	In telegraphy. A rotating device which distributes line-connection in quick succession to the different message channels of a multiplex system.
9502	Phonic Wheel.	A toothed iron wheel driven electromagnetically from a vibrating reed or fork.
9503	Sounder.	A telegraph receiving instrument in which morse signals are translated into sound signals determined by intervals between two diverse sounds.
9504	Transmitter.	<p>In telegraphy. A mechanical device for sending electrical signals over a telegraph circuit.</p> <p>In telephony. An electro-mechanical device designed to convert sound waves or vibrations into electrical waves or vibrations for transmission over a telephone or other circuit.</p>
9505	Receiver.	In telephony. An electro-mechanical device designed to convert electrical waves or vibrations into audible sound waves.
9506	Microphone.	In telephony. A transmitter designed to have its electrical resistance directly and materially altered by slight differences in mechanical pressure such as are caused by sound waves or vibrations. The term is now generally used as a synonym for Telephone Transmitter.
9507	Microtelephone.	A rigid combination of telephone transmitter and receiver in a form convenient for holding simultaneously to mouth and ear.

NO.	TERM.	DEFINITION.
9508	Induction Coil.	In telephony. A transformer, usually with an open magnetic circuit, suitable for developing voltages in its secondary coil which vary in polarity and strength with the rise and fall of a unidirectional current in the primary coil.
9509	Relay.	An electrically operated device for opening and closing circuits.
9510	Non-Polarised Relay.	A relay, the operation of which depends upon the magnitude of the current flowing in the controlling circuit irrespective of the direction of the current.
9511	Polarised Relay.	A relay, the operation of which depends upon the direction as well as upon the magnitude of the current in the controlling circuit.
9512	Neutral Relay.	A polarised relay so arranged that it operates in one direction or another from a normal neutral position according to the direction of the current in the controlling circuit.
9513	Shunt Field Relay.	A relay with two windings and a closed magnetic circuit. Normally the direction of the current in the windings confines the magnetic flux to the closed magnetic circuit, but when the current is reversed in one winding the flux is caused to take a shunt path which effects the operation of the relay.
9514	Two-Step Relay.	A relay with two groups of contact springs, one group of which is operated by an initial small magnetic flux and both groups by a subsequent greater magnetic flux. The first group is said to be "x" operated. (See also x-operation.)
9515	Relay-Set	An assembly of relays, with or without associated condensers and/or coils mounted on a single plate and wired to a plug.

NO.	TERM.	DEFINITION.
9516	Repeater.	A device whereby currents received over one circuit are automatically repeated in another circuit or circuits, generally in an amplified form.
9517	Telephonic Repeater.	A repeater for currents of telephonic frequency and magnitude.
9518	Impulse Repeater.	In automatic telephony. A repeater used for repeating impulses from one line circuit into another.
9519	Repeating Coil.	A special form of transformer used in telephone practice; ordinarily of unity ratio.
9520	Retardation Coil.	A coil designed to offer a high impedance to currents of voice frequency.

SUB-SECTION 96. SWITCHING DEVICES.

9601	Jack.	In telephony. A device used generally for terminating the permanent wiring of a circuit, access to which is obtained by the insertion into the jack of a plug usually connected to a cord.
9602	Test Jack.	A jack interposed in a circuit to facilitate routine testing and the localisation of faults.
9603	Break Jack.	A jack arranged to break the normal circuit when a plug is inserted.
9604	Branching Jack.	A jack without break contacts.
9605	Plug.	In telephony. A device usually connected to the conductors of a flexible cord and used to make connection with a jack.
9606	Selector Plug.	A plug associated with a selector for the purpose of making through a jack connections with the permanent wiring on the selector rack.

NO.	TERM.	DEFINITION.
9607	Gravity Switch. SWITCH-HOOK.	A gravity operated device for opening and closing contacts in telephone circuits, and usually associated with the support for the subscriber's receiver or microtelephone.
9608	Key.	In telephony. A manually operated device in which the contact members are flexed and not pivoted; used for opening and/or closing circuits.
9609	Switchboard.	In an exchange. The means provided for the inter-connection of the lines terminating therein.
9610	Manual Switchboard.	A switchboard on which inter-connection is performed by hand.
9611	Auto-Manual Switchboard.	A manual switchboard for handling the junction and trunk traffic, enquiries, etc., in an automatic exchange.
9612	Switchboard Section. SWITCH SECTION.	A unit, one or more of which constitutes a switchboard.
9613	Position. <i>Ab'n for Operator's Position.</i>	Such part of a switchboard as is normally controlled by one operator.
9614	A-Position.	A position on which calls from subscribers' circuits are received.
9615	B-Position.	A position on which calls over junction or trunk circuits from other exchanges are received, the calls being completed on demand.
9616	Trunk Position.	A position on which calls over trunk circuits to and from other exchanges are handled, the records relative to outgoing calls being received from a trunk record or A-position and the calls being completed when the circuit is free.
9617	Call Indicator Position.	A B-position which is equipped for call indicator working.

NO.	TERM.	DEFINITION.
9618	Keysending B-Position.	A B-position equipped with digit keys for the purpose of making calls direct to an automatic exchange.
9619	Keysending B-Position with Cords.	A keysending B-position provided also with cords for the purpose of effecting through connections.
9620	Trunk Record Position.	A position to which subscribers' circuits are extended in order that particulars may be recorded of calls which are to be completed later over a trunk circuit.
9621	Filter Record Position.	A position at which records are kept of the calls to and from busy subscribers' lines in order to be able to demonstrate the necessity for additional lines.
9622	Keysending A-Position.	An A-position equipped with digit keys for the purpose of making calls direct to an automatic exchange.
9623	Special Control Position.	A trunk position used during the busy hours only, the calls being handled at A-positions at times when a "no delay" service can be given.
9624	Monitor's Position.	A position at which enquiries and complaints from subscribers and operators are handled.
9625	Testing Position.	A position at which the operating staff makes preliminary tests of lines reported faulty.
9626	Phonogram Position.	A position at which telegrams are received from and dictated to subscribers and telegraph offices by telephone.
9627	Multiple.	<p>(a) Noun. A circuit accessible at a number of points to any one of which connection can be made. An aggregation of such points is sometimes called a multiple.</p> <p>(b) Verb. To render a circuit accessible at a number of points.</p>

NO.	TERM.	DEFINITION.
9628	Selector.	An automatic switching device serving to select a particular contact or contacts by impulse and/or hunting and/or finding action.
9629	Uniselector.	A selector having unidirectional motion.
9630	Numerical Selector.	In automatic telephone systems using an alphabetical code as a portion of the subscriber's number, those group selectors which are controlled by the numerical portion of the number dialled.
9631	Final Selector.	A selector which establishes connection with the called subscriber's line.
9632	Test Final Selector.	A final selector provided for the use of the Test Clerk.
9633	Trunk Offering Final Selector.	A final selector giving access to engaged subscribers for the purpose of offering trunk calls.
9634	Group Selector.	A selector which selects a group of trunks by impulse action and subsequently selects an idle trunk in the group by hunting action.
9635	Code Selector.	A selector provided in an originating exchange for the finding of outgoing junctions to other exchanges or of first numerical selectors at the originating exchange in accordance with a translated code as used in a director system.
9636	Access Selector.	A selector which gives access successively to various switches for a specific purpose such as routine testing.
9637	A-Digit Selector.	In a director system using a 3-digit code, a selector which is operated by the first digit of the exchange code and then connects the calling line to the BC-digit selector of a free director.

NO.	TERM.	DEFINITION.
9638	BC-Digit Selector.	In a director system, a selector which is operated by the second and third digits of the exchange code.
9639	Test Selector.	A selector by means of which connection is established between the test desk and a test final selector. The test selector may respond to either one or two trains of impulses according to the size of the exchange system.
9640	Trunk Offering Selector.	A selector by means of which connection is established between an operator's position and a trunk offering final selector. The trunk offering selector may respond to either one or two trains of impulses according to the size of the exchange system.
9641	Tandem Selector.	A selector provided at an automatic exchange for receiving junction traffic from another exchange and passing it forward.
9642	Digit Absorbing Selector.	A selector which is so arranged that the wipers return to normal after one or more digits but remain in an operated position for the subsequent digit.
9643	Discriminating Selector.	A digit absorbing selector in which the digit absorbing feature is used to discriminate between calls to be completed locally and calls to be routed to some other exchange.
9644	Repeating Selector.	A selector, the main function of which is to act as a group selector; but which, after the first digit has been received, serves to repeat all succeeding impulses.
9645	P.B.X. Final Selector. <i>Ab'n for Private Branch Exchange Final Selector.</i>	A selector which, in addition to the standard operation of a final selector, selects an idle private branch exchange line by hunting action.

NO.	TERM.	DEFINITION.
9646	Finder.	A selector which connects one line or link to any one of a group of lines or links. The selection is by finding action.
9647	Hunter.	A selector which connects one line or link to any one of a group of lines or links. The selection is by hunting action.
9648	Allotter.	A selector used in conjunction with a group of finders to determine the order in which the finders shall operate.
9649	Sequence Switch.	A switch for making a number of electrical contacts in a definite order.
9650	Director.	In a director system. The apparatus which receives and retransmits the called subscriber's number, translating the code portion.
9651	Coder.	In call indicator working. An apparatus for storing groups of step-by-step impulses at an automatic exchange and discharging groups of current impulses which are designed in such a way that the time needed to transmit them to a manual exchange when a position is available is a minimum. The groups so discharged are said to be "coded."
9652	Display Panel.	In call indicator working. The apparatus on a call indicator position on which the number required is displayed by illuminated numbers or other means in front of the operator.
9653	Routiner.	In automatic telephony. An equipment for testing apparatus or circuits automatically.
9654	Wiper.	That portion of the moving member of a selector or other similar device which engages with the contacts of a bank.
9655	Bank.	In automatic telephony. An assemblage of fixed contacts with which a wiper engages. Banks are usually multiplied.

SUB-SECTION 97. LINES AND LINE EQUIPMENT.

NO.	TERM.	DEFINITION.
9701	Jumper Wire. <i>Jumper.</i>	In telephony. A length of wire used in a cross-connection field for the purpose of re-arrangement of permanent circuit connections.
9702	Line.	The portion of a circuit that is external to the premises housing the apparatus.
9703	Subscriber's Line.	The line between a subscriber's station and an exchange.
9704	Direct Line. INDIVIDUAL LINE, U.S.A.	A subscriber's line upon which only one subscriber's station is connected to an exchange. It may, if required, have one or more extension stations.
9705	Party Line.	A subscriber's line upon which two or more subscribers' stations are connected.
9706	Tie Line.	A line between two private branch exchanges.
9707	Loaded Line.	A line in which the normal inductive reactance has been altered for the purpose of increasing the transmission efficiency.
9708	Coil Loading.	The addition to a circuit of inductance by means of coils connected at intervals along the conductors to neutralise the effects of electrostatic capacity.
9709	Continuous Loading.	The addition to a circuit of inductance by means of a continuous wrapping along the conductors to neutralise the effects of electrostatic capacity.
9710	Positive Wire.	In automatic telephony, that wire of a circuit within an exchange which, when it is free, is connected to the positive pole of the battery.
9711	Negative Wire.	In automatic telephony, that wire of a circuit within an exchange which, when it is free, is connected to the negative pole of the battery.
9712	A-Side.	The double-current message channels of a quadruplex telegraph circuit.

NO.	TERM.	DEFINITION.
9713	B-Side.	The single-current message channels of a quadruplex telegraph circuit.
9714	A-Wire and B-Wire.	In telephony. The two wires of a telephone line. Generally the A-wire is connected to the T-wire inside the exchange and the B-wire to the R-wire.
9715	S-Wire.	The internal wire of a telephone circuit which is associated with the sleeve contact of a plug or with a corresponding point.
9716	R-Wire. RING WIRE.	The internal wire of a telephone exchange circuit which is associated with the ring contact of a plug, or with a corresponding point.
9717	P-Wire. PRIVATE.	The wire which controls the guarding, holding and normally the releasing of automatic switches.
9718	T-Wire. TIP WIRE.	The internal wire of a telephone exchange circuit which is associated with the tip contact of a plug, or with a corresponding point.
9719	Release Wire.	A wire sometimes provided in an automatic system solely for controlling the release of switches. (See also P-wire.)
9720	Twin Cable. LOOP CABLE.	A cable containing a number of pairs, each pair formed by twisting two insulated conductors together.
9721	Multiple Twin Cable.	A cable containing a number of two-pair cores, each two-pair core consisting of two twisted pairs twisted together.
9722	Quad Cable. STAR QUAD CABLE.	A cable containing a number of quads, each quad formed by twisting together four insulated conductors about a common axis.
9723	Pilot Wire.	In telegraphy or telephony. A wire in a multi-wire cable reserved for the purpose of detecting any deterioration in the insulation of the cable.

SUB-SECTION 98. TRUNKING TERMS.

NO.	TERM.	DEFINITION.
9801	Trunking.	<p>(a) In telephony. That branch of the subject that is concerned with the provision and arrangement of such plant as is needed to carry the traffic with the specified "grade of service" (q.v.).</p> <p>(b) In automatic telephony. The interconnection between the various ranks of switches, designed to handle the traffic in the most suitable manner from the points of view of economy of plant, flexibility, and ease of tracing calls.</p>
9802	Telephone Traffic. <i>Traffic.</i>	The aggregate of telephone calls passing over a group of circuits or trunks, having regard to their duration as well as their number. (See Traffic Flow, and Traffic Unit.)
9803	Traffic Flow.	The average number of calls in progress simultaneously.
9804	Busy Hour.	<p>The hour during which the originating traffic of an exchange or the traffic over a group of trunks is greatest.</p> <p>NOTE.—In Great Britain, in order to simplify traffic measurement, the busy hour is always one commencing at the hour or half-hour, and is the busiest of such hours.</p>
9805	Traffic Unit. <i>T.U.</i>	<p>The unit of traffic flow—a unit employed in estimating the amount of switching equipment required in automatic exchanges to carry the traffic.</p> <p>In any given volume of traffic, the traffic flow for specified period is said to be unity when the average number of simultaneous calls during the period is unity. The specified period is the busy hour unless otherwise stated.</p>

NO.	TERM.	DEFINITION.
9805	Traffic Unit — <i>continued.</i> <i>T.U.</i>	The traffic flow (in traffic units) for a period can therefore be shown to be the number of calls originated during the period multiplied by the average holding time of a call, holding time being expressed in terms of the period. A Traffic Unit is, therefore, equivalent to the traffic flow in one circuit continuously occupied.
9806	Holding Time.	The total time during which a selector or circuit is engaged in connection with a telephone call.
9807	Operating Time.	That portion of the holding time of a call which is occupied in establishing communication between the two subscribers and in subsequently severing the connection.
9808	Conversation Time.	That portion of the duration of a call utilised by subscribers for conversation.
9809	Occupancy.	The traffic flow on a single selector or circuit. The maximum occupancy is unity.
9810	Grade of Service.	A measure of the service given in an exchange from the point of view of sufficiency of plant. In practice it is expressed as the proportion of calls which are allowed to fail during the busy hour, owing to the limitation, for economic reasons, of the amount of switching plant.
9811	Overall Grade of Service.	The grade of service with respect to the whole exchange system.
9812	Traffic Capacity.	The traffic flow which a given group of circuits will carry for a prescribed grade of service.
9813	Trunk. Link.	A connecting circuit between selectors of different rank in an automatic exchange network, or between one rank of selectors and a manual position. In U.S.A. the term "Trunk" has also the significance of the British term "Junction Circuit."

NO.	TERM.	DEFINITION.
9814	Availability.	In automatic telephony. The number of trunks to which a selector has access on any route. Thus in a 24 point uniselector the availability is 24.
9815	Full Availability.	In a trunking scheme. The condition under which a selector has access to the whole of the trunks on a given route.
9816	Limited Availability.	In a trunking scheme. The condition under which a selector has access to a limited number only of the trunks on a given route. The availability is usually limited by the number of outlets per level in the hunting selector.
9817	Rank of Selectors.	In automatic telephony. The selectors which provide for any one stage of call selection.
9818	Selector Shelf. SELECTOR PANEL.	In automatic telephony. A group of switches whose bank-to-bank cabling is connected as a single unit to cable terminal strips.
9819	Level Multiple.	In automatic telephony. The multiples which, taken together, carry the traffic outgoing from a given level.
9820	Straight Banks.	Banks multiplied together in such a way that on successive selectors the outgoing trunks in the level multiple are tested in the same order starting from the same trunk at each selector.
9821	Slipped Banks.	Banks multiplied together in such a way that on successive selectors the outgoing trunks in the level multiple are tested in the same cyclic order but starting from a different trunk at each selector.
9822	Interconnecting.	Any method of connecting together level multiples when the availability is limited so that the sets of trunks available from different shelves are partially common to one another. Grading is one form of interconnecting.

NO.	TERM.	DEFINITION.
9823	Grading.	<p>In automatic telephony.</p> <p>(a) The method of connecting level multiples together so that a group of selectors is given access to individual trunks on the early choices, but on the later choices shares access to trunks with other groups.</p> <p>(b) An arrangement of trunks connected to the banks of selectors by the method of grading.</p>
9824	Grading Group. <i>Group.</i>	The portion of a level multiple which is the unit in the formation of a grading. A group may consist of the multiple circuits from one shelf or from a number of shelves teed together.
9825	“ N-Group, X-Contact ” Grading.	A grading built up of N groups, each group having an availability of X, <i>e.g.</i> , a 12-group, 10-contact grading.
9826	Individual Trunk.	A trunk which serves only one group of a grading.
9827	Common Trunk.	A trunk common to all groups of a grading.
9828	Partial Common.	A trunk common to more than one but not to all groups of a grading.
9829	Symmetrical Grading.	A grading in the formation of which all groups are treated alike.
9830	Unsymmetrical Grading.	A grading in the formation of which all groups are not treated alike, the disparity usually consisting in allotting a larger number of individual trunks to the groups having the larger traffic.
9831	Tandem Selection.	A method of trunking in which two uniselectors operate in tandem so that the maximum possible number of trunks over which selection can take place is the product of the availabilities of the two uniselectors.

NO.	TERM.	DEFINITION.
9832	Group Control. BACKWARD BUSYING.	In tandem selection, the busying of a trunk outgoing from the first rank of uniselectors when the unselector of the second rank on which it terminates has no free outlets.
9833	Trunk Distribution Frame.	A distribution frame on which the trunking between successive ranks of selectors is effected.
9834	Terminal Assembly.	In automatic telephony. A structure forming part of a selector rack and used for terminating the selector bank cables and, in the absence of a trunk distribution frame, for effecting the trunking to the next rank of selectors.
9835	Trunk Frame Terminal Assembly.	A terminal assembly with a cross-connection field on which trunking to a subsequent rank of selectors is effected.
9836	Unselector Distribution Frame.	A distribution frame by means of which the number of uniselectors having a common multiple may be varied in order to provide for variations in the originating traffic.
9837	Traffic Diagram.	A diagram showing all the traffic routes in an exchange with the amount of traffic carried by each route. Other information may also be shown such as the number of trunks and the traffic capacities of the routes.
9838	Trunking Diagram.	A diagram showing the whole or a portion of the trunking arrangements of an automatic exchange.
9839	Traffic Meter.	In an automatic exchange. A meter for recording specific traffic data.
9840	Congestion Call Meter.	A traffic meter so connected as to record the number of calls carried by the last choice trunk of a grading.
9841	Congestion Traffic-Unit Meter.	A traffic meter the readings of which are proportional to the traffic flow over the last choice trunk of a grading.

NO.	TERM.	DEFINITION.
9842	Overflow Meter.	A traffic meter which records the number of calls which fail to find a free trunk in any group of trunks.
9843	Analysis Meters.	A group of traffic meters which are provided in order to analyse the overflows in a grading; that is, to determine the number of overflows occurring in each group or other segregated portion of the grading.
9844	Call-Counting Meter.	A traffic meter which records the number of calls carried by a trunk or group of trunks.
9845	Director Meter.	A call-counting meter which records the number of calls carried by a director.
9846	Subscriber's Meter.	A device for recording the number of effective originating calls on a subscriber's line.
9847	Position Meter.	A meter provided for measuring the number of calls handled at an operator's position. A position meter may be operated manually or automatically. When manually operated the position meter is sometimes known as a peg count meter.

SUB-SECTION 99. MISCELLANEOUS TERMS.

9901	Free.	The disengaged condition of a circuit or apparatus.
9902	Cadence.	In telegraphy. A signal for the operator of a Baudot or similar telegraph keyboard as to when to depress a signal-group of keys.
9903	Correction.	A system by which rotating instruments at the two ends of a synchronous telegraph circuit are kept in phase or unison.

NO.	TERM.	DEFINITION.
9904	Five-Unit Code.	In telegraphy. A code of signals in which all letters or other signals are of equal duration and are each produced by five equal impulses.
9905	Phase Relationship.	In Multiplex telegraphy. The degree of, or divergence from, synchronism between the distributor brushes at the two stations of the circuit.
9906	Impulse.	A brief change of current produced in a circuit.
9907	Make Impulse.	An impulse in which the change consists in starting a current.
9908	Break Impulse.	An impulse in which the change consists in interrupting a current.
9909	Impulse Frequency.	The number of impulses per second in a train or group of regularly recurring impulses.
9910	Impulse Period.	The time between the corresponding points of two successive impulses in a train or group of regularly recurring impulses.
9911	Impulse Ratio.	The ratio of duration of an impulse to its impulse period.
9912	Battery Dialling.	A system of dialling which employs break impulses in an earth return circuit having the impulsing battery at the dial end. (See also Loop Dialling.)
9913	Loop Dialling.	A system of dialling which makes use of break impulses in a loop circuit. (See also Battery Dialling.)
9914	Phonogram.	A telegram received from or dictated to subscribers by telephone.
9915	Coding.	In coded call indicator working. The act of transforming counted impulses into the coded form. (See Coder.)

NO.	TERM.	DEFINITION.
9916	X-Operation.	The advance operation of a group of relay contacts. This may be effected as in a two-step relay (q.v.) by a double motion of the armature, and/or by the relative adjustment of the various groups of contacts.
9917	Minimum Pause.	An interval introduced into the operation of a dial in order to give the selectors time to complete their hunting.
9918	Unguarded Interval.	A period (usually a fractional part of a second) within which selection of an outlet can be made and connection follow, resulting in irregular operation through no fault in the circuit or selecting apparatus or agency, but because the occurrence of such period is inherent in the apparatus.
9919	Ancillary.	A qualifying term applied to a jack, lamp, etc., used for providing subsidiary answering points in order to facilitate team working of operators.
9920	Howler.	In telephony. An apparatus by means of which a loud tone is produced for the purpose of attracting the attention of a subscriber when the receiver has not been correctly replaced.
9921	Busy.	The condition of a line or of a piece of apparatus when it is in use.
9922	Busy Tone.	An intermittent audible signal indicating to the calling subscriber that the required circuit or the intermediate apparatus used in setting up the connection is busy.
9923	Dialling Tone.	In automatic telephony. An audible signal indicating to the calling subscriber that dialling should proceed.

NO.	TERM.	DEFINITION.
9924	N.U. Tone. <i>Ab'n for Number-unobtainable Tone.</i>	In automatic telephony. An audible signal indicating to the calling subscriber that the called subscriber's line is temporarily or permanently out of service, or that some irregular operation has occurred on the part of himself or of the apparatus.
9925	Ringng Tone. AUDIBLE RINGING SIGNAL.	An audible signal indicating to the calling subscriber that the connection has been made and that the called subscriber is being rung.
9926	Reverting Call.	A telephone call between two stations on the same party line.
9927	Mixed Service.	Service on a private branch exchange switchboard where some lines are given private exchange service only.
9928	Side Tone.	The reproduction in a speaker's telephone receiver of sounds transmitted by his transmitter.
9929	Finding Action.	The automatic operation of a selector or similar device in moving the wipers to their position of contact with a calling line connected to its bank.
9930	Hunting Action.	The automatic operation of a selector or similar device in moving the wipers to their position of contact with a free outlet.
9931	Impulse Action.	The operation of a selector or other similar device in finding, by means of electrical impulses, a called line or group of links or lines. Impulse action is predetermined by a calling device.
9932	Homing Action.	In automatic telephony. The automatic operation of a uniselector in returning the wipers to their normal or "home" position, when the uniselector has been released.

NO.	TERM.	DEFINITION.
9933	Outgoing.	A term used to indicate the direction of traffic in a circuit. Thus an outgoing junction at an exchange is a junction carrying traffic from that exchange to another exchange. Similarly in an automatic selector the outgoing path is the path by which traffic leaves the selector.
9934	Incoming.	A term used to indicate the direction of traffic in a circuit. Thus an incoming junction in an exchange is a junction carrying traffic to that exchange from another exchange. Similarly in an automatic selector the incoming path is the path by which traffic enters the selector.
9935	Bothway.	A term applied to circuits which are used for carrying traffic in either direction as required.
9936	Plugging-up.	A process of transferring a faulty line from its normal switching equipment to fault locating equipment.
9937	Level.	The rows of contacts of a selector bank which are selected by impulse or hunting action and along which the wipers are moved by impulse and/or hunting and/or finding action.
9938	Distribution Frame.	A structure for terminating and connecting together in any desired order two or more sets of wires.
9939	Main Distribution Frame. <i>M.D.F.</i>	A distribution frame for the internal wires and the external wires of an exchange. Generally the external wires are arranged in cable numerical order and the internal wires in subscriber's number order.

NO.	TERM.	DEFINITION.
9940	Intermediate Distribution Frame. <i>I.D.F.</i>	A distribution frame intermediate between the main distribution frame and the switching apparatus. In manual exchanges one set of terminals comprise subscribers' and junction lines in the respective numerical order and one set of terminals the calling and answering equipments. In automatic exchanges the sets of terminals are used for terminating junction lines, and various apparatus such as auto-auto relay sets.
9941	Combined Distribution Frame. <i>C.D.F.</i>	A distribution frame combining the functions of a main distribution frame and an intermediate distribution frame usually employed in small exchanges or repeater stations.
9942	Apparatus Rack.	A structure or framework for mounting selectors, relays and other apparatus in a working and accessible position.
9943	Special Apparatus Rack. <i>S.A.R.</i>	An apparatus rack for accommodating miscellaneous items of apparatus which are not sufficiently numerous to necessitate an individual rack for each class of item.
9944	Subscriber's Line and Final Selector Unit.	An apparatus rack accommodating the subscriber's exchange end equipments, usually 100; and the final selectors associated with a block of subscribers' numbers, usually also 100. The groups of lines and numbers are not necessarily identical.
9945	Cross-Connection Field. <i>JUMPER FIELD.</i>	The space on a distribution frame for accommodating the jumper wires.
9946	Translation Field.	A series of terminal strips by means of which the digits forming the code portion of the called subscriber's number are translated to other digits; as used on a director, keysender or other system requiring translation.
9947	Feeder Fuse Panel.	A panel accommodating fuses associated with feeder power cables serving groups of distribution fuse panels.

NO.	TERM.	DEFINITION.
9948	Distribution Fuse Panel.	A panel accommodating small capacity fuses, usually alarm type, serving individual units of apparatus.
9949	Heat Coil.	A device designed to protect apparatus against damage from external currents which, although dangerous to the electrical circuit, are not sufficient to act upon a lightning protector or fuse on the same circuit.
9950	Protector.	A device designed to protect apparatus against damage from lightning and other high voltage discharges.
9951	Skinner.	The length of insulated wire between a laced cable form and the connecting point.
9952	Twin Contacts.	Duplicate contact points used on contact springs.

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CORRECTION SLIP TABLE.

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		on date.	by (initials).

LIST OF Technical Pamphlets for Workmen

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GROUP D—cont.

20. Superposed Circuits. Transformers. Bridging Coils and Retardation Coils.
21. Call Offices.
22. Units, Amplifying. (*Not on sale.*)

GROUP E.

1. Automatic Telephony: Step by Step Systems.
2. Automatic Telephony: Coder Call Indicator (C.C.I.) Working.
3. Automatic Telephony: Keysending "B" positions.

GROUP F.

1. Subscribers' Apparatus. Common Battery System.
2. Subscribers' Apparatus, C.B.S., Part I—C.B.S. No. 1 System.
3. Subscribers' Apparatus. Magneto.
4. Private Branch Exchanges—Common Battery System.
5. Private Branch Exchange—C.B. Multiple, No. 9.
6. Private Branch Exchanges—Magneto.
7. House Telephone Systems.
8. Wiring of Subscribers' Premises.

GROUP G.

1. Maintenance of Secondary Cells.
2. Power Plant for Telegraph and Telephone Purposes.
3. Maintenance of Power Plant for Telegraph and Telephone Purposes.
4. Telegraph Battery Power Distribution Boards.

GROUP H.

1. Open Line Construction, Part I.
2. Open Line Construction, Part II.
3. Open Line Maintenance.
4. Underground Construction, Part I—Conduits.
5. Underground Construction, Part II—Cables.
6. Underground Maintenance.
7. Cable Balancing.
8. Power Circuit Guarding.
9. Electrolytic Action on Cable Sheaths, etc.
10. Constants of Conductors used for Telegraph and Telephone Purposes.

GROUP I.

1. Submarine Cables.

GROUP K.

1. Electric Lighting.
2. Lifts.
3. Heating Systems.
4. Pneumatic Tube Systems.
5. Gas and Petrol Engines.