

WIRING DIAGRAMS
GENERAL INFORMATION

CONTENTS

1. GENERAL	6.05 Lead Designations
1.1 Scope of Section	6.06 "F" Stitches
2. DEFINITION	6.07 Leads to be Connected or Reconnected by the Installer
3. WIRING DIAGRAM FIGURES	6.08 Straps to be Added by the Installer
3.1 Controlling and Noncontrolling Figures	6.09 Straps on Electron Tube Filament and Heater Current Adjustment Resistors
3.2 Figure Designations	6.10 Leads Connected During Test
3.3 Figure Ratings	6.11 Wire Symbols
3.4 Figure arrangements	7. SWITCHBOARD CABLES
4. NUMERICAL AND LETTERED OPTIONS	8. CONNECTING DRAWINGS
5. COMPONENTS ON WIRING DIAGRAMS	9. RECORD OF FIGURE AND OPTION CHANGES - TABLE B
5.1 Circuit Conventions	10. RECORD OF SCHEMATIC DRAWING ISSUES WITH EQUIVALENT ISSUES OF WIRING DIAGRAMS - TABLE A
5.2 Component Designations	11. SHEET INDEX NOTES
5.21 General Information	12. TABLE OF FEATURES AND OPTIONS - TABLE E
5.22 Apparatus Terminal Designations	13. NOTES
5.23 Designations of Bus Bars, fuses, etc.	13.1 Manufacturing Notes
5.24 Designation of terminal strips and punchings	13.2 Engineering Notes
5.3 Coded Components	14. AUTOMATIC CHANGES ON WIRING DIAGRAMS
5.4 Component Sketches	15. WIRING DIAGRAM - SCHEMATIC CROSS REFERENCE - TABLE C
5.5 Optional Components	16. EQUIPMENT LOCATION SKETCHES
5.6 Replaced, Replacing and Interchangeable Components	17. SHEET LOCATION OF FIGURES, WIRING AND APPARATUS - TABLE D
5.7 Information on Specific Types of Components	18. INTERRUPTER REQUIREMENT TABLE - TABLE J
5.71 Insulated Terminal Punchings	19. CABLING TABLE - TABLE G
5.72 Connectors E/W Printed Wiring Assemblies	20. FUSE REQUIREMENTS TABLE - TABLE F
5.73 Apparatus Coded Printed Wire Assemblies	21. DISTRIBUTING FRAME REQUIREMENTS TABLE - TABLE H
5.74 Keys	
5.75 Lamps, Lamp Caps and Lamp Sockets	
5.76 Protectors	
5.77 Terminal Strips	
5.78 Apparatus and Equipment Symbols	
6. WIRING ON WIRING DIAGRAMS	
6.01 Gauge and Code	
6.02 Pigtail Leads	
6.03 Variable Wiring	
6.04 Circuit Numbers	

1. GENERAL

1.1 Scope of Section

1.11 This section contains general information concerning Wiring Diagrams T-XXXX-XX and T-XXXXXX including definition, general description, etc. In addition to the foregoing this section explains the various symbols used on wiring diagrams.

2. DEFINITION

2.1 Wiring diagrams are drawings prepared from Bell Telephone Laboratories Schematics or from Telephone Company circuit drawings. When the wiring diagram is prepared from a Bell Telephone Laboratories schematic drawing the wiring diagram will

have the same 5 digit base number as the schematic. When the wiring diagram is prepared from a Telephone Company drawing it will be numbered in the 6 digit "T" drawing series.

2.2 In conformity with this numbering plan, a wiring diagram will not ordinarily include wiring from more than one schematic. There will normally be only one wiring diagram issued for each schematic drawing. However, when a schematic is used on more than one frame, then additional wiring diagrams may be issued to distinguish between frames.

3. WIRING DIAGRAM FIGURES

3.1 Controlling and Noncontrolling Figures

3.11 When connections are required between two figures on the same or on different sheets the terminations and lead identification information is shown in each Figure. The figure from which the leads are considered as being run is termed the "Controlling Figure" and the figure to which the leads are considered as being run is termed the Noncontrolling Figure."

3.2 Figure Designations

3.21 Wiring diagram figures are wherever possible numbered or lettered to agree with the apparatus figures of detached type schematics or figures of the attached type schematic. If the size of the figure requires more than one sheet, the second and subsequent appearances of the figure are designated as "Figure-Cont."

3.22 Cabling figures or other figures assigned by the Standards Engineer are prefixed "H" beginning with "H1" for switchboard cabling figures or "HA" for other WE Co. assigned figures.

3.23 On 6 digit "T" drawings the numbers from one up are assigned dis-regarding schematic numbering.

3.3 Figure Ratings

3.31 If the rating of a figure differs from that of the drawing, it will be so indicated.

EXAMPLE: Figure 6 (Mfr. Disc.),
Figure 8 (A&M Only)

3.4 Figure Arrangements

3.41 Figures are arranged on a drawing to indicate their importance and association and also to make the most economical use of available space. The principal figure is generally placed toward the top and center of the drawing and the secondary figures on the sides and bottom. Secondary figures are placed as close as possible to the point of connection to the principal figure when the connection is indicated by means of bracketed stubs.

3.42 When a new figure replaces an existing one it will be located on the first available sheet with space.

4. NUMERICAL AND LETTERED OPTIONS

4.1 Whenever possible numerical and lettered options on wiring diagrams are assigned to agree with the schematic options. If additional options are required for WE Co. purposes or if the Laboratories has not assigned an option, an option will be assigned by Standards. These options will always consist of two or more characters, the first being the letter "H" beginning with option "HA". Optional designations on wiring diagrams are shown at each optional point of connection.

4.2 "Regular" or "Record" options are enclosed in a double circle, whereas "nonrecord" options are enclosed in a square or rectangular box.

EXAMPLES: Regular, or Record Options

X	HA	WA
Nonrecord Options		
Y	Z	YA

4.3 Wiring diagram leads which show loop (LP) designations to insure continuity when the associated components are not furnished are equivalent to schematic options and represent another example of schematic options which are not designated on wiring diagrams.

5. COMPONENTS ON WIRING DIAGRAMS

5.1 Circuit Conventions

5.11 Components are shown on wiring diagrams by means of conventions which in general simulate the appearance of the components as viewed from the wiring side of the equipment. Whenever possible each component is shown in its approximate location with respect to other components following standard equipment arrangements when available. If components are mounted in other than normal positions explanatory notes such as "Mounted upside down" are provided. If standard arrangements specify two or more positions, separate figures are shown for each position.

5.2 Component Designations

5.21 General Information

5.211 The code and functional designation of each component (including fuses) is shown within or adjacent to the convention. Fuse amperage is also indicated. The component's abbreviated name (except for fuses) i.e., "CAP," "RES" is not shown except where it is felt confusion would result.

5.22 Apparatus Terminal Designations

5.221 Apparatus terminals are designated to agree with the Laboratories Schematic.

5.23 Designation of Bus Bars, Fuses, etc.

5.231 Voltages shown on wiring diagrams are rated voltages such as 24V, 48V, etc. rather than "Minimums and Maximums" such as 22-26V usually shown on schematics. Battery supplies and groundbars are designated "signal," "Talk," etc. The polarity of negative 24V and 48V, and positive 130V battery supplies will normally not be indicated. However, when these supplies are used with a supply of the same potential but different polarity the polarity of both will be indicated. All other battery supplies are designated with polarity and potential.

5.24 Designation of Terminal Strips and Punchings

5.241 Terminal strips and miscellaneous punchings are designated to agree with Laboratories drawings and charts. If the same figure or circuit is used more than once on the same positions and the punchings require different numerical assignments in each location a table will appear on the wiring diagram providing this information. This table will be located as near as possible to the terminal strip or punching figure and will be similar to the following:

Circuit	Terminal Designation					
	OT	OR	OS	T	R	S
1						
2						
Lettered Punchings	T	R	S	T	R	S
Numbered Punchings	23	24	25	26	27	28

5.242 On circuits (such as Auxiliary Signal) which are specified for each panel, the table will indicate punching numbers for the left, right and middle panel, instead of circuit numbers as shown above.

5.243 When circuits or figures are used in different types of positions and different punching assignments are required, the table for each position will be given in a lettered figure and reference made at the punching as follows "See Figure HA or HB" as specified." The use of the lettered figure explained in an engineering note.

5.3 Coded Components

5.31 Coded equipment such as machines, panels, etc. are identified by specification and list number.

EXAMPLE: KS-1234 Lists 1 and 3 Panel per J93802A etc.

5.4 Component Sketches

5.41 Component sketches show options, lead colors, pairing designations, live lead information, etc. but do not include either brackets, a base line or lead terminations.

5.5 Optional Components

5.51 Components are considered as being "Optional" if one of two or more differently codes pieces are specified to perform a single circuit function. The method used in showing optional components on wiring diagrams is dependent on the method used in the schematic, the grouping of schematic figures in the wiring diagram figures, etc.

5.52 If optional components are assigned on a schematic without identifying letters WE Co. Standards will assign optional codes to the various components.

5.53 If the listing of all the codes at a component convention would cause congestion the component code and options are shown on a table with reference at the convention.

EXAMPLE: "178 Type Rept. Coil - See Table "D".

5.6 Replaced, Replacing and Interchangeable Components

5.61 A component code is considered as being "replaced" when a different (replacing) code is specified to perform its work.

5.62 Two components are "interchangeable" if they are electrically and mechanically equivalent.

5.63 In some cases both the replaced and replacing codes are covered by a single component convention. When this is done a designation such as "show only on "x" component" will be shown on that portion of the convention which applies only to the "x" component" will be shown on that portion of the convention which applies only to the "X" component.

5.64 When a change in code does not require optional designations for record purposes a light line is drawn through the replaced code and the replacing code is added beside it.

5.65 When the replacing code requires a different component convention and connections then the replaced code an apparatus sketch is provided which shows the replaced code and connections accompanied by a suitable reference note.

EXAMPLE: 12A X or 13A Y res. lamp. See sketch for 12A Lamp. See sketch for 12A Lamp

5.7 Information on Specific Types of the Components

5.71 Insulated Terminal Punchings

5.711 Insulated Terminal Punchings such as the 25, 26 or 27 type are shown on wiring diagrams in their approximate locations with respect to their associated components. If the terminal punching is to be mounted in the same mounting position with other components the terminal punchings convention is shown on the center line within the component convention.

5.72 Connectors e/w Printed Wiring Assemblies

5.721 Connector wiring diagrams are used to record all printed wiring assemblies associated with the unit specification. Each assembly code is identified next to the connector into which it plugs. The following illustrates a few methods used to record these assemblies:

1. Connectors J1, J2 and J3 would indicate the equipment code of the plug-in assembly terminated at that position.

EXAMPLE: J1 E/W ED-54321-30 G1
 J2 E/W ED-54322-30 G1
 J3 E/W ED-54323-30 G1

5.722 Minor Class "B" or "D" changes that do not affect production interchangeability are identified by means of a "line-out" and the addition of a lettered list or company to identify the change.

EXAMPLE: J2 E/W ED-54322-30 G1,A

5.723 New features or optional assemblies are introduced and identified by means of a circuit option on the unit wiring diagram.

EXAMPLE: J1 E/W ED-54321-30 G1
 G2

or
 J1 E/W ED-54321-30 G1
 ED-54330-30 G1

5.73 Apparatus Coded Printed Wiring Assemblies

5.731 The method used to record these assemblies is the same as described in Paragraph 5.72 except that no record is kept on the vintage of apparatus coded printed wiring assemblies.

5.74 Keys

5.741 In general keys are mounted with the front to the right or bottom or nearest the operator. The position of the front on the keys is indicated by the key top view on the schematic. Key conventions are placed on the wiring diagram to show the key in the wiring position. Key top views as required are shown on wiring diagrams to cover key codes, functions etc., which are not shown on the associated schematic.

5.75 Lamps, Lamp Caps and Lamp Sockets

5.751 The codes of lamp are in all cases shown with the vintage and current ratings omitted. The code of lamp sockets and lamp caps are shown in all cases except where the component is variable in which case the reference is omitted.

5.76 Protectors

5.761 Distributing frame protector's are only shown when required for the termination of inside of central office leads.

5.77 Terminal Strips

5.771 The location of terminal strips are only shown when the location is not apparent and the codes are shown only when they are not subject to variation.

5.772 On terminal strips other than those on a distributing frame all of the terminal strips are shown insofar as practicable including unassigned terminals. The terminal strip is shown as a straight line of terminals across the top of the drawing.

5.78 Apparatus and Equipment Symbols

5.781 The various letters and symbols used to indicate apparatus and equipment on wiring diagrams are indicated below.

<u>Symbol</u>	<u>Meaning</u>
B	Terminal nearest base of terminal strip. For terminal strips with two fanning strips, the terminal nearest the lower fanning strip shall be considered the one nearest the base.

<u>Symbol</u>	<u>Meaning</u>
B1	Terminal nearest panel or mounting plate (for 38 type resistances, varistors, etc.)
B2	Lug nearest base of terminal strip
E	Adjacent rows (perpendicular to the clamping strip) of terminals.
H (Panel System)	Terminal nearest brush rod looking at top or brush side.
J	Indicates manner in which a key is mounted. Used, for example, to mark "top end of key - key-shelf open" or "end of key nearer hinge looking at terminal side." J, J1, J2 etc., are used where several such notes are required on the same drawing. The use in each case is defined on the manufacturing drawing.
K	Top or left row (perpendicular to the fanning strip) of terminals.
K1	Top or left terminal on 203 and 700A type terminal strips.
K2	Top left terminal 224 type terminal strip looking at local cable side of strip.
K3	Bottom left terminal on 224 type terminal strip looking at local cable side of strip.
K4	Right-hand terminal lug looking at rear of terminal strip.
LL	Terminals of adjacent apparatus soldered together. For example, adjacent apparatus which is connected directly to each other by butting or overlapping the terminals.

6. WIRING ON WIRING DIAGRAMS

6.01 Gauge and Code

6.011 The gauge and code of all leads shown on a wiring diagram are specified. In most cases, the major operation of the wiring will be covered by a general manufacturing note No. 1 similar to the following:

"All wires including wires in switchboard cable will be (gauge and code) unless otherwise specified."

6.012 Manufacturing notes as required are provided to explain all wirings conventions such as ("lead in cable," "spliced leads," "shielded wiring," "connections furnished as part of apparatus," etc.

6.02 Pigtail Leads

6.021 Leads furnished with components are pigtail leads. These leads are not designated except as covered in Paragraphs 6.022 and 6.023. When pigtail components appear the leads are explained by means of a manufacturing note reading as follows:

"Leads shown terminated in components without terminals are furnished with components."

6.022 When Pigtail Leads are:

(a) Colored leads or, (b) pass through base lines.

The identification "PT" is used.

The "PT" Designation is explained by means of a manufacturing note reading as follows:

"PT" - leads furnished with component"

6.023 When pigtail leads require special treatment, the identification "PTa" is used. The "PTa" Designation is explained by means of a manufacturing note reading similar to the following.

"PTa" - denotes pigtail leads which shall be - etc."

6.03 Variable Wiring

6.031 Variable Wiring is wiring which is not constant; i.e., the running and/or the connecting is dependent upon the conditions controlling each application. These conditions may involve the selection of individual job requirements such as features and options or may involve manufacturing conditions only such as the number of the position of the circuit in a sequence of like circuits, etc. Wiring diagrams will include complete information on the conditions controlling the running and also on the conditions controlling the connecting of all "Variable Wiring". Wiring diagrams are prepared on the assumption that all "Variable Wiring" which is shown connected will be connected if that wiring and the associated apparatus are furnished unless restricted by limiting notes or options as described below:

(a) Variable Wiring Identified by Option Designations (Optional Wiring). The running and connecting information is provided by the option designations shown at each variable point of connection. Such leads are run and connected as specified in the wiring list.

(b) Variable Wiring not Identified by Option Designations. Except as covered below, limiting notes are shown at each termination explaining the conditions controlling the running and/or connecting of each variable lead.

EXAMPLES:

"Run on odd circuits only"
 "Run on register No. 4 only"
 "Run on 1st, 3rd, 5th, etc. trks."
 "Omit between 5th and 6th ckt."
 "Run between 1st and 3rd, 3rd and 5th, 6th and 7th, and 7th and 9th ckts."
 "Connect only when Figure 3 is specified"

6.032 Specific notes covering the running of "Variable Wiring" will not be provided in cases where lead colors are shown (the running information) is fixed at the other end of the lead by the controlling figure.

6.04 Circuit Numbers

6.041 The circuit numbers used in all wiring diagrams refer to the numbering shown on the associated manufacturing specification (unit numbering) rather than office numbering, unless otherwise specified.

6.05 Lead Designations

6.051 Wiring diagrams use the same functional designation for stub lead designations as schematic. Otherwise arbitrary designations are used. All switchboard cable leads will have functional designations. When spare switchboard cable leads that run between terminal strips are assigned to terminal punchings, the terminal punching number of the terminal strips at the controlling end is assigned as the functional designation.

6.0511 Cabling Diagram (CAD) Figures on schematic indicates the components to which leads are connected. While the component so indicated does not necessarily have to be that to which the lead is directly connected on the wiring diagram, it will usually be us.

6.06 "F" Stitches

6.061 "F" Stitches are provided:

(a) To differentiate between leads of the same color breaking-out at the same stitch even though the two leads may be of different gauge or code.

(b) Where a lead loops at a component to two different terminals in the same stitch.

6.062 When more than one "F" stitch is required, it will be identified on wiring diagrams as "F," "F1," "F2," etc., and will be assigned in that order from the regular stitch towards the tip of the local cable arm. "F" stitches will not be shown on selector bank wiring or on switchboard cable leads except when two or more switchboard cables terminated at a 203 or similar type terminal strip or when required to indicate the pairing of switchboard cable leads.

6.07 Leads to be Connected or Reconnected by the Installer

6.071 All leads which are to be run by the Shop and connected or reconnected by the installer will be designated in the body of the drawing with a reference to a manufacturing note. The leads will be shown connected if they are to be connected by the Shop and reconnected by the installer, and unconnected if they are to be left unconnected by the Shop for connection by the installer.

6.0711 If both conditions (connecting and reconnecting occur in a drawing, a separate note for each condition will be shown.) Included in the note will be a reference to the location of the affected wiring so that the wire may be readily located without searching the drawing. The following note is typical: (Leads shall be left long enough to reach any terminal on (A) transformer at App. pos. 5 to be connected by installer per Telephone Company information.)

6.08 Straps to be Added or Removed by the Installer

6.081 If the strap is variable, complete information as to the requirements controlling the furnishing of the strap and the termination will be provided. The information may be shown at the strap convention in the body of the wiring diagram or it may be shown as a manufacturing note (installer affected) with a reference to this note at the strap convention. When the strap is not variable no additional information on the running and connecting will be provided other than the "Ø" symbol when necessary. Whether the strap is shown connected at both ends or all possible connections are indicated schematically will depend on individual conditions.

6.09 Straps on Electron Tube Filament and Heater Current Adjustment Resistors

6.091 The current or voltage adjustment resistor of electron tube filament and heater circuits are shown unstrapped on the newer schematics. In such cases, wiring diagrams omit the straps so that the equipment will be shipped with the resistors in unstrapped. An installer affected note is, therefore, provided at the resistors similar to the following:

"Installer shall adjust strapping at the (A), (B) & (C) resistors, component locations 6, 7 and 8 as required during installation tests."

6.10 Leads Connected During Test

6.101 Leads designated "AT" are run and connected at one end by the shop; the other end being left unconnected during wiring operations for connection by the shop or installer during their respective testing operations. These leads are shown as connected and explained with a manufacturing note similar to the following:

Shop Installer

X		"AT" wires at (Component Id) shall not be connected until shop test AC complete"
X		"AT1" wires at (Component Id) shall be connected by the installer during relay and installation tests"
X	X	"ATR wire(s) at (Component Id) not to be connected until relay tests AC are complete."

6.11 Wire Symbols

6.111 The various letters and symbols used to indicate wiring on wiring diagrams are indicated below:

<u>Symbol</u>	<u>Meaning</u>
P	Paired wires.
Q	Quadruple wires.
CU	Coaxial shielded cable.

Symbol

Meaning

EU	Shielded, extruded polyethylene insulated wire (Pe). Usually No. 22 gauge type "BF" wire and shielded pairs in cables. For 750A to 753A, and 755A to 757A cable, symbols EU1, EU2 may be used as necessary. In all cases, the drawing note will specify the gauge of wire and code of cable.
RU	Shielded cable such as 720 (Mfr. Disc.) 754, 760 and 761 types. Unless otherwise specified 761A cable will be furnished. Where other than 761A cable is desired an equipment note on the schematic will specify the code of the cable required.
T	Triple wires.
TW	Wires twisted together.
U	Shielded wire (except insulated extruded polyethylene insulated wire (Pe)), usually No. 22 type P. For other gauges or types of insulation, symbols U1, U2, etc., will be used as necessary. In all cases, the drawing note will specify the gauge and code of wire.
1W	One conductor cross-connection wire.
2W	Two conductor cross-connection wire.
3W	Three conductor cross-connection wire.
4W	Four conductor cross-connection wire. (Spiral)
4W(P)	Four conductor cross-connection wire (Mult. Twin)

7. SWITCHBOARD CABLES

7.1 When wiring is run via a cable rack, either as switchboard cable or as wire, depending on the number of conductors required for a particular application, the conductors at the stubs are shown un-colored, enclosed in a cable symbol and designated as required to indicate gauge and code.

EXAMPLES: "22BU in cable or 22BH wire"
"20AM in cable or 20BH wire"
"20BH wire"

NOTE: The practice of showing a cable symbol enclosing leads which are always run as wire is not applied to:

Power Wire - Ordered in the Power Specification
1A Fire Detection Wire - Ordered in the 12 Specification
20VH Red Emergency Alarm Wire - Ordered in the Bulk Cable Specification

7.2 When wiring is run either as local cable or switchboard cable depending on termination, the conductors at the stubs are shown colored and enclosed in a cable symbol.

7.3 When wiring is run as "loose wire" to other terminations within the same bay or as switchboard cable to

terminations in other bays, the stubs are shown colored, enclosed in a cable symbol and designated as required to indicate gauge and type of wire and type of code of cable.

EXAMPLE: "24C or 24BU in cable or 24BW Wire."

7.4 All the leads which are required to be run only as switchboard cables are shown enclosed, with one or more cable symbols as needed to meet circuit designed requirements, for example, transmit and receive leads or leads requiring segregation.

7.5 When leads at two or more brackets on the same or on different drawings) are required to be run on a common switchboard cable, each cable will be designated with a symbol to indicate the association with other cable symbols which are to be run in a common cable.

The following methods are typical:

"Part of cable is shown in Figure 3"
 "Part of cable shown on T---, Figure 1"
 "Includes three leads shown on T---, Figure 6"
 "See other brackets"

A common designation will be used for two or more brackets and the symbols connected with a light line.

8. CONNECTING DRAWINGS

8.1 Engineering Note 52 will list under the heading "connecting drawings" all of the connecting drawings which are known or considered when the initial issue of the wiring diagram was prepared.

EXAMPLES: 52-Connecting Drawings
 Inc. Trk. Ckt. T-12345-30
 Oper. Tel. Ckt. T-90102-32,
 etc.

9. RECORD OF FIGURE AND OPTION CHANGES - TABLE B

9.1 A record of figures and option changes made is shown on the wiring diagram as Table B.

9.2 Automatic application of wiring diagram figures and options are indicated by means of suitable entries in the columns entitled "if office records do not specify" this option was furnished." In the above the term option includes both figures and options. In every case where the automatic application is dependent on whether or not a controlling figure was specified it will list the controlling figure in parenthesis, for example, Figure "HA" may be automatic when Figure "HB" is not specified but this is true only when the controlling Figure 2 is specified. An additional entry is sometimes made to explain the automatic application of an option which is enclosed within another option. For example, if the laboratories break their "X" option out of a schematic

and this "X" option includes "E" option representing the previous condition and "F" option representing the new condition the item will appear as follows:

Choice on Issue	If Office Records		
	Specify	Do not Specify	This Option was furnished
4	X	F	E

9.21 When the looping of leads at unequipped component positions identifies a schematic option which is not designated on the wiring diagram the item is edited as an automatic option, for example: if the wiring diagram shows "L" components with certain associated connecting leads designated "LP" the looping of these leads when "L" components are not furnished constitutes "M" wiring on the schematic.

10. RECORD OF SCHEMATIC DRAWING ISSUES WITH EQUIVALENT ISSUES OF WIRING DIAGRAMS (TABLE A)

10.1 Sheet Index Table (Table A) lists all the sheets which have been issued for a drawing. This table also shows the record of equivalent issue between the BTL Schematic and WE Co. Wiring Diagram Sheets.

10.2 The designation "MOD" is shown with a schematic issue number only when there are deviations between a wiring diagram and schematic issue other than the omission of intervening schematic issues. Whenever the designation "MOD" is applied in a sheet index table, an engineering Note No. 76 is shown explaining the deviation from the schematic issue.

10.3 Omission of Schematic Issues

10.31 If it is necessary to omit certain schematic issues from a wiring diagram, the highest schematic issue is shown which is included with the designation "omit" (issue number).

10.32 In cases where it is impracticable to list all of the omitted schematic issues in a sheet index table space, it is covered by showing the highest schematic issue which is included with the designation "Note 77" and an engineering Note No. 77 is added listing each omitted schematic issue.

11. SHEET INDEX NOTES

11.1 The sheet index notes appear on the first sheet on which the sheet index table appears.

11.2 When changes are made in a drawing, only those sheets affected will be reissued.

11.3 The sheet index is reissued and brought up to date each time any sheet of the drawing is reissued, or a new sheet is added.

11.4 The issue number assigned to a changed or a new sheet is the same issue number as that of the sheet index.

11.5 Sheets that are not changed retain their existing issue number.

11.6 The last issue number of the sheet index is the latest issue number of the drawing as a whole.

12. TABLE OF FEATURES AND OPTIONS (TABLE E)

12.1 Common features are identified by numbers and optional features by letters and explain with an engineering note as follows:

"Items designated with numbers are common features, items designated by letters are optional features."

12.2 Each item, figure and option which is not covered by the associated Equipment Manufacturing Specification is indicated by an asterisk and explained with a note reading as follows:

"Items designated with an asterisk contain figures or options required but not covered on associated standard Equipment Manufacturing Drawings."

13. NOTES

13.1 Manufacturing Notes

13.11 Notes under this heading cover information required by the Shop and Installer which is not considered practicable to include in the body of the drawing. This includes information such as the explanation of all symbols used in the drawing, size gauge and insulation of wiring etc.

13.12 As a general practice, references to specific manufacturing notes are shown at the affected figures or leads and the figures, component designation or location numbers are mentioned in the notes to permit ready reference without searching the drawing. When the note covers a variation in wiring depending on testing requirements which is covered in detail on the schematic, included in the note is a phrase such as "to be connected by the (Shop) or (Installer) during (Shop's) or (Installation's) test."

13.2 Engineering Notes

13.21 Notes under this heading cover information associated with the wiring diagram for the use of the engineer. This includes: lists of connecting drawings, a reference to an associated equipment drawing when such a drawing is available, etc.

13.22 A reference to the associated standard specification drawing is shown in all cases where such drawings are available. Manufacturing dash numbers of J Specifications may be omitted in certain cases. If more than one arrangement exists, all drawings are listed with title identification.

14. AUTOMATIC CHANGES ON WIRING DIAGRAM

14.1 Automatic changes cover improvements in the design of wiring diagrams which do not affect existing orders and are made only when changing drawings for other reasons, except those rate "Mfr. Disc."

14.2 Automatic changes are arranged in groups, the groups being designated by letters "A," "B," "C," etc., in order to provide a means of indicating of wiring diagrams the extent to which the drawings agree with the list of changes.

15. WIRING DIAGRAM - SCHEMATIC CROSS - REFERENCE TABLE C

15.1 Table "C" the wiring diagram - schematic cross-reference table is a tabular chart showing the relation between wiring diagram and schematic figures and options.

15.2 Certain kinds of wiring diagram figures and options cannot be translated into schematic data. In addition there exists certain wiring diagram figures, the translation of which into schematic data is not required by the telephone company.

15.21 The following are examples of wiring diagram data, the translation of which would be either impossible or misleading:

- (a) Wiring only figures which require components in order to function.
- (b) Universal wiring which may be equipped in accordance with two or more different drawings or figures.
- (c) Optional wiring which is furnished and connected at one end to a common (nonoptional) component, but the associated optional component is not furnished.
- (d) Locally assigned options which have no counterpart in the schematic.

15.22 Since office records covering the application of the following kinds of figures and options are not required by the Telephone Companies; these figures and options are not to be listed in the cross-reference tables.

- (a) Cross-connections
- (b) External circuit connections such as battery or ground supply when they are part of the internal wiring of a unit or panel.
- (c) Options for which office wiring list records are not required ("Nonrecord" Options).

15.3 The schematic figures, options, or figures and options which are furnished either wholly or in part whenever that wiring diagram entry is specific is listed opposite each wiring diagram entry. "J" specification numbers on "J" specification numbers and lists are entered under "Remarks" information in order to determine which options were furnished on old jobs. If the "J" specification does not furnish positive information as to which condition was furnished on specific jobs because of because of the method used in changing the "J" specification, or if the equipment was not ordered per Standard specification, this will be indicated under "Remarks."

15.4 Dashes (-) are shown in the schematic columns opposite wiring diagram options in all cases where schematic information is not furnished, and explained under "Remarks."

15.5 No attempt is made to describe the portion of a schematic figure or option included in a wiring diagram entry in cases where that entry does not include the entire schematic entry.

15.6 Each wiring diagram figure and option is listed on separate lines.

15.7 Any data which is shown for information only, is enclosed in parenthesis and is not recorded on the job wiring list drawing.

EXAMPLES:

<u>Schematic</u>		<u>Wiring Diagram</u>			<u>Remarks</u>
<u>Fig.</u>	<u>Option</u>	<u>Fig.</u>	<u>Wrg.</u>	<u>App.</u>	
	X	(1)	X		
(3)	J	(3)		J	
(CAD1)		H1			

The interpretation of these entries is as follows:

"X" wrg. of wiring diagram Figure 1 is equivalent to "X" option of the schematic.

"J" app. of wiring diagram Figure 3 is equivalent to "J" option of Figure 3 of the schematic.

Figure H1 of the wiring diagram is equivalent to cabling Figure CAD1.

15.71 Parentheses are also used to indicate the controlling figure in cases of automatic application.

15.72 Parentheses (when used) are explained by means of a note reading as follows:

"() Items in parentheses are for information only and are not to be recorded on job wiring list drawings."

No arrows are shown due to extensive changes

16. EQUIPMENT LOCATION SKETCHES

16.1 Equipment location sketches provide a ready reference to indicate the mounting plates or the portion of mounting plates of units or bays with which each "B" sheet of the wiring diagram is associated. The sketch is normally only added on wiring diagrams associated with large units or with bays, frames, etc.

17. SHEET LOCATION OF FIGURES, WIRING AND APPARATUS - TABLE D

17.1 Table D is a tabular chart showing the Sheet location of figures, wiring and is prepared for all wiring diagrams using the multisheet format.

18. INTERRUPTER REQUIREMENT TABLE - (TABLE J)

18.1 An Interrupter Requirement Table is to specify the Interrupter requirements of the circuit.

19. CABLING TABLE (TABLE G)

19.1 A cable table is prepared when required for all cables with a cable designation. Each cable is assigned an item number starting from 1 up.

20. FUSE REQUIREMENTS TABLE (TABLE F)

20.1 A fuse Requirements table is prepared when required to specify the fusing requirements of the circuit.

21. DISTRIBUTING FRAME REQUIREMENTS TABLE (TABLE H)

21.1 A Distributing Frame Requirements Table is prepared when required to specify the distributing frame requirements on the circuit.

Manager, Engineering Practices