

**STANDARD DRAFTING PRACTICES
FOR THE PREPARATION OF
WIRING DIAGRAMS**



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STANDARD DRAFTING PRACTICES
FOR THE PREPARATION OF
WIRING DIAGRAMS

1. GENERAL

1.01 This specification, together with the supplementary information herein referred to, covers the standard drafting practices for the preparation of wiring diagram drawings. It also contains useful tabulated information for the draftsman in making up these drawings.

Engineer's Responsibility

1.02 The engineer will be responsible for furnishing new and revised drawing information to the draftsman. This information should be originated in the form of a standard drawing order, properly approved. The drawing order may include complete information with or without reference to other drawings such as schematic, equipment, local cable, and connecting drawings, and any other information which may be of assistance in preparing the drawing. The information, however, should be sufficiently comprehensive so that the draftsman may proceed without unnecessary loss of time.

1.03 After a drawing order has been originated, all subsequent changes made by the engineer should be covered by supplementary orders. Where such changes are made verbally, they should be confirmed by supplementary drawing orders.

1.04 The engineer will also be responsible for the following:

(a) That information is furnished relative to the gauge of wire, source of ringing current, and standard and other explanatory notes covering the use of figures and conditional wiring.

(b) That the arrangement of apparatus, cabling, and wiring agree with the requirements specified by the customer and standard or special practices.

Draftsman's Responsibility

1.05 The draftsman shall be responsible for the following:

(a) That the size, form, and general arrangement of the drawing is in accordance with the requirements covered herein unless otherwise specified.

(b) That the drawing conforms with the schematic and standard practices such as apparatus and cable conventions, colors of wires, manufacturing notes (when the operation of the circuit is not affected).

(c) That designations of leads to connecting or associated circuits are in agreement and that designated wires on the circuit are in agreement with associated manufacturing and engineering notes.

(d) That drawing numbers are listed of schematics and Telephone Company's drawings from which the wiring diagram was made as well as the drawing numbers of connecting and associated drawings.

1.06 After completion of a drawing the draftsman shall send the drawing together with the drawing order, and supplements if any, and all attachments thereto to the drafting checker.

1.07 Checking all wiring diagrams carefully will often eliminate a large number of installer's complaints and unnecessary additional expense.

Supplementary Information

Drawings

ES-223291 - Grounding - Toll Switchboards
ES-378383 - Grounding - Lead Covered Cables
SD-66197-01 - Grounding - PBX
SD-80426-01 - Grounding - Toll
T-622406 - Grounding - Toll

Specifications

M-32463 - Manufacturing Information for Shielded Wire
X-62604 - Drafting Practices for the Preparation of Assembly, Equipment, and Cabling Drawings
X-62724 - Drafting Information for Circuit Schematic Drawings
BSP AA610.003 - Gauge and Insulation of Wire
BSP AA612.001 - Wiring Symbols, Wiring Abbreviations, and Definitions
BSP AA612.002 - Airline System of Depicting Wiring Diagrams
BSP AA612.005 - Wiring and Cabling, Forming, Fanning, Sewing, and Skinning
BSP AA612.013 - Strapping
BSP AA612.015 - Color Combinations and Uses, Wiring and Cabling
BSP AA612.019 - Wiring and Cabling, Crossbar Type Equipment
BSP AA613.001 - Abbreviations and Symbols Used in Designating Central Office, PBX, and Power Equipment
BSP AA618.201 - Assembly and Installation of Power Plant Bus Bar and Wiring
KS-5482 - Manufacturing Information for Flame Retarding Power Wire and Cable
KS-7133 - Manufacturing Information for Rubber Insulated Cordage

2. GENERAL REQUIREMENTS

Form

- 2.01 Drawings shall be so planned that they may be accommodated by the standard tracing forms provided for this purpose.
- 2.02 All wiring diagrams to be used for a trial installation shall be drawn on pencil tracings.
- 2.03 Title box, notes, and approval column shall be arranged as shown on page 19.
- 2.04 The issue column shall cover a brief but complete record of all changes made on the tracing. In no case shall the issue columns show "changed per engineer's marked print" or "redrawn due to extensive changes". When it is necessary to continue the issue column on a drawing the words "continued at A" or B, etc. shall be shown at the bottom of the issue column.

Layout Planning

- 2.05 The draftsman shall familiarize himself with the circuit. The schematics shall be analyzed, cross-connections checked, and all notes carefully read. Any question that may arise such as source of ground, ringing supply, number of figures required, etc., shall be taken up with the engineer before proceeding. The layout of equipment shall be checked against the schematic to see that all equipment is accounted for.

Apparatus Layout

- 2.06 The figures listed herein are specific and shall be arranged on drawings in accordance with the equipment layout. No space shall be reserved on a tracing (specification sheets included) for additional figures unless it is certain that the additions will be made before the drawing is issued. Any request for deviations to this rule or from the information and practices set forth in this specification shall be referred to the drafting supervisor.
- 2.07 The apparatus shall be arranged in the same general order as that shown on the equipment drawings, looking at the terminal or soldering side of the equipment. The equipment on the individual mounting plates shall be shown at different levels.
- 2.08 Apparatus wired from the front of a panel or frame shall be shown above or to one side of apparatus wired from the rear, and shall be designated by a bracket reading: "Apparatus wired from front of panel or frame".
- 2.09 Where the apparatus mounts in a vertical row on a group of mounting plates with a vertical cable arm, it may be shown in a vertical row in the actual order in which it is mounted, provided the size of the drawing will permit; otherwise, the apparatus may be shown in two or more vertical rows. THE TOP SECTION TO BE SHOWN AT THE LEFT.

2.10 Where the apparatus mounts in a horizontal row as on a mounting plate it may be shown in a horizontal row in the actual order in which it is mounted, provided the size of the drawing will permit; otherwise, the apparatus may be shown in two rows from left to right as though the mounting plate was made in two sections, THE LEFT SECTION SHOWN ABOVE THE RIGHT SECTION.

2.11 The above requirements may be disregarded on miscellaneous circuits, auxiliary signal, supervisor's telephone, and miscellaneous alarm circuits where it would not be feasible to follow the arrangements specified.

2.12 Where it is necessary to connect or double up a lead in a handmade cable with a lead in a switchboard cable, or to terminate one end of a lead in a triple or pair, an "insulated terminal" shall be shown located at a position adjacent to the apparatus at which the cables meet or where the triple or pair terminates.

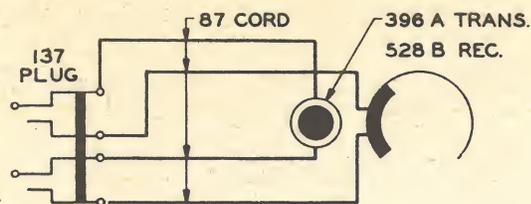
2.13 In order to properly associate the mounting of keys with their arrangement on the equipment drawing, one end of the key shall be indicated by the letter "J" on the wiring diagram. The purpose of the letter "J" is explained in a manufacturing note which is shown on the drawing. Where keys are shown in various ways on the same drawing, a number shall be added to the letter such as "J1", "J2", etc. Each of the designations shall be properly explained in a manufacturing note. (See page 4.)

2.14 The operation of key levers is indicated on the key top diagram shown on the schematic drawing. In the case of "splitting keys" where the operation of the key lever is not indicated, the key lever shall operate away from the operator to talk on the "A" cord and toward the operator to talk on the "C" cord, unless otherwise specified. (See page 26.)

2.15 Key top diagrams for all keys except E1 and individual push button keys, shall be shown on wiring diagrams under engineering notes. (See page 19.)

Figures

- 2.16 Wiring diagrams may be arranged in figures in order to provide flexibility in covering variable conditions.
- 2.17 On all wiring drawings, except circuit labels, subtitles for figures shall be as shown in Sketch A.
- 2.18 Lettered figures shall include optional or variable wiring and apparatus which form a part of a numbered figure.
- 2.19 The optional or variable features covered by lettered figures on wiring diagrams shall be properly explained under engineering notes such as "Specify Fig. A for Flashing Recall"
- 2.20 Numbered figures shall include a complete division of the circuit. The main figure shall be designated "Fig. 1" in all cases. The



OPR'S. TELEPHONE SET

SKETCH A

divisions of the circuit covered by the numbered figures shall be shown immediately over the figure number. See Sketch A.

Apparatus Codes

2.21 Code numbers shall be conspicuously located at the various pieces of apparatus as shown on pages 21 and 25.

2.22 Code numbers of special apparatus covered by "D" specifications shall be shown as follows:

18 RES PER D- R REL PER D-

2.23 The abbreviation "No." instead of the number symbol (#) shall be used.

Designations

2.24 The designations shown for the apparatus on wiring diagrams shall correspond with those shown on the schematic drawings and shall be located in accordance with pages 21 and 25.

2.25 Stamped designations shall be shown in parenthesis. Designations in [] are for wiring information only and are not stamped.

2.26 In case apparatus, which is associated with a fundamental part of the circuit (such as tip and ring condensers), is not designated on the schematic drawing, such apparatus shall be designated on the wiring diagram to agree with the division of the circuit with which it is associated. Where two or more pieces of apparatus, having the same code numbers, are shown (and not designated on the schematic drawing) they shall be designated alphabetically or functionally for identification purposes.

Redraws

2.27 The drafting practices covered in this specification shall be employed on redraws, provided the expense involved in redrawing is approved by the engineering group supervisor.

2.28 The draftsman shall mark the old tracing "void", as shown on page 19. The marking shall be made in pencil and changed to ink when the new tracing is approved.

3. AIRLINE SYSTEM

3.01 In the airline system, each individual piece of apparatus (each group in some

cases) is numbered and the lines representing the individual wires from each piece of apparatus are carried a short distance and terminated at a common or base line, at an angle of 90°. These individual lines between apparatus and base lines are called feed lines. Each feed line is also numbered to correspond with the identification number of the piece of apparatus at which the other end of the connection terminates. It is not necessary to follow a connection through the base line and no provision is made for doing so. However, by observing the color and identification number included with the feed line, it is possible to jump directly between pieces of apparatus; hence the term "airline". Base lines are not used for relatively simple figures.

3.02 A typical wiring diagram, illustrating the airline system, is shown on page 21. More detailed information is covered in BSP AA612.002.

4. CIRCUIT LABELS

4.01 Circuit labels are made with the intention of affixing them to some part of the equipment casings or covers, therefore, the label must be restricted to the size of the space reserved for mounting them. As the labels are small in size the original drawings are made for reduction to the final size.

4.02 The size of conventions, lettering, and linework and the general form of the label are shown on page 22. A typical circuit label is shown on page 23.

4.03 When the condition permits, one figure shall be shown for the first, intermediate, and last figure of a series with the accompanying conditional wiring.

4.04 Schematic reference drawings from which the circuit label is made shall be listed above the title box and within the label as shown on pages 22 and 23.

4.05 The circuit requirements table and method of operation may be shown on a separate label or they may be made a part of the label with the circuit as shown on page 22.

4.06 The size of lettering and weight of lines used on the master tracing for reduction to the label size, are indicated by the tables on page 22.

4.07 When the reduction ratio required for the master tracing is not listed in the tables for weight of lines, size of lettering, etc., the ratio for the nearest reduction shall be used.

5. ENGINEERING NOTES

5.01 These notes list the circuit, equipment, local cable, bay layout, and connecting wiring drawings that are used in composing the wiring diagram. The various circuit features indicated on the circuit drawing are shown on the wiring diagram in separate figures, the particular figures required and the feature they produce or effect are specified in one of these notes such as "Specify one Fig. 1, 2, and 3 for

each station". These notes are shown on the drawings in the space reserved for them as shown on page 19.

6. MANUFACTURING NOTES

6.01 The following list of notes show the standard wording for manufacturing notes which are shown on the drawings in the space reserved for them as shown on page 19. Only those notes applying to the circuit and equipment involved on any particular drawing are required to appear on that drawing.

1. "A" denotes leads in handmade roof cables.
2. "B" terminal punching nearest base of the terminal strip.
3. (a) "C" wiring in separate cable form sewed to outside of regular cable form for electrical reasons.
 (b) "C1" wiring, boiled in wax, taped, shellacked and run in separate cable form for electrical reasons and placed inside of the regular cable form, when to run on the outside of the form would interfere with the hinge action or other required movement of the regular form.
 (c) "C1" forms composed of lacquered wire need not be boiled in wax.
 (d) "C2" wiring in separate cable form sewed to outside of regular cable form for electrical reasons and not run in same form with other "C" wiring.
 (e) "C4" wiring carrying commercial power within a unit which must be kept separate from other wiring.
4. (a) "D" wiring shall be (color) (gauge) (type) wire, not to be sewed in the cable form but run perpendicular and parallel to edges of the mounting unit, in the shortest possible manner.
 (b) "D1" wiring shall be (color) (gauge) (type) wire run directly from terminal to terminal in the shortest possible manner and independent of all other leads.
 (c) "D2" wiring shall be (color) (gauge) (type) wire not to be sewed in the cable form, generally dressed back against the mounting plate or panel, but to be run as indicated.
5. "E" denotes adjacent rows of punchings.
6. "F" bring from cable format separate stitch.
7. "H" terminal nearest brush rod looking at top or brush side (panel system).
8. (a) "J" top end of key looking at terminal side, keyshelf open.
 (b) "J" bottom or left side of key looking at terminal side.
 (c) "J" end of key nearer hinge looking at terminal side.
 (d) "J" top end of key looking at terminal side.

- (e) "J" right end of key looking at terminal side.
- (f) "J" top or left side of key looking at terminal side.
- (g) "J" right end of key looking at terminal side keyshelf open.
- (h) "J" end of key nearest front of position (when mounted on flat top table and wired from underneath the table).
9. (a) "K" top or left row of punchings.
 (b) "K1" denotes top or left terminal on strip (203 type).
 (c) "K2" top left terminal on D-98153 terminal strip looking at local cable side of strip.
 (d) "K3" bottom left terminal on D-98153 terminal strip looking at local cable side of strip.
10. Place "L" strap on first equipped circuit of group only.
11. (L) denotes live leads to be insulated when not connected, as follows:

FIG	APP	COLOR	FIG	APP	COLOR
1	RES (A)	R-O	A	COND (PL)	R-W
2	RES LP (F)	Y-G	B	RES (C)	R-G

12. "LP" loop and do not cut when apparatus is wired only.
13. "P", "P1", and "P2" denotes pair
14. "PT" denotes leads furnished as part of apparatus.
15. "Q" denotes quadruple.
16. "RU" denotes shielded rubber covered wire (720 cable).
17. Leads designated "SS" shall be surface strapping used on terminal strips as distinguished from strapping run near the base of terminals.
18. "SW" denotes surface wiring terminations which shall be run with 22SCB wire colored green unless otherwise specified.
19. "T" denotes triple.
20. "TW" denotes wires twisted together.
21. Leads designated "U" shall be 22 EDSCL wire shielded per M-32463.
22. Colors of jumpers on each 6 point row on D.P.C.T.S. starting with punching nearest base to be as follows:

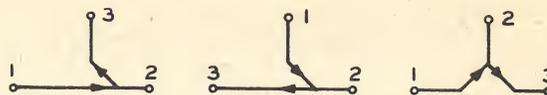
Punching 1	- R	4	- BR-R
2	- R-G	5	- S
3	- BR	6	- S-R

- 23. For method of operation see CD-
- 24. Furnish () and () wiring when specified.
- 25. Furnish () and () wiring and apparatus when specified.
- 26. Furnish () wiring and apparatus and () wiring when specified.
- 27. Hairpin loops shall be run by installer or shop.
- 28. Leave these leads long enough to connect to any terminal on condenser, transformer, etc.
- 29. Omit on first circuit of group.
- 30. The knurled side of the plug shall be considered as the tip.
- 31. Wires not otherwise specified shall be (Specify gauge and insulation).
- 32. (a) 1W One conductor jumper wire.
 (b) 2W Two conductor jumper wire.
 (c) 3W Three conductor jumper wire.
 (d) 4W Four conductor jumper wire. (Spiral).
 (e) 4W(P) Four conductor jumper wire. (Multiple Twin)

-  Denotes cable.
-  Denotes splice.
-  End of wire shield. (Treatment to be as indicated by the connecting lead).
-  Riser to level of apparatus.
-  Standard strapping furnished with apparatus.

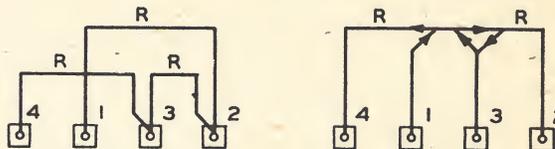
7. MANUFACTURING SCHEMATICS

- 7.01 This type of drawing is a combination wiring diagram and schematic. The engineer shall determine whether a manufacturing schematic or a wiring diagram shall be issued.
- 7.02 When a manufacturing schematic is to be issued, a reproduction of the schematic drawing (or portions thereof required for manufacturing purposes) shall be ordered, or when too many changes are required a new drawing may be made except that numbers, letters, and doubling up points shall be added to the relay conventions. The key conventions shall be arranged in accordance with wiring diagram practices. Battery and ground connections shall be shown in schematic form.
- 7.03 The following notes and sketches shall be shown as manufacturing notes:
 - 1. Starting at any terminal trace lead consistently with arrows, or against arrows to end of lead.
 - 2. Do not make a reverse turn (switchback).
 - 3. Doubling up points are shown in Sketches B and C.



SKETCH B

In this example, lead runs from terminal 1 to terminal 2 to terminal 3.



SKETCH C

In this example, lead runs from terminal 1 to terminal 2 to terminal 3 to terminal 4.

8. MODIFICATION DRAWINGS

- 8.01 This type of drawing is issued to modify existing wiring and equipment.
- 8.02 Modification drawings, which show undesirable practices such as splicing of leads, etc., shall not be specified on new equipment. When a modification drawing is satisfactory for use on new equipment it shall be so indicated by means of an engineering note on the drawing. The practice of specifying modification drawings on new equipment shall be restricted as far as practicable, since wiring record drawings and inspection or test methods are not prepared for such drawings.
- 8.03 The notation "MOD" shall be added following reference to the "ES Dwg." being modified i.e. "Made from B.T.Labs'. ES-12345-01, Iss. 1 (MOD)".
- 8.04 Modification notes shall be shown on wiring diagrams whenever the circuit does not agree with the schematic from which the wiring diagram originated. The modification notes shall describe the feature omitted, added, or changed rather than the detailed differences. Example: "Modification of B.T.Labs'. ES-12345-01, Iss. 1, consists of adding 90A cond. in each of the Tip and Ring Leads".
- 8.05 A separate wire list shall be shown in table form similar to Tables A, B, C, and D.

LIST OF APPARATUS, CABLE, AND WIRE REQUIRED FOR MODIFICATION			TITLE BOX
X		16 ESLB	
	1	6062 CABLE	
	1	E6123 REL	
FIG. 2	FIG. 1		BELL TELEPHONE

X INDICATES NUMBER OF FT. OF WIRE REQ.
TABLE A

WIRING TO BE CUT DEAD ON T-12345-30 TO AGREE WITH THIS DRAWING				
22 DSCL				
COLOR	FROM	TO	FIG.	REMARKS
R-O	REL (L)	REL (SL)	1	DISCONNECT, TAPE AT POS. (L) REL.
R-W	REL (CO)	REL (L)	1	

TABLE B

WIRING TO BE RECONNECTED ON T-12345-30 TO AGREE WITH THIS DRAWING			
COLOR	LOCATION	FIG.	REMARKS
BK	REL (B)	1	
R-G	REL (SL)	1	
R,O	REL (G)	1	SPLICE

TABLE C

ADDITIONAL WIRING REQUIRED TO MODIFY T-12345-30 TO AGREE WITH THIS DRAWING				
22 DSCL				
COLOR	FROM	TO	FIG.	REMARKS
R-G	RES (C)	REL (SL)	1	"L" wiring per 4 Ckts.
BL & BL-W "P"	RES (A) & (B)	REL (L)	1	
R-W	REL (R1)	REL (TP)	3	
16 ESCB				
BK-R	RES (E)	REL (T)	1	1 per 4 Ckts.
STRAP	REL (D) TERM 1	REL (D) TERM 2	1	"X" STRAP
22 EDC CABLE LEADS	REL (CO)	REL (D)	1	2 LEADS

TABLE D

9. STRAPPING AND LOOPING PRACTICES

General

9.01 Strapping is the process of connecting two or more terminals on the same or adjacent apparatus by means of bare or sleeved wire for the purpose of supplying battery or ground to the apparatus or to serve as a common lead for testing, listening, or other purposes. Method of strapping and gauge of wire used are covered in BSP AA612.013.

9.02 Strapping furnished with apparatus shall be shown in solid lines.

9.03 When strapping is required and loop leads are to be used, the color and gauge of the wire shall be shown. If strap wire is to be used no color is to be shown. When a common strap is used, it shall be indicated by a short oblique line at the apparatus terminal as shown on page 21, apparatus number 72.

9.04 Hairpin loops serve the same purpose as straps except that colored wire is used and they are not run in the cable form.

Hairpin Loops

9.05 Unless otherwise specified, hairpin loops shall be applied as follows:

- (a) On terminals of a sequence switch wired from same stitch in cable form.
- (b) On terminals in a horizontal row of selector banks.
- (c) Terminals of same key unit in toll system circuits.

Looping

9.06 Looping shall be applied as follows:

- (a) Jacks with staggered terminals shall be looped.
- (b) Trunk group keys with non-adjacent transfer scheme, and keys with movable springs shall be looped between springs of same unit.
- (c) Loop leads shall be used for multiplying keys except where harmonic ringing is used, in which case straps are used.

Strapping

9.07 Strapping shall be applied to terminals of apparatus as follows:

- (a) In general, terminals of same piece of apparatus, strapped from left to right and from bottom up.
- (b) Adjacent terminals of a vertical row, or arc, of a selector bank.
- (c) Adjacent jacks of same strip.
- (d) Springs of same key unit.
- (e) Adjacent key units of same key.
- (f) Adjacent ringing keys.
- (g) Adjacent switchboard lamps of same strip.
- (h) Battery or ground leads serving both "call" and "ans." lamps shall be run from left terminal of right lamp to right terminal of left lamp. Strap common leads for all "call" lamps in same position together, and all common leads for "ans." lamps together. Run an "L" strap between the two groups on first equipped circuit.
- (i) Resistances and condensers in adjacent equipment positions.
- (j) Corresponding terminals of relays in adjacent equipment positions when all relays are of same code on mounting plate.
- (k) Two relays mounted adjacent and served by one vertical cable arm shall be considered as one relay for strapping and looping purposes.

10. UNIVERSAL WIRING

10.01 Universal wiring is a term applied to the process of providing proper wiring and stitches on a local cable for use on an immediate installation and where apparatus may be added at some future time without altering the local cable in any way.

10.02 Where wiring is arranged for a circuit condition for which apparatus will be furnished at some future time, wires are looped or left dead at the position at which the apparatus may be added.

10.03 When wiring diagrams are to be arranged for universal wiring, the following procedure shall be followed:

- (a) Where minor wiring and apparatus changes are required, the complete information shall be shown on one circuit drawing by means of optional figures.
- (b) Where minor wiring and major apparatus changes require more than one drawing the colors and arrangement of leads common to all drawings shall correspond.
- (c) Where major wiring changes are required the procedure prescribed in item (b)

shall be followed, except that an additional drawing known as a universal wiring diagram shall be prepared which shall show the wiring (in diagram form) for all circuits. In general, the individual circuit drawing associated with a universal wiring diagram shall not be used unless the corresponding universal wiring diagram is specified.

11. WIRE COLORS

11.01 The colors, as used for leads, shall be abbreviated as follows:

BK - Black	S - Slate	R - Red
BL - Blue	G - Green	W - White
BR - Brown	Y - Yellow	N - Novelty
	O - Orange	

11.02 Colors, in the following lists, indicated with an asterisk (*) are to be used in preference to those not marked.

11.03 Color schemes are provided for specific leads appearing on the more common circuits. The colors assigned to battery, ground, and other leads for power sources should not be used for other purposes.

11.04 A general color scheme which should be used whenever possible is as follows:

- (a) Signal circuits shall be wired with red or some combination of the same color.
- (b) When two or more wires are connected to the same terminal they shall be the same color.
- (c) A single or solid color is used on tip, ground, or positive side of circuit; and multiple colors are used on ring, battery or negative side of circuit.

11.05 Color Schemes: The selection of colors, assigned to particular leads that are common to any number of similar circuits, constitute a color scheme. Where these colors are assigned they should be used explicitly. Color schemes for several gauges of wire are shown.

16 Gauge Wire Color SchemeGeneral

Singles or Pairs

BK	ground	Y	ground extended
BK-R	battery	Y-G	battery extended

20 Gauge Wire Color SchemeGeneral

Singles or Pairs

BK	ground	Y	ground extended
BK-R	battery	Y-G	battery extended

Cord Circuit

Singles

BK-R	P.U. bus bar to res. lamp, common bat. lead
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Singles (Cont'd.)

Y-G (PU) rel. to res. lamp
 BR Loop wire for + lead to CC ckt.
 BR-R Loop wire for - lead to CC ckt.
 S Loop wire for message reg.

Pairs

Y & Y-G Loop wires at key for ringing (see ring. ckt. for corresponding leads)

Triples

Y, Y-G, & R-G Loop wires at key for ringing (See ring. ckt. for corresponding leads)
 Y, R, & R-G (See ring. ckt. for corresponding leads)

Quadruple

Y, Y-G, R, & R-G Loop wires at key for ringing (see ring. ckt. for corresponding leads)

Cord Circuit Howler

Pairs

BK & BK-R Rep. coil to bus bars
 BR & BR-R Key to howler app.

Coin Control Circuit

Singles

BK 110V + bus bar to (+) res. lamp
 BK-R 110V - bus bar to (-) res. lamp
 Y (+) res. lamp to (C) rel., T.R.T. bus bar to (C) cond.
 Y-G (-) res. lamp to (R) rel., T.T. bus bar to (R) cond.
 BR (+) lead to cord or trk. ckt. (C) cond. to tone rel.
 BR-R (-) lead to cord or trk. ckt. (R) cond. to tone rel.
 S "C" lead to cord or trk. ckt.
 S-R "R" lead to cord or trk. ckt.
 R-G Loop wire to (C) rel. to (R) rel. to tone rel. to lamp.

Operator's Telephone Circuit

Singles

Y-G (RBT) pchg. to (RBT) term. on FBD

Pairs

R & R-G Ind. coil to varistor
 Varistor to opr. jk.
 BR & BR-R Opr. jk. (A) & (B) to jks. (C) & (D) Cond. (P) thru ind. coil to jacks for trans.
 BK & BK-R Cond. (P) thru ret. coil to bus bars

Quadruple

Y, Y-G, R, & R-G Supv. opr. jacks

Ringling Circuit

Singles

Y G grd. }
 R R1 ring one } 4 party semiselective
 R-G R2 ring two }
 S-R Rel. lead }

Pairs

Y 1-G grd. } alt. ring single
 Y-G 2-± alt. } and 2 party

Triples

Y 1-G grd. } Superimposed
 R 3-±+ alt. & pos. } ring 4 party
 R-G 4-±- alt. & neg. } selective
 Y 1-G grd. } Superimposed
 Y-G 2-± alt. } ring straight &
 R-G 4-±- alt. & neg. } 4 party selective

Quadruples

Y 1-G grd. } Superimposed
 Y-G 2-± alt. } ring straight &
 R 3-±+ alt. & pos. } 4 party selective
 R-G 4-±- alt. & neg. }
 Y 1-G grd. }
 Y-G 2-± alt. } Straight & 4 party
 R 3-+ pos. } pulsating ring
 R-G 4-- neg. }

5 Wire Twist

BK G-GRD)
 Y-G 16 }
 Y 33 } Harmonic Ringing
 BR-R 50 }
 BR 66 }

22 Gauge Wire Color Scheme

General

Singles

BK ground
 BK-W battery
 R-O battery

Pairs

BK ground
 BK-W battery
 R ground extended
 R-W battery extended

Cord Circuit

Singles

R Sleeve of ans. cord, loop wire for grd. and "C" lead to CC ckt.
 R-W Sleeve of call cord, loop wire for aux. lead and "rel." lead from ring ckt.
 R-BL Supv. rel. to res., loop wire for R. B. T. lead
 R-O Individual battery
 R-G Ans. lamp, loop wire for "R" lead to CC ckt.
 R-BR Loop wire for "MC" lead to tel. ckt.
 R-S Call lamp

Pairs

BK & BK-W Loop wires for "T" & "R" or "TL" & "RL" leads to tel. ckt. at key. Key to rep. coil for bat. on rear cord and cond.
 BL & BL-W Rear cord extended aud. ring cond. to key, rep. coil, or conn. rk.
 BR & BR-W Key to rep. coil for bat. on front cord and cond.
 G & G-W Front cord ext. ring rel. to ring back cond. T & R cord to aud. ring cond.
 O & O-W Ans. cord, cond. assoc. with ans. cord when outside of sect.

Pairs (Cont'd.)

R & R-W Ringdown rel. across line, splitting key for talking on rear cord to (TC) & (RC) res.
 S & S-W Call cord, cond. assoc. with call cord when outside of sect., ring. rel. to ring back cond.
 R-G & R-S Ring key to ring rel., splitting key for talking on rear cord to (TC) & (RC) res.
 BK-BL-W & BK-O-W Loop wires for "F" & "H", "TM" & "RM" leads to tel. ckt.
 R-BL-W & R-O-W Splitting key for talking on front cord
 R-G-W & R-BR-W To (TA) & (RA) res.

Triples

G, G-W, & W Loop wires at key for rep. coil monitoring

Cord Circuit Plugging-up

Singles

R-W S (sleeve) of cord
 R-S Supv. lamp
 R-O Individual bat.

Pairs

S & S-W "T" & "R" of cord

Cord Circuit Howler

Singles

R Sleeve of cord "A" lead to opr. tel. ckt.
 R-W Lamp to rel. for grd.
 R-BL Lamp to rel. for bat.

Pairs

S & S-W Cord fast. to key and rep. coil

Operator's Telephone Circuit

Singles

R "TR" lead to test rel. or trans. key
 "B" lead to cord ckt. or 177E rel. or trans. key, 190D or B6 rel. to conn. rk. and cond. (T)
 R-G 177E rel. (T) to 177E rel. (R) "TK" lead to key
 R-W "A" lead to cord ckt. and to 149F rel. "Rel." lead to call ckt. "TK" lead to 20A rep. coil, B6 or 190D rel. and 21E cond. (T)
 R-BL B6 or 190D rel. to 46B or 47B ret. coil, 177E rel. to "RBT" pchg.
 R-BR-W "T" pchg. to 177E rel. (T)
 R-BR 21E cond. (RBT) to 177E rel. (R)
 R-BL-W "MC" lead to cord ckt., trans. key or 125K rel.
 R-S "A" lead to trans. key

Pairs

R & R-W Ind. coil to 20A rep. coil
 BL & BL-W Leads "1" & "2" to (RD) key, to ind. coil and 20A rep. coil to mon. rel. and conn. rk., leads from tel. ckt. side to trans. key and from (SW) rel. to conn. rk.

Pairs (Cont'd.)

S & S-W "TM" & "RM" leads to cord ckt. and trans. key and thru 21K cond. to term. "1" & "6" of rep. coil and mon. rel. to mon. taps
 Trans. Bat. from F. Bd. spliced at coil rack
 BR & BR-W "T" & "R" or "TL" & "RL" leads to cord ckt. leads to (RD) key and call ckt., leads from cord ckt. side to trans. key and from mon. rel. to term. "7" & "8" of rep. coil.
 BK & BK-W "TB" & "TG" pchgs. thru 149F rel. and 12A ret. coil to cond. (P)
 S & S-W Trans. bat. from F. BD spliced at coil rk.

Triple

G, G-W, & W Ind. coil and 20A rep. coil to mon. rel.

Trunk Circuit

Singles

R-W Sleeve of cord
 R-BL Disc. lamp
 R-O Individual bat.
 R-S G & R lamp
 R-G Disc. lamp

Pairs

G & G-W T & R of cord extended
 T & R to aud. ring. cond.
 R & R-W (RD) rel. across the line
 S & S-W T & R of cord
 BL & BL-W Aud. ring. cond. to key or conn. rack

Auxiliary Signal Circuit

Singles

R-BL Pchg. (LL) to aux. ckt., aux. rel. to cord or trk. ckt.
 R-W Pchg. (LL) to line lamps 0-19
 R-G Pchg. (LL1) to line lamps 20-39
 R Pchg. (LL1) to line lamps 40-59
 R-S Pchg. (LL2) to line lamps 60-79
 R-BL-W Pchg. (LL2) to line lamps 80-99
 R-BR Pchg. (LL3) to line lamps 100-119
 R-BR-W Pchg. (LL3) to line lamps 120-139
 R-O-W Pchg. (LL4) to line lamps 140-159
 R-G-W Pchg. (LL4) to line lamps 160-179

11.06 List of colors and respective piece part numbers

14 ESCB

Singles

BK
 BK-R
 Y
 Y-G
 R
 R-G
 BR
 BR-R
 S
 S-R
 BL

Piece Part No.

P-360913
 P-360914
 P-364917
 P-360907
 P-360911
 P-360908
 P-364918
 P-360910
 P-360912
 P-360909
 P-364919

14 ESCB (Cont'd.)

19 ESCB (Cont'd.)

Singles
 R-BL P-365029
 O-S P-365026
 S-W P-365028
 R-W P-365027

Pairs
 BK & BK-W P-316660
 BL & BL-W P-316661
 S & S-W P-316664
 BR & BR-W P-316663
 G & G-W P-316662

Pairs
 Y & Y-G P-364931
 R & R-G P-364930
 S & S-R P-364932
 BR & BR-R P-364933

19 ESDC

16 ESCB

Pairs
 R-W & R P-321181
 BK-W & W P-321183
 O & O-W P-361377
 BR & BR-W P-360813
 S & S-W P-361378
 BK & BK-W P-321185

Singles
 *BK P-308686
 *BK-R P-308690
 *Y P-308688
 *Y-G P-308691
 R P-308687
 R-G P-308694
 BR P-308689
 BR-R P-308692
 S P-308685
 S-R P-308693

19 DCL

Pairs
 R-W & R P-325043
 BK-W & BK P-325044
 R & R-BL P-325019
 BL & W P-324879
 R & R-O P-325020

Pairs
 *BK & BK-R P-308695
 *Y & Y-G P-308696
 R & R-G P-308698
 BR & BR-R P-308699
 S & S-R P-308697

20 ESCB

Triples
 *Y, Y-G, & R-G P-308700
 BR, BR-R, & S-R P-308701

Singles
 *BK P-300050
 *BK-R P-300055
 *Y P-300051
 *Y-G P-300056
 *R P-300052
 *R-G P-300059
 BR P-300053
 BR-R P-300057
 S P-300054
 S-R P-300058
 BL P-310006
 R-BL P-310007
 O P-310008
 R-O P-310009
 G P-323780

Quadruple
 *Y, Y-G, R, & R-G P-308702

16 ESDC

Singles
 BK-BL P-321312
 BK-O P-321313
 BK-G P-321314
 BK-BR P-321315

Pairs
 *BK & BK-R P-300060
 *Y & Y-G P-300061
 *R & R-G P-300063
 S & S-R P-300062
 BR & BR-R P-300064
 BL & R-BL P-310010
 O & R-O P-310011

16 DCL

Singles
 BK-BL P-324227
 BK-O P-324228
 BK-G P-324229
 BK-BR P-324230

Triples
 *Y, Y-G, & R-G P-300066
 BR, BR-R, & S-R P-300065
 Y, R, & R-G P-308017

19 ESCB

Singles
 BK P-316554
 BK-W P-316547
 R-G P-316548
 R-W P-316553
 R-BL P-316551
 R-O P-316552
 BR-R P-316549
 S-R P-316550

Quadruple
 *Y, Y-G, R, & R-G P-300067

5 Wire Twist
 BK, Y, BR, Y-G & BR-R P-307746

22 ESCB

22 DSCL & 22 EDSC

Singles

BK
BK-R
R
R-W
R-BL
R-O
R-G
Y
BR
G
G-W
S
S-W

Piece Part No.

P-318543
P-314080
P-314078
P-314077
P-314079
P-314076
P-311976
P-318544
P-318541
P-318540
P-318546
P-318542
P-318547

Pairs

BL & BL-W
R & R-O
R & R-G
G & G-W
S & S-W

P-315013
P-315015
P-318553
P-318551
P-318552

22 DSCB

Singles

R
W
BK
BR

P-319025
P-319026
P-319027
P-360151

22 ESDC

Singles

*BK
*R
*R-G
*R-W
*R-BL
*R-S
*R-O
*R-BR
*R-BL-W
R-O-W
R-G-W
R-BR-W
*BK-W

P-321480
P-321479
P-321460
P-321481
P-321458
P-321462
P-321459
P-321461
P-321463
P-321468
P-321472
P-321475
P-321482

Pairs

*BK-W & BK
*BL & BL-W
*O & O-W
*S & S-W
*R-W & R
BR & BR-W
G & G-W
R-G & R-S
BK-BL-W & BK-O-W
BK-G-W & BK-BR-W
R-BL-W & R-O-W
R-G-W & R-BR-W

P-322508
P-360796
P-360821
P-361040
P-322504
P-360797
P-360822
P-360893
P-361386
P-361387
P-361388
P-361389

Triples

*G, G-W, & W
R-BL-W, R-G-W, & R-BR-W

P-361390
P-361391

Quadruple

*R-BL-W, R-O-W, R-G-W, & R-BR-W

P-361392

Singles

*R
*R-W
*R-BL
*R-O
*R-G
*R-BR
*R-S
*R-BL-W
*R-O-W
*R-G-W
*R-BR-W
R-BK-S
R-BK-BL
R-BK-O
R-BK-G
R-BK-BR
BK-O
BK-BR
BK-S
O
O-W
O-S
O-G
O-BR
*BK
*BK-W
R-BK

Piece Part No.

<u>22 DSCL</u>	<u>22 EDSC</u>
P-358410	P-357390
P-358511	P-357392
P-358411	P-357309
P-358412	P-357310
P-358413	P-357311
P-358414	P-357312
P-358415	P-357313
P-358417	P-357314
P-358418	P-357319
P-358419	P-357323
P-358420	P-357326
P-365035	P-357353
P-358437	P-357349
P-358427	P-357350
P-358439	P-357351
P-358761	P-357352
P-358422	P-357330
P-358746	P-357332
P-365034	P-357333
P-358401	P-357290
P-358406	P-357299
P-358732	P-357302
P-358435	P-357300
P-358731	P-357301
P-358421	P-357391
P-358473	P-357393
P-358777	

Pairs

*BK & BK-W
*BL & BL-W
*O & O-W
*S & S-W
*R & R-W
G & G-W
BR & BR-W
R-G & R-S
BK-BL-W & BK-O-W
BK-G-W & BK-BR-W
R-BL-W & R-O-W
R-G-W & R-BR-W
R-W & W
BL & W
R & R-G
BL & R
R & W

P-358474
P-358513
P-358514
P-358517
P-358512
P-358515
P-358516
P-358518
P-358522
P-358521
P-358519
P-358520
P-358780
P-358479
P-358481
P-358781
P-358782

Triples

*G, G-W, & W
R-BL-W, R-G-W, &
R-BR-W

P-365036
P-358779
P-358393
P-358394

Quadruples

*BL, R-BL, NBK-BL, &
NR-BL
*O, R-O, NBK-O, & NR-O
*G, R-G, NBK-G, & NR-G
BR, R-BR, NBK-BR, &
NR-BR
S, R-S, NBK-S, & NR-S
BL-W, R-BL-W, NBK-BL-W,
& NR-BL-W
BL-O, R-BL-O, NBK-BL-O,
& NR-BL-O
BL-G, R-BL-G, NBK-BL-G,
& NR-BL-G

P-325868
P-325869
P-325870
P-325871
P-325872
P-325873
P-325874
P-325875

22 DCL

22 DSSBL (Cont'd)

Singles

*R
 *R-G
 *R-W
 *R-BL
 *R-S
 *R-O
 *R-BR
 *R-BL-W
 *R-O-W
 *R-G-W
 *R-BR-W
 R-BK-S
 R-BK-BL
 R-BK-O
 R-BK-G
 R-BK-BR
 BK-O
 BK-BR
 BK-S
 O
 O-W
 O-S
 O-G
 O-BR
 BK
 BK-W
 R-BK

Piece Part No.

P-324442
 P-324383
 P-324444
 P-324381
 P-324385
 P-324382
 P-324384
 P-324386
 P-324391
 P-324395
 P-324398
 P-324425
 P-324421
 P-324422
 P-324423
 P-324424
 P-324402
 P-324404
 P-324405
 P-324362
 P-324371
 P-324374
 P-324372
 P-324373
 P-324443
 P-324445
 P-324446

Singles

BL-R
 O-R
 R-G
 BK-R
 Y-G
 BR-R
 S-R
 O

Piece Part No.

P-474078
 P-474079
 P-474080
 P-474081
 P-474082
 P-474083
 P-474084
 P-474085

Pairs

*BK & BK-R
 *Y & Y-G
 *R & R-G
 *S & S-R
 BR & BR-R
 BL & BL-R
 O & O-R

P-474533
 P-474534
 P-474535
 P-474536
 P-474537
 P-474538
 P-474539

24 SCB

This wire is primarily designed for use in wiring SXS switches in selector circuits. The colors are to be used as follows:

RED-GRD.; WHITE-BAT.; GREEN-ALL OTHER LEADS

24 DCL

Pairs

*BK-W & BK
 *BL & BL-W
 *O & O-W
 *S & S-W
 *R-W & R
 G & G-W
 BR & BR-W
 R-G & R-S
 R-G-W & R-BR-W
 R-BL-W & R-O-W
 BK-BL-W & BK-O-W
 BK-G-W & BK-BR-W
 R-W & W
 W & BL
 R & R-G
 R & BL
 W & R

P-325219
 P-364401
 P-364405
 P-364403
 P-325215
 P-364404
 P-364402
 P-364410
 P-364409
 P-364408
 P-364407
 P-364406
 P-325214
 P-325051
 P-325193
 P-325071
 P-325211

Singles

*R
 *R-W
 *R-BL
 *R-O
 *R-G
 *R-BR
 *R-S
 *R-BL-W
 *R-O-W
 *R-G-W
 *R-BR-W
 R-BK-S
 R-BK-BL
 R-BK-O
 R-BK-G
 R-BK-BR
 BK-O
 BK-BR
 BK-S
 O
 O-W
 O-S
 O-G
 O-B
 BK
 BK
 R-BK

P-324529
 P-324531
 P-324468
 P-324469
 P-324470
 P-324471
 P-324472
 P-324473
 P-324478
 P-324482
 P-324485
 P-324512
 P-324508
 P-324509
 P-324510
 P-324511
 P-324489
 P-324491
 P-324492
 P-324499
 P-324458
 P-324461
 P-324459
 P-324460
 P-324530
 P-324532
 P-324533

Triples

*G, G-W, & W
 R-BL-W, R-G-W, & R-BR-W

P-364412
 P-364411

Quadruple

*R-BL-W, R-O-W, R-G-W, & R-BR-W

P-359576

22 DSSBL

Singles

*R
 *BL
 *G
 *BR
 *S
 *BK
 Y
 O-S

P-474070
 P-474071
 P-474072
 P-474073
 P-474074
 P-474075
 P-474076
 P-474077

Pairs

*BK & BK-W
 *BL & BL-W
 *O & O-W
 *S & S-W
 *R & R-W
 G & G-W
 BR & BR-W
 R-G & R-S

P-325391
 P-359578
 P-359581
 P-359579
 P-325387
 P-359577
 P-359580
 P-359575

24 DCL (Cont'd.)

20 ESCB (Cont'd)

<u>Pairs</u>	<u>Piece Part No.</u>
R-BL-W & R-O-W	P-359751
R-G-W & R-BR-W	P-359752
BK-BL-W & BK-O-W	P-359750
BK-G-W & BK-BR-W	P-359749
R-W & W	P-325386
BL & W	P-325223
R & R-G	P-325365
BL & R	P-325243
R & W	P-325383

<u>Triples</u>	<u>Piece Part No.</u>
*G, G-W, & W	P-359761
R-BL-W, R-G-W, & R-BR-W	P-359762

<u>Quadruple</u>	<u>Piece Part No.</u>
R-BL-W, R-O-W, R-G-W, & R-BR-W	P-359763

22 EDSCL Wire Shielded Per M-32463

<u>Singles</u>	<u>Shielded Only</u>	<u>Shielded and Braided</u>
R	P-357153	P-357158
BK	P-357154	P-357159
S	P-357155	P-357160
R-S	P-357156	P-357161
R-G	P-357157	P-357162

<u>Pairs</u>	<u>Piece Part No.</u>	<u>Piece Part No.</u>
S & S-R	P-357163	P-357170
R & R-G	P-357164	P-357171
BR & BR-R	P-357165	P-357172
BK & BK-R	P-357166	P-357173
Y & Y-G	P-357167	P-357174
O & O-R	P-357168	P-357175
BL & BL-R	P-357169	P-357176

<u>Triples</u>	<u>Piece Part No.</u>	<u>Piece Part No.</u>
BR, BR-R, & S-R	P-357177	P-357179
Y, Y-G, & R-G	P-357178	P-357180

Shielded Wire Per M-19069

16 ESCB

<u>Singles</u>	<u>Piece Part No.</u>
BK	P-364896
R	P-364897
R-G	P-361984

<u>Pairs</u>	<u>Piece Part No.</u>
BK & BK-R	P-360872
Y & Y-G	P-360919

20 ESCB

<u>Singles</u>	<u>Piece Part No.</u>
BR	P-361900
S	P-360696
S-R	P-360698

<u>Pairs</u>	<u>Piece Part No.</u>
S & S-R	P-317201
R & R-G	P-317202
BR & BR-R	P-317203
BL & BL-R	P-317204
O & O-R	P-317205
Y & Y-G	P-317200

12. WIRING PRACTICES

Battery and Ground and Tip and Ring Connections to Apparatus

12.01 Unless otherwise specified connect battery and ground leads to terminals of apparatus as shown in Table E on page 14.

Common Leads

12.02 The limit of leads shall be indicated on all wiring diagrams, for example:

- (a) 1 lead per 5 circuits.
- (b) 1 lead per side of frame.
- (c) 1 lead per position.

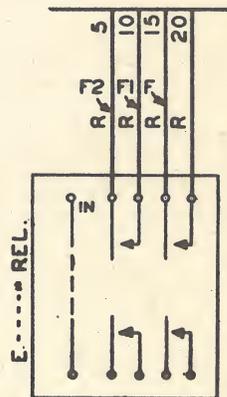
12.03 Limit on loop wires shall be shown when other than straight looping is shown, for example:

- (a) 1 lead per 5 odd circuits 1, 3, etc.
- (b) 1 lead per 5 even circuits 2, 4, etc.

"F" Stitching

12.04 When two or more wires of the same color are to be connected to different terminals of the same piece of apparatus, or when one wire of a pair is to be cut and the ends connected to different terminals of the same piece of apparatus, one of the wires shall be brought out at the regular stitch and each of the other wires at a separate stitch.

12.05 Where there are duplications of colors, coming out at the same stitch, one of each color shall be brought out at succeeding "F" stitches.



SKETCH D

EQUIPMENT	SEE NOTE	CONNECTIONS FROM WIRING SIDE
Buzzers, Bells		(d-c) battery to winding - ground to armature (a-c) winding in series with a-c supply
Condenser		Tip to top or left terminal, ring to bottom or right
Dry batteries		Negative terminal to ground
Keys: General	(a)	Tip to upper or left side, ring to lower or right + (Collect) and tip to unit nearest to operator
Coin control		- (Return) and ring away from operator
Lamps: Resistance	(c)	Ground to outer contact
Switchboard		Ground, battery, or auxiliary to left or bottom terminal
Strip mounted		Ground to bottom lamp terminal
Relays: B, G, and J	(b)	Ground to armature or master spring Battery to contact spring
E, F, H, and R	(b)	Tip or ground to contact spring
Lamp lighting		Battery auxiliary circuits - ground to non-inductive winding Lamp to armature Ground auxiliary circuits - battery to armature Lamp to non-inductive winding
Resistances	(d)	Ground to top or left terminal

Notes:

(a) On MR keys or units, connect to stationary springs. Connect the high potential lead to the contact of the MR key to avoid ground leak.

(b) Connect all apparatus wound for magnetic operation (such as relays, signals, etc.) so that the "IN" end of the winding is nearest to the ground potential.

(c) Bring battery leads in from the top and connect to inner terminal.

(d) Show 19 type resistances with the lowest resistance value at top or left. When resistance is located above equipment with a common cover, connect battery to top terminal.

TABLE E

12.06 "F" stitches shall be connected to that side of the apparatus which is toward the tip of the form.

12.07 If more than one "F" stitch is used, the "F" leads shall be designated "F", "F1", "F2", etc., starting with the one nearest the regular stitch as shown in Sketch D.

12.08 The use of "F" stitches shall be limited as far as possible by the proper selection of colors.

Gauge and Insulation of Wire

12.09 To a large extent the requirements on a wire for a given type of equipment are the same for all systems. In a few instances

the type of equipment involved at the present time may be used in only two or three systems or possibly in only one system. However, the requirement covers the accepted standard for that type of equipment and would be followed in any other system in which the equipment might be used. The requirements on the gauge and insulation of wire are as outlined in AA610.003.

12.10 Abbreviations are used to indicate the kind of insulation or wire covering used on the various gauges of wire. These abbreviations are shown after the wire gauge and are as follows:

- | | |
|------------|------------------|
| E - Enamel | L - Lacquered |
| S - Silk | T - Tinned |
| C - Cotton | D - Double Sewed |
| | B - Braided |

Jumper Wires

12.11 The number of conductors in each set of jumpers shall be indicated by 1W, 2W, 3W, etc. An explanatory note shall be placed on the drawing as a manufacturing note. (See manufacturing note 32 on page 5.)

12.12 The gauge and type of jumper wires shall not be shown on wiring diagrams as they generally are furnished by the Telephone Company as covered by the standard installing specification and the A.T.&T.Co.'s field information.

Live Leads

12.13 Live leads shall be considered those upon which voltage is either directly or momentarily impressed such as talking battery, signal battery, coin control, audible ringing signal, a-c or d-c ringing, harmonic ringing, howler busy back, flashing recall, busy test, trouble test, interrupters, tone, grid, filament, etc., and unequipped ground leads terminating at shelves which are insulated from the frame.

12.14 By "momentarily impressed" is meant the impressing of voltage on leads by the operation of a relay, key, or similar apparatus in the same or connecting circuits.

12.15 All live leads terminating at unequipped apparatus positions should be sleeved or taped.

12.16 Designate live leads with the symbol \textcircled{L} at the unequipped apparatus positions. When more than one like colored \textcircled{L} leads appear at any one unequipped apparatus position the number of these leads shall precede the color in the table that is shown in the manufacturing note. See manufacturing note 11 and table therein on page 4.

Maximum Number of Wires Connected to Terminals

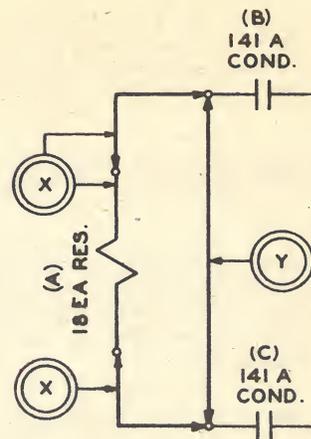
12.17 The maximum number of wires to be connected to terminals of apparatus on new wiring diagrams shall be as shown in Table F.

GAUGE OR DESCRIPTION	NUMBER OF WIRES	APPARATUS
19	2 Desirable 3 Permissible	General
20	2 Desirable 3 Permissible	
22	3	
Straps	3	
16	4	Same row of terms. on term. strip.

TABLE F

Optional Wiring

12.18 Wiring diagrams may be arranged to cover minor variations in the circuit conditions



SKETCH E

by means of an optional arrangement of the wiring and apparatus involved. Figures shall be shown in preference to optional wiring or apparatus where complicated conditions exist.

12.19 Optional wiring or apparatus shall be indicated by the letters "X" or "Y" enclosed in a double circle as illustrated in Sketch E.

12.20 The diameter of the outer circle shall be approximately 5/16" and the inner circle approximately 1/4".

12.21 Suitable notes similar to the following for optional wiring and apparatus shall be shown under the headings listed below.

"Manufacturing Notes"

Furnish "X" and "Y" wiring and "X" apparatus when specified.

"Engineering Notes"

Specify "X" wiring and apparatus when audible ringing is required, otherwise specify "Y" wiring.

Pairs, Triples, Quadruples, and Quintuples

12.22 Pairs, triples, quadruples or quintuples as referred to herein shall be considered as two, three, four or five individual wires twisted together to serve as conductors for a certain path of current. This systematic grouping of conductors in the cable form prevents the excessive transfer of energy between the talking, ringing, tone, and miscellaneous signaling leads run in the same or adjacent forms or cables. In general, the pairing, tripling, quadrupling, and quintupling of leads shall be taken from the schematic.

12.23 Pairing of leads can be made very distinct by designating the pairs as "P", "P1", "P2", etc., the numerals after the letters being used only where one side of the pair is broken up by going through a piece of apparatus. (See page 21 and manufacturing note 13 on page 4.)

12.24 Paired leads shall form a set of continuously paired conductors of the same length when they are connected at the terminating points. The same general principles apply to triples and quads.

13. TELETYPEWRITER HANDBOOK DRAWINGS

Drawing Form

13.01 These practices have been established to govern preparation of wiring drawings for teletypewriter station equipment. These drawings are intended for reduction to installation and maintenance handbooks.

13.02 The drawings shall be arranged for reduction to 5-1/2" x 3-1/2", from the master which is shown on page 20. The lettering sizes required are also shown on this page.

13.03 The vertical position of a page shall be considered normal. When it is necessary to view a plan in a horizontal position the page shall be turned counter-clockwise.

Lettering, Pages, Plans, and Titles

13.04 Page titles shall be as brief as possible, using standard abbreviations and dashes in place of conjunctions or prepositions. Regardless of the position of the plan the page title shall be at the top of the normal page, see page 20.

13.05 All lettering, except page titles, shall be shown so that it is read from the same position that the plan is viewed.

13.06 Plan numbers should be shown below and at the left side of the plan, followed by the plan title extending as far across the width of the page as required, provided the plans are not shown side by side. In such a case the title may occupy the width of the area allotted to the plan.

13.07 In plan titles, teletypewriter subscriber sets, and teletypewriter tables, when referred to by code number, should be listed as sets and tables only, such as, 120A1 set or 15A table.

13.08 Symbols, such as, TTY, TWX, TLT, or CLX are shown as capital letters and are not abbreviations, therefore no periods shall be used.

13.09 Explanation of conventions shall be a separate page and reference, by a note, made to it on each of the drawings showing plans.

13.10 Notes shall cover any other information required for the complete installation that is not apparent from the plans. Those notes shall not be shown on the handbook pages nor shall any reference be made to them.

Wiring Practices

13.11 Dotted wiring on apparatus shall be used to indicate wiring or apparatus shown on another drawing.

13.12 Terminals shall not be shown dotted, but if it is desirable to indicate that terminals on a piece of apparatus are shown on another drawing the convention of the apparatus shall be dotted around the terminals.

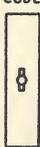
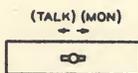
13.13 Plugs and jacks shall be arranged to indicate those that connect together and shall be aligned horizontally.

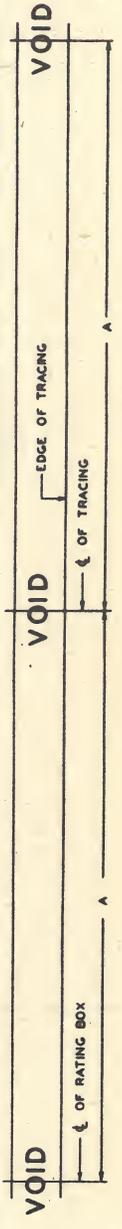
REMARKS

X-62725

R E M A R K S

MANUFACTURING NOTES:		DWG. RECORDED	DATE ISSUED	APPROVED		
1	STANDARD NOTES WHICH ARE TO APPEAR IN THIS COLUMN ARE SHOWN ON PAGE 13. THE FOLLOWING INFORMATION IS FOR DRAFTING PURPOSES ONLY.	1	10-20-34	X	Y	Z
2	WHEN DRAWINGS HAVE BEEN REDRAWN THE OLD TRACING SHALL BE MARKED VOID IN 1/4" LETTERING AS SHOWN.	GIVE COMPLETE HISTORY OF THE CHANGE MADE AS INDICATED BELOW; IN FIG. 1 (TR) RELAY & ASSOC. WIRING WAS NOT SHOWN. (A) COND. WAS CODED 141Q. DWG. WAS RATED STD.				
3	DRAWINGS SHALL BE SIGNED AS FOLLOWS: X ENGINEER Y ENGINEER'S SUPERVISOR Z MAJOR SUPERVISOR					
4	BOX ABOVE TITLE SHALL BE AT LEAST 2 1/2" AND MAY BE INCREASED IF NECESSARY.	2-A	11-9-34	X	Y	Z
5	KEY TOPS SHALL BE SHOWN VERTICALLY OR HORIZONTALLY IN ACCORDANCE WITH THE EQUIPMENT ARRANGEMENT. SEE PAGE 26 FOR TYPICAL KEY TOPS.					

ENGINEERING NOTES:	
51	THIS DWG. ISS. AGREES WITH
SD-	-01
52	FOR EQUIPMENT LAYOUT SEE
53	CONNECTING DRAWINGS ARE:
SEE NOTE 5	
CODE	CODE FRONT
	
FRONT	FRONT
	
FRONT	
SD-, ES-	2 SHEETS
PROVISIONAL STANDARD	
165 V-2	SD-, ES-
BELL TELEPHONE LABORATORIES, INC.	
PRINTED IN U.S.A. R	



STANDARD ARRANGEMENT OF TITLE BOX, NOTES AND APPROVAL COLUMN

--- REDUCE TO ---
175V-2

P-000000

CIRCUIT REQUIREMENTS

CIRCUIT NOTES
(TO BE SHOWN HERE IF POSSIBLE)

FOR REFERENCE SEE:
(NUMBER & TITLE OF SCHEMATIC)

TABLE OF DIMENSIONS WHEN REDUCED

DIM	2:1	3:1	4:1
A	1	2	4
B	1	1 1/2	2
C	1	16	32
D	1	2	4

METHOD OF OPERATION

GUIDES AND PENS TO BE USED WHEN REDUCED

	2:1		3:1		4:1	
	GUIDE	PEN	GUIDE	PEN	GUIDE	PEN
INSIDE CONVENTIONS PRINTED IN U.S.A.	90CV	1	120	1	140	2
COLORS, NOTES, ETC. DWG. NUMBER	120	1	140	1	175	2
FIGURE NUMBERS	175	2	240	3	290	4
FIGURE TITLE LABEL TITLE	140	2	175	2	240	3
METHOD OF OPERATION CIRCUIT REQUIREMENTS WIRING OF CIRCUITS APPARATUS NUMBERS	240	3	290	4	350	4

TABLE A

SIZE OF CONVENTIONS WHEN REDUCED

2:1	3:1	4:1
ACTUAL	1/4	1/2

TABLE B

SIZE OF LINES WHEN REDUCED

2:1	3:1	4:1
PAIRING LINE	---	---
SIGNAL LEAD	---	---
TALKING LEAD	---	---

TABLE C

TABLE D

WIRING OF CIRCUITS
CIRCUIT LABEL
WIRING PLAN 107 AND 108

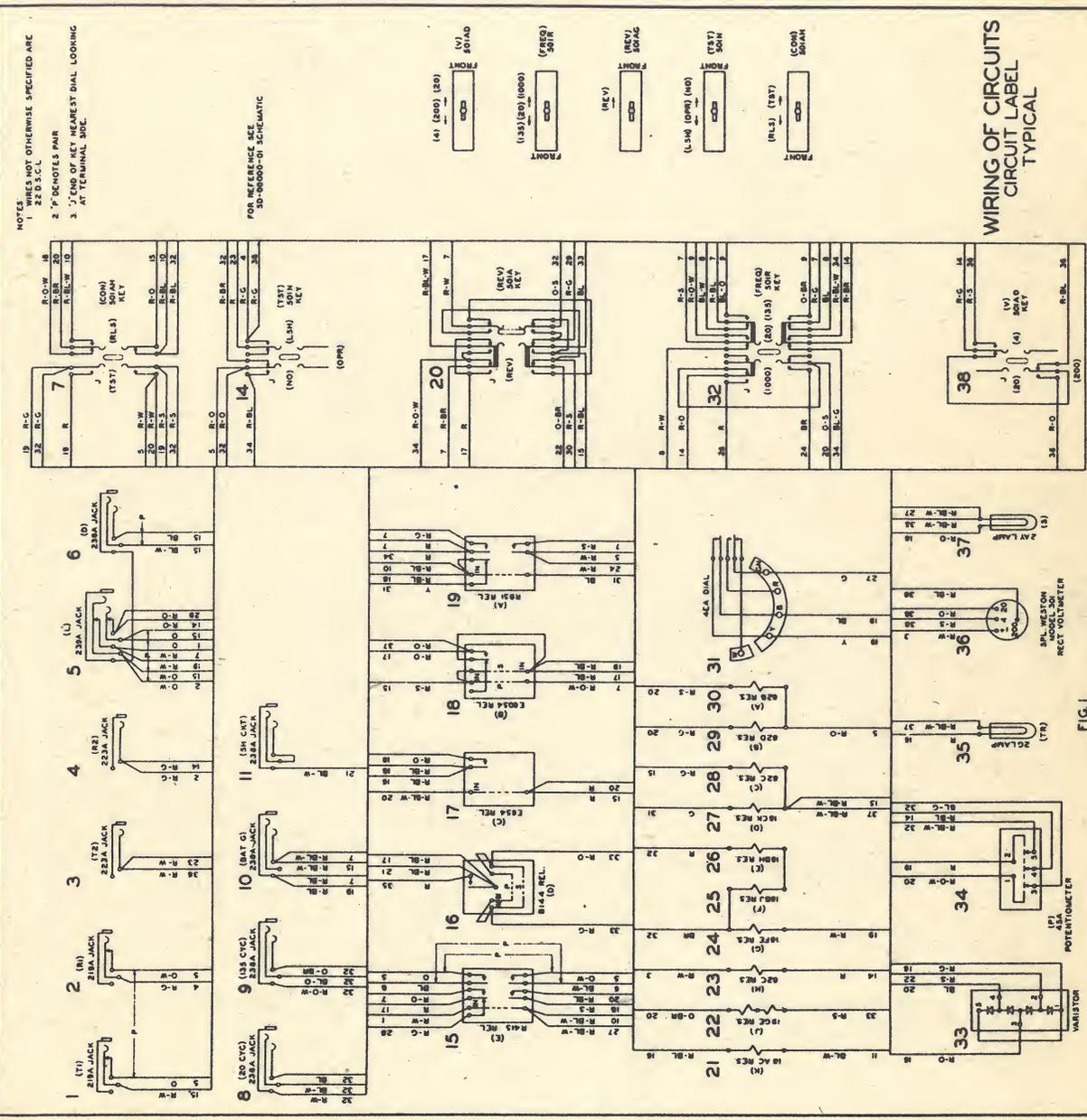
PRINTED IN U.S.A.
SD --- 81, ISS. 3

NOTES:
1. ALL LETTERING ON CIRCUIT LABEL TO BE VERTICAL.

MANUFACTURING NOTES:
1 WIRES NOT OTHERWISE SPECIFIED SHALL BE 22 D.S.C.L.
2 1/2" DENOTES PAIR
3 'J' END OF KEY NEAREST DIAL LOOKING AT TERMINAL SIDE

NOTES:
1 WIRES NOT OTHERWISE SPECIFIED ARE 22 D.S.C.L.
2 'P' DENOTES PAIR
3 'J' END OF KEY NEAREST DIAL LOOKING AT TERMINAL SIDE

FOR REFERENCE USE 30-50000-01 SCHEMATIC



WIRING OF CIRCUITS
CIRCUIT LABEL
TYPICAL

PRINTED IN U.S.A.
30-50000-01 (11)

P-000000

TYPICAL CIRCUIT LABEL

30-00000-00
BELL TELEPHONE LABORATORIES, INC.

ENGINEERING NOTES:

1	WIRING	WIRE	22 D.S.C.L.
2	1/2"	DENOTES	PAIR
3	'J'	END OF	KEY
4	NEAREST	DIAL	LOOKING
5	AT	TERMINAL	SIDE

DO NOT ATTEMPT TO
CONNECT WIRE TO
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38)

FOR EQUIPMENT LAYOUT USE 30-50000-01

CONNECTING TERMINALS ARE:

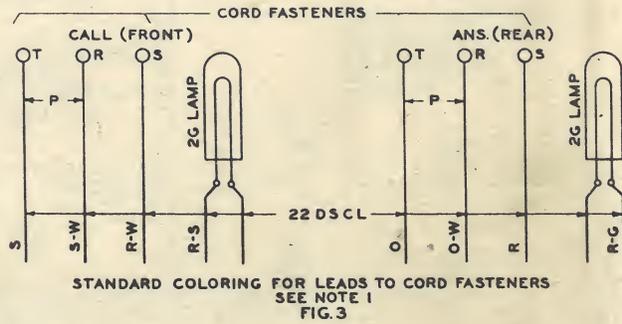
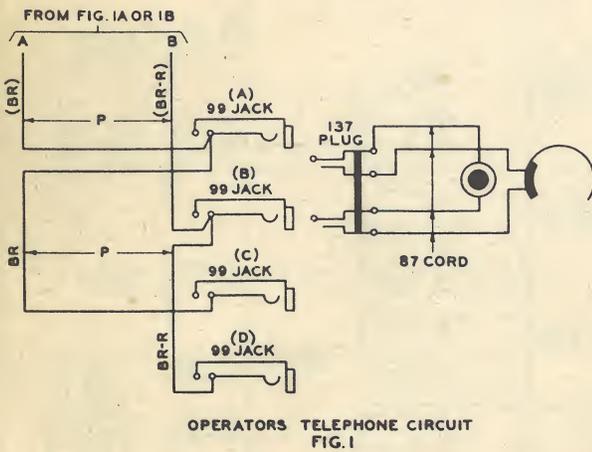
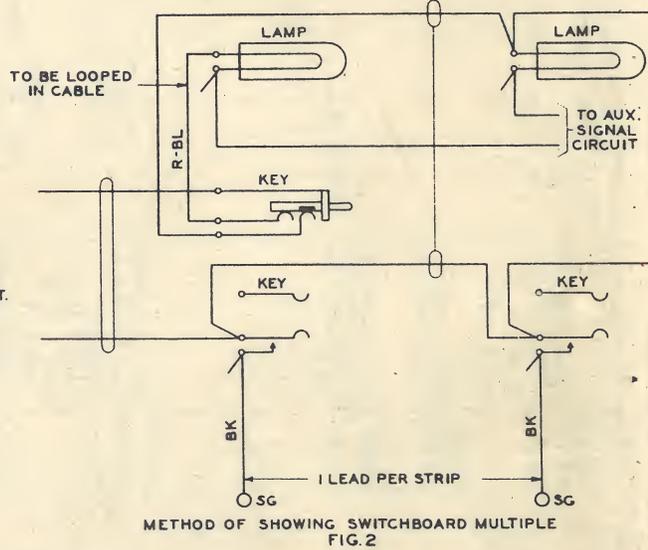
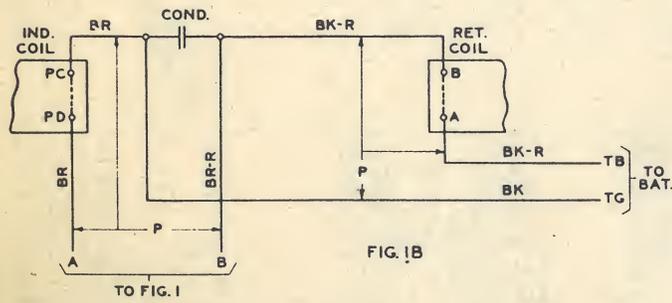
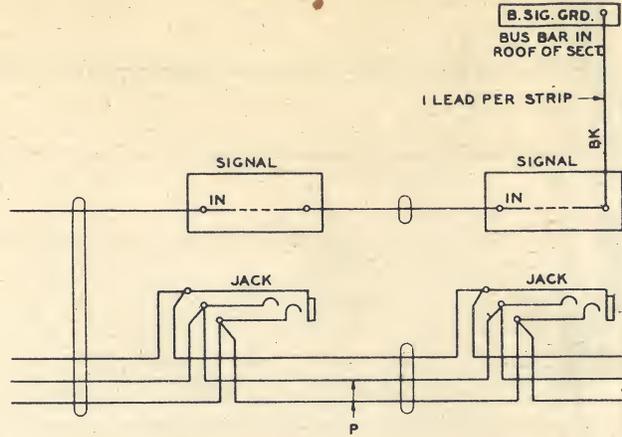
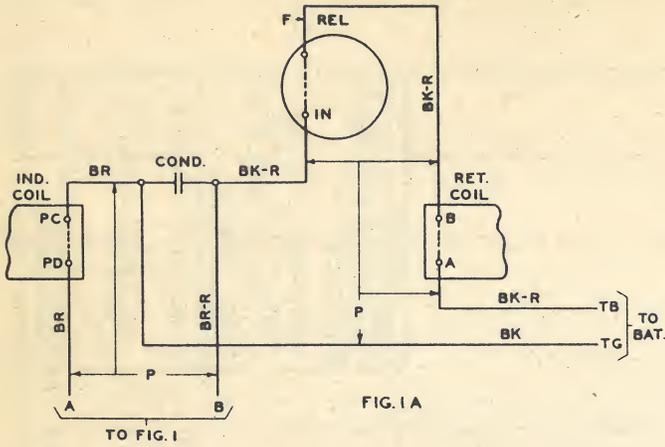
1	WIRING	WIRE	22 D.S.C.L.
2	1/2"	DENOTES	PAIR
3	'J'	END OF	KEY
4	NEAREST	DIAL	LOOKING
5	AT	TERMINAL	SIDE

COMMON SYSTEM
TYPICAL WIRING OF CIRCUITS
CIRCUIT LABEL

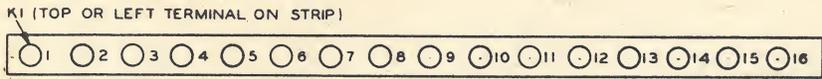
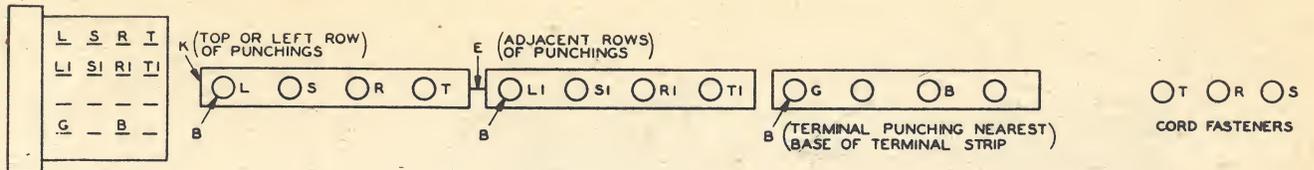
30-50000-00

BELL TELEPHONE LABORATORIES, INC.

R3

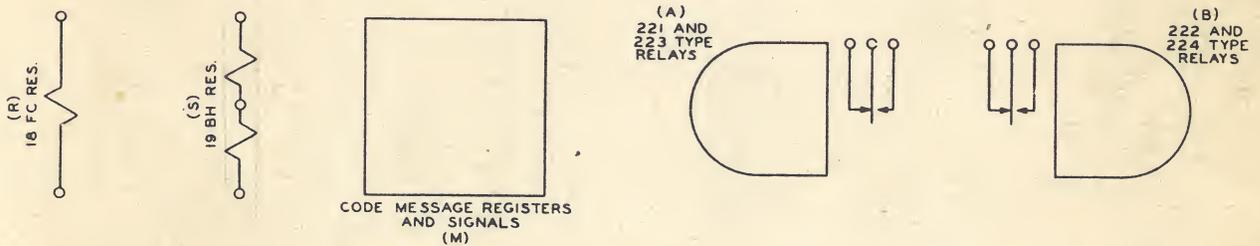
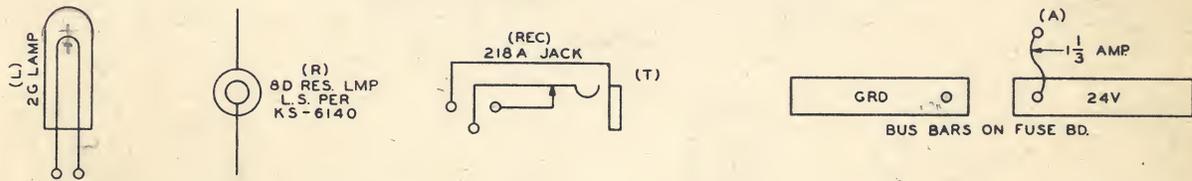
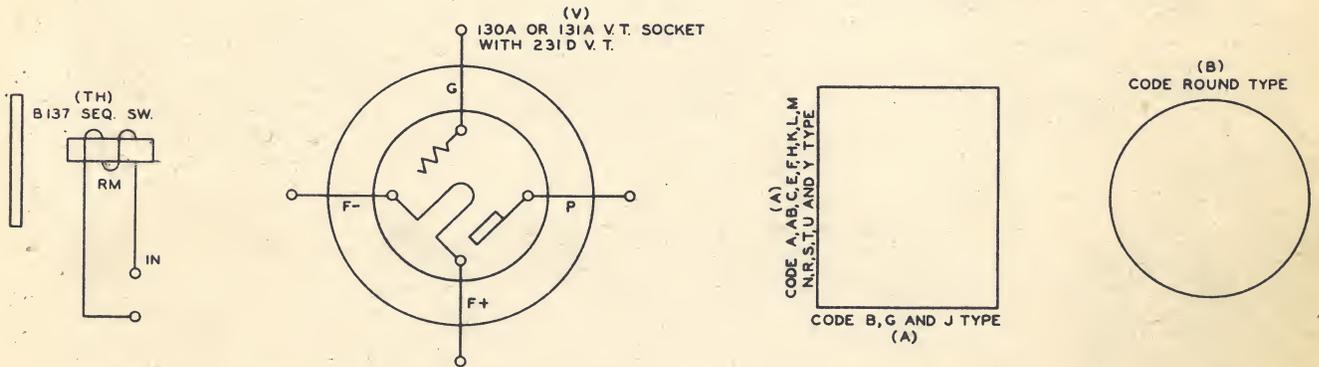


- NOTES:
 1. "FRONT" AND "REAR" DESIGNATIONS MAY BE REVERSED IN TOLL CORD CIRCUITS AS REQUIRED, ALSO ADD "TOLL & TRK." OR "TOLL & SUBS." DESIGNATION AS REQUIRED.
 2. WIRES NOT OTHERWISE SPECIFIED SHALL BE 20 E.S.C.B.



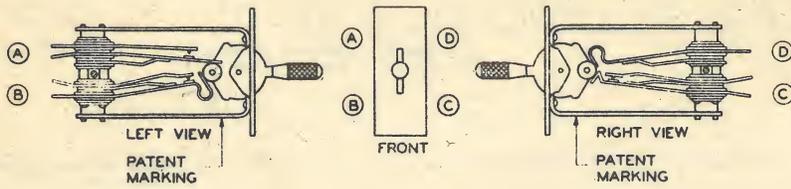
METHOD OF SHOWING TERMINAL STRIP ROWS ON DRAWING

- CONN. RACK PCHG. OR LOCAL SWBD. TERM. STRIP PCHG.
- POWER PCHG. OR SWBD. TERM. STRIP POWER PCHG.
- ⊗ BINDING POST

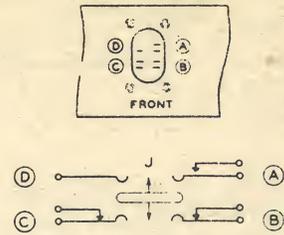


METHOD OF DESIGNATING APPARATUS

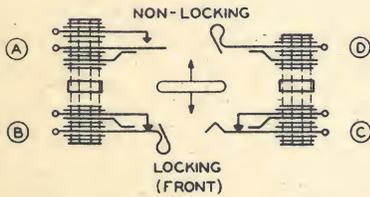
TERMINAL PUNCHINGS AND METHOD OF DESIGNATING APPARATUS



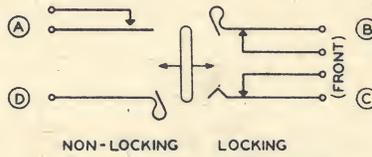
MECHANICAL VIEW OF CI & 479 TYPE KEYS
479 GF KEY ILLUSTRATED
SKETCH 1



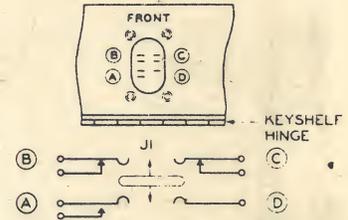
479 GF KEY MOUNTED IN PANEL
WIRING SIDE SHOWN
SKETCH 4



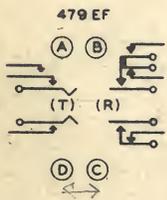
SCHEMATIZED MECHANICAL VIEW
LOOKING AT TOP OF 479 GF KEY
SKETCH 2



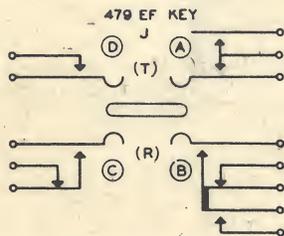
LOOKING AT TERMINAL END
OF KEY CONVENTION AS
SHOWN ON CARD CATALOG
SKETCH 3



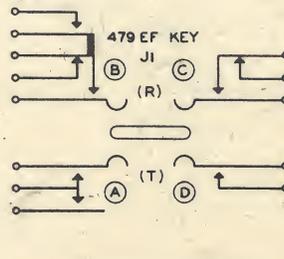
479 GF KEY MOUNTED IN KEYSHELF
KEYSHELF OPEN
SKETCH 5



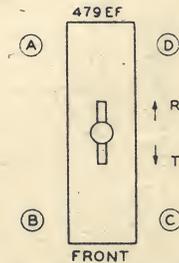
SCHEMATIC
CONVENTION



WIRING DIAGRAM CONVENTION
FOR KEY MOUNTED
ON PANEL

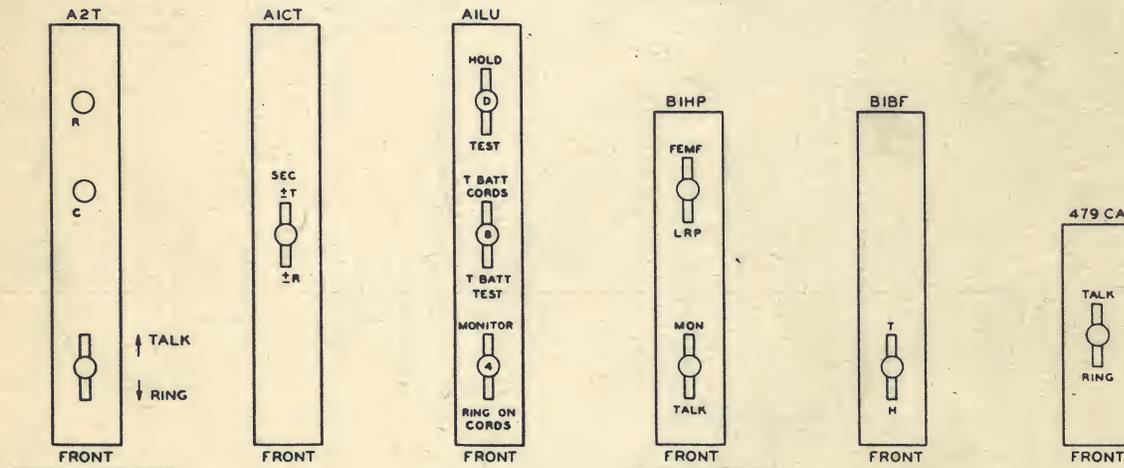


WIRING DIAGRAM CONVENTION
FOR KEY MOUNTED
ON KEYSHELF



KEY TOP CONVENTION
SCHEMATIC AND
WIRING DIAGRAM

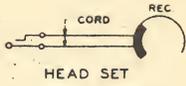
SKETCH 6



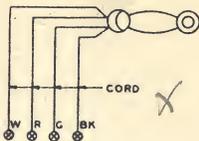
KEY TOP CONVENTIONS
SKETCH 7

- NOTES:
1. DESIGNATIONS IN CIRCLES INDICATE SPRING POSITIONS AND ARE FOR REFERENCE ONLY
 2. FRONT IS CONSIDERED THAT SIDE OF FRAME HAVING CODE AND PATENT MARKINGS
 3. ARROW → INDICATES DIRECTION OF MOVEMENT OF PLUNGER
 4. 'J' TOP OR LEFT END OF KEY
 5. 'Ji' TOP OR LEFT END OF KEY (KEYSHELF OPEN)

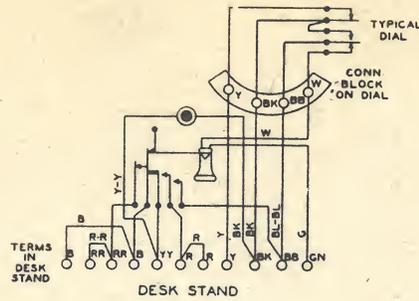
LEVER TYPE KEYS



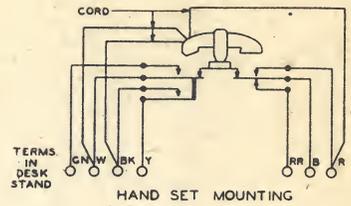
HEAD SET



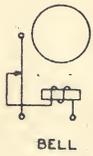
HAND SET



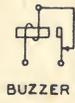
DESK STAND



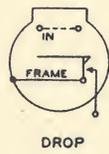
HAND SET MOUNTING



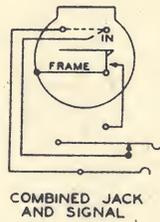
BELL



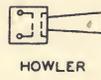
BUZZER



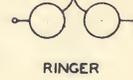
DROP



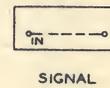
COMBINED JACK AND SIGNAL



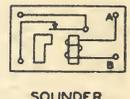
HOWLER



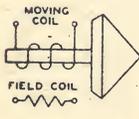
RINGER



SIGNAL



SOUNDER



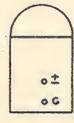
LOUD SPEAKER



WESTON METER (AM, GALV, MAM, VM)



POTENTIOMETER OR RHEOSTAT



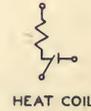
GENERATOR



ALARM FUSE



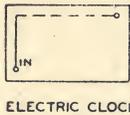
PROTECTOR



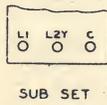
HEAT COIL



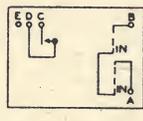
CLIP



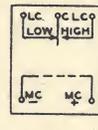
ELECTRIC CLOCK



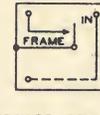
SUB SET



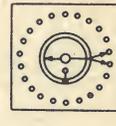
TELEGRAPH RELAY



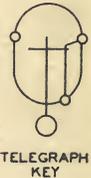
VOLTAGE RELAY



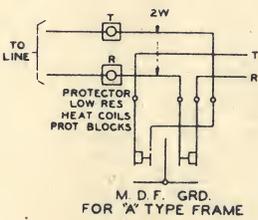
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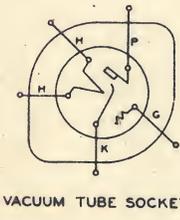
SWITCH



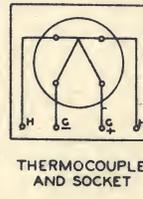
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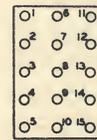
M, D, F, GRD. FOR 'A' TYPE FRAME



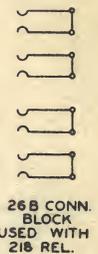
VACUUM TUBE SOCKET



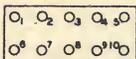
THERMOCOUPLE AND SOCKET



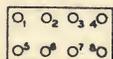
26B CONN. BLOCK USED WITH 206 OR 209 RELS.



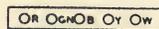
26B CONN. BLOCK USED WITH 218 REL.



18F CONN. BLOCK USED WITH 228 RELS.



18B CONN. BLOCK USED WITH 215 RELS.



25B CONN. BLOCK PART OF DIAL MTC.

(CONVENTIONS - HALF SIZE)

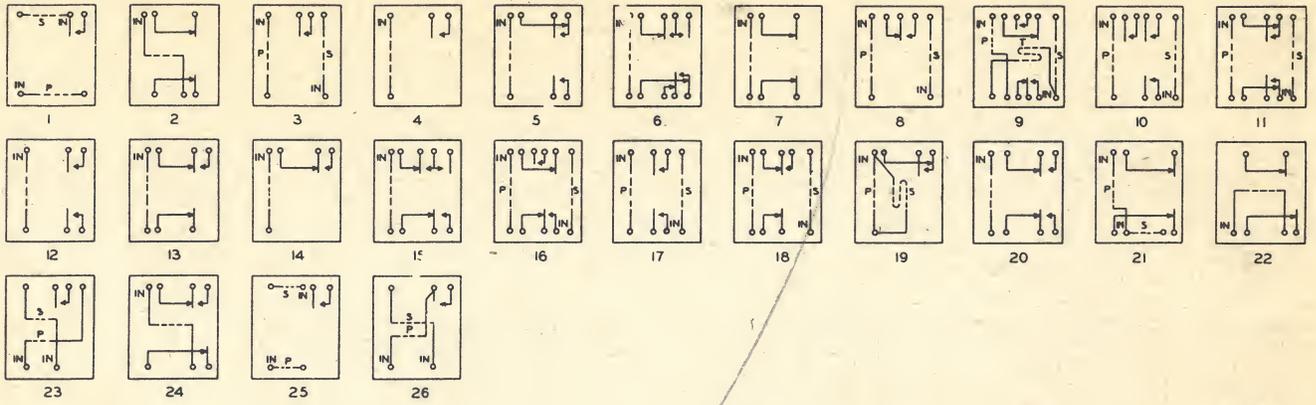
MISCELLANEOUS APPARATUS

REL CODE	PAGE NO	CONV NO	WDG	OHMS RES	REL CODE	PAGE NO	CONV NO	WDG	OHMS RES	REL CODE	PAGE NO	CONV NO	WDG	OHMS RES	REL CODE	PAGE NO	CONV NO	WDG	OHMS RES	REL CODE	PAGE NO	CONV NO	WDG	OHMS RES	
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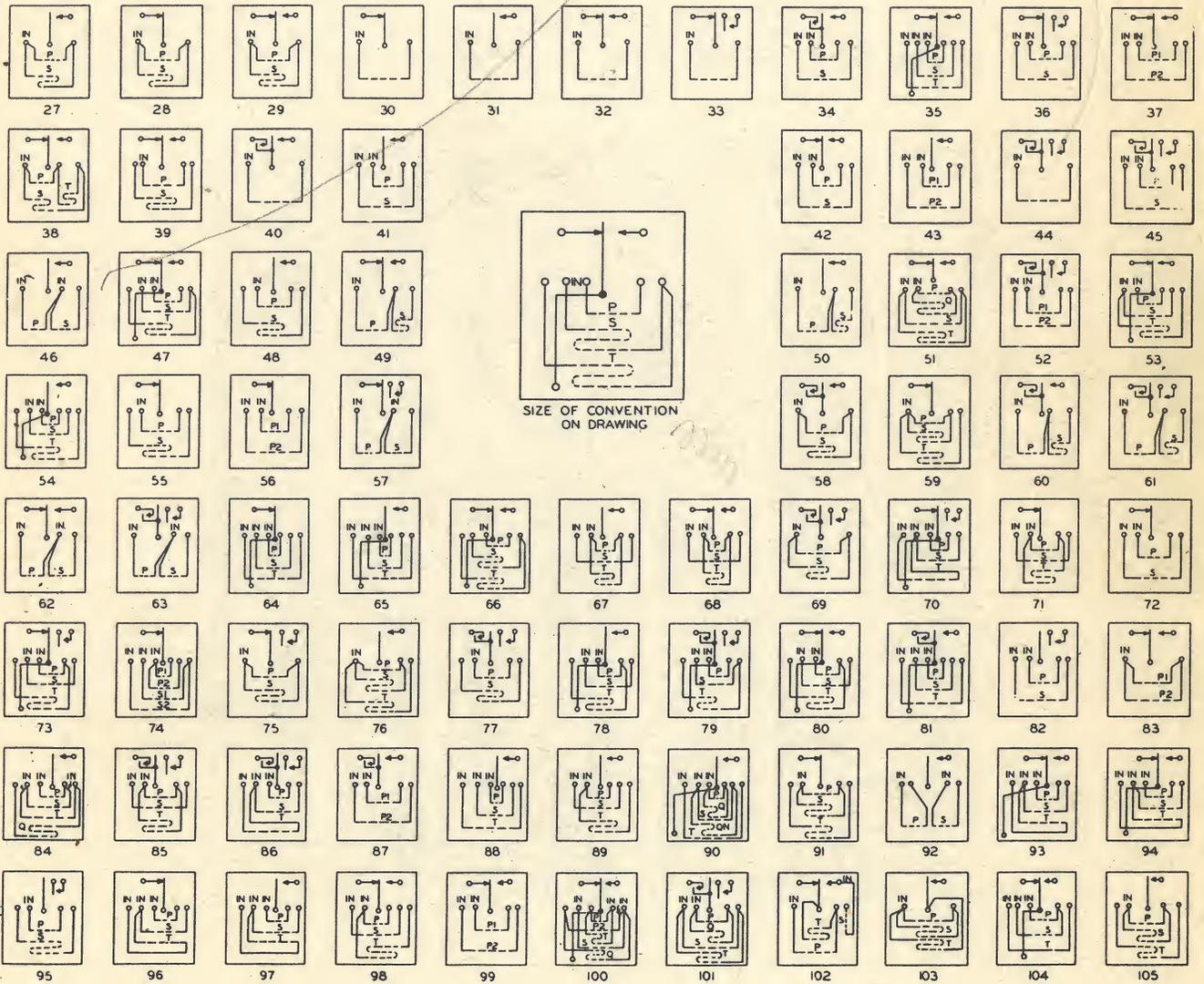
A, AB AND B TYPE RELAY CODES

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B332		41	PRI SEC	100 12000	B404		41	PRI SEC	500 500	B472		41		10	B548		41	PRI SEC	85 10000	B605		45	PRI SEC	32 2400
B333		31		1.7			31		2000	B476		45		32	B551		44		10000			48	PRI SEC	50 120
B334		27	COMB	9.4	B405		46	PRI SEC	27	B479		45		400	B552		30		6000			36	PRI SEC	450 450
B335		31		1800	B406		41	PRI SEC	1000 1000	B482 B484		45		220	B553		42	PRI SEC	400 400	B555		31		140
B336		44		9			42	PRI SEC	85 1800	B486		41		200	B556		46	PRI SEC	85 9000	B557		27	COMB	0.283
B337		32		250	B407		30		5	B487		41		85	B557		31		200	B556		77	PRI SEC	87 1000
B338		30		50	B408		31		5			41		900	B558		36	PRI SEC	85 1800			44		5000
B340		31		2500			36	PRI SEC	500 500	B488		41		900	B558		36	PRI SEC	85 1800			44		5000
B341		41	PRI SEC	100 100	B409		31		6.5	B488		41		900	B558		36	PRI SEC	85 1800			44		5000
B342		31		20	B410		31		5			41		900	B558		36	PRI SEC	85 1800			44		5000
B343		27	COMB	18.7			31		5			41		900	B558		36	PRI SEC	85 1800			44		5000
B344		27	COMB	4.2	B411		31		5			41		900	B558		36	PRI SEC	85 1800			44		5000
B345		41	PRI SEC	0.5 250	B412 B413 B414		31		5 5			41		900	B558		36	PRI SEC	85 1800					

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	
B1000		31		10000	B1061		41	PRI	745	B1119		42	FRI	85	G38		45	PRI	500	G92		48	PRI	98.5	
B1003		31		13000																					
B1004		97	PRI	300	B1062		43	P1	200	B1120		100	PL&T	3.3	G39		31	PRI	175	G93		43	P1	250	
			SEC	690													45	PRI	34				P2	250	
			TER	1309	B1063		37	P1	6										10.0	G34		31	P1	11	
B1005		93	PRI	300															250	G95		74	P1	150	
			SEC	690	B1064		41	PRI	9000	B1121		42	PRI	80	G42		41	PRI	150				P2	150	
			TER	1309															250				S1	145	
B1006		41	PRI	100	B1065		41	PRI	125										150				S2	145	
			SEC	12000						B1122		42	PRI	1655	G43		72	PRI	250	G96		52	P1	10	
B1007		41	PRI	1.7	B1066		41	PRI	220	B1123		101	P&Q	145	G44		33	PRI	1980	G97		56	P1	10	
			SEC	400															250				P2	10	
B1008		45	PRI	6.5	B1067		41	PRI	75										250	G98		37	P1	10	
			SEC	500															250				P2	10	
B1009		44	PRI	50	B1068		46	PRI	85										480				P2	10	
B1010		65	PRI	1000	B1069		43	P1	12000	B1124		102	PRI	10	G47		32	PRI	10000	G99		39	PRI	147	
			SEC	1000															500				SEC	125	
			TER	2600	B1070		41	PRI	400	B1125		42	PRI	190	G48		88	PRI	500						
B1011		31		1.7															1000						
B1012		31		29700						B1126		33	PRI	560	G49		41	PRI	250						
B1013		31		1500	B1071		44	PRI	50										250						
B1014		32		800	B1072		29	COMB	12.4	B1127		42	PRI	57					250	J1		40		1090	
B1015		32		165	B1073		41	PRI	32										10000	J2		44		1090	
B1016		32		1000						B1128		105	P&S	49	G50		44	PRI	250	J3		31		1090	
B1017		29	COMB	29.5	B1074		33	PRI	1800										250	J4		31		1090	
B1018		62	PRI	160	B1075		41	PRI	85	B1129		103	P&S	29.5	G52		41	PRI	520	J5		48	PRI	10000	
			SEC	24000															12000				SEC	5000	
B1019		31		1800	B1076		27	COMB	12.4										250	J6		31		1090	
B1020		44		85	B1077		43	P1	6										250	J7		32		1090	
B1021		96	PRI	300	B1079		87	P1	400	B1130		42	PRI	54	G55		55	PRI	205	J8		30		246	
			SEC	690															18	J9		31		246	
			TER	1309	B1080		31	PRI	1500	B1132		31	PRI	1.05	G56		42	PRI	450	J11		30		1090	
B1022		27	COMB	29.5	B1081		41	PRI	85										450	J12		31		1090	
B1023		27	COMB	560						B1133		42	PRI	2.7					400	J13		32		1090	
B1024		45	PRI	85	B1082		27	COMB	18.7										34	J14		81	PRI	650	
			SEC	1800	B1083		44	PRI	100	B1134		95	PRI	30					225				SEC	650	
B1025		44		1800	B1084		41	PRI	250										750				TER	425	
B1026		32		1800						B1135		32	PRI	500	G59		45	PRI	450	J15		30		1600	
B1027		98	PRI	195	B1085		36	PRI	85	B1136		32	PRI	560					250	J16		31		350	
			SEC	12000															250	J17		83	COMB	.075	
			TER	3100	B1086		41	PRI	200										250	J18		31		1090	
B1028		31		2250															500	J19		81	PRI	175	
B1029		44		600	B1087		32	PRI	400										3500				SEC	800	
B1030		32		6	B1088		38	COMB	12.4	G1									250				TER	800	
B1031		63	PRI	27															250	J20		31		1600	
			SEC	12000						G2									1100	J21		31		2500	
B1032		31		20000															1100	J22		31		1090	
B1033		31		2250	B1089		28	COMB	12.4										10000	J23		45	PRI	190	
B1034		40		5	B1090		32	PRI	5200	G3									32				SEC	1350	
B1035		44		500	B1091		42	PRI	500	G4									445	J24		40		1090	
B1036		90	P&Q	26	B1092		46	PRI	160										500	J25		31		1600	
			COMB							B1093		31	PRI	24000	G5				32	J26		31		1090	
			S&Q							B1094		54	PRI	33	G7				1100	J27		86	PRI	175	
			TER	24000															950	J28			SEC	800	
B1037		32		2000															1100	J29		31		1090	
B1038		45	PRI	250	B1095		30	PRI	29700										950	J30		40		1600	
			SEC	250	B1096		42	PRI	400	G9									205	J31		31		1090	
B1039		31		500						B1097		36	PRI	400					18	J31		31		125	
B1040		31		1000	B1098		31	PRI	1750	G10									220	J32		31		187	
B1041		41	PRI	450															215	J33		33		1090	
			SEC	435	B1099		62	PRI	85	G11									150	J34		31		1090	
B1042		41	PRI	500						B1100		45	PRI	450	G73				150	J35		31		2500	
			SEC	500						B1101		45	PRI	300	G74				500	J36		32		1090	
B1043		93	PRI	328	B1102		30	PRI	150										300	J37		33		1090	
			SEC	553						B1103		45	PRI	300	G74				630	J39		33		1600	
			TER	761	B1103		31	PRI	8500	G14									250	G76		44		1090	
B1044		90	P&Q							B1104		31	PRI	500					340	J40					
			COMB	21.5															335	J41		34	PRI	625	
			S&Q		B1103		41	PRI	80	G16									500				SEC	1265	
			TER	13000	B1104		36	PRI	340	G17									500	J42		40		1600	
B1045		28	COMB	12.4						B1105		32	PRI	500	G76	</									

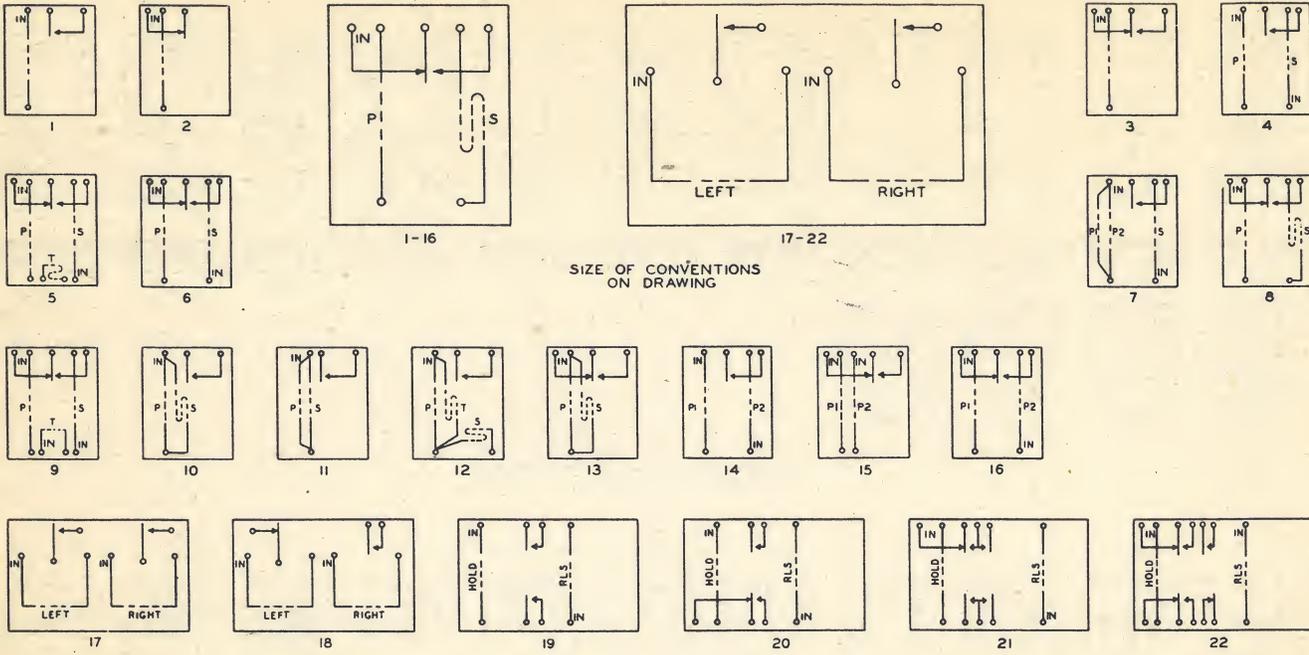


CONVENTIONS FOR A & AB TYPE RELAYS



CONVENTIONS FOR B, G & J TYPE RELAYS

A, AB, B, G & J TYPE RELAYS



SIZE OF CONVENTIONS
ON DRAWING

RELAY CODE	CONV. NO.	WDG.	OHMS RES.	RELAY CODE	CONV. NO.	WDG.	OHMS RES.	RELAY CODE	CONV. NO.	WDG.	OHMS RES.	RELAY CODE	CONV. NO.	WDG.	OHMS RES.
C1	17	LEFT	4500	M3	19	HOLD	72	S20	8	PRI. SEC.	500	S54	14	P1	20
		RIGHT	800			RLS	72				8000			P2	20
C2	18	LEFT	4500	M4	22	HOLD	250	S21	1		190	S55	1		500
		RIGHT	800			RLS	250	S22	6	PRI. SEC.	230	S56	6	PRI. SEC.	100
C3	18	LEFT	4500					S23	4	PRI. SEC.	57	S57	1		1900
		RIGHT	800								27	S58	10	COMB.	0.83
								S24	4	PRI. SEC.	57	S59	6	PRI. SEC.	10
											27				900
L1	6	PRI. SEC.	230	N2	12	P & T COMB. SEC.	425	S25	4	PRI. SEC.	57	S500	1		12000
			875				500				27	S501	1		12000
L2	1		295	N3	13	P & S COMB.	546	S26	4	PRI. SEC.	57	S502	3		135
L3	3		295					S27	4	PRI. SEC.	27	S503	3		135
L8	1		460	N4	16	P1	125	S28	4	PRI. SEC.	57	S504	3		250
						P2	125	S29	1		27	S505	4	PRI. SEC.	65
L9	10	P & S COMB.	0.83					S30	3		3000	S506	4	PRI. SEC.	40
								S31	4	PRI. SEC.	700	S507	3		8450
L11	9	PRI. SEC. TER.	10					S32	1		1	S508	6	PRI. SEC.	1000
			700								27				1000
L12	3		19	S1	4	PRI. SEC.	40	S33	4	PRI. SEC.	18000	S509	1		10
L13	1		3				40	S34	4	PRI. SEC.	800	S510	3		20.5
L14	1		460	S2	4	PRI. SEC.	40	S35	3	PRI. SEC.	800	S511	1		6000
L15	6	PRI. SEC.	430				40	S36	4	PRI. SEC.	75	S512	3		100
			3500	S3	4	PRI. SEC.	40	S37	3	PRI. SEC.	250	S513	14	P1	200
L16	3		205				40	S38	1		19	S514	1	P2	200
L17	4	PRI. SEC.	200	S4	4	PRI. SEC.	40	S39	1		30	S515	16	P1	25
			200				295	S40	6	PRI. SEC.	12000	S516	3	P2	25
L18	1		500	S5	3		295	S41	4	PRI. SEC.	4.5	S517	5	PRI. SEC. TER.	10
L19	1		500	S6	1		295	S42	4	PRI. SEC.	90	S518	16	EACH	200
L20	1		7500	S7	2		125	S43	1		5	S519	16	EACH	25
L21	1		18000	S8	1		19	S44	4	PRI. SEC.	250	S520	16	EACH	200
L22	11	COMB.	0.3	S9	1		250	S45	4	PRI. SEC.	250	S521	6	PRI. SEC.	430
L23	3		19	S10	3		24				27				1500
L24	6	PRI. SEC.	230	S11	6	PRI. SEC.	10	S46	3		500				
			875				900	S47	3		57				
L500	1		125	S12	1		6.5	S48	4	PRI. SEC.	27				
L501	1		18600	S13	1		12000	S49	1	PRI. SEC.	7700				
L502	1		2000	S14	2		295	S50	1		10000				
				S15	4	PRI. SEC.	40	S51	3						
							40	S52	1						
				S16	4	PRI. SEC.	40	S53	6	PRI. SEC.	40				
							40								
				S17	7	P1 & P2 COMB. SEC.	0.5								
							100								
M1	20	HOLD RLS.	85	S18	3		295								
			85	S19	1		700								
M2	21	HOLD RLS.	150												
			150												

C,L,M,N & S TYPE RELAYS

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E3	52	26		500	E100	58	413	PRI	115	E150	55	502	PRI	175	E197	52	14		40	E250	52	14		500
E4	52	101	PRI	250	E101	54	359	SEC	1000	E151	56	563	SEC	1000	E198	57	607	P&T		E251	52	51		34
E5	52	18		1000	E102	54	376		34	E152	52	253	COMB	110				COMB	83	E252	56	609	COMB	333
E6	52	131		570	E103	53	220		485	E153	52	18		570	E199	52	18		34	E253	52	120	COMB	333
E7	54	305		500	E104	53	206		500	E154	52	131		485	E200	53	144		500	E255	52	31	PRI	350
E8	52	35		875	E105	52	25		1000	E155	52	22		5	E201	52	120	COMB	113				SEC	500
E9	52	23		40	E106	52	29		500	E156	56	568	P&T		E202	52	18		60	E256	52	44		500
E11	53	220		500	E107	52	25		34				COMB	113	E203	56	603	PRI	60	E257	55	413	PRI	80
E12	52	18		20	E108	54	269		485				SEC	12				SEC	440				SEC	1000
E23	52	24		500	E109	52	34		34	E157	52	111	PRI	350	E204	53	209		500	E258	52	39		10
E24	52	22		500	E111	53	220		220				SEC	500	E205	52	89	PRI	1500	E259	53	141	COMB	800
E28	52	18		350	E112	52	48		220	E158	52	13	PRI	200				SEC	1500	E260	52	48		60
E30	56	611	COMB	113	E113	53	144		120				SEC	2000	E206	52	39		220	E261	53	201		500
E31	52	39		500	E114	52	18		500	E159	52	111	PRI	32	E207	52	35		40	E262	52	18		120
E34	52	48		500	E115	53	253	COMB	500				SEC	400	E208	53	221	PRI	87	E263	56	610	PRI	45
E41	52	22		34	E116	54	381	PRI	32	E160	53	248	PRI	385				SEC	1000				SEC	45
E43	53	220		34				SEC	400				SEC	600	E209	52	24		150				TER	40
E45	52	18		250	E117	52	101	PRI	500	E161	56	595	COMB	301	E210	52	24		60				QUAT	1000
E60	52	48		34				SEC	500	E162	52	24		1000	E211	55	502	PRI	87	E264	53	209		2000
E61	55	437	PRI	87	E118	52	31	PRI	72	E163	52	22		60				SEC	1000	E265	52	12		2000
E63	52	48		20				SEC	34	E164	52	7	PRI	500	E212	52	29		220	E266	52	23		1000
E64	52	22		40	E119	54	339	PRI	160				SEC	500	E213	54	269		1000	E267	52	2		60
E65	52	48		1000				SEC	160	E165	52	48		230	E214	52	35		500	E268	53	176	PRI	500
E66	52	25		350	E120	52	31	PRI	9.5	E166	55	436	PRI	5	E215	52	31	PRI	100				SEC	500
E67	52	25		40				SEC	45				SEC	1000				SEC	500	E269	52	24		34
E68	52	29		40	E121	53	200	PRI	9.5	E167	56	598	PRI	15	E216	52	51		500	E270	56	613	COMB	83
E69	52	36	PRI	70				SEC	105				SEC	60	E217	53	143	PRI	150	E271	53	211	PRI	500
E70	52	18		100	E122	54	377	COMB	301	E168	53	195	PRI	7				SEC	400				SEC	60
E71	52	25		250	E124	52	57	PRI	60				SEC	500	E218	52	99	COMB	113	E272	56	599		500
E72	52	25		380				SEC	30	E169	56	599		15	E129	53	141	COMB	113	E273	52	35		5
E73	53	183		500	E125	53	195	PRI	5	E170	52	48		40	E220	52	111	PRI	150	E274	56	612	PRI	500
E74	53	220		60				SEC	1000	E171	54	381	PRI	10				SEC	500				SEC	400
E75	52	18		150	E126	53	248	PRI	30				SEC	10	E221	52	22		500	E275	54	352	P&T	
E76	53	201		100				SEC	200	E172	52	22		350	E222	52	39		40				COMB	83
E77	52	65		1000	E127	52	25		500	E173	52	96		500	E223	52	23		34				SEC	40
E78	52	48		50	E128	52	109	COMB	500	E174	52	24		50	E224	53	141	COMB	500	E276	56	614	COMB	83
E79	55	430		220	E129	52	111	PRI	500	E175	56	598	PRI	15	E225	56	604	COMB	500	E277	54	269		60
E80	52	10		500				SEC	500				SEC	350	E226	52	38		500	E278	56	615		500
E81	56	602	PRI	67	E130	52	95	PRI	87	E176	55	403	PRI	425	E227	52	24		34	E279	52	29		10
E82	52	29		34				SEC	1000				SEC	500	E228	52	48		150	E280	52	39		55
E83	54	359		85	E131	54	376		100	E177	54	380	COMB	800	E229	52	26		34	E281	52	12		500
E84	54	359		34	E133	53	223	PRI	500	E178	52	57	PRI	425	E230	53	201		60	E282	52	13	PRI	32
E85	55	436	PRI	500				SEC	500				SEC	500	E231	52	13	PRI	500				SEC	400
E86	52	29		60	E134	54	389	PRI	175	E179	53	220		150				SEC	500	E283	54	398	PRI	250
E87	55	451	PRI	1000				SEC	1000	E180	56	600	COMB	301	E232	52	24		350				SEC	700
E88	54	359		350	E135	52	99	COMB	301	E181	54	280		34	E233	53	220		100	E284	52	114		350
E89	52	25		75	E136	52	88	P&T		E182	54	343	PRI	67	E234	52	24		100	E285	52	89	PRI	24
E90	52	35		60				COMB	83				SEC	1000	E235	52	22		10				SEC	400
E91	54	376		500				SEC	40	E183	52	99	COMB	500	E236	52	18		40	E286	53	144		400
E92	52	18		10	E137	52	35		34	E184	53	253	COMB	113	E237	52	109	COMB	83	E287	52	51		500
E93	52	25		110	E138	52	89	PRI	34	E185	56	603	PRI	500	E238	53	220		500	E288	52	49	PRI	32
E94	54	376		250				SEC	316				SEC	1500	E239	56	605	PRI	45				SEC	400
E95	54	376		50	E139	52	23		10	E186	52	17		500				SEC	45	E289	53	200	PRI	170
E96	57	762	P1	200	E140	53	206		150	E187	54	368		875				TER	40				SEC	400
E97	55	501	P2	200				COMB	40				SEC	1000	E188	56	602	PRI	115				QUAT	1000
E98	53	248	P1	250	E141	52	33		350				SEC	1000	E240	56	608	COMB	83	E290	52	99	COMB	200
E99	55	413	PRI	1000	E142	54	325		34				SEC	1000	E241	54	280		500	E291	53	180	PRI	40
			P2	250	E143	52	133	COMB	500	E189	52	39		1000	E242	53	221	PRI	67	E292	56	617	PRI	90
			P2	250	E144	52	84	P&T		E190	53	221	PRI	90				SEC	1000				SEC	90
			P2	250				COMB	350				SEC	1000	E243	56	601		220				TER	1000
			P2	250	E145	55	413	PRI	500				SEC	500	E244	54	343	PRI	87	E293	52	89	PRI	600
			P2	250				SEC	1000	E192	52	48		500				SEC	1000				SEC	700
			P2	250	E146	52	22		34	E193	53	177		113				SEC	1000				SEC	400
			P2	250	E147	52	39		34	E194	52	22		40	E245	55	474		500	E294	55	445	PRI	500
			P2	250	E148	52	48		350	E196	57	606	P&T		E246	52	99	COMB	76				SEC	300
			P2	250	E149	52	34		500				COMB	83	E247	55	444	COMB	301	E295	53	220		485
			P2	250				SEC	500				SEC	130	E248	52	14		150	E296	52	105	COMB	113
			P2	250				SEC	500				SEC	130	E249	52	23		500	E297	53	220		180

E TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	
E298	56	618	PRI	500	E346	52	18		1000	E393	56	645	PRI	1000	E452	52	35		2000	E515	52	22		220	
			SEC	700	E347	52	18		500				SEC	1000	E453	52	114		750	E516	54	272		500	
			TER	2000	E348	54	380	COMB	301	E394	53	183		2000	E455	52	57	PRI	1000	E517	52	78		750	
E299	52	22		40	E349	56	623	COMB	301	E395	52	131		1000				SEC	800	E519	52	49	PRI	100	
E300	52	39		400	E350	52	14		172	E396	54	300		1000	E456	52	27		750				SEC	500	
E301	56	619	P&T		E351	52	22		7	E397	53	204		1000	E457	52	2		750	E522	52	89	PRI	40	
			COMB	347	E352	55	413	PRI	93	E398	56	628		500	E458	52	39		1000				SEC	45	
			SEC	290				SEC	1000	E399	53	144		1000	E459	52	49	PRI	250	E523	52	23		60	
E302	56	620	COMB	40	E353	52	23		110	E400	53	162		2000				SEC	1000	E524	52	49	PRI	500	
E303	52	48		500	E354	56	624	PRI	500	E401	52	17		220	E460	52	26		150				SEC	1000	
E304	53	253	COMB	200				SEC	500	E402	53	173		PRI	250	E461	52	35		1000	E525	52	39		220
E305	54	300		350	E355	56	625	PRI	500				SEC	120	E462	52	18		1000	E526	52	111	PRI	1000	
E306	56	621	PRI	32				SEC	500	E403	52	31		110	E463	52	24		1000				SEC	1000	
			SEC	400	E356	52	51		350				SEC	1000	E464	52	21		500	E527	52	111	PRI	1000	
E307	52	112	PRI	32	E357	52	14		500	E404	56	629	PRI	500	E465	52	10		1000				SEC	500	
			SEC	400	E358	52	48		500				SEC	120	E466	52	62		1000	E528	52	78		1000	
E308	52	25		85	E359	52	18		2000	E406	52	5		150	E467	52	18		220	E529	52	10		60	
E309	54	381	PRI	500	E360	54	381	PRI	50				SEC	400	E468	52	107	PRI	500	E530	52	38		2000	
			SEC	500				SEC	400	E407	56	646	COMB	83				SEC	500	E531	53	162		500	
E310	52	31	PRI	50	E361	52	22		100	E408	52	131		1500	E469	52	25		2000	E532	52	5	PRI	1200	
			SEC	500	E362	54	376		15	E409	56	600	COMB	750	E470	53	153	PRI	500				SEC	800	
E311	52	18		50	E363	54	376		500	E410	56	630	COMB	750				SEC	1000	E533	52	35		350	
E313	54	291	PRI	500	E364	54	379		500	E411	52	22		570	E471	52	24		220	E534	52	22		2000	
			SEC	500	E365	52	23		60	E412	53	232		350	E472	54	291	PRI	200	E535	52	98		20	
E314	56	599		60	E366	56	626	PRI	2.1	E413	53	220		1000				SEC	700	E536	53	179		500	
E315	52	109	COMB	113				SEC	1000	E414	52	48		500	E473	52	44		1000	E537	52	26		2000	
E316	52	48		220	E367	52	103		2000	E416	53	183		500	E474	52	11	PRI	100	E538	53	210	PRI	500	
E317	52	120	COMB	172	E368	52	28	PRI	1000	E417	53	210	PRI	500				SEC	1000	E539	52	28	PRI	600	
E318	52	23		60				SEC	1000				SEC	120	E475	53	264	PRI	1000	E540	53	210	PRI	500	
E319	52	35		500	E369	57	705	PRI	300	E418	52	100	PRI	50				SEC	1000	E541	52	101	PRI	400	
E320	52	120	COMB	500				SEC	1000				SEC	500	E476	52	10		2000	E542	52	28	PRI	600	
E321	54	277	P&T		E370	52	38		500	E419	52	89	PRI	500	E478	52	11	PRI	150				SEC	275	
			COMB	301	E371	52	48		2000				SEC	500				SEC	500	E543	52	39		2000	
			SEC	500	E372	52	44		2000	E420	52	101	PRI	1000	E480	52	49	PRI	85	E544	52	49	PRI	1000	
E322	52	39		120	E373	56	627	PRI	500				SEC	700				SEC	500				SEC	1000	
E323	52	23		500				S&T		E422	52	26		2000	E482	56	646	COMB	500	E545	52	14		2000	
E324	52	109	COMB	301				COMB	143	E423	56	631		1000	E484	52	39		500	E546	52	5	PRI	100	
E326	53	177	COMB	500	E374	53	231		1000	E424	56	632	PRI	500	E485	54	368		220				SEC	800	
E327	56	622	PRI	500	E375	55	403	PRI	1200				SEC	475	E486	52	101	PRI	8	E547	52	111	PRI	900	
			SEC	700				SEC	800	E425	56	633	PRI	100				SEC	335				SEC	400	
			TER	2000	E376	54	273	PRI	1000				SEC	575	E487	52	24		220	E548	52	111	PRI	1500	
E328	52	23		200				SEC	350	E426	52	95	PRI	475	E488	52	23		350				SEC	500	
E329	53	141	COMB	600	E377	53	257	PRI	1000				SEC	45	E490	53	193		1500	E549	53	187	PRI	160	
E330	52	47		220				SEC	350	E427	53	156		2000	E491	52	16	PRI	160				SEC	160	
E331	56	612	PRI	700	E378	52	16	PRI	500	E428	52	51		2000				SEC	160	E550	54	307		300	
			SEC	100				SEC	1000	E429	52	48		2000	E494	52	11	PRI	80	E551	52	23		100	
E332	56	568	P&T		E379	53	200	PRI	200	E430	52	91	COMB	500				SEC	200	E552	52	101	PRI	120	
			COMB	167				SEC	700	E431	53	137		2000	E495	52	107	PRI	100				SEC	130	
			SEC	100	E380	52	18		500	E432	55	474		1000				SEC	400	E553	53	193		500	
E333	55	413	PRI	115	E381	53	197	PRI	500	E433	52	35		220	E498	52	49	PRI	150	E554	52	2		3000	
			SEC	1000				SEC	300	E435	52	37	PRI	100				SEC	500	E555	52	39		3000	
E334	52	14		34	E382	52	49	PRI	850				SEC	250	E499	52	79	PRI	45	E556	53	253	COMB	750	
								SEC	1000	E436	52	49	PRI	100				SEC	325	E557	52	10		2000	
					E383	52	38		350				SEC	250	E500	52	48		500	E558	52	29		60	
E336	52	87		500	E384	54	365		500	E437	52	103		1000	E502	52	38		1000	E560	53	195	PRI	130	
E337	52	22		1000	E385	52	38		750	E438	52	39		85	E503	52	106		1000				SEC	1000	
E338	52	97	PRI	500	E386	54	301		1000	E439	52	36	PRI	150	E504	56	635	PRI	100	E561	52	10		350	
			SEC	500	E387	52	67	PRI	32				SEC	500				SEC	400	E562	52	33		2000	
E339	52	23		5				SEC	400	E440	52	24		2000	E505	52	38		100	E563	52	35		2000	
E340	52	75		500	E388	52	101	PRI	32	E441	52	18		240	E506	53	207	PRI	2.1	E564	52	28	PRI	600	
E341	52	12		500				SEC	400	E442	52	18		250				SEC	1000				SEC	700	
E342	52	91	COMB	600	E389	52	40		500	E443	52														

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E570	54	398	PRI SEC	1000 700	E628	54	280		2000	E685	52	36	PRI SEC	110 1000	E742	53	183		2000	E805	54	371	PRI SEC	750 300
E571	53	200	PRI SEC	600 700	E630	52	34		1000	E686	52	2		1000	E743	56	648	PRI SEC	1000 800	E806	52	26		350
E572	52	14		2000	E632	52	57	PRI	600	E687	52	26		34	E744	52	5	PRI SEC	1500 1500	E807	52	22		15
E573	52	18		2000				SEC	700	E689	52	48		750	E745	52	23		2000	E809	52	109	COMB	113
E574	52	94		1000	E633	53	188	PRI	500	E690	52	12		1000	E747	53	217		1280	E810	52	99	COMB	113
E576	52	2		1000				SEC	500	E691	52	16	PRI	500	E748	52	4	PRI SEC	1000 650	E813	52	18		500
E577	52	93		500	E634	52	78		2000	E692	52	109	COMB	200						E814	52	39		500
E578	53	244	PRI SEC	200 200	E636	52	106		2000	E693	55	430		2000	E749	55	464	PRI SEC	1000 700	E815	52	89	PRI SEC	500 500
E579	56	637	PRI S&T COMB	225 40	E637	52	5	PRI SEC	500 1000	E694	52	87		1000	E750	52	36	PRI SEC	1000 1000	E818	52	11	PRI SEC	110 1000
E580	52	17		500	E638	53	138		500	E695	55	430		150	E751	52	131		2000	E819	53	220		2000
E582	52	26		1000	E639	52	25		750	E696	52	62		2000	E752	52	625	PRI SEC	1000 800	E820	52	89	PRI SEC	250 700
E583	53	192	PRI SEC	600 275	E641	53	186	PRI SEC	1000 1000	E698	52	4	PRI SEC	250 800	E753	52	31	PRI SEC	500 1000	E821	52	36	PRI SEC	1200 800
E584	52	33		1000	E642	52	10		220	E699	52	23		1000	E755	53	154	PRI SEC	1000 1000	E822	53	207	PRI SEC	1200 800
E585	52	49	PRI SEC	32 400	E643	52	35		1000	E700	52	17		100	E756	52	2		1000	E823	52	42	PRI SEC	1200 800
E587	52	95	PRI SEC	1000 400	E644	52	11	PRI SEC	1000 1000	E701	52	7	PRI SEC	8 325	E757	53	232		34	E825	52	7	PRI SEC	5 1000
E588	52	5	PRI SEC	325 500	E645	53	176	PRI SEC	50 500	E702	52	131		60	E758	53	197	PRI SEC	1000 1000	E826	52	24		2000
E589	52	29		1000	E647	53	176	PRI	50	E703	52	89	PRI	1500	E760	53	232		500	E827	52	31	PRI	500
E590	52	111	PRI SEC	550 125	E648	52	49	PRI SEC	100 575	E704	52	49	PRI SEC	2.1 1000	E763	52	23		500	E828	52	39		500
E591	53	201		2000	E649	55	436	PRI SEC	200 1000	E705	53	192	PRI SEC	100 250	E764	52	44		350	E829	52	40		350
E592	52	10		750	E650	52	18		50	E706	53	139	PRI SEC	100 250	E766	52	48		400	E830	52	7	PRI SEC	250 250
E593	52	18		2000	E651	52	13	PRI	8	E707	52	57	PRI	100	E767	53	144		750	E831	52	17		500
E594	52	34		2000				SEC	335	E708	52	7	PRI	100	E771	53	183		1000	E832	52	5	PRI	450
E595	52	96		570	E652	52	39		2000	E709	52	7	PRI	100	E772	52	36	PRI SEC	250 1000	E833	52	107	PRI SEC	190 1200
E596	52	17		1000	E653	52	109	COMB	200	E711	55	403	PRI	1000	E773	52	23		2000	E834	52	102		2000
E597	52	12		1000	E654	52	18		34	E712	52	101	PRI SEC	1500 1500	E774	52	31	PRI SEC	1000 1000	E835	54	280		2000
E598	52	14		1000	E655	53	206		1000	E713	52	22		350	E775	53	238		1500	E836	56	652	PRI SEC	300 700
E600	52	14		1000	E657	52	38		1000	E714	52	5	PRI SEC	100 250	E776	53	165		750	E837	52	89	PRI SEC	110 1000
E602	52	20	PRI SEC	500 120	E658	53	176	PRI SEC	500 500	E715	52	29		100	E777	52	15		500	E838	52	22		500
E604	54	302	COMB	83	E659	52	18		750	E716	52	106		100	E778	54	339	PRI SEC	1000 1000	E839	52	89	PRI SEC	1000 1000
E605	56	638	PRI SEC	500 120	E660	56	643	PRI SEC	80 1000	E717	52	10		220	E779	52	89	PRI SEC	1000 1000	E840	52	49	PRI SEC	1000 1000
E606	53	107	PRI SEC	10 1000	E661	56	614	COMB	500	E718	52	78		220	E780	53	149		2000	E841	53	219		350
E607	52	11	PRI SEC	10 1000	E662	52	11	PRI SEC	50 150	E719	52	101	PRI SEC	1500 1500	E781	53	187	PRI SEC	1000 1000	E842	52	38		140
E608	52	48		40	E663	52	14		350	E720	52	18		1000	E782	52	14		220	E843	52	14		400
E609	52	35		40	E664	52	89	PRI	200	E721	52	18		1000	E783	52	14		100	E844	52	51		500
E610	52	38		500	E665	56	644		500	E722	52	18		1000	E784	52	6	PRI SEC	100 1000	E845	56	653	PRI SEC	200 100
E611	52	78		500	E666	52	2		2000	E723	53	201		2000	E785	52	23		500	E846	52	101	PRI SEC	150 1000
E612	52	12		350	E667	52	2		2000	E724	52	12		2000	E786	52	14		220	E847	52	105	COMB	200
E613	52	52		500	E668	52	2		2000	E725	52	12		2000	E787	52	14		100	E848	52	107	PRI SEC	100 250
E614	55	413	PRI SEC	1000 600	E669	52	2		2000	E726	54	372		2000	E788	52	14		100	E849	52	30	PRI SEC	1000 1000
E615	52	93		500	E670	52	35		2000	E727	52	18		1000	E789	52	5	PRI SEC	500 150	E850	52	101	PRI SEC	150 500
E616	55	437	PRI SEC	1000 800	E671	52	22		200	E728	55	403	PRI SEC	5 1500	E790	52	30	PRI SEC	1000 2000	E851	52	10		220
E617	56	640	PRI SEC	425 350	E672	52	22		200	E729	52	18		1000	E791	52	16	PRI SEC	500 1000	E852	52	105	COMB	200
E618	52	18		750	E673	52	22		200	E730	52	33		2000	E792	52	16	PRI SEC	500 1000	E853	52	107	PRI SEC	100 250
E619	53	137		2000	E674	53	223	PRI SEC	1000 2000	E731	52	89	PRI SEC	1200 800	E793	52	30	PRI SEC	1000 2000	E854	52	23		3000
E620	52	17		2000	E675	53	200	PRI SEC	110 1200	E732	52	11	PRI SEC	1200 800	E794	52	16	PRI SEC	500 1000	E855	52	38		750
E621	52	18		2700	E676	52	25		500	E733	52	11	PRI SEC	1200 800	E795	52	16	PRI SEC	500 1000	E856	52	23		3000
E622	52	78		2000	E677	52	25		500	E734	52	49	PRI SEC	1200 800	E796	52	49	PRI SEC	500 1000	E857	52	38		750
E623	52	78		2000	E678	54	306	PRI SEC	2.1 1000	E735	52	5	PRI SEC	1200 800	E797	52	89	PRI SEC	500 1000	E858	52	96		2000
E624	53	179		2000	E680	52	11	PRI SEC	500 1000	E736	56	636		1500	E798	52	14		750	E859	52	106		500
E625	53	196		2000	E681	52	89	PRI	100	E737	56	612	PRI	2000	E799	52	35		750	E860	52	96		2000
E626	53	179		1000	E682	52	89	PRI	100	E738	52	67	PRI SEC	1000 1000	E800	52	36	PRI SEC	500 1000	E861	52	106		500
E627	53	162		2000	E683	52	16	PRI SEC	100 1000	E739	46	144		1000	E801	52	26		220	E862	52	106		500
					E684	52	5	PRI SEC	500 1000	E740	52	31	PRI SEC	2000 200	E802	52	36	PRI SEC	500 1000	E863	52	252	PRI SEC	1000 800

E TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E865	56	655		750	E924	54	371	PRI	500	E987	55	495	PRI	1000	E1045	52	30	PRI	500	E1107	53	232		2000
E867	53	201		350				SEC	300				SEC	1000				SEC	1000	E1109	57	674	PRI	1000
E868	53	217		1000	E925	52	105	COMB	181	E988	52	49	PRI	450	E1046	52	31	PRI	500				SEC	800
E869	52	10		1000	E926	52	129	PRI	200				SEC	190				SEC	1000	E1111	52	27		1000
E871	52	11	PRI	250				SEC	250	E989	52	26		350	E1048	52	51		750	E1112	52	55	PRI	1000
			SEC	1000	E928	54	368		2000	E990	56	660	PRI	87	E1051	52	29		350				SEC	800
E872	54	301		750	E929	52	49	PRI	1500				SEC	1000	E1052	53	195	PRI	1000	E1114	52	35		850
E873	53	195	PRI	1000				SEC	1500	E991	52	47		1000				SEC	1300	E1115	53	138		2000
			SEC	2000	E930	53	192	PRI	500	E992	56	661	PRI	40	E1053	56	669	PRI	2000	E1116	52	26		60
E874	52	12		500				SEC	500				SEC	350				SEC	300	E1117	52	18		500
E875	56	599		2000	E931	52	39		750	E993	56	662		350	E1054	53	232		2000	E1118	53	244	PRI	500
E876	52	11	PRI	100	E932	53	153	PRI	80	E994	52	89	PRI	500	E1055	52	48		100				SEC	500
			SEC	575				SEC	1000				SEC	1000	E1056	53	141	COMB	200	E1119	52	23		220
E878	52	119		500	E933	52	39		500	E996	56	663	PRI	1000	E1057	52	26		1000	E1121	52	78		500
E879	52	12		2000	E934	52	6	PRI	500				S&T		E1059	52	111	PRI	5	E1122	53	201		1000
E880	54	354		34				SEC	500				COMB	350				SEC	1500	E1123	52	16	PRI	200
E882	52	119		34	E935	52	18		850	E997	52	35		750	E1060	52	5	PRI	1000				SEC	2000
E883	52	111	PRI	100	E936	52	7	PRI	150	E999	53	179		500				SEC	1000	E1125	53	211	PRI	40
			SEC	575				SEC	500	E1000	52	20	PRI	500	E1061	56	670	PRI	300				SEC	1000
E884	52	52		350	E938	52	36	PRI	800				SEC	300				SEC	700	E1126	52	37	PRI	1000
E885	52	49	PRI	275				SEC	800	E1001	56	665	PRI	250				TER	500				SEC	1000
			SEC	165	E940	52	31	PRI	500				SEC	120	E1063	53	264	PRI	250	E1127	53	162		1000
E886	52	21		2000				SEC	1000	E1002	53	153	PRI	500				SEC	800	E1128	52	36	PRI	100
E887	53	195	PRI	250	E943	52	46	PRI	500				SEC	300	E1064	56	599		34				SEC	250
			SEC	800				SEC	500	E1003	52	39		34	E1065	55	493		350	E1130	53	263		2000
E888	53	179		1000	E944	52	22		100	E1004	52	69		500	E1066	54	365		1280	E1131	53	142	PRI	1800
E889	52	38		2000	E945	52	10		350	E1005	53	144		34	E1067	53	156		34				SEC	1000
E890	56	627	PRI	500	E946	52	87		500	E1006	54	346		40	E1068	57	672	PRI	2000	E1133	53	177	COMB	113
			S&T		E947	53	256	PRI	1000	E1007	54	346		120				SEC	100	E1134	53	253	COMB	500
			COMB	300				SEC	2000	E1008	52	35		2000				TER	100	E1135	52	48		120
E892	53	139	PRI	1000	E948	52	78		34	E1009	52	46	PRI	500	E1069	52	62		250	E1136	52	78		2000
			SEC	1000	E949	54	307		500				SEC	500	E1071	56	644		1000	E1138	52	35		1000
E893	54	372		750	E950	52	51		250	E1010	52	2		34	E1072	53	227	PRI	1000	E1139	52	22		3000
E895	52	128		1000	E952	52	39		320	E1011	52	106		850				SEC	800	E1140	53	183		1000
E896	52	96		850	E953	53	166	PRI	500	E1012	53	359		1000	E1073	54	354		1000	E1141	52	26		850
E897	52	93		1000				SEC	525	E1013	52	7	PRI	32	E1074	52	80		850	E1142	53	207	PRI	1000
E898	52	91	COMB	113	E954	55	488		500				SEC	400	E1075	55	535		2000				SEC	1000
E899	56	655		500	E956	52	35		220	E1014	56	640	PRI	40	E1077	54	372		1500	E1143	52	7	PRI	500
E900	52	11	PRI	18.3	E957	52	39		220				SEC	350	E1078	52	38		1500				SEC	1000
			SEC	285	E958	52	93		500	E1015	52	18		1000	E1079	52	57	PRI	500	E1144	53	153	PRI	250
E901	52	35		1000	E959	53	159	PRI	250	E1016	53	248	PRI	40				SEC	1000				SEC	2000
E902	52	62		500				SEC	250				SEC	1000	E1081	52	7	PRI	1500	E1145	52	20	PRI	1000
E903	52	48		20	E961	53	195	PRI	500	E1017	56	608	COMB	200				SEC	1500				SEC	120
E904	52	15		1000				SEC	1000	E1019	52	23		500	E1082	52	28	PRI	650	E1146	53	183		34
E905	52	101	PRI	40	E962	52	35		500	E1020	52	47		750				SEC	1000	E1147	52	114		500
			SEC	45	E963	53	210	PRI	67	E1022	52	96		1000	E1083	53	200	PRI	650	E1148	53	154	PRI	1000
E906	52	35		34				SEC	1000	E1023	52	5	PRI	700				SEC	1000				SEC	1000
E907	53	153	PRI	1000	E964	52	52		1000	E1024	54	347		1000	E1084	52	80		1000	E1149	53	244	PRI	500
			SEC	2000	E965	56	658	PRI	250	E1025	54	347		1000	E1085	52	2		2000				SEC	1500
E908	53	188	PRI	1000				SEC	700	E1026	52	15		1000	E1086	55	488		1500	E1150	52	17		750
			SEC	800	E966	53	220		1000	E1027	52	107	PRI	800	E1087	55	488		1500	E1151	52	40		1280
E909	53	232		350	E968	52	18		2.5				SEC	800	E1088	52	20	PRI	1000	E1152	52	26		2000
E910	52	7	PRI	700	E970	52	22		150	E1028	52	166	PRI	1000				SEC	800	E1153	52	101	PRI	34
			SEC	250	E971	52	49	PRI	500				SEC	1000	E1089	52	6	PRI	1000				SEC	180
E912	53	231		400				SEC	500	E1030	53	204		1000				SEC	1000	E1154	53	193		2000
E914	53	144		120	E972	52	26		400	E1032	52	21		1000	E1090	53	156		500	E1155	56	665	PRI	500
E915	53	188	PRI	1000	E974	53	196		500	E1033	52	101	PRI	600	E1091	54	346		500				SEC	300
			SEC	800	E975	53	156		220				SEC	400	E1092	53	197	PRI	40	E1156	54	272		1500
E917	52	57	PRI	32	E976	52	103		220	E1035	54	359		500				SEC	83	E1157	52	17		40
			SEC	400	E981	52	95	PRI	85	E1036	52	18		1500	E1093	52	111	PRI	500	E1158	56	660	PRI	500
E918	52	5	PRI	1000				SEC	300	E1037	52	22		250				SEC	500				SEC	300
			SEC	1000	E982	52	20	PRI	85	E1038	52	14		250	E1094	52	29		1000	E1159	52	95	PRI	200
E919	52	39		500				SEC	300	E1039	52	66		350	E1098	55	488		1000				SEC	50
E920	53	201		50	E983	53	187	PRI	40	E1041	52	2		500	E1101	52	35		250	E1161	52	79	PRI	250
E921	53	158	PRI	500				SEC	350	E1042	56	668	PRI	80	E1102	53	197	PRI	220				SEC	1000
			SEC	500	E985	52	35		100				SEC	200				SEC	120	E1162	53	156		1000
E922	52	25		850	E986	52	34		34	E1044	52	98		500	E1103	53	167		500	E1163	52	10		34
E923	53	144		700											E1104	55	488		1000					

E TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E1164	57	675	PRI SEC TER	700 700 700	E1214	57	681	PRI SEC TER	700 18 18	E1290	52	11	PRI SEC	250 250	E1346 E1349	52 52	18 96		850 350	E1415	52	49	PRI SEC	250 1000
E1165	57	676		1500	E1215	52	128		2000	E1291	53	167		1500	E1350	55	521	PRI SEC	1000 800	E1417	52	24		220
E1167	52	101	PRI SEC	700 700	E1216	52	23		2000	E1292	52	30	PRI SEC	1000 500	E1351	52	18		20	E1418	53	201		100
E1168	52	106		2000	E1217	52	103		1500	E1293	52	107	PRI SEC	500 1000	E1353	52	18		2000	E1419	52	38		220
E1169	53	196		1000	E1218	52	109	COMB	230	E1294	53	230		1280	E1354	52	55	PRI SEC	100 1000	E1420	52	12		350
E1170	52	31	PRI SEC	365 750	E1219	52	11	PRI SEC	21.7 330	E1295	56	636		1500	E1355	52	55	PRI SEC	140 475	E1421	52	101	PRI SEC	60 60
E1171	52	17		1500	E1220	52	38		285	E1296	52	96		1500	E1356	52	52		750	E1422	52	10		750
E1172	52	89	PRI SEC	1000 1000	E1221	52	93		1500	E1297	52	22		55	E1357	53	198		2000	E1423	52	111	PRI SEC	100 850
E1173	52	29		1500	E1222	52	106		220	E1298	52	49	PRI SEC	1000 1000	E1358	52	128		60	E1424	52	31	PRI SEC	175 210
E1174	52	21		500	E1223	52	14		500	E1299	52	35		2000	E1359	57	684		1500	E1425	52	18		500
E1176	57	677	COMB	500	E1224	52	36	PRI SEC	500 1000	E1300	57	687		1000	E1360	52	52		350	E1426	56	644		500
E1177	52	39		400	E1225	52	93		2000	E1301	52	89	PRI SEC	300 1800	E1361	53	223	PRI SEC	1000 120	E1427	52	52		1000
E1178	53	186	PRI SEC	15 60	E1226	52	31	PRI SEC	11 750	E1302	52	89	PRI SEC	1000 1000	E1362	52	18		5000	E1428	52	111	PRI SEC	200 2000
E1181	52	18		34	E1227	52	16	PRI SEC	250 250	E1303	52	18		2.2	E1363	55	454		1000	E1429	52	89	PRI SEC	1000 1000
E1182	52	18		100	E1228	52	14		500	E1304	52	5	PRI SEC	500 500	E1364	52	33		1500	E1430	52	89	PRI SEC	1000 1000
E1183	53	196		500	E1229	52	23		850	E1305	52	13	PRI SEC	365 750	E1365	52	33		1500	E1431	52	5	PRI SEC	1000 1000
E1184	53	153	PRI SEC	280 2000	E1230	52	17		2000	E1306	52	13	PRI SEC	365 750	E1366	52	33		1500	E1432	52	11	PRI SEC	1000 1000
E1185	52	6	PRI SEC	50 900	E1231	52	93		850	E1307	53	156		2000	E1367	52	21		1000	E1433	52	49	PRI SEC	1000 1000
E1186	53	210	PRI SEC	1000 800	E1232	52	95	PRI SEC	250 500	E1308	52	22		2000	E1368	52	21		150	E1434	52	107	PRI SEC	1000 1000
E1187	53	166	PRI SEC	100 1000	E1233	52	49	PRI SEC	350 750	E1309	55	474		2000	E1369	52	28	PRI SEC	1000 1800	E1435	52	52		350
E1188	52	118	PRI SEC	1000 1000	E1234	52	49	PRI SEC	150 750	E1310	52	83	PRI SEC	1400 1000	E1370	52	21		1000	E1436	52	49	PRI SEC	15 60
E1189	52	30	PRI SEC	80 1000	E1235	52	79	PRI SEC	150 750	E1311	52	78		1000	E1371	52	95	PRI SEC	300 1000	E1437	52	101	PRI SEC	15 60
E1190	52	4	PRI SEC	850 3400	E1236	54	372		1500	E1312	52	21		350	E1372	52	21		150	E1438	52	101	PRI SEC	34 466
E1191	52	49	PRI SEC	1000 1000	E1237	53	220		850	E1313	56	644		1500	E1373	52	21		1000	E1439	52	49	PRI SEC	34 466
E1192	52	49	PRI SEC	500 500	E1238	52	26		750	E1314	52	78		1000	E1374	52	8	PRI SEC	500 1000	E1440	52	103		350
E1193	52	18		34	E1239	52	35		500	E1315	52	21		350	E1375	52	8	PRI SEC	500 1000	E1441	52	23		500
E1194	52	111	PRI SEC	1000 800	E1240	55	485	PRI SEC	500 500	E1316	52	5	PRI SEC	1000 700	E1376	53	253	COMB	10.7	E1442	52	29		1000
E1195	53	197	PRI SEC	250 800	E1241	52	18		350	E1317	52	35		850	E1377	55	450	PRI SEC	500 500	E1443	52	25		500
E1196	52	111	PRI SEC	275 165	E1242	52	95	PRI SEC	250 500	E1318	52	101	PRI SEC	80 1000	E1378	52	95	PRI SEC	300 120	E1444	52	23		500
E1197	53	217		500	E1243	52	49	PRI SEC	350 750	E1319	53	234	PRI SEC	500 1000	E1379	55	454		750	E1445	52	29		1000
E1198	54	327		500	E1244	52	49	PRI SEC	150 750	E1320	55	474		2000	E1380	52	28	PRI SEC	1000 1800	E1446	52	29		1000
E1199	52	17		1000	E1245	52	79	PRI SEC	150 750	E1321	56	644		1500	E1381	57	689	PRI SEC	250 700	E1447	57	694	PRI SEC	500 500
E1200	52	24		1000	E1246	52	95	PRI SEC	250 500	E1322	52	21		1000	E1382	57	689	PRI SEC	250 700	E1448	52	29		1000
E1201	52	10		1000	E1247	52	49	PRI SEC	150 750	E1323	52	21		1000	E1383	55	450	PRI SEC	500 500	E1449	52	29		500
E1202	52	11	PRI SEC	500 500	E1248	52	79	PRI SEC	150 750	E1324	53	144		1050	E1384	52	8	PRI SEC	500 1000	E1450	52	29		500
E1203	52	22		500	E1249	52	79	PRI SEC	150 750	E1325	52	22		500	E1385	53	253	COMB	10.7	E1451	53	231		500
E1205	53	256	PRI SEC	1000 1000	E1250	55	485	PRI SEC	500 500	E1326	52	29		750	E1386	52	35		400	E1452	52	14		350
E1206	52	18		90	E1251	52	18		350	E1327	53	183		220	E1387	52	35		400	E1453	53	137		1500
E1207	52	27		100	E1252	52	18		350	E1328	52	18		600	E1388	55	450	PRI SEC	500 500	E1454	52	4	PRI SEC	500 300
E1209	52	31	PRI SEC	1000 800	E1253	53	193		1000	E1329	52	18		600	E1389	52	95	PRI SEC	500 120	E1455	52	4	PRI SEC	500 300
E1210	57	680	PRI SEC	2.1 1000	E1254	52	26		750	E1330	52	89	PRI SEC	1000 1000	E1390	56	659	PRI SEC	17 570	E1456	53	137		1500
E1211	53	183		2000	E1255	52	35		500	E1331	52	83	PRI SEC	1400 1000	E1391	56	659	PRI SEC	17 570	E1457	52	4	PRI SEC	500 300
E1212	56	664	PRI SEC	700 18	E1256	52	23		750	E1332	52	89	PRI SEC	1000 1000	E1392	53	145		500	E1458	52	4	PRI SEC	500 1000
E1213	56	667		500	E1257	52	35		500	E1333	52	89	PRI SEC	1000 1000	E1393	52	22		1280	E1459	53	206		750
					E1258	52	10		1500	E1334	52	116		1500	E1394	52	78		150	E1460	52	119		220
					E1259	52	10		1500	E1335	52	31	PRI SEC	280 800	E1395	57	691	PRI SEC	250 120	E1461	52	101	PRI SEC	40 45
					E1260	57	682	PRI SEC	80 1000	E1336	54	354		500	E1396	57	691	PRI SEC	250 120	E1462	53	144		500
					E1261	57	683	PRI SEC	1000 1000	E1337	52	95	PRI SEC	2000 1000	E1397	52	23		100	E1463	53	144		500
					E1262	52	38		1000	E1338	52	2		1500	E1398	52	10		500	E1464	54	359		1500
					E1263	52	14		850	E1339	63	168	PRI SEC	500 300	E1399	52	62		1000	E1465	53	200	PRI SEC	365 750
					E1264	52	33		500	E1400	53	195	PRI SEC	1000 800	E1401	56	642	PRI SEC	500 1000	E1466	52	22		10
					E1265	52	69		1000	E1402	53	195	PRI SEC	1000 500	E1402	53	195	PRI SEC	1000 500	E1467	52	111	PRI SEC	1000 1000
					E1266	56	664	PRI SEC	1000 18	E1403</														

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E1474	52	18		500	E1533	53	159	PRI	500	E1595	52	79	PRI	500	E1658	52	31	PRI	10	E1705	52	27		1500
E1475	52	95	PRI	500				SEC	1000				SEC	1000				SEC	300	E1706	52	10		250
			SEC	500	E1534	53	153	PRI	250	E1597	53	141	COMB	500	E1659	52	11	PRI	1000	E1707	52	78		250
E1476	52	46	PRI	10				SEC	800	E1598	52	22		500				SEC	1000	E1708	52	106		1000
			SEC	1000	E1535	52	99	COMB	500	E1599	54	368		750	E1661	52	14		1000	E1709	52	39		400
E1477	53	171		1000	E1536	56	660	PRI	1000	E1600	52	18		150	E1662	57	673	PRI	700	E1711	52	106		2000
E1479	52	89	PRI	150				SEC	800	E1601	53	220		500				SEC	18	E1712	52	34		500
			SEC	400	E1537	52	51		34	E1603	53	251	PRI	500				TER	18	E1714	53	137		2000
E1480	52	35		200	E1539	52	23		220				SEC	300	E1663	52	52		750	E1715	52	17		850
E1481	52	11	PRI	150	E1540	52	10		500	E1604	52	26		350	E1664	52	5	PRI	150	E1718	52	84	P&T	
			SEC	400	E1541	52	78		500	E1606	53	156		34				SEC	800				COMB	40
E1482	57	697		1500	E1542	52	10		200	E1607	52	78		1500	E1665	52	5	PRI	600				SEC	350
E1483	53	209		2000	E1543	52	27		220	E1609	52	4	PRI	200				SEC	800	E1720	52	6	PRI	500
E1485	52	39		850	E1544	52	14		200				SEC	1500	E1666	52	49	PRI	150				SEC	60
E1487	52	39		10	E1545	53	159	PRI	500	E1610	52	5	PRI	175				SEC	800	E1721	52	17		1000
E1488	57	698	COMB	88				SEC	250	E1611	52	5	PRI	100	E1667	53	153	PRI	375	E1722	52	22		1000
E1489	56	608	COMB	200	E1546	52	14		220	E1613	52	2		2000				SEC	1000	E1724	53	253	COMB	113
E1490	52	107	PRI	10	E1548	53	144		1500	E1614	53	162		1500	E1668	52	5	PRI	800	E1726	52	49	PRI	1500
			SEC	1000	E1549	53	137		2000	E1615	52	37	PRI	1000				SEC	800				SEC	1500
E1491	53	211	PRI	500	E1550	52	19	PRI	500				SEC	1000	E1669	52	5	PRI	110	E1727	52	13	PRI	100
			SEC	1000				SEC	300	E1616	53	209		100				SEC	1000				SEC	575
E1492	55	433		1500	E1552	52	35		1000	E1617	52	4	PRI	500	E1670	55	457		2000	E1729	52	12		2000
E1493	53	220		100	E1553	52	18		1000				SEC	300	E1671	52	48		220	E1730	52	111	PRI	100
E1494	53	183		34	E1554	52	18		2000	E1618	52	10		220	E1673	52	27		1000				SEC	575
E1495	53	230		1000	E1555	52	22		1500	E1620	52	11	PRI	650	E1674	52	22		200	E1731	52	31	PRI	750
E1496	52	23		10	E1556	53	220		500				SEC	1000	E1675	52	5	PRI	500				SEC	1000
E1497	52	19	PRI	500	E1557	53	201		34	E1623	52	22		5.3				SEC	1200	E1732	52	49	PRI	450
			SEC	1000	E1558	53	220		500	E1624	52	14		750	E1676	52	79	PRI	110				SEC	190
E1499	52	18		96	E1559	52	18		20	E1625	53	207	PRI	270				SEC	1000	E1733	52	22		500
E1500	52	36	PRI	1000	E1560	53	149		400				SEC	1000	E1677	52	16	PRI	100	E1735	53	220		34
			SEC	800	E1561	52	129	PRI	340	E1626	52	39		2000				SEC	1000	E1736	52	4	PRI	1000
E1501	53	137		40				SEC	300	E1627	52	26		7	E1678	52	36	PRI	110				SEC	650
E1502	57	692		500	E1562	52	24		100	E1629	55	403	PRI	1000				SEC	1000	E1737	53	193		350
E1503	52	35		200	E1563	52	39		34				SEC	1000	E1680	53	200	PRI	110	E1738	52	114		100
E1504	52	87		1000	E1564	53	201		220	E1630	52	57	PRI	1000				SEC	1200	E1742	52	131		34
E1506	52	18		2000	E1565	52	4	PRI	800				SEC	800	E1681	52	31	PRI	50	E1743	54	301		2000
E1507	52	78		1500				SEC	1000	E1631	53	200	PRI	200				SEC	400	E1744	52	39		450
E1508	53	137		1500	E1567	57	700	PRI	160				SEC	1000	E1682	53	192	PRI	500	E1745	52	27		250
E1509	52	26		1500				SEC	100	E1632	52	101	PRI	1000				SEC	500	E1747	53	141	COMB	600
E1510	52	29		1500	E1568	55	495	PRI	300				SEC	400	E1683	57	701	PRI	750	E1748	52	89	PRI	500
E1511	52	34		400				SEC	300	E1633	52	38		1280				SEC	300				SEC	500
E1512	53	231		2000	E1571	56	659	PRI	8.8	E1634	53	230		1000	E1684	52	39		1000	E1749	52	5	PRI	725
E1513	54	327		350				SEC	260	E1635	53	202		1000	E1685	52	107	PRI	1000				SEC	725
E1514	52	35		96				TER	1000	E1638	52	89	PRI	1000				SEC	400	E1750	53	195	PRI	500
E1515	53	158	PRI	600	E1572	53	193		2000				SEC	1000	E1687	56	666		1000				SEC	120
			SEC	700	E1573	52	5	PRI	660	E1639	52	18		500	E1688	53	141	COMB	113	E1753	57	703	PRI	1000
E1516	52	49	PRI	1000				SEC	250	E1640	53	149		2000	E1689	53	220		60				SEC	500
			SEC	1000	E1574	56	612	PRI	1000	E1641	52	22		1500	E1690	56	669	PRI	1000	E1754	52	33		1000
E1520	52	111	PRI	500				SEC	120	E1642	52	55	PRI	500				SEC	500	E1755	52	69		1000
			SEC	500	E1575	54	280		100				SEC	1000	E1691	52	41	PRI	1000	E1756	52	38		1000
E1521	53	183		350	E1576	52	35		500	E1643	52	25		1000				SEC	500	E1757	53	260		1000
E1522	52	34		750	E1577	52	16	PRI	160	E1644	52	24		2000	E1692	52	101	PRI	250	E1758	54	302	COMB	200
E1523	53	154	PRI	300				SEC	160	E1645	52	101	PRI	1000				SEC	1000	E1759	52	89	PRI	1000
			SEC	1000	E1580	53	183		2000				SEC	1000	E1693	52	35		500				SEC	950
E1524	53	248	PRI	285	E1581	52	111	PRI	1500	E1647	52	35		200	E1694	56	615		500	E1760	52	26		1000
			SEC	400				SEC	1500	E1648	52	26		100	E1695	52	22		350	E1761	52	23		350
E1525	56	665	PRI	1000	E1583	52	119		1000	E1649	52	49	PRI	275	E1696	52	105	COMB	333	E1762	52	25		500
			SEC	800	E1584	52	35		1000				SEC	275	E1697	52	34		1000	E1763	52	34		34
E1526	52	57	PRI	34	E1585	52	31	PRI	10	E1650	53	154	PRI	1000	E1698	52	5	PRI	500	E1764	53	144		34
			SEC	500				SEC	1000				SEC	650				SEC	150	E1765	52	35		2000
E1527	52	95	PRI	67	E1586	53	165		400	E1651	52	99	COMB	333	E1700	53	176	PRI	34	E1766	57	707	PRI	32
			SEC	1000	E1587	52	26		450	E1652	52	8	PRI	1000				SEC	316				SEC	400
E1528	52	93		2000	E1589	52	57	PRI	275				SEC	1000	E1701	53	154	PRI	450				TER	500
E1529	52	26		220				SEC	275	E1653	54	314		1800				SEC	210	E1767	53	153	PRI	500
E1530	52	26		2000	E1591	52	23		2000	E1654	52	29		500	E1702	56	612	PRI	1000				SEC	1000
E1531	52	35		2000	E1592	52	18		2000	E1656	53	248	PRI	700				SEC	210	E1769	53	144		350
E1532	52	78		350	E1593	53	162		1500				SEC	700	E1703	53	232		1000	E1773	52	74		500
										E1657	52	18		34	E1704	55	454		250	E1774	52	18		150

E TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E1775	52	38		250	E1845	52	35		350	E1902	53	137		850	E1963	52	111	PRI	1000	E6011	57	721	PRI	1000
E1777	52	22		100	E1846	52	49	PRI	295	E1903	57	714	PRI	1000				SEC	540				SEC	350
E1779	52	26		100				SEC	500				SEC	625	E1964	53	209		500	E6012	57	722		875
E1780	52	26		150	E1848	52	48		220	E1907	54	269		850	E1965	52	22		1000	E6014	52	87		500
E1781	52	51		100	E1850	52	16	PRI	295	E1908	53	144		2000	E1967	52	23		0.37	E6015	53	195	PRI	500
E1782	52	95	PRI	85				SEC	500	E1909	57	715	P&T		E1968	52	12		1000				SEC	1000
			SEC	300	E1851	52	48		15				COMB	10	E1969	52	10		500	E6016	52	51		1500
E1783	52	39		500	E1852	52	49	PRI	295				SEC	450	E1970	53	230		1000	E6017	52	18		500
E1784	52	89	PRI	1000				SEC	500	E1913	52	22		5	E1971	53	158	PRI	500	E6018	53	144		1000
			SEC	1000	E1853	52	89	PRI	295	E1915	52	116		500				SEC	500	E6019	52	5	PRI	325
E1785	53	196		1000				SEC	500	E1916	57	712	PRI	500	E1972	53	264	PRI	200				SEC	500
E1786	52	93		100	E1854	52	49	PRI	295				SEC	120				SEC	1500	E6021	52	35		60
E1787	52	18		1000				SEC	500	E1917	53	144		2000	E1973	52	24		500	E6022	56	648	PRI	1000
E1791	52	2		1000	E1855	54	300		500	E1918	52	105	COMB	670	E1974	52	11	PRI	175				SEC	1000
E1792	52	18		220	E1856	52	109	COMB	500	E1919	52	11	PRI	32				SEC	100	E6023	52	97	PRI	1000
E1793	52	39		150	E1857	52	48		20				SEC	475	E1975	52	11	PRI	285				SEC	1000
E1794	52	26		1000	E1858	53	192	PRI	1000	E1920	52	48		1000				SEC	400	E6024	52	14		350
E1795	53	200	PRI	10				SEC	1000	E1922	52	18		20	E1976	52	120	COMB	500	E6025	52	17		350
			SEC	110	E1859	52	29		250	E1923	52	38		285	E1978	56	659	PRI	12	E6026	53	220		34
E1796	52	31	PRI	9.5	E1860	52	29		300	E1924	52	51		1000				SEC	220	E6027	53	144		500
			SEC	105	E1861	52	12		750	E1925	52	25		500				TER	1000	E6028	53	207	PRI	32
E1797	54	280		350	E1863	52	89	PRI	250	E1926	52	39		120	E1979	53	207	PRI	232				SEC	400
E1798	53	200	PRI	500				SEC	300	E1927	52	8	PRI	32				SEC	1000	E6029	52	14		250
			SEC	500	E1864	53	186	PRI	500				SEC	400	E1980	52	31	PRI	11.8	E6030	54	284	PRI	0.14
E1799	55	474		350				SEC	60	E1928	52	12		400				SEC	270				SEC	2.3
E1800	53	186	PRI	500	E1866	52	78		220	E1929	52	38		400	E1981	52	101	PRI	120				TER	500
			SEC	500	E1867	52	107	PRI	100	E1930	52	25		400				SEC	2100	E6031	52	48		350
E1801	52	35		350				SEC	250	E1931	54	301		1000	E1982	52	111	PRI	15	E6032	53	206		350
E1803	52	25		500	E1868	52	107	PRI	500	E1932	52	39		1500				SEC	1000	E6033	52	23		750
E1804	52	94		350				SEC	1000	E1933	53	144		500	E1983	52	89	PRI	1000	E6034	53	156		1280
E1805	52	87		350	E1869	52	36	PRI	500	E1934	52	12		750				SEC	950	E6035	53	193		500
E1806	52	48		500				SEC	1000	E1935	52	39		2500	E1984	52	14		60	E6036	52	48		500
E1811	52	39		500	E1870	52	14		100	E1936	57	701	PRI	2000				PRI	500	E6037	52	72		1000
E1812	53	220		350	E1871	52	38		140				SEC	500	E1985	53	166	PRI	500	E6038	55	485	PRI	800
E1813	52	35		500	E1872	52	103		1000	E1937	56	613	COMB	83	E1986	53	186	PRI	500				SEC	800
E1814	52	18		350	E1873	53	159	PRI	250	E1938	52	101	PRI	900				SEC	500	E6039	52	18		250
E1815	53	183		350				SEC	250				SEC	700	E1987	52	75		350	E6040	52	21		350
E1816	52	2		350	E1874	52	52		350	E1939	52	14		350	E1988	52	5	PRI	1000	E6041	52	22		650
E1817	53	137		350	E1875	52	23		60	E1940	52	17		500				SEC	1500	E6042	54	291	PRI	1000
E1818	57	706		350	E1876	57	709		1500	E1941	53	139	PRI	120	E1989	52	28	PRI	500				SEC	1000
E1819	52	35		1000	E1877	57	710		1500				SEC	500				SEC	500	E6043	57	723	PRI	1500
E1820	56	628		1500	E1878	52	26		350	E1942	53	259		750	E1990	52	18		500				SEC	1500
E1821	52	14		220	E1879	52	12		34	E1943	52	18		600	E1991	52	17		250	E6045	52	2		400
E1822	52	14		100	E1880	52	18		2700	E1944	52	48		250	E1992	52	31	PRI	20	E6046	52	14		500
E1823	56	628		750	E1882	52	26		2500	E1945	57	716		400				SEC	20	E6047	52	17		850
E1824	52	101	PRI	20	E1883	53	220		1000	E1946	56	646	COMB	200	E1993	57	720	PRI	20	E6048	52	18		2000
			SEC	20	E1884	53	186	PRI	385	E1947	52	12		1000				SEC	20	E6050	52	42	PRI	1000
E1826	55	403	PRI	365				SEC	600	E1948	52	14		250				TER	20				SEC	1000
			SEC	750	E1885	52	78		220	E1949	54	347		1500	E1994	52	23		1000	E6051	52	39		250
E1827	52	38		500	E1888	53	183		500	E1950	52	40		1000	E1995	52	18		1000	E6052	54	384	PRI	700
E1828	53	137		500	E1889	52	5	PRI	285	E1951	57	717	PRI	34	E1996	56	599		500				SEC	700
E1830	53	256	PRI	1000				SEC	400				SEC	100	E1997	52	47		250	E6053	52	36	PRI	800
			SEC	120	E1891	57	712	PRI	200				TER	1000	E1999	52	5	PRI	700				SEC	800
E1831	52	17		34				SEC	1500	E1952	54	398	PRI	500				SEC	550	E6054	52	31	PRI	60
E1832	53	196		2000	E1892	52	11	PRI	175				SEC	150	E6000	52	44		750				SEC	440
E1833	52	29		500				SEC	100	E1953	52	79	PRI	365	E6001	52	48		500	E6055	57	724	PRI	1000
E1835	52	101	PRI	500	E1893	57	713	PRI	200				SEC	750	E6002	57	714	PRI	600				SEC	400
			SEC	500				SEC	1500	E1954	53	210	PRI	500				SEC	700	E6058	52	106		1000
E1836	52	22		1280	E1894	52	5	PRI	175				SEC	120	E6003	53	179		1500	E6060	56	555		750
E1837	52	18		350				SEC	100	E1955	52	38		850	E6004	52	35		350	E6061	53	253	COMB	83
E1838	52	36	PRI	100	E1895	56	595	COMB	113	E1958	53	253	COMB	113	E6005	52	39		1500	E6062	52	26		1590
			SEC	250	E1896	52	39		1000	E1960	57	718	PRI	325	E6006	53	207	PRI	500	E6063	52	51		500
E1839	52	55	PRI	100	E1897	52	24		34				SEC	1500				SEC	500	E6064	53	145		1500
			SEC	250	E1898	52	62		500	E1961	54	381	PRI	100	E6007	56	599		200	E6065	53	201		1500
E1841	52	24		1500	E1899	53	210	PRI	67				SEC	1000	E6008	54	376		500	E6066	52	33		1500
E1843	52	18		850				SEC	1000	E1962	57	719	PRI	500	E6009	56	655		500	E6067	52	35		1280
E1844	52	89	PRI	295	E1900	52	18		2.5				SEC	500	E6010	53	162		34	E6069	52	17		34
			SEC	500	E1901	52	35		1500															

E TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E6070	52	16	PRI SEC	240 850	E6117	52	111	PRI SEC	1000	E6170	52	10		655	E6223	52	48		300	E6279	52	95	PRI SEC	34 1000
E6071	52	89	PRI SEC	20 20	E6118	54	359		850	E6171	52	27		655	E6224	52	96		350	E6280	53	195	PRI SEC	7 1000
E6072	52	5	PRI SEC	32 400	E6119	53	220		1200	E6172	53	200	PRI SEC	345 400	E6225	57	739	PRI SEC	83 217	E6281	52	35		1500
E6073	52	39		150	E6120	52	28	PRI SEC	100 1000	E6173	57	733	PRI SEC	300 500	E6226	52	39		500	E6282	52	7	PRI SEC	750 900
E6074	57	725	PRI SEC TER	20 20 20	E6121	52	47		850	E6174	53	142	PRI SEC	122 1000	E6227	52	87		750	E6283	52	29		60
E6075	52	39		10	E6122	52	11	PRI SEC	500	E6175	52	16	PRI SEC	10 1000	E6228	53	256	PRI SEC	750 300	E6285	52	18		750
E6076	57	726		250	E6123	52	21		500	E6176	52	38		750	E6229	52	103		500	E6286	52	18		1800
E6077	52	102		350	E6124	52	48		50	E6177	56	655	COMB	83	E6230	52	93		1000	E6287	52	35		400
E6078	52	39		350	E6125	54	281	COMB	83	E6178	53	138		500	E6231	52	18		34	E6288	57	706		2000
E6079	52	39		350	E6126	52	12		1000	E6179	52	18		1000	E6232	57	740	COMB	113	E6289	57	742	COMB	83
E6080	54	280		250	E6128	52	16	PRI JEC	650 1000	E6180	54	347		1000	E6233	53	159	PRI SEC	500 300	E6290	53	176	PRI SEC	500 500
E6081	53	220		180	E6129	57	730		750	E6181	52	13	PRI SEC	500 2150	E6234	56	599		350	E6291	55	433		1500
E6082	52	118	PRI SEC	34 500	E6130	53	220		500	E6182	52	16	PRI SEC	34 1000	E6235	52	10		500	E6292	53	167		1500
E6083	52	102		180	E6131	52	18		140	E6183	52	12		1500	E6236	52	119		750	E6293	52	18		1500
E6084	53	175	PRI SEC	1000 1000	E6132	52	12		1280	E6184	57	703	PRI SEC	875 500	E6237	52	34		655	E6294	52	15		1000
E6085	52	6	PRI SEC	32 400	E6133	52	39		500	E6185	52	101	PRI SEC	700 700	E6238	52	35		850	E6295	53	197	PRI SEC	1000 1000
E6086	52	9	PRI SEC	32 400	E6134	52	39		85	E6186	57	733	PRI SEC	160 265	E6239	52	107	PRI SEC	500 500	E6296	52	101	PRI SEC	1000 400
E6087	52	111	PRI SEC	295 500	E6135	52	111	PRI SEC	24 400	E6187	57	734		750	E6240	53	144		1000	E6297	52	26		220
E6088	52	39		500	E6136	57	731	P&T COMB SEC	5.13 210	E6188	52	119		1000	E6241	54	269		1280	E6298	52	131		220
E6089	52	116		340	E6137	57	731	P&T COMB SEC	5.13 845	E6189	53	158	PRI SEC	150 900	E6242	54	368		34	E6299	52	10		750
E6090	54	399	PRI SEC	1000 1000	E6138	52	18		2000	E6190	52	131		60	E6243	56	604	COMB	200	E6300	53	139	PRI SEC	600 700
E6091	52	39		350	E6139	57	732	COMB	222	E6191	52	29		1500	E6244	52	18		220	E6301	53	234	PRI SEC	1200 250
E6092	52	39		350	E6140	57	709		850	E6192	52	31	PRI SEC	34 1000	E6245	52	48		22	E6302	52	26		500
E6093	52	39		350	E6141	52	111	PRI SEC	700 700	E6193	52	31	PRI SEC	34 1000	E6246	53	162		750	E6303	54	280		400
E6094	53	183		350	E6142	52	111	PRI SEC	700 700	E6194	52	31	PRI SEC	34 1000	E6247	53	200	PRI SEC	500 500	E6304	52	17		300
E6095	53	193		1500	E6143	52	111	PRI SEC	700 700	E6195	52	31	PRI SEC	34 1000	E6248	52	22		12	E6305	52	131		1500
E6096	52	80		1000	E6144	53	153	PRI SEC	130 1000	E6196	52	119		500	E6249	52	24		50	E6306	55	450	PRI SEC	1000 1000
E6097	52	39		500	E6145	52	13	PRI SEC	700 700	E6197	52	119		500	E6250	52	48		750	E6307	52	14		750
E6098	52	48		1000	E6146	52	89	PRI SEC	510 700	E6198	52	119		500	E6251	53	145		350	E6308	55	444	COMB	83
E6099	54	382	PRI SEC TER	20 20 20	E6147	52	28	PRI SEC	500 350	E6199	53	177	COMB	301	E6252	57	741	PRI SEC	2000 800	E6309	53	143	PRI SEC	750 300
E6100	52	111	PRI SEC	20 20	E6148	52	25		250	E6200	53	156		250	E6253	52	36	PRI SEC	45 325	E6310	52	35		34
E6101	54	359		700	E6149	52	200	PRI SEC	1500 1500	E6201	53	193		250	E6254	52	5	PRI SEC	45 325	E6311	52	51		20
E6102	52	23		120	E6150	52	34		2500	E6202	54	346		250	E6255	53	176	PRI SEC	34 1000	E6312	52	26		34
E6103	53	142	PRI SEC	80 1500	E6151	52	23		2000	E6203	52	17		250	E6256	52	38		1800	E6313	52	111	PRI SEC	100 525
E6104	57	727	PRI SEC TER	300 50 500	E6152	52	35		1000	E6204	52	12		250	E6257	52	39		1000	E6314	52	111	PRI SEC	100 500
E6105	53	195	PRI SEC	200 1500	E6153	52	106		34	E6205	52	39		250	E6258	53	220		1000	E6315	54	272		250
E6106	55	403	PRI SEC	175 100	E6154	52	27		350	E6206	53	186	PRI SEC	325 500	E6259	52	22		100	E6316	54	272		250
E6107	54	300		100	E6155	53	210	PRI SEC	250 250	E6207	53	230		250	E6260	52	103		500	E6317	52	78		1500
E6108	52	47		500	E6156	53	234	PRI SEC	500 300	E6208	52	18		3000	E6261	52	17		1800	E6318	52	27		1000
E6109	52	18		34	E6157	52	24		650	E6209	57	684		350	E6262	52	93		1800	E6319	54	306	PRI SEC	2.1 1000
E6110	54	269		34	E6158	52	18		285	E6210	52	104	PRI SEC	850 1000	E6263	54	363	COMB	1000	E6320	54	306	PRI SEC	2.1 1000
E6111	54	391		500	E6159	52	75		1200	E6211	57	736	COMB	301	E6264	52	39		2300	E6321	53	197	PRI SEC	3500 1000
E6112	57	728	PRI SEC	50 500	E6160	54	325		875	E6212	53	193		250	E6265	52	11	PRI SEC	450 190	E6322	52	31	PRI SEC	60 500
E6113	53	207	PRI SEC	1.8 650	E6161	52	48		250	E6213	52	117	COMB	83	E6266	52	22		34	E6323	52	48		500
E6114	53	144		500	E6162	52	20	PRI SEC	120 2000	E6214	52	2		1000	E6267	54	294	PRI SEC	1000 400	E6324	55	433		1500
E6115	52	26		850	E6163	52	17		2000	E6215	52	17		1000	E6268	54	269		2000	E6325	52	131		350
E6116	57	729		1000	E6164	53	231		220	E6216	52	21		250	E6269	52	39		1000	E6326	54	376		220
					E6165	52	18		300	E6217	57	727	COMB	301	E6270	52	24		34	E6327	52	14		40
					E6166	52	103		1000	E6218	52	51		250	E6271	53	160	PRI SEC	650 1000	E6328	52	18		350
					E6167	52	113	COMB	333	E6219	57	738	PRI SEC	340 300	E6272	52	27		500	E6330	53	207	PRI SEC	4.5 200
					E6168	52	52		750	E6220	52	48		20	E6273	52	10		500	E6331	52	103		3000
					E6169	53	145		150	E6221	52	31	PRI SEC	15 1000	E6274	53	201		1000	E6332	52	26		3000
										E6222	52	202		750	E6275	55	474		500	E6333	52	78		1000
														E6276	52	48		1000	E6334	52	35		3000	

R/RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
E6335	53	207	PRI SEC	645 2200	E6365	57	743	PRI SEC	1000 750	E6392	53	195	PRI SEC	750 50	E6425	52	29		850	E6460	54	346		250
E6336	52	107	PRI SEC	425 350	E6366	52	35		875	E6393	57	748		1000	E6427	53	217		1800	E6462	53	193		250
E6337	52	2		500	E6367	56	669	PRI SEC	750 300	E6394	52	5	PRI SEC	1500 500	E6428	57	751	PRI SEC	1000 800	E6463	53	220		1500
E6338	52	34		500	E6369	52	27		100	E6395	52	11	PRI SEC	245 500	E6429	53	171		1000	E6464	52	52		220
E6339	53	223	PRI SEC	2000 250	E6370	53	217		2000	E6396	52	5	PRI SEC	245 1200	E6430	57	752		1000	E6465	53	166	PRI SEC	500 750
E6340	54	376		100	E6372	52	99	COMB	113	E6397	57	750		1500	E6432	53	153	PRI SEC	1000 1000	E6466	52	89	PRI SEC	164 121
E6341	53	210	PRI SEC	500 300	E6373	52	5	PRI SEC	500 900	E6398	54	291	PRI SEC	1000 1000	E6433	53	268		1500	E6467	52	22		1000
E6342	52	18		250	E6374	53	252	PRI SEC	1000 1000	E6399	53	396	PRI SEC	650 1000	E6434	53	217		1800	E6468	52	22		3000
E6343	53	176	PRI SEC	34 316	E6375	57	744	PRI SEC	1300 300	E6400	52	106		500	E6435	53	268		1500	E6469	52	18		2500
E6344	52	5	PRI SEC	500 500				TER	250	E6401	52	122		1500	E6436	52	18		2000	E6470	52	111	PRI SEC	32 400
E6345	52	7	PRI SEC	150 500	E6376	57	745	PRI SEC	750 1000	E6402	53	228	PRI SEC	500 300	E6437	55	462		1000	E6471	53	220		1800
E6346	55	488		500				TER	250	E6403	53	201		500	E6438	52	48		350	E6472	52	26		1000
E6347	52	52		1000	E6377	53	158	PRI SEC	100 1000	E6404	52	5	PRI SEC	600 1800	E6441	53	180	PRI SEC	1000 1000	E6473	52	102		22
E6348	52	89	PRI SEC	500 500	E6378	56	660	PRI SEC	1000 800	E6405	52	101	PRI SEC	150 1800	E6442	53	259		1500	E6474	53	231		350
E6349	53	159	PRI SEC	500 500	E6379	53	137		2000	E6406	53	207	PRI SEC	150 1800	E6443	52	101	PRI SEC	500 2000	E6475	52	48		50
E6350	52	49	PRI SEC	54 170	E6380	53	223	PRI SEC	750 50	E6407	53	264	PRI SEC	375 1000	E6444	52	18		380	E6476	52	48		50
E6351	54	376		100	E6381	53	197	PRI SEC	2000 1000	E6408	53	223	PRI SEC	500 1000	E6445	52	14		1500	E6477	53	209		500
E6352	52	101	PRI SEC	4000 1000	E6382	52	46	PRI SEC	1000 1000	E6409	52	72		1000	E6446	52	35		3000	E6478	52	93		500
E6353	52	49	PRI SEC	100 1000	E6383	57	704	PRI SEC	1800 70	E6410	52	18		850	E6447	52	27		1500	E6479	52	28	PRI SEC	600 700
E6354	56	669	PRI SEC	2000 300	E6384	53	139	PRI SEC	1000 1000	E6411	52	49	PRI SEC	500 2000	E6448	52	128		2500	E6480	53	220		2500
E6355	52	49	PRI SEC	1000 1000	E6385	52	36	PRI SEC	1000 800	E6412	54	398	PRI SEC	150 200	E6449	52	118	PRI SEC	1000 1200	E6481	52	22		2000
E6356	52	11	PRI SEC	100 1000	E6386	57	746	PRI SEC	1000 1000	E6413	56	660	PRI SEC	67 1000	E6450	52	8	PRI SEC	1000 1800	E6482	52	89	PRI SEC	150 400
E6357	52	18		2000				TER	2000	E6414	54	346		20	E6451	52	7	PRI SEC	1000 1500	E6483	52	22		2000
E6358	52	22		650	E6387	52	54	PRI SEC	975 1852	E6415	52	5	PRI SEC	100 1000	E6452	52	11	PRI SEC	1000 1500	E6484	52	30	PRI SEC	7 1000
E6359	53	197	PRI SEC	34 120	E6388	53	213	PRI SEC	1000 1000	E6416	52	66		1000	E6453	53	201		1500	E6485	54	376		450
E6360	52	11	PRI SEC	300 500	E6389	52	130	PRI SEC	800 800	E6417	52	52		1000	E6454	52	16	PRI SEC	1000 1500	E6486	52	30	PRI SEC	7 1000
E6361	53	166	PRI SEC	500 2000	E6390	57	755	PRI SEC	600 600	E6418	52	116		1500	E6455	52	42	PRI SEC	1000 1500	E6487	54	376		350
E6362	52	18		750				TER	2000	E6419	55	485	PRI SEC	650 2000	E6456	52	49	PRI SEC	1000 1800	E6488	52	39		1800
E6363	52	22		650				TER	1280	E6420	53	165		2000	E6457	53	197	PRI SEC	500 300	E6489	57	753	PRI SEC	200 2000
E6364	53	147	PRI SEC	250 700	E6391	52	62		1280	E6421	52	82		1280	E6458	52	36	PRI SEC	100 750	E6490	53	232		500
										E6422	52	106		1000	E6459	52	11	PRI SEC	1000 1500	E6491	53	231		500
										E6423	53	171		1000						E6492	52	18		400
																				E6493	53	193		1000
																				E6494	57	754		1000
																				E6495	53	221	PRI SEC	34 1000
																				E6496	52	48		250
																				E6497	52	23		500

E TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
R1	52	1	P&S COMB TER	69 1000	R51	52	38		2500	R101	52	49	PRI SEC	495 1000	R145	52	5	PRI SEC	700 550	R196	52	20	PRI SEC	300 425
R2	52	2		2000	R52	52	39		6000	R102	52	49	PRI SEC	495 1000	R147	52	92	PRI SEC	1100 1100	R197	52	113	COMB	858
R3	52	13	PRI SEC	500 2150	R53	52	40		1050	R103	52	67	PRI SEC	1500 1500	R148	52	5	PRI SEC	150 500	R199	52	114		1000
R4	52	3	COMB	1000	R54	52	41	PRI SEC	500 500	R104	52	68	PRI SEC	2000 500	R149	52	93		34	R200	52	115		2250
R7	52	10		475	R55	52	42	PRI SEC	34 3850	R105	52	44		450	R150		94		1200	R201	52	80		3000
R8	52	14		40	R56	52	43	PRI SEC	32 280	R106	52	69		155	R151	52	95	PRI SEC	500 500	R202	52	18		1850
R9	52	6	PRI SEC	32 400	R57	52	44		2400	R107	52	71	PRI SEC	34 870	R152	52	24		3000	R203	52	116		1500
R10	52	5	PRI SEC	32 400	R60	52	46	PRI SEC	750 3000	R108	52	70	PRI SEC	500 1800	R153	52	96		1650	R204	52	34		300
R11	52	7	PRI SEC	32 400	R61	52	47		1285	R109	52	72		1650	R154	52	41	PRI SEC	1485 800	R205	52	99	COMB	301
R12	52	8	PRI SEC	32 400	R62	52	48		450	R110	52	35		1000	R155	52	97	PRI SEC	1200 800	R206	52	117	COMB	301
R13	52	9	PRI SEC	32 400	R63	52	24		1000	R111	52	72		1650	R156	52	48		1285	R207	52	35		435
R14	52	11	PRI SEC	18 600	R64	52	38		2000	R112	52	57	PRI SEC	1000 1000	R157	52	4	PRI SEC	500 300	R208	52	18		500
R15	52	12		2000	R65	54	354		1050	R113	52	14		450	R158	52	13	PRI SEC	1000 3000	R209	52	118	PRI SEC	100 1000
R16	52	15		1650	R66	52	47		183	R114	52	73	PRI SEC	2000 500	R159	52	99	COMB	113	R210	52	38		250
R17	52	16	PRI SEC	105 1000	R67	52	49	PRI SEC	16.5 310	R115	52	6	PRI SEC	120 2200	R160	52	99	COMB	113	R211	52	14		575
R18	52	2		3500	R68	52	36	PRI SEC	34 1300	R116	52	8	PRI SEC	120 2200	R161	52	39		650	R212	52	40		275
R19	52	17		2000	R69	52	1	P&S COMB TER	69 1000	R117	52	57	PRI SEC	120 2200	R162	52	15		2000	R213	52	119		575
R20	52	18		435	R70	52	39		1400	R118	52	74		1650	R163	52	15		2000	R214	52	120	COMB	301
R21	52	19	PRI SEC	300 425	R71	52	5	PRI SEC	145 110	R119	52	75		585	R164	52	100	PRI SEC	50 910	R215	52	121	PRI SEC TER	83 350 1000
R22	52	5	PRI SEC	500 250	R72	52	51		1500	R120	52	61		1000	R165	52	101	PRI SEC	690 2500	R216	54	365		1300
R23	52	4	PRI SEC	500 500	R73	52	18		34	R121	52	76	PRI SEC	800 800	R166	52	12		1000	R217	52	12		680
R24	52	20	PRI SEC	1000 800	R74	52	10		700	R122	52	27		2000	R167	52	102		2000	R218	52	123	COMB	301
R25	52	21		435	R75	52	47		700	R123	52	77		900	R168	52	69		2000	R219	52	18		120
R26	52	22		1400	R76	52	52		390	R124	52	78		2500	R169	52	103		34	R220	52	27		700
R27	52	23		3500	R77	52	47		2500	R125	52	79	PRI SEC	750 2000	R170	52	97	PRI SEC	1000 1200	R221	52	124	PRI SEC	63 350
R28	52	2		1650	R78	52	53	PRI SEC TER	34 500 2000	R126	52	80		1900	R171	52	104	PRI SEC	3000 100	R222	52	103		800
R29	52	24		440	R79	52	10		1050	R127	52	81		2000	R172	52	105	COMB	113	R223	52	125	PRI SEC	250 300
R30	52	25		650	R80	52	54	PRI SEC	1240 2000	R128	52	82		1650	R173	52	106		100	R224	52	49	PRI SEC	34 1945
R31	52	22		10	R81	52	14		2500	R129	52	82		1650	R174	52	96		435	R225	52	72		1050
R32	52	26		60	R82	52	12		1050	R130	52	83	PRI SEC	150 200	R175	52	107	PRI SEC	11 1000	R226	52	126		350
R33	52	27		1050	R83	52	55	PRI SEC	120 350	R131	52	48		1200	R176	52	18		110	R227	52	127	PRI SEC	250 370
R34	52	28	PRI SEC	750 3000	R84	52	56	PRI SEC TER	1000 1000 750	R132	52	22		650	R177	52	15		1900	R228	52	128		850
R35	52	29		1050	R85	52	2		2500	R133	52	84	P&T COMB SEC	40 700	R178	52	39		2500	R229	52	129	PRI SEC	250 120
R36	52	30	PRI SEC	2000 1000	R86	52	42	PRI SEC	500 2000	R134	52	5	PRI SEC	450 875	R179	52	38		435	R230	52	40		1280
R37	52	12		2000	R87	52	57	PRI SEC	500 1000	R135	52	86	PRI SEC	1100 300	R180	52	39		34	R231	52	18		1000
R38	52	22		1000	R88	52	58	PRI SEC	1240 1760	R136	52	87		34	R181	52	5	PRI SEC	250 900	R232	52	48		900
R39	52	18		1650	R89	52	59	PRI SEC	1600 70	R137	52	87		2250	R182	52	108		1650	R233	52	22		550
R40	52	22		2500	R90	52	61		900	R138	52	48		600	R183	52	39		2500	R234	52	84	P&T COMB SEC	40 575
R41	52	31	PRI SEC	1400 500	R91	52	14		500	R139	52	15		600	R184	52	38		800	R235	52	130	PRI SEC	1000 1650
R42	52	32	PRI SEC	725 245	R92	52	62		700	R140	52	14		700	R185	52	12		450	R236	52	132	PRI SEC	400 400 725
R43	52	33		1000	R93	52	62		700	R141	52	57	PRI SEC	1250 1350	R186	52	109	COMB	500	R237	52	49	PRI SEC	320 250
R44	52	34		1650	R94	52	10		1050	R142	52	88	P&T COMB SEC	83 40	R187	52	110	PRI SEC	800 650	R238	52	22		560
R45	52	27		575	R95	52	63		1650	R143	52	89	PRI SEC	1800 750	R188	52	49	PRI SEC	345 280	R239	52	133	COMB	1360
R46	52	27		575	R96	52	12		450	R144	52	90		100	R189	52	106		300	R240	52	21		3500
R47	52	35		87	R97	52	64	PRI SEC	500 2000	R190	52	25		650	R190	52	25		650	R241	52	131		3000
R48	52	24		275	R98	52	65		500	R191	52	101	PRI SEC	100 1000	R191	52	101	PRI SEC	100 1000	R242	52	134	PRI SEC	250 500
R49	52	36	PRI SEC	225 275	R99	52	17		1650	R192	52	111	PRI SEC	100 1000	R192	52	111	PRI SEC	100 1000	R243	53	135		500
R50	52	37	PRI SEC	32 400	R100	52	66		2000	R193	52	4	PRI SEC	550 1000	R193	52	4	PRI SEC	550 1000	R244	52	135		500

R TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
R244	53	136	PRI	2600	R299	52	48		34	R346	52	27		275	R391	53	185	PRI	1725	R442	52	119		350
			SEC	112	R300	52	6	PRI	495	R347	52	5	PRI	2				SEC	530	R443	52	17		34
			TER	400				SEC	1000				SEC	1350	R392	53	186	PRI	60	R444	52	36	PRI	25
			QUAT	1000	R301	52	24		1650	R348	52	11	PRI	34				SEC	500				SEC	875
R245	52	18		1050	R302	52	11	PRI	2500				SEC	1300	R393	52	22		390	R445	52	18		54
R246	52	22		700				SEC	875	R349	52	27		900	R394	53	187	PRI	275	R446	52	78		87
R247	52	107	PRI	800	R303	52	39		50	R350	52	14		1500				SEC	1000	R447	52	101	PRI	85
			SEC	1350	R304	52	40		250	R351	52	38		3800	R395	52	15		500				SEC	1800
R248	52	49	PRI	570	R305	53	155	PRI	300	R352	52	35		2250	R396	53	188	PRI	200	R448	52	106		900
			SEC	315				SEC	475	R353	52	5	PRI	665				SEC	1700	R449	53	199	PRI	700
R249	52	131		1400	R306	52	36	PRI	350				SEC	735	R397	52	22		9800				SEC	2250
R250	53	137		2000				SEC	350	R354	53	168	PRI	860	R398	53	189	PRI	1000	R450	52	29		2250
R251	53	135		2500	R307	53	156		190				SEC	1000				SEC	1600	R451	52	62		2400
R252	52	17		3000	R308	52	111	PRI	425	R355	52	78		500	R400	52	24		1000	R452	52	11	PRI	700
R253	52	48		1000				SEC	425	R356	52	18		200	R401	52	89	PRI	300				SEC	550
R254	53	138		150	R309	52	49	PRI	1400	R357	53	169	P&T					SEC	475	R453	53	200	PRI	2000
R255	52	18		280				SEC	500				COMB	83	R402	52	31	PRI	34				SEC	750
R257	53	139	PRI	500	R310	52	7	PRI	240				SEC	20				SEC	1300	R454	52	18		550
			SEC	1200				SEC	1000	R358	52	111	PRI	34	R403	52	39		1050	R455	53	201		100
R258	52	7	PRI	500	R311	53	144		54				SEC	870	R404	52	99	COMB	1100	R456	52	11	PRI	18
			SEC	2000	R312	53	157		500	R359	53	170	P&T		R405	52	17		2500				SEC	1200
R259	52	23		800	R313	52	26		2.5				COMB	83	R406	52	62		500	R457	52	5	PRI	72
R260	52	22		34	R314	53	158	PRI	475				SEC	20	R407	52	18		1500				SEC	950
R262	52	5	PRI	1100				SEC	225	R360	52	38		275	R408	52	49	PRI	1000	R458	52	48		100
			SEC	1100	R315	52	49	PRI	600	R361	52	31	PRI	450				SEC	1000	R459	52	22		170
R263	52	46	PRI	34				SEC	1400				SEC	875	R409	52	14		87	R460	53	202		2500
			SEC	1300	R316	52	10		700	R362	52	101	PRI	0.33	R410	52	35		800	R461	52	24		100
R264	52	96		875	R317	52	29		440				SEC	325	R411	52	51		275	R462	52	22		100
R265	52	35		100	R318	52	48		3500	R363	53	171		2000	R412	52	26		50	R463	53	202		550
R267	53	141	COMB	113	R319	53	159	PRI	675	R364	52	5	PRI	500	R413	53	137		34	R464	53	148	PRI	1250
R268	52	111	PRI	1000				SEC	250				SEC	1400	R414	53	190		250				SEC	1350
			SEC	2000	R320	52	35		700	R366	53	173	PRI	1000	R415	52	78		200	R465	53	203	PRI	1200
R269	53	142	PRI	67	R321	52	36	PRI	600				SEC	1800	R416	52	111	PRI	250				SEC	800
			SEC	1000				SEC	1400	R367	53	174	PRI	600				SEC	250	R466	53	204		650
R270	52	42	PRI	32	R322	52	10		2250				SEC	2770	R417	53	192	PRI	250	R467	53	205		3000
			SEC	400	R323	52	48		3600	R369	53	191	PRI	550				SEC	535	R468	52	39		215
R271	53	143	PRI	1000	R324	52	5	PRI	600				SEC	1000	R418	52	38		1000	R469	52	11	PRI	1600
			SEC	550				SEC	1400	R370	53	176	PRI	70	R419	52	33		1000				SEC	1600
R272	53	144		575	R325	53	160	PRI	600				SEC	300	R420	53	193		1200	R470	52	49	PRI	715
R273	52	17		2500				SEC	1400	R371	53	177	COMB	113	R421	52	89	PRI	350				SEC	1200
R274	52	62		750	R326	52	95	PRI	2000	R372	52	31	PRI	275				SEC	350	R471	52	14		2000
R275	53	145		50				SEC	2500				SEC	375	R422	53	162		275	R472	52	11	PRI	800
R276	53	146	PRI	1100	R327	52	55	PRI	600	R373	52	58	PRI	1000	R423	52	11	PRI	350				SEC	245
			SEC	550				SEC	1400				SEC	1600				SEC	350	R473	52	18		500
R277	52	48		2000	R328	53	144		2000	R374	53	153	PRI	1000	R424	53	194	PRI	250	R474	53	206		750
R279	53	148	PRI	1000	R329	52	4	PRI	2000				SEC	1600				SEC	535	R475	53	162		1130
			SEC	1400				SEC	2500	R375	52	31	PRI	75	R425	52	100	PRI	34	R476	52	39		180
R281	52	23		700	R330	53	161	PRI	2000				SEC	82				SEC	1000	R477	52	18		2200
R282	52	42	PRI	550				SEC	2000	R376	53	178		1050	R426	52	38		34	R478	52	7	PRI	425
			SEC	545	R331	53	162		700	R377	52	81		1050	R427	52	111	PRI	1000				SEC	425
R284	52	18		1000	R332	52	26		375	R378	53	179		750				SEC	1000	R479	53	207	PRI	85
R285	53	149		34	R333	52	18		10	R379	52	34		550	R428	52	49	PRI	32				SEC	1800
R286	52	48		275	R334	53	163		700	R381	52	19	PRI	500				SEC	350	R480	53	208	PRI	1485
R287	53	150	PRI	700	R335	53	164	PRI	2500				SEC	300	R429	52	22		8500				SEC	800
			SEC	550				SEC	1200	R382	52	78		575	R430	52	29		1000	R481	53	209		1200
R288	53	151		1050	R336	52	20	PRI	1300	R383	53	181	COMB	298	R431	52	80		200	R482	52	38		575
R289	53	147	PRI	500				SEC	2000	R384	52	22		3500	R432	53	195	PRI	87	R483	52	48		460
			SEC	1800	R337	52	10		700	R385	52	93		1000				SEC	1000	R484	53	210	PRI	460
R290	53	152	PRI	650	R338	52	106		3000	R386	53	182	PRI	1050	R433	53	177	COMB	200				SEC	20
			SEC	2300	R339	53	165		3000				SEC	425	R434	53	196		350	R485	52	31	PRI	1000
R291	52	39		5000	R340	52	99	COMB	645	R387	52	48		87	R435	52	17		87				SEC	1000
R292	52	18		34	R341	52	39		425	R388	52	49	PRI	52	R436	53	197	PRI						

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
R493	53	193		1130	R547	52	24		350	R594	52	19	PRI	290	R643	53	251	PRI	1150	R694	53	268		2000
R494	54	401	P&Q		R548	52	96		350	R595	53	239	SEC	217	R644	52	102		1000	R695	53	201		1000
			COMB	31	R549	53	255	PRI	945	R596	52	106		900	R645	53	252	PRI	1850	R696	52	118	PRI	650
			SEC	250	R550	52	18		40	R597	52	39		1700	R647	53	254		34	R697	53	186	PRI	60
			TER	130	R551	53	225	PRI	500	R598	52	95	PRI	500	R648	52	131		1500	R698	52	35		170
R495	53	229		750	R552	52	119		1650	R599	53	240	PRI	600	R649	52	108		1650	R699	52	24		2000
R497	53	213	PRI	550	R553	53	226	P&Q		R600	52	5	PRI	500	R650	53	255	PRI	975	R700	52	72		435
			SEC	1000				COMB	161	R601	53	234	PRI	250	R651	52	18		34	R701	54	269		34
R498	52	26		3000				SEC	250	R602	53	241	SEC	2000	R652	52	18		2250	R702	52	48		4500
R499	53	214		1800	R554	53	227	PRI	750	R603	52	18		1650	R653	52	22		500	R703	52	93		1275
R500	52	21		1000	R555	52	39		350	R604	53	183		183	R654	53	179		1000	R704	54	270	PRI	575
R501	53	137		3000	R556	52	41	PRI	2200	R605	52	27		250	R655	52	22		500	R705	52	102		1050
R502	52	102		1050	R557	53	228	PRI	800	R606	52	11	PRI	700	R656	52	48		900	R706	52	34		350
R503	53	215	COMB	1200	R558	53	230		440	R607	53	242	SEC	350	R657	53	253	COMB	113	R707	52	41	PRI	600
R504	53	216	P&S		R559	53	231		210	R608	52	14		1000	R658	53	256	PRI	1700	R708	52	39		2000
			COMB	1200	R560	52	27		200	R609	52	13	PRI	535	R659	52	56	PRI	1000	R709	52	26		700
			TER	300	R561	54	376		250	R610	52	13	SEC	1500	R660	53	257	PRI	1000	R710	52	38		1000
R505	52	39		1000	R562	52	22		250	R611	53	162		170	R661	53	258	PRI	34	R711	54	271	PRI	300
R506	52	51		700	R563	52	11	PRI	145	R612	52	48		700	R662	53	207	PRI	570	R712	53	207	PRI	500
R507	53	217		2250	R564	52	14		1500	R613	53	243	P&Q		R663	53	259		1260	R713	54	272		1800
R508	52	14		1400	R565	53	232		700				COMB	368	R664	53	214		440	R714	52	24		22
R509	52	16	PRI	34	R566	53	220		200	R614	52	131		1000	R665	52	105	COMB	301	R715	52	39		60
			SEC	1300	R567	52	103		500	R615	53	244	PRI	200	R666	52	40		1280	R716	54	275	PRI	120
R510	52	18		840	R568	53	179		1650	R616	52	20	PRI	550	R667	53	200	PRI	700	R717	52	48		40
R511	52	44		2250	R569	53	233	PRI	90	R617	52	20	SEC	550	R668	53	260		2900	R718	54	273	PRI	1000
R512	52	101	PRI	0.33	R570	52	17		1400	R618	52	106		2000	R669	53	261	COMB	301	R719	52	4	PRI	34
			SEC	325	R571	53	173	PRI	400	R619	53	245	COMB	113	R670	52	49	PRI	200	R720	52	11	PRI	34
R513	52	89	PRI	275	R572	52	13	PRI	350	R620	52	49	PRI	570	R671	53	149		1400	R721	52	38		700
			SEC	300	R573	52	21		700	R621	52	39		40	R672	52	39		34	R722	53	209		1200
R514	52	17		340	R574	52	72		200	R622	52	18		700	R673	52	18		200	R723	53	181	COMB	113
R515	52	39		275	R575	52	21		700	R623	52	35		585	R674	52	27		2200	R724	52	18		100
R516	53	218	PRI	1180	R576	53	234	PRI	635	R624	53	217		1700	R675	52	12		3000	R725	54	276	PRI	1600
			SEC	1400	R577	52	17		34	R625	53	219		34	R676	52	39		1000				SEC	500
R517	52	9	PRI	765	R578	52	106		450	R626	53	246	PRI	350	R677	52	28	PRI	100	R726	52	29		700
			SEC	1100	R579	53	209		800	R627	53	246	SEC	60	R678	52	28	SEC	1000	R727	54	277	P&T	
R518	53	219		700	R580	53	178		800	R628	52	52		275	R679	52	28		275				CCMB	83.3
R519	53	177	COMB	1125	R581	53	220		3000	R629	52	18		1900	R680	53	263		2700	R728	53	166	PRI	100
R520	53	215	COMB	1000	R582	52	11	PRI	450	R630	52	39		4000	R681	53	148	PRI	500				SEC	130
R521	52	18		6800	R583	53	235	SEC	225	R631	52	39		1900	R682	54	376		120	R729	52	111	PRI	555
R522	53	220		2000	R584	53	236		83	R632	52	38		1650	R683	52	6	PRI	380	R730	53	207	PRI	18
R523	52	18		4.5	R585	53	237	PRI	500	R633	52	38		2900	R684	53	200	PRI	150	R731	52	13	PRI	21
R524	52	100	PRI	34	R586	52	52		1050	R634	53	195	PRI	1640	R685	53	264	PRI	1240	R732	52	89	PRI	275
			SEC	1000	R587	52	20	PRI	550	R635	53	197	PRI	215	R686	53	266		435	R733	52	22		900
R525	53	217		375	R588	53	142	PRI	230	R636	53	247	PRI	275	R687	53	197	PRI	300	R734	52	7	PRI	350
R526	52	49	PRI	700	R589	52	14		200	R637	53	248	SEC	300	R688	53	265		200	R735	54	278	PRI	1000
			SEC	1100	R590	52	27		275	R638	52	111	PRI	1000	R689	52	39		60				SEC	350
R527	52	17		800	R591	52	10		700	R639	53	181	COMB	301	R690	53	195	PRI	40	R736	52	100	PRI	1000
R528	52	35		2000	R592	53	238		275	R640	53	249		500	R691	53	267		2000				SEC	1650
R529	53	201		2000	R593	52	33		585	R641	53	250		1000	R692	52	5	PRI	650	R737	54	279	P&S	
R530	52	18		700						R642	52	38		2000	R693	53	228	PRI	650				COMB	500
R531	52	78		1285															112				TER	113
R532	52	38		700																				
R533	52	42	PRI	1000																				
			SEC	1000																				
R534	52	93		1200																				
R535	52	78		1450																				
R536	52	94		1500																				
R537	52	39		2000																				
R538	53	221	PRI	45																				
			SEC	1000																				
R539	52	78		390																				
R540	52	21		550																				
R541	52	93		320																				
R542	52	7	PRI	550																				
			SEC	145																				
R544	52	51		475																				
R545	53	223	PRI	300																				
			SEC	425																				

R TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
R738	52	23		435	R795	54	288	PRI	550	R848	52	109	COMB	200	R893	52	106		500	R943	52	71	PRI	350
R739	52	22		34				SEC	1000	R849	52	132	PRI	320	R894	52	109	COMB	82				SEC	525
R740	53	239		650	R797	52	8	PRI	435				SEC	340	R895	54	319	COMB	203	R944	54	334		280
R741	52	111	PRI	100				SEC	475	R850	54	291	PRI	15	R896	52	35		1000	R945	52	23		500
			SEC	550	R798	53	247	PRI	1200				SEC	15	R897	52	75		1200	R946	52	18		19
R742	52	18		50				SEC	390	R851	52	29		365	R898	52	49	PRI	350	R947	53	207	PRI	250
R743	53	239		1000	R799	54	289	PRI	250	R852	52	94		1200			SEC	350				SEC	2000	
R744	54	280		1900				SEC	750	R853	52	79	PRI	350	R899	52	16	PRI	350	R948	54	335		700
R745	52	39		1000				TER	475				SEC	350			SEC	350		R949	54	294	PRI	2000
R746	52	38		1000	R800	52	80		435				SEC	350	R900	52	39		700			SEC	40	
R747	52	48		60	R801	54	290	COMB	301	R854	52	89	PRI	300	R901	54	320	PRI	530	R950	54	336	COMB	113
R748	52	78		60	R802	52	46	PRI	2000				SEC	475			SEC	800		R951	52	93		550
R749	52	23		900				SEC	750	R855	52	7	PRI	7	R902	52	95	PRI	500	R952	52	39		550
R750	53	263		300	R803	53	259		1050				SEC	165			SEC	300		R953	52	26		435
R751	52	18		500	R804	54	292	COMB	113	R856	52	29		300	R903	54	321	PRI	750	R954	52	24		550
R752	53	223	PRI	1000	R805	54	293	PRI	585	R857	54	322	PRI	175			SEC	2000		R955	52	103		550
			SEC	1600				SEC	375				SEC	700			TER	250		R956	52	78		550
R753	54	281	COMB	301	R806	52	22		34	R858	54	323		1050	R904	54	325		34	R957	52	93		60
R754	54	281	COMB	475	R807	54	294	PRI	500	R859	54	324		350	R905	53	213	PRI	34	R958	53	162		700
R755	52	94		800				SEC	1000	R860	52	89	PRI	1000			SEC	890		R959	52	23		2400
R756	52	10		440	R808	53	210	PRI	750				SEC	330	R906	52	107	PRI	700	R960	54	337	PRI	300
R757	52	27		800				SEC	40	R861	52	30	PRI	500			SEC	625				SEC	500	
R758	52	111	PRI	100	R809	54	291	PRI	2000				SEC	85	R907	53	176	PRI	800			TER	500	
			SEC	700				SEC	750	R862	54	325		1800			SEC	1500		R961	52	13	PRI	2300
R759	52	23		250	R811	52	23		550	R863	52	11	PRI	1000	R908	52	35		500			SEC	1000	
R760	54	282	PRI	67	R812	52	21		2250				SEC	900	R909	52	15		585	R962	53	244	PRI	3.5
			SEC	1000	R814	52	18		1500	R864	54	326		1900	R910	52	102		1050			SEC	220	
R761	52	49	PRI	200	R815	52	12		50	R865	54	280		1800	R911	52	24		2200	R963	52	22		100
			SEC	4.5	R816	54	288	PRI	700	R866	54	307		1050	R912	52	22		2100	R964	52	13	PRI	535
R762	52	5	PRI	900				SEC	250	R867	54	306	PRI	2.1	R913	52	89	PRI	550			SEC	1500	
			SEC	1300	R818	54	296	COMB	113				SEC	1000			SEC	550		R965	53	220		550
R764	52	55	PRI	275	R820	53	153	PRI	1000	R868	54	308		500	R914	52	38		390	R966	53	151		155
			SEC	300				SEC	380	R869	54	309	PRI	480	R915	52	49	PRI	810	R967	52	117	COMB	83.3
R765	52	39		650	R821	52	107	PRI	550				SEC	500			SEC	870		R968	54	339	PRI	500
R767	53	260		500				SEC	1000				TER	250	R916	53	156		750			SEC	600	
R768	54	284	PRI	0.14	R822	52	31	PRI	550	R870	52	52		2300	R917	52	12		200	R969	52	25		375
			SEC	1.97				SEC	545	R871	53	198		280	R918	54	327		34	R970	54	338	P&Q	
			TER	500	R823	53	206		1000	R872	52	12		450	R919	52	18		380			COMB	113	
R769	54	285		800	R824	52	22		2900	R873	54	318	COMB	301	R920	52	49	PRI	250			SEC	87	
R770	53	220		34	R825	53	141	COMB	200	R874	52	18		110			SEC	2200				TER	100	
R771	52	93		3500	R826	54	298	COMB	301	R875	52	18		150	R921	53	150	PRI	900	R971	52	18		34
R772	53	201		700	R827	52	25		1650	R876	54	310	COMB	113			SEC	1300		R972	52	120	COMB	200
R774	53	192	PRI	550	R828	54	299		34	R877	54	311	PRI	70	R922	54	328		435	R973	52	111	PRI	700
			SEC	3500				SEC	300				SEC	300	R923	52	48		700			SEC	550	
R775	52	48		170	R829	53	224	PRI	300	R878	54	312		435	R924	54	318	COMB	113	R974	54	376		2750
R776	52	18		1000				SEC	500	R879	52	73	PRI	1000	R925	54	324		700	R975	53	248	PRI	585
R777	52	39		300	R830	54	293	PRI	1200				SEC	665	R926	52	27		1000			SEC	375	
R779	53	175	PRI	500				SEC	800	R880	54	313	PRI	480	R927	52	109	COMB	113	R976	52	101	PRI	200
			SEC	300	R831	53	220		390				SEC	500	R928	54	319	COMB	113			SEC	30	
R780	54	286	PRI	260	R832	54	300		350				TER	250	R929	54	329	PRI	400	R977	53	148	PRI	34
			SEC	220	R833	54	301		280	R881	54	314		1650			SEC	400				SEC	1945	
R781	52	39		179	R834	52	72		2900	R882	52	93		850			TER	390		R978	52	101	PRI	250
R782	52	39		200	R835	54	293	PRI	165	R883	54	315	PRI	1275	R930	52	74		275			SEC	2000	
R783	52	26		550				SEC	1450				SEC	1500	R931	54	330		320	R979	54	340		500
R784	52	33		585	R836	54	298	COMB	113				TER	50	R932	54	319	COMB	301	R980	52	26		1650
R785	52	26		500	R837	52	38		230	R884	52	11	PRI	2.9	R933	54	331	COMB	113	R981	54	341	PRI	1850
R786	52	27		600	R838	54	302	COMB	113				SEC	990	R934	52	48		1000			SEC	1000	
R787	52	49	PRI	300	R839	54	303		1300	R885	54	316	PRI	530	R935	53	200	PRI	700	R982	54	342	COMB	301
			SEC	250	R840	53	153	PRI	945				SEC	800			SEC	230		R983	52	35		1050
R788	52	39		500				SEC	120	R886	52	116		1535	R936	52	38		900	R984	52	49	PRI	700
R789	53	253	COMB	200	R841	54	304	PRI	1480	R887	52	18		1650	R937	52	35		700			SEC	200	
R790	53	144		1150				SEC	500	R888	52	52		1650	R938	54	327		350	R985	52	27		600
R791	54	287		1050	R842	52	17		2000	R889	53	230		1350	R939	54	332	COMB	203	R986	52	26		1775
R792	52	2		700	R843	52	31	PRI	1800	R890	54	317	PRI	1275	R940	54	333		500	R987	54	343	PRI	860
R793	52	11	PRI	530				SEC	1600				SEC	2000	R941	54	314		2100			SEC	1000	
			SEC	2650	R844	52	27		680				TER	50	R942	52	42	PRI	1200	R988	52	46	PRI	700
R794	52	39		800	R846	52	2		1150	R891	52	22		10			SEC	1200				SEC	350	
					R847	53	259		450	R892	52	39		34						R989	52	38		600

R TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
R990	52	18		1300	R1040	52	35		34	R1097	52	13	PRI	2300	R1151	54	374		250	R1204	54	385		1640
R991	52	5	PRI	500	R1041	52	23		250				SEC	425	R1152	52	10		120	R1205	54	386		3600
			SEC	500	R1042	52	38		1900	R1098	52	14		2400	R1153	54	375	PRI	1400	R1206	52	117	COMB	91
R992	52	48		34	R1043	52	78		800	R1099	53	231		500				SEC	130	R1207	52	39		2500
R993	52	38		99	R1044	52	12		1050	R1100	53	232		1450	R1154	52	52		275	R1208	52	36	PRI	700
R994	53	268		650	R1045	52	15		435	R1101	52	5	PRI	34	R1155	52	52		275				SEC	2250
R995	52	39		1400	R1046	52	93		2100				SEC	800	R1156	54	368		34	R1209	52	26		2500
R996	54	344		500	R1047	53	230		435	R1102	52	26		2750	R1157	52	21		170	R1210	52	5	PRI	1200
R997	53	268		1650	R1048	52	26		280	R1103	52	103		2750	R1158	53	156		600				SEC	800
R998	52	11	PRI	200	R1049	54	383		350	R1104	52	101	PRI	500	R1159	52	22		500	R1211	54	399	PRI	700
			SEC	4.5	R1050	52	18		7.2				SEC	1600	R1160	52	18		1000				SEC	2250
R999	54	346		34	R1051	52	23		3500	R1105	54	366	PRI	1500	R1162	52	31	PRI	14	R1212	52	55	PRI	1200
R1000	53	202		450	R1052	52	39		500				SEC	1500				SEC	3330				SEC	800
R1001	52	34		850	R1053	52	52		275				TER	800	R1163	52	55	PRI	500	R1213	54	387	PRI	1200
R1002	52	39		95	R1054	54	301		1050	R1106	54	367		34				SEC	290				SEC	800
R1003	54	347		700	R1055	54	358		700	R1107	52	18		2500	R1164	52	23		1650	R1214	54	388	PRI	1200
R1004	52	131		435	R1056	52	38		180	R1108	54	368		800	R1165	52	39		34				SEC	800
R1005	53	257	PRI	34	R1057	53	165		1050	R1109	52	130	PRI	1300	R1167	52	89	PRI	200	R1215	52	52		750
			SEC	350	R1058	52	39		1000				SEC	1000				SEC	4300	R1216	52	109	COMB	85.8
R1006	54	376		1000	R1059	52	106		170	R1110	53	143	PRI	2500	R1168	52	34		500	R1217	52	119		1920
R1007	52	35		34	R1060	52	44		1050				SEC	100	R1169	53	259		700	R1218	52	21		1440
R1008	52	39		83	R1061	52	38		1900	R1111	53	178		1900	R1170	53	231		60	R1219	52	15		1275
R1009	53	162		270	R1062	52	23		1650	R1112	55	454		54	R1171	52	18		200	R1220	54	383		2100
R1010	52	103		500	R1063	53	193		1650	R1113	55	454		340	R1172	52	49		500	R1221	52	14		100
R1011	52	11	PRI	250	R1064	52	49		65	R1114	52	57	PRI	650				SEC	500	R1223	52	7	PRI	960
			SEC	1800				PRI	250				SEC	2300	R1173	52	22		2000				SEC	625
R1012	52	5	PRI	275	R1065	52	36		550	R1115	54	369	PRI	800	R1174	52	78		1050	R1224	52	35		2500
			SEC	1000				SEC	375				SEC	2000	R1175	52	37	PRI	2500	R1225	52	26		4000
R1013	52	55	PRI	275	R1066	52	83		500	R1116	54	370	COMB	113				SEC	875	R1226	52	93		4500
			SEC	300				PRI	600	R1117	52	109	COMB	485	R1176	52	35		700				SEC	1000
R1014	52	37	PRI	1100	R1067	54	397		250	R1118	53	206		170	R1177	52	18		550	R1227	54	398	PRI	1000
			SEC	300				SEC	250	R1119	53	265		60	R1178	54	378	PRI	1000	R1228	53	247	PRI	1250
R1015	52	29		60	R1068	52	89		87	R1120	52	4	PRI	635				SEC	1100				SEC	1350
R1016	52	10		87				SEC	1300				SEC	120	R1179	52	17		1000	R1229	53	201		2500
R1017	52	49	PRI	1100	R1069	52	24		2400	R1121	52	26		2000	R1180	52	106		1000	R1230	54	391		90
			SEC	300	R1070	52	101		1200	R1122	52	18		1200	R1181	52	38		375	R1231	52	38		100
R1018	52	48		250				SEC	90	R1123	52	17		2000	R1182	54	379		1050	R1232	54	269		2600
R1019	54	348	COMB	301	R1071	54	346		34	R1124	53	183		1000	R1183	52	49	PRI	100	R1233	53	220		3000
R1020	52	31	PRI	250	R1072	54	360		600	R1125	52	33		450				SEC	2180	R1234	52	17		2250
			SEC	2000	R1073	52	101		250	R1126	53	144		1000	R1184	52	17		155	R1235	54	388	PRI	800
R1021	52	15		500				SEC	270	R1127	54	376		350	R1185	52	49	PRI	300				SEC	800
R1022	54	349	PRI	2600	R1074	54	361	COMB	301	R1128	54	354		275				SEC	550	R1236	52	83	PRI	200
			SEC	400	R1075	52	22		1500	R1129	54	287		1050	R1186	52	89	PRI	1800				SEC	4300
			TER	1000	R1076	52	25		700	R1130	54	371	PRI	105				SEC	1600	R1238	53	153	PRI	370
R1023	54	350	PRI	1000	R1077	53	195		1000				SEC	120	R1187	52	21		1800				SEC	750
			SEC	1600				SEC	1600	R1131	54	280		1890	R1188	52	107	PRI	1200	R1238	54	395	PRI	765
R1024	52	99	COMB	200	R1078	54	360		435	R1132	53	209		1050				SEC	800				SEC	1100
R1025	52	14		200	R1079	52	26		60	R1133	52	39		29	R1189	52	89		1200	R1239	53	156		2500
R1026	54	351	PRI	1275	R1080	52	21		275	R1134	53	268		2400				SEC	800	R1240	52	48		1000
			SEC	2000	R1081	53	190		179	R1135	53	228	PRI	600	R1190	54	383		2100	R1241	52	27		2250
			TER	50	R1082	52	62		800				SEC	2770	R1191	54	368		90	R1242	53	149		90
R1027	52	38		95	R1083	54	362	PRI	300	R1136	52	72		1800	R1192	52	11	PRI	1200	R1243	52	18		4600
R1029	52	35		250				SEC	500	R1137	52	107	PRI	700				SEC	800	R1244	54	392	PRI	34
R1030	54	353	PRI	825				TER	500				SEC	550	R1193	52	36	PRI	1200				SEC	800
			SEC	1100	R1084	52	78		300	R1138	52	10		1200				SEC	800	R1245	54	393		1850
R1031	54	354		55	R1085	52	74		3800	R1139	53	231		3800	R1194	53	230		800	R1246	52	49	PRI	1000
R1032	54	355		280	R1086	54	363	COMB	111	R1140	54	341	PRI	935	R1195	52	119		100				SEC	3000
R1033	52	42	PRI	1100	R1087	52	24		600				SEC	320	R1196	54	396	PRI	1200	R1247	52	23		200
			SEC	550	R1088	52	103		60	R1141	54	372		1050				SEC	800	R1248	54	394		3000
R1034	52	40		440	R1089	52	51		435	R1142	52	21		1650	R1197	54	384	PRI	1200	R1249	54	392	PRI	875
R1035	54	356	PRI	400	R1090	52	17		390	R1143	52	14		1450				SEC	800				SEC	500
			SEC	400	R1091	53	162		440	R1145	53	190		1450	R1198	53	145		2100	R1250	52	51		2250
			TER	390	R1092	54	364		800	R1146	52	35		300	R1199	52	119		3000	R1251	53	144		1285
R1036	52	21		440	R1093	54	301		440	R1147	54	376		300	R1200	52	2		100	R1252	52	87		1050
R1037	53	210	PRI	67	R1094	53	176		1500	R1148	54	373	PRI	1450	R1201	52	2		500	R1253	52	7	PRI	34
			SEC	1000				SEC	1500				SEC	320	R1202	52	101	PRI	1200				SEC	950
R1038	52	29		800	R1095	54	365		550	R1149	52	12		83				SEC	800	R1254	52	13	PRI	34
R1039	53	204		1500	R1096	52	18		250	R1150	52	10		60	R1203	52	18		550				SEC	3100

R TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
R1255	52	29		1900	R1306	52	12		1050	R1355	52	69		1150	R1405	55	420		500	R1452	52	46	PRI	450					
R1256	52	25		1300	R1307	52	106		900	R1356	52	24		1200	R1406	55	437	PRI	1200				SEC	875					
R1257	53	156		440	R1308	54	325		700	R1357	54	368		2500				SEC	2400	R1453	52	78						1050	
R1258	52	35		2000	R1309	55	412		200	R1358	55	487		2300	R1407	52	10		1200	R1454	55	414	COMB						113
R1259	53	219		700	R1310	52	49	PRI	190	R1360	52	39		2000	R1408	52	51		1200	R1455	52	16	PRI	550					550
R1260	53	256	PRI	3500				SEC	390	R1361	55	422	PRI	530	R1409	52	67	PRI	550				SEC	545					545
			SEC	100	R1311	52	5	PRI	190				SEC	1600				SEC	545	R1456	55	449	PRI	60					60
R1261	52	17		2100				SEC	390	R1362	55	423	PRI	700	R1410	52	82		1260				SEC	500					500
													SEC	1350	R1411	52	12		350	R1457	52	101	PRI	30					30
R1262	52	5	PRI	1275	R1312	52	15		435					R1412	52	116		1650				SEC	2500						
			SEC	2000	R1313	53	193		200	R1363	52	48		1000	R1413	52	12		550	R1458	52	101	PRI	10					10
R1263	53	152	PRI	1275	R1314	52	39		2500	R1364	52	4	PRI	3000	R1414	54	354		500				SEC	1300					1300
			SEC	1500	R1315	55	414	COMB	113				SEC	100	R1415	55	438	PRI	1000	R1459	55	422	PRI	475					475
R1264	52	83	PRI	700	R1316	55	415	PRI	550	R1365	54	368		90				SEC	380				SEC	25					25
			SEC	2250				SEC	550	R1366	55	424	P&S																
R1265	53	202		2750				TER	2800				COMB	113	R1416	52	87		1275	R1460	52	18		1300					1300
													TER	187	R1417	55	439	PRI	90	R1463	53	209		1920					1920
R1266	55	408		3000	R1317	52	103		2100					1000				SEC	570	R1464	53	250		1070					1070
R1267	52	52		1200	R1318	55	416	PRI	570	R1367	55	425		1000				SEC	3000	R1418	55	440	PRI	500					2400
R1268	54	400		2500				SEC	450	R1368	55	426		3000					500	R1465	53	179		2400					2400
R1269	54	343	PRI	3000	R1319	52	36	PRI	825	R1369	55	431	PRI	1000				SEC	300	R1466	55	453	PRI	750					750
			SEC	2000				SEC	1500				SEC	665	R1419	55	441	COMB	301				SEC	1950					1950
R1270	53	231		1920	R1320	52	57	PRI	1000	R1370	55	427	PRI	120	R1420	55	442	PRI	175	R1467	53	193		10					10
R1271	54	310	COMB	95				SEC	1650				SEC	350				SEC	195	R1468	52	89	PRI	390					390
										R1371	53	137		1450	R1421	52	22		2500				SEC	390					390
R1272	52	18		10	R1321	53	211	PRI	1000	R1372	55	428		1700	R1422	52	24		2500	R1469	52	111	PRI	390					390
R1273	52	49	PRI	800				SEC	3000	R1373	55	419		2500	R1423	55	499		1650				SEC	390					390
			SEC	5000	R1322	52	5	PRI	1000	R1374	52	49	PRI	60	R1424	53	267		1300	R1470	55	422	PRI	390					390
R1274	52	12		1000				SEC	2000	R1375	52	39		4500	R1425	53	220		22				SEC	390					390
R1275	53	139	PRI	550	R1323	54	399	PRI	825	R1376	52	49	PRI	500	R1426	55	443	PRI	18	R1471	52	36	PRI	390					390
			SEC	1000				SEC	1500				SEC	2200				SEC	1200				SEC	390					390
R1276	52	93		180	R1324	52	61		700																				
R1277	54	371	PRI	500	R1325	55	417	PRI	375						R1427	55	444	COMB	1000	R1472	52	38		700					700
			SEC	250				SEC	400	R1377	52	78		390	R1428	52	58	PRI	2800	R1473	52	78		390					390
R1278	54	402	PRI	400	R1326	54	290	COMB	113	R1378	52	52		1200				SEC	470	R1474	52	65		2000					2000
			SEC	24	R1327	55	418	PRI	200	R1379	53	153	PRI	600	R1429	54	360		1650	R1475	55	452		155					155
R1279	52	18		1050				SEC	300				SEC	500	R1430	52	18		1050	R1476	52	29		700					700
R1280	55	403	PRI	665	R1328	55	419		1000	R1380	55	429		700	R1431	52	23		1000	R1477	53	140	PRI	700					700
			SEC	735	R1329	53	200	PRI	50	R1381	52	16	PRI	450	R1432	53	193		1000				SEC	525					525
R1281	52	82		40				SEC	1150				SEC	875	R1433	52	18		2300				TER	25					25
R1282	54	372		3000	R1330	52	134	PRI	320	R1382	55	430		200	R1434	53	176	PRI	1000	R1478	55	455	PRI	1000					1000
R1283	52	48		60				SEC	340	R1383	53	146	PRI	300				SEC	1000				SEC	800					800
R1284	52	90		120				TER	410				SEC	2000	R1435	52	6	PRI	100	R1479	55	456		57.5					57.5
R1285	55	406	PRI	1280	R1331	52	10		400	R1384	55	432	PRI	1000				SEC	700	R1480	55	406	PRI	1200					1200
			SEC	2000	R1332	55	420		60				SEC	380	R1436	52	29		50				SEC	800					800
R1286	52	36	PRI	1000	R1333	54	307		50	R1385	55	433		500	R1437	52	129	PRI	300	R1481	54	399	PRI	1200					1200
			SEC	2100	R1334	52	10		2100	R1386	52	108		390				SEC	250				SEC	800					800
R1287	55	407	PRI	1485	R1335	52	24		100	R1387	54	372		2600	R1438	54	343	PRI	1200	R1482	52	67	PRI	1000					1000
			SEC	800	R1336	52	40		900	R1388	54	293	PRI	1000				SEC	2400				SEC	2000					2000
R1288	52	36	PRI	1000	R1338	55	490	COMB	552				SEC	2000	R1439	55	445	PRI	1200	R1483	55	451		3000					3000
			SEC	1000	R1339	55	458	COMB	552	R1389	55	434	COMB	445				SEC	2400	R1484	52	2		1070					1070
R1289	52	49	PRI	1000	R1340	52	14		550	R1390	55	435	PRI	800	R1440	52	83	PRI	550	R1485	55	456		440					440
			SEC	3000	R1341	55	404	PRI	2000				SEC	1050				SEC	545	R1486	55	459	PRI	500					500
R1290	52	103		3000				SEC	2000	R1391	55	435	PRI	800	R1441	55	464	PRI	950				SEC	1800					1800
R1291	55	408		2100				TER	1180				SEC	1050				SEC	1000	R1487	55	503		440					440
R1292	55	409	COMB	169.3	R1342	52	93		1750	R1392	53	171		1650	R1442	53	194	PRI	550	R1488	55	461	PRI	400					400
R1293	55	410	COMB	301	R1343	55	485	PRI	1200	R1393	52	106		1200				SEC	545				SEC	650					650
R1294	53	207	PRI	800				SEC	1000	R1394	53	183		450	R1443	55	446	PRI	700				TER	390					390
			SEC	2000	R1344	55	498	PRI	495	R1395	52	14		475				SEC	250	R1489	55	462		1050					1050
R1295	53	196		1450				SEC	1940	R1396	52	14		550	R1444	52	107	PRI	950	R1490	55	463	PRI	190					190
R1296	52	74		700				TER	850	R1397	53	159	PRI	3000				SEC	1000				SEC	285					285
R1297	52	23		10	R1345	52	2		1920				SEC	380	R1445	53	147	PRI	950	R1491	55	430		900					900
R1298	54	326		700	R1346																								

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	
R1498	55	467	PRI SEC	615 1985	R1548	55	449	PRI SEC	60 440	R1603	53	230		350	R1651	52	18		130	R1698	55	512		850	
R1499	52	12		575	R1549	52	55	FRI SEC	1700 800	R1604	55	504	COMB	208	R1652	52	39		180	R1699	53	237	PRI SEC	40 1000	
R1500	55	429		460						R1605	55	505		680	R1653	55	526	PRI	115						
R1501	52	79	PRI SEC	350 350	R1550	55	480	PRI SEC	1450 320	R1606	55	506		1450	R1654	55	527	PRI SEC	105 120	R1700	53	203	PRI SEC	400 595	
R1502	52	29		365	R1551	54	379		1000	R1607	55	507		1050	R1655	56	566	PRI	275						
R1503	52	14		615	R1552	55	430		550	R1608	55	504	COMB	300	R1656	55	529	PRI SEC	300 300	R1701	54	353	PRI SEC	1275 1000	
R1504	52	51		1000	R1553	55	429		1000	R1609	52	106		1700	R1657	55	530	PRI	170	R1702	52	89	PRI	300	
R1505	52	48		550	R1554	54	397	PRI	390	R1610	52	52		900	R1658	55	531	PRI SEC	175 195	R1703	55	429		585	
R1506	52	10		700				SEC	390	R1611	55	508		2250	R1659	52	17		183	R1704	54	272		350	
R1507	52	35		435	R1555	55	481		550	R1612	55	509	PRI	500	R1660	52	40		180	R1705	52	36	PRI	11	
R1508	53	199	PRI SEC	500 600	R1556	54	285		2000	R1613	55	510		1775	R1661	55	532		275	R1706	55	532	PRI	1130	
					R1557	54	347		1500	R1614	55	511	PRI SEC	240 1000	R1662	52	116		100	R1707	52	36	PRI	190	
R1509	52	122		300	R1558	52	18		57.5	R1615	53	220		22	R1663	54	319	COMB	100						
R1510	52	35		83	R1559	55	482		1650	R1616	53	214		1800	R1664	52	21		170	R1708	56	541	PRI	34	
R1511	54	354		800	R1560	55	484		1070	R1617	52	52		1050	R1665	55	421		1000						
R1512	52	35		150	R1561	55	483	COMB	800	R1618	55	512		200	R1666	53	147	PRI	300	R1709	56	542	PRI	34	
R1513	55	468	PRI SEC	675 250	R1562	53	145		700	R1619	55	513		1130	R1667	52	39		100						
					R1563	52	39		12	R1620	55	514		300	R1668	53	206		183	R1710	56	543	PRI	1275	
R1514	54	354		340	R1564	53	191	PRI	490	R1621	54	354		509	R1669	55	533		700						
R1515	54	368		2100				SEC	350	R1622	55	515		2250	R1670	52	57	PRI	800						
R1516	52	5	PRI SEC	18 1000	R1565	55	491		2750	R1623	52	55	PRI SEC	550 1000	R1671	53	247	PRI SEC	550 1000	R1711	56	544	PRI	1275	
R1517	52	5	PRI SEC	240 1000	R1566	55	492		1000	R1624	52	35		1070	R1672	52	106		800						
					R1567	55	493		1050	R1625	55	516		1920	R1673	53	137		300						
R1518	52	22		12	R1568	53	183		1200	R1626	55	517	PRI	600	R1674	52	82		435	R1712	56	545	PRI	5	
R1519	52	93		850	R1569	55	456		1000	R1627	55	518	SEC	1400	R1675	53	178		585						
R1520	52	55	PRI SEC	50 1500	R1570	55	403	PRI SEC	535 1500	R1628	55	422	PRI	1000	R1676	53	214		1300						
					R1571	54	400		183	R1629	54	388	PRI	550	R1677	55	534		1000	R1713	52	46	PRI	500	
R1521	55	469	PRI SEC	860 1000	R1572	55	494	PRI SEC	325 1500	R1630	54	384	PRI	600	R1678	53	167		220						
R1522	55	470		1700	R1573	53	144		2500	R1631	55	519		2400	R1679	52	48		1000	R1714	55	511	PRI	275	
R1523	54	360		1650	R1574	55	408		1200	R1632	53	223	PRI	1400	R1680	55	442	PRI	390						
R1524	52	39		150	R1575	54	360		440	R1633	53	202		680	R1681	53	203	PRI	1000	R1715	52	102		450	
R1525	55	471		800	R1576	52	34		200	R1634	53	259		800	R1682	55	535		1000	R1716	56	546	PRI	435	
R1526	55	497	PRI SEC	925 800	R1577	52	12		99	R1635	55	520	PRI	565	R1683	52	21		2750	R1717	54	391	PRI	500	
					R1578	53	162		1000	R1636	52	16	PRI	1750	R1684	52	49	PRI	1200	R1718	52	93		1650	
R1527	55	470		365	R1579	55	495	PRI	700	R1637	52	4	PRI	34	R1685	53	179		300	R1719	54	354		100	
R1528	52	11	PRI SEC	140 800				SEC	250	R1638	55	456		500	R1686	52	35		100	R1720	56	547		440	
					R1580	52	10		300	R1639	55	521	PRI	950	R1687	55	536		250	R1721	56	548		275	
R1529	55	472		2000	R1581	53	221	PRI	615	R1640	52	118	PRI	32	R1688	53	158	PRI	30	R1722	56	549		615	
R1530	55	473		400				SEC	1985	R1641	55	460	PRI	260	R1689	54	322	PRI	765	R1723	56	550		1400	
R1531	52	49	PRI SEC	11 1000	R1582	55	500	PRI SEC	275 425	R1642	55	522	PRI	535	R1690	52	57	PRI	550	R1724	54	369	PRI	1200	
					R1583	55	487		100	R1643	52	7	PRI	500	R1691	52	36	PRI	385	R1725	54	346		1900	
R1532	52	18		1000	R1584	52	48		1000	R1644	55	523	PRI	345	R1692	52	36	PRI	1200	R1726	56	553	PRI	2000	
R1533	54	372		320	R1585	52	29		1000	R1645	55	524	PRI	260	R1693	56	537	PRI	1200						
R1534	55	474		450	R1586	55	503		1580	R1646	53	167		150	R1694	56	538	PRI	800	R1727	55	536		1050	
R1535	52	15		1000	R1587	52	22		1500	R1647	55	525	PRI	1000	R1695	56	539	PRI	875	R1728	53	154	PRI	550	
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R1537	53	151		1000	R1589	52	67	PRI	1000	R1649	52	35		375	R1697	56	540	PRI	1200	R1730	53	193		200	
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R1540	55	476	PRI SEC	1200 800	R1593	52	2		1000						R1701	54	353	PRI	595	R1735	52	11	PRI	300	
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R1541	52	33		1200				SEC	1000						R1703	55	429		585	R1737	53	153	PRI	375	
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					R1596	54	383		855						R1705	52	36	PRI	11	R1739	53	153	PRI	1400	
R1543	55	489		1000	R1597	52	31	PRI	430						R1706	55	532		1130	R1740	52	36	PRI	190	
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R1740	54	372		1000				SEC	54	R1842	56	587	COMB	1200				SEC	470				SEC	600
R1741	52	103		1000				TER	950	R1843	52	48		350	R1889	53	262	PRI	1000	R1931	56	546	PRI	1100
R1742	54	346		500	R1794	52	2		1800	R1844	56	588		800				SEC	1600				SEC	1100
R1743	54	346		1000	R1795	55	415	PRI	600	R1845	54	347		500	R1890	56	634	PRI	1275	R1932	52	11	PRI	11
R1744	56	555		1000				SEC	600	R1846	54	347		230				SEC	1475				SEC	1100
R1745	52	103		1000				TER	2800	R1847	56	589	PRI	100	R1891	56	654	PRI	1275	R1933	55	448		350
R1746	55	528	PRI	550	R1796	55	462		100				SEC	170				SEC	1475	R1934	53	250		460
			SEC	545	R1797	56	575		1800	R1848	53	151		1650	R1892	53	187	PRI	1750	R1935	53	220		600
R1747	54	354		1100	R1798	52	101	PRI	1000	R1849	53	139	PRI	435				SEC	1600	R1936	55	423	PRI	275
R1748	56	556		1000				SEC	1000				SEC	475	R1893	52	47		1000				SEC	375
R1749	56	557	COMB	200	R1799	56	577		2750	R1850	56	590	PRI	200	R1894	53	172	PRI	1275	R1937	52	22		500
R1750	56	558		1000	R1800	56	578	PRI	113				SEC	1300				SEC	1300	R1938	56	639	PRI	800
R1751	52	106		350				SEC	1000	R1851	52	96		1650	R1895	54	297	PRI	1275				SEC	1500
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R1754	56	562		1050				SEC	2400				SEC	255	R1897	56	571		1260	R1941	53	199	PRI	500
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R1760	54	347		700				SEC	850				P2	1200	R1902	52	23		1000	R1945	53	258	PRI	65
R1762	55	462		2000	R1806	52	14		34	R1858	52	11	PRI	120	R1903	52	5	PRI	500				SEC	470
R1763	56	560	COMB	91	R1807	52	96		450				SEC	1100				SEC	650				TER	2500
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R1765	56	561	PRI	1300	R1809	52	18		2500	R1860	56	593	PRI	500	R1905	56	649	P1	260	R1948	52	46	PRI	700
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R1773	52	96		280				SEC	350	R1869	53	148	PRI	1000			SEC	555				SEC	466	
R1774	52	114		250	R1819	52	23		200				SEC	1400			TER	570		R1956	52	7	PRI	200
R1775	52	112	PRI	800	R1820	56	580		575	R1870	52	72		300	R1911	57	725	PRI	9.2				SEC	1700
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R1776	56	569	PRI	1275	R1822	56	581		975				SEC	1000			TER	2100				SEC	1700	
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R1780	52	62		600				SEC	500	R1877	56	596		2500			SEC	2500				SEC	2200	
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R1785	53	146	FRI	500				COMB	301	R1881	52	29		1070			SEC	110				SEC	2500	
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R1786	55	442	PRI	250	R1834	52	38		60				SEC	1200	R1922	56	641		1050				SEC	2500
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R1787	55	426		180	R1836	52	78		34	R1884	54	322	PRI	170	R1926	52	107	PRI	34				SEC	2500
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R1789	56	572	PRI	500				SEC	500	R1885	56	616	PRI	550	R1927	57	725	PRI	375				SEC	2500
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R1790	52	93		115				SEC	275				TER	2800				775				SEC	800	
R1791	54	274	COMB	113	R1839	53	176	PRI	1060	R1886	56	559		2100	R1928	52	61		250	R1970	52	46	PRI	2000
R1792	52	38		4000				SEC	1450	R1887	52	39		60	R1929	57	721	PRI	500				SEC	750
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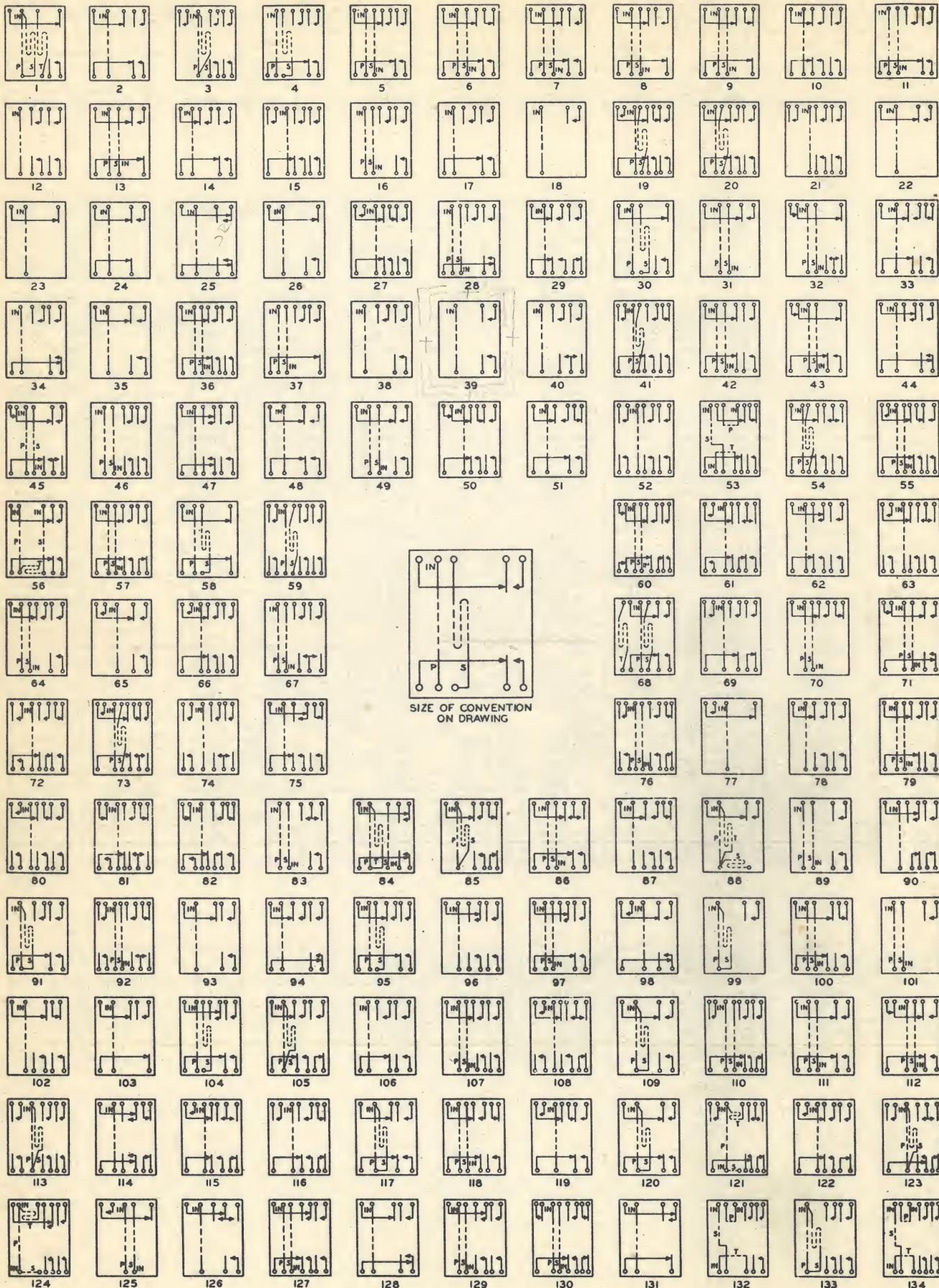
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R1974	52	120	COMB	1500	R2021	57	702	COMB	800						R6002	52	35		245					
R1976	54	283	PRI SEC	600 2770	R2022	52	55	PRI SEC	390 400						R6003	52	16	PRI SEC	18.3 285					
R1977	53	268		2500	R2023	57	690	PRI	550						R6004	52	26		1650					
R1978	57	713	PRI SEC	1000 800				SEC	500						R6005	52	18		34					
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R1979	52	12		1050	R2025	57	771		350						R6007	52	13	PRI SEC	475 475					
R1980	53	230		1000	R2026	52	15		60						R6008	53	239		50					
R1981	52	62		855	R2028	52	10		60						R6009	52	7	PRI SEC	21 185					
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R1983	52	39		800											R6012	52	94		325					
R1984	57	687		750	R2031	57	767	PRI	300						R6013	52	12		250					
R1985	52	126		350				SEC	300						R6014	52	49	PRI SEC	11 450					
R1986	57	678	PRI SEC	1100 1100	R2032	53	193		1050						R6015	55	407	PRI SEC	600 500					
					R2033	52	118	PRI SEC	34 440						R6016	53	232		4.7					
R1987	54	390		250											R6017	52	26		1650					
R1988	53	244	PRI SEC	580 700	R2034	52	93		60						R6018	52	10		2600					
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R1989	54	345		350											R6021	52	18		60					
R1990	56	656		1000	R2036	52	79	PRI	60						R6022	53	192	PRI SEC	18 600					
R1991	53	242	PRI SEC	30 755				SEC	500						R6023	56	592		1050					
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R1992	52	85	COMB	300											R6025	52	52		275					
R1993	54	357	PRI SEC	270 450											R6026	52	39		7.6					
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R1994	55	520	PRI SEC	175 195											R6028	52	55		1050					
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R1995	52	12		700											R6030	52	14		17					
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R2015	52	39		99																				
R2016	57	679	PRI SEC TER QUAT	95 260 170 105																				
R2017	52	47		390																				
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R TYPE RELAY CODES

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
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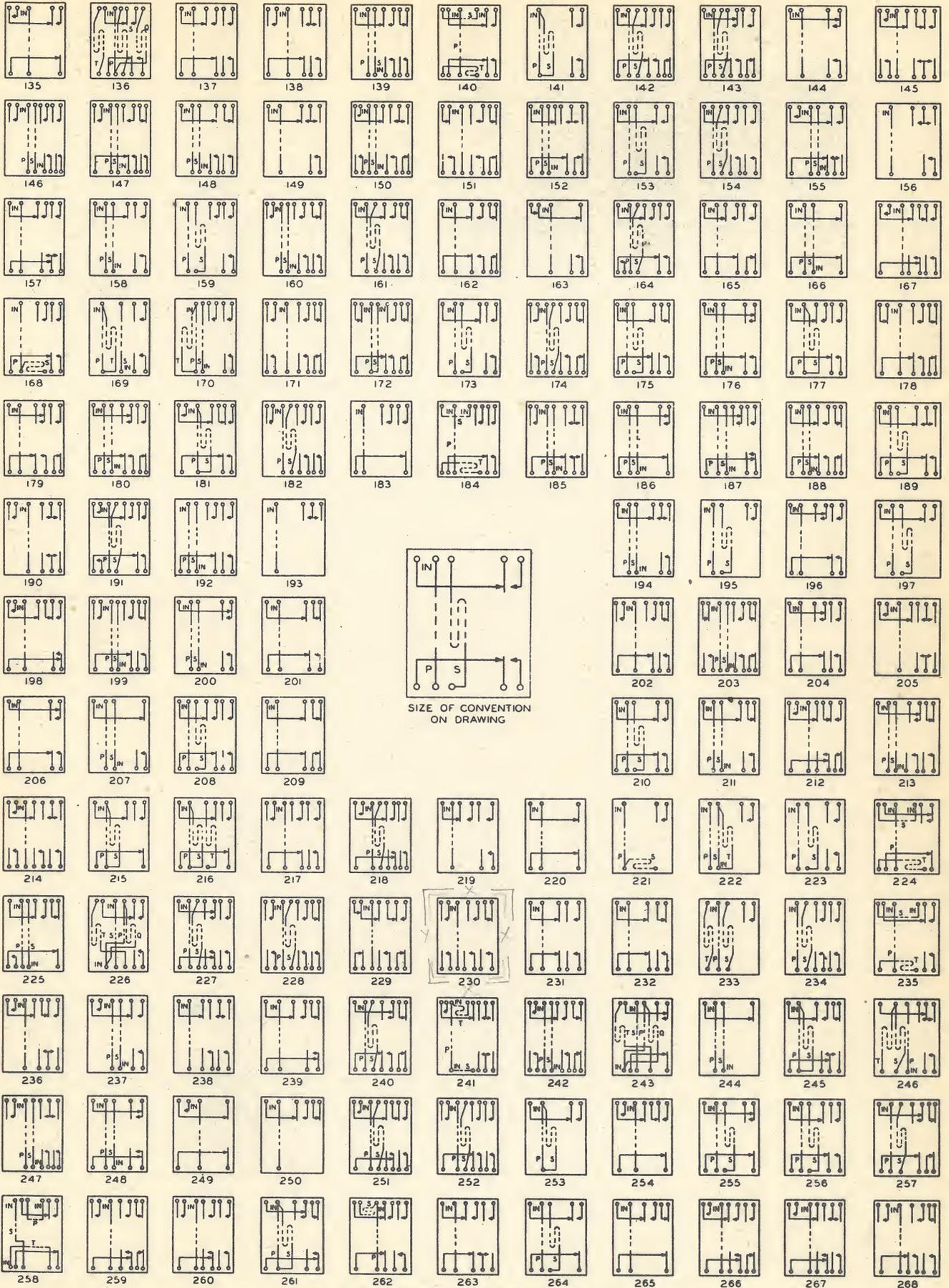
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H2	52	48		120				SEC	260	H58	53	156		165	H85	57	757		165				SEC	250
H3	52	34		120	H33	52	89	PRI	245	H59	52	48		165	H86	53	137		165	H110	54	339	PRI	250
H4	52	26		120				SEC	255	H60	52	26		165	H87	53	220		1000				SEC	250
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H6	52	18		120	H35	52	39		120				SEC	500				SEC	260	H112	57	758	PRI	200
H7	53	162		120	H36	54	300		500				TER	34	H89	52	111	PRI	250				SEC	85
H8	53	187	PRI SEC	160 160	H37	52	101	PRI	245	H62	52	26		165				SEC	240	H113	52	11	PRI	250
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H10	52	48		500	H38	52	78		120				SEC	500				SEC	240	H114	52	78		400
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H12	53	137		120	H40	52	17		1000	H64	52	34		165	H92	52	39		1050	H116	52	12		400
H13	52	51		120	H41	54	300		500	H65	52	18		120	H93	52	23		300	H117	52	18		750
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H17	53	255	PRI SEC	500 500				SEC	75	H68	52	16	PRI	300				SEC	650	H119	57	760	P1	865
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H18	54	376		500				SEC	75	H69	52	48		300				SEC	370	H120	57	761	P1	260
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H23	53	248	PRI SEC	250 260	H49	53	248	PRI	245				SEC	50	H101	53	48		400					
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H24	52	89	PRI SEC	250 260	H50	52	23		165	H76	53	156		1050	H103	54	346		165					
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H25	52	39		1000	H52	52	18		165				SEC	260	H105	52	11	PRI	300					
H26	52	39		195	H53	53	183		165	H78	54	300		390				SEC	300					
H27	52	18		700	H54	57	756	PRI	500	H79	52	14		165	H106	52	16	PRI	260					
H28	52	39		390				SEC	500	H80	52	35		500				SEC	260					
H29	52	111	PRI SEC	250 260				TER	34	H81	53	192	PRI	300	H107	53	166	PRI	260					
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H30	53	144		1000				SEC	255	H82	52	2		500	H108	52	18		400					
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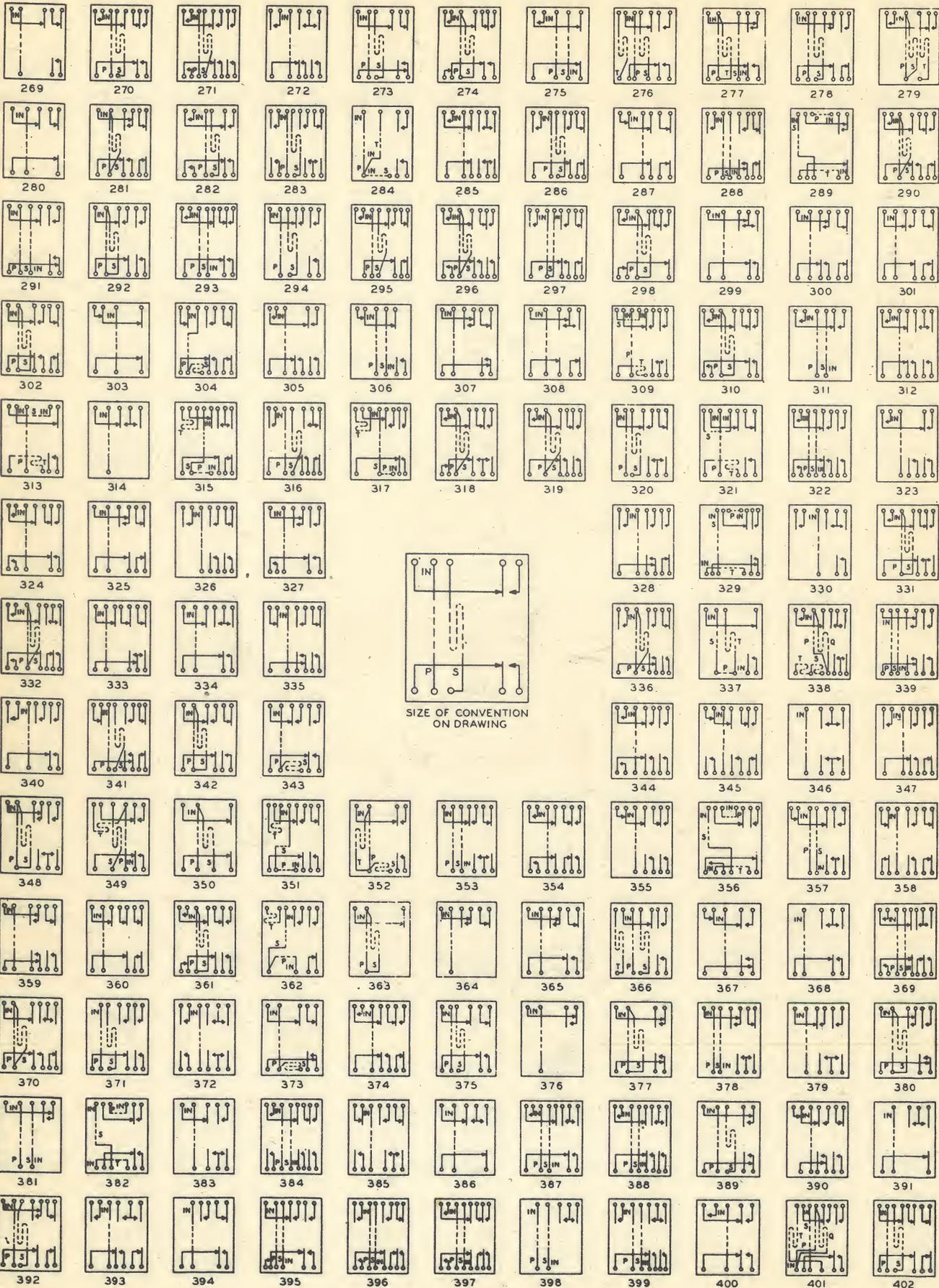


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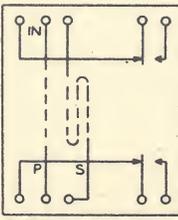
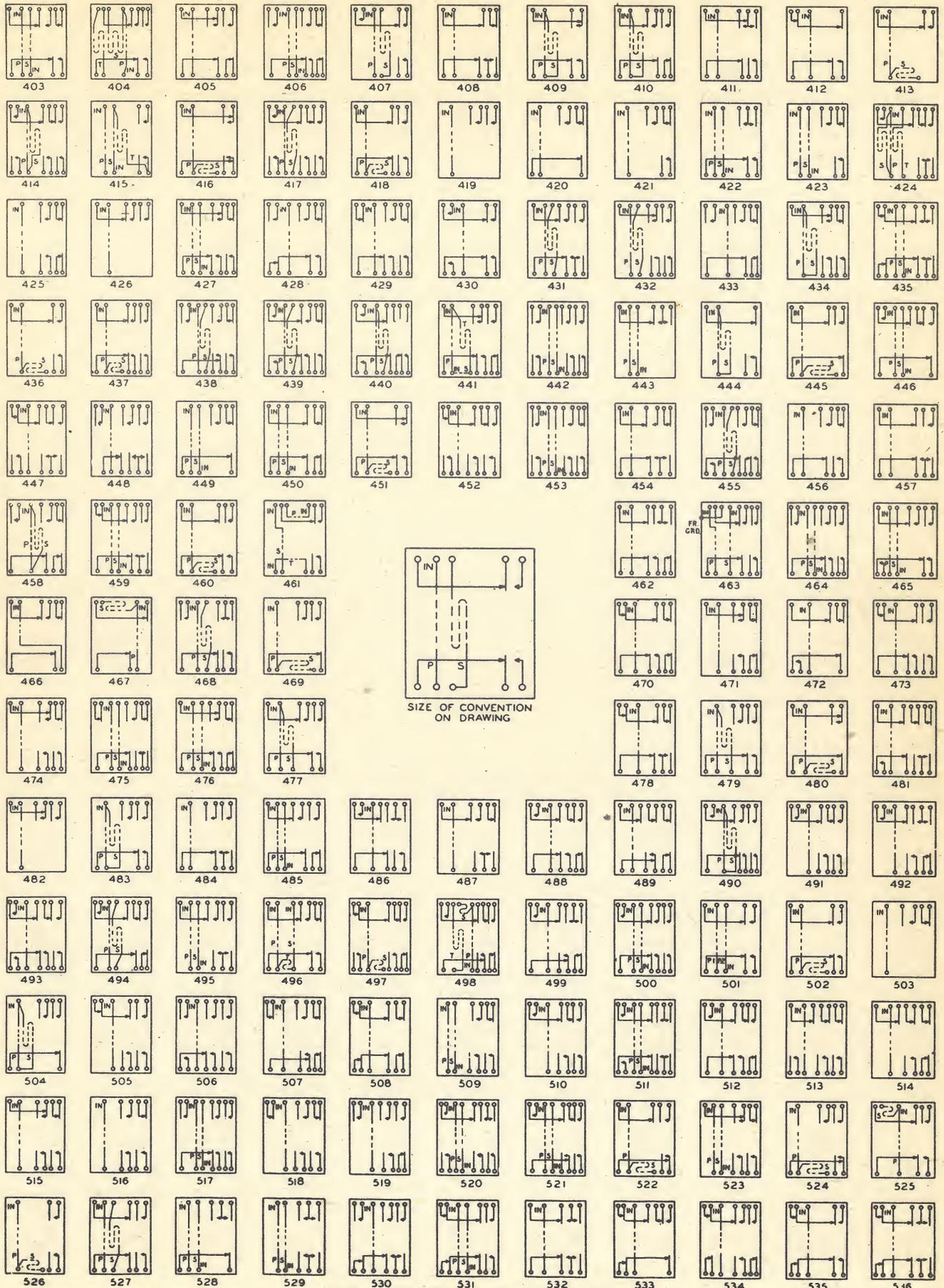
E, F, H, R & T TYPE RELAYS



E,F,H,R&T TYPE RELAYS

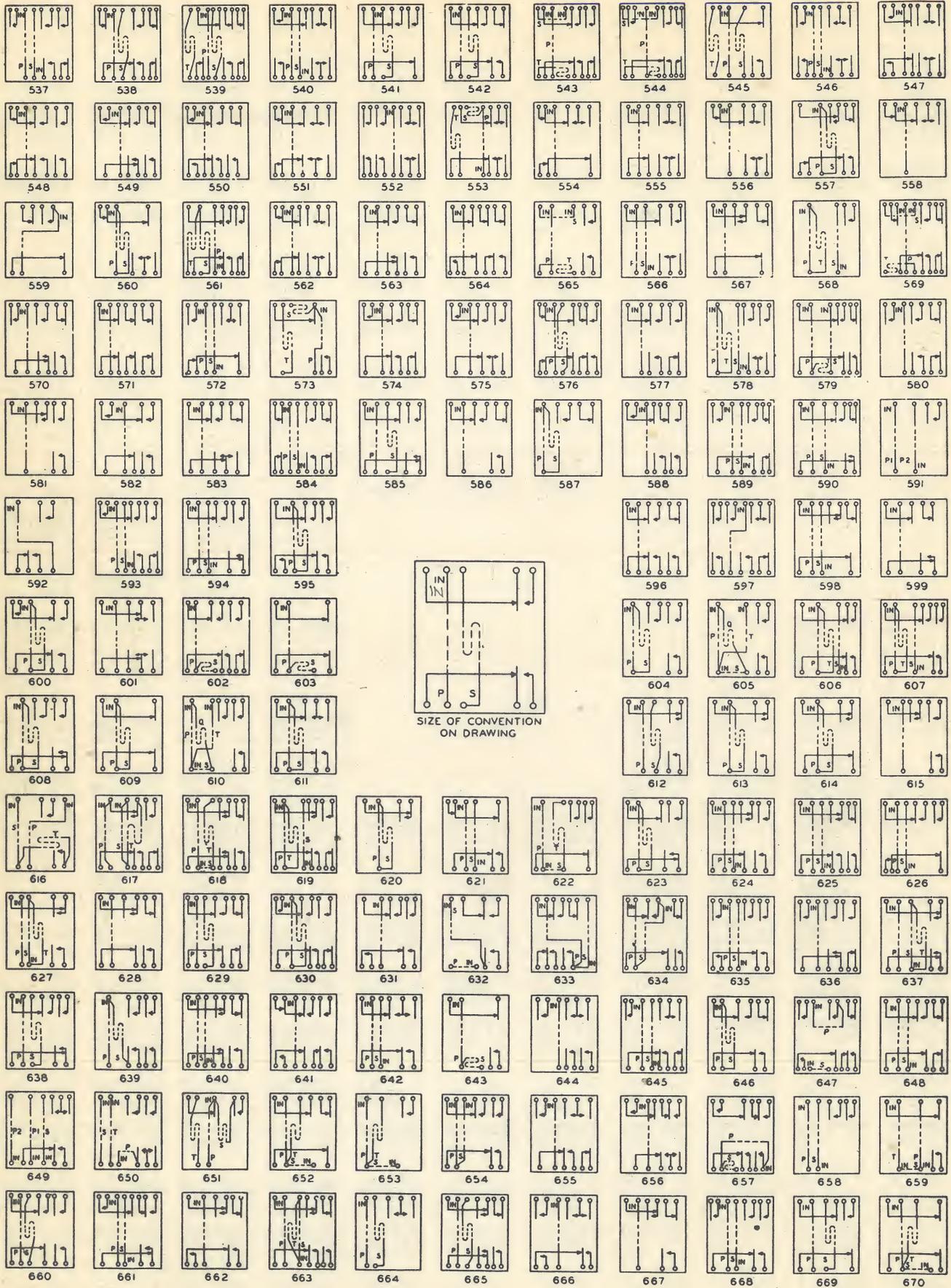


E, F, H, R & T TYPE RELAYS

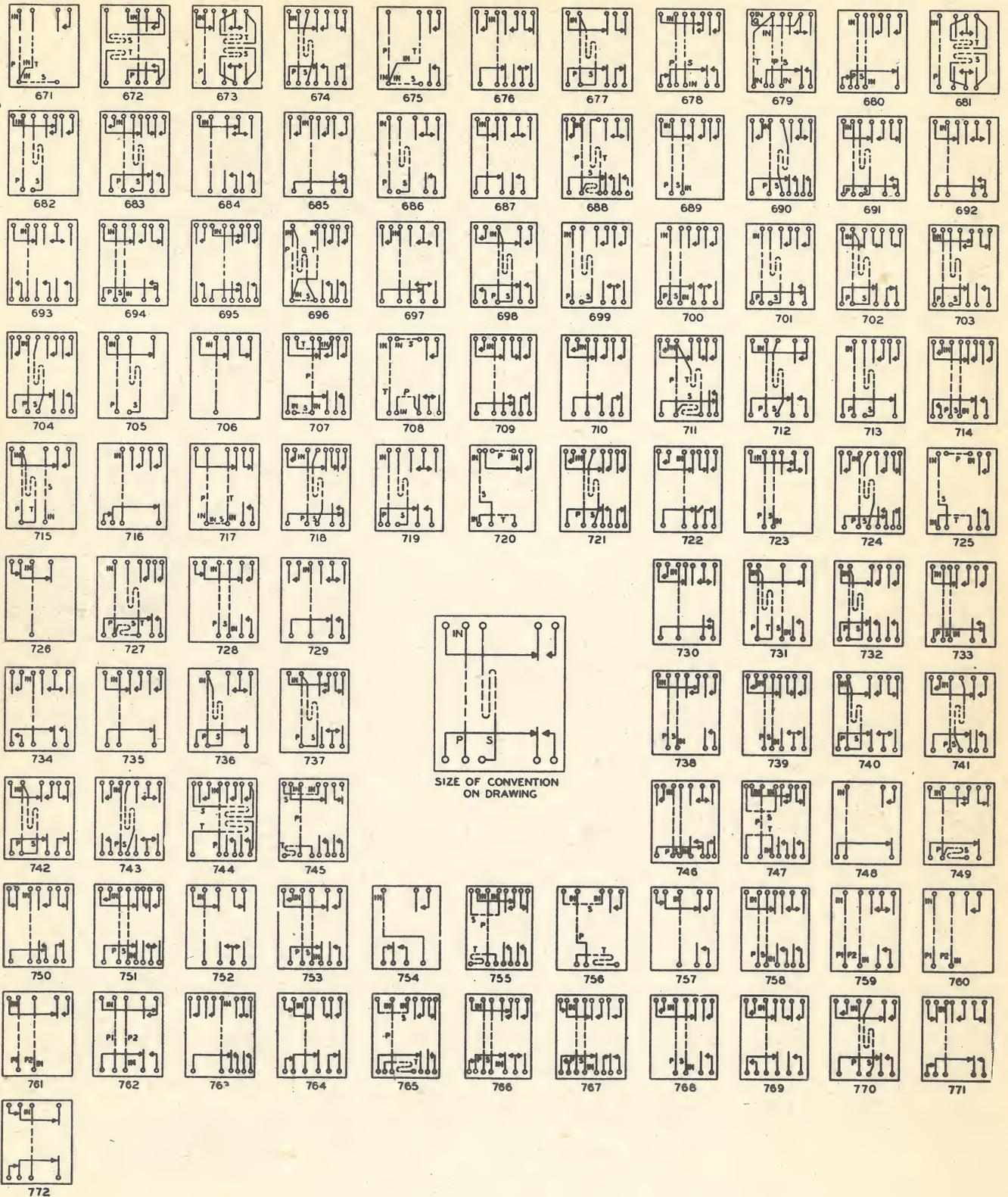


SIZE OF CONVENTION ON DRAWING

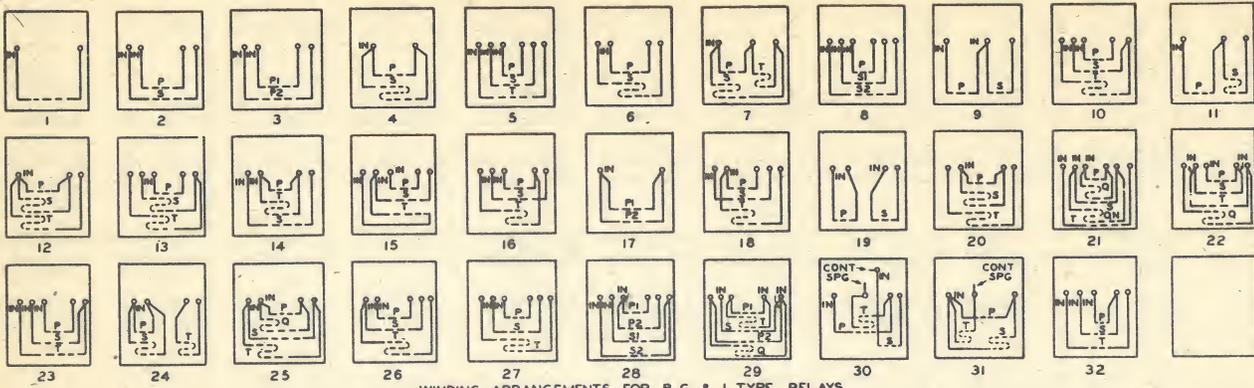
E, F, H, R & T TYPE RELAYS



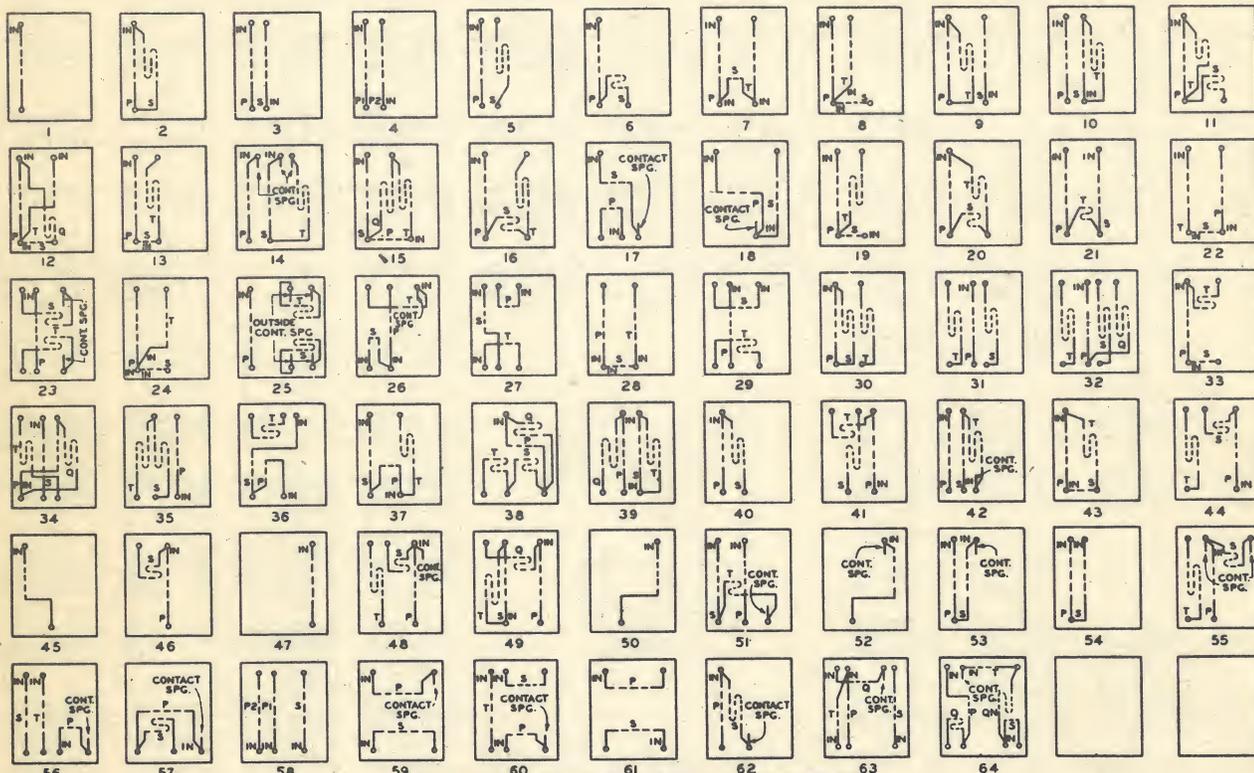
E, F, H, R & T TYPE RELAYS



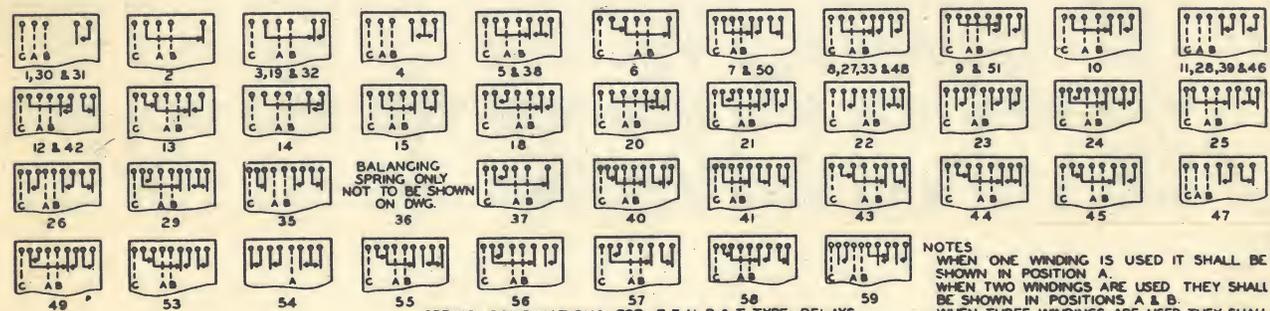
E, F, H, R & T TYPE RELAYS



WINDING ARRANGEMENTS FOR B, G, & J TYPE RELAYS

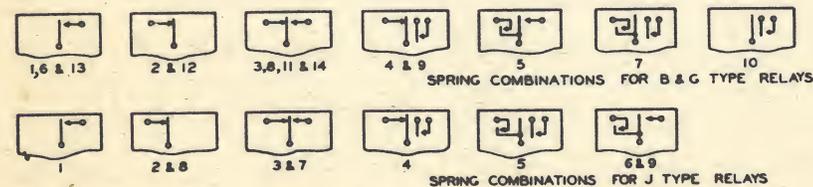


WINDING ARRANGEMENTS FOR E, F, H, R & T TYPE RELAYS

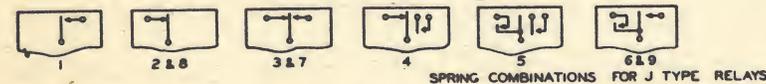


SPRING COMBINATIONS FOR E, F, H, R & T TYPE RELAYS

NOTES
 WHEN ONE WINDING IS USED IT SHALL BE SHOWN IN POSITION A.
 WHEN TWO WINDINGS ARE USED THEY SHALL BE SHOWN IN POSITIONS A & B.
 WHEN THREE WINDINGS ARE USED THEY SHALL BE SHOWN IN POSITIONS A, B, & C.



SPRING COMBINATIONS FOR B & G TYPE RELAYS



SPRING COMBINATIONS FOR J TYPE RELAYS

WINDING ARRANGEMENTS AND SPRING COMBINATIONS FOR B, E, F, G, H, J, R & T TYPE RELAYS

RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES	RELAY CODE	PAGE NO	CONV NO	WDG	OHMS RES
81A		1	EACH	65	114CE		28		188	144BE		6		1050	171B		62		500	178CP		14		1050
85M		71		2040	114CF		30		188	149BF		6		485						178CR		14		2000
85N		71		2040	114EA		28		180	149BG		6		125						178CS		14		1050
85P		71		5700	114EB		28		180	149BH		6		1500	178A					179CT		10		320
										149BJ		6		1050	178B					178CU		12	0.2	
										149BK		6		1050	178E					178CW		12	60	
108E		2	INNER	155	124B		28		525	149BL		6		1050	178F					178CX		12	470	
			OUTER	10000	124F					149BN		6		1050	178G					178CY		12	485	
					124G		32	PRI	500	149BO		6		1000	178H					178DA		14	11.5	
114A		36	F - P	500	124J			SEC	500	149BP		6		1050	178J					178DB		14	125	
			F - S	240			34	EACH	95	149BR		8	COMB	7.4	178J					178DC		12	485	
			REAR	500	124K					149BS		6		1500	178K					178DD		12	130	
114B		35	FRONT	97			32	PRI	100	149BT		6		1050	178M					178DE		13	320	
			REAR	97	124L			SEC	100	149BU		6		1050	178N					178DF		13	35	
114C		35	FRONT	19			25	PRI	500	149BV		6		320	178P					178DG		13	83	
			REAR	19				SEC	500	149BW		6		210	178R					178DH		12	320	
114D		35	FRONT	250						149BX		6		320	178S					178DJ		12	320	
			REAR	250						149CB		6		210	178T					178DK		14	320	
114E		35	FRONT	500	149A					149CC		6		320	178U					178DL		23	PRI	
			REAR	500			18	PRI	30	149CD		6		1200						178DM		23	SEC	
114F		36	F - P	96	149B			SEC	350	149CE		6		1050	178W					178DN		12	485	
			F - S	120			18	PRI	13.5	149CG		6		1500	178AA					178DN		13	320	
			REAR	96	149C			SEC	350	149CH		6		1500	178AB					178DP		12	320	
114G		28		520	149D		6		99	149CJ		6		500	178AC					178DR		14	209	
114J		28		104	149E		6		485	149CL		6		320	178AD					178DS		15	COMB	
114K		28	PRI	72	149F		6		9.5	149CM		6		320	178AE					178DT		13	380	
			SEC	33	149G		6		10.2	149CN		6		200	178AF					178DU		14	470	
114L		35	FRONT	97			18	PRI	16	149CP		6		1050	178AG					178DW		14	320	
			REAR	500	149H			SEC	120	149CR		6		320	178AH					178DY		14	1050	
114M		28		122			18	PRI	10			6		2.4	178AJ					178EA		14	130	
114N		28		188	149J			SEC	10						178AL					178EB		10	320	
114R		28		200	149K		6		120	162A		5		334	178AM					178EC		12	320	
114S	62	35	FRONT	40	149L	62	6		250	162B		4		1050						178ED		21	P&S	
			REAR	40			18	PRI	1000	162C	62	4		79	178AS					178EE		24	COMB	
114AA		26	PRI	72	149M			SEC	1000	162D		5		34	178AU					178EF		12	TER	
			SEC	34	149N		6		50	162E		5		485	178AV					178EG		14	300	
114AC		28		5	149P		6		79	162F		5		30	178AY					178EH		14	22.5	
114AD		28		16	149R		6		1050	162H		16	EACH	500	178BA					178EJ		12	22.5	
114AF		28		1500	149S		6		1000	162J		5		530	178BB					178EK		14	22.5	
114AG		28		48	149T		6		1500	162K		5		40	178BC					178EL		12	2500	
114AH		28		2000	149U		6		2500	162L		17	PRI	25	178BD						12	2500		
114AJ		28		2200	149V		6		485				SEC	35	178BE						12	800		
114AK		30		188			20	PRI	835	162M		5		485	178BF					186A		12	320	
114AP		35	FRONT	7	149Y			SEC	500	162N		9	COMB	338	178BG						14	210		
			REAR	7	149AA		6		210	162P		5		1050	178BJ						14	1050		
114AR		33	PRI	160	149AC		8	COMB	200	162R		5		320	178BK						14	300		
			S&T		149AD		6		1050	162S		5		130	178BL						12	320		
			COMB	11.35			18	PRI	500	162T		7	COMB	7.4	178BM						14	485		
114AT		26	PRI	54	149AE			SEC	500	162Y		5		1000	178BN						12	1050		
			SEC	2400	149AF		6		380	162AA		5		320	178BR						13	485		
114AU		28		520	149AG		6		1050	162AB		4		1050	178BS						14	800		
114AW		27	COMB	145	149AH		8	COMB	7.4	162AC		5		485	178BT						12	30		
114AY		27	COMB	145			18	PRI	750	162AD		5		440	178BU						12	30		
114BB		28		10.4	149AL			SEC	750	162AE		4		485	178BV						14	1050		
114BC		28		1000	149AM		6		209	162AF		4		380	178BY						14	2000		
114BD		28		50			18	PRI	100	162AG		5		1050	178CA						14	200		
114BE		28		188	149AN			SEC	500	162AJ		5		200	178CB						14	210		
114BH		26	PRI	500	149A'		6		167	162AK		5		485	178CC						14	200		
			SEC	500			19	PRI	1000	162AL		5		440	178CD						12	320		
114BJ		28		1000	149AR			SEC	600	162AM		4		485	178CE						14	200		
				1000	149AS		6		1500	162AN		9	COMB	7.4	178CF						14	200		
114BK		28		1000	149AT		6		485	162AP		5		440	178CG						14	200		
114BL		30		175	149AU		6		320	162AR		5		440	178CH						12	200		
114BM		28		1000	149AV		6		2500	162AS		4		320	178CI						12	1050		
114BP		28		188	149AY		6		200	162AT		5		320	178CJ						14	485		
114CA		29		48	149BA		6		200	162AU		4		1050	178CK						14	1050		
114CC		28		188	149BB		8	COMB	7.4			5		485	178CL						15	COMB		
114CD		28		188	149BD		6		485						178CM						14	470		
							6		200						178CN						12	200		

NUMBER TYPE RELAY CODES

CODE NO	PAGE NO	CONV NO	WDG	OHMS RES
6A	72	111		.0601
6B		111		.0426
6C		111		.0240
6D		111		.0192
6E		111		.0120
6F		111		.0062
6G		111		.0060
7A		113		.014
8A		81		.0070
9A		81		.0035
10A		81		.0017
11A		113		.0011
12A		113		.00087
13A		113		.00058
14A		113		.00044
15A	81		.00035	

CHOKE COILS

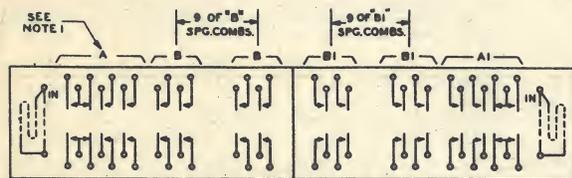
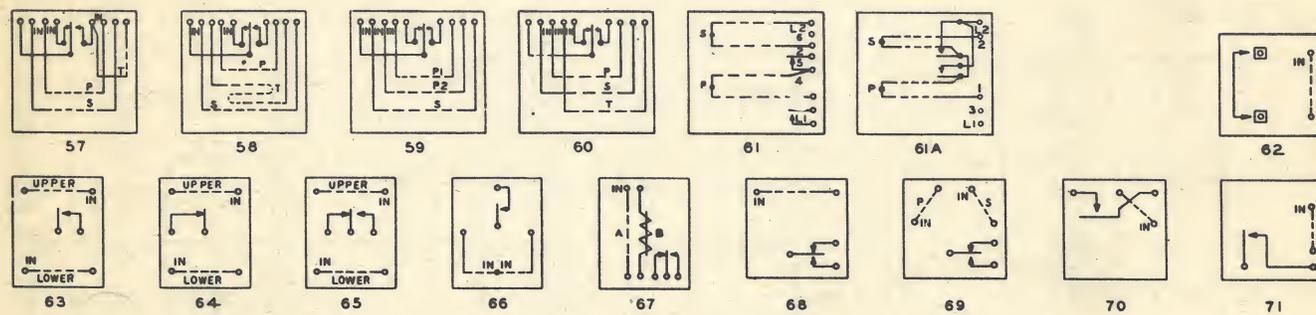
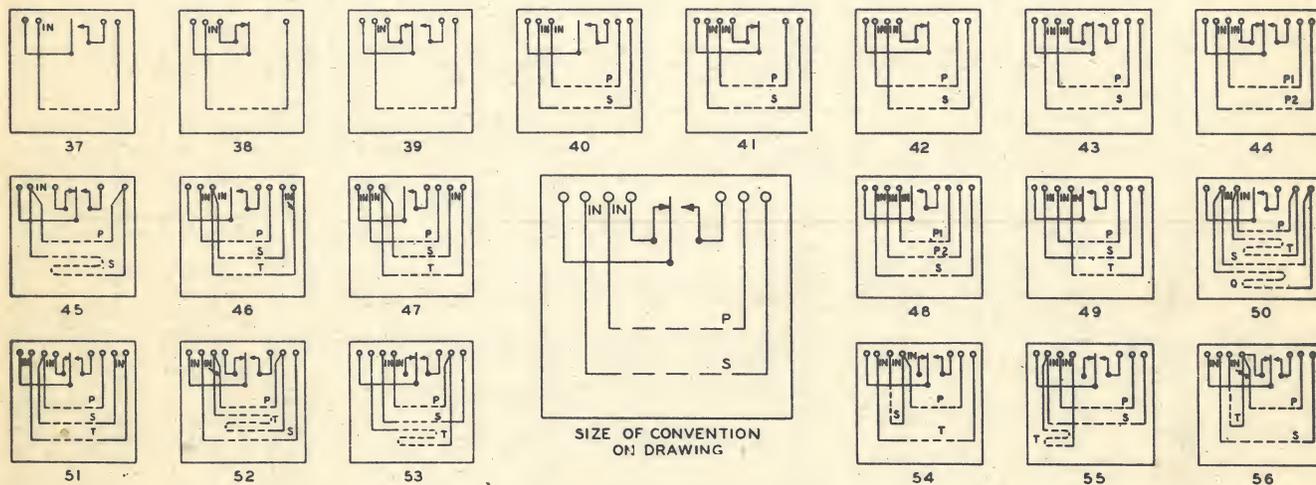
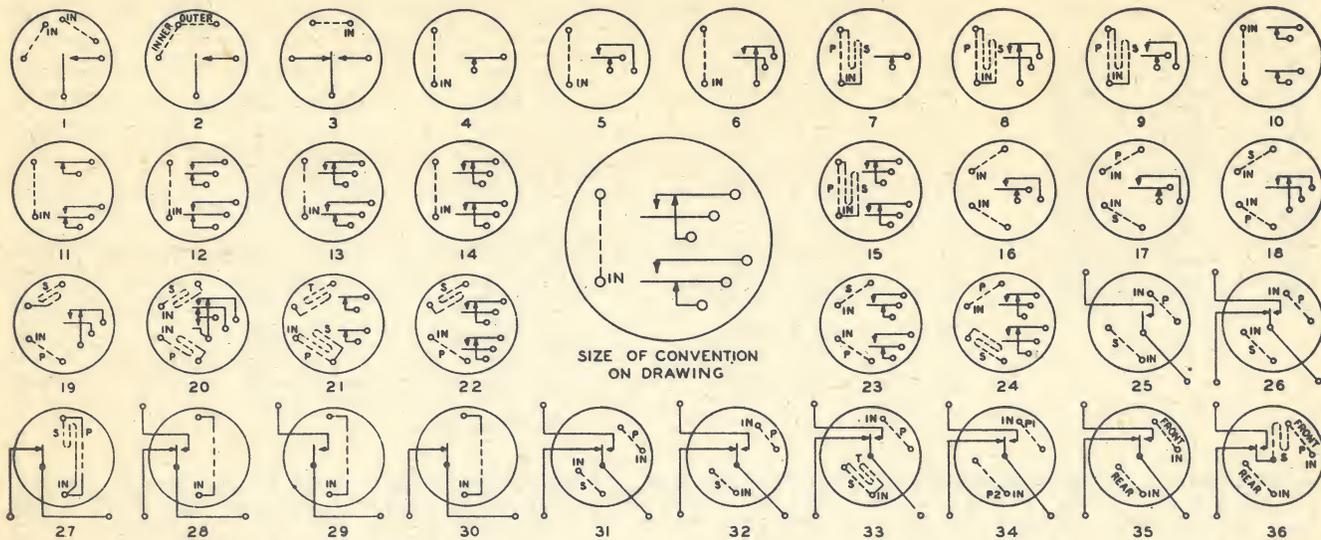
CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES			
10	72	136	A	0.41	43	72	123	A	0.6	63	72	125	A	2.3	101A	72	90	A	22			
			B	85.5				B	900						B	450			B	75		
			C	1.4				C	18.1						C	25			C	19		
13			131	A	1.7		44		119	A		5.5	65		125	A	1.32	102A	71	14	A	1.9
			B	57.3				B	26						B	500			B	10.3		
			C	10				C	14.7						C	9.9			C	485		
23			130	P	10		46		116	A		14.7	66		148	A	5.7	103A	72	126	A	14.7
			S	230				B	9.5						B	80			B	53.5		
			T	0.38				C	14.7						C	5.15			C	9.5		
29			131	A	0.38				129	A		9.5	68		119	A	5.15	120	72	122	A	16.4
			B	37					B						B	30			B	31.2		
31			131	A	1.4		55B	72	121	A		14.7			125	A	5.9	146B	72	126	A	14.7
			B	17					B	9.5		72A	72		B	500			B	53.5		
32			131	A	0.38		61		137	A		16.4	73A		C	10			C	9.5		
			B	37					B	16.4					119	A	1	146C	72	127	A	14.7
35		132	A	5.4			C	125				B	35			B	53.5					
		B	1.4				D	475	75A			C	9			C	9.5					
42		128	A	0.41	62		125	A	1.32			151	A	12	155B	72	126	A	14.7			
		B	31				B	325				B	14.8			B	53.5					
		C	7.5				C	8.8				C				C	9.5					
		D	290																			

INDUCTION COILS

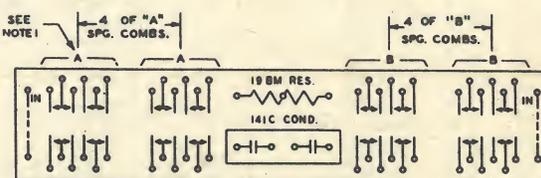
CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES							
20A	72	135	A	277	62B	71	16	A	21	75B	71	1	A	14	93G	71	16	A	19	108A	71	44	A	3.2		
			B	40				B	14				B	21				B	64				B	4.1		
			C	360	62C	71	16	A	13	75F	71	1	A	44	93H	71	16	A	22.5	108B	71	44	A	2.7		
20E	72	138	A	29				B	22				B	21				B	39.5				B	7.8		
			B	215	62E	71	16	A	9	75G	71	1	A	64	93J	71	16	A	17	108C	71	44	A	8.65		
			C	365				B	23				B	19				B	55				B	7.5		
20G	72	117	A	277	62F	71	16	A	22	76A	71	1	A	21	94E	71	44	EACH	20	108D	71	44	A	8.65		
			B	40				B	20				B	20	94F	71	44	A	30				B	4.15		
20H	72	124	A	29	62G	71	16	A	20.5	77A	71	7	A	21				B	20	109A	71	19	A	1650		
			B	29				B	9				B	20	94G	72	83	A	9				B	1.78		
			C	215	64B	72	161	A	29	78A	71	5	EACH	21				B	400	109B	71	19	A	0.435		
20J	72	134	A	277				B	65	80A	71	19	A	7	94H	71	47	A	10				B	5.75		
			B	40	64C	72	161	EACH	29				B	21.5				B	13.5	109C	71	52	A	81		
			C	300	64D	72	162	EACH	9	80B	71	19	A	9	94J	71	58	A	1.4				B	30		
			D	400	64J	72	161	A	29				B	11.5				B	370.4	110A	72	119	A	11.6		
25A	71	1	EACH	21				B	65	80C	71	20	EACH	28	94K	72	83	A	2.1				B	92		
26A	71	7	EACH	21	64K	72	161	A	26	81A	71	19	EACH	33				B	3	111A	71	20	A	0.85		
30A	72	106	A	.018				B	90	82C	71	19	A	27	96A	71	20	A	2.65				B	12.75		
			B	385	64M	72	162	A	36				B	17				B	43	111C	71	21	EACH	17.5		
44A	71	11	A	21				B	6	83B	71	19	A	22	96B	72	61	A	0.2				A	5		
			B	21	65A	71	4	A	11				B	23				B	123	112A	71	46	A	12		
			C	42				B	60	84A	71	19	A	9				C	151				B			
45B	72	93	A	.035				C	11				B	10	97A	72	118	A	23	113A	72	95	A	.05		
			B	1000				D	60	85A	71	1	A	23				B	13				B	0.76		
49A	71	60	A	1.65	66A	72	74	A	25				B	22	98A	72	115	A	0.55	114A	72	78	A	.02		
			B	31				B	500	85B	71	1	A	14				B	42				B	.019		
54A	71	2	A	0.25	67C	71	19	A	20				B	21	98B	72	115	A	23	115A	72	64	A	.01		
			B	0.75				B	21	85C	71	1	A	22				B	13				B	.02		
54B	71	1	EACH	6	68B	71	17	A	5				B	13	100A	71	28	A	22	115B	72	64	A	.01		
56A	71	6	A	0.85				B	25	85E	71	1	A	23				B	23				B	0.14		
			B	22.5	68C	71	17	A	3				B	9				C	40	115C	72	64	A	.01		
56B	71	6	A	2.35				B	4.5	86G	71	27	A	23	100B	71	28	A	21				B	1.34		
			B	27.8	69F	71	33	A	11.5				B	25.5				B	28.5	115D	72	64	A	.012		
56C	71	13	A	6				B	13.2				C	36				C	40				B	.005		
			B	17	69G	72	86	A	8	88A	71	56	A	105	101A	71	19	EACH	6	116A	72	83	EACH	20		
58C	71	19	A	130				B	20.5				B	3100	102A	71	44	A	22	117A	72	166	EACH	160		
			B	18	72A	72	159	A	0.15	89A	71	36	A	21				B	23	119A	71	48	A	0.85		
58D	71	26	A	1.4				B	0.92				B	14.8	102B	72	44	A	13	119B	71	49	A	1		
			B	15.3				C	17.5				C	8.7				B	22.5				B	16		
			C	357.5	73B	71	7	A	23.5	91A	71	16	A	20	103B	72	73	A	25	123A	71	48	A	5.7		
59A	71	19	A	28.75				B	22				B	21				B	500				B	6.4		
			B	22.75	74A	71	19	A	22	92A	72	94	A	85	105A	71	19	A	5	125A	71	15	EACH	20		
59B	71	19	EACH	21				B	23.5				B	2000				B	6	126A	71	44	EACH	20		
60A	72	120	A	70	74B	71	19	A	23	93A	71	16	A	22	106A	71	19	A	98	134A	71	49	A	3.4		
			B	0.2				B	54.5				B	23				B	0.6				B	2125		
60B	72	120	A	255	74C	71	19	EACH	2	93B	71	16	A	21	107A	71	20	A	5.7							
			B	1.5	74D	71	19	EACH	15				B	14				B	6.4							
62A	71	16	A	22	75A	71	1	A	23	93F	71	16	A	21												
			B	23				B	22				B	44												

REPEATING COILS

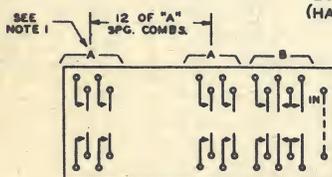
CHOKE COIL, INDUCTION COIL AND REPEATING COIL CODES



230 B REL
(HALF SIZE)



232 B REL
(HALF SIZE)



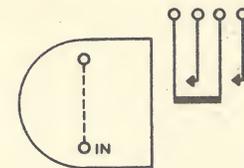
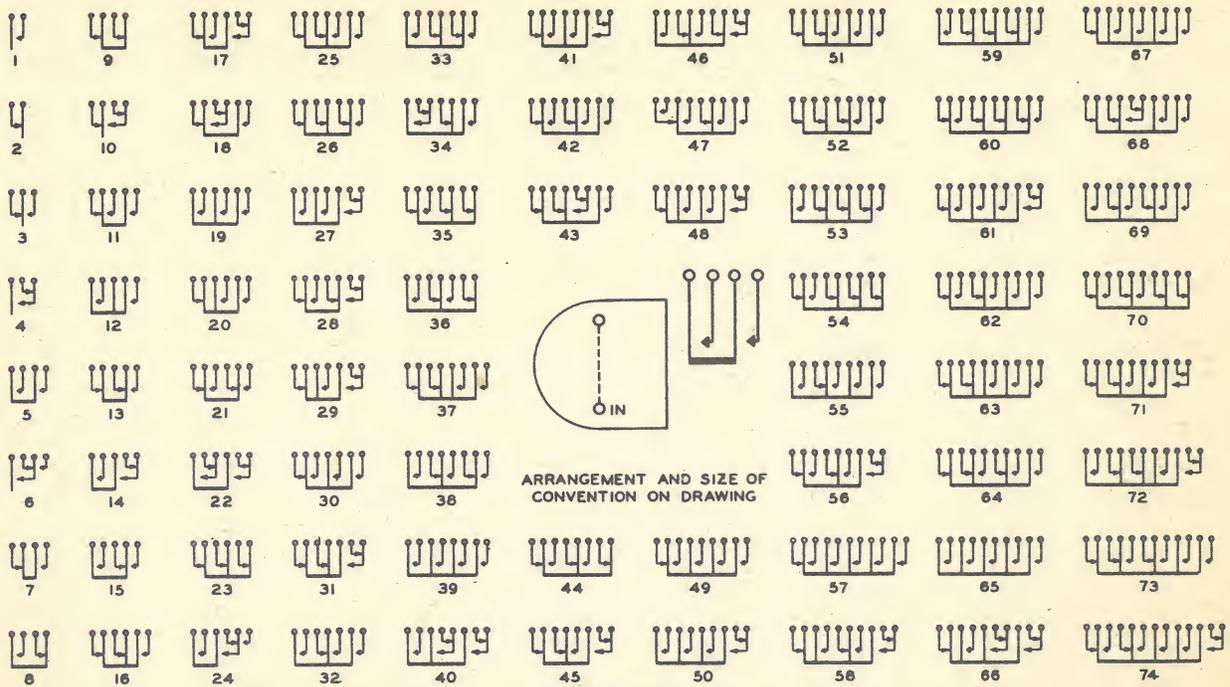
229 C REL
(HALF SIZE)

NOTES:
1. SPRING COMBINATION DESIGNATIONS ARE FOR INFORMATION ONLY AND SHALL NOT BE SHOWN ON WIRING DIAGRAM DRAWINGS.

NUMBER TYPE RELAYS



WINDINGS



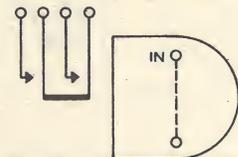
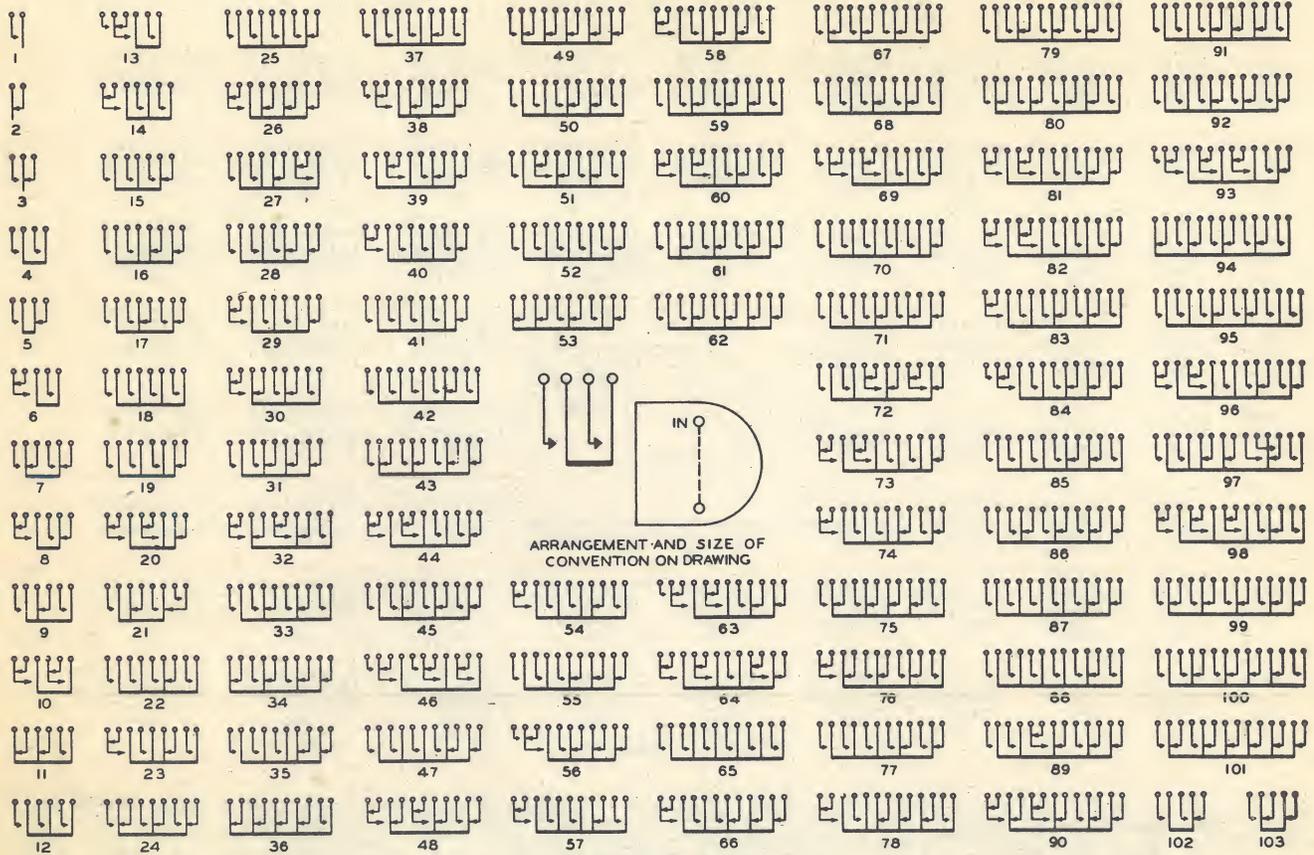
SPRING COMBINATIONS

RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.
221 A	3	B FRONT REAR	200	221 BM	1	F COMB	235	221 DS	31	F COMB	375	221 GC	2	B FRONT REAR	200	221 JJ	1	D PRI SEC	1000
B	4	A	4.37	BN	51	D PRI SEC	1000	DT	28	F COMB	375	GD	1	A	650	JK	51	A	800
C	5	F COMB	181	BR	19	D PRI SEC	0.75	DW	4	F COMB	375	GE	11	B FRONT REAR	200	JL	15	D PRI SEC	465
D	11	A	4.37	BS	5	D PRI SEC	150	DY	30	A	1300	GH	64	A	1300	JM	14	D PRI SEC	100
E	3	A	4.37	BT	19	A	10	EA	5	A	335	GJ	29	A	2500	JN	55	D PRI SEC	900
G	25	A	4.37	BU	5	A	15	EB	21	B FRONT REAR	200	GK	65	B FRONT REAR	200	JO	5	A	750
H	26	A	4.37	BY	3	A	1300	EC	2	A	215	GL	7	A	1300	JR	7	A	150
J	6	A	4.37	CA	3	A	1300	EE	62	A	8	GN	19	A	150	JS	24	A	335
K	7	A	4.37	CB	21	A	1200	EF	21	A	8	GP	66	A	2300	JT	1	D PRI SEC	50
L	6	A	4.37	CC	11	A	800	EJ	42	A	8	GR	67	A	2300	JU	35	A	2300
M	5	B FRONT REAR	200	CD	4	A	8	EK	11	F COMB	375	GS	50	A	2500	JV	39	A	500
P	11	B FRONT REAR	200	CE	8	A	8	EM	61	F COMB	375	GT	65	A	2300	JY	69	A	800
R	11	B FRONT REAR	200	CF	7	A	8	EN	38	A	700	GU	7	A	305	KA	70	A	335
T	25	A	1300	CG	8	A	8	ER	49	A	800	GW	2	A	700	KB	30	A	650
U	17	A	1300	CH	28	A	8	ES	5	A	150	GY	19	A	600	KC	30	A	2500
W	51	A	1300	CJ	25	A	8	ET	1	D PRI SEC	60	HA	30	A	700	KD	44	A	150
Y	1	A	1300	CK	11	A	8	EU	11	B PRI SEC	450	HB	22	A	1300	KE	48	A	1300
AA	27	A	1300	CL	3	A	8	EV	1	D PRI SEC	1900	HC	5	A	600	KF	44	A	8
AB	18	A	1300	CM	46	D PRI SEC	1475	EW	16	A	900	HD	19	B FRONT REAR	20	KG	7	D PRI SEC	350
AC	46	A	1300	CN	1	A	200	EY	9	A	150	HE	29	A	335	KH	56	F COMB	1800
AD	1	A	15	CP	1	D PRI SEC	100	FA	20	A	200	HF	63	A	1300	KI	49	A	650
AE	47	A	800	CR	58	D PRI SEC	110	FB	32	D PRI SEC	1000	HG	43	F COMB	375	KJ	62	A	800
AF	5	A	200	CS	30	A	800	FC	72	A	2000	HH	34	A	2000	KN	49	A	800
AG	11	A	200	CT	19	A	2	FD	29	A	800	HJ	21	A	335	KP	5	A	2300
AH	1	A	200	CU	1	A	800	FE	1	D PRI SEC	65	HK	50	A	1300	KR	45	F COMB	375
AJ	1	A	200	CW	1	A	800	FF	33	D PRI SEC	400	HL	10	A	8	KS	50	A	2500
AK	1	A	300	CY	48	A	2500	FG	20	A	110	HM	7	A	650	KT	71	A	650
AL	12	A	700	DA	4	A	600	FH	5	D PRI SEC	1180	HN	37	A	800	KU	38	D PRI SEC	600
AM	1	D PRI SEC	60	DB	59	D PRI SEC	125	FI	2	A	1300	HR	52	D PRI SEC	200	KV	73	A	2700
AN	11	A	335	DC	1	A	1100	FJ	2	A	2000	HS	5	A	400	KW	42	A	335
AP	18	A	335	DD	3	A	800	FK	42	A	1500	HT	5	F COMB	15	LA	42	G PRI SEC	200
AR	38	A	335	DE	31	A	400	FL	2	A	8	HU	53	D PRI SEC	110	LB	74	D PRI SEC	74.00
AS	28	A	335	DF	2	A	335	FM	25	C FRONT REAR	8	HW	1	D PRI SEC	885	LC	30	A	660
AT	13	A	335	DG	14	D PRI SEC	150	FN	62	A	700	HY	61	D PRI SEC	200	LD	3	A	1000
AU	1	B FRONT REAR	750	DH	40	A	2500	FO	60	A	800	IA	15	D PRI SEC	250	LE	30	A	400
AW	3	A	400	DJ	19	H PRI S&T COMB	1300	FR	41	A	800	IB	11	A	287	LF	11	A	75
AY	5	A	14	DK	39	H PRI S&T COMB	24	FS	16	B FRONT REAR	1300	IC	39	H PRI S&T	665	LJ	57	A	200
BA	11	B FRONT REAR	450	DL	14	A	658	FT	21	A	200	JD	30	A	335	LK	66	A	800
BB	11	B FRONT REAR	450	DM	16	F COMB	658	FU	3	A	8	JE	23	A	1300	LL	30	A	1300
BC	1	A	10.7	DN	60	D PRI SEC	60	FW	5	A	200	JF	27	A	150	LM	57	A	200
BD	2	A	1300	DO	61	D PRI SEC	80	FY	9	A	800	JG	54	A	210	LN	57	A	200
BE	14	F COMB	160	DP	61	D PRI SEC	110	GA	5	D PRI SEC	1450	JH	21	B FRONT REAR	700	FAA	3	E PI P2	200
BF	1	A	650	DR	13	F COMB	1180	GB	1	D PRI SEC	400	221 GB	1	D PRI SEC	150	221 JH	21	B FRONT REAR	200
BH	1	A	650				900				500				450				
BJ	29	A	1300				375												
BK	37	B FRONT REAR	250																
221 BL	5	A	500																

221 TYPE RELAYS



WINDINGS



ARRANGEMENT AND SIZE OF CONVENTION ON DRAWING

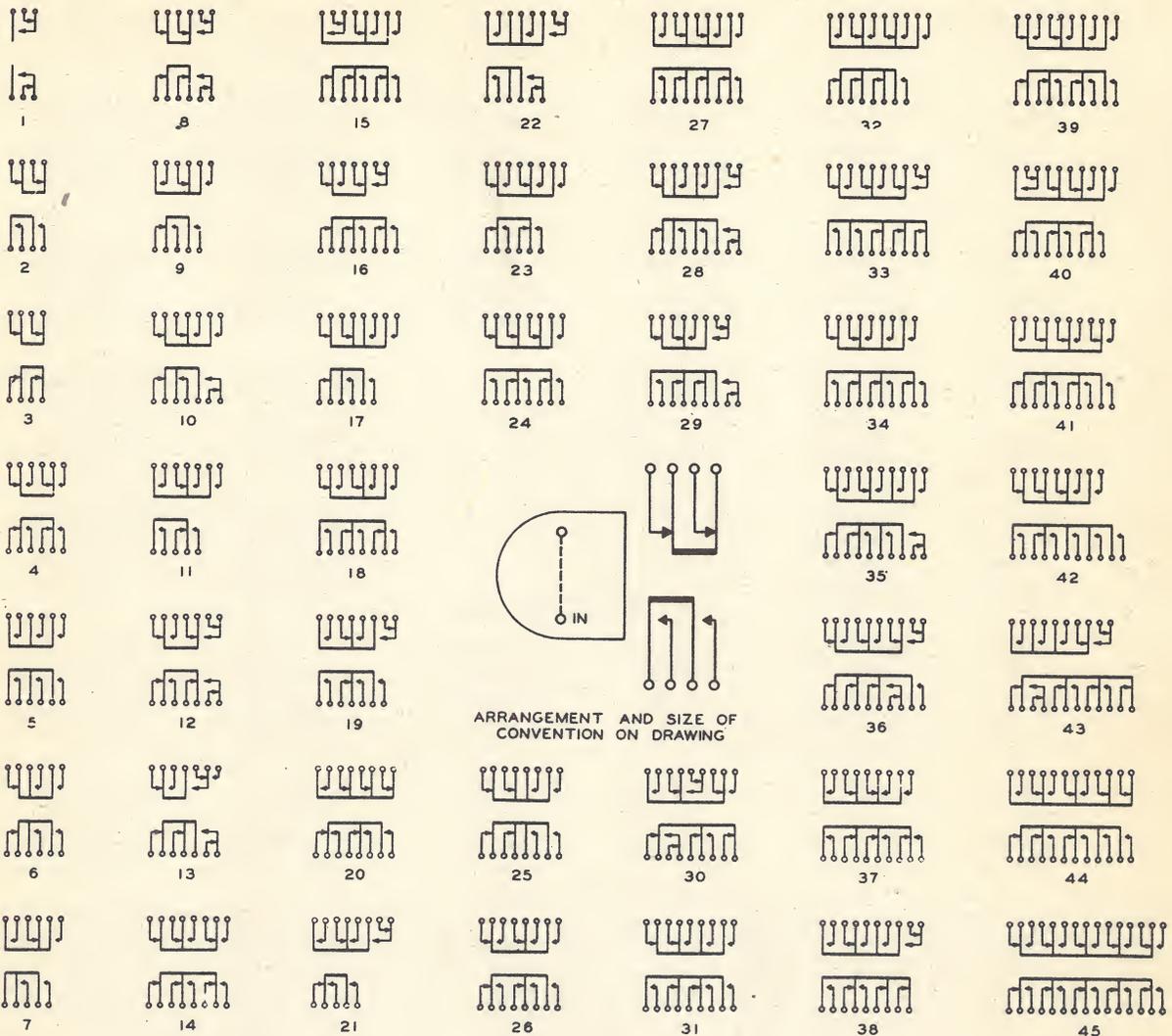
SPRING COMBINATIONS

RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.			
222 A	102	A	800	222 BC	I	A	200	222 DB	69	A	1300	222 FB	87	A	900	222 GS	7	A	800			
B	42	D	1300	BD	I	A	200	DC	13	A	335	FC	88	B	PRI SEC	150	GT	42	D	P & T COMB SEC	333	
C	16	A	1300	BE	4	B	PRI SEC	60	DD	2	A	2500	FD	28	A	1300	GU	31	A	2000		
D	3	A	4.37	BF	I	B	PRI SEC	1900	DE	5	A	1300	FE	51	B	PRI SEC	200	GW	96	C	FRONT REAR	2300
E	79	B	1300	BH	67	A	1900	DG	68	B	PRI SEC	200	FF	52	A	800	GY	97	G	200		
F	79	B	PRI SEC	BJ	67	A	2300	DH	85	B	PRI SEC	125	FG	7	A	600	HA	67	F	185		
G	79	B	PRI SEC	BK	4	A	14	DJ	68	B	PRI SEC	1100	FH	53	B	PRI SEC	140	HB	15	C	1240	
H	80	B	PRI SEC	BL	10	A	800	DK	14	A	700	FJ	73	A	1300	HC	87	A	650			
J	33	B	PRI SEC	BM	I	A	107	DL	2	A	700	FK	1	B	PRI SEC	1000	HD	98	B	384		
K	33	B	PRI SEC	BN	I	A	1300	DM	49	A	1300	FL	59	A	1300	HE	1	B	1800			
L	33	B	PRI SEC	BP	17	B	PRI SEC	500	DN	38	A	1300	FM	45	A	800	HF	57	B	800		
R	23	B	PRI SEC	BR	19	A	1300	DP	18	A	PRI SEC	200	FN	39	B	PRI SEC	1000	HG	99	A	340	
S	103	B	PRI SEC	BS	35	A	1300	DR	18	A	PRI SEC	1300	FP	29	A	800	HH	67	A	750		
T	59	B	PRI SEC	BT	6	B	PRI SEC	100	DS	32	B	PRI SEC	1300	FR	89	B	PRI SEC	500	HI	1	B	50
W	44	C	FRONT REAR	BU	4	A	2	DT	30	B	PRI SEC	200	FS	52	A	800	HJ	100	A	780		
Y	60	C	FRONT REAR	BW	I	A	11300	DW	81	C	FRONT REAR	200	FT	88	D	P & T COMB SEC	273	HK	I	A	400	
AA	64	C	FRONT REAR	BY	82	A	646	ED	48	E	PRI SEC	1300	FU	37	B	PRI SEC	1325	HL	61	A	1300	
AC	8	A	1300	CA	7	C	FRONT REAR	1300	EE	47	A	3300	FW	43	B	PRI SEC	825	HM	41	B	790	
AD	4.4	A	1300	CB	10	A	1300	EF	27	A	1300	FX	54	A	1300	HN	8	A	1000			
AF	34	A	1300	CC	43	A	1300	EG	15	A	700	FY	74	A	1300	HO	31	A	3600			
AG	17	A	1300	CD	11	B	PRI SEC	200	EH	12	A	800	GA	54	A	1300	HP	62	A	335		
AH	14	A	1300	CE	12	A	800	EJ	20	A	1300	GB	4	A	750	HR	62	A	985			
AJ	45	A	1300	CF	102	A	1300	EL	12	A	800	GC	22	B	PRI SEC	300	HS	23	A	2300		
AK	7	A	1300	CG	J6	B	PRI SEC	1300	EM	56	B	PRI SEC	1000	GD	75	A	1300	HT	2	A	2000	
AL	48	A	1300	CH	I	A	1300	EN	86	A	1300	GE	55	A	600	GU	102	A	800			
AM	47	A	1300	CJ	43	A	1300	EP	79	B	PRI SEC	200	GF	90	A	1300	HW	9	B	1800		
AN	24	A	1300	CK	3	A	8	ER	79	B	PRI SEC	1300	GG	40	A	800	HY	67	A	400		
AP	I	A	15	CL	103	C	FRONT REAR	1500	ES	50	B	PRI SEC	200	GH	91	A	1300	JA	58	A	300	
AR	102	A	800	CM	83	D	P & T COMB SEC	333	ET	70	A	1300	GI	92	B	PRI SEC	1300	JB	85	B	2000	
AS	15	A	800	CN	84	B	PRI SEC	2000	EU	71	A	1300	GJ	92	B	PRI SEC	1300	JC	101	A	1100	
AT	15	A	800	CP	68	D	P & T COMB SEC	333	EW	95	B	PRI SEC	1325	GK	3	A	1300	JD	63	A	3300	
AU	25	A	800	CT	21	A	1300	EV	70	A	1300	GL	76	B	PRI SEC	125	JE	78	B	1300		
AW	65	A	800	CU	48	A	1300	EY	72	E	PRI SEC	150	GM	93	C	FRONT REAR	200	PA	5	C	2000	
AY	18	A	800	CW	3	A	800	FA	86	A	1300	GN	102	A	215	222 PB	4	C	FRONT REAR	400		
BA	66	A	800	CY	26	A	800	222 FA	86	A	1300	GP	94	B	PRI SEC	1300						
222 BB	I	A	800	222 DA	35	A	1300	222 FA	86	A	1300	222 GR	5	A	300							

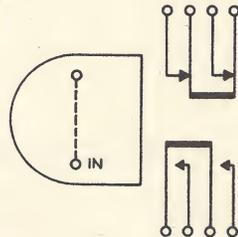
222 TYPE RELAYS



WINDINGS



ARRANGEMENT AND SIZE OF CONVENTION ON DRAWING



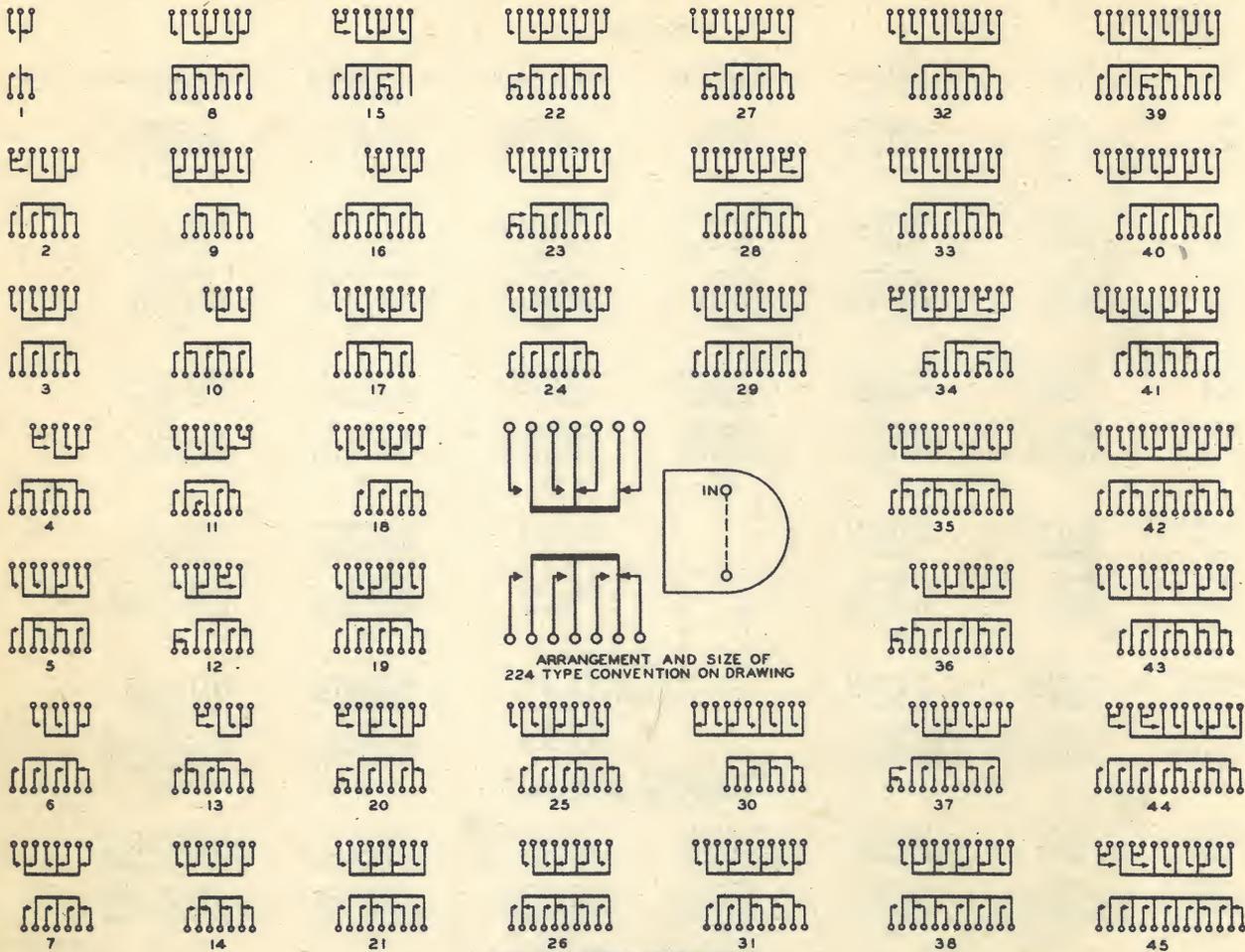
SPRING COMBINATIONS

RELAY CODE	SPRING COMB	WINDING	OHMS RES	RELAY CODE	SPRING COMB	WINDING	OHMS RES	RELAY CODE	SPRING COMB	WINDING	OHMS RES
223 A	12	A	1300	223 U	20	A	2500	223 AT	2	C	125
B	15	A	2000	W	8	A	2500			PRI SEC	83
C	16	A	1300	Y	21	A	400	AU	1	A	900
D	28	B	FRONT 200 REAR 200	AA	37	A	800	AW	3	A	1300
E	17	B	FRONT 200 REAR 200	AB	24	C	1000	AY	3	A	720
F	45	A	650	AC	23	C	400	BA	4	A	440
G	19	C	150	AD	38	C	1800	BB	14	A	285
H	34	A	1300	AE	39	A	150	BC	25	C	90
J	4	A	1300	AF	40	A	870	BD	5	C	56
K	5	A	1200	AG	30	A	1300	BE	32	C	450
L	13	C	400	AH	22	C	3300	BG	10	A	1000
M	35	A	1800	AJ	7	C	1300	BH	9	A	1100
N	18	A	1300	AK	25	A	600	BJ	43	A	3300
P	36	A	2500	AL	31	A	2700	BK	33	A	2000
R	11	A	800	AM	42	A	3300	BL	27	C	2000
S	6	B	FRONT 200 REAR 200	AP	41	A	1300	BM	46	A	PRI SEC
223 T	29	A	1300	AR	44	A	2500	BN	45	A	1300
				223 AS	26	A	1300				335
							700				1300

223 TYPE RELAYS



224 TYPE WINDINGS

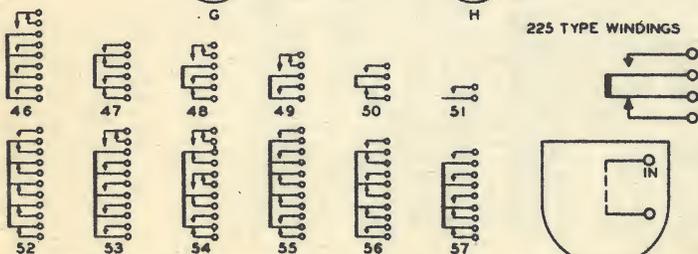


224 TYPE SPRING COMBINATIONS

RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.
224 A	2	A	1300	224 K	7	A	1300	224 AA	37	B	PRI SEC 1100	224 AL	44	F	COMB 500	224 BA	41	B	PRI SEC 125
B	3	A	1300	L	18	A	1300	AB	43	B	PRI SEC 125	AM	13	A	1300	BB	8	B	PRI SEC 125
C	4	A	1300	M	24	A	1300	AD	31	D	FRONT REAR 1300	AN	33	B	PRI SEC 900	BC	28	A	2000
D	5	B	PRI SEC 125	P	9	B	PRI SEC 400	AE	11	A	900	AP	14	A	1300	BD	34	A	1300
E	17	B	PRI SEC 1100	R	32	B	PRI SEC 125	AF	25	B	PRI SEC 125	AR	21	B	PRI SEC 1300	BE	42	A	1300
F	22	B	PRI SEC 1100	T	19	B	PRI SEC 1300	AG	45	F	COMB 500	AS	1	A	1300	BF	29	B	PRI SEC 1000
G	36	B	PRI SEC 1100	U	10	D	FRONT REAR 200	AH	26	E	SEC P&T COMB 273	AT	39	A	900	BG	30	B	PRI SEC 980
H	23	B	PRI SEC 1100	W	16	A	2000	AJ	38	A	900	AU	40	B	PRI SEC 125	BH	35	A	950
224 J	6	C	FRONT REAR 1000	224 Y	20	B	PRI SEC 140	224 AK	12	A	1300	AW	15	B	PRI SEC 770				270
												224 AY	27	B	PRI SEC 625				900



225 TYPE WINDINGS

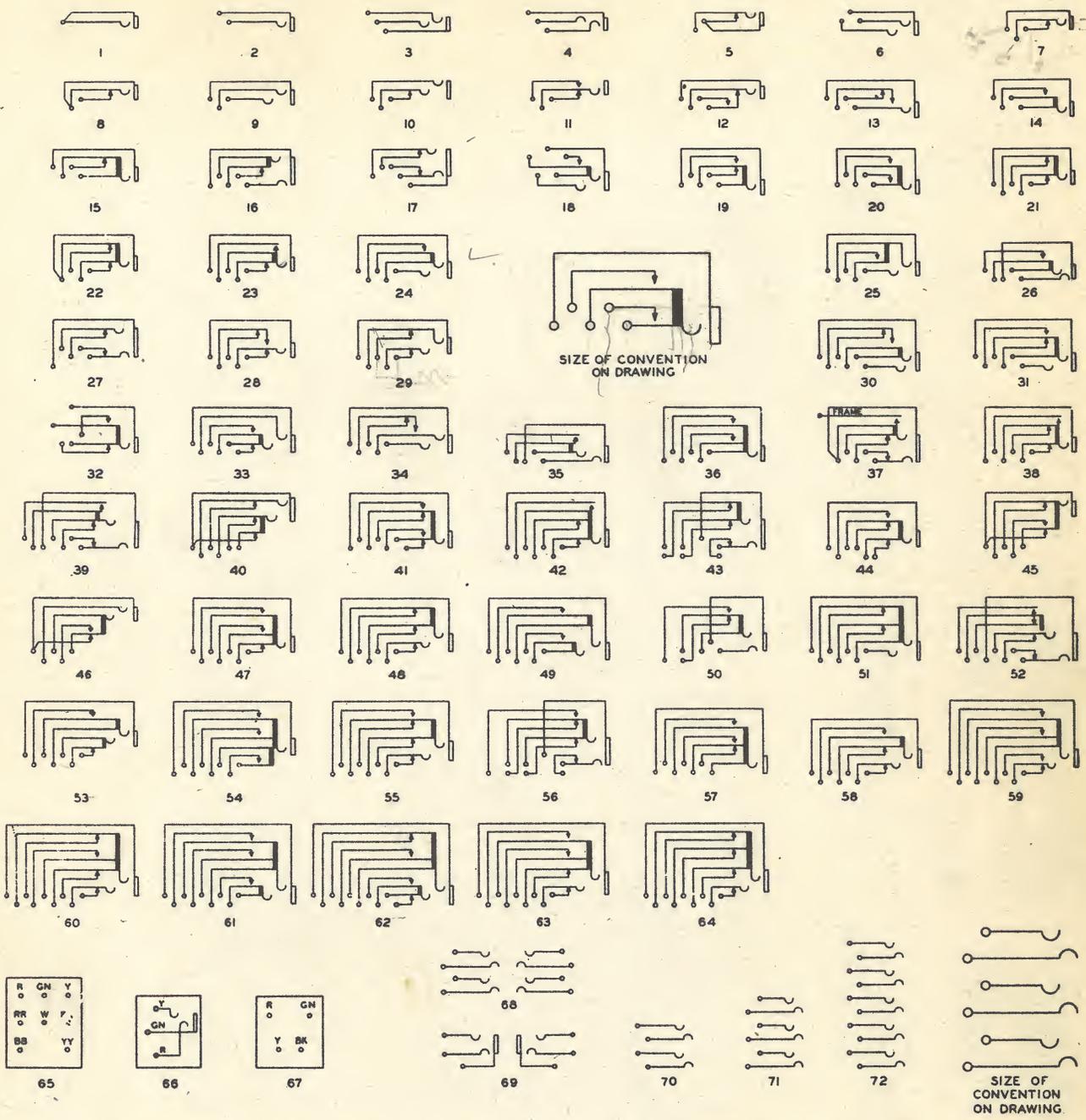


225 TYPE SPRING COMBINATIONS

RELAY CODE	SPRING COMB.	WINDING	OHMS RES.	RELAY CODE	SPRING COMB.	WINDING	OHMS RES.
225 A	48	G	1300	225 H	49	G	1300
B	50	G	1300	J	49	K	PRI SEC 210
C	47	G	1300	K	55	G	1300
D	52	G	1300	L	54	G	1300
E	51	G	1100	M	46	G	1300
F	49	J	PRI SEC 600	N	47	G	195
225 G	56	H	PRI SEC 665	P	53	G	1300
				225 R	57	G	1500

ARRANGEMENT AND SIZE OF 225 TYPE CONVENTION ON DRAWING

224 & 225 TYPE RELAYS



JACK CODE	CONV. NO.																		
49	3	218A	7	225D	23	233A	8	238E	9	242CK	48	280A	55	303A	12	357A	68	384A	71
50	17	218B	7	225E	23	233B	8					280B	55	303AK	12	358A	69	387B	30
70	56	218C	7	226A	19	233C	8			243A	53	280C	55	308	39	358B	69	387D	30
77	18	218E	7	226C	19	233D	8			243B	53			309BK	42	359	50		
76	6							239A	29			281A	45	309CK	42			388A-6	66
92	4	219A	7	227A	46	234A	23	239B	29	245A	60	284A	62			360A	33	388A-14	66
138	16	219B	7	227C	46	234C	23	239C	29	245B	60	284B	62	323C	49	361C	36	389A-3	66
141	27	219C	7	229	43	234D	23	239D	29	245C	60			324C	49	362	52	390A-6	66
		219D	7	230A	8			239E	29			285A	49	326A	31				
215A	14			230C	8	235A	22			246A	9	285B	49	327C	41	363A	33	391A-6	65
215B	14	220A	22			235C	22	240A	58	246B	9	285C	49	328	70	363C	33	391A-14	65
215C	14	220C	22	231A	7	235D	22	240B	58	246E	9					363D	33	392A-3	65
		220D	22	231B	7			240C	58			289B	64	348	70			392A-6	65
216A	21			231C	7	236A	38			248A	29	290B	63	349A	70	364	2	394C	47
216B	21			231D	7	236B	38	241A	24	248B	29	291B	61	350A	70	365	35	395A	71
216C	21	221C	2			236C	38	241B	24	248D	29					366	70	396	32
		223A	2	232A	5	236D	38	241C	24	248E	29	292	4	353AK	13	371	1	401A	70
217A	22	223B	2	232B	5	237A	15	241D	24			293B	51	353BK	13	372B	59	403A-6	67
217C	22	224	44	232C	5	237C	15			249A	25	295	26					403A-14	67
217E	22	225A	23	232D	5			242A	48	249B	25			354	72	375AK	28	404A-3	67
		225B	23	232E	5	238A	9	242B	48	267A	40	297A	20	355C	54	378	11	404A-6	67
		225C	23			238B	9	242C	48	275	37	300A	10	356A	68	382CK	34	411C	57

JACKS

CODE NO	PAGE NO	CONV NO	WDC	OHMS RES	CODE NO	PAGE NO	CONV NO	WDC	OHMS RES	CODE NO	PAGE NO	CONV NO	WDC	OHMS RES	CODE NO	PAGE NO	CONV NO	WDC	OHMS RES	CODE NO	PAGE NO	CONV NO	WDC	OHMS RES	
5A		97	EACH	20.5	47A		141		600	57A	71	12	EACH	113	82A		107	EACH	15	94H		105	EACH	2.5	
5C		97	EACH	250	47B		141		150	57B	71	8	EACH	175	82C		107	EACH	17	94L		107	EACH	2.5	
5W		114		146	47C		141		200					82D		107	EACH	1	94M		107	EACH	1.5		
5AA		98	EACH	74	47D		141		250					82E		107	EACH	3.25							
5AB		97	EACH	50	47E		141		300					82G		66	EACH	3.5							
					47F		141		500	58A	72	99	EACH	0.83											
					47G		141		750											98A		113		165	
					47H		141		350																
8B		149	EACH	85	47K		141		1000					83A		105	EACH	350							
8C		149	EACH	85	47L		141		400	59A	72	97	EACH	3.25											
8F		150	1-2	1200	47M		147	EACH	125	59C	72	97	EACH	3						100A		113		435	
			3-4	35	47N		147	EACH	100																
			5-6	35	47P	72	147	EACH	500						84A		113		165						
8K		149	EACH	35	47R		141		1500																
8L		149	EACH	175	47S		141		40	60A	72	108	1-2	0.21						102A		91		0.4	
8M		97	EACH	165	47T		147	EACH	1000				2-3	0.14											
8N		149	EACH	85	47AB		141		750	60B	72	108	1-2	5.3	85A		71		390						
8R	72	133		100	47AC		141		2000				2-3	4	85B		71		165						
8T		97	EACH	21	47AD		147	EACH	875						85C		71		300	103A		167	A	2.7	
8U		149	EACH	85											85D		71		70				B	1.5	
8W		149	EACH	175											85E		74	EACH	125					C	2.5
					51A					61B	72	139	EACH	43.5	85F		75	PRI	57					D	26.5
					51B		142		530	61C	72	139	EACH	43.5			75	SEC	400					E	43.5
12A		111		165	51C		142		530					85G		71		200							
12E		111		230	51E		146	EACH	57																
12F		111		140	51J		101		114																
12G		101		2.3			142		270	64A	72	83	EACH	214						105D		91		29.2	
12H		102								64C	72	83	EACH	1	86Y		83	EACH	9.5	105E		91		19.1	
12L		111		400										86F		83	EACH	4.5							
12M		101		2.3	53A	71	9	EACH	220																
12S		111		100						67A	72	141		6.9						109A		91		120	
12AB		113		165						67G	72	141		47	87A		110		47						
12AC		113		24																					
12AD		113		140	54A		152	1-2	85																
12AE		113		400				3-4	1300											110A	72	86	EACH	83	
					54B			5-6	85	68A	71	12	EACH	6.8	91A		86	EACH	31						
							145	1-2	400	68B	71	12	EACH	4.4	91C		86	EACH	210						
								3-4	40	68C	71	8	EACH	117	91D		86	EACH	35						
44D	71	8	EACH	83	54C		144		200					91E		86	EACH	130	111A		71		400		
44F	71	10	L1-L2	330	54D		145	EACH	85					91F		86	EACH	175	111D		71		350		
44K	71	8	EACH	145	54E		152	1-2	210					91G		86	EACH	175	111E		71		1000		
44L	71	8	EACH	22				3-4	1300	71A	72	86	EACH	186	91AG		65		1.2	111F		71		230	
					54F			5-6	210	71B	72	86	EACH	0.9	91AH		86	EACH	101	111G		72	PRI	436	
							145	EACH	500	71C	72	86	EACH	19	91AK		157		35				SEC	5000	
					54G		144		500	71D	72	86	EACH	8.3	91AW		86	EACH	125						
46A		141		600	54H		145	EACH	60	71E	72	86	EACH	13.5	91AY		86	EACH	180						
46B		141		150	54J		145	EACH	250	71F	72	91	EACH	11											
46C		141		200	54K	72	145	1-2	5	71K	72	86	EACH	1						112A		139	1-2	565	
46D		141		250				3-4	155	71L	71	22	EACH	1.4									3-4	783	
46E		141		300	54L		145	EACH	200	71M	72	86	EACH	26	92A		86	EACH	240						
46F		141		500	54N		152	1-2	250	71R	72	91	EACH	14.8											
46G		141		750				3-4	350	71S	72	86	EACH	1.5											
46H		141		350				5-6	250	71AA	72	86	EACH	3						113A		113		739	
46J	72	141		900	54P		144		935					93A		105	EACH	11							
46L		141		400	54R		144		165					93B		105	EACH	7							
46M		147	EACH	125	54S		144		30					93D		105	EACH	5							
46N		147	EACH	100	54T		145	EACH	80	77A	72	86	EACH	74						114A		76		900	
46P		147	EACH	500	54U		144		150											114B		76		1980	
46R		141		1500	54W		145	EACH	100											114C		76		1440	
46S		141		40	54Y		144		350					94A		105	EACH	160	114D		77		180		
46W		147	EACH	200						80A	72	98	EACH	214	94E		108		322						
46Y		147	EACH	1000										94F		108		70							
46AA		147	EACH	20										94G		105	EACH	7.5							

RETARDATION COIL CODES

CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	
116A		141		2.6	131A		83	EACH	47	139A	71	18	EACH	2.6	155A	72	94	EACH	27.5	176A	72	93	EACH	350	
										139B	72	95	EACH	2.6											
117A		113		6260	132A		153		200					156A	71	23	EACH	0.47		177A	72	81		1220	
					132B		153		750	143A		142		835	156B	71	23	EACH	50						
					132C		154	EACH	200						156C	71	23	EACH	1.03	181A	72	85	EACH	37	
					132D		154	F	750						156D	71	23	EACH	2.2						
119CH		81		42.02				R	250					156E	71	23	EACH	0.75							
119CJ		81		42.41						144A		97	1-2	.058	156F	71	23	EACH	1.6						
119CK		81		16.25								3-4	2700							182A	71	42		4	
119CL		81		0.28																182B	71	42		30	
119CM		81		21.5	133A		156	PRI	32						157A	72	86	EACH	3						
119CN		81		24.82			155	SEC	500																
					133B		155		200	146A		142		0.2							183A	72	112		16.5
					133C																				
122A	72	96	EACH	2.25		72				148A					158A	72	85	EACH	73						
					134A		91		480	148B		92	EACH	3700							184A	72	83	EACH	1
123A		86	EACH	500								92	EACH	2313											
123B		86	EACH	350											159A	72	93	EACH	1550						
123C		86	EACH	550																					
123D		82		1420	135A		86	EACH	174	149A		93	EACH	44						199A	72	93	EACH	3.15	
										149B		93	EACH	101											
										149C		93	EACH	1960	160A	72	100	EACH	85						
124A		97	EACH	26	136A		142		114											AB87	72	93	EACH	21	
										153A		143		4.1	161A	72	87	EACH	1.75						
126A		81		73	137A		112		250						163A	72	112		.07						
										154A					167D	72	83	EACH	19.5	CB1	72	81		24.5	
										154B					167F	72	83		16.5						
129A		142		390	138A		83	EACH	83			143		4.1											
												143		4.1							CC1	72	81		150
															173A	72	82		245	CC2	72	81		380	

RETARDATION COIL CODES

CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES
307A	72	69	P S	1.4 320	338A	71	50	A B C	53 .041 .172
307B	72	70	P S S	1.4 .035 .035	338B	71	51	A B	113 226
320B	72	168	A B	11 8.7	340A	72	160	A B C D	6.6 .087 .064 193

TRANSFORMERS

CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES
3A	71	3	A B C	10 52 100	7A	71	43		10
					8A	71	40		1620
4A	71	19	A B	53 10	9A	72	158		10
5B	71	37		60	10A	71	19	A B	4.4 17
6A	72	103		69	11A	71	49		6.8 222.5

AUTO TRANSFORMERS

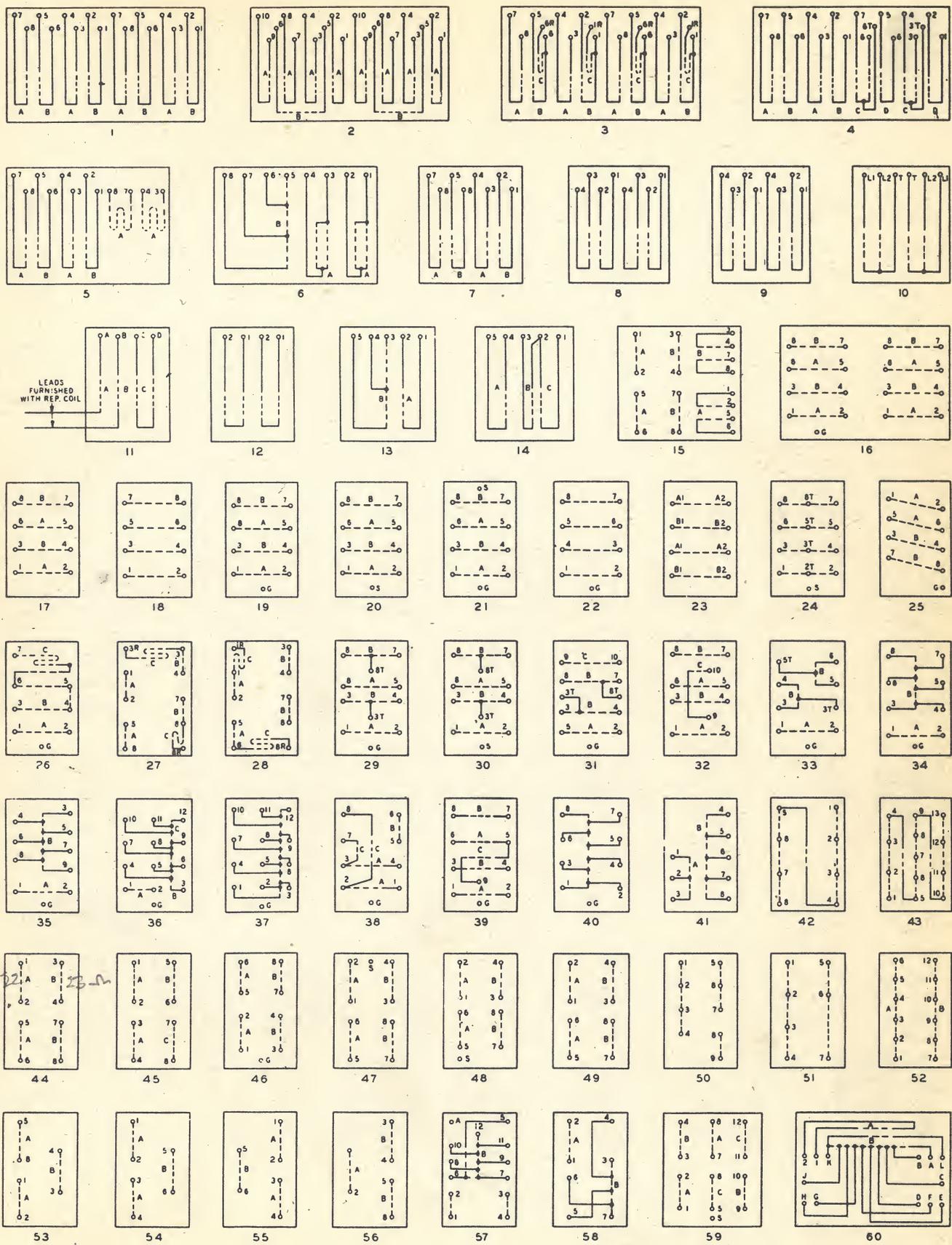
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201M	72	105	A B	200 9000	208AH	71	20	A B	1.35 125	223D	72	62	A B C	13 13 11300	237A	71	25	A B	4.4 55	246B	72	94	A B	300 3200
201R	72	140	A B	7.5 150	209B	72	105	A B	2.2 5.5	226B	72	104		10000	238A	72	95	A B	29 840	248A	72	94	A B	1.73 3.5
205E	71	19	A B	69 189	226G	71	54	A B	1250 6500	226H	71	41	A B	66.7 7211	240A	71	57	A B	77.5 5420	250A	71	30	A B	1830 75
208A	72	94	A B	52 5720	210A	72	105	EACH	0.8	227A	71	54	A B	1100 5600	240B	71	20	A B	9 560	250B	71	35	A B	946 6430
208B	71	20	A B	1220 1525	210B	72	105	EACH	1.6	230B	71	34	A B	1380 4250	240C	71	20	A B	6 400	251A	72	105	A B	0.24 130
208H	71	19	A B	550 3550	210C	72	105	A B	5.6 6	231B	72	61	A B C	33 33 8695	240D	71	20	A B	6.5 3250	251B	72	105	A B	0.24 72
208J	71	19	A B	150 3050	211B	72	88	A B	13 18.5	232A	72	105	A B	0.8 23.5	240E	72	94	A B	35 270	251C	72	105	A B	0.33 85
208K	71	20	A B	2.9 167	212A	72	68	A B C	150 150 12000	232B	72	105	A B	6.5 57.3	240F	71	20	A B	58 1640	251D	72	105	A B	0.39 180
208M	72	165	A B C	96 96 5500	212B	72	68	A B C	200 200 12000	233B	72	63	A B C	19 19 2500	240G	71	20	A B	40 1083	255A	71	56	A B	17.9 2307.5
208N	71	20	A B	5.7 718	212C	72	67	A B	4800 4350	233D	71	19	A B	3480 5450	240H	71	19	A B	750 5000	255B	71	48	A B	80 846.5
208P	71	20	A B	6.1 3650	213A	72	105	A B	470 6100	233E	71	19	A B	60 4500	241B	72	61	A B C	17.9 2307.5 2307.5	255C	72	93	A B	330 3045
208R	71	19	A B	450 2520	213C	71	17	A B	0.25 51	233F	72	164	A B	136 3720	241C	71	19	A B	80 846.5	255D	71	49	A B	110 2250
208W	71	19	A B	155 540	213D	72	105	A B	29.6 7826	233H	71	19	A B	60 4500	244A	71	39	A B C	14 17500 695	259A	72	83	A B	29 7650
208Y	72	61	A B C	91 91 10400	214a	72	105	A B	10.4 7800	236A	72	163	A B	52.5 325	245A	72	105	A B	12.5 148	266A	72	89	A B	170 13300
208AB	72	94	A B	33 1300	217A	71	17	A B	17 220					245B	72	105	A B	23 143						

INPUT TRANSFORMERS

CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES	CODE NO	PAGE NO	CONV NO	WDG	OHMS RES					
102C	72	80	A B	5.2 24	104AH	71	32	A B C	115 2.17 6.25	113A	71	20	A B	10 159	122C	71	20	A B	16 780	129C	71	29	A B	4.2 40.5
104C	71	17	A B	91 25	106B	71	7	A B	16 103	113C	71	20	A B	13 113	123C	71	31	A B C	280 42 16.5	129D	71	20	A B	4.2 16.6
104D	71	17	A B	122 43	106D	71	7	A B	0.91 111	116A	72	105	A B	2870 43.5	123E	71	20	A B	2.5 180	129E	71	20	A B	10.75 93.5
104T	71	19	A B	23 145	108A	71	53	A B	57.5 3300	120A	71	55	A B	52 695	123F	71	20	A B	1.85 120	133A	71	44	A B	132.5 283.5
104Y	71	32	A B C	98 15 17.4	109B	71	19	A B	18.2 330	121A	71	59	A B C	50 70 7.5	125A	71	20	A B	6.5 22.5	134A	71	45	A B C	21 490 2
104AB	71	17	A B	111 62.5	109C	71	19	A B	6.7 1010	121B	71	24	A B	0.16 16.7	127C	71	20	A B	4.3 78.75	135B	71	38	A B C	20 240 2
104AC	71	19	A B	31.3 190.43	110B	71	19	A B	0.46 9.3	122A	71	20	A B	0.95 110	129A	71	20	A B	15 190	146A	72	83	A B	2900 44
104AD	71	29	A B	55.22 78.27						122B	71	20	A B	41 157	129B	71	29	A B	8 15					
104AE	71	19	A B	13 100																				
104AG	71	32	A B C	117.5 0.1375 6.25																				

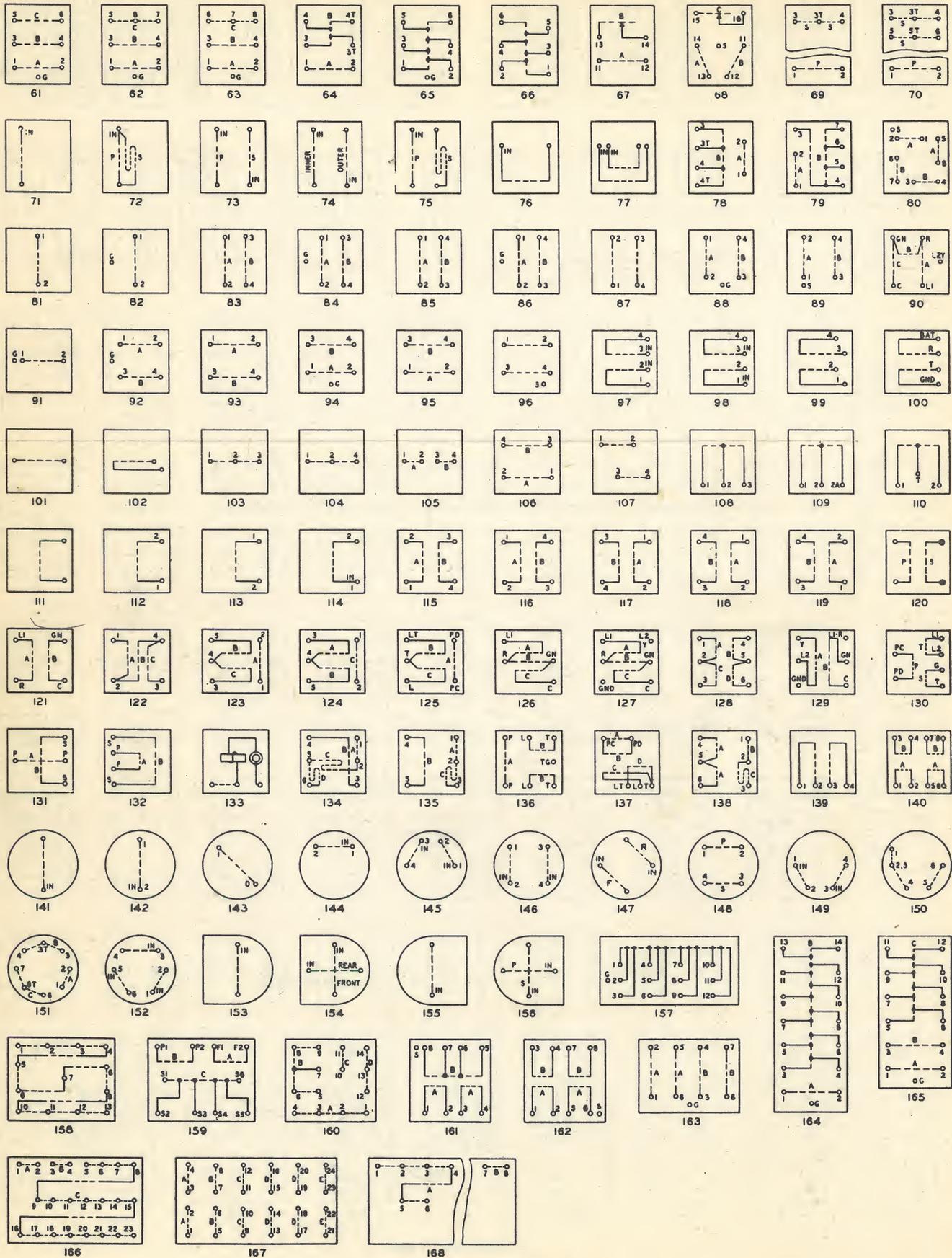
OUTPUT TRANSFORMERS

TRANSFORMER CODES



(CONVENTIONS-HALF SIZE)

COILS AND TRANSFORMERS



(CONVENTIONS-HALF SIZE)
COILS AND TRANSFORMERS

CODE NO	CON DUC	INS OF CONDUCT	PAIRS			SINGLES			SPARE PAIRS			SPARE SINGLES		
			NO	GA	COLOR	NO	GA	COLOR	NO	GA	COLOR	NO	GA	COLOR
16C	63	DSC	20	22	1-20	20	22	1-20	1	22	1	1	22	1
16L	63	DCL	20	22	1-20	20	22	1-20	1	22	1	1	22	1
24L	43	DCL	20	22	1-20				1	22	1	1	22	1
35L	53	DCL	20	22	1-20				1	22	1	1	22	1
			5	22	121-125									
50L	33	DCL	10	22	1-10	10	22	1-10	1	22	1	1	22	1
60L	75	DCL	18	22	21-38				1	22	1	1	22	1
			18	22	21-38									
62L	63	DCL	15	22	1-15				1	22	1	1	22	1
			15	22	21-35									
70C	83	DSC	20	22	1-20				1	22	1	1	22	1
			20	22	141-160									
70L	83	DCL	20	22	1-20				1	22	1	1	22	1
			20	22	141-160									
74L	21	DCL				20	22	1-20			1	22	1	
79L	23	DCL	10	22	1-10				1	22	1	1	22	1
84C	63	DSC	20	22	1-20	20	22	1-20	1	22	1	1	22	1
106L	103	DCL	20	22	1-20	20	22	21-40	1	22	1	1	22	1
			20	22	141-160									
115L	64	DCL	20	19	1-20	20	22	1-20	1	19	1	2	22	1 & 2
117L	83	DCL	20	19	1-20				1	19	1	1	19	1
			20	22	141-160									
121L	53	DCL	10	19	1-10	10	22	1-10	1	19	1	1	22	1
			10	22	21-30									
125L	23	DCL	10	19	1-10				1	19	1	1	19	1
126L	43	DCL	10	19	1-10				1	19	1	1	19	1
			10	22	11-20									
127L	33	DCL	10	19	1-10	10	22	1-10	1	19	1	1	22	1
182L	13	DCL	6	22	206-211						1	22	1	
183L	53	DCL	10	22	1-10	10	22	21-30	1	22	1	1	22	1
			10	22	141-150									
185B	4	DSC				4	22	1-4						
190C	30	DSC	10	22	A	10	22	1-10						
201C	63	DSC	20	22	B	20	22	1-20	1	22	1	1	22	1
202C	78	DSC	25	22	B & C	25	22	1-25	1	22	1	1	22	1
230C	136	DSC	60	22	1-60				2	22	1 & 2			
			6	22	200-205									
232C	83	DSC	20	22	1-20				1	22	1	1	22	1
			20	22	141-160									
232L	83	DCL	20	22	1-20				1	22	1	1	22	1
			20	22	141-160									
236C	63	DSC	20	24	1-20	20	24	1-20	1	24	1	1	24	1
238-C	103	DSC	20	24	51-70	20	24	41-60	1	24	1	1	24	1
			10	24	121-130									
			10	24	151-160									
239-C	103	DSC	20	22	1-20	20	22	1-20	1	22	1	1	22	1
			20	22	161-180									
1016	63	EDSC	20	22	1-20	20	22	1-20	1	22	1	1	22	1
1024	43	EDSC	20	22	1-20				1	22	1	1	22	1
1035	53	EDSC	20	22	1-20				1	22	1	1	22	1
			5	22	121-125									
1050	33	EDSC	10	22	1-10	10	22	1-10	1	22	1	1	22	1
1060	75	EDSC	18	22	1-18				1	22	1	1	22	1
			18	22	21-38									
1062	63	EDSC	15	22	1-15				1	22	1	1	22	1
			15	22	21-35									
1066	103	EDSC	40	22	1-40				1	22	1	1	22	1
			5	22	121-125									
			5	22	141-145									
1069	205	EDSC	100	22	1-100				2	22	1 & 4	1	22	1
1070	83	EDSC	20	22	1-20				1	22	1	1	22	1
			20	22	141-160									
1074	21	EDSC	20	22	1-20	20	22	1-20			1	22	1	
1079	23	EDSC	10	22	1-10				1	22	1	1	22	1
1084	63	EDSC	20	22	1-20	20	22	1-20	1	22	1	1	22	1
1087	35	EDSC	16	22	1-16				1	22	1	1	22	1
1097	132	EDSC	64	22	1-64				2	22	1 & 2			
1100	83	EDSC	20	24	1-20				1	24	1	1	24	1
			20	24	141-160									
1102	103	EDSC	20	24	1-20	20	24	21-40	1	24	1	1	24	1
			20	24	141-160									
1103	42	EDSC	20	24	1-20				1	24	1			
1106	103	EDSC	20	22	1-20	20	22	21-40	1	22	1	1	22	1
			20	22	141-160									
1107	104	EDSC	20	22	1-20	19	22	21-39	1	22	1	1	22	1
			19	22	141-159	4	16	21-24						
1115	64	EDSC	20	19	1-20	20	22	1-20	1	19	1	2	22	1 & 2
1116	43	EDSC	20	19	1-20				1	19	1	1	19	1
1117	83	EDSC	20	19	1-20				1	19	1	1	19	1
			20	22	141-160									
1119	103	EDSC	20	19	1-20				1	19	1	1	19	1
			5	19	21-40									
			5	19	121-125									
			5	19	141-145									
1121	53	EDSC	10	19	1-10	10	22	1-10	1	19	1	1	22	1
			10	22	21-30									
1125	23	EDSC	10	19	1-10				1	19	1	1	19	1
1126	43	EDSC	10	19	1-10				1	19	1	1	19	1
			10	22	11-20									
1127	33	EDSC	10	19	1-10	10	22	1-10	1	19	1	1	22	1
1182	13	EDSC	6	22	206-211						1	22	1	
1183	53	EDSC	10	22	1-10	10	22	21-30	1	22	1	1	22	1
			10	22	141-150									
1186	6	EDSC	3	16	1-3									
1187	12	EDSC	6	16	1-6									
1188	16	EDSC	8	16	1-8									
1189	105	EDSC	20	19	1-20	20	22	1-20	1	19	1	1	22	1
			20	22	21-40				1	22	1			
1200	12	EDSC	6	19	1-6									

CODE NO	CON DUC	INS OF CONDUCT	PAIRS			SINGLES			SPARE PAIRS			SPARE SINGLES		
			NO	GA	COLOR	NO	GA	COLOR	NO	GA	COLOR	NO	GA	COLOR
1216	20	EDSC	10	16	1-10									
1231	51	EDSC				50	16	1-50						
1232	83	EDSC	20	22	1-20				1	22	1	1	22	1
			20	22	141-160									
1236	63	EDSC	20	24	1-20	20	24	1-20	1	24	1	1	24	1
1237	312	EDSC	20	22	B	20	22	1-20	4	22	1-4	4	22	1-4
			20	22	B	20	22	1-20						
			20	22	B	20	22	1-20						
			20	22	B	20	22	1-20						
			20	22	B	20	22	1-20						
1450	6	ESCB	3	20	212-214									
1451	12	ESCB	6	20	212-217									
1452	16	ESCB	8	20	212-219									
1453	22	ESCB	11	20	212-222									
1454	20	ESCB	10	16	1-10									
1455	3	ESCB	20		TRIPLE									
6016	63	EDC	20	22	1-20	20	22	1-20	1	22	1	1	22	1
6024	43	EDC	20	22	1-20				1	22	1	1	22	1
6035	53	EDC	20	22	1-20				1	22	1	1	22	1
			5	22	121-125									
6050	33	EDC	10	22	1-10	10	22	1-10	1	22	1	1	22	1
6060	75	EDC	18	22	1-18				1	22	1	1	22	1
			18	22	21-38									
6062	63	EDC	15	22	1-15				1	22	1	1	22	1
			15	22	21-35									
6066	103	EDC	40	22	1-40				1	22	1	1	22	1
			5	22	121-125									
</														

COMB NO	COLORS OF INSULATION		COMB NO	COLORS OF INSULATION	
1	BL	PAIRED WITH W	103	G	PAIRED WITH R-BK
2	O	" " "	104	BR	" " "
3	G	" " "	105	S	" " "
4	BR	" " "	106	BL-W	" " "
5	S	" " "	107	BL-O	" " "
6	BL-W	" " "	108	BL-G	" " "
7	BL-O	" " "	109	BL-BR	" " "
8	BL-G	" " "	110	BL-S	" " "
9	BL-BR	" " "	111	O-W	" " "
10	BL-S	" " "	112	O-G	" " "
11	O-W	" " "	113	O-BR	" " "
12	O-G	" " "	114	O-S	" " "
13	O-BR	" " "	115	G-W	" " "
14	O-S	" " "	116	G-BR	" " "
15	G-W	" " "	117	G-S	" " "
16	G-BR	" " "	118	BR-W	" " "
17	G-S	" " "	119	BR-S	" " "
18	BR-W	" " "	120	S-W	" " "
19	BR-S	" " "	121	R-BL	" " W
20	S-W	" " "	122	R-O	" " "
21	BL	" " R	122	R-G	" " "
22	O	" " "	124	R-BR	" " "
23	G	" " "	125	R-S	" " "
24	BR	" " "	126	R-BL-W	" " "
25	S	" " "	127	R-BL-O	" " "
26	BL-W	" " "	128	R-BL-G	" " "
27	BL-O	" " "	129	R-BL-BR	" " "
28	BL-G	" " "	130	R-BL-S	" " "
29	BL-BR	" " "	131	R-O-W	" " "
30	BL-S	" " "	132	R-O-G	" " "
31	O-W	" " "	133	R-O-BR	" " "
32	O-G	" " "	134	R-O-S	" " "
33	O-BR	" " "	135	R-G-W	" " "
34	O-S	" " "	136	R-G-BR	" " "
35	G-W	" " "	137	R-G-S	" " "
36	G-BR	" " "	138	R-BR-W	" " "
37	G-S	" " "	139	R-BR-S	" " "
38	BR-W	" " "	140	R-S-W	" " "
39	BR-S	" " "	141	R-BL	" " R
40	S-W	" " "	142	R-O	" " "
41	BL	" " BK	143	R-G	" " "
42	O	" " "	144	R-BR	" " "
43	G	" " "	145	R-S	" " "
44	BR	" " "	146	R-BL-W	" " "
45	S	" " "	147	R-BL-O	" " "
46	BL-W	" " "	148	R-BL-G	" " "
47	BL-O	" " "	149	R-BL-BR	" " "
48	BL-G	" " "	150	R-BL-S	" " "
49	BL-BR	" " "	151	R-O-W	" " "
50	BL-S	" " "	152	R-O-G	" " "
51	O-W	" " "	153	R-O-BR	" " "
52	O-G	" " "	154	R-O-S	" " "
53	O-BR	" " "	155	R-G-W	" " "
54	O-S	" " "	156	R-G-BR	" " "
55	G-W	" " "	157	R-G-S	" " "
56	G-BR	" " "	158	R-BR-W	" " "
57	G-S	" " "	159	R-BR-S	" " "
58	BR-W	" " "	160	R-S-W	" " "
59	BR-S	" " "	161	BK-BL	" " "
60	S-W	" " "	162	BK-O	" " "
61	BL	" " R-W	163	BK-G	" " "
62	O	" " "	164	BK-BR	" " "
63	G	" " "	165	BK-S	" " "
64	BR	" " "	166	BK-BL-W	" " "
65	S	" " "	167	BK-BL-O	" " "
66	BL-W	" " "	168	BK-BL-G	" " "
67	BL-O	" " "	169	BK-BL-BR	" " "
68	BL-G	" " "	170	BK-BL-S	" " "
69	BL-BR	" " "	171	BK-O-W	" " "
70	BL-S	" " "	172	BK-O-G	" " "
71	O-W	" " "	173	BK-O-BR	" " "
72	O-G	" " "	174	BK-O-S	" " "
73	O-BR	" " "	175	BK-G-W	" " "
74	O-S	" " "	176	BK-G-BR	" " "
75	G-W	" " "	177	BK-G-S	" " "
76	G-BR	" " "	178	BK-BR-W	" " "
77	G-S	" " "	179	BK-BR-S	" " "
78	BR-W	" " "	180	BK-S-W	" " "
79	BR-S	" " "			
80	S-W	" " "	200	BK-W	PAIRED WITH W
81	BL	" " BK-W	201	BK-W	" " R
82	O	" " "	202	BK-O	" " BK
83	GR	" " "	203	BK-O	" " W
84	BR	" " "	204	BK-O	" " R
85	S	" " "	205	BK-O	" " BK
86	BL-W	" " "	206	R-BK-BL	" " BL
87	BL-O	" " "	207	R-BK-O	" " O
88	BL-G	" " "	208	R-BK-G	" " G
89	BL-BR	" " "	209	R-BK-BR	" " BR
90	BL-S	" " "	210	R-BK-S	" " S
91	O-W	" " "	211	R-BK-BL-W	" " BL-W
92	O-G	" " "	212	BK-R	" " BK
93	O-BR	" " "	213	R-G	" " R
94	O-S	" " "	214	Y-G	" " Y
95	G-W	" " "	215	BR-R	" " BR
96	G-BR	" " "	216	S-R	" " S
97	G-S	" " "	217	BK	" " R
98	BR-W	" " "	218	Y	" " R
99	BR-S	" " "	219	BR	" " R
100	S-W	" " "	220	S	" " R
101	BL	" " R-BK	221	BK-R	" " R-G
102	O	" " "	222	Y-G	" " BR-R

PAIRS

COMB NO	COLORS OF INSULATION	
1	R-BL	
2	R-O	
3	R-G	
4	R-BR	
5	R-S	
6	R-BL-W	
7	R-BL-O	
8	R-BL-G	
9	R-BL-BR	
10	R-BL-S	
11	R-O-W	
12	R-O-G	
13	R-O-BR	
14	R-O-S	
15	R-G-W	
16	R-G-BR	
17	R-G-S	
18	R-BR-W	
19	R-BR-S	
20	R-S-W	
21	BK-BL	
22	BK-O	
23	BK-G	
24	BK-BR	
25	BK-S	
26	BK-BL-W	
27	BK-BL-O	
28	BK-BL-G	
29	BK-BL-BR	
30	BK-BL-S	
31	BK-O-W	
32	BK-O-G	
33	BK-O-BR	
34	BK-O-S	
35	BK-G-W	
36	BK-G-BR	
37	BK-G-S	
38	BK-BR-W	
39	BK-BR-S	
40	BK-S-W	
41	R-BK-BL	
42	R-BK-O	
43	R-BK-G	
44	R-BK-BR	
45	R-BK-S	
46	R-BK-BL-W	
47	R-BK-BL-O	
48	R-BK-BL-G	
49	R-BK-BL-BR	
50	R-BK-BL-S	
51	R-BK-O-W	
52	R-BK-O-G	
53	R-BK-O-BR	
54	R-BK-O-S	
55	R-BK-G-W	
56	R-BK-G-BR	
57	R-BK-G-S	
58	R-BK-BR-W	
59	R-BK-BR-S	
60	R-BK-S-W	

SINGLES

CODE	CON DUC	INSULATION OF CONDUCT	QUADS			SPARE QUADS		
			NO	GA	*COLOR	NO	GA	*COLOR
500CL	8	DSC	2	22	1 & 2			
501CL	16	"	4	22	1-4			
502CL	32	"	8	22	1-8			
503CL	40	"	10	22	1-10			
504CL	52	"	12	22	1-12	1	22	21
505CL	68	"	16	22	1-16	1	22	21
506CL	84	"	20	22	1-20	1	22	21

*The numbers listed refer to the color combination as given in table below.

500 TYPE CABLES

COMB NO	COLORS OF INSULATION			
	FIRST PAIR		SECOND PAIR	
	WIRE 1 (RING)	WIRE 2 (TIP)	WIRE 1 (RING)	WIRE 2 (TIP)
1	BL	R-BL	BK-BL	R-BL
2	O	R-O	BK-O	R-O
3	G	R-G	BK-G	R-G
4	BR	R-BR	BK-BR	R-BR
5	S	R-S	BK-S	R-S
6	BL-W	R-BL-W	BK-BL-W	R-BL-W
7	BL-O	R-BL-O	BK-BL-O	R-BL-O
8	BL-G	R-BL-G	BK-BL-G	R-BL-G
9	BL-BR	R-BL-BR	BK-BL-BR	R-BL-BR
10	BL-S	R-BL-S	BK-BL-S	R-BL-S
11	O-W	R-O-W	BK-O-W	R-O-W
12	O-G	R-O-G	BK-O-G	R-O-G
13	O-BR	R-O-BR	BK-O-BR	R-O-BR
14	O-S	R-O-S	BK-O-S	R-O-S
15	G-W	R-G-W	BK-G-W	R-G-W
16	G-BR	R-G-BR	BK-G-BR	R-G-BR
17	G-S	R-G-S	BK-G-S	R-G-S
18	BR-W	R-BR-W	BK-BR-W	R-BR-W
19	BR-S	R-BR-S	BK-BR-S	R-BR-S
20	S-W	R-S-W	BK-S-W	R-S-W
SPARE	W	R	BK	R-BK

QUADS

COMB	PAIR COMB NOS
A	1,3,5,7,9,22,24,26,28,30
B	1,3,5,7,9,11,15,17,19,22,24,26,28,30,32,34,36,38,40
C	121,123,125,142,144
D	1,3,5,7,9,11,15,17,19,141,143,145,147,149,151,153,155,157,159
E	41 TO 45 SINGLES TWISTED WITH 21 TO 55 SINGLES RESP.
F	1 TO 30 SINGLES TWISTED WITH 21 TO 33 SINGLES RESP.
G	41 TO 48 SINGLES TWISTED WITH 51 TO 58 SINGLES RESP.
H	1 TO 17 SINGLES TWISTED WITH 21 TO 37 SINGLES RESP.

COLOR SCHEMES

COMB NO	COLORS OF INSULATION	
1	W	PAIRED WITH R
2	W	" " BK
3	R	" " BK
4	R-W	" " W
5	R-W	" " R
6	R-W	" " BK
7	BK-W	" " W
8	BK-W	" " R
9	BK-W	" " BK
10	R-BK	" " W
11	R-BK	" " R
12	R-BK	" " BK

SPARE PAIRS

COMB NO	COLORS OF INSULATION	
1	R-W	
2	BK-W	
3	R-BK	
4	R-BK-W	

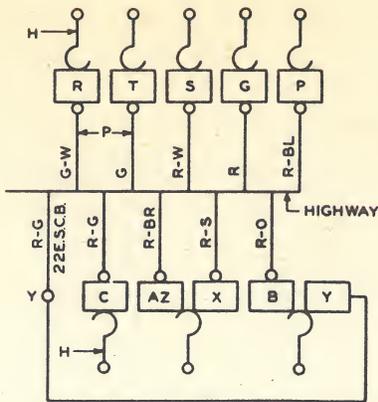
SPARE SINGLES

COMB	COLOR OF INSULATION
TRIPLE	Y, Y-G, & R-G

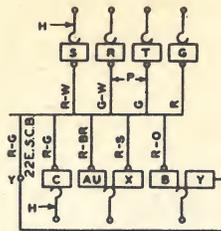
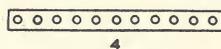
TRIPLES

500 TYPE CABLES AND CABLE COLOR COMBINATIONS

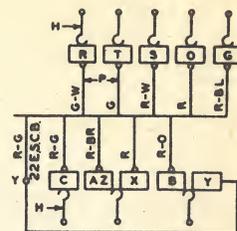
COMMUTATORS	
CODE NO.	CONV. NO.
3A	1
3J	1
3N	1
3P	7
3R	5
3S	5
3T	6
3U	6
3W	1
3Y	3
3AB	1
3AD	7
3AE	1
4C	8
5A	9
5B	9
6A	10
7A	4
9A	9
10A	9
10B	9



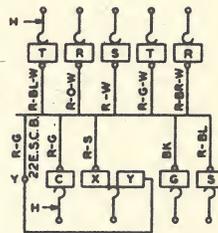
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SIZE OF CONVENTION
ON DRAWING



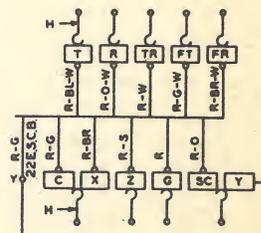
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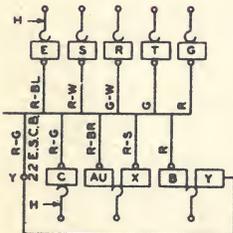
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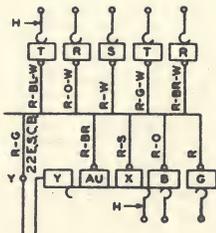
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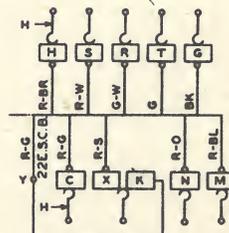
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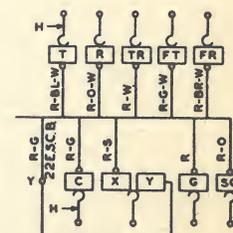
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8



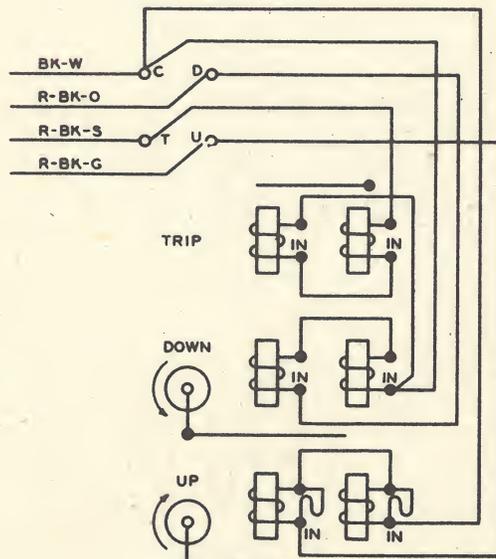
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10

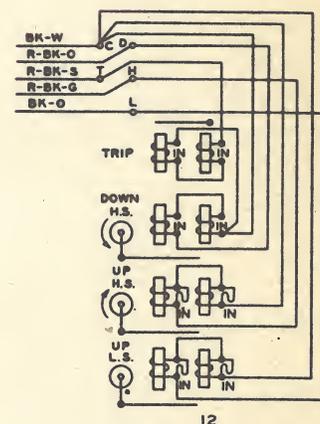
COMMUTATORS

CLUTCHES	
CODE NO.	CONV. NO.
8A	11
9A	12
10A	13
10B	13
11A	13
11B	13

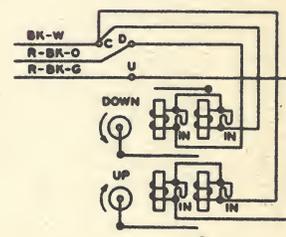


II
SIZE OF CONVENTION
ON DRAWING

CLUTCHES

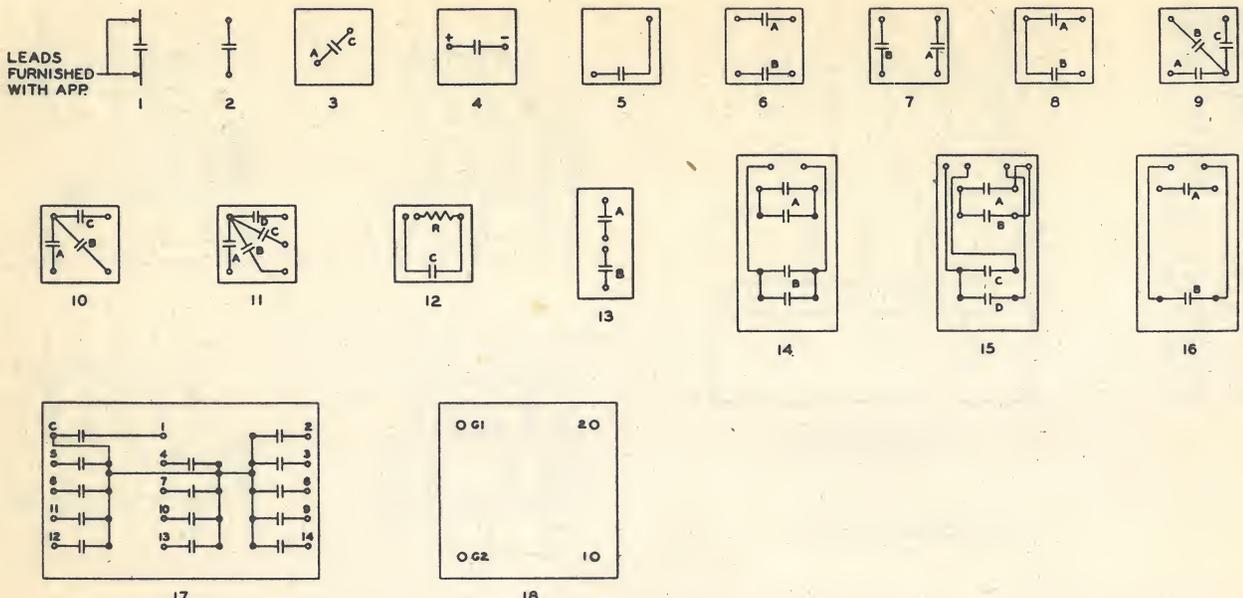


12



13

COMMUTATORS AND CLUTCHES

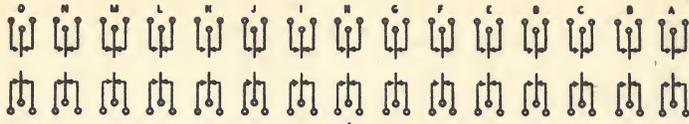


(CONVENTIONS-HALF SIZE)

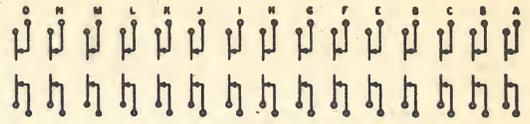
COND NO	CONV NO	UNIT	CAP MF	COND NO	CONV NO	UNIT	CAP MF	COND NO	CONV NO	UNIT	CAP MF	COND NO	CONV NO	UNIT	CAP MF	COND NO	CONV NO	UNIT	CAP MF
33 A	16	EACH	2.0	76 HD	2		0.00297	123 A	2		0.05	141 QJ	2		0.548	188 A	17	1 & 2	0.0015
33 H	14	EACH	4.0	76 HR	2		0.0136					141 OK	2		0.54			3 & 4	0.003
33 S	14	EACH	2.16	76 HS	2		0.024					141 OL	2		0.525			5 & 6	0.006
33 T	15	EACH	1.0	76 HU	2		0.016	133 A	2		0.072	141 OM	2		0.555			7 & 8	0.012
				76 HW	2		0.0316					141 ON	2		0.27			9 & 10	0.025
												141 OP	2		0.27			11 & 12	0.05
38 A	2		1.0	76 JP	2		0.00624	137 A	5	A	4.0	141 QR	2		0.26			13 & 14	0.1
				76 JS	2		0.0002	137 B	7	B	0.02	141 QS	2		0.28				
				76 JW	2		0.0002					141 QT	2		0.11				
53 T	14	ALL	2.16	76 JY	2		0.0004					141 QU	2		0.105	194 A	6	A	1.0
												141 QW	2		0.115			B	2.0
				77 A	18	EACH	0.001	137 QA	5		4.32					194 B	6	A	0.5
64 M	2		0.2	77 B	18	EACH	0.01					142 B	2		0.25			B	2.0
								138 A	5		1.0	142 D	2		0.05				
65 B	2		0.1	78 A	18	EACH	0.1									200 A	I		0.000215
												147 A	2		2.0	200 B	I		0.000610
76 A	2		0.0005					138 QA	5		1.08	147 B	6	EACH	1.0	200 C	I		0.003
76 C	2		0.0015	88 D	10	A	0.012	138 QB	5		1.08	147 C	8	A	1.0	AA 1	I		0.4
76 D	2		0.002				0.024					147 D	8	B	1.0	AA 3	I		0.291
76 F	2		0.003				0.012	139 A	5		2.0								
76 G	2		0.0035	88 E	10	A	0.0078	139 B	7	A	2.0								
76 H	2		0.004				0.0156	139 C	7	B	0.02								
76 M	2		0.006				0.0078												
76 S	2		0.008	88 F	10	A	0.0073	139 C	7	EACH	1.0								
76 Y	2		0.01				0.012					149 A	2		1.0				
							0.0073	139 QA	5		2.16	149 B	2		0.5				
								139 QB	5		2.13	149 C	2		0.1				
76 AA	2		0.02					139 QC	5		2.19	149 D	2		0.65				
76 AD	2		0.03	88 AL	11	A	0.00104	139 QD	5		2.16	149 E	1		1.0				
76 AE	2		0.025				0.00343	139 QE	5		2.1	151 A	1		0.01				
76 AL	2		0.00025				0.001875	139 QF	5		2.22	153 A	7	EACH	1.08				
76 AM	2		0.044				0.000575												
76 AR	2		0.00035	88 AM	11	A	0.00042	140 B	5		0.56	155 A	13	EACH	2.16				
							0.00135	140 C	5		0.56								
							0.00075												
76 BG	2		0.0324				0.00025	141 A	2		1.0	158 A	13	EACH	2.16				
76 BH	2		0.0562	88 AN	11	A	0.00075	141 B	2		0.5								
							0.00042	141 C	13	EACH	0.5	175 A	2		0.303				
							0.00015	141 D	2		0.25	175 B	2		0.097				
76 CF	2		0.0108					141 E	13	EACH	0.25	175 C	2		0.750				
76 CM	2		0.02578					141 F	13	A	0.5	175 D	2		0.854				
76 CU	2		0.04505	95 D	2		1.0				0.25	175 F	2		0.21				
76 CY	2		0.00232					141 G	13	A	0.125	175 N	2		0.0649				
								141 H	13	B	0.075								
76 DK	2		0.01459	100 A	4		800 TO 1350	141 I	2		0.02	175 AF	2		0.130				
76 DU	2		0.0297				570 TO 685	141 J	2		0.125	175 AG	2		0.040	CA 5	I		1.0
76 DW	2		0.0479	100 B	4		2100 TO 2300	141 K	2		0.1	175 AH	2		0.060				
				100 C	4		305 TO 350	141 L	2		0.075	175 AJ	2		0.070				
76 EB	2		0.0516					141 M	2		0.05	175 AK	2		0.40				
76 EN	2		0.0472	100 D	4			141 N	2		0.02	175 AL	2		0.440	CE 22	I		0.250
76 ER	2		0.0232					141 O	2		0.005	175 AM	2		0.178				
76 ET	2		0.01062					141 P	2			175 AP	2		0.355				
				101 B	4		VAR.												
								141 QA	2		1.08	187 A	3		ZERO TO 346				
76 FE	2		0.02598					141 QB	2		1.065	187 B	3		ZERO TO 0.069				
76 FM	2		0.0316	121 C	2		0.04	141 QC	2		1.095								
76 FS	2		0.0065	121 D	2		0.04	141 QD	2		1.08	187 C	3		ZERO TO 0.00584				
								141 QE	2		1.05								
								141 QF	2		1.11								
								141 QG	2		0.54								
76 GY	2		0.00202	122 B	12	C	0.1	141 QH	2		0.532								
						R	100"												

NOTE:
1. ARRANGEMENT OF CONVENTIONS ON DRAWING SHALL BE IN ACCORDANCE WITH EQUIPMENT LAYOUT.

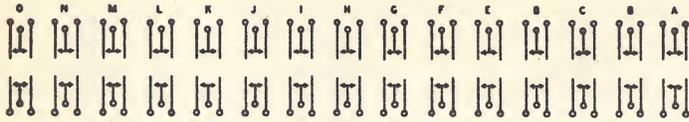
CONDENSERS



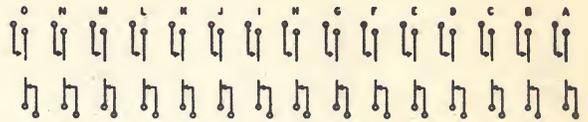
1
FOR CONVENTIONAL SIZE
SEE SKETCH E



2
FOR CONVENTIONAL SIZE
SEE SKETCH B



3
FOR CONVENTIONAL SIZE
SEE SKETCH D



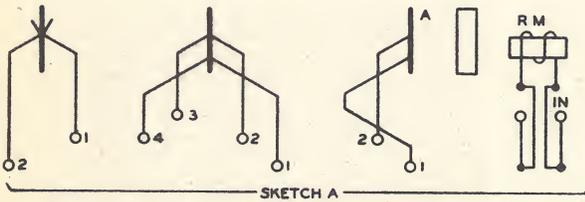
4
FOR CONVENTIONAL SIZE
SEE SKETCH C



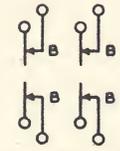
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FOR CONVENTIONAL SIZE
SEE SKETCH A



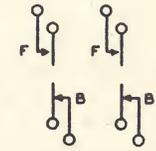
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FOR CONVENTIONAL SIZE
SEE SKETCH A



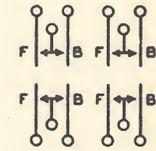
SKETCH A



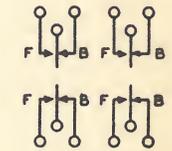
SKETCH B



SKETCH C



SKETCH D

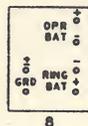


SKETCH E

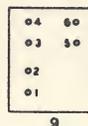
SIZE OF CONVENTION ON DRAWING



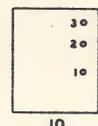
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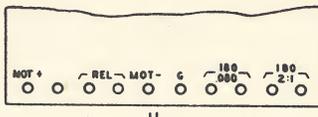
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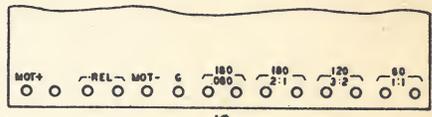
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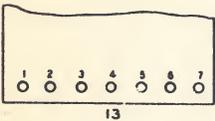
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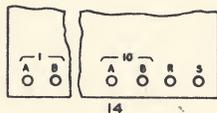
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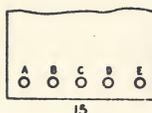
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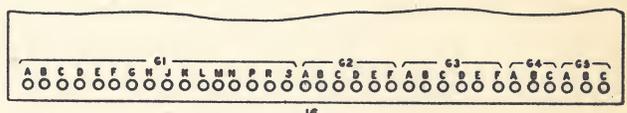
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14



15

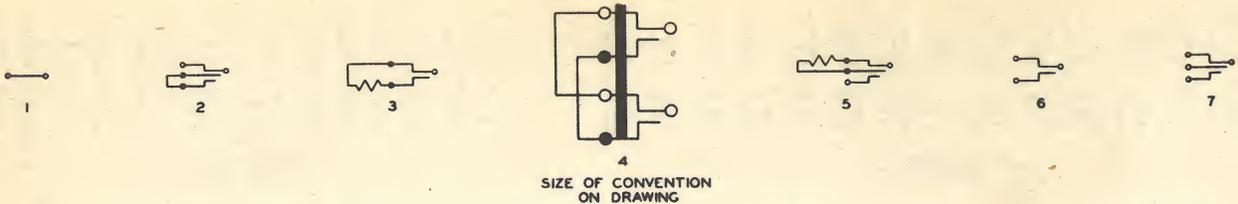


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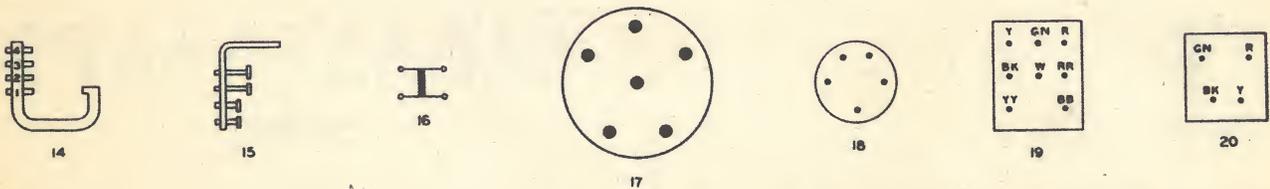
INT CODE	CONV	SPRINGS	INT CODE	CONV.	SPRINGS	INT CODE	CONV.	SPRINGS	INT CODE	CONV.	SPRINGS
84 F	9		165 J	1	A	165 AT	1	A-O	166 S	1	A-G
84 G	9		165 K	1	A-O	165 AU	1	A-O	166 T	1	A-O
84 H	8		165 L	1	A-H	165 AW	2	A-O	166 U	1	A-O
84 J	7		165 M	2	A-O	165 AY	2	A-O	166 V	1	A-F
154 C	10		165 P	2	A-D	165 BA	1	A-O	166 Y	1	A-F
156 B	13		165 S	1	A-C	165 BE	2	A-O	166 AA	1	A-O
157 D	6		165 T	2	A-O	165 BJ	1	A-O	166 AB	2	A-O
157 E	6		165 U	2	A-J	165 BE	1	A-O	166 AC	1	A-G
157 F	5		165 V	2	A-C	165 BF	2	A-C	166 AD	2	A-O
163 C	11		165 AB	1	A-O	165 BG	1	A-O	166 AE	2	A-O
163 D	12		165 AC	1	A-O	166 B	2	A-C	167 A	2	A-C
165 A	2	A-O	165 AD	1	A-O	166 D	2	A-C	168 B	14	
165 B	1	A-C	165 AE	2	A-F	166 E	1	A-O	169 A	USE 268	CONN BLK
165 C	2	A-C	165 AG	1	A-D	166 G	2	A-O	170 A	16	
165 D	2	A-C	165 AJ	2	A-O	166 H	1	A	171 A	15	
165 E	2	A-F	165 AN	1	A-O	166 K	2	A-C			
165 F	2	A-C	165 AP	1	A-J	166 N	1	A			
165 G	1	A-H	165 AR	1	A-O	166 P	1	A-O			
165 H	4	A-O	165 AS	3	A-O	166 R	1	A-G			

NOTES
1. CAM DESIGNATIONS PLACED ADJACENT TO EACH OTHER INDICATE THAT THE LEADS TO THESE CAMS ARE BROUGHT FROM THE CABLE FORM IN THE SAME SKETCH

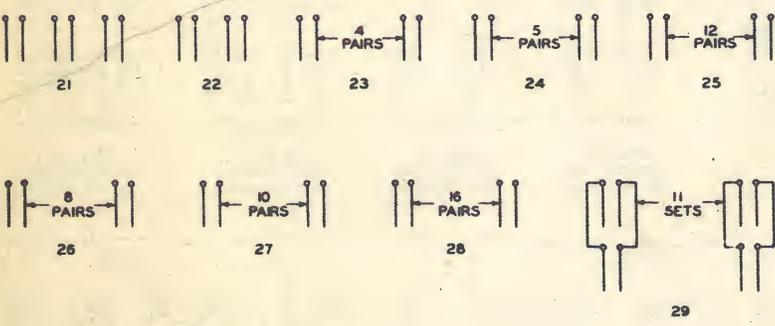
INTERRUPTERS



SIZE OF CONVENTION ON DRAWING

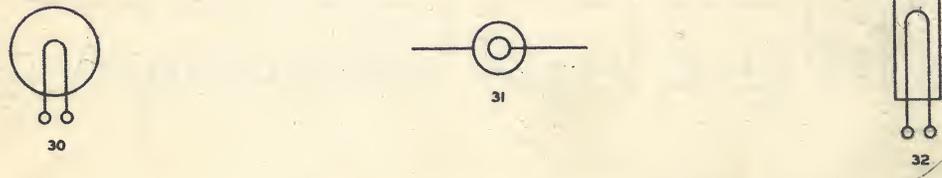


SIZE OF CONVENTION ON DRAWING



PLUG CODE	CONV. NO.						
1A	1	202	7	241B	11	266A	17
3A	6	211	13	241C	4	273A3	7
47A	6	213	13	242A	26	273A6	7
47B	6	216	29	242B	27	274A3	19
109	7	217A	10	242C	25	274A6	19
110	7	217B	10	242D	28	275A	2
116	1	217C	10	243	15	277A	5
136	6	217D	10	244	7	278A	1
137	6	217E	10	246A	8	283A3	20
144	1	221	6	247A	13	283A6	20
145	6	234	14	248A	13	288A	9
146	6	236B	1	253A	18	288B	12
152	6	240A	22	254A	18	309	7
153A	3	240B	21	257A	6	310	7
153B	3	240C	23	257B	6		
153C	3	240D	24	259A	17		
154	9	240F	22	262A	5		
168	7	240G	21	263A	1		
184	2	240H	22	264A	17		
186	16	241A	11	265A	17		

PLUGS



MAZDA LAMPS	
LAMP CODE	CONV. NO.
72	30

BALLAST LAMPS	
LAMP CODE	CONV. NO.
4B	31
5A	31
5B	31
7A	31
8A	31

RES. LAMPS	
LAMP CODE	CONV. NO.
5A	31
8A	31
8B	31
8C	31
8D	31
8E	31
8F	31
8G	31
8H	31
8J	31
8K	31

SWITCHBOARD LAMPS							
LAMP CODE	CONV. NO.	VOLTS	RATED AMPS.	LAMP CODE	CONV. NO.	VOLTS	RATED AMPS.
2C	32	15	.1	A1	32	24	.039
2E	32	20	.1	A2	32	24	.09
2F	32	12	.1	B1	32	18	.24
2G	32	24	.1	B2	32	18	.042
2J	32	24	.03	C1	32	36	.24
2K	32	30	.1	C2	32	36	.036
2R	32	18	.1	E1	32	6	.04
2T	32	40	.03	E2	32	6	.3
2U	32	24	.04	E3	32	6	.14
2W	32	18	.04	F1	32	4	.2
2Y	32	48	.03	F2	32	4	.3
				G1	32	8	.09
				H1	32	16	.29
				J1	32	10	.25

LAMPS

PLUGS & LAMPS

RES CODE	PAGE NO	CONV NO	OHMS RES	RES CODE	PAGE NO	CONV NO	OHMS RES	RES CODE	PAGE NO	CONV NO	OHMS RES	RES CODE	PAGE NO	CONV NO	OHMS RES	RES CODE	PAGE NO	CONV NO	WDC	OHMS RES
1A		9	400	1CY		14	482	18AC		9	500	18DY		9	17.1	18HR		9		119.4
1B		9	2500	1DA		14	806	18AD		9	240	18EA		9	9000	18HS		9		121.2
1C		9	500	1DB		14	5000	18AE		9	600	18EB		9	84	18HT		9		155.8
1D		9	60	1DC		14	250	18AF		9	300	18EC		9	6000	18HU		9		245.5
1E		9	300	1DD		14	467	18AG		9	226	18ED		9	75	18HW		9		281.6
1F		9	1000	1DE		14	190	18AH		9	320	18EE		9	128	18HY		9		204
1G		9	3000	1DF		14	337	18AJ		9	400	18EF		9	2500	18JA		9		296
1H		9	200	1DG		14	1295	18AK		9	60	18EG		9	22	18JB		9		421.6
1J		9	20	1DH		14	182.6	18AL		9	4	18EH		9	2400	18JC		9		600
1K		9	30	1DJ		14	2141	18AM		9	250	18EJ		9	270	18JD		9		1194.6
1L		14	100	1DL		14	280.6	18AN		9	350	18EK		9	2898	18JE		9		3050
1N		9	700	1DN		14	69.7	18AP		9	500	18EL		9	112					
1P		9	5	1DP		14	5235	18AR		9	380	18EM		9	8600					
1R		9	250	1DR		14	4000	18AS		9	350	18EN		9	630					
1T		9	350	1DS		14	5	18AT		9	1600	18EP		9	120					
1U		9	45	1DT		9	10	18AU		9	380	18ER		9	133					
1W		14	2000	1DU		9	18	18AW		9	40	18ES		9	4800					
1Y		9	1200	1DW		14	45	18AY		9	2.4	18ET		9	70					
1AD		14	8.5	1DY		9	70	18BA		9	2000	18EU		9	500					
1AE		14	14	1EA		9	900	18BB		9	2	18EW		9	5000					
1AF		14	22	1EB		14	1850	18BC		9	470	18EY		9	1800					
1AG		14	1000	1EC		14	900	18BD		9	580	18FA		9	270					
1AH		14	1.4	1EM		9	78	18BE		9	20	18FB		9	900	19A		11	EACH	37
1AJ		14	1.6	1EN		9	100	18BF		9	284	18FC		9	4000	19B		11	EACH	40
1AK		14	2.4	1EP		9	128	18BG		9	400	18FD		9	210	19C		11	UPPER	40
1AL		14	1	1ER		9	350	18BH		9	1000	18FE		9	68				LOWER	83
1AM		14	1.7	1ES		9	91	18BJ		9	1200	18FF		9	43.2	19D		11	EACH	83
1AN		9	120	1EY		9	300	18BK		9	1300	18FG		9	8080	19E		11	EACH	30
1AP		14	660	1FA		9	375	18BL		9	750	18FH		9	56	19F		11	UPPER	40
1AR		14	398	1FB		9	50	18BM		9	1000	18FJ		9	5000				LOWER	6C
1AS		14	711	1FC		9	900	18BN		9	340	18FK		9	3150	19G		11	UPPER	40
1AT		14	606	1FL		9	1155	18BR		9	60	18FL		9	620				LOWER	100
1AU		14	371	1FM		9	427	18BS		9	90	18FN		9	1900	19H		11	UPPER	40
1AW	83	14	1317	1FN	83	9	1485	18BT	83	9	200	18FP	83	9	6350				LOWER	120
1AY		14	745	1FP		9	733	18BU		9	300	18FR		9	3200	19J		11	UPPER	10
1BD		14	1575	1FR		9	460	18BV		9	100	18FS		9	4250				LOWER	40
1BE		14	3418	1FS		9	300	18BY		9	605	18FW		9	8	19K		11	EACH	100
1BG		14	2144	1FT		9	230	18CB		9	955	18FY		9	510	19L		11	EACH	60
1BH		14	565	1FU		9	73.4	18CF		9	610	18GB		9	50	19M		11	EACH	20
1BJ		14	450	1FW		9	144.8	18CH		9	1.2	18GC		9	3.2	19N		11	UPPER	5
1BL		14	325	1FY		9	2755	18CJ		9	5	18GD		9	142				LOWER	8
1BN		14	1581	1GA		9	1342	18CK		9	440	18GE		9	1600	19P		11	UPPER	20
1BP		14	1595					18CN		9	800	18GF		9	800				LOWER	130
1BR		14	756					18CP		9	1260	18GH		9	600	19S		11	UPPER	60
1BS		14	772	18A		9	37	18CR		9	2000	18GJ		9	121				LOWER	90
1BT		14	4500	18B		9	40	18CS		9	0.6	18GK		9	422	19T		11	EACH	25°
1BU		14	663	18C		9	83	18CT		9	1481	18GL		9	5545	19W		11	EACH	10
1BW		14	1917	18D		9	120	18CU		9	0.8	18GM		9	2755	19Y		11	EACH	15
1BY		14	712	18E		9	140	18CW		9	1.6	18GN		9	1340	19Z		11	EACH	120
1CA		14	1647	18F		9	150	18CY		9	1585	18GP		9	208	19AB		11	UPPER	120
1CB		14	687	18G		9	200	18DA		9	1510	18GR		9	3.5				LOWER	210
1CC		14	1606	18H		9	210	18DB		9	3000	18GS		9	4.5	19AC		11	UPPER	60
1CD		14	398	18J		9	30	18DC		9	325	18GT		9	5243				LOWER	83
1CE		14	971	18K		9	80	18DD		9	12	18GU		9	8	19AD		11	EACH	150
1CF		14	656	18L		9	170	18DE		9	930	18GV		9	5.4	19AF		11	EACH	140
1CG		14	1373	18M		9	53	18DF		9	290	18GY		9	540	19AG		11	UPPER	120
1CH		14	631	18N		9	180	18DG		9	426	18HB		9	2200				LOWER	160
1CJ		14	1361	18P		9	130	18DH		9	700	18HD		9	300	19AH		11	EACH	240
1CK		14	2020	18Q		9	110	18DJ		9	15	18HE		9	7835	19AJ		11	EACH	200
1CL		14	1226	18R		9	10	18DK		9	25	18HF		9	580	19AK		11	EACH	70
1CM		14	200	18S		9	20	18DL		9	111	18HG		9	540	19AL		11	UPPER	40
1CN		14	800	18T		9	50	18DM		9	72.4	18HH		9	0.3				LOWER	68
1CP		14	2700	18U		9	100	18DN		9	3200	18HJ		9	0.5	19AN		11	EACH	50
1CR		14	100	18W		9	133	18DP		9	18.75	18HK		9	1.8	19AO		11	EACH	260
1CS		14	3200	18Y		9	90	18DR		9	750	18HL		9	2	19AP		11	EACH	180
1CT		14	1600	18Z		9	67	18DS		9	1700	18HM		9	2.9	19AR		11	UPPER	60
1CU		14	400	18AA		9	95	18DU		9	3100	18HN		9	12				LOWER	260
1CW		14	2000	18AB		9	45	18DW		9	112.5	18HP		9	38					

RESISTANCE CODES

RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES
19AS			EACH	170	19CR			UPPER	380	19EP			UPPER	66	19GM			UPPER	400	19JH			UPPER	160
19AU			UPPER	60				LOWER	450				LOWER	220.3				LOWER	1000				LOWER	850
			LOWER	170	19CS			UPPER	40	19ER			EACH	9.5	19GN			UPPER	300	19JJ			EACH	80
19AW			EACH	2.5				LOWER	125	19ES			UPPER	35				LOWER	600	19JK			UPPER	40
19AY			UPPER	50	19CT			UPPER	34				LOWER	38	19GP			UPPER	325				LOWER	170
			LOWER	2000				LOWER	400	19ET			UPPER	33				LOWER	475	19JL			UPPER	300
19BA			EACH	900	19CU			UPPER	120				LOWER	950	19GR			UPPER	98				LOWER	2460
19BB			UPPER	300				LOWER	1050	19FU			UPPER	380				LOWER	586	19JM			UPPER	2400
			LOWER	2300	19CW			UPPER	120				LOWER	580	19GS			UPPER	95				LOWER	4800
19BC			UPPER	50				LOWER	122	19EW			EACH	800				LOWER	190	19JN			UPPER	600
			LOWER	300	19CY			UPPER	373	19EY			EACH	600	19GT			UPPER	53				LOWER	1200
19BD			UPPER	100				LOWER	530	19FA			UPPER	36.5				LOWER	111	19JP			UPPER	800
			LOWER	380	19DA			UPPER	232				LOWER	41	19GU			UPPER	13				LOWER	1600
19BE			UPPER	30				LOWER	270	19FB			UPPER	13.5				LOWER	31	19JR			UPPER	60
			LOWER	90	19DB			EACH	0.225				LOWER	15	19GW			UPPER	15				LOWER	400
19BF			UPPER	600	19DC			UPPER	456	19FC			UPPER	28.5				LOWER	17	19JS			UPPER	1000
			LOWER	1600				LOWER	530				LOWER	32	19GY			UPPER	18				LOWER	2500
19BG			UPPER	200	19DD			UPPER	159	19FD			UPPER	17				LOWER	19	19JT			UPPER	118
			LOWER	400				LOWER	1500				LOWER	19.5	19HA			UPPER	42				LOWER	175
19BH			UPPER	100	19DE			UPPER	34	19FE			UPPER	22				LOWER	195	19JU			UPPER	48
			LOWER	500				LOWER	986				LOWER	25	19HB			UPPER	50				LOWER	300
19BJ			EACH	350	19DF			UPPER	122	19FF			UPPER	70				LOWER	194	19JW			UPPER	64
19BK			UPPER	40				LOWER	158				LOWER	100	19HC			UPPER	20				LOWER	252
			LOWER	500	19DG			UPPER	133	19FG			EACH	100				LOWER	93	19JY			UPPER	268
19BL			EACH	1				LOWER	770	19FH			UPPER	60	19HD			EACH	250				LOWER	488
19BM			EACH	1000	19DH			UPPER	280				LOWER	70	19HE			UPPER	300	19KA			UPPER	70
19BN			UPPER	20				LOWER	1330	19FJ			UPPER	110				LOWER	1900				LOWER	685
			LOWER	185	19DJ			UPPER	117				LOWER	130	19HF			UPPER	675	19KB			UPPER	104
19BP			UPPER	270				LOWER	903	19FK			UPPER	90				LOWER	925				LOWER	141
			LOWER	375	19DK			UPPER	97				LOWER	110	19HG			UPPER	1000	19KC			UPPER	47
19BR			UPPER	205				LOWER	120	19FL			UPPER	370				LOWER	1600				LOWER	59
			LOWER	225	19DL			UPPER	50				LOWER	460	19HH			UPPER	112	19KD			UPPER	14
19BS	83	11	UPPER	20		83	11	LOWER	70	19FM	83	11	UPPER	330		83	11	LOWER	1000		83	11	LOWER	54
			LOWER	400	19DM			UPPER	0.2				LOWER	350	19EJ			UPPER	112	19KE			UPPER	18
19BT			UPPER	10				LOWER	0.4	19FN			UPPER	260				LOWER	2600				LOWER	39
			LOWER	640	19DN			EACH	100				LOWER	290	19HK			EACH	300	19KF			UPPER	19
19BU			UPPER	132	19DP			UPPER	0.25	19FP			UPPER	190	19HL			EACH	545				LOWER	37
			LOWER	158				LOWER	0.5				LOWER	230	19HM			UPPER	110	19KG			UPPER	160
19BW			UPPER	380	19DR			UPPER	1	19FR			UPPER	360				LOWER	900				LOWER	2990
			LOWER	750				LOWER	2				LOWER	370	19HN			UPPER	110	19KH			UPPER	286
19BY			UPPER	220	19DS			EACH	350	19FS			UPPER	150				LOWER	540				LOWER	1325
			LOWER	1075	19DT			UPPER	150				LOWER	190	19HP			UPPER	10	19KJ			UPPER	467
19CA			UPPER	185				LOWER	300	19FT			UPPER	290				LOWER	40				LOWER	512
			LOWER	770	19DU			UPPER	100				LOWER	300	19HR			UPPER	30	19KK			UPPER	152
19CB			UPPER	125				LOWER	1000	19FU			UPPER	180				LOWER	200				LOWER	3150
			LOWER	345	19DW			EACH	307				LOWER	220	19HS			UPPER	30	19KL			UPPER	269
19CC			UPPER	380	19DY			EACH	500	19FW			UPPER	410				LOWER	170				LOWER	1490
			LOWER	900	19EA			EACH	115				LOWER	420	19HT			UPPER	140	19KM			UPPER	84
19CD			UPPER	125	19EB			UPPER	20	19FY			UPPER	130				LOWER	420				LOWER	6350
			LOWER	1095				LOWER	330				LOWER	150	19HU			UPPER	20	19KN			UPPER	146
19CE			UPPER	125	19EC			UPPER	650	19GA			UPPER	400				LOWER	280				LOWER	651
			LOWER	510				LOWER	1600				UPPER	600	19HW			UPPER	40	19KP			UPPER	500
19CF			EACH	284	19ED			UPPER	55	19GB			UPPER	80				LOWER	50				LOWER	3500
19CG			EACH	270				LOWER	218				LOWER	85	19HY			UPPER	20	19KR			UPPER	2000
19CH			UPPER	100	19EF			EACH	14	19GC			UPPER	75				LOWER	630				LOWER	4000
			LOWER	125	19EG			UPPER	600				LOWER	110	19JA			UPPER	90	19KS			EACH	67
19CJ			UPPER	250				LOWER	1800	19GD			UPPER	240				LOWER	130	19KT			UPPER	85
			LOWER	750	19EH			UPPER	38				LOWER	250	19JB			UPPER	20				LOWER	1800
19CK			UPPER	60				LOWER	950	19GE			UPPER	500				LOWER	150	19KU			UPPER	2
			LOWER	65	19EJ			UPPER	33				LOWER	1500	19JC			UPPER	250				LOWER	4
19CL			UPPER	125				LOWER	35	19GG			EACH	7.9				LOWER	350	19KW			UPPER	0.5
			LOWER	895	19EK			UPPER	15	19GH			EACH	425	19JD			UPPER	300				LOWER	1
19CM			UPPER	60				LOWER	30	19GJ			UPPER	300				LOWER	400	19KY			EACH	1500
			LOWER	1235	19EL			EACH	120				LOWER	500	19JE			EACH	1600	19LA			EACH	300
19CN			UPPER	100	19EM			UPPER	125	19GK			UPPER	300	19JF			UPPER	100	19LB			EACH	150
			LOWER	200				LOWER	170				LOWER	2500				UPPER	220	19LC			EACH	100
19CP			UPPER	750	19EN			UPPER	170	19GL			EACH	300	19JG			UPPER	240	19LD			EACH	67
			LOWER	1000				LOWER	175									LOWER	720	19LE			EACH	240

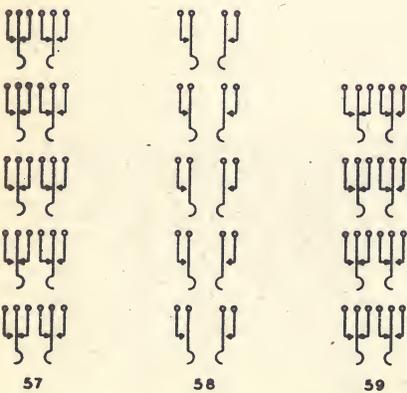
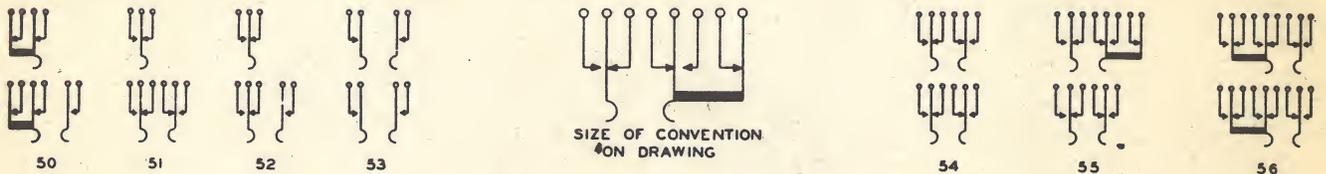
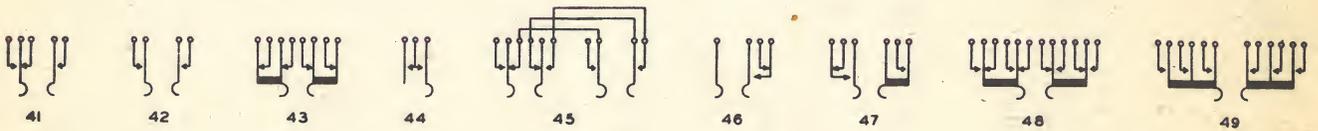
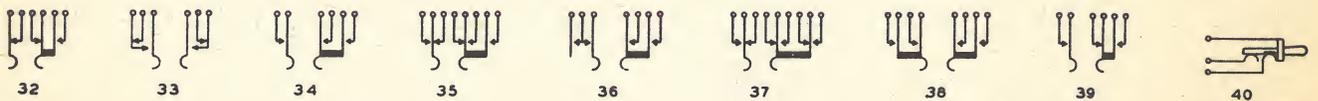
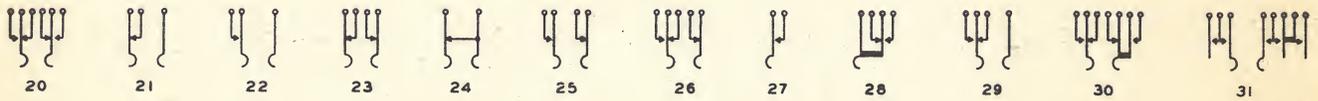
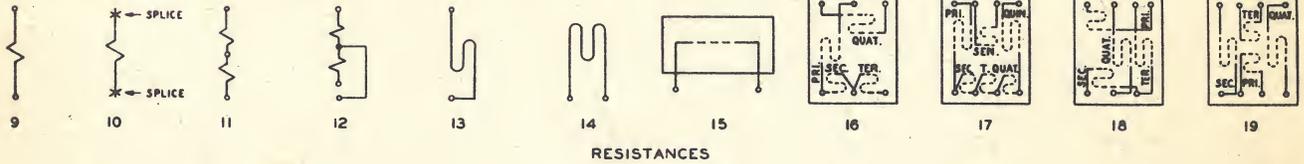
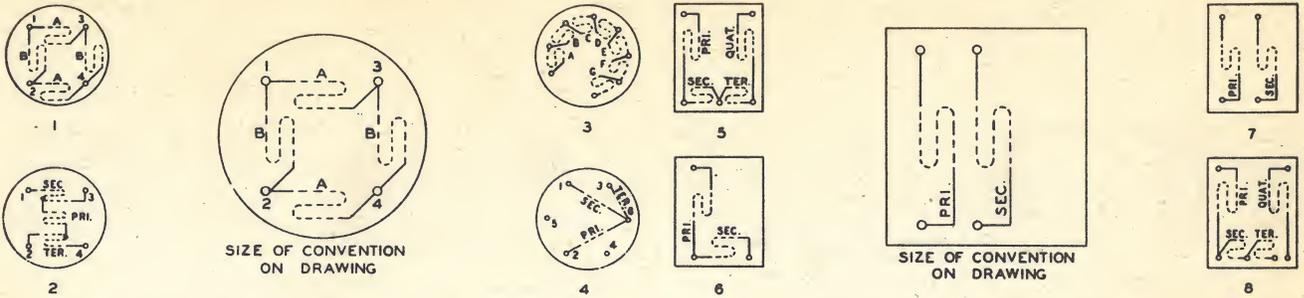
RESISTANCE CODES

RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES
19LG		11	EACH	84	19NG		11	EACH	606	21A		13		6000	38A		9		48000	40AG		7	PRI	6000
19LH		11	EACH	245	19NH		11	UPPER	150	21B		13		5000	38B		9		12000			7	SEC	15000
19LJ		11	EACH	37				LOWER	6350						38C		9		15000	40AH		13		13000
19LK		11	EACH	73	19NJ		11	EACH	11	31A		15		1200	38D		9		50000	40AJ		13		8000
19LL		11	EACH	145	19NK		11	UPPER	210						38E		9		20000	40AK		13		1000
19LM		11	EACH	275				LOWER	320	34E					38F		9		5330	40AL		13		15000
19LN		11	EACH	465	19NL		11	EACH	51.4			3	A	1000	38G		9		7300	40AM		13		8000
19LP		11	UPPER	445	19NM		11	EACH	156				B	800	38H		9		10200	40AN		13		10000
			LOWER	878	19NN		11	UPPER	135				C	500	38I		9		13670	40AP		13		20000
19LR		11	EACH	34.5				LOWER	280				D	800	38J		9		14200	40AS		7	EACH	5000
19LS		11	UPPER	16	19NP		11	UPPER	100				E	1500	38K		9		17000	40AT		7	PRI	2000
			LOWER	17				LOWER	390				F	2300	38L		9		19560			7	SEC	11000
19LT		11	UPPER	145	19NR		11	UPPER	23				G	3200	38M		9		24000	40AU		7	PRI	2060
			LOWER	150				LOWER	64	34F			TOTAL	10100	38N		9		27240			7	SEC	8400
19LU		11	UPPER	1	19NS		11	UPPER	25			3	A	2000	38P		9		37500	40AW		13		13500
			LOWER	8				LOWER	50				B	3200	38R		9		52500	40AY		13		2000
19LW		11	UPPER	3	19NT		11	UPPER	400				C	3400	38S		9		70000	40BA		13		50
			LOWER	8				LOWER	800				D	3200	38T		9		72500	40BB		7	PRI	1654
19LY		11	UPPER	50	19NU		11	UPPER	100				E	2600	38U		9		100000			7	SEC	6117
			LOWER	550				LOWER	200				F	1900	38V		9		4000	40BC		8	PRI	4797
19KA		11	UPPER	112	19NY		11	EACH	30	34G			G	1400	38Y		9		10000			8	SEC	511
			LOWER	615	19PA		11	UPPER	7				TOTAL	17700	38AA		9		30000			5	TER	3562
19MB		11	EACH	362				LOWER	11				A	2900	38AB		9		7500	40BD		5	PRI	173
19KC		11	EACH	450	19PB		11	EACH	217				B	2500	38AC		9		102400			5	SEC	1941
19MD		11	UPPER	80	19PC		11	UPPER	102.6				C	2200	38AD		9		72200			5	TER	1087
			LOWER	600				LOWER	3509				D	1700	38AE		9		51100			7	QUAT	422
19ME		11	UPPER	370	19PD		11	UPPER	199.4				E	1300	38AF		9		36500	40BE		7	PRI	8674
			LOWER	1300				LOWER	1806				F	900	38AG		9		25500			5	SEC	3579
19MF		11	UPPER	3.5	19PE		11	UPPER	285.7				G	700	38AH		9		18050	40BF		5	PRI	102
			LOWER	10				LOWER	1260				TOTAL	12200	38AJ		9		9120			5	SEC	1972
19MG		11	UPPER	20	19PF		11	UPPER	359.1	36F			A	91	38AL		9		6440			5	TER	1534
			LOWER	5590				LOWER	1003				B	1071	38AM		9		4580	40BG		5	QUAT	6117
19MH	83	11	UPPER	22.4	19PG	83	11	EACH	290	36G	83	1	A	213	38AN	83	9		11060			5	PRI	1174
			LOWER	6400	19PH		11	UPPER	30				B	577	38AP		9		75000			5	SEC	447
19MJ		11	UPPER	43.4				LOWER	60	36H			A	408	38AR		9		65000			5	TER	64
			LOWER	3210	19PJ		11	UPPER	500				B	430	38AT		9		35000			6	QUAT	1488
19MK		11	UPPER	44				LOWER	1000	36J			A	742	38AU		9		8500	40BH		6	EACH	11000
			LOWER	3480	19PK		11	UPPER	125				B	367	38AV		9		7000	40BJ		16	PRI	1300
19ML		11	UPPER	105				LOWER	250	36K			A	1330	38AY		9		6000			16	SEC	600
			LOWER	1685	19PL		11	EACH	156				B	336	38BA		9		5000			16	TER	1300
19MM		11	UPPER	97	19PM		11	UPPER	145	36L			A	70	38BB		9					7	QUAT	1200
			LOWER	1740				LOWER	500				B	5230								7	EACH	20000
19MN		11	UPPER	191	19PN		11	EACH	62	36M			A	143						40BK		17	PRI	450
			LOWER	920	19PP		11	EACH	125				B	2655						40BL		17	SEC	1300
19MP		11	UPPER	209	19PS		11	UPPER	1200	36U			PRI	5180	40A		13		21000			17	TER	600
			LOWER	890				LOWER	1600				SEC	34.6	40B		13		17500			17	QUAT	1150
19MR		11	UPPER	340	19PT		11	EACH	25.4				TER	34.6	40D		13		24000			17	QUIN	150
			LOWER	395	19PU		11	UPPER	312	36W			A	298	40E		13		12000			17	SEN	1200
19MS		11	UPPER	69.6				LOWER	1155				B	487	40J		13		14500	40BN		7	PRI	30
			LOWER	5245	19PV		11	UPPER	168	36Y			A	44	40K		13		6500			7	SEC	40
19MT		11	UPPER	131.6				LOWER	2140				B	2099	40L		13		10000	40BP		18	PRI	6500
			LOWER	2472	19PY		11	UPPER	200	36AA			A	146	40M		13		7000			18	SEC	580
19MU		11	UPPER	236.2				LOWER	600				B	738	40N		13		6200			18	TER	5920
			LOWER	1094	19RA		11	UPPER	125	36AR			PRI	5200	40P		13		3500			18	QUAT	14500
19MW		11	UPPER	385				LOWER	660				SEC	34.5	40R		7		3000	40BR		6	EACH	9000
			LOWER	423	19RB		11	UPPER	100				TER	34.5			13		500	40BS		13		3
19MY		11	UPPER	120.5	19RC		11	UPPER	1300	36AS			PRI	2583	40S		7		100	40BT		13		300
			LOWER	539				LOWER	4400				SEC	68.8	40T		7		10	40BU		19	PRI	1000
19NA		11	UPPER	27									TER	68.8	40U		7		3000			19	SEC	1000
			LOWER	221									PRI	1258	40V		7		2500			19	TER	11000
19NB		11	UPPER	40									SEC	135.8	40W		7		4000			19	QUAT	11000
			LOWER	44									TER	135.8	40X		7		7000	40BW		19	PRI	9000
19NC		11	EACH	22						36AU			PRI	567.7			13		22000			19	SEC	9000
19ND		11	EACH	44									SEC	258.3	40AB		13		5000			19	TER	600
19NE		11	UPPER	180						36AW			TER	258.3	40AD		7		1000			19	QUAT	600
			LOWER	265									PRI	195	40AE		13		13500					
19NF		11	UPPER	55									SEC	435.8	40AF		13		3500					
			LOWER	500									TER	435.8										

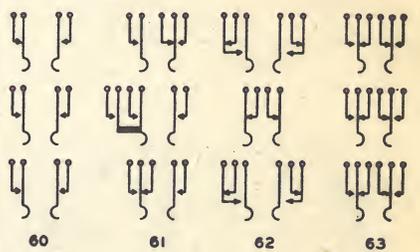
RESISTANCE CODES

RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES	RES CODE	PAGE NO	CONV NO	WDG	OHMS RES
40BY		19	PRI	1000	61A		10		1000	63GW		13		1500	69J		9		3 MEG	80AG		13		225
			SEC	1000						63CY		13		2500	69K		9		1 MEG	80AH		13		232.9
			TER	20000						63DA		13		2100	69L		9		2 MEG	80AJ		13		567.7
			QUAT	20000	63A		13		15	63DB		13		1750	69N		9		0.5 MEG	80AK		13		600
44A		9		52.5	63B		13		20	63DC		13		1275						80AL		13		3000
44B		9		45	63C		13		50	63DE		13		875						80AM		13		3610
44C		9		18.1	63D		13		100	63DF		13		1034	70A		11	UPPER	4	80AN		13		2.5
44D		9		200	63E		13		150	63DG		13		3700				LOWER	8	80AP		13		12
44E		9		58	63F		13		200	63DH		13		1000	70C		11	EACH	4	80AR		13		18.9
44G		9		150	63G		13		250	63DJ		13		3630						80AS		13		581
44J		9		115	63H		13		300	63DK		13		3500						80AT		13		15
44K		9		54.2	63J		13		350	63DL		13		3300	71A		9		40	80AU		13		76
44L		9		36.6	63K		13		400	63DM		13		4250	71B		9		60	80AW		13		296
44N		9		14	63L		13		500	63DN		13		5000						80AY		13		3000
44H		9		220	63M		13		750	63DP		13		10						80BA		13		3550
44P		9		167	63N		13		800	63DR		13		106.17	74A		13		0.25	80BB		13		213
44R		9		90	63P		13		1000	63DS		13		1670.7						80BC		13		550
44S		9		30	63R		13		1200	63DT		13		10000						80BD		13		225
44T		9		2500	63S		13		1400	63DU		13		68	78A		10		295	80BE		13		239
44U		9		1500	63T		13		2000	63DW		13		168						80BF		13		253
44W		9		300	63U		13		2300	63DY		13		312						80BG		13		267
44Y		9		450	63V		13		3000	63EA		13		1155	79A		13		4.5	80BH		13		283
					63Y		13		5000	63EB		13		2140	79B		13		8.5	80BJ		13		300
					63AA		13		1150	63EC		13		15700	79C		13		4	80BK		13		805
52A		13		5000	63AB		13		10000	63EK		13		8000	79D		13		2.1	80BL		13		317
					63AC		13		4000					79E			13		4.5	80BM		13		335
					63AD		13		3000											80BN		13		354
59C	83	9		200	63AE	83	13		1200	64	83	10		as		83				80BP		13		371
59D		9		115	63AF		13		1230	type				spec	80A		13		2580	80BR		13		394
59E		9		150	63AG		13		900	65		10		as	80B		13		37.99	80BS		13		419
59F		9		240	63AH		13		8100	type				spec	80C		13		58.09	80BT		13		444
59G		9		60	63AJ		13		2930						80D		13		84.04	80BU		13		471
59H		9		190	63AK		13		600						80E		13		138.1	80BV		13		499
59K		9		112	63AL		13		265	66A		9		3000	80F		13		155.8	80BY		13		529
59L		9		600	63AN		13		950	67A		9		2000	80G		13		209.4	80CA		13		560
59M		9		850	63AP		13		295	67B		9		120	80H		13		220.4	80CB		13		592
59N		9		1000	63AP		13		2500	67C		9		600	80J		13		279.4	80CC		13		625
59P		9		90	63BB		13		2950	67D		9		1100	80K		13		281.6	80CD		13		245.5
					63BH		13		1420	67E		9		1500	80L		13		300	80CE		13		121.2
					63BJ		13		2660	67F		9		300	80M		13		379.9	80CF		13		12.12
60A		12	UPPER	117	63BK		13		1300	67G		9		1000	80N		13		421.6	80CG		13		294
			LOWER	150	63BT		13		1080	67H		9		3000	80P		13		986.9					
60B		12	UPPER	115	63BU		13		3	68A		11	EACH	30	80R		13		1681					
			LOWER	220	63CH		13		4450	68B		11	EACH	300	80S		13		2204	81A		13		100
60C		12	UPPER	115	63CJ		13		725						80T		13		3117	81B		13		200
			LOWER	150	63CK		13		2600						80U		13		4188					
60D		12	UPPER	115	63CL		13		230	69A		9		1 MEG	80W		13		4216					
			LOWER	270	63CM		13		2000	69B		9		2 MEG	80Y		13		5632	82A		9		150
					63CN		13		3250	69C		9		5 MEG	80AA		13		6000	82B		9		30
					63CP		13		700	69D		9		3.9 MEG	80AB		13		7500	82C		9		500
					63CR		13		190	69E		9		5.2 MEG	80AC		13		9869	82D		9		225
					63CS		13		3575	69F		9		0.5 MEG	80AD		13		129.2					
					63CT		13		13500	69G		9		1.5 MEG	80AE		13		150					
					63CU		13		5250	69H		9		2.5 MEG	80AF		13		153.5	85B		9		57

RESISTANCE CODES



KEY CODE	CONV. NO.						
92A	20	223D	27	424B	34	498W	32
92B	20	223E	44	424C	36	498Y	29
92D	37	248A	40	424D	31	498AA	21
92H	35	272A	20	424E	49	498AB	21
92J	32	272C	37	464A	24	498AC	39
92N	29	272D	48	464B	22	498AD	42
92P	22	272G	29	464E	24	498AE	34
92R	38	375A	20	464F	22	507A	45
92S	20	377A	42	488A	62	508A	53
92T	39	378A	20	488B	61	511A	58
92U	20	378C	33	488C	63	511B	57
92W	33	378D	20	490A	40	512A	58
92Y	42	378E	33	492A	22	520E	27
92AA	33	378F	43	493C	27	520G	27
92AC	21	382B	30	497C	53	520H	27
92AD	30	392A	54	498A	42	520J	28
92AE	42	392D	55	498B	22	520K	28
92AG	35	392F	59	498C	42	521A	60
92AH	21	392J	56	498F	26	521B	60
92AJ	22	393A	51	498G	29	522A	22
92AK	20	393D	50	498H	42	527A	36
92AM	20	394B	23	498J	41	527B	46
92AN	35	395A	52	498K	41	538A	47
92AP	30	406A	24	498M	20	539A	60
92AR	38	406C	42	498N	22	547A	22
188A	42	406H	38	498P	23	547B	20
188B	23	406K	42	498S	20		
188D	20	406P	25	498T	23		
188E	42	424A	34	498U	23		

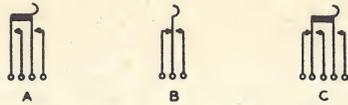


NOTES
1. ARRANGEMENT OF CONVENTIONS ON DRAWING SHALL BE IN ACCORDANCE WITH EQUIPMENT LAYOUT

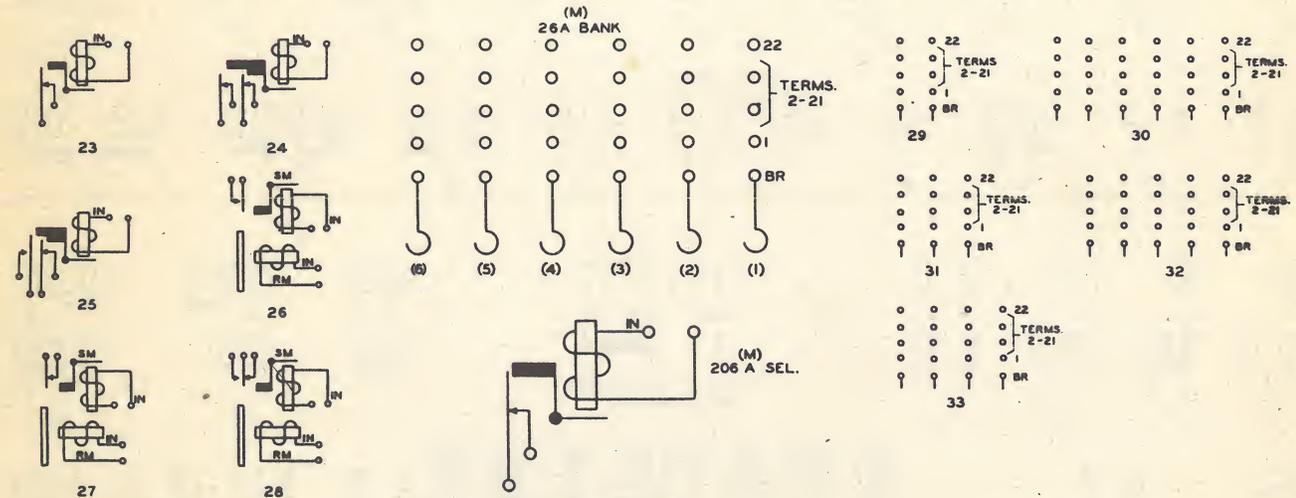
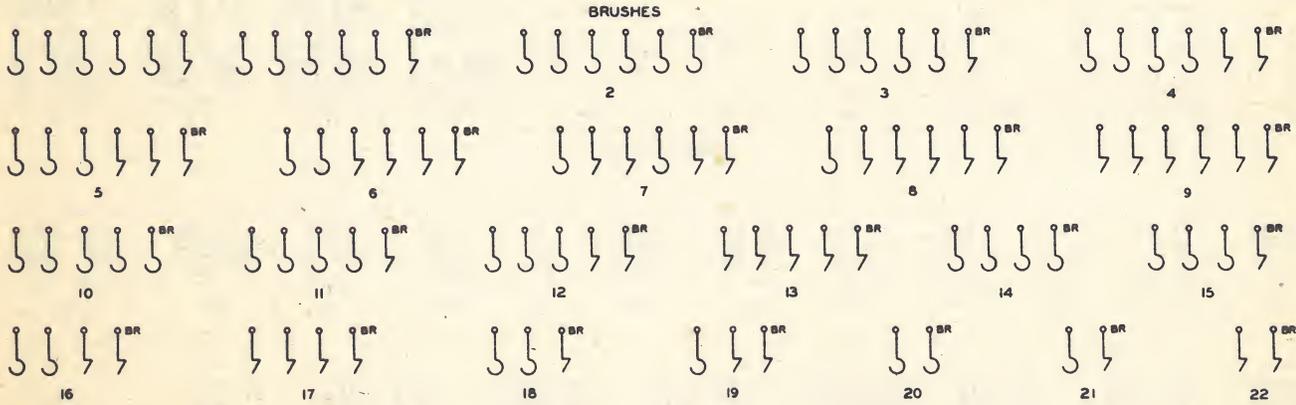
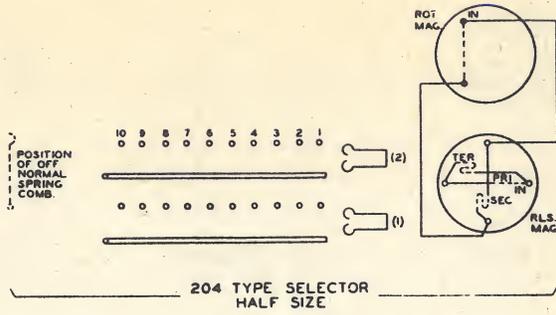
PUSH BUTTON TYPE KEYS

RESISTANCES AND PUSH BUTTON TYPE KEYS

SEL. CODE	OFF NORMAL SPG. COMB.
204A	A
204B	B
204C	C
204E	C



OFF NORMAL SPRING COMBINATIONS
HALF SIZE



MAGNETS

SIZE OF CONVENTION
ON DRAWING

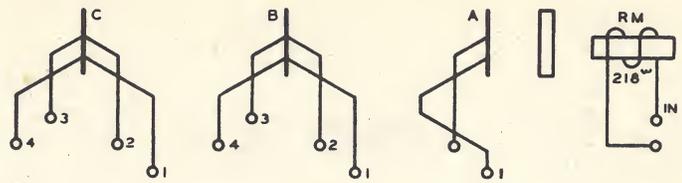
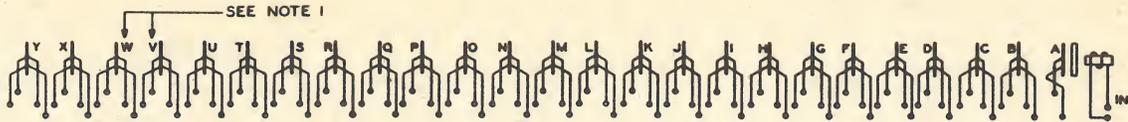
BANKS

SEL. CODE	BRUSH CONV. NO.	MAG. CONV. NO.	BANK CONV. NO.	NO. OF BANKS	SEL. CODE	BRUSH CONV. NO.	MAG. CONV. NO.	BANK CONV. NO.	NO. OF BANKS	SEL. CODE	BRUSH CONV. NO.	MAG. CONV. NO.	BANK CONV. NO.	NO. OF BANKS	SEL. CODE	BRUSH CONV. NO.	MAG. CONV. NO.	BANK CONV. NO.	NO. OF BANKS
206A	3	23	30	1	206U	3	23	30	1	206AR	17	23	33	1	206BM	4	23	30	1
206B	4	23	30	1	206W	3	23	30	1	206AS	4	23	30	1	206BN	10	23	32	1
206C	3	23	30	1	206Y	3	23	30	1	206AT	8	23	30	1	206BP	2	23	30	1
206D	20	23	29	1	206AA	3	23	30	1	206AU	2	23	30	1	206BR	2	23	30	1
206E	4	23	30	1	206AB	6	23	30	1	206AW	18	23	31	1	206BS	15	23	33	1
206F	4	25	30	1	206AC	3	23	30	1	206AY	3	23	30	1	206BT	18	23	31	1
206G	3	23	30	1	206AD	16	23	33	1	206BA	2	23	30	1	206BU	2	24	30	1
206H	4	23	30	1	206AE	14	23	33	1	206BB	2	23	30	1	206BW	19	23	31	1
206J	3	23	30	1	206AF	3	23	30	1	206BC	11	23	32	1	206BY	15	23	33	1
206K	5	23	30	1	206AG	15	23	33	1	206BD	18	23	31	1	206CA	13	23	32	1
206L	5	23	30	1	206AH	22	23	29	1	206BE	2	23	30	1	206CB	3	23	30	1
206M	7	23	30	1	206AJ	15	23	33	1	206BF	9	23	30	1	207A	1	27	30	2
206N	16	23	33	1	206AK	8	23	30	1	206BG	4	23	30	1	207B	1	27	30	2
206P	8	23	30	1	206AL	13	23	32	1	206BH	4	23	30	1	207C	1	28	30	2
206R	6	23	30	1	206AM	2	23	30	1	206BJ	21	23	29	1	208A	1	26	30	2
206S	2	23	30	1	206AN	18	23	31	1	206BK	22	23	29	1	208B	3	26	30	1
206T	3	23	30	1	206AP	20	23	29	1	206BL	12	23	32	1					

206, 207 & 208 TYPE SELECTORS

NOTES:
1. ARRANGEMENT OF CONVENTIONS ON DRAWING SHALL BE IN ACCORDANCE WITH EQUIPMENT LAYOUT.

SELECTORS

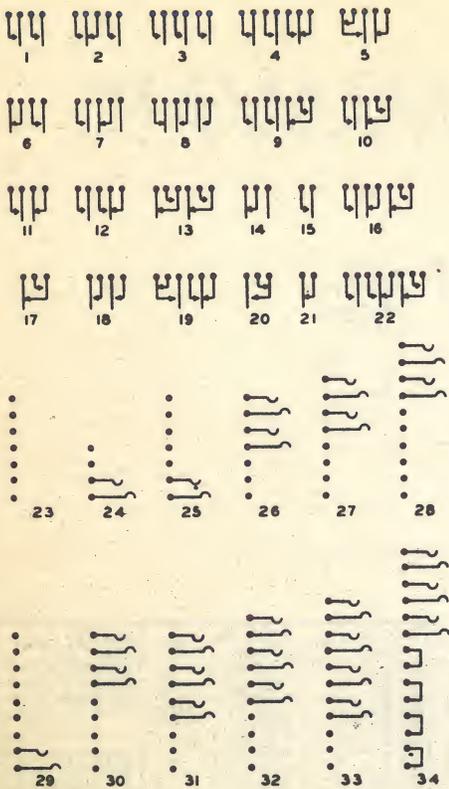


ACTUAL SIZE OF CONVENTION ON DRAWING

SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	SEQ. SW. CODE	CAMS	
A6	A-M	A185	A-S	B2	A-Y	B199	A-Y	B334	A-Y	B414	A-V	B480	A-Y	B558	A-U	B620	A-Y	
A10	A-L	A188	A-U	B3	A-K	B209	A-W	B336	A-W	B415	A-Y	B481	A-U	B559	A-W	B621	A-U	
A13	A-M	A190	A,B,C	B18	A-X	B210	A-W	B337	A-Y	B417	A-W	B482	A-S	B560	A-Y	B622	A-R	
A14	A-Q		F-O,Q	B19	A-W	B212	A-Y	B338	A-Y	B418	A-Y	B483	A-Y	B561	A-Y			
A15	A-Q		S&T	B20	A-X	B215	A-Y	B341	A-X	B419	A-T	B484	A-W	B562	A-Y			
A17	A-L	A191	A-T	B21	B-Y	B216	A-Y	B344	A-Y	B420	A-T	B485	A-V	B563	A-Y	B625	A-Y	
A32	A-O	A192	A-U	B45	A-S	B217	A-Y	B345	A-X	B424	A-U	B486	A-Y	B564	A-Y	B626	A-Y	
A33	A-O	A193	A-S	B46	A-Q	B218	B-X	B347	A-N	B425	A-T	B487	A-W	B565	A-P	B627	A-Y	
A34	A-Q	A194	A-T	B47	A-X	B230	A-X	B348	A-X	B426	A-Y	B488	A-Y	B566	A-U	B628	A-Y	
A35	A-O	A195	A-U	B66	A-V	B231	B-Y	B350	B-V	B427	A-Y	B489	A-X	B567	A-Y	B629	A-U	
A36	A-N	A197	A-T	B67	B-X	B239	B-Y	B353	A-T	B429	A-Y	B490	A-Y	B568	A-Y	B630	A-U	
A61	A-O	A198	A-K	B68	A-Y	B243	A-Y	B354	A-Y	B430	A-S	B491	A-R	B569	A-X	B631	A-V	
A62	A-T	A200	A-T	B69	A-X	B244	A-Q	B355	A-Y	B431	A-Y	B492	A-P	B570	A-V	B632	A-T	
A67	A-J	A203	A-U	B74	A-X	B245	A-Y	B356	B-T	B432	A-Y	B493	A-Q	B571	A-Y	B633	A-Y	
A68	A-G	A207	A,B,C	B75	A-U	B246	A-Y	B357	A-T	B433	A-Y	B494	A-Y	B572	A-S	B637	A-Y	
A71	A-H		F-O	B78	A-Y	B251	A-Y	B359	A-V	B434	A-Y	B495	A-Y	B573	A-R	B638	A-Q	
A72	A-I		Q,S,T	B81	A-V	B253	A-U	B360	A-Y	B435	A-Y	B496	A-Q	B574	A-Y	B639	A-Y	
A73	A-M		&U	B87	A-Y	B254	A-Y	B361	A-Y	B436	A-Y	B497	B-W	B575	A-Y	B640	A-X	
A74	A-K		A208	A-T	B97	A-U	B260	A-Y	B362	A-W	B437	A-Y	B520	A-O	B577	A-Y	B641	A-Y
A75	A-O	A210	A-U	B114	A-T	B261	A-Y	B364	A-Y	B438	A-Y	B521	A-O	B578	A-Y	B642	A-Y	
A76	A-Q	A211	A-Q	B115	A-S	B271	A-Y	B365	A-X	B439	A-Y	B522	A-R	B579	B-Y	B643	A-Y	
A77	A-N	A219	A-L	B116	A-T	B272	A-V	B367	A-Y	B440	A-Y	B523	A-S	B580	B-Y	B644	A-Y	
A100	B-J	A222	A-J	B125	A-S	B274	A-T	B368	A-Y	B441	A-Y	B524	A-X			B645	A-X	
A103	A-N	A224	A-U	B131	A-Y	B276	A-X	B369	A-V	B442	A-Y	B525	A-W	B582	A-Y	B646	A-Y	
A105	A-Q	A225	A-S	B133	A-X	B277	B-Y	B370	A-T	B444	A-Y	B526	A-W	B583	A-T	B647	A-Y	
A115	A-T	A226	A-R	B136	A-H	B278	A-Y	B371	A-U	B448	A-Y	B527	A-Y	B584	A-X	B648	A-U	
A116	A-K	A227	A-T	B137	A-X	B286	A-Y	B373	A-W	B449	B-Y	B528	A-Y	B585	A-U	B649	A-X	
A117	A-R	A228	A-S	B138	A-X	B287	A-Y	B375	A-W	B450	B-Y	B529	A-Y	B586	A-Y	B650	A-Y	
A138	A-S	A230	A-U	B139	B-X	B288	A-Y	B376	A-Y	B451	A-T	B530	A-W	B587	A-T			
A143	A-J	A235	A-K	B140	A-W	B289	B-Y	B377	A-Y	B452	A-W	B531	A-X	B588	A-Y			
A148	A-J	A237	A-S	B141	A-Y	B297	A-S	B380	A-Y	B453	A-Y	B532	A-Y	B592	A-T			
A149	A-M	A238	A-T	B142	A-R	B299	A-Y	B381	A-Y	B454	A-V	B533	A-U	B593	A-X			
A150	A-R	A240	A-R	B143	B-U	B308	A-W	B382	A-Y	B455	A-X	B535	A-Y	B596	A-W			
A151	A-H	A241	A-N	B144	A-X	B309	A-Y	B383	A,B,C	B456	A-Y	B536	A-X	B597	A-W			
A152	A-M	A242	A-K	B145	A-Y	B313	A-X		F-O	B457	A-T	B537	A-U	B598	A-R			
A153	A-D	A243	A-O	B146	A-R	B314	A-X		Q,S,T	B458	A-U	B538	A-Y	B599	A-Y			
A154	A-J	A244	A-M	B147	A-Y	B315	A-Y		&U	B459	A-U	B539	A-U	B600	B-Y			
A155	A-R	A245	A-L	B150	B-V	B320	A-U		B384	A-U	B460	A-U	B540	A-T	B601	A-Y		
A157	A-T	A246	A-O	B155	A-X	B321	A-T	B385	A-Y	B461	A-Y	B541	A-T	B602	A-Y			
A158	A-G	A248	A-T	B156	A-X	B323	B,C	B386	A-Y	B462	A-Y	B542	A-U	B603	A-Y			
A159	A-L	A249	A-N	B157	B-T		F-O	B387	A-Y	B463	A-Y	B545	A-Y	B607	A-U			
A160	A-P	A250	A-U	B158	A-V		Q,S	B388	A-X	B464	A-Y	B546	A-Y	B608	A-Y			
A162	A-P			B159	A-X		&T	B389	A-V	B465	B-Y	B547	A-Y	B609	A-Y			
A163	A-I			B161	A-X		A-U	B324	A-U	B394	A-Y	B471	A-W	B549	A-X	B610	A-Y	
A174	A-K			B163	A-Y	B325	B-Y	B401	A-X	B472	A-Y	B550	A-X	B611	A-Y			
A175	A-J			B164	A-Y	B326	B-W	B404	A-Y	B475	A-T	B551	A-Y	B612	A-W			
A180	A-S			B186	A-T	B330	A-Y	B406	A-U	B476	A-W	B552	A-T	B613	A-X			
A181	A-T			B196	A-X	B331	A-V	B407	A-Y	B477	A-U	B553	A-Y	B614	A-Y			
A182	A-I			B197	A-S	B332	A-X	B408	A-Y	B478	A-Y	B554	A-Y	B615	A-Y			
				B198	A-V	B333	A-V	B409	A-Y	B479	A-X	B557	B-W	B619	A-Y			

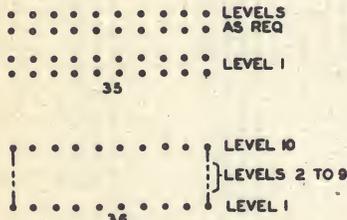
- NOTES:
 1. CAM DESIGNATIONS PLACED ADJACENT TO EACH OTHER INDICATE THAT THE LEADS TO THESE CAMS ARE BROUGHT FROM THE CABLE FORM IN THE SAME SWITCH.
 2. EACH SEQUENCE SWITCH CONSISTS OF A ROTARY MAGNET AND CAMS AS SPECIFIED.

SEQUENCE SWITCHES,

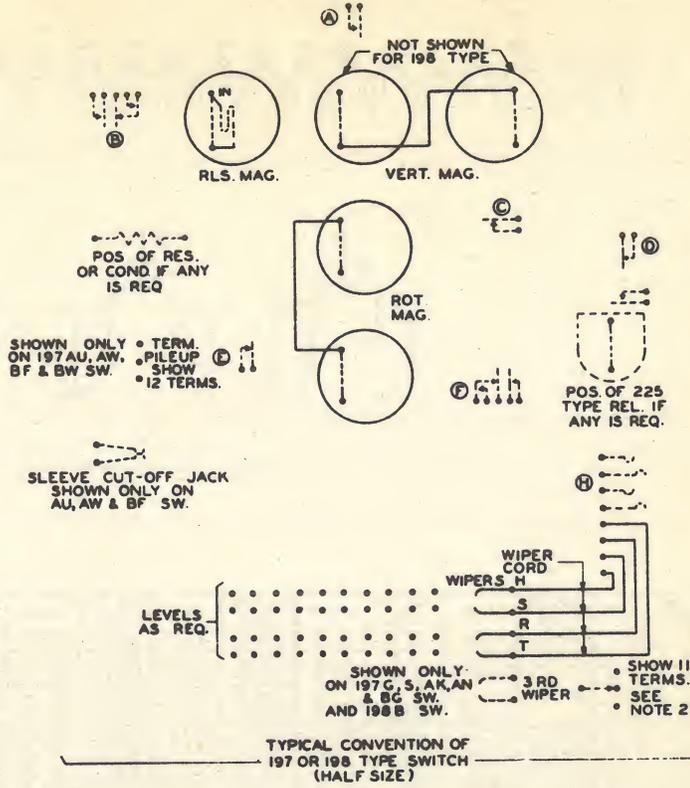


SPRING & JACK ARRANGEMENTS

BANK CODE	CONV. NO.
20A	35
21A	36
22A	35
22B	35
24A	35
25A	35
30A	35
31A	35



BANKS
SEE NOTE 1



TYPICAL CONVENTION OF
197 OR 198 TYPE SWITCH
(HALF SIZE)

- NOTES:
1. BANK WIRING IS TO BE SHOWN IN SEPARATE FIGURE
 2. COMMUTATOR AND WIPER SHOWN ONLY ON S, AK, AN, AR, AU, AW, BA, BE, BG, BJ, BT & BU SWITCH.
 3. LETTERS IN CIRCLES ARE FOR REFERENCE ONLY TO INDICATE PROPER LOCATION OF SPRINGS.

SW. CODE	VERTICAL OFF-NORMAL SPRINGS (B)	ROTARY OFF-NORMAL OR ROTARY STEP SPRINGS (E)	RELEASE CONTACT SPRINGS (D)	ROTARY INTERRUPTER SPRINGS (C)	TEST JACK (H)	NORM. POST SPC. (A)	VERTICAL INTERRUPTER SPRINGS (G)	SW. CODE	VERTICAL OFF-NORMAL SPRINGS (B)	ROTARY OFF-NORMAL OR ROTARY STEP SPRINGS (E)	RELEASE CONTACT SPRINGS (D)	ROTARY INTERRUPTER SPRINGS (C)	TEST JACK (H)	NORM. POST SPC. (A)	VERTICAL INTERRUPTER SPRINGS (G)
	CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.		CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.	CONV. NO.
197A	1	5		21	26			197AR	12	11		6	25	21	
197D	1	15		21	32			197AU	9	8	12	2	27	21	
197E	9				33			197AW	9	12	12	2	34	21	
197F	16				31			197AY	13	11	15	21	26	1	
197G	10				28			197BA	12	11	15	21	25	21	
197H	10				26			197BB	13		15	21	27	1	
197J	10			21	27			197BC	10				26		
197K	10				33			197BD	13	11	15	21	26	1	
197L	16			21	32			197BE	12	11	15	21	25	21	
197M	3	15	21	21	32			197BF	10			21	32		
197N	10	17			26			197BG	9	18		21	23	21	
197P	10			21	27	15		197BH	1	5	12	21	26		
197R	9				33	15		197BJ	12	11		6	25	21	
197S	12	15			29		21	197BM	9				27		
197T	3	5		21	26			197BN	3	15	21	21	32	15	
197AB	22				31			197BP	13	11	15	21	27	1	
197AD	13	11		21	26	1		197BR	13	11	15	21	27	1	
197AE	13	11		21	27	1		197BS	1	19		21	27	15	
197AF	3	5		21	26	15		197BT	3	5	20	21	30		
197AG	9				26	15		197BU	3	5	5	21	27		
197AH	9			21	27	15		197BW	3	15	21	21	32		
197AJ	1	5		21	26	1									
197AK	4	11		21	29		21								
197AM	1	5		21	27			198A		14			27		
197AN	3	12		6	23		21	198B		7			28		
197AP	9	15			24			198C		7			28		

197, AND 198 TYPE SWITCHES

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