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ISSUE II

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STANDARD DRAFTING PRACTICES FOR THE PREPARATION OF ASSEMBLY, EQUIPMENT, AND CABLING DRAWINGS

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STANDARD DRAFTING PRACTICES FOR THE PREPARATION OF ASSEMBLY, EQUIPMENT, AND CABLING DRAWINGS

1. GENERAL

1.01 This specification, together with the supplementary information herein referred to, covers the standard drafting practices for the preparation of systems 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, and it may transmit marked prints or rough sketches as required. 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 drawing orders. Where such changes are made verbally, they should be confirmed by supplementary drawing orders.

Draftsman's Responsibility

1.04 The draftsman shall be responsible for the form and arrangement of drawings, in accordance with the requirements herein covered. All deviations from this procedure shall first be approved by the drafting supervisor.

1.05 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.

1.06 Every effort shall be made to meet the "Due Engineer" date shown on the drawing order. Cases where this cannot be done shall be referred to the drafting supervisor, if possible, one week before the due date.

Supplementary Information

Cabling

AA612.001	Wiring symbols, wiring abbreviations and definitions
AA612.003	Design of cable forms
AA612.004	Stripping and butting switchboard and lead covered cables
AA612.005	Forming, fanning, sewing, and skinning
AA612.006	Connecting and soldering individual conductors
AA612.010	Placing and supporting cable forms
AA612.013	Strapping
AA612.014	Dressing of skinners
J90101	Switchboard cables

Data Books

Floor plan
W.E.Co. material stock lists
Power

Finishes

AA611.004	Finishes recommended for equipment purposes

Installing

AA614.005	Auxiliary framing, low type
AA614.006	Auxiliary framing and supports, high type
AA614.007	Cable racks
AA614.009	Rolling ladders
AA614.018	General installation requirements

Lantern Slides

X-64284	Lantern slide media

Manufacturing Standards

Bulletins 16.001 and 16.009 - Tolerances

Metalwork

AA611.002	Metalwork

Miscellaneous

Tel.App.Dev. Bulletin 2	Dry cells and batteries
Tel.App.Dev. Bulletin 6	Raw materials
Tel.App.Dev. Bulletin 26	Sources of information
AA128.006	Checking list division AA600 general equipment requirements
AA612.016	Schematic conventions
X-62724	Schematic drawings, drafting information
X-62725	Wiring diagrams, drafting information

Numbering and Lettering

AA613.001	Abbreviations and symbols used for telephone equipment
AA613.002	Common requirements
AA613.003	Apparatus and equipment A to E (Apparatus panels to drops) - Specific requirements
AA613.004	Apparatus and equipment F to I (Filters to interrupters) - Specific requirements

AA613.005	Apparatus and equipment J to Q (Jacks to protectors) - Specific requirements
AA613.006	Apparatus and equipment R (Relays to retardation coils) - Specific requirements
AA613.007	Apparatus and equipment S to Z (Selectors to varistors) - Specific requirements
AA613.009	Numbering and lettering - Crossbar equipment
AA618.301	Rotating machines, rectifiers, batteries, and control equipment
AA618.302	Power panels and miscellaneous equipment

Power Equipment

AA618.001	Power plant and distributing frame protective grounding system
AA618.002	Conduits and conduit fittings
AA618.003	Power panels and associted apparatus in power plants
AA618.004	Miscellaneous power equipment

Woodwork and Associated Materials

AA611.001	Woodwork and associated materials
AA611.003	Asbestos composition panels

Drawings for Reference

ED-90062-01	Location of keyshelf braces for various types of keyshelves
ED-90203-01	Keyshelf details for keyshelves 1-1/4" thick
ED-90368-01	Keyshelf details for phenol fibre faced keyshelves 7/8" thick
ED-90458-01	Terminal strip supports, assembly
ED-90459-01	Terminal strip supports, method of mounting
ED-90484-01	Relay rack ground bus bar connections
ED-90671-01	Relay rack assemblies I-beam uprights
ED-90672-01	Relay rack assemblies channel uprights
ED-60254-02	T.S., common cover, cover supports
ED-61166-01	Covers for 19" panels
ED-90929-01	Standard steel panels, 19"
ED-90064-01	Fibre faced wood panels
ED-20672-01	Panel system, guard rail
ED-20081-01	Panel system frame details
ED-20446-01	Method of figuring lengths of connecting shafts
ED-90492-01	Universal type keyshelf, details
ED-90198-01	Plugseats
ED-90002-01	Flush panels
ED-90225-01	Cable rack clamp assemblies
ED-90395-01	Relay rack unit assemblies
ED-90978-011	Casing - sender type
ED-91201-01	Construction of plugshelves with plug drillings
ED-25020-01	Miscellaneous mounting details and cable brackets
ED-25022-01	Multicontact relay mounting assembly
ED-25023-01	Frame details, No. 1 and tandem offices
ED-25025-01	Fuse panel assembly
ED-25028-01	Unit assembly
ED-25260-01	Steel panels, 20-1/2", 23", and 30-1/2" lengths.
ED-61470-01	Mounting assemblies and details, dry battery shelf
ED-61507-01	Mounting assemblies and details, coils, condensers, meters, and binding posts
ED-61508-01	Mounting assemblies and details, recessed and projected mounting of apparatus
ED-61509-01	Miscellaneous small parts and details for mounting apparatus
ED-61753-01	Cable duct type framework assembly
ED-61887-01	Panel, cover, and support assembly
ED-80483-01	Power board mounting framework
ED-80753-01	Fuse panel - numbering and lettering
ED-90185-01	Mounting details, repeating coils
ED-90674-01	Cable brackets and miscellaneous supports
ED-90782-01	Relay rack unit framework, assembly
ED-91152-01	Distributing frames, common details
ED-91183-01	Relay rack assembly, bulb angle type
ED-91561-01	Mounting plates, space required for their support
ED-91593-01	Fuse panel design, details
ED-91590-01	Relay rack channel type, sheet metal base
ED-90507-01	Portable writing shelf, assembly
ED-90273-01	Adapter details, plates, and panels
ES-392006	Location of equipment code designations

1.07 The BSP Sections, Bulletins, Data Books, Drawings, and Specifications listed above cover supplementary information which shall be considered as a part of this specification in so far as it applies to the preparation of Assembly, Equipment, and Cabling Drawings.

1.08 The Floor Plan Data Book is prepared in loose leaf form and contains fundamental dimensions used by the Western Electric Company and Telephone Companies in laying out Central Office and PBX floor plans.

1.09 The Power Data Book is prepared in loose leaf form and contains card catalogue information on power equipment of outside manufacturers.

1.10 Manufacturing Standards 16.001 and 16.009 are issued by the Western Electric Company. They cover Standard Manufacturing Tolerances and are intended as a guide in determining the use of limiting dimensions and to indicate the quality of workmanship required.

1.11 General Use Parts Book contains a list of all central office piece parted screws, nuts, washers, studs, pins, and such miscellaneous items.

2. GENERAL REQUIREMENTS

Form

2.01 Drawings shall be so planned that they may be accommodated by the standard tracing forms provided for these purposes.

2.02 Title box, notes, and approval column shall be arranged as shown on Page 39.

2.03 Standard tracing forms may be converted in order to accommodate slightly longer and

narrower layouts without increasing the actual over-all size of the drawing. In such cases the title box is moved from the lower right to the upper right-hand corner as shown on Page 37, Fig. A. Where this is done, the drawing number appears in three places as indicated.

Layout Planning

2.04 The view showing the greatest amount of useful information shall be selected as the main view, and the other views projected from it. A sufficient number of views and sections shall be shown in order to facilitate identification as well as indicate clearly the details and method of construction. The arrangement shall be so planned that the drawing presents a neat appearance and a well balanced layout.

2.05 In general, the various views, when required, shall be arranged as follows:

(a) Left View - To left of main view

(b) Right View - To right of main view

(c) Plan View - Above main view, when main view becomes the elevation.

(d) Main View - In lower left corner of drawing, except where a left view is shown when the main view is moved over to the right as far as necessary to provide space for the left view.

(e) Rear View - Above or to right of front view, as required.

(f) Miscellaneous Views, Details, Figures, or Sections - Arranged in sequence from left to right or from top down, as required by particular layout.

2.06 Both front and rear views are usually required only when apparatus is mounted on both sides of a panel or equipment assembly.

2.07 Partial views may be used when required provided they do not detract from the general appearance of the particular layout.

2.08 Reserved space on tracings or specification sheets shall be disregarded unless it is certain that additions will be made before the drawing is issued.

2.09 Where it appears necessary to deviate from the practices for layout planning, the matter shall be discussed with the drafting supervisor.

Scale

2.10 The scale to which a drawing is made shall be shown in the title box as shown on Page 39 except on piece parts, drawings containing details only or on which no dimensions are shown. As a rule, apparatus shall be drawn to scale, and dimensioned in such manner that the engineer may readily check for proper clearances.

2.11 When figures are drawn to full size or less, the scale shall be expressed as follows:

Scale: full size
Scale: 3"= 1 ft. and etc.

When drawings are drawn oversize, the scale shall be expressed as follows:

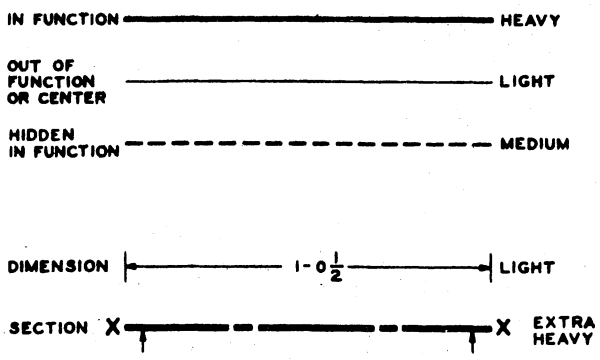
Scale: $\frac{2}{1}$

Scale: $\frac{4}{1}$ and etc.

Line Characteristics

2.12 All lines shall be clean and black so that the tracing will yield good copy. Hidden lines shall be used sparingly and only where sections or separate views cannot be conveniently shown.

2.13 The actual width of each type of line, in general, shall be governed by the size and style of the drawing. Relative line types and widths are shown below.



Titling and Lettering

2.14 Lettering shall be done with the letters fairly close together. Spacing between words shall be approximately the same as the height of the letters. See Page 39.

2.15 All lettering shall be vertical, using guide and pen numbers as indicated on Page 39. The 140V guide and No. 2 pen shall be used for figures, sketches, views, and sections. The 100V guide or larger shall be used on all drawings which may be reproduced.

2.16 Where work is intended for reduction, extreme care shall be exercised in the selection of letter sizes and spacing. This is imperative in order to preserve the clarity of the reduced size copy. See Pages 35 and 36.

2.17 In the preparation of charts intended for display purposes and charts and drawings from which lantern slides are to be made, special precautions are required in order to insure satisfactory legibility. Legibility factors and other information for the preparation of such charts or drawings are covered by specification X-64284.

2.18 Drawing titles or changes in titles shall be approved by the Methods Department. Such approval appears to the left of the title box on the drawing order form.

Protection of Tracings

2.19 All tracings held by the draftsman and not actually on the board, shall be kept rolled on the regular paper tubes provided for this purpose.

Reproduced Tracings

General

2.20 The drafting supervisor shall be consulted in those cases when a tracing requires a redraw or retrace and it is apparent that it would be cheaper to have a reproduction made of it.

Tracings Reproduced by "See Bee" Process

2.21 A reproduction of a tracing by the "See Bee" Process is a contact print made by printing from a negative vandyke on specially prepared tracing cloth and then developing it in practically the same manner that a picture is printed from a photographic film and developed.

2.22 Reproduced tracings can be obtained with parts blocked out as required.

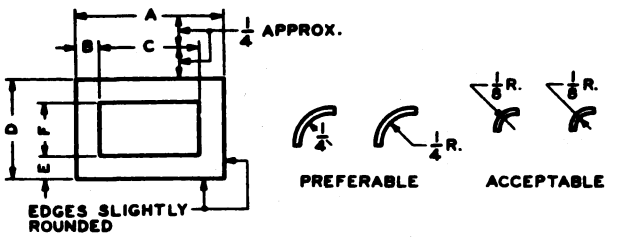
2.23 Before inkwork is placed on a reproduction, the surface shall be thoroughly dusted with pounce. Particular care shall be taken not to use the bare hands or a brush for rubbing in the pounce. A clean cloth will do the work much better and will greatly eliminate the chances of foreign matter getting on the tracing. The method of applying ink is the same as on regular tracing cloth. As much line work as possible shall be removed by means of a moistened felt pad. Where this is not practical, hand erasing may be tried, but in no case should the erasing machine be used on this type of tracing.

"Wash Out" Process For Specification Figures

2.24 The subject to be drawn is photographed and a print is made on P.M.C. No. 5 bromide paper enlarged to a size that will show the details clearly. The outlines of the details are inked in; the thickness of lines to be gauged by a standardized line gauge in accordance with the final reduction of the figure for the specification. The inked print is bleached in an iodine-cyanide bleacher. The dried print is touched up, the shading lines drawn in and then pasted on bristol board. The specification figure is reproduced from this master figure.

Dimensions

2.25 Dimensions shall be cumulative from one point only. Those under one foot shall be expressed in inches and those of one foot or over shall be expressed in feet and inches. The dimensions shall be neatly arranged and where possible shown outside the objects drawn, as follows:



2.26 The dimensioning of associated drillings or apparatus shall be made independent of other non-associated dimensions. For example, in a fibre faced panel where there are drillings for cover supports as well as for equipment, the dimensions for the drillings for the cover supports are independent of the dimensions for the drillings for the equipment, and therefore, shall not be located from nor associated with one another. The cover supports shall be located from the edge of the panel to the first support, and from there to other supports.

2.27 The same method of dimensioning also applies for various equipment and assembly drawings where particular pieces of equipment have a certain relation to each other rather than to the adjacent piece of apparatus.

2.28 Fraction lines shall be horizontal thus: $\frac{5}{8}$ except in congested notes or stocklists where a slanting line may be used thus: 5/8.

2.29 Sufficient dimensions shall be shown to permit manufacture without change and to satisfy engineering requirements. However, dimensions which are wholly arbitrary shall be avoided.

2.30 Dimensions locating apparatus mounting plates, panels, and projecting brackets or bars shall be shown on bay layouts. See Page 74.

2.31 Where uncoded apparatus panels are specified, all pieces of apparatus shall be located to center lines. Where layouts of holes are not available, complete drilling information shall be provided.

2.32 Various methods are used in specifying dimensions on drawings. For example, a dimension may be specified as follows:

$\frac{1}{4}$, .250, .250 $\frac{+.002}{-.002}$, .250 $\frac{+.001}{-.003}$, or $\frac{\text{max. } .252}{\text{min. } .248}$

2.33 In order that the sifnificance of each method may be understood the following brief explanation is given:

(a) Example: $\frac{1}{4}$

This illustrates a nominal dimension. It has no tolerances affixed nor limits expressed. Tolerances in accordance with the standard specification shall apply.

(b) Example: .250

This will be specified where it is advisable to use decimals for facility in figuring or associating with other dimensions. It differs from the 1/4 dimension only in that it is given in decimal form.

(c) Example: $.250 \begin{matrix} +.002 \\ -.002 \end{matrix}$

This shall be specified where it is necessary to hold the dimension of .250, which is the basic size, within a certain value irrespective of the tolerances. The tolerance of plus and minus .002 is the maximum variation permitted to insure proper functioning, interchangeability, and association of part or apparatus.

(d) Example: $\begin{matrix} \text{Max. } .252 \\ \text{Min. } .248 \end{matrix}$

In this case maximum and minimum values have been established to meet certain conditions. These values represent the maximum or minimum size permitted to insure functioning, interchangeability, and association of part or apparatus.

Apparatus Code Numbers

2.34 Full apparatus codes shall be shown on all equipment drawings.

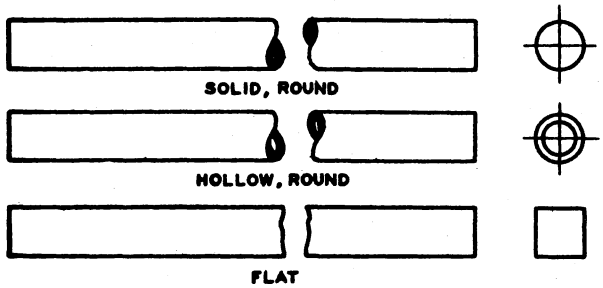
2.35 Special apparatus is covered by "D" specifications. Examples of cases where special apparatus is required are: drilling of mounting plates different than standard, extra contacts on keys, and special base or terminal arrangement on terminal strips. When referring to "D" specification apparatus give type as well as specification number, for example: H rel. per D-31235.

2.36 When lamp caps are shown give color and code, for example: 2H, L.C. Red.

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

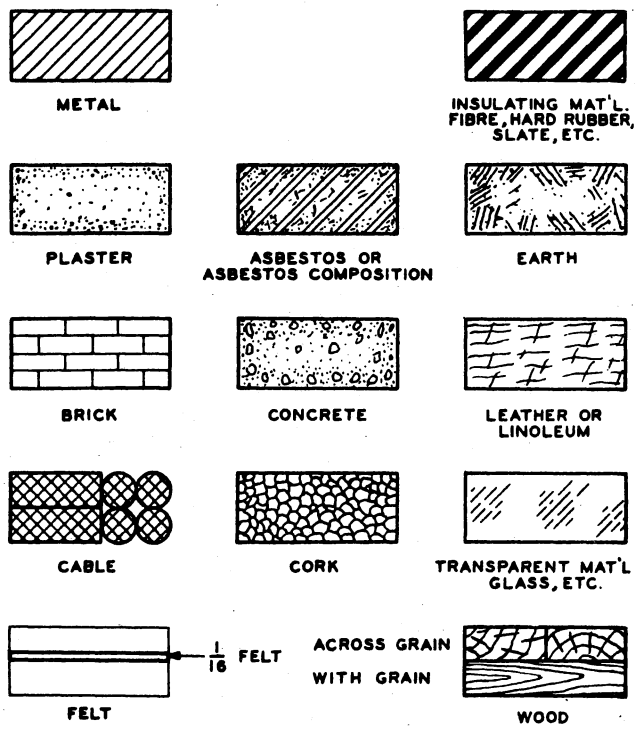
Break Lines

2.38 Break lines shall be shown as indicated below. In general, break lines shall be avoided wherever possible.



Cross Sectioning

2.39 Cross sectioning symbols for various materials are as follows:



Equipment Designation to be Rubber Stamped

2.40 Standard numbering and lettering information is covered in the BSP sections listed under Supplementary Information, Section 1 of this specification. When special conditions as for example size and color, not covered by these BSP sections are involved, the specific requirements shall be covered on the particular drawing.

2.41 Drawings shall show the exact numbering and lettering which is to appear on the finished product. On mounting plate units and panel equipments, the numbering and lettering shall appear on the apparatus side only.

Erasures

2.42 Erasures shall be made only with the regular approved erasers provided for this purpose. Under no circumstances shall erasures be made with knives, razor blades, or hard erasers.

Grouping Information

2.43 A group number shall be assigned to each division of a drawing on those drawings where it is intended to cover the equipment shown thereon by a code and where it is necessary for the Western Electric Company to follow the arrangement as set up on our drawings. This is the only instance where groups shall be assigned on equipment drawings.

2.44 A part or small assembly of parts shown on an assembly drawing, which is to be ordered as a part of a "J" specification assembly or which may require identification, may be assigned a group number and placed in the drawing stocklist.

2.45 Figure numbers may be assigned, merely for the mechanical set-up of a drawing, to identify various parts of a drawing.

2.46 A table for groups as indicated on Page 40 shall be shown on equipment drawings only when required.

2.47 When a group is rerated, a note shall be placed in the note column to this effect, for example: "Group X Mfr. Disc. replaced by Group XX" and the group affected designated "See Note----." In cases where equipment, which includes wiring, is called for in the grouping table on ED drawings it is necessary to mention the circuit drawing number, for example: "Group 1 Complete switch with equipment and wiring per SD---------".

Inking-in Drawings

2.48 Inking shall be done with approved moisture resistant ink.

2.49 In general, ink shall be applied on the dull or front side of the cloth to permit photographing for reproduction purposes.

2.50 When tracings are on change, the draftsman shall retouch all indistinct portions of the drawing. Where tracings are in poor condition they shall be referred to the drafting supervisor who will determine whether a redraw is justified.

Parentheses and Brackets

2.51 When designations are shown on apparatus for wiring information only they shall be enclosed in brackets and a note "Designations in [ ] are for wiring information only and shall not be stamped" shall be shown in the manufacturing note column.

2.52 Reference to figures, apparatus codes, piece parts, or notes shall not be shown in parentheses.

2.53 When all the equipment designations shown on a drawing are typical, the following note shall be shown in the note column:

"The designations shown on the drawing are for illustration purposes only and shall be stamped in accordance with job requirements."

2.54 When only a limited amount of the designations shown on a drawing are typical the following note shall be shown in the note column:

"Designations in ( ) shall be stamped in accordance with job requirements."

Where the numerical designations shown on equipment drawings are typical the following note shall be shown:

"Numbering in ( ) shall be stamped in accordance with job requirements."

Piece Part Notations

2.55 Piece parts shall be shown on drawings wherever possible. For parts other than screws, nuts, and washers, show the P- number without the name of part on the body of the drawing whether the drawing has a stocklist or not. Piece parts for screws, nuts, and washers shall be as indicated on Page 143.

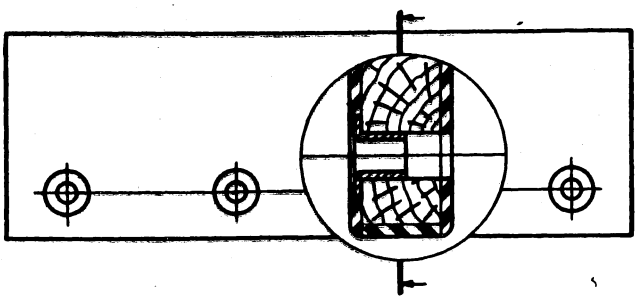
2.56 When piece parts are shown, the following note shall be shown in the note column:

"Piece parts or their equivalents shall be used." or,

"Piece part or its equivalent shall be used."

Spot Views

2.57 A small detail view or section to clarify a drawing may be shown by means of a spot view or spot section similar to that illustrated. Separate views or sections shall be shown for the larger details that cannot be conveniently drawn by the above method.



Typical Standard Forms for Notes

2.58 When the notes shown below are used, the name of the finish shall be given as well as the code number:

"All woodwork shall be given a ---------- finish unless otherwise specified."

"All exposed woodwork shall be given a ---------- finish."

"All unexposed woodwork shall be given a ---------- finish."

"All framework and iron details shall be given a ---------- finish."

2.59 Superseded or Replaced Drawings: When a drawing is retraced or reproduced and re-

tains the original number, a note shall be placed on the drawing above the title box as follows:

"Superseded by ED-------01 Iss.-"

On replaced or partially replaced drawings, the following type of note shall be added:

"Replaced by ED-------01" (No issue required)

2.60 "Replacing-----" notes shall be shown only when specifically requested by the engineer. See Page 39.

3. ASSEMBLY AND EQUIPMENT DRAWINGS

General

Apparatus Blanks

3.01 Apparatus blanks are not required in unequipped jack and lamp positions in relay rack jack fields except where an attendant is required at the equipment, or where operating conditions require their use.

Apparatus Conventions

3.02 Show apparatus conventions on equipment drawings as outlined on Pages 121 to 141.

3.03 Conventions shall be drawn to scale, or as near to scale as possible, in order that the equipment drawing will present a balanced appearance, provided designations can be clearly shown. Conventions for rectangular relays are an exception and shall be drawn as covered on Pages 10 and 11.

Coils

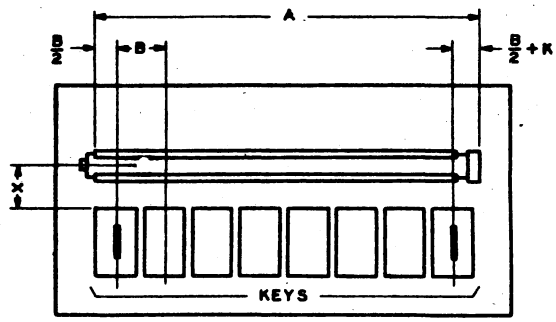
3.04 Coils shall be mounted so that the lower numbered terminals are at the left or bottom, facing the terminals. Where coils of the 94 repeating coil type are mounted in a horizontal position, a note shall be placed on the drawing as follows:

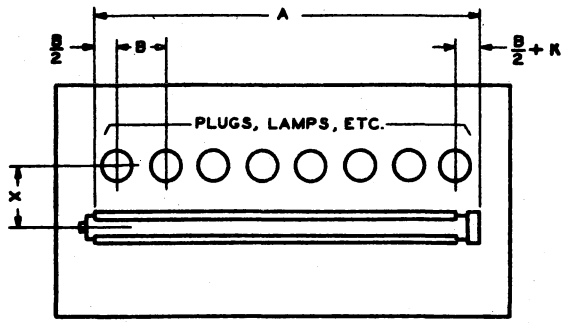
"The coils shall be mounted with the lower numbered terminals at the right facing the apparatus side."

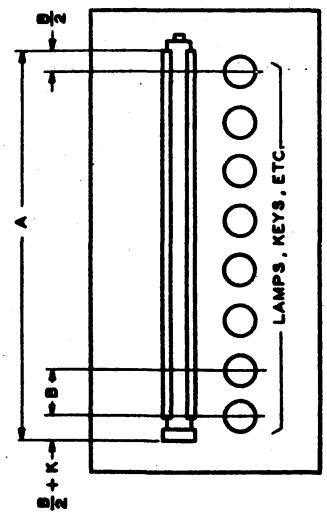
Designation Strips

3.05 On panels mounted in vertical planes, such as face equipments of switchboards, etc., designation strips shall be arranged so that the celluloid strips may be inserted from the left in horizontally mounted strips as illustrated. In vertically mounted designation strips the celluloid strips shall be arranged to be inserted from the top as illustrated. When the panel is mounted in a horizontal plane, as a keyshelf, the celluloid strip is inserted from the front.

3.06 The length of 8L, 8M, and 8AB designation strips shall be determined by the following formula:







A = NB+K, where

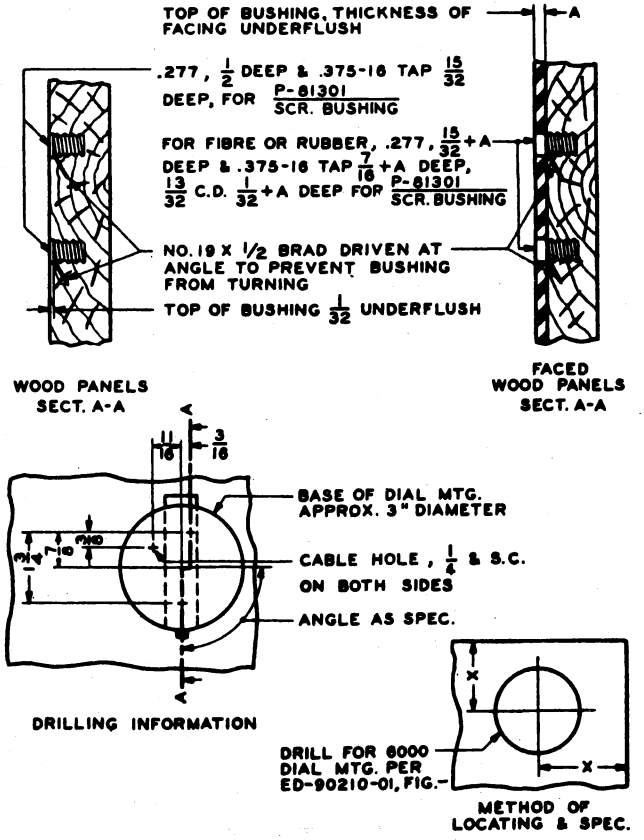
A = Specified length of designation strip.
N = Number of keys, lamps, or plugs.
B = Distance between centers of keys lamps, or plugs.
K = 1/8" for 8L and 8M designation strips.
5/16" for 8AB designation strips.

Designation strips shall be figured to the nearest 1/8" dimension. However, when the dimension is such as 7-13/16" the next eighth greater or 7-7/8" shall be used.

3.07 "X" dimension shall be based on a preferred clearance of approximately 1/16" between the edge of the apparatus and the edge of the designation strip.

Dial Mountings - 6000 Type

3.08 The following figure gives drilling information for No. 6000 dial mountings when mounted on keyshelves and wood or fibre faced panels. The method of locating and specifying dial mountings is also shown. When a keyshelf is arranged for a dial and no dial is furnished the bushing shall be plugged with a P-407320 apparatus blank and the cable hole with a 41B apparatus blank.



Fuses

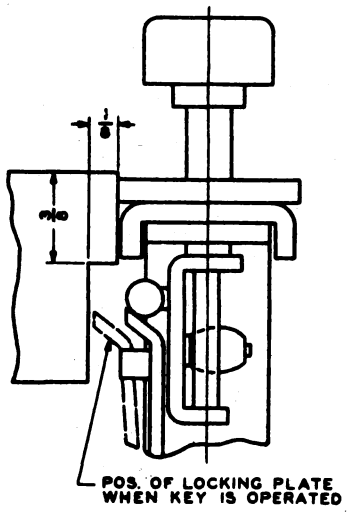
3.09 35 Type Fuses, (Non-flashing Type): The 35J, 1/2 ampere and the 35P, 3/4 ampere fuses are required for use in repeater plate battery circuits and similar circuits using 90-160V. 105V ringing and 110V coin control circuits are not included under the term "similar circuits". The 35K 1-1/3 ampere, 35L 2 ampere, 35M 3 ampere and 35N 5 ampere fuses are for use in circuits of 90-150V. As a general rule the code numbers of fuses are not shown on equipment drawings. However, when the 35J, 35K, 35L, 35M, 35N and 35P fuses which are equipped with a protective tube to prevent side flash and blowing an adjacent fuse are furnished, the code number shall be shown on the drawing. This is especially necessary when both a common fuse such as the 35F 1/2 ampere, and the 35J 1/2 ampere fuses are furnished on the same job so that the installer will insert the proper fuse in the circuit.

Jacks

3.10 Do not mount single lug jacks in wood panels. Always mount jacks so that the springs are in a vertical position when the panel is mounted.

Keys

3.11 When "E" type locking keys are mounted to the right of a shelf or panel greater than 1/2" thick a cutout shall be provided to clear the locking plate as illustrated in the view below.



Numbering and Lettering

3.12 All equipment designations to be rubber stamped shall be shown in accordance with BSP sections AA613.001 to AA613.007 and AA613.009. Section AA613.001 covers a list of abbreviations and these abbreviations shall be used for all rubber stampings, and for frame and rack designations on floor plan drawings and floor plan data sheets. All other abbreviations used on drawings and in notes shall be in accordance with the list of abbreviations shown on Page 19.

Number Plates

3.13 Number plates and similar apparatus with functional designations engraved or stamped thereon shall be shown with the designation placed within the convention. It may be necessary, in some cases, to enlarge the scale of the number plate to show the stamping. For a typical equipment see Page 75.

Outside Manufacturers' Parts

3.14 Where it is necessary to specify equipment or parts made by an outside manufacturer the notation of the equipment shall conclude "or approved equivalent", for example, "Hubbell 7251 cap or approved equivalent."

Terminal Strips

3.15 Designation of 100 and 101 Terminal Strips: The 100, 101, and similar type terminal

strips, where the mounting holes are not uniform with respect to the top and bottom of the blocks, shall show the relative location of the mounting holes in the view covering the stamping information in order to eliminate the possibility of the shop stenciling the terminal strip incorrectly with regard to mounting arrangement. Where more than one terminal strip of this kind is shown in a figure, it is satisfactory to show the location of the mounting holes on only the first terminal strip.

3.16 Designation of 203 Type Terminal Strips: The 203 type terminal strips mounted on the apparatus side of unit equipments shall be designated from left to right. When mounted on the rear, they shall be designated from right to left facing the wiring side to conform with the numbering of the associated equipment mounted on the apparatus side.

Desks and Test Sets

Desks

3.17 The method of showing and locating apparatus for desks is similar to that used for switchboard front and rear equipments and keyshelves.

Test Boxes and Portable Test Sets

3.18 The complete outline of all equipment in test boxes and portable test sets shall be shown in all views, as outlined on Page 77.

3.19 Test boxes shall be drawn to the scales as listed below which shall be adhered to as much as possible. In cases where the scale cannot be used to advantage the supervisor shall be consulted.

Test boxes up to 1'-2" shall be drawn full size.

Test boxes above 1'-2" shall be drawn half size.

3.20 The detailed construction shall not be shown on equipment drawings when covered on the assembly. Equipment supporting details not shown on assembly drawings shall be fully covered on the equipment drawings and, therefore, shall be shown in function (heavy lines).

3.21 Where equipment is generally mounted on the panel in small hand test sets it will be necessary to indicate clearly the heads of the panel mounting screws so that it can readily be seen that the equipment does not cover them.

3.22 Where three keys or less are shown the key levers shall be indicated on all keys. Where more than three keys are shown the first and last lever of each group only shall be indicated. The key top shall be shown in all cases. The side and end views shall show clearly whether the keys are surface or flush mounted. The extreme terminals only shall be shown. Care shall be taken to follow the standard specification when designating the types of keys used. Consult the supervisor if any deviation from the above is found desirable for any particular case.

3.23 The outside terminals on each key, etc. shall be indicated by a single heavy line.

3.24 Each A, B, C, or D type jack shall be shown by a circle. The frames need not be shown.

3.25 Lamps shall be indicated by a circle. If needed, give mounting angle.

3.26 The terminals on all coils and condensers shall be shown in their proper location so as to show definitely the position in which they are mounted.

3.27 Numbering and lettering shall be shown so as to read from that side which is considered the front. Care shall be taken not to have lettering reading in three different directions.

3.28 An outline of the box handles shall be shown on the plan view in all cases and on the side or end view only if they do not conflict with more important information.

3.29 The designations for the three main views shall be as follows:

Plan View, Side View, and Front View

Panel Dial Frames

Connecting Shafts and Drives

3.30 The method of figuring lengths of connecting shafts for single-sided frames is shown on Page 87.

3.31 The method of figuring lengths of connecting shafts for double-sided frames with 18, 20, 23, 26, 32, 46, 48, and 49 type drives is also shown on Page 87.

3.32 On all assembly drawings, drives shall be referred to as "type". On equipment drawings they shall be coded.

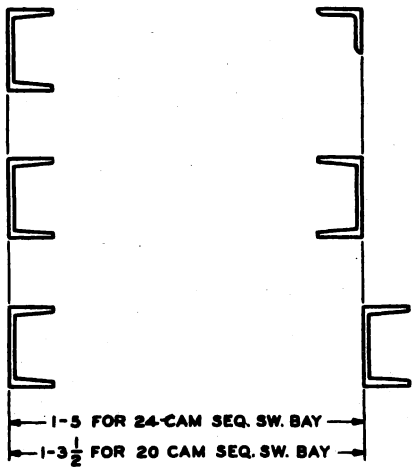
Dimensioning Bay Equipment Drawings

3.33 Locating information shall be given to the first equipment including banks, sequence switches, mounting plates, etc. from the bottom of the frame and also over-all dimensions and locating dimensions to fuse panels, jack boxes, sequence switches, etc.

Sequence Switches

3.34 The method of mounting sequence switches and interrupters and location of bearings is shown on Page 88. In all cases, when a frame contains sequence switches, the drawing shall indicate whether "A" or "B" types are used.

3.35 The minimum distances between sequence switch bay uprights on panel system frames arranged for 20 or 24 cam sequence switches are shown on the following page.



Thrust Bearings

3.36 The following table lists data on the use of thrust bearings:

Interrupter Code	Lift Force	See Note
166A	1 lb.	6.6 lbs.
B	.5 "	1.6 "
D	.5 "	1.6 "
E	1.8 "	1.8 "
G	1.6 "	1.6 "
H	.5 "	1.8 "
K	.5 "	1.6 "
M	.5 "	2.5 "
P	1.9 "	1.9 "
R	2.2 "	3.7 "
S	.8 "	1.8 "
T	3.7 "	3.7 "
U	1.8 "	1.8 "
W	.6 "	2.2 "
Y	.7 "	2.5 "
AA	1.4 "	1.4 "

Note: The figures in this column are to be used only when interrupters corresponding to those in the first column and equipped with 30 springs are used.

Weight of bronze shaft	1.125 lbs. per ft.
Weight of brass shaft	.4 lbs. per ft.
Weight of gear	.33 lbs.
Weight of disc.	.33 lbs.

3.37 If the lift is more than the weight of shaft, gears, and discs, a No. 10A bearing is needed.

3.38 If the lift or upward thrust of the drive is materially less than the weight of shaft, gears, and discs, a No. 10A bearing is not needed.

3.39 If the lift approaches or equals the total weight of shaft, gears, and discs the engineer should be consulted.

3.40 Interrupters of the 165 type exert no thrust.

3.41 The following is an example of the use of the above when it is desired to know whether a thrust bearing is required assuming that a 1AT shaft, which is 7'-4-3/4" long, is used with five 166P and three 166S interrupters and 16 sequence switches.

1AT shaft (approximately 7'-4") at .4 lbs. per foot	2.9 lbs.
8 gears at .33 lbs.	2.6 "
16 discs at .33 lbs.	5.3 "
Combined weight of shaft, gears, and discs would be approximately -	10.8 "
16 sequence switches (unknown factor - see note)	
5 166P interrupters at 1.9 lbs. lifting force	9.5 "
3 166S interrupters at .8 lbs. lifting force	2.4 "
Combined lifting force	11.9 "

Note: Sequence switches exert an upward or downward thrust dependent upon the alignment of the shaft with the axis of the switch. This force need not, however, be considered by the draftsman.

3.42 Since the lifting force is more than the combined weight of the shaft, gears, and discs in the above example, a thrust bearing should be furnished.

Mounting Plate

Designating Coils on Frame Units

3.43 The method of designating groups of coils on unit equipments when coils are mounted on both the front and rear of the unit is shown on Page 74.

Mounting Plate Equipment Drawings

3.44 Mounting plate equipments shall be drawn to a scale of 4" = 1 ft.

3.45 Supplementary framework such as unit assembly or bay framework shall be shown in full light lines if visible. Hidden parts shall not be shown unless their omission would lead to confusion.

3.46 Apparatus conventions shall be shown as outlined below. Show cross (+) for undrilled or drilled positions on drilled type plates, except on special "D" specification plates with positions on 1/16" centers the + for undrilled positions shall not be shown. Do not show + for unequipped positions on punched type plates. Note that unequipped positions are not shown or mentioned.

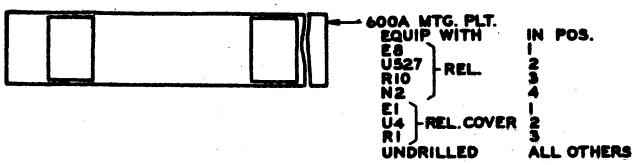
3.47 When relays, condensers, protector mountings, retardation coils, etc., are mounted in such a manner that they will overlap adjacent positions on the mounting plate making it impossible to equip these positions, an outline of the apparatus shall be shown on the plate as covered on Page 74 and the overlapped positions need not be shown.

3.48 See Pages 70, 71, 72, and 73 for numbering and lettering of mounting plate equipments.

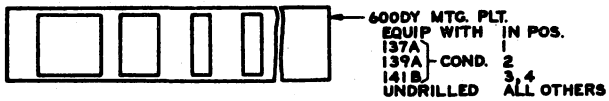
3.49 The following are examples of the methods used in specifying equipment:

(a) Apparatus Same Type And Shape

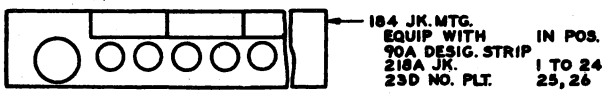
(1) In general, the first and last pieces of like apparatus in a row or the first and last pieces of the first and last circuit in a row are shown only. For rectangular relays, conventions shall be the same size regardless of actual size.



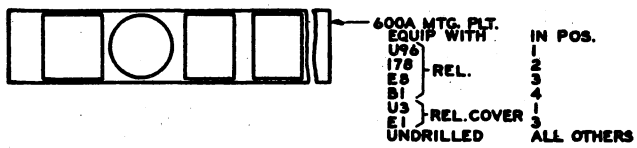
(2) For apparatus other than relays where there is a wide difference in size between adjacent pieces as a 137, 139, and 141 condenser (1-5/8", 1-5/16", and 1-5/32" wide) conventions shall be shown for each.



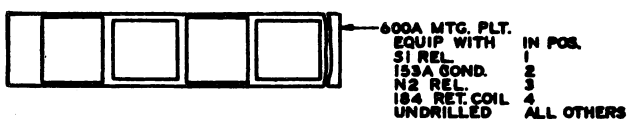
(3) Jack mounting with the designations shown on designation strip and making it difficult to associate the designation with the apparatus. Show convention for each piece of apparatus.



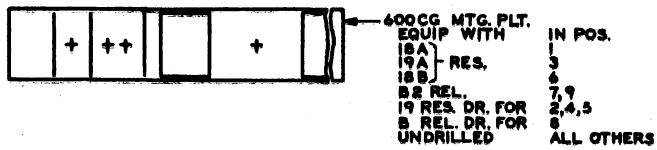
(b) Apparatus Same Type But Different Shape: Conventions are shown in intermediate positions because of difference in outside appearance of apparatus and conventions.



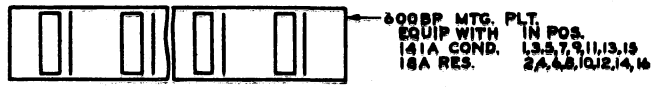
(c) Apparatus Differs But Appearance And Conventions Are Alike: Show conventions in intermediate positions where type of apparatus differs from that in adjacent positions.



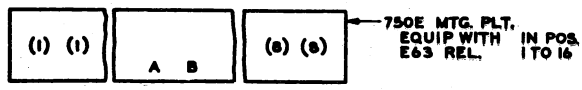
(d) Apparatus Adjacent To A Drilled Or Undrilled Position: Show conventions for apparatus adjacent to a drilled or undrilled position except where the same type and shape of equipment is mounted in a definite sequence as one position equipped - one not, one equipped - one not, etc., three or more times it shall be considered as a group and shown similar to other group arrangements. On "D" specification plates with positions on 1/16" centers where the undrilled positions are not shown; the convention shall be shown for apparatus adjacent to a drilled position but not adjacent to the undrilled positions.



(e) Multiple Circuit Arrangement: Show the first and last piece or set of apparatus of end circuits only.



(f) Mounting Plate With Common Cover: Show stamping which goes on cover, apparatus or both. No convention is shown unless for some reason the cover is not shown as for a modification drawing or when the unit mounts inside a casing, in which case, the plate shall be treated the same as drilled type plates.



3.50 Pages 70 to 73 show several examples of designating apparatus when it is mounted on jack ountings or on mounting plates on a relay rack or in a switchboard.

3.51 The standard numbering and lettering sections listed elsewhere in this specification illustrate the practices to be followed in designating and numbering the equipment.

3.52 Where a reference letter appears in parenthesis at the left end of a mounting plate the following notes shall appear in the note columns.

Manufacturing Notes

"The chart shall be mounted on the inside of the relay casing door on the wiring side of the frame."

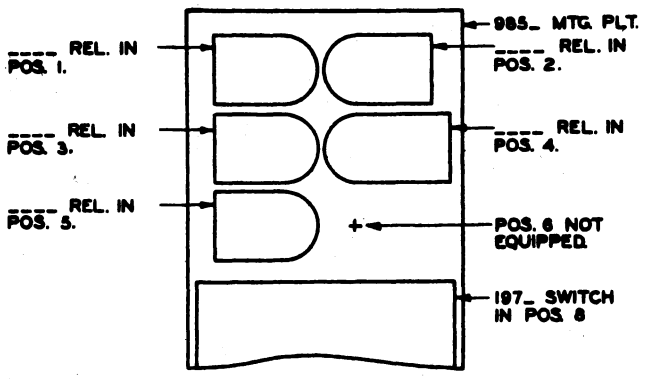
"Designations in [ ] shall not be stamped."

Engineering Notes

"A chart similar to ED-20033-01 shall be furnished covering the designations as shown in figure __."

"All relays with individual covers shall be furnished with the covers omitted unless otherwise specified."

3.53 On switch mounting plates, similar to the 985 used for step-by-step equipment, the apparatus in each position shall be shown and designated as indicated.



3.54 On panel equipment drawings, show numbering and lettering only on the view that the apparatus mounts on. A rear view shall be shown only when apparatus is mounted on front and rear. The cut-outs or dotted outlines for apparatus are generally omitted except when their omission would lead to confusion.

Switchboards

Front Equipment

3.55 The practice to be followed in laying out and arranging front equipments is illustrated on Page 75.

3.56 Number plates on all equipment drawings shall be shown except for the multiple number on front equipment drawings where the numbers only are shown.

Insulation

3.57 Exposed metal parts on the front of switchboards, at or below the keyshelf, such as keyshelf hinges, ticket holders, footrails, and similar parts are usually fastened so that they are not electrically grounded.

3.58 Exposed metal parts above the keyshelf, such as stile strips, are usually grounded.

3.59 The method of fastening rear door posts shall be such that they may be installed after the cable has been placed in the switchboard.

3.60 The method of insulating the keyshelf hinges is covered on Page 97 and on the keyshelf detail drawings listed elsewhere in this specification.

Keyshelves

3.61 General: The following general information shall be observed in so far as it applies when preparing keyshelf drawings.

(a) The over-all assembled length of the plugshelf shall be nominal dimension of space occupied $\frac{+0"}{-1/32"}$. The over-all assembled length of the keyshelf forward of hinge shall be a nominal dimension of 1/64" less than the plugshelf. This is accomplished by using a 3/16" separator on the plugshelf and 11/64" on shelf forward of hinge.

(b) For mounting universal keys with double bars use 3/4" x 1/8" bars; with single bars (except G type keys) use 43/64" x 1/8". For G type keys use 5/8" x 1/8".

(c) For keyshelves where nosing can be furnished in various depths use a 3/4" x 3/4" x 1/8" angle instead of a front key mounting bar. It will be necessary to mill one side of this angle to 43/64" or 5/8" for single bar mounting.

(d) Frames of keys shall be grounded. This is usually done with terminal punching, P-52955 mounted on the keyshelf frame end bar. In cases where key mounting bars are not fastened to the keyshelf frame end bar, (usually with single bar mounting) P-52955 shall be mounted on the key mounting bar nearest to the hinge and located centrally between two keys. In all cases the ground terminal shall be on the side of the keyshelf opposite to the cable bracket.

(e) Cable bracket shall be mounted on the side opposite to that of incoming cable.

(f) All exposed metal on the top of the keyshelf shall be insulated from ground.

(g) Calculagraph per KS-7796 shall not be grounded. In order to do this the mounting bars for the calculagraph shall be separate from those mounting the keys.

(h) Dimension between 4" x 1/2" OHW Scr., P-208989 for fastening rubber on plugshelf shall be maximum 4-3/4" minimum 2-3/4" with screws located on center line between plugs.

3.62 Bulletin Holders: The details of the flush type plate glass bulletin holder for keyshelves are covered in KS-5531. The method of fastening bulletin holders in keyshelves is covered on drawings ED-90368-01 and ED-90203-01.

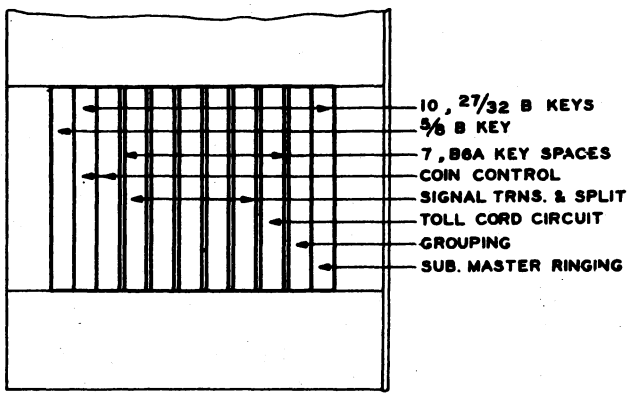
3.63 Flush Panels: See Page 101 relative to the requirements of keyshelf flush panels for A, B, C, E and G keys.

3.64 Framework Construction: See Page 97 relative to the construction of iron framework for keyshelves.

3.65 Standard details of construction and general requirements are covered by ED-90368-01 for 7/8" thick keyshelves, ED-90203-01 for 1-1/4" thick keyshelves and on ED-90492-01 for universal type keyshelves. Keyshelf drawings shall show the layout and only such details as are special. Page 97 shows a typical assembly.

3.66 The location of lamps, plugs, and number plates in keyshelves for various switchboards is shown on Page 98. It is essential that plugs and lamps be in alignment with their associated keys.

3.67 Groups of keys shall be indicated by means of arrows as shown in the following sketch. This method shall be followed on all keyshelf drawings.



3.68 Keyshelf Braces: ED-90062-01 shows standard locations of keyshelf braces. Page 99 indicates mounting requirements.

3.69 Plugseats: For data relative to single, double, triple row, or repeater plugseats see Page 100.

Rear Equipment

3.70 The practice to be followed in laying out and arranging rear equipments is illustrated on Page 75.

3.71 The type of apparatus and the mounting plate position number it occupies shall be listed to the right of the main figure of the drawing. Sections and partial views shall be shown above or to the right of the main figure.

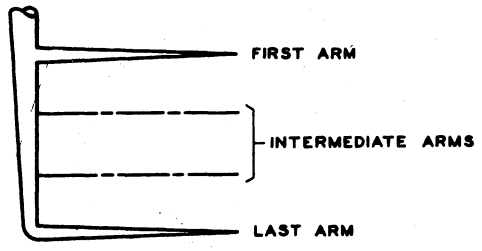
Roof Equipment

3.72 The practice to be followed in laying out and arranging roof equipments is illustrated on Page 76.

4. CABLING

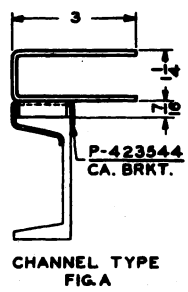
Cable Arms on Local Cable Forms

4.01 Where a number of similar cable arms are brought out of a local cable form as in the case of a group of mounting plates containing relays, etc., it shall be the practice to show only the first and last cable arms and to show the intermediate arms by heavy dash dot dash lines as shown above.

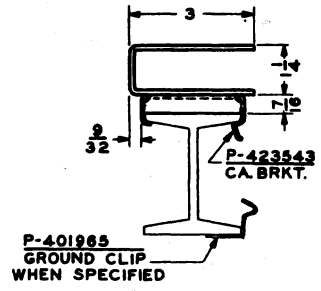


Cable Brackets

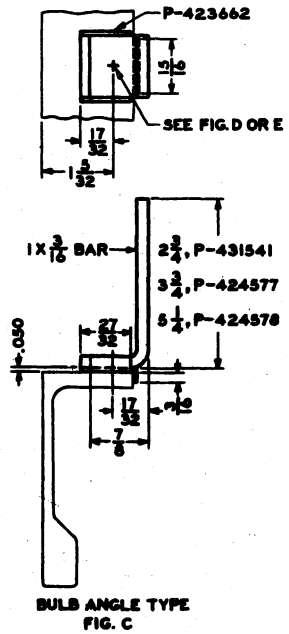
4.02 Cable brackets for I-beam and channel relay racks are shown on ED-90674-01 and for bulb angle on ED-25020-01. The basic dimensions are shown below.



CHANNEL TYPE
FIG. A



I BEAM TYPE
FIG. B



BULB ANGLE TYPE
FIG. C

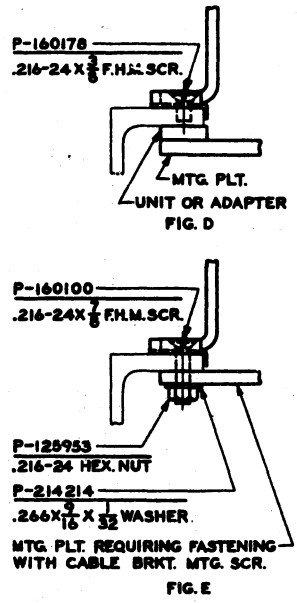


FIG. D

FIG. E

Cable Rack Convention

4.03 On standard cabling plan drawings it will not be necessary to show the cable rack

in detail. A single heavy line convention like the following will be satisfactory. ┌──┐

Local Cable Design

General Shape of Forms

4.04 Forms should, in general, follow the contour of the equipment framework and conform to the arrangement of the associated apparatus. Where possible, forms should be so designed that all required bends and arms can be made while forming the cable. Bends in directions other than in the plane of the form should be avoided. Where unavoidable, sufficient distance between the breaking out points of the arms and skinners should be allowed to permit making such bends when the form is installed. "Ladder" type forms should be avoided where possible.

Forms for Hinged Parts

4.05 Forms which serve hinged parts such as the keyshelves of switchboards, the swinging gate type rear equipments of PBXs, and similar constructions require particular care in design to provide for the proper movement of the form. The design of such forms should permit the necessary movement of the form by a twisting motion in preference to a bending motion. The part of the form subjected to twisting should be as long as practicable.

Forms with Both Vertical and Horizontal Arms

4.06 Both vertical and horizontal arms may be used on the same unit particularly in cases where the unit contains mounting plates arranged throughout for apparatus such as 18 or 19 type resistances mounted on close centers and it is desirable for space saving reasons to concentrate the resistances on mounting plates served by horizontal arms. Both vertical and horizontal arms will usually be used on power boards.

Forms with Horizontal Arms

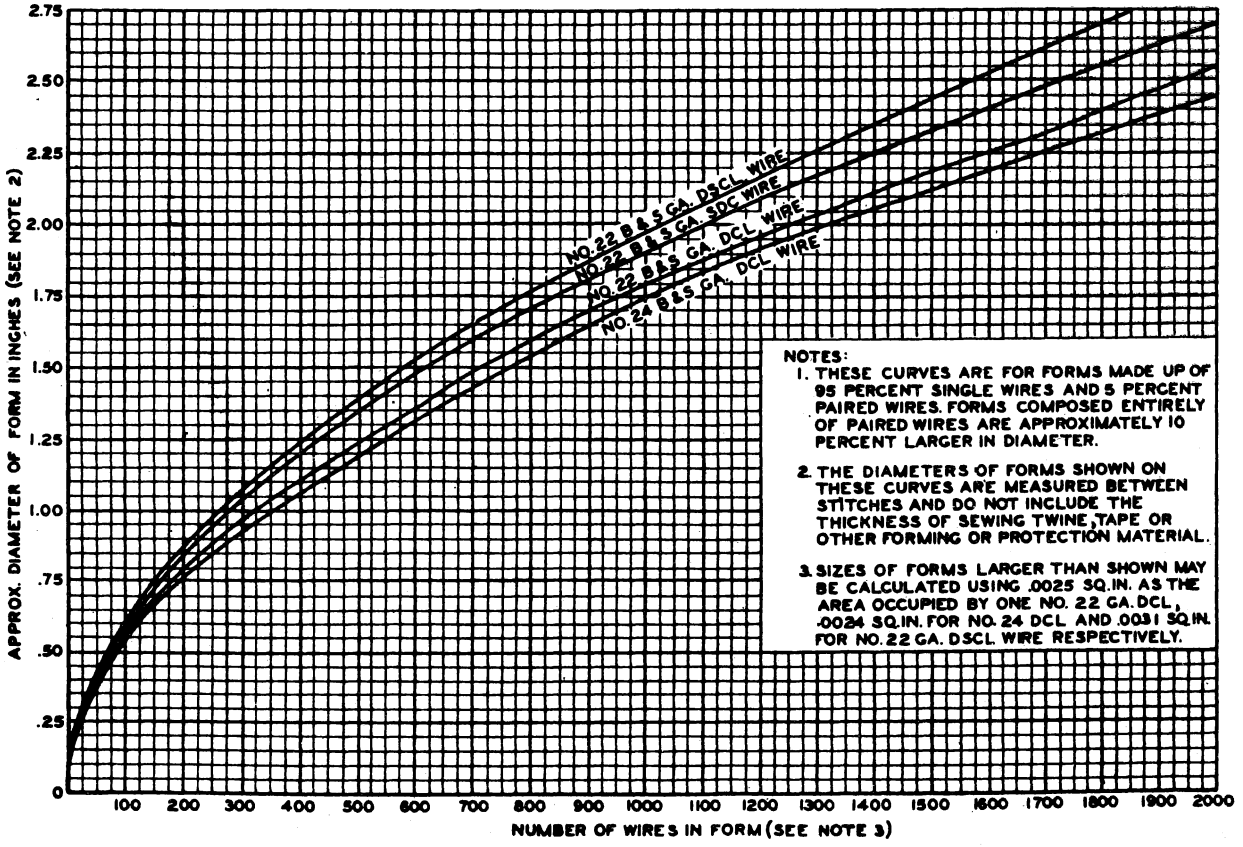
4.07 Horizontal arms should be used in cases where the apparatus of a circuit group is located on one horizontal mounting plate or on two adjacent horizontal mounting plates. One arm for each two adjacent mounting plates may be used wherever it is advantageous to do so and the number of loop wires or "F" stitches is not excessive.

Forms with Vertical Arms

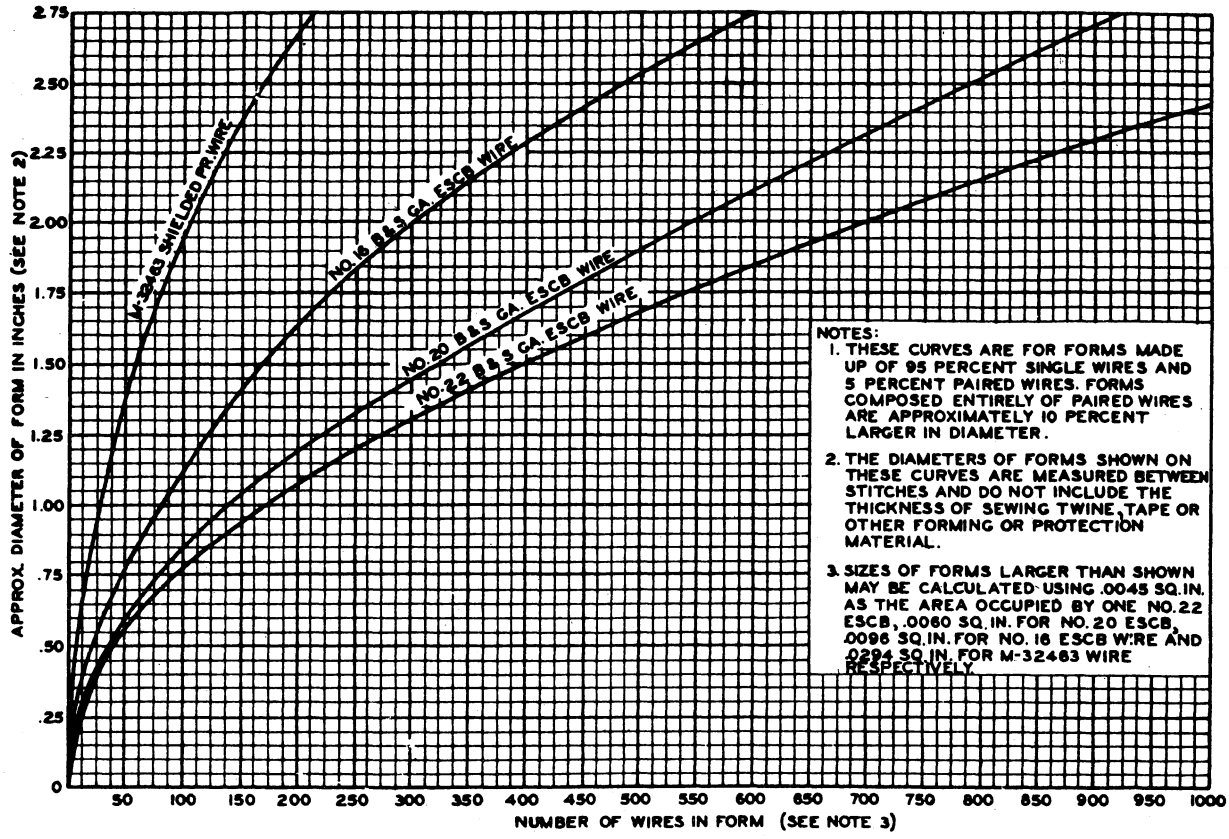
4.08 Vertical arms should be provided where the apparatus in each circuit of a circuit group is located on three or more adjoining horizontal mounting plates and is in approximate vertical alignment.

4.09 One vertical arm should be provided for each circuit, as follows:

(a) Where the apparatus is arranged two apparatus positions per circuit on all mounting plates.



Approximate Number of 22 and 24 Gauge Wires with Served Insulation in Forms Having Circular Cross-sections.



Approximate Number of Nos. 16, 20, and 22 Gauge Wires with Braided Insulation and M-32463 Shielded Wire in Forms Having Circular Cross-sections.

(b) Where the apparatus is arranged two apparatus positions per circuit on some of the plates and one position per circuit on others.

4.10 <u>One vertical arm for two adjacent circuits</u> should be provided where the apparatus on all the plates is arranged one position per circuit.

Interference

4.11 Forms should interfere as little as possible with access to apparatus for adjustment, repair, replacement, and cleaning.

4.12 There should be no interference of forms with movable or removable equipment parts such as keyshelf braces, commutator brushes, and multiple banks.

4.13 All forms should be spaced, where possible, at least 2" from any open wiring carrying outside service current.

Local Cable Form Sizes

4.14 The foregoing two figures indicate the approximate number of wires contained in forms having circular cross-sections.

4.15 The following table shows values of other gauges of wires.

2 - 20 ESCB	equal	3 - 22	SDC	wires
3 - 22	"	"	5 -	"	"	"
1 - 16	"	"	3 -	"	"	"
8 - 24 DSC	"	5 -	"	"	"
1 - 22 DCL	"	1 -	"	"	"
1 - 22 DSCL	"	1 -	"	"	"

1 - 22 EDSC paired shielded equals 10 22 SDC wires
1 - 20 ESCB single shielded equals 8 22 SDC wires
1 - 20 ESCB paired shielded equals 13 22 SDC wires
1 - 20 ESCB triple shielded equals 13.5 22 SDC wires
1 - 16 ESCB paired shielded equals 17 22 SDC wires
1 - 14 GFRC single shielded equals 13 22 SDC wires

4.16 In making cabling plan drawings the diameter of the cable forms shall care for the various gauges of the leads contained therein; that is, in a form composed of 10 22 EDSC shielded pairs, 20 No. 16 Ga. ESCB, and 120 No. 22 Ga. SDC leads, the size of the form shall be computed as 280, 22 Ga. leads or 1-1/16" diameter.

Local Cable Offsets

4.17 When an offset is required in a local cable arm for equipment such as relays, resistances, etc., it may be done in one of three ways as indicated in the following figures.

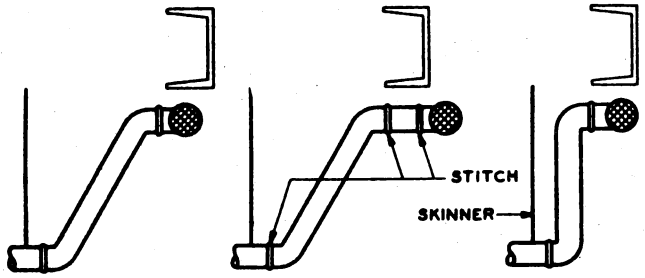


FIG. A FIG. B FIG. C

4.18 Fig. A is preferred and shall be used whenever there is sufficient space between the main arm and the first skinner. Figs. B and C are more costly than Fig. A and shall not be used when Fig. A can be applied. Fig. C is undesirable due to the short distance between the first skinner and the main arm and shall be avoided, if possible.

5. DATA SHEETS AND SPECIFICATION FIGURES

5.01 The class of change letter, such as D, A, AR, etc., shall not be placed in the issue column appearing at the top of a data sheet. It shall be placed, however, in the issue column appearing at the upper right corner of the drawing. No EE issue number is required on data sheet drawings.

6. IRONWORK

General

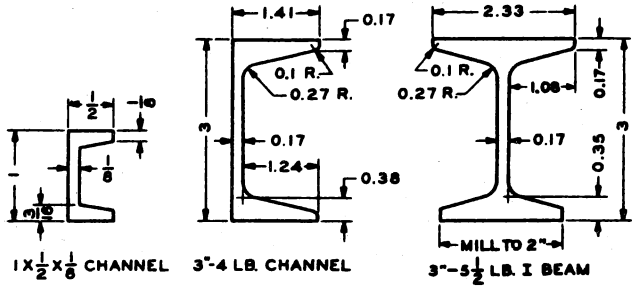
6.01 The general engineering requirements for the manufacture and installation of all metalwork of switchboards, desks, frames, racks, and other central office equipments are given in BSP Section AA611.002.

6.02 For various types of drilled, tapped, and punched holes see Page 89.

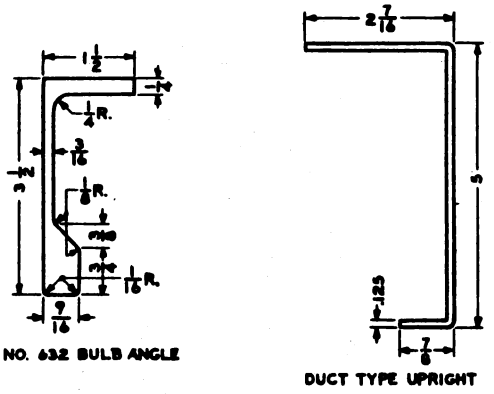
6.03 Dimensions of bars shall be given in the following order: width, thickness, and length.

Bulb Angle, Channel, and I-Beam Cross-section Dimensions

6.04 The following sketches show the cross-section dimensions of 1" and 3" channels the 3" I-Beam, bulb angle, and duct type upright.



1X½X⅛ CHANNEL 3"-4 LB. CHANNEL 3"-5½ LB. I BEAM



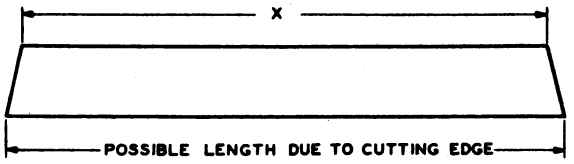
NO. 632 BULB ANGLE DUCT TYPE UPRIGHT

Clearance Holes and Slots

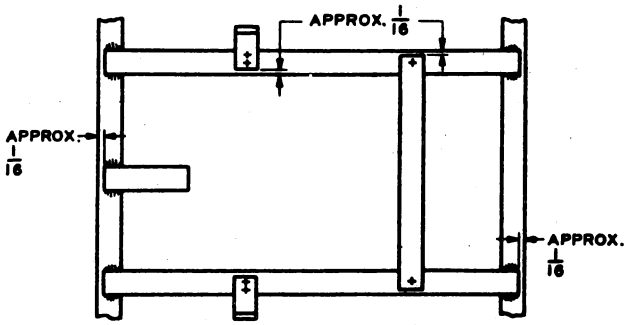
6.05 Whenever possible, clearance holes shall be used instead of slots such as those used on mounting units. This, besides being cheaper, also prevents the units from being mounted irregularly and a maximum bearing adjustment will not be required.

Lengths of Metal Details

6.06 The ends of mounting bars and brackets when cut to a specified length, are very likely to be cut on a slant one way or another as indicated below. This should be taken into consideration when making assembly drawings.

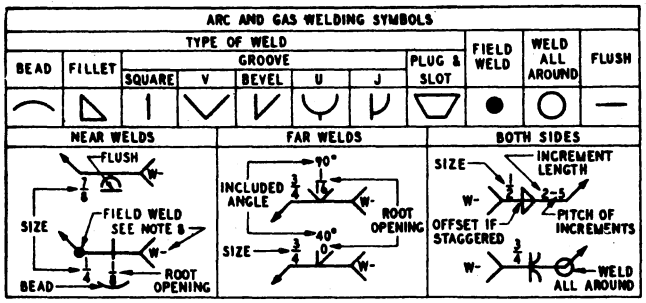


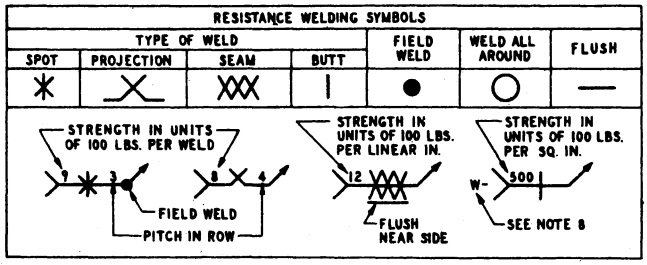
6.07 In order to insure that there shall be no overlapping, bars shall be cut approximately 1/8" shorter than the over-all width of the frame unit as indicated in the following figure. If bars or brackets are welded to the ends of the frame, care must be taken that there is sufficient clearance for welding material, (not less than 1/4").

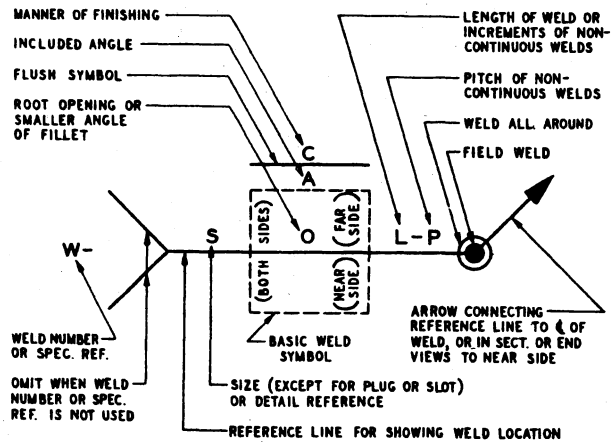


Welding

6.08 The symbols on the following page have been developed by "The American Welding Society" and provide a shorthand system for the means of placing complete welding information on drawings.







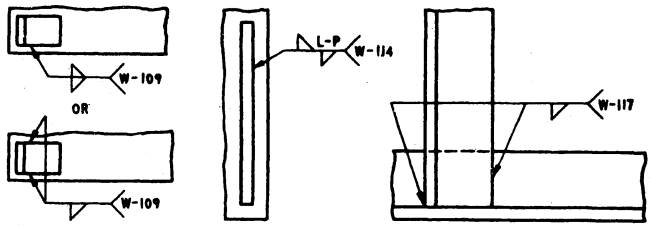
NEAR, FAR AND BOTH SIDES SIGNIFICANCE AS GIVEN IN INSTRUCTIONS RELATIVE POSITION OF DATA AND SYMBOLS

NOTES:

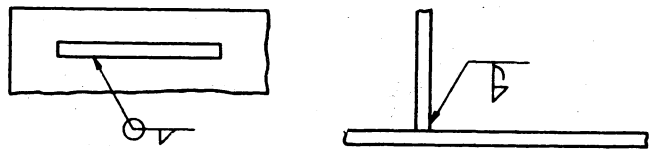
1. Welds parallel to the plane of the paper or nearly so with faces toward reader are near welds, those with faces away from reader are far welds.
2. Welds in section or end views with faces toward the arrow are near welds, those with faces away from the arrow are far welds. Use sufficient arrows to make locations clear.
3. Welds on both sides are of same size unless otherwise shown.
4. Symbols govern to break in continuity of structure or to extent of hatching or dimension lines.
5. All welds are continuous and of user's standard proportions and all except V- and bevel-grooved welds are closed unless otherwise shown.
6. When welds are drawn in section or end views, obvious information is not given by symbol.
7. In joints in which one member only is to be grooved arrows point to that member.
8. Tail of arrow used for specification reference.

6.09 For welds W-68 to W-122 shown on Page 18, the weld symbol as well as the weld number shall be shown. On points to be kept clear of welding material, the notation "to be kept clear of weld" shall be shown. In addition for welds similar to W-113 and W-114 the length and pitch of increments will have to be given. Use sufficient arrows to make locations clear.

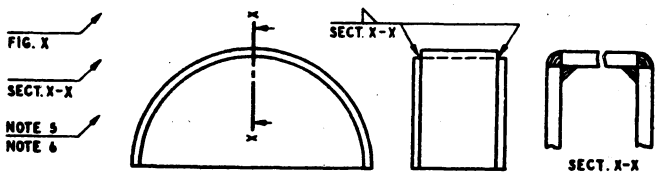
6.10 When dimensions are required show them on the same side of reference line as symbol. When welds on both sides are the same size show dimension of one weld only.



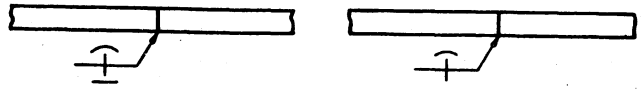
6.11 For welds not covered by weld numbers, show the weld symbol on reference line and connect to joint with arrow. Omit the tail of the reference line. For groove type welds, in which one member only is to be grooved, care shall be taken to see that arrow points to that member.



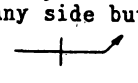
6.12 Special welds not covered by the symbols may be shown by a detailed figure or section or give any supplementary information by means of a note. When this is necessary refer to weld by section or note by a reference symbol.

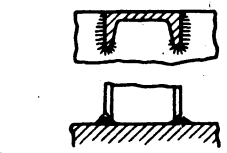


6.13 For square weld show side from which weld is made by bead or flush symbol as

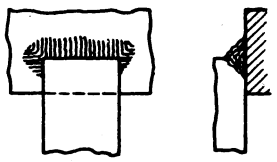


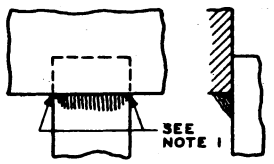
6.14 Resistance butt welds shall be shown without bead weld symbol signifying that weld is not made from any side but all at once.



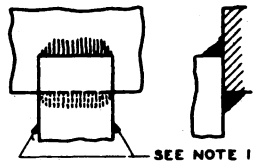


W-68

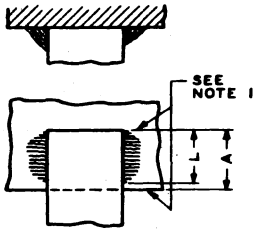

W-101



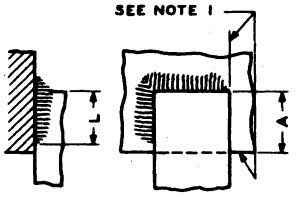
W-102



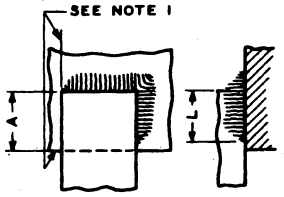
W-103



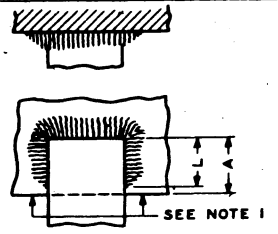
W-104



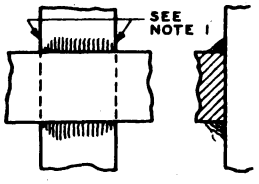
W-105



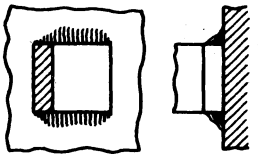
W-106

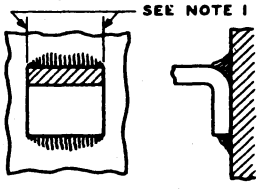


W-107

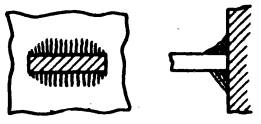


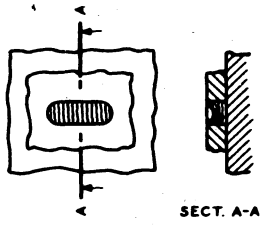
W-108


W-109

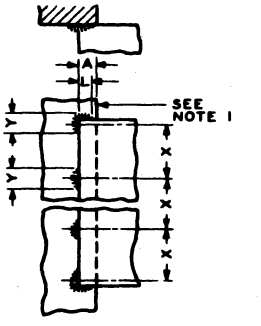


W-110

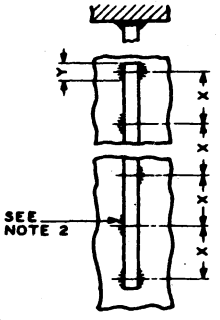

W-111



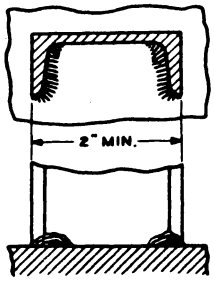
W-112



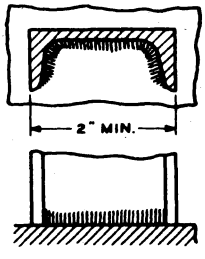
W-113



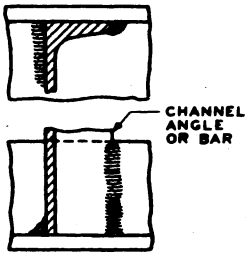
W-114



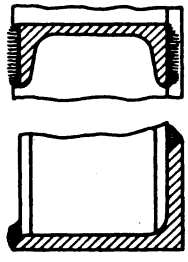
W-115

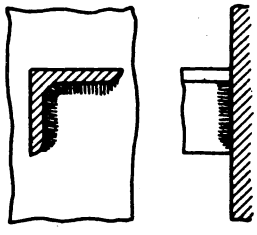


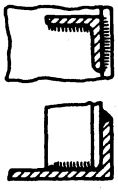
W-116

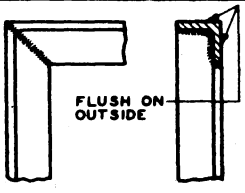


W-117

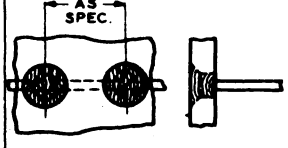

W-118


W-119


W-120



W-121



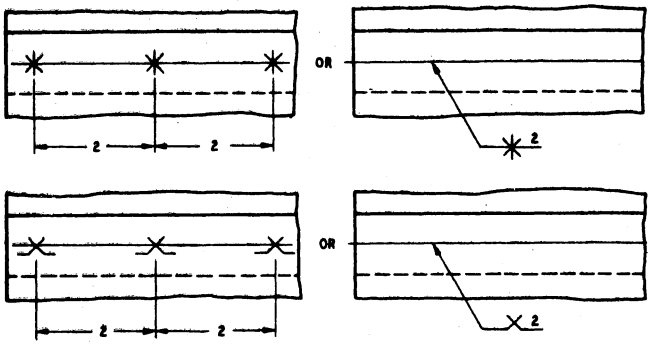
W-122

TABLE OF DIMENSIONS UNLESS OTHERWISE SPECIFIED	
L	$\frac{3}{4}$ WHEN A = MORE THAN $\frac{3}{4}$
Y	1" UNLESS OTHERWISE SPECIFIED
X	W-113 3" MIN. 6" MAX.
	W-114 6" MIN 9" MAX.

NOTES:
1. PLACE ON ALL DRAWINGS WHEN REQUIRED: "KEEP THIS SIDE OF LINE FREE FROM WELDING MATERIAL."
2. INTERMEDIATE WELDS SHALL BE STAGGERED ALTERNATELY ON EITHER SIDE OF BAR.

Welds - 68 to 122

6.15 Spot, projection, and seam weld symbols may be used directly on the drawing as follows:



7. POWER

Clearances

7.01 Electrical clearances may be obtained from the "National Electric Code".

Conventions of Power Apparatus

7.02 Pages 121 to 141 include the power apparatus conventions. Pages 113 to 120 list other standard information relative to power work.

Flat Bus Bar Information

7.03 The standard sizes of aluminum and copper bus bars which the shop can punch and shear are shown in the following tables.

ALUMINUM BUS BARS

Width	Thick.	No. Laminations	Area in C.M.	Cap. in Amps.	Wt. per Ft.	Res. in Ohms per Foot
1/4	1/8	1	39,789	54	.037	.000442
1/2			79,577	94	.073	.000221
3/4			119,366	135	.110	.000148
1			159,155	174	.146	.000110
1/2	1/4		159,155	146	.15	.000110
1			318,309	258	.29	.000057
1-1/2			477,464	363	.44	.000037
2			636,618	470	.59	.000028
3			954,927	675	.88	.000018
4			1,273,237	875	1.17	.000013
6			1,909,855	1260	1.76	.000010
4	1/2		2,546,473	1265	2.34	.000007
6			3,819,710	1815	3.52	.000005
8			5,092,946	2355	4.69	.000003
10			6,366,183	2880	5.86	.0000028
12			7,639,420	3380	7.03	.0000023
2	1/4	2	1,273,237	910	1.18	.000014
3			1,909,854	1310	1.76	.000009
4			2,546,474	1695	2.34	.000006
6			3,819,710	2445	3.52	.000005
4	1/2		5,092,946	2445	4.68	.000003
6			7,639,420	3525	7.04	.0000024
8			10,185,892	4565	9.38	.0000016
10			12,732,366	5585	11.72	.0000014
12			15,278,840	6557	14.06	.0000011
2	1/4	3	1,909,854	1350	1.77	.000009
3			2,864,781	1935	2.64	.000006
4			3,819,711	2515	3.51	.000004
6			5,729,565	3640	5.28	.000003
4	1/2		7,639,419	3640	7.02	.0000024
6			11,459,130	5235	10.56	.0000018
8			15,278,838	6790	14.07	.0000012
10			19,098,549	8300	17.58	.0000009
12			22,918,260	9734	21.09	.0000007
2	1/4	4	2,546,472	1790	2.36	.0000069
3			3,819,708	2565	3.52	.0000045
4			5,092,948	3340	4.68	.000003
6			7,639,420	4820	7.04	.0000024
4	1/2		10,185,892	4815	9.36	.0000016
6			15,278,840	6915	14.08	.0000012
8			20,371,784	9000	18.76	.0000008
10			25,464,732	11,000	23.44	.0000007
12			30,557,680	12,912	28.12	.0000006

COPPER BUS BARS

1/4	1/8	1	39,789	31.25	.120	.000272
1/2			79,577	62.50	.240	.000136
3/4			119,366	94	.360	.000091
1			159,155	125	.480	.000068
1/2	1/4		159,155	125	.480	.000068
1			318,309	250	.960	.000035
1-1/2			477,464	375	1.440	.000023
2			636,618	500	1.930	.000017
3			954,927	750	2.890	.000011
4			1,273,237	1000	3.860	.000008
6			1,909,855	1500	5.780	.000006
4	1/2		2,546,473	2000	7.700	.000004
6			3,819,710	3000	11.560	.000003
8			5,092,946	4000	15.440	.000002
10			6,366,183	5000	19.260	.0000017
12			7,639,420	6000	23.110	.0000014

Fuses

7.04 Fuses shall be located in such a manner that they will be accessible for removal without difficulty. Minimum spacing of fuses shall conform with the National Electric Code, and requirements on Page 118.

Mounting of Switches

7.05 Clearances shall be checked on double-throw switches to insure that other apparatus does not cause interference when the switch is thrown either way.

7.06 Switch handles, in general, should not project beyond the panel. The engineer shall be informed of this where such a condition exists. Where apparatus on adjacent panels does not cause interference and increasing the size of the panel is not warranted, the switch handle may be allowed to extend beyond the panel, if the engineer so desires.

7.07 When knife blade switches are mounted adjacent to each other, the distance between the switch blades shall be equivalent to the distance between the switch blades of a 2 pole switch of the same type.

7.08 The distance from floor to middle of switch handle, rheostat handwheel, or fuse shall not exceed 6'-6".

Power Board Layouts

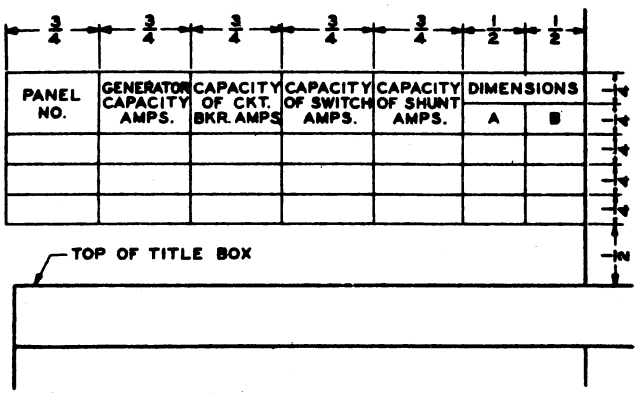
7.09 A typical power board equipment layout is shown on Page 116 for a front view and on Page 117 for a rear view. Care shall be taken to insure that all apparatus is accessible, as determined both by its location on the board and by the relation of the board to sidewalls, columns, projections, etc. Arrangements which do not allow proper clearances for maintenance purposes shall be called to the attention of the drafting supervisor and engineer. On a panel drawing which covers information for several sizes, the maximum condition shall be shown. Mounting bolt holes shall not be indicated on drawings.

7.10 The following note is usually required on each power panel drawing.

"Panel to be 1" impregnated asbestos composition per KS-5165. Face and edges of panel to be given black lacquer 122D finish".

Power Panel Code Numbers

7.11 On charging or generator panel drawings which cover a particular coded panel, the code number shall be shown in the title of the drawing. When the panel covers more than one code, the code numbers and information relative to the various panels shall be shown in a table as indicated in the following sketch.



Size of Power Apparatus

7.12 The size of the various pieces of apparatus may be obtained from the Power Data Books which are available in the drafting room.

Terminal Lugs

7.13 On all power boards the terminal lugs mounted on bus bars shall be fastened by two bolts. Terminals with two cable holes shall not be used.

8. WOODWORK

General

8.01 The general engineering requirements for the manufacture and installation of all woodwork of switchboards, desks, frames, casings, and other wood parts for central office equipments are given in BSP Section AA611.001.

8.02 All non-laminated boards greater than 6" in width shall be constructed of pieces not wider than 6", joined with J-67 care being taken that the camber in adjacent pieces is reversed so as to minimize warping.

8.03 Do not use 1/64" dimensions on woodwork unless it is absolutely necessary.

Fibre and Linoleum Faced Panels

General

8.04 All wood mounting screws shall be long enough to extend into the fibre faced panel not less than 1/2" and not more than 5/8" unless otherwise specified.

8.05 Clearance holes 3/32" deep for mounting screws shall be drilled in the fibre facing on the panels.

8.06 Apparatus required to be grounded shall have a No. 3 terminal punching inserted between the mounting screw and the mounting lug.

Fibre Faced Panels

8.07 The following notes shall appear on each phenol fibre faced panel drawing.

The panel shall be hard maple faced on both sides with 1/16" black phenol fibre grade No. - - per spec. 57823 glued on per spec. 50850. Edges of fibre on face of panel shall be slightly rounded.

The cable holes for local cable arms from rear to front of panel shall be approximately twice the size of the cable or sufficiently large to permit insertion of the cable without damage.

In order to avoid chipping on the front of the panel, holes drilled through the panel shall be drilled from the front if not otherwise specified.

Linoleum Faced Panels

8.08 When linoleum or linoleum and felt is used for facing on woodwork the following notes shall appear on drawings as required:

Armstrong linoleum, accolac finish, ----- thick.

Builders deadening felt unsaturated, weight 1-1/2 lbs. per square yard.

For gluing linoleum to wood use Armstrong waterproof cement.

Joints

8.09 Dimensions of joints shown on Pages 102 to 105 inclusive shall not be shown on drawings. Joints shall be referred to as J-6, etc.

Plywood Panels

8.10 In order to permit the use of standard stock for the center core of plywood panels, 3 ply panels shall be in accordance with Figs. A and B and 5 ply panels shall be in accordance with Fig. C. The outside laminations can then be finished to the required total thickness.

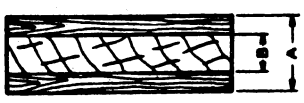


FIG. A

FIG. B

THICKNESS OF PANEL	
A	B
5/8	5/16
13/16	7/16
7/8	7/16
1 1/4	13/16

CENTER CORE EQUALS X-3/16 APPROX.
FIG. C

8.11 All mahogany or birch-faced panels shall be of the resin glued type with soft wood core. For stock sizes, see the W.E.Co. stock book.

8.12 Tenon joints may be specified as usual.

Sections

8.13 Except on equipment drawings, sections through woodwork shall indicate clearly whether the grain is running lengthwise or crosswise. For information pertaining to the exception above see Paragraph 2.39, Page 5.

Stock Lumber Sizes

8.14 The following is a list of standard hardwood lumber sizes carried in stock by the W.E.Co. and also the maximum dimensions to which each stock size can be finished. The thickness specified below is for parts up to and including 16'-0" in length.

Rough Thickness					Finished Thickness
3/8	sized	2	sides	to	3/16
1/2	"	"	"	"	5/16
5/8	"	"	"	"	7/16
3/4	"	"	"	"	9/16
1	"	"	"	"	13/16
1-1/4	"	"	"	"	1-1/16
1-3/4	"	"	"	"	1-1/2
2	"	"	"	"	1-3/4
2-1/2	"	"	"	"	2-1/4
3	"	"	"	"	2-3/4
3-1/2	"	"	"	"	3-1/4
4	"	"	"	"	3-3/4

9. ABBREVIATIONS

9.01 See paragraph 3.12 relative to numbering and lettering of equipment.

9.02 Abbreviations, other than those for equipment designations, are to be used only when space does not permit the use of the word in full.

9.03 If an abbreviated word is used in a note, that word shall be abbreviated as often as it occurs.

9.04 The following list of abbreviations are for general use and shall not be used for actual stamping of apparatus.

Word or Term	Abbreviation
A	
Activity	ACT
Adapter	ADPT
Additional	ADDL
Adjust or Adjusting	ADJ
Advance	ADV
Aisle	AIS
Airplane	APL
Airways Key Equipment	AW KE
Alarm	ALM or A
Alarm Battery Supply	ALM BAT SUP
All Trunks Busy	A TRKS BSY
Allotter	ALLR
Allowance	ALLOW
Alternator	ALT
Alternating Current	A-C (±)
Alternating 1 Ring	R1
Alternating 2 Ring	R2
Aluminum	AL
Aluminum Casting	AL CAST
Amber	AMB
American Tel. & Tel. Co.	AT&TCO
Ammeter	AM
Ampere	AMP or A
Ampere Hour	AH
Amplifier	AMP or A
Ancillary	ANC
And	&
And So Forth	ETC
Announcement or Announcing	ANN
Annunciator	ANNUN or AN
Answer or Answering	ANS or A
Answering Cord	A CD
Answering Jack	A JK
Antenna	ANT
Apparatus	APP
Apparatus Blank	APP BLK
Appendix	APP
Applique	APLQ
Approved	APPD
Approximate	APPROX
April	APR
Armature	ARM
Arranged, Arranging, or Arrangement	ARR
Artificial	ART
Assembly or Assembled	ASSEM
Assignment	ASSIGN
Assistant	ASST or A
Associated	ASSOC
Attendant	ATT
Attenuator	ATTEN
Audible	AUD
August	AUG
Automatic	AUTO or A
Automatic Display	AD
Auxiliary	AUX or A
Auxiliary Line	AUX L
Auxiliary Relay Battery	AUX REL BAT
Auxiliary Station	AUX STA
Average	AVG
Awaiting	AWTG
B	
"B" Switchboard	B SWBD
"B" Switchboard Link Frame	B LK F
"B" Switchboard Sender Frame	B SDR F
"B" Switchboard Sender and Position Test Frame	B SDR & POS TST F
Back	B
Baked	BKD
Balancing or Balance	BAL
Balancing Coil	BAL CL
Balancing Network	BAL NET
Balancing Rheostat	BAL RHEO
Balancing Set	BAL S
Ballast Lamp	BALL L
Band Filter Cut-off	B FILT CO or BFCO
Bank	BK or B

Word or Term	Abbreviation
Basement	B
Basic Network	BAS NET
Battery	BAT or B
Battery Control Board	B CON B
Battery Cut-off	BCO
Battery Distributing Fuse Board	BAT DISTG F BD or BDFB
Battery Fuse	BAT F or BF
Battery Supply	BAT SUP or BS
Bell System Practices	BSP
Bell Telephone Laboratories, Inc.	BTL INC
Bevel	BEV
Beyond	BYD
Biased	B
Binding Post	BP
Birmingham Wire Gauge	BWG
Blank	BLK
Blank Incoming	BLK INC
Block	BLK
Block Relay Frame	BLK REL F
Blockade	BLKD
Blocking	BLKG
Blue Print	BP
Board	BD or B
Booster	BOOST or BST
Bottom	BOT
Bracket	BRKT
Brass	BR
Brass Tubing	BR T
Breakdown	BKDN or B
Breaker	BKR
Bridge or Bridging	BRDG
Bridge Cut-off	BCO
Broadcast Amplifier	BDCST AMP
Bronze	BZ
Brown & Sharpe Gauge	B&S
Brush	BR
Brush Test	BR TST
Building Out	BO
Busy	BSY or B
Busy Back	BSY B or BB
Busy Back Flash	BSY B FL or BBF
Busy Back Flash and Tone	BBF & T
Busy Flash	BSY FL
Busy Signal	BSY SIG
Busy Test	BSY TST
Busy Tone	BSY T
Button Head Machine Screw	BHMS
Buzzer	BUZ
By-link	BL
By-pass	BP

C

Cabinet	CAB or C
Cable or Cabling	CA
Cable Turning Section	CTS
Cadmium	CAD
Calculagraph	CALC
Call or Calling	CALL or C
Call Announcer	CA
Call Announcer Alarm Frame	CA ALM F
Call Announcer Amplifier Frame	CA AMP F
Call Announcer Test Frame	CA TST F
Call Blocked	C BLK
Call Circuit	C CKT
Call Distributing "B" Link Frame	C DISTG B LK F
Call Distributing "B" Sender Frame	C DISTG B SDR F
Call Distributing "B" Sender and Position Test Frame	C DISTG B SDR & POS TST F
Call Distributing "B" Switchboard	C DISTG B SWBD
Call Indicator	CI
Call Indicator Impulser	CI IMP
Call Indicator Make Busy Frame	CIMBF
Call Indicator Trunk and Recorder Frame	CI TRK & RCDR F
Call Waiting	C WTG
Call Wire or Call Wireless	CW
Call Wireless Cords	CW CDS
Call Wirelss Trunks	CW TRKS
Calling Cord	C CD
Candle-power	CP
Capacity	CAP
Carbon	CARB
Card Record Clerk	CARD REC CL
Carrier	CARR or C
Carrier Frequency	CARR FREQ
Carrier Input	CARR IN
Carrier Supply	CARR SUP
Case Harden	C HDN
Casting	CAST
Catalogue	CAT
Ceiling Lamp Panel	CEIL LP
Cellulose Acetate Treated	CAT
Center or Centers	C
Center Line	℄
Center-to-center	C TO C
Centigrade	C
Centimeter	CM
Central Information Desk	C INF DSK
Central Office	CENT OFF
Central Service Observing Desk	CSO DSK
Central Test Bureau	C TST BUR
Central Test Desk	C TST DSK
Chain	CH
Chain Relay Group	CH REL GRP
Chamfer or Chamfered	CHAM
Channel	CHAN, CH, or C
Charge, Charging, or Charged	CHG
Check or Checking	CHK or C
Check Tone	CHK T
Checking Multiple	CHK MULT
Chemical	CHEM
Chemically Pure	CP
Chief Operator	CO
Chief Operator (On Ans Jk Number Plates Only)	CH OP
Chief Operator's Desk	COD
Chief Switchman	C SWMN
Choke	CH
Chromium	CHROM
Circuit	CKT
Circuit Breaker	CKT BKR or CB
Circular Mils	CM
Class	CLS or CL
Class of Service Tone	CL SERV T
Clearance	CL
Clerk	CL or C
Clock	CLK
Closure	CLS
Code Group	C GRP
Coil Rack	C RK
Coin Box	CB
Coin Box Line	CB LINE
Coin Box Trunk	CB TRK
Coin Collect, Coin Collector, or Coin Collection	CC
Coin Collect (For Coin Collect Lamp Only)	PAY
Coin Control	C CON or CC

Word or Term	Abbreviation
Coin Control Selector	CC SEL
Coin Return	CR
Coin Supervisory Link Frame	C SR LK F
Cold Drawn	CD
Cold Rolled	CR
Collect	COL or C
Combination Connector	COMB CONN
Combined	COMB, CMB, or C
Combined Composite and Phantom Set	CXPX
Combined Distributing Frame	CDF
Combined Line and Recording	CLR
Commercial	COM
Common	COM
Common Battery	COM BAT or CB
Common Ground	COM GRD or CG
Community Dial	COM D
Commutatcr	COMM, COM, or C
Commutator Brush	COMM BR
Company	CO
Compensator or Compensating	COMP
Compensating Filter	COMP FILT
Complaint Operator	COMP OPR
Complaint Trunk	COMP TRK
Completing	COMPL or COM
Composite	CX
Composite Ringer	CXX
Composition	COMP
Compound	COMP
Comprising	COMP
Concentrating	CONC
Condenser	COND
Conductor	CONDUC
Conference	CONF
Connecting Block	CONN BLK
Connecting Rack	CONN RK
Connector	CONN or C
Connector Frame	CONN F
Connector Terminal Cords	CONN TERM CDS or CT CDS
Contact	CONT
Contactor	CONTR
Continued	CONT
Continuous or Continuity	CONT
Control or Controller	CONT, CON, or C
Convention	CONV
Converter	CONVR
Convertible or Conversion	CONV
Coordinate	CO ORD
Copper	COP or C
Copper Plate or Copper Plated	COP PLT
Cord	CD
Cord Auxiliary	CD AUX
Cord Auxiliary (For Cord Auxiliary Lamp Only)	CA
Cord Fastener	CD FAST
Cord Finder	CD FDR
Cord Hook	CD HOOK
Cordless	CDLS
Cordless "B" Operator	CDLS B OPR
Cordless "B" Position	CDLS B POS
Cordless "B" Switchboard	CDLS B SWBD
Corrector or Correcting	CORR
Cotton Cotton Braid Lacquer (Wire)	CCBL
Counter Electromotive Force	CEMF
Counterbore	CB
Counterdrill	CD
Countersink	CS
Counting	CTG
Correcting or Corrector	CORR
Crossbar	CBR
Crossfire	CF
Current	CUR or C
Current Transformer	CUR TRANS or C
Cut-off	CO
Cut to Shoulder	CTS
Cycle	CYC (~)

D

Word or Term	Abbreviation
Decalcomania (Transfer)	DECALC
December	DEC
Decibel	db
Decimal	DEC
Decoder	DR
Decoder Connector Frame	DR CONN F
Decoder Frame	DR F
Decoder Test Frame	DR TST F
Delayed Interval	DEL I or DI
Delayed Ringing	DEL R or DR
Demodulator	DEM or D
Demodulator Band Filter	DEM B FILT
Department	DEPT
Design	DES
Designation Strip	DESIG S
Desk	DSK or D
Desk Ground	DSK GRD or DG
Detail	DET
Detector	DET
Developed	DEV
Deviation Equalizer	DEV EQL
Dial	D
Dial Monitoring	D MON or DM
Dial Observing	D OBS
Dial Pulsing	DP
Dial System	D SYS or DS
Dial System "A" Operator	DSA OPR
Dial System "A" Position	DSA POS
Dial System "A" Switchboard	DSA SWBD
Dial System "B" Switchboard	DSB SWBD
Dial Test	D TST
Dial Tone	DT
Diameter	DIAM or D
Differential	DIF or D
Digit Absorbing	DA
Dimension	DIM
Direct Current	D-C
Directing or Directional	DIR
Directional Filter	DIR FILT
Directory Desk	DIR DSK
Discharge or Discharging	DISCHG or D
Disconnect	DIS
Discontinued	DISC
Discriminating	DISCR
Dispatcher	DISP
Distant	DST
Distant Office Frame	DST OFF F
Distortion	DIST
Distributor	DSTBR or DIST
Distributing	DISTG or D
Distributing Power Terminal Strip	DPTS
Distributing Ticket Filing and Rate Quoting Desk	DTF & RQD
District	DIST or D
District Brush	DIST BR
District Frame	DIST F
District Group	DIST GRP
District Interrupter Frame	DIST INT F
District Junctor Frame	DIST JCTR F

Word or Term	Abbreviation
District Junctor Grouping Frame	DIST JCTR GRP F
District Junctor Test Frame	DIST JCTR TST F
District Link Frame	DIST LK F
District Selector Test Frame	DIST SEL TST F
District Timing Frame	DIST TMG F
Division	DIV or D
Double Bias	DB
Double Cord	D CD
Double Cotton Lacquer (Wire)	DCL
Double Silk Cotton Braid Lacquer (Wire)	DSCBL
Double Silk Cotton Lacquer (Wire)	DSCL
Double Silk Silk Braid Lacquer (Wire)	DSSBL
Double Silk Single Cotton (Wire)	DSC
Double Pole Switch	DP SW
Double Throw Switch	DT SW
Down Drive	D DR
Drawing	DWG
Drill	DR
Drive	DRV
Drop	D
Drum	DR
Dry Battery	DB
Dry Battery Cabinet	DB CAB
Duplex	DX
Dynamo	DYN
Dynamotor (Motor-Generator)	MG

E

East	E
Electric or Electrically	ELEC
Electric Clock	ELEC CLK
Electrolytic or Electrolyte	ELECT or E
Electromotive Force	EMF
Elevator	ELV
Emergency	EM or EMG
Emergency (For Key-top Engraving Only)	EMER
Emergency Alarm Frame	EM ALM F
Emergency Call Circuit	EM C CKT
Enamel Double Cotton (Wire)	EDC
Enamel Double Silk Cotton (Wire)	EDSC
Enamel Double Silk Cotton Lacquer (Wire)	EDSCL
Enamel Silk Cotton Braid (Wire)	ESCB
Enamel Silk Double Cotton (Wire)	ESDC
End of Line Indicator	EL IND or ELI
Engine, Engineer, or Engineering	ENG
Equalizer	EQL
Equipment	EQPT or E
Escutcheon	ESC
Even	E
Exchange	EXCH or X
Exciter	EXC
Exhaust	EXH
Expandor	EXP
Extension	EXT
External	EXT

F

Fahrenheit	F
Failure	FAIL
Fanning Strip	FAN S
Fastener	FAST
February	FEB
Feed Back Resistance	FB RES
Field	FLD or F
Figure	FIG
Filament	FIL or F
Filament Ground	FIL G or FG
Filament Negative	F -
Filament Positive	F +
File Finish	FF
Filister Head (Screw)	FIL H
Filter	FILT, FLT, or F
Final	FIN or F
Final Brush	FIN BR
Final Frame	FIN F
Final Multiple Test Line Frame	FIN MULT TST L F
Final Selector Test Frame	FIN SEL TST F
Final Tens	FT
Final Terminating Holding Cord	FIN TERM HOLD CD
Final Time Measure Release	FIN TIME MEAS RLS
Final Units	FU
Finder	FDR or F
Finish (For Machined Surfaces)	F
Finish (When Used in Notes)	FIN
Finish All Over (For Machined Surfaces)	FAO
Fire Protection Panel	FIRE PROT PAN
First Selector	1ST SEL
Flash	FL or F
Flash Back	FL B
Flashing	FLASH or FL
Flashing (For Key-top Engraving Only)	FLA
Flashing Recall	FL RECALL
Flat	F
Flat Gain Regulator	FG REG
Flat Head	FH
Flat Rate	FR
Flat Rate Individual	FRI
Flat Rate 2 Party	FR2P
Flat Rate 4 Party	FR4P
Flexible	FLEX
Floating	FLOAT or FLT
Floor	FL
Floor Alarm Board	FL ALM BD
Floor Alarm Frame	FL ALM F
Foot or Feet	FT
Foot Pound	FT LB
Forging	FORG
Four Wire	4W
Frame	FR or F
Framework	FRWK
Free Line	FREE L
Frequency	FREQ
Front	F
Full Selective	F SEL or FS
Full Universal	F UNIVER or FU
Fundamental Ring	FR
Fundamental Tip	FT
Furnish	FURN
Fuse	F
Fuse Alarm	F ALM or FA
Fuse Board	F BD
Fuse Mounting	F MTG
Fuse Panel	F PAN or FP
Fusetron	FN

Word or Term	Abbreviation
G	
Gain Control	GC
Galvanized	GALV
Galvanometer	GALV
Gas Engine	GAS ENG
Gauge	GA
Generator	GEN
Generator Alarm	GEN ALM
Generator Fuse	GEN F
Generator Ground	GEN GRD
Grid or Grid Battery	GT
Grid Leads (Vacuum Tubes with Filaments in Series - to +)	GT1, GT2, GT3, Etc.
Grid Leak	GT LK
Grind Finish	GF
Ground, Grounds, or Grounded	GRD or G
Grounded Telegraph	GRD TELEG or GRD TLG
Group	GRP, GR, or G
Group and Horizontal	GRP & HOR
Guard	GD
H	
Half Choice	HC
Half Hard	HH
Hand Wheel	HW
Handset	HND SET
Hard	HD
Hard Drawn (Copper)	HD DR
Hard Rubber	HD RUB
Harmonic	HRM or H
Heater	HTR
Henry (Unit of Inductance)	H
Hexagon	HEX
Hexagon Head	HH
High-frequency Patching	HF PTCH
High-Low Voltage	HLV
High Loss	HL
High Pass	HP
High Pass Input and Low Pass Output	HP IN LP OUT
High Potential	H POTL
High Resistance	H RES
High Resistance Ground	H RES G or HRG
High Speed	HS
High Tone	HT
High Voltage Regulator	HVR
Hold or Holding	HLD or H
Holding Cord	HLD CD
Holding Trunk	HLD TRK
Horizontal	HOR or H
Horsepower	HP
Hot Rolled	HR
Hour	HR
Howler	HLR or H
Hundreds	H
Hunting	HTG or H
Hybrid	HYB or H
Hybrid Drop Side 2 Wire Line	HYD
Hybrid Drop Side 4 Wire Line	HXD
Hybrid Line Side 2 Wire Line	HYL
Hybrid Line Side 4 Wire Line	HXL

Word or Term	Abbreviation
I	
Immediate	IM
Impulse or Impulser	IMP
Inch or Inches	IN
Inclusive	INCL
Incoming	INC or I
Incoming Brush	INC BR
Incoming Call Circuit	INC C CKT
Incoming Frame	INC F
Incoming Group	INC GRP
Incoming Link Extension Frame	INC LK EXT F
Incoming Link Frame	INC LK F
Incoming Pulse Correcting Repeater	INC PULS CORR REP
Incoming Repeater	INC REP
Incoming Selector Test Frame	INC SEL TST F
Incoming Trunk Frame	INC TRK F
Incoming Trunk Test Connector Frame	INC TRK TST CONN F
Incoming Trunk Test Frame	INC TRK TST F
Indicator or Indicating	IND or I
Inductance	INDUC
Induction or Inductor	IND
Induction Coil	IND COIL
Information	INF
Input	IN
Inside Diameter	ID
Installation	INSTAL
Instantaneous	INST
Instruction	INST
Instrument	INST
Insulator, Insulation, or Insulating	INSUL or INS
Intercepted Service	INCPT SERV
Intercepting	INCPT
Intercepting Answering Jack	INCPT ANS JK
Intercepting Position	INCPT POS
Intercepting Trunk	INCPT TRK
Intercepting Trunk Finder Frame	INCPT TRK FDR F
Interference Suppressor	INT SPR
Intermediate	INT or I
Intermediate Distributing Frame	IDF
Intermediate Ringing	INT R
Intermittent	INTR
Interoffice Trunks	IO TRKS
Interposition Trunks	INT POS TRKS or IP TRKS
Interrupted Low Tone	INT LT
Interrupter	INT
Interrupter Flash	INT FL
Interruptions per Minute	IPM
Interruptions per Second	IPS
Intertoll Trunk	IT TRK
Inverse Neutral	INV NTL
Inverse Time Limit	ITL
Inward Denied Service	IN DEN SERV
Iron	IR or I
Irregular	IRR
Issue	ISS
J	
Jack	JK or J
Jack Panel	JK PAN or JP

Word or Term	Abbreviation
Jack per Line	JPL
Jack per Station	JPS
Jack Space	JK SP
January	JAN
Joint	J
Junction	JCT
Junctor	JCTR or JR

K

Key Control	KC
Key Display	KD
Key Indicator	KI
Key Monitoring Desk	KEY MON DSK
Key Pulsing	KP
Key Pulsing Link Frame	KP LK F
Key Pulsing Sender Frame	KP SDR F
Key Pulsing Sender Link Frame	KP SDR LK F
Key Pulsing Sender Test Frame	KP SDR TST F
Key Space	KEY SP
Keyshelf	KYSH or K
Kilocycle	KC
Kilogram	KG
Kilovolt Ampere	KVA
Kilowatt	KW
Kilowatt Hour	KW HR
Knife Switches	
Single Pole Single Throw	SPST
Single Pole Double Throw	SPDT
Double Pole Single Throw	DPST
Double Pole Double Throw	DPDT
Three Pole Single Throw	3PST
Three Pole Double Throw	3PDT
Four Pole Single Throw	4PST
Four Pole Double Throw	4PDT

L

Lacquer	LACQ
Laminated	LAM
Lamp	LMP or L
Lamp Cap	LC
Lamp Socket	LS
Last Trunk Busy	LAST TRK BSY
Lead Covered Cable	LC CA
Leak	LK
Left	LT or L
Left Hand	LH
Left Lower	LL
Left Upper	LU
Level	LEV
Lighting Circuit	LTG CKT
Lightning Arrester	LTNG ARR
Limit or Limiter	LIM
Line	L
Line Choice Connector Frame	LC CONN F
Line Distributing Frame	LDF
Line Finder	L FDR or LF
Line Finder Frame	L FDR F
Line Finder Interrupter Frame	L FDR INT F
Line Junctor Connector Frame	L JCTR CONN F
Line Junctor Grouping Frame	L JCTR GRP F
Line Lamp	LL
Line Link Frame	L LK F
Line Relay Prepayment	LRP
Line Switch	L SW or LS
Link	LK or L
Listening	LIST or L
Local	LOC or L
Local Number Switch	LOC NO SW
Local Station	LOC STA
Local Test Desk	LTD
Local Test Desk Test Selector Frame	LTD TST F
Lock Washer	LW
Long	LG
Long Distance	LD
Long Distance Recorder	LD RCDR
Long Haul	LH
Long Lines	LL
Long Range	LR
Loop	LP
Loop Noise Killer	LP NK
Loud Speaker	L SPK
Loud Speaker Trunk	L SPK TRK
Low Loss	LL
Low Pass	LP
Low Pass Input and High Pass Output	LP IN HP OUT
Low Resistance	L RES
Low Resistance Ground	L RES GRD
Low Speed	LS
Low Tone	LOW T or LT
Low Voltage	LOW V or LV
Lower Side Band	LOW SB

M

Machine	MACH or M
Machine Ringing	MACH RING or MR
Machine Ringing Brush Alarm	MACH RING BR ALM
Machine Screw	M SCR
Machine Steel	MACH STL
Magnetic Iron	MAG IR
Magnetic Shield	MAG SH or MS
Magneto or Magnet	MAG
Mahogany	MAH
Main Control Board	M CONT BD
Main Distributing Frame	MDF
Main Station	MAIN STA
Maintenance	MTCE or M
Make Busy	MB
Malleable Iron	MAL IR
Manager	MGR
Manual	MAN or M
Manual Tandem Position	MAN TDM POS
Manufacture	MFR
Manufacturing	MFG
March	MAR
Marker	MKR
Marking	MKG
Markings	MKGS
Master	MAS or M
Master Controller	MAS CONT
Master Switch	MAS SW or MS
Material	MAT
Maximum	MAX
Measuring	MEAS
Mechanical	MECH or M
Mechanical Ticket Distributing System	MECH TKT DISTG SYS
Medium	MED
Megohm	MEG (Ω)
Mercury Arc Rectifier	MA RECT
Message	M or MSG
Message Rate	MR
Message Rate Individual	MRI
Message Rate Party	MRP

Word or Term	Abbreviation
Message Rate 2 Party	MR2P
Message Rate 4 Party	MR4P
Message Register	MR
Message Register (For Message Register Pilot Lamps Only)	REG
Message Register Connector Frame	MR CONN F
Message Register Rack	MRR
Messenger Call	MESS CALL or MC
Metallic	MET or M
Metallic Return	MET RET
Metallic Telegraph	M TELG or MET TLG
Meter	M
Meter Battery Cut-off	M BAT CO
Microfared	MF
Middle	MID
Milliammeter	MAM or MA
Milligram	MG
Millihenry	MH
Milliameter	MM
Millivoltmeter	MVM
Minimum	MIN
Miscellaneous	MISC or M
Miscellaneous Frame	MISC F
Miscellaneous Interrupter Frame	MISC INT F
Mixture	MIXT
Modulator or Modulation	MOD or M
Modulator Band Filter	MOD B FILT
Modulator-demodulator	MODEM
Molding	M
Monitor or Monitoring	MON or M
Motor	MOT or M
Motor-generator	MG
Motor Start Switch	MOT ST SW
Motor Stop Alarm	MOT STP ALM
Motor Transfer	MOT TRNS
Mounted	MTD
Mounting	MTG
Mounting Plate	MTG PLT
Multicall	MC
Multiline	ML
Multiple	MULT or M
Multiple Bank	MULT BK
Multiple Brush	MULT BR
Multiple Marking	MULT MKG
Music Wire Gage (American Steel & Wire Co. Gage)	MWG

N

National Electric Code	NEC
National Screw Thread Commission	NSTC
Negative	NEG (-)
Network	NET or N
Neutral	NTL
Nickel Plate	NIC PLT
Nickel Silver	NIC SIL
Night Alarm	N ALM or NA
No Bias	NB
No Test	NT
No Voltage	NV
Noise Reducer	N RDR
Non-coin Sender Alarm	NON COIN SDR ALM
Non-inductive	NON IND
Norway Iron	NOR IR
November	NOV
Number	NO
Number Check or Checking	NO CHK
Number Group Connector Frame	NO GRP CONN F
Number Plate	NO PLT
Numerical	NUM

O

Obsolete	OBS
October	OCT
Odd	O
Office	OFF or O
Office Alarm	OFF ALM
Office Alarm Frame	OFF ALM F
Office Brush	OFF BR
Office Group	OFF GRP
Office Interrupter Frame	OFF INT F
Office Junctor Grouping Frame	OFF JCTR GRP F
Office Link Extension Frame	OFF LK EXT F
Office Link Frame	OFF LK F
Office Selector Test Frame	OFF SEL TST F
Official	OFF
OGT Test Frame	OGT TST F
Ohms	OHMS or (ω)
Operate, Operating, or Operator	OPR
Order or Ordering	ORD or O
Orientation	ORTN
Originating	ORG
Originating Marker Connector Frame	ORG MKR CONN F
Originating Marker Frame	ORG MKR F
Originating Sender Frame	ORG SDR F
Originating Sender Test Frame	ORG SDR TST F
Originating Trouble Indicator Frame	ORG TBL IND F
Oscillator	OSC
Oscillograph	OSCG
Ounces	OZ
Out Dialing Trunks	OUT D TRKS
Out Trunk Switch	OUT TRK SW or OTS
Outgoing	OUT or O
Outgoing Repeater	OG REP or OGR
Outgoing Trunk	OGT
Outgoing Trunk Test Board	OGT T BD
Output	OUT or OP
Output Resistance	OUT RES
Outside Diameter	OD
Outward	OUT
Outward Denied Service	OUT DEN SERV
Oval Head (Screw)	OH
Overtime Charging	OVT CHG
Overflow	OFL or OVF
Overload	OVLD
Oxidize	OX

P

Paint	PT
Pair	PR
Pair of Twisted Wires (Pointing to Wires)	P
Panel	PAN or P
Parallel	PAR
Particular Line	PL
Party	PTY
Patching	PTCH
Patent	PAT
Patent Pending	PAT PEND
Paths Busy	P BSY
Patrol	PTL or P
Pay Station	P STA
Peg Count	PEG CNT or PC

Word or Term	Abbreviation
Peg Count (Keyshelf Number Plate Only)	PEG
Peremptory	PER
Peremptory Disconnect Signal	PER DIS SIG
Perforate or Perforator	PERF
Permanent	PERM or P
Permanent Final Busy	PERM FIN BSY
Permanent Signal	PERM SIG
Permanent Signal Alarm	PERM SIG ALM
Permanent Signal Holding Trunk	PERM SIG HOLD TRK
Permanent Signal Overflow Register	PERM SIG OFL REG
Permanent Signal Tone	PERM SIG T
Phantom (Derived)	PH
Phantom (Drop End of Side Circuit)	PX
Phantom Coil Drop Side	PCD
Phantom Coil Line Side	PCL
Phase	PH
Phase Failure	PH FAIL
Phosphor	PHOS
Physical	PHYS
Picture	PICT
Pick-up	PK U or PU
Pick-up Alarm	PK U ALM
Pick-up Battery	PK U BAT
Piece Part	PP
Pilot	PIL or P
Pilot Cell	PIL CELL or P CELL
Pilot Channel	PIL CHAN or P CH
Pilot Lamp	PIL LP or P LP
Pilot Wire	PIL W or PW
Pitch Diameter	P DIAM
Plate	PLT
Plate Leads (Vacuum Tubes with Filaments in Series, from - to +)	P1, P2, P3, Etc.
Platinum	PLAT
Plug	PG or P
Plugging-up	PU
Pneumatic	PNEU
Pneumatic Ticket Distributing System	PNEU TKT DISTG SYS
Polar or Polarized	POL or P
Polish or Polished	POL
Polyphase	P, PH, or 2 PH, 3 PH, Etc.
Portable	PORT
Position	POS
Position Center	P
Positive	POS or P (+)
Potential	POT or P
Potential Transformer	POT TRANS or PT
Potentiometer	POT
Pound or Pounds	LB or LBS
Power	PWR or P
Power Alarm Cabinet	PWR ALM CAB
Power Board	PWR BD
Power Circuit	PWR CKT
Power Failure Alarm	PWR FAIL ALM
Power Protection Panel	PWR PROT PAN
Power Room	PWR RM
Power Service Distributing Fuse Cabinet	PWR SERV DISTG F CAB
Power Terminal Strip	PWR TS
Preceding	PREC
Preference	PREF
Preliminary	PREL
Preselector	PRSL
Primary	PRI or P
Primary Line Switch	PRI L SW or PLS
Primary Master Switch	PRI M SW or PMS
Printer	PTR
Privacy	PRV
Private Branch Exchange	PBX
Private Line	PL
Private Line Battery	PL BAT
Program Transmission	PROG TRANS
Projection Transmission	PROJ TRANS
Measuring	MEAS
Protection	PROT
Protector or Protective	PROT
Provisional	PROV
Public Station	PS
Pulse or Pulsating	PULS or P
Pulse Machine	PULS MACH
Punching	PCHG

Q

Quadruple	QUAD
Quart	QT
Quartenary	Q

R

Rack	RK or R
Radius	R
Railway	RY
Rear	REAR or R
Recall	RCL
Recall Disconnect	RCL DIS
Receiver	REC or R
Receiving	REC, R, or RECG
Receiving Amplifier	REC AMP or RA
Receiving Directional Filter	REC DIR FILT
Receiving Leg	REC LEG
Receiving Leg Battery	REC LEG BAT
Receptacle	RECP
Recorder	RCDR or R
Recording	REC
Recording Completing Trunk	REC COM TRK or RC TRK
Rectangular	RECT
Rectifier	RECT
Reference	REF
Regenerative	REGEN
Register	REG or R
Register Control	REG CONT
Regular	REG
Regulate, Regulating, or Regulator	REG
Relay	REL or R
Relay Rack	REL RK or RR
Relay Rack Ground	REL RK GRD or RRG
Release	RLS or R
Release (For Key-top Engraving Only)	REL
Release Alarm	RLS ALM
Remote Control	REM CONT or RC
Removal	REM
Reorder or Reordering	REODR or RO
Repair Clerk's Desk	REP CL D or RCD
Repair Service Desk	REP SERV or RSD
Repeat	REP
Repeater or Repeating	REP
Repeater Frame	REP F
Repeater Fuse Panel	REP F PAN
Repeating Coil	REP COIL
Replacement	REPLACE
Required or Requisition	REQ

Word or Term	Abbreviation
Reserve	RSV
Resistance	RES or R
Resistance Mounting	RES MTG
Resonant	R or RES
Respective	RESP
Restore or Reset	RST or R
Retardation	RET
Retardation Coil	RET COIL
Return	R
Reverse, Reversal, or Reversing	REV
Reverse Current	REV CUR
Reverting Busy Back	REV BSY B
Reverting Busy Test	REV BSY TST
Reverting Call Selector	REV C SEL
Reverting Flash Back	REV FL B
Revolution	REV
Revolutions per Minute	RPM
Rheostat	RHEO
Right	RT or R
Right Hand	RH
Right Lower	RL
Right Upper	RU
Ring	R
Ringback	RB
Ringdown	RD
Ringer	RING
Ringer Test	RING TST
Ringing	RING or R
Ringing Power Board	RING PWR BD
Rotary	ROT
Rotary Connector	ROT CONN
Rotary Line Switch	ROT L SW or ROT LS
Rotary Out Trunk Switch	ROT OUT TRK SW or ROT OTS
Rotate or Rotating	ROT
Rough Grind Finish	RGF
Round	R or RD
Round Head	RH
Route Transfer	R TRNS
Route Switch	ROUTE SW
Routine Test	ROUT TST
Routing	ROUT or R
Rubber	RUB
Rural	RUR

S

Screw or Screws	SCR or SCRS
Sealed Test Terminal	SLD TST TERM
Second	SEC
Second Selector	2ND SEL
Secondary	SEC
Secondary Line Switch	SEC L SW or SLS
Secondary Master Switch	SEC M SW or SMS
Secretary or Secretarial	SECR
Section	SECT
Segment	SEG
Selector or Selective	SEL or S
Selector Frame	SEL F
Selector Test	SEL TST
Self Tapping Screw	ST SCR
Selsyn Receiver	SLN REC
Selsyn Transmitter	SLN TRS
Semimechanical	SM
Sender	SDR or S
Sender Cut-off	SDR CO
Sender Make Busy Frame	SDR MB F
Sender Monitor	SDR MON
Sender Ringdown	SDR RD
Sender Selector	SDR SEL
Sender Test	SDR TST
Sender Test Interrupter Frame	S TST INT F
Sending	SDG or S
Sending Battery	SDG BAT
Sending Leg	SDG LEG
Sending Leg Battery	SDG LEG BAT
Sensitivity	SENS
Separate	SEP
September	SEPT
Sequence	SEQ
Sequence Switch	SEQ SW
Series	SER
Service	SERV or S
Service Observing	SERV OBS or SO
Service Observing Desk	SERV OBS D or SOD
Service Observing Jack Panel	SERV OBS JK PAN
Service Testing	SERV TST
Shake Proof Lock Washer	SPLW
Sheet	SH
Sherardize	SHER
Shield	SHLD
Short Circuit	SH CKT
Shunt	SH
Side Band Input	SB IN
Side Band Output	SB OUT
Signal or Signaling	SIG or S
Signal Ground	SIG GRD
Silent, Silence, or Silencer	SIL
Silk Cotton Lacquer (Wire)	SCL
Silk Double Cotton (Wire)	SDC
Silk Single Cotton (Wire)	SC
Silver	SIL
Simplex	SX
Singing	SNG or S
Single Cord	S CD
Single Line	SL
Single Phase	S PH or 1 PH
Sketch	SK
Skip Office	SK OFF
Slate	SL
Sleeve	SLV or S
Slightly Chamfer	SC
Slightly Round	SR
Soak	SK
Sounder	SDR
South	S
Spacing	SPCG
Spare	SP
Spare Amplifier	SP AMP
Spare Amplifier Switching	SP AMP SW
Spare Line Section Switching	SP L SECT SW
Special	SPL
Special Service Operator	SPL SERV OPR
Special Service Operator's Position	SPL SERV OPR POS or SSOP
Special Service Operator's Trunk	SPL SERV OPR TRK or SSOT
Specification or Specified	SPEC
Splitting	SPLIT
Spring	SPG
Square	SQ
Stability	STAB
Standard	STD
Start	ST
Start Circuit Alarm	ST CKT ALM
Starting Box	START BOX
Station	STA
Stationary	STY
Steel	STL
Step-by-Step	SXS
Stepper or Stepping	STP

Word or Term	Abbreviation
Storing	STR
Stove Bolt	S BOLT
Straightforward	STFD
Stroboscope	STROB
Stubb's Steel Wire Gage	SSWG
Stuck	STK
Stuck Connection Finder Frame	STK C FDR F
Subgroup	S GRP
Subscriber	SUB or S
Subscriber Decoder Sender Frame	SUB DR SDR F
Subscriber Link Frame	SUB LK F
Subscriber Position	SUB POS
Subscriber Sender Frame	SUB SDR F
Subscriber Sender Link Frame	SUB SDR LK F
Subscriber Sender Test Frame	SUB SDR TST F
Subscriber Set	SUB SET
Subscriber Switchboard	SUB SWBD
Suburban	SUBUR or S
Succeeding	SUCC
Super Group	SG
Superimposed	SUP or S
Superimposed Negative	SUP - or S - (± -)
Superimposed Positive	SUP + or S + (± +)
Supervision	SUPV
Supervisor or Supervisory	SR
Supplementary	SUPL
Supplementary Incoming Trunk Frame	SUPL INC TRK F
Supplier	SUPP or SPLR
Supply	SUP
Suppressor	SPR
Surface Wiring	SW
Switch or Switching	SW
Switch and Horizontal	SW & HOR
Switch and Vertical	SW & VERT
Switch Frame	SW F
Switch Room	SW RM
Switchboard	SWBD
Switchboard Cable	SWBD CA
Switchboard Ground	SWBD GRD or SG
Switchman	SWMN or S
Synchronous	SYNCH or SYN
System	SYS

T

Talking	TALK, TLK, or T
Talking Battery	TALK BAT, TLK BAT, or TB
Talking Ground	TLK GRD or TG
Tandem	TDM
Tandem Call Announcer Alarm Frame	TDM CA ALM F
Tandem Call Announcer Amplifier Frame	TDM CA AMP F
Tandem Call Announcer Test Frame	TDM CA TST F
Tandem Decoder Connector Frame	TDM DR CONN F
Tandem Decoder Frame	TDM DR F
Tandem District Frame	TDM DIST F
Tandem District Selector Frame	TDM DIST SEL F
Tandem Interrupter Frame	TDM INT F
Tandem Link Frame	TDM LK F
Tandem Office Selector Test Frame	TDM OFF SEL TST F
Tandem Sender Frame	TDM SDR F
Tandem Sender Test Frame	TDM SDR TST F
Tandem Trouble Indicator Frame	TDM TBL IND F
Tandem Trouble Recorder Frame	TDM TBL RCDR F
Tandem Trunk Finder Frame	TDM TRK FDR F
Team or Teamwork	TM
Telegraph	TELEG or TLG
Telegraph Ground	TELEG GRD or TG
Telegraph Test Board	TELEG TST BD
Telephone	TEL
Telephotograph	TPHO
Teletypewriter	TTY
Teletypewriter Exchange	TWX
Teletypewriter Switchboard	TTY SWBD
Teletypewriter Switchboard (On Number Plates Only)	TTYS
Tell-tale	TT
Temperature	TEMP
Tens	T
Terminal	TERM or T
Terminal Punching	TP
Terminal Strip	TS
Terminating	TER
Terminating Marker Connector Frame	TER MKR CONN F
Terminating Marker Frame	TER MKR F
Terminating Sender Frame	TER SDR F
Terminating Sender Link Frame	TER SDR LK F
Terminating Sender Test Frame	TER SDR TST F
Terminating Trouble Indicator Frame	TER TBL IND F
Tertiary	TER
Test	TST or T
Test and Control Board	TST & CONT BD
Test and Plugging-up	TST & PU
Test Battery Supply	TST BAT SUP
Test Board	TST BD or T BD
Test Board Relay Rack	TST BD REL RK or TST BD RR
Test Board Telegraph	TST BD TELEG
Test Connector	TST CONN
Test Cord	TST CD
Test Distributor	TST DISTBR or TD
Test Distributor Selector	TST DISTBR SEL or TDS
Test Key	TST K
Test Line	TST L or TL
Test Pulse Machine	TST PULS MACH
Test Relay	TST REL
Test Set	TST SET
Test Trunk Finder Frame	TST TRK FDR F
Thermocouple	TC
Third Selector	3RD SEL
Thousand	TH (M)
Thread or Threads	THD or THDS
Threads per Inch	TPI
Three Digit	3 DIG
Three Wire Office Frame	3W OFF F or 3WOF
Through	THRU
Through Position	RX
Ticket	TKT or T
Ticket Distributing Desk	TKT DISTG DSK or TD DSK
Ticket Filing and Rate Quoting Desk	TF & RQD
Ticket Pilot	TKT PIL
Tie Line	TL
Tie Trunk	T TRK
Tight Wrapped	TW
Time Alarm	T ALM
Time Measure	T MEAS
Timing Circuit	TMG CKT
Timing Failure	TMG FAIL
Tip	T
Tip, Ring, and Sleeve	TRS
Tolerance	TOL

Word or Term	Abbreviation
Toll	T
Toll Connecting	TC
Toll Diversion	T DIV
Toll Preceding Selector	TP SEL
Toll Selector	T SEL
Toll Switching	T SW
Toll Tandem	T TDM
Toll Test Board	TT BD
Tone	T
Tone Test	T TST or TT
Traffic	TR or T
Traffic Display Board	TR D BD
Traffic Register	TR
Traffic Register Rack	TRR
Training	TR
Transfer	TRNS or TR
Transformer	TRANS or T
Translator or Translation	TRNSL or T
Transmission	TRANS or T
Transmission Measuring	TRANS M or TM
Transmission Test Board	TRANS TST BD
Transmission Unit	TU
Transmitter	TRS
Transmitting	TRSG
Transmitting Amplifier	TRSG A or TA
Transmitting Directional Filter	TRSG DIR FILT
Transparent	TRANS
Tributary	TRIB
Trickle	TKL
Tripping or Trip	TRIP, TP, or T
Trip Magnet	TM
Trouble	TBL
Trouble Desk	TBL DSK
Trouble Indicator Frame	TBL IND F
Trouble Observation and Test Trunk	TBL OBS & TST TRK
Trouble Test (Tone)	TBL TST
Trouble Tracing	TBL TR
Trunk	TRK
Trunk Distributing Frame	TDF
Trunk Finder	TRK FDR or TF
Trunk Finder Frame	TRK FDR F
Trunk Position	TRK POS
Trunk Switchboard	TRK SWBD
Trunks Busy	TRKS BSY
Tungar Rectifier	TG RECT
Turret	TUR or T
Twist Regulator	TW REG
Twisted	TW
Two Digit	2 DIG
Two Number	2NO
Two-Three Digit	2-3 DIG
Two Wire	2W

U

Ultimate	ULT
Unanswered	UA
Unattended	UNATTD
Unbalance	UNBAL or U
Unit or Units	U
United States Standard	US STD
Universal	UNIV or U
Upper Side Band	UP SB
Utility	UT

V

Vacant	VAC
Vacant Codes	VAC CODES
Vacant Level Tone	VAC LEV T
Vacuum Tube	VT
Vacuum Tube Socket	VTS
Valve	V
Valve Signal	V SIG
Variable Condenser	VAR COND
Varistor	VAR
Verification Trunk	V TRK
Vertical	VERT or V
Very Slightly Chamfer	VSC
Vibrating	VIB
Voice Frequency	VF
Voice Frequency Signaling	VF SIG
Voice Impedance Filter	VIF
Voice Input	V IN
Voice Operated Device, Anti-singing	VODAS or VOD
Voice Operated Gain Adjusting Device	VOGAD or VOG
Voice Output	V OUT
Voice Terminating Equipment	VTE
Volt or Voltage	V
Voltage Regulator	V REG
Voltmeter	VM or V
Voltmeter Cord	VM CD
Voltmeter Relay	VM REL
Volume Limiter	VOL LIM

W

Waiting	WTG or W
Ward Leonard	WL
Watt Hour Meter Polyphase	PWHM
Watt Hour Meter Single Phase	SWHM
Watt Meter	WM
Watt Meter Polyphase Indicating	PIWM
Watt Meter Single Phase Indicating	SIWM
Weather	WEA
Weight	WT
Weighting	WTG
Weld	W
West	W
Western Electric Company, Inc.	WE CO INC
Wheatstone Bridge	WH BG or WB
Winding	WDG
Wipe Out	WO
Wire Chief	WC
Wire Chief (On Answering Jack Number Plates Only)	W CH
Wiring	WIR
Wood Screw	W SCR

Y

Year	YR

Z

Zinc	ZN
Zone Registration	Z REG
Zone Registration Control Frame	Z REG CONT F
Zone Registration District Connector Frame	Z REG DIST CONN F
Zone Registration Test Frame	Z REG TST F
Zone Registration Timing Interrupter Frame	Z REG TMG INT F

REMARKS

REMARKS

REMARKS

REGULAR

GUIDE	PEN	
90	1B	ABCDEFGHIJKLMNOPQRSTUV
100	1B	ABCDEFGHIJKLMNOPQRSTU
105	1B	ABCDEFGHIJKLMNOPQRST
120	1B	ABCDEFGHIJKLMNOPQR
140	1B	ABCDEFGHIJKLMNOP
140	2	ABCDEFGHIJKLMNOI
150	1B	ABCDEFGHIJKLMNO
150	2	ABCDEFGHIJKLMNO
155	2	ABCDEFGHIJKLMN
175	2	ABCDEFGHIJKLM
175*	3B	ABCDEFGHIJKLI
200	3B	ABCDEFGHIJKL
240	3B	ABCDEFGHIJ
240	4B	ABCDEFGHIJ
290	3B	ABCDEFGH
290	4B	ABCDEFGH
290*	5B	ABCDEFGI
350	3B	ABCDEFG
350	4B	ABCDEFG

GUIDE	PEN	
350*	6B	ABCDEFC
425*	7B	ABCDEI
500	4B	ABCDE
500	5B	ABCDE
500*	7B	ABCDE
625*	8B	ABCD
G75	3B OR 4B	ABC
G100	4B	AB

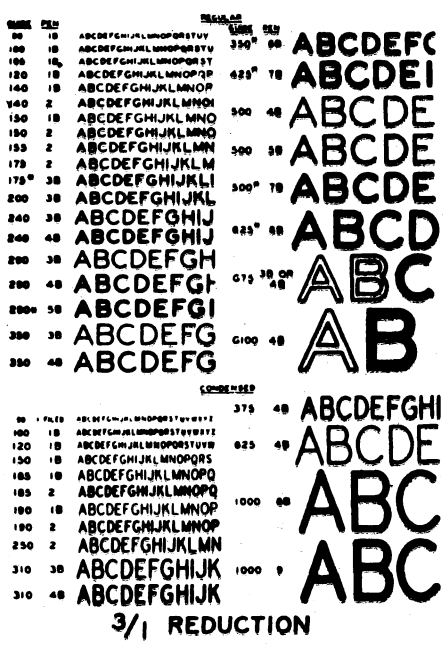
CONDENSED

90	I-FILED	ABCDEFGHIJKLMNOPQRSTUVWXYZ
100	1B	ABCDEFGHIJKLMNOPQRSTUVWXYZ
120	1B	ABCDEFGHIJKLMNOPQRSTUVW
150	1B	ABCDEFGHIJKLMNOPQRS
185	1B	ABCDEFGHIJKLMNOPQ
185	2	ABCDEFGHIJKLMNOPQ
190	1B	ABCDEFGHIJKLMNOP
190	2	ABCDEFGHIJKLMNOP
250	2	ABCDEFGHIJKLMN
310	3B	ABCDEFGHIJK
310	4B	ABCDEFGHIJK

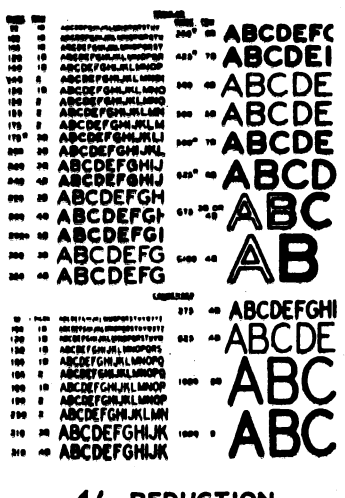
GUIDE	PEN	
375	4B	ABCDEFGHI
625	4B	ABCDE
1000	8B	ABC
1000	9	ABC

* SPECIAL GUIDES FOR LARGE PENS

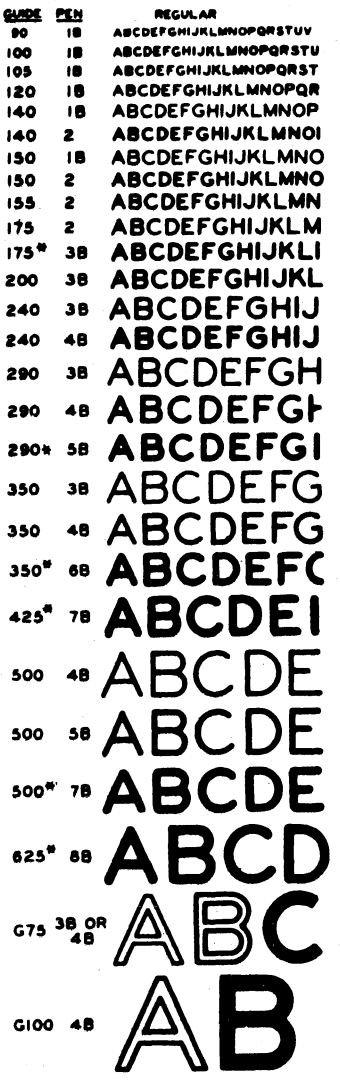
LETTERING - ACTUAL SIZE



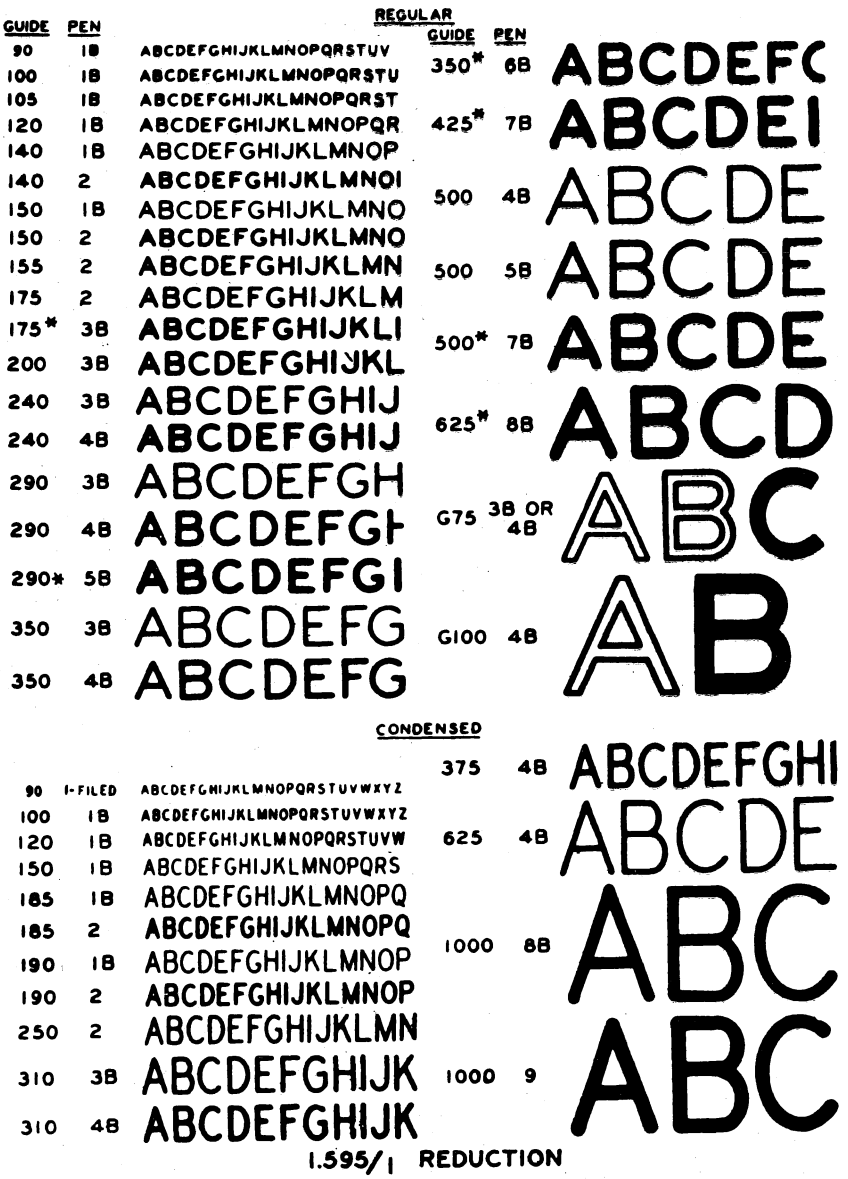
3/1 REDUCTION



4/1 REDUCTION

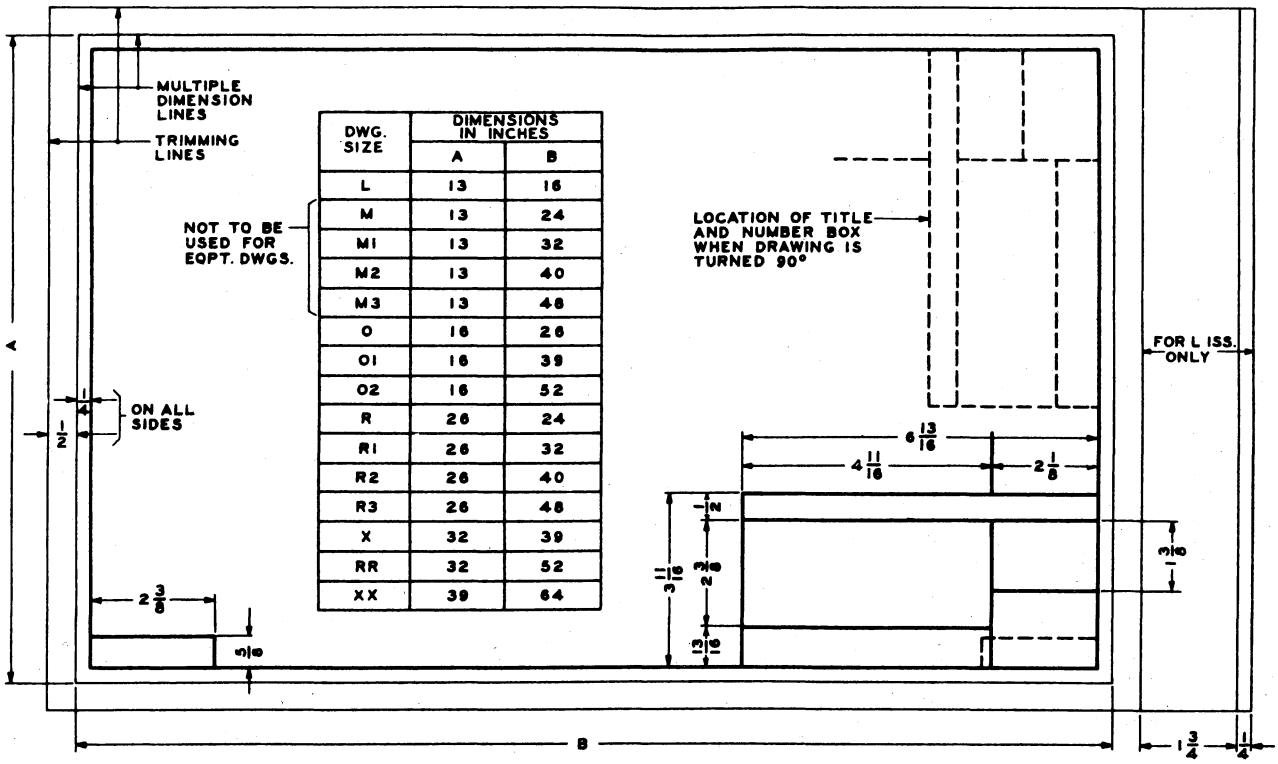


2/1 REDUCTION



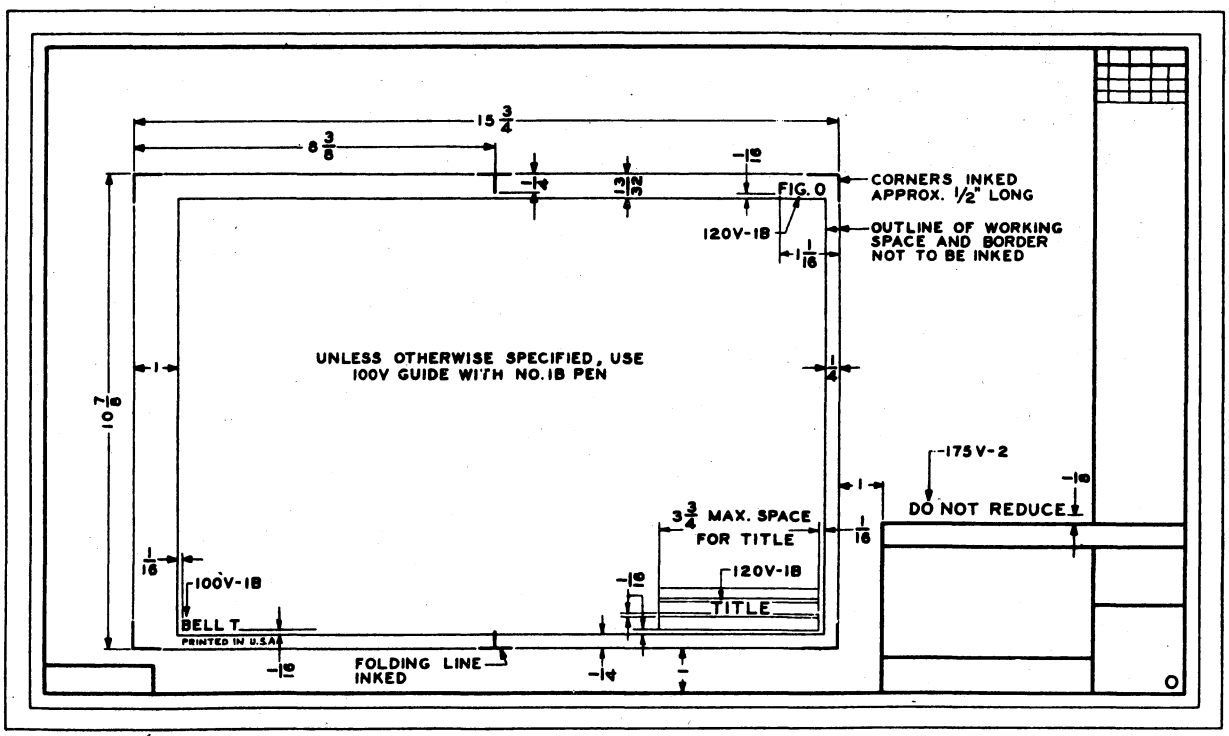
1.595/1 REDUCTION

LETTERING - REDUCTIONS



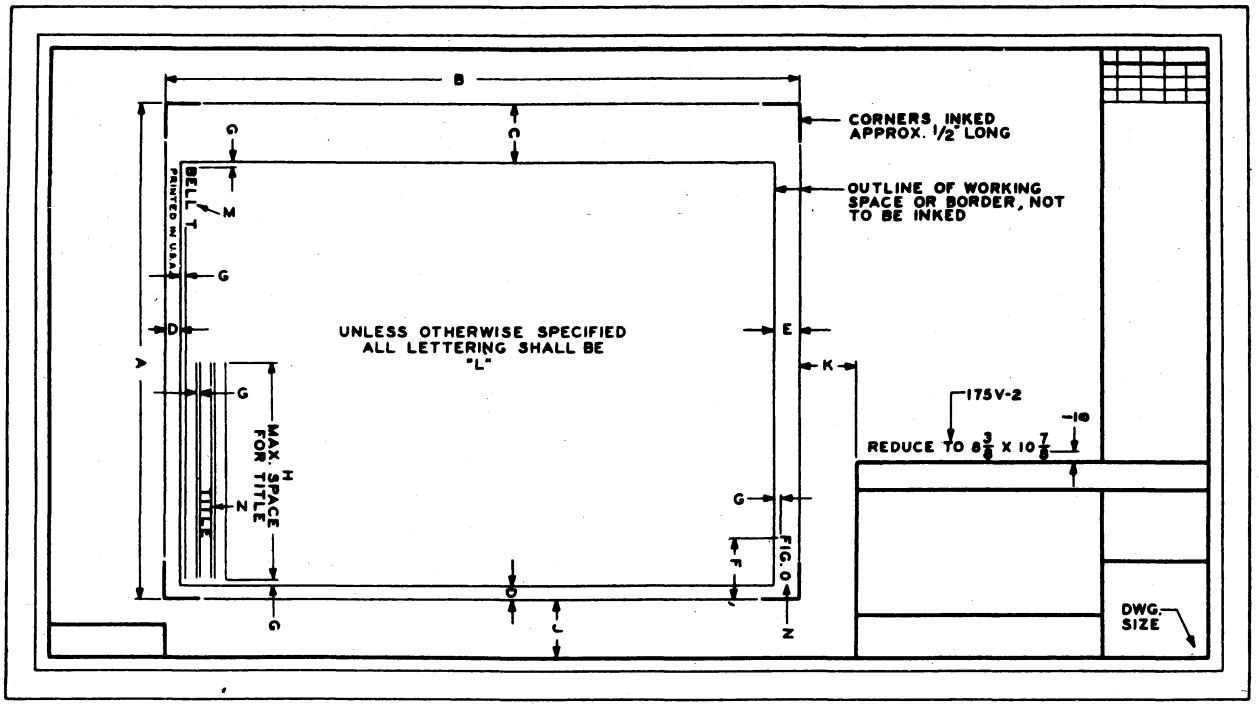
DWG. SIZE	DIMENSIONS IN INCHES	
	A	B
L	13	16
M	13	24
M1	13	32
M2	13	40
M3	13	48
O	16	26
O1	16	39
O2	16	52
R	26	24
R1	26	32
R2	26	40
R3	26	48
X	32	39
RR	32	52
XX	39	64

STANDARD DRAWING FORMS - DIMENSIONS
FIG. A

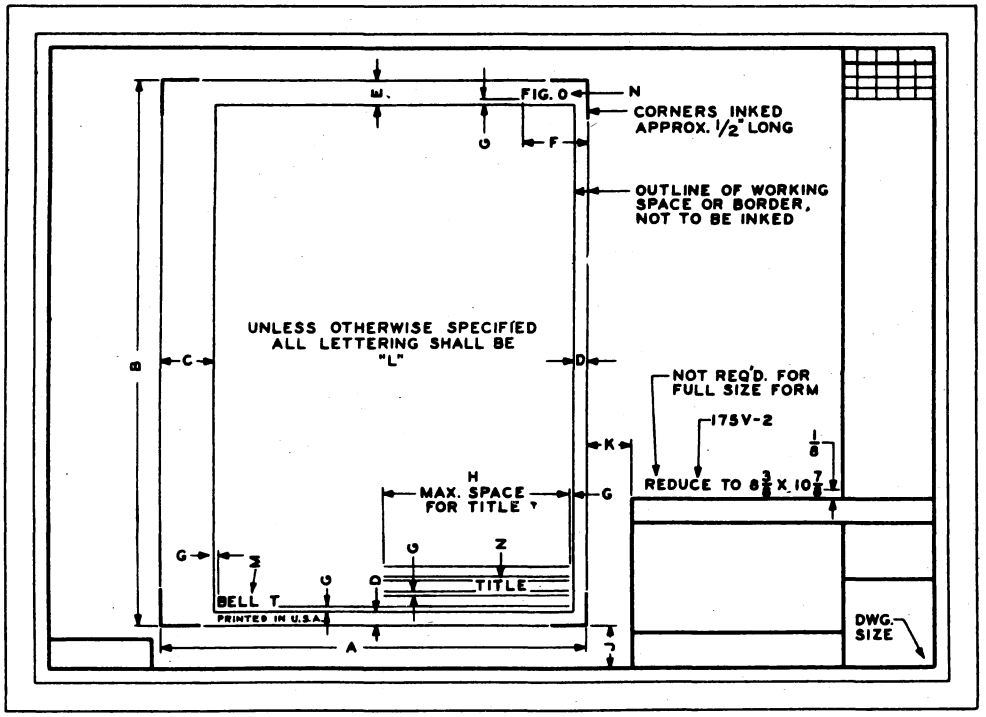


SPECIFICATION FORM, ARRANGED FOR FOLDING
FIG. B

SPECIFICATION FORM FOR FOLDING AND DRAWING FORMS - DIMENSIONS



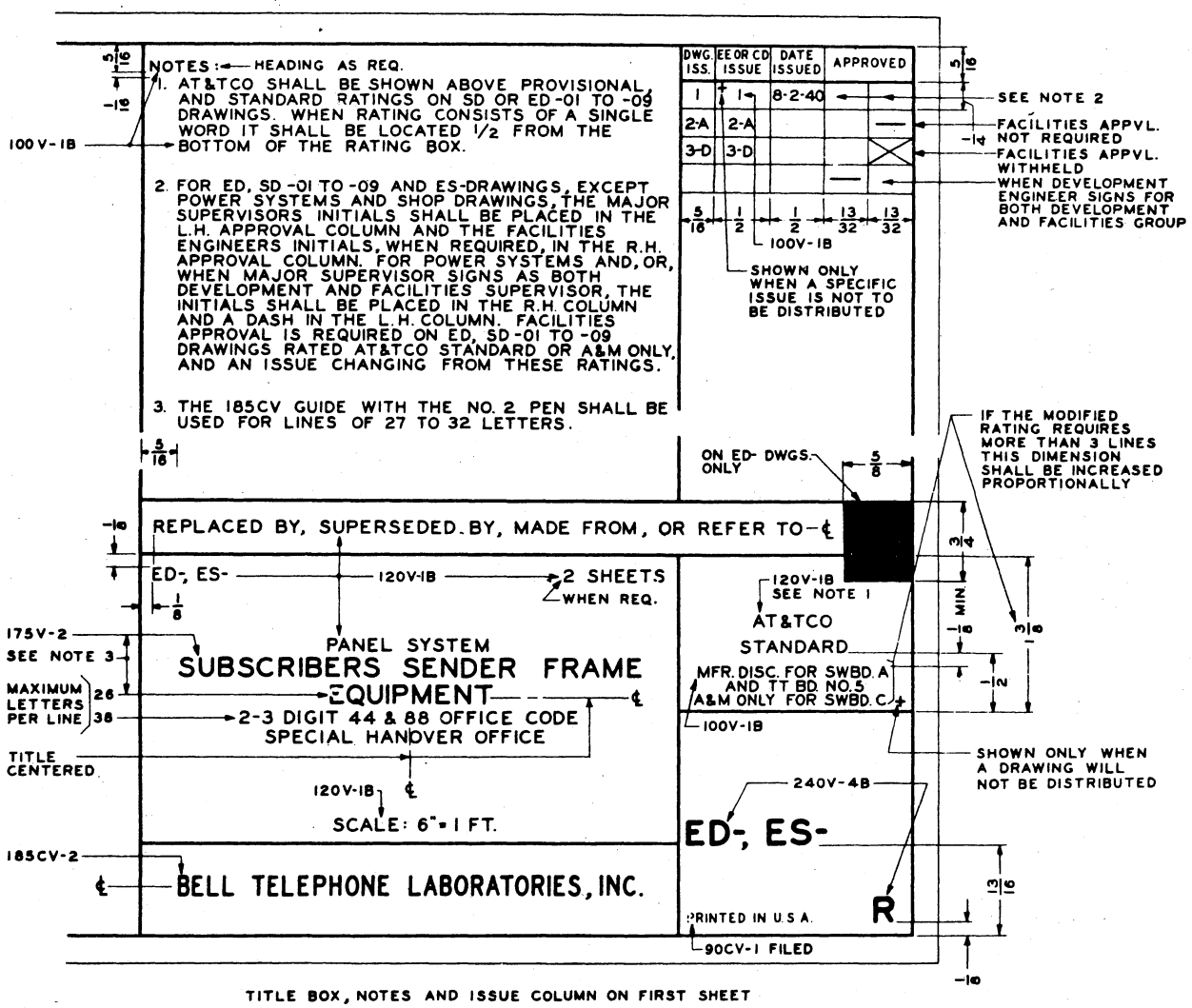
1.595/1, 3/1 & 4/1 SPECIFICATION FORM
FIG. A



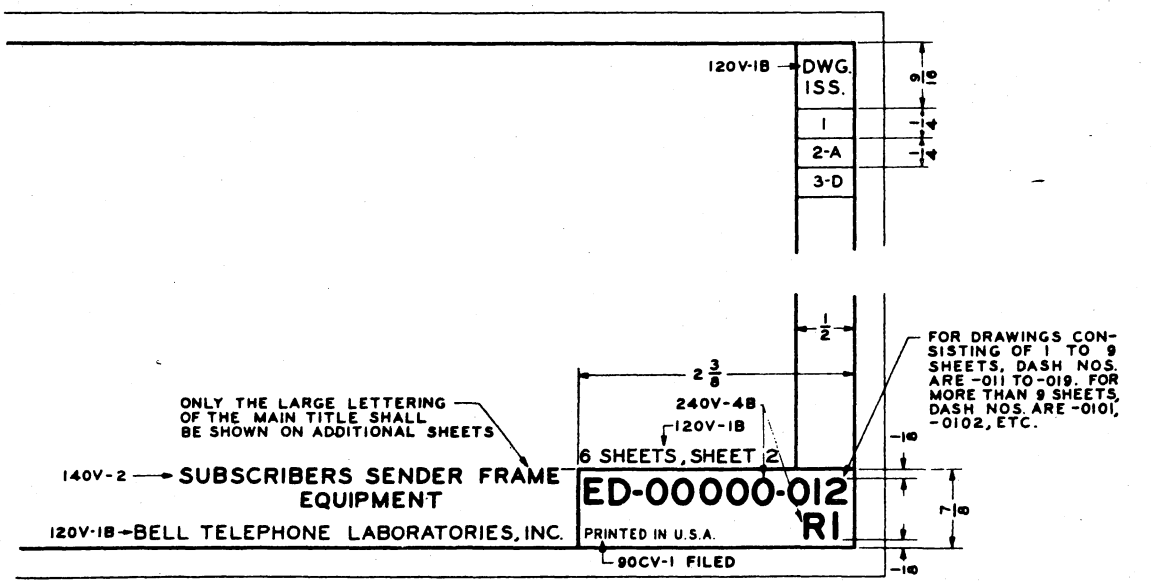
FULL SIZE & 2/1 SPECIFICATION FORM
FIG. B

SIZE OF FORM	FIG.	DWG. SIZE	DIMENSIONS IN INCHES										LETTERING SIZE		
			A	B	C	D	E	F	G	H	J	K	L	M	N
FULL SIZE	B	L	8 3/8	10 7/8	1	1/4	13/32	1 1/16	1/16	3 3/4	13/16	1/8	100-1B	100-1B	120V-1B
1.595/1	A	O	13 23/64	17 11/32	1 19/32	13/32	21/32	1 19/32	3/32	6 3/8	1	5/8	100-1B	100V-1B	175V-2
2/1	B	R1	16 3/4	21 3/4	2	1/2	13/16	2	1/8	8	13/16	1	120V-1B	140V-2	240V-3B
3/1	A	R3	25 1/8	32 5/8	3	3/4	1 1/4	3	3/16	12	3/16	1	175V-2	240V-3B	350V-4B
4/1	A	XX	33 1/2	43 1/2	4	1	1 5/8	4	1/4	16	13/16	1	240V-3B	290V-3B	500V-5B

SPECIFICATION FORMS



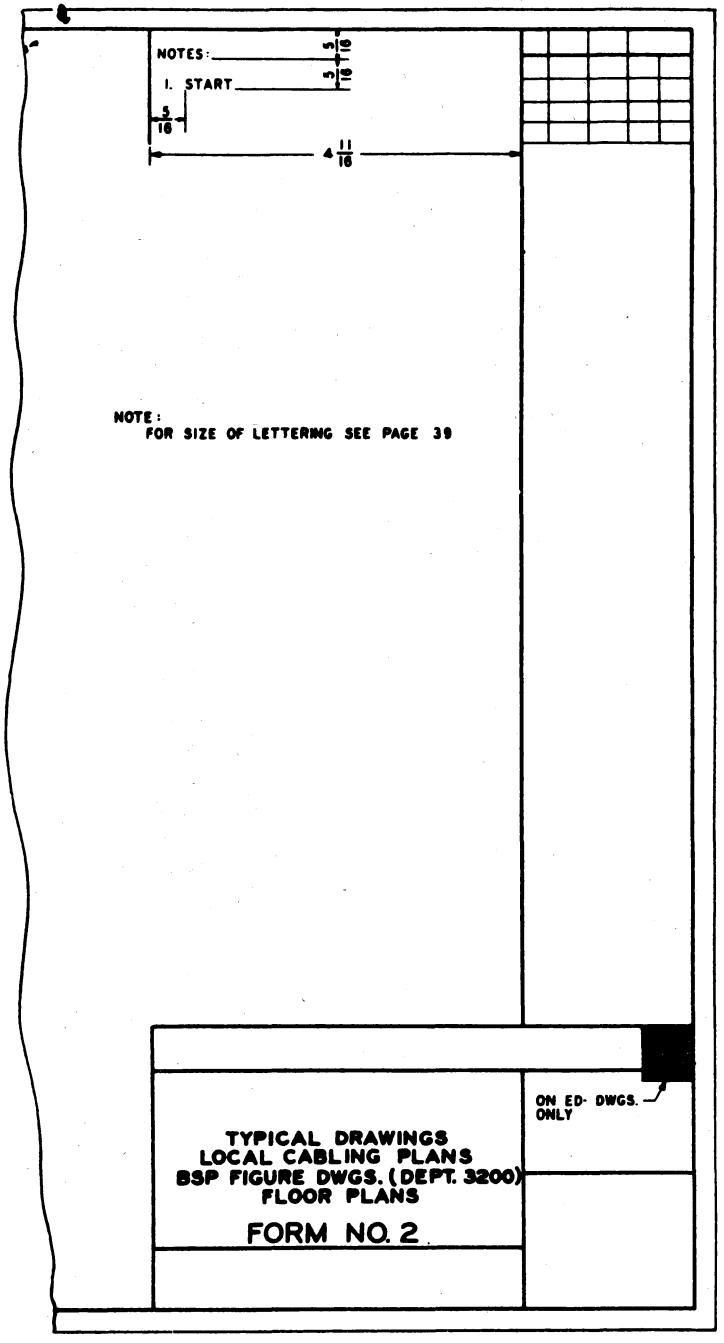
TITLE BOX, NOTES AND ISSUE COLUMN ON FIRST SHEET
FIG. A

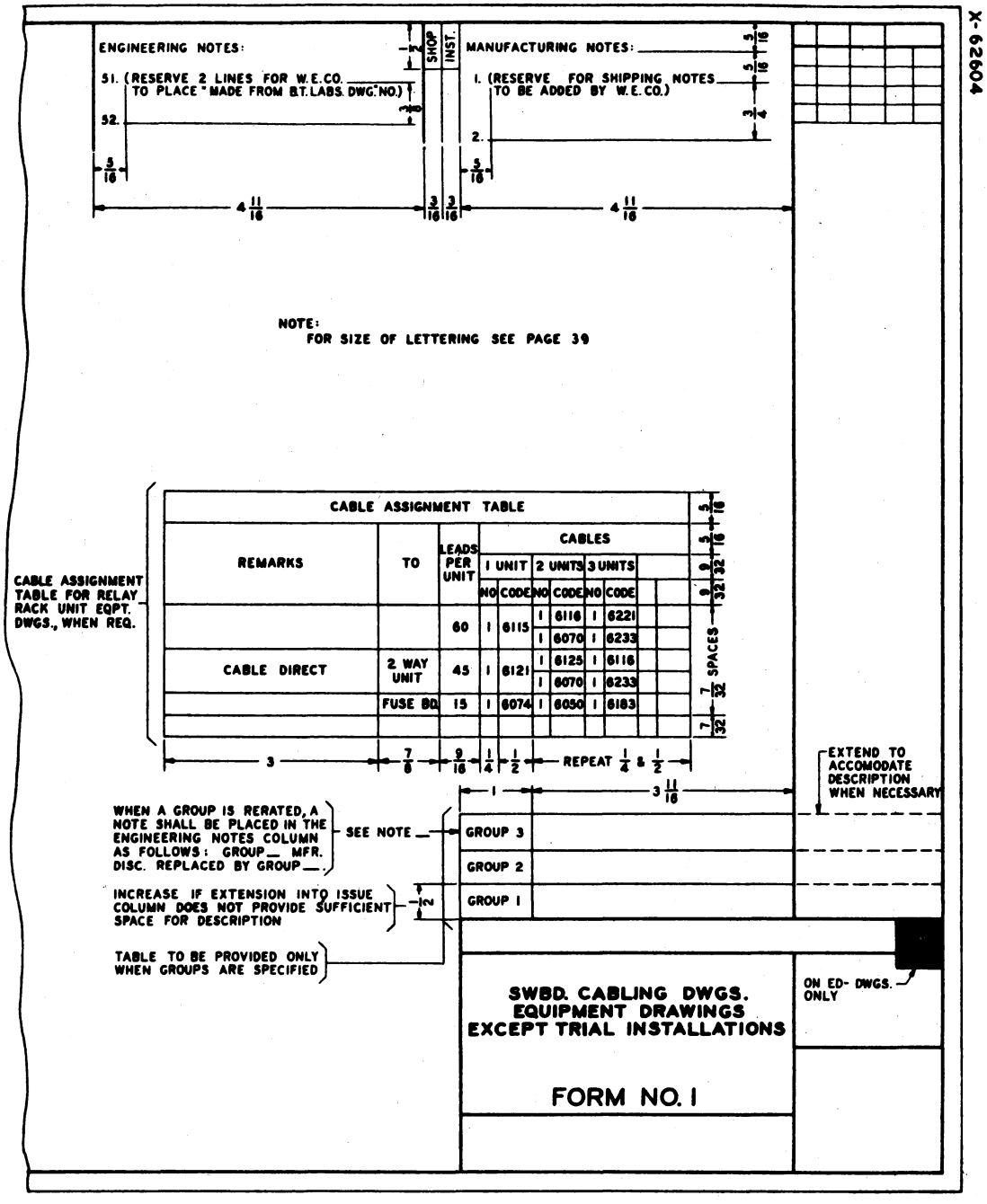


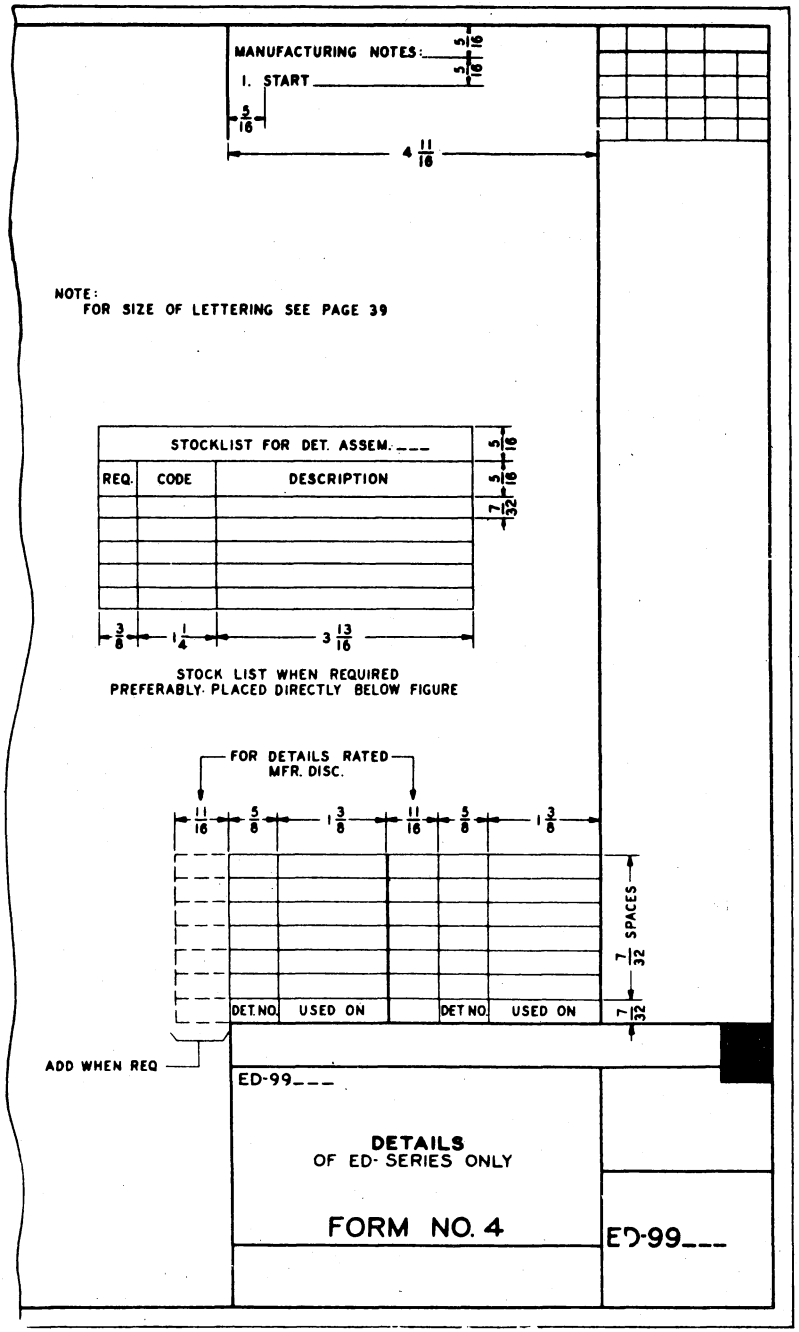
TITLE, NOTES AND ISSUE COLUMN ON OTHER THAN FIRST SHEET
FIG. B

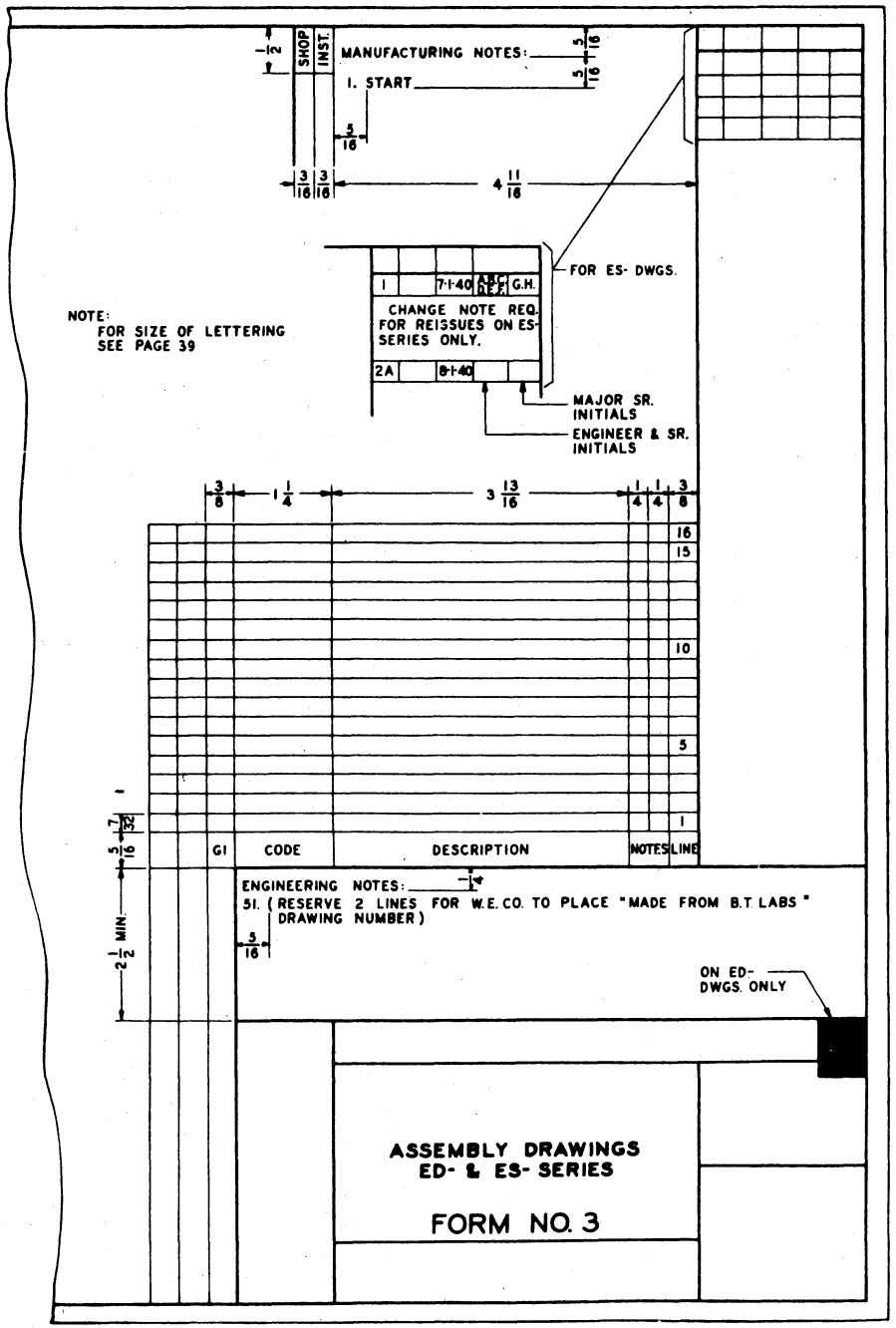
STANDARD ARRANGEMENT OF TITLE, NOTES & ISSUE COLUMNS

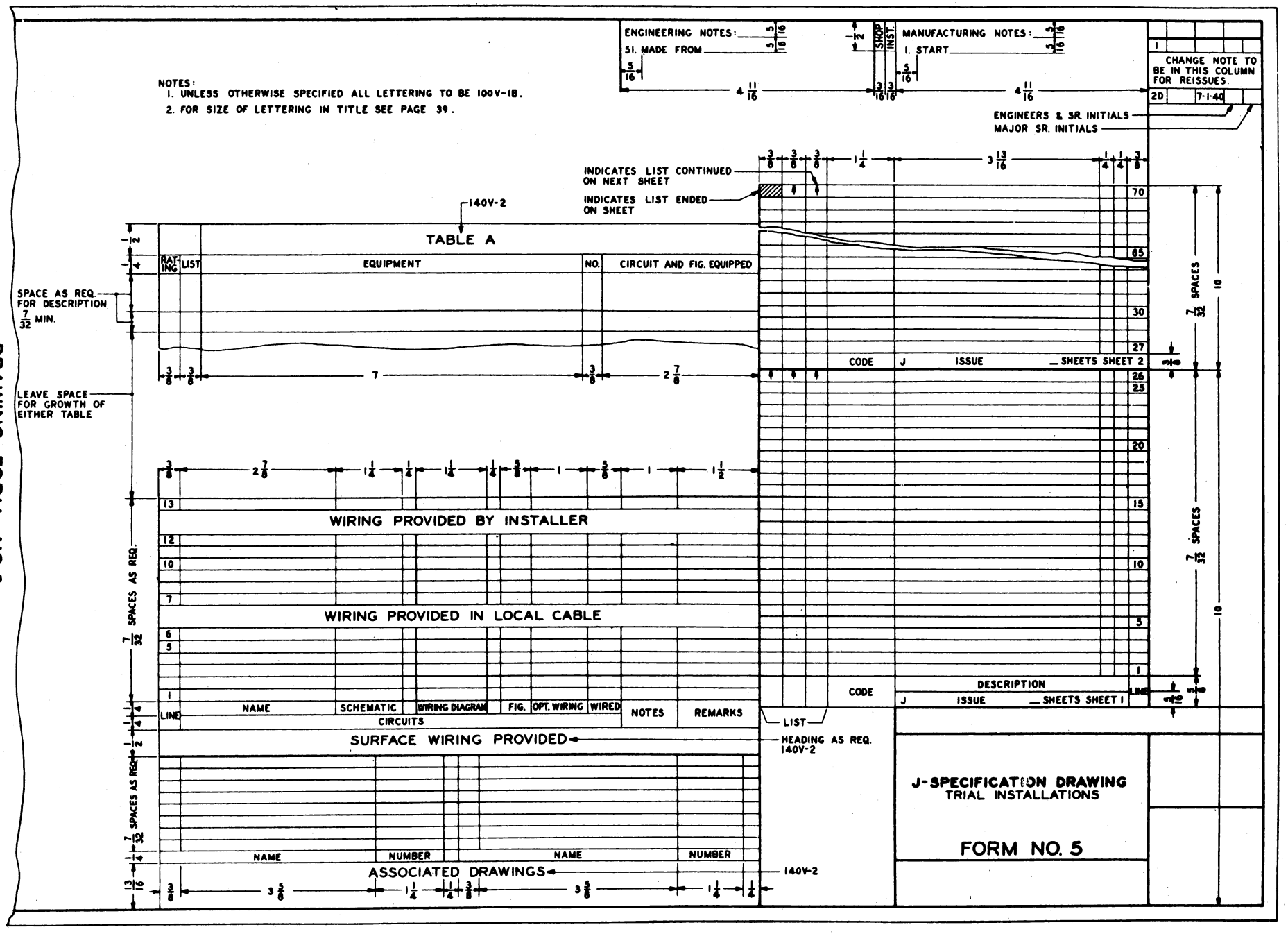
DRAWING FORMS - NO. 1 & NO. 2





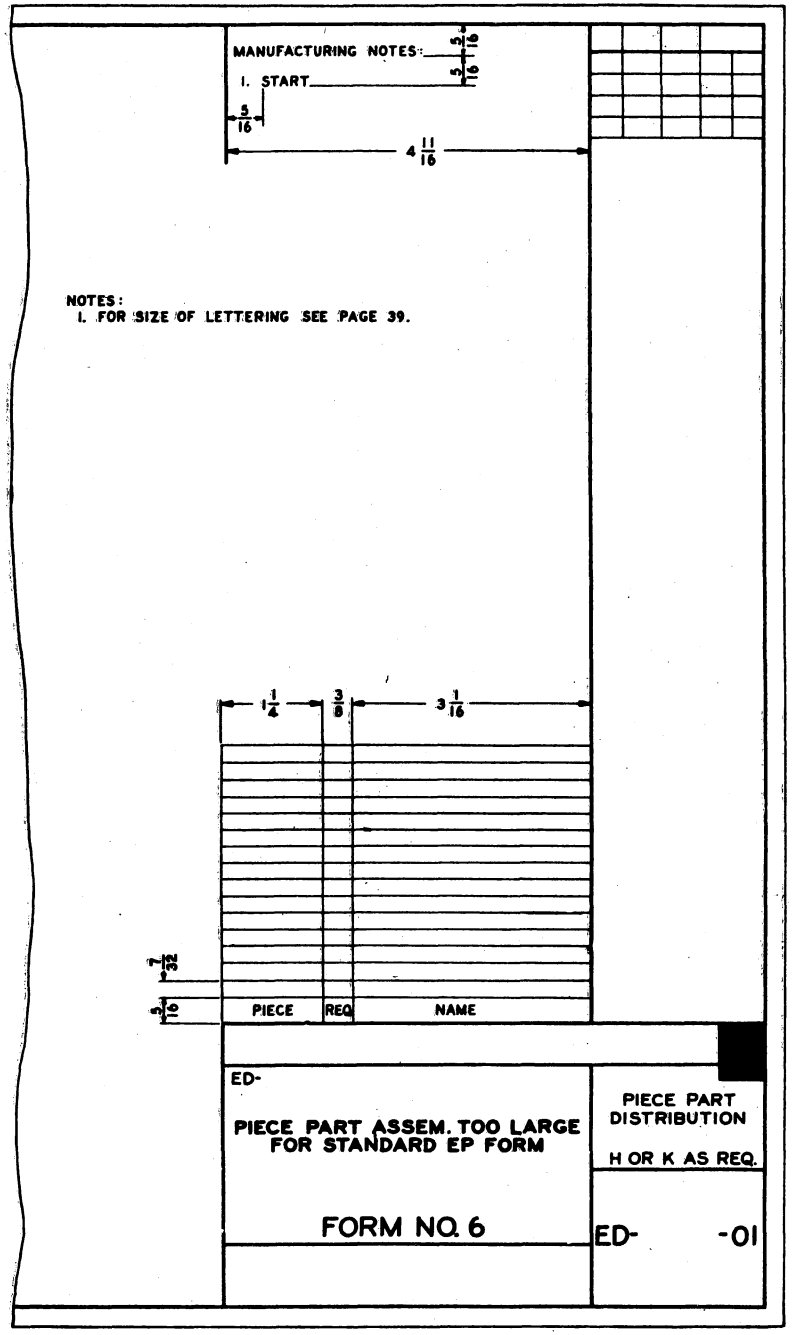

MANUFACTURING NOTES:
1. START
NOTE:
FOR SIZE OF LETTERING SEE PAGE 39
STOCKLIST FOR DET. ASSEM.___
REQ.
CODE
DESCRIPTION
STOCK LIST WHEN REQUIRED
PREFERABLY PLACED DIRECTLY BELOW FIGURE
FOR DETAILS RATED MFR. DISC.
7 SPACES
DET. NO.
USED ON
ADD WHEN REQ
ED-99___
DETAILS
OF ED- SERIES ONLY
FORM NO. 4
ED-99___

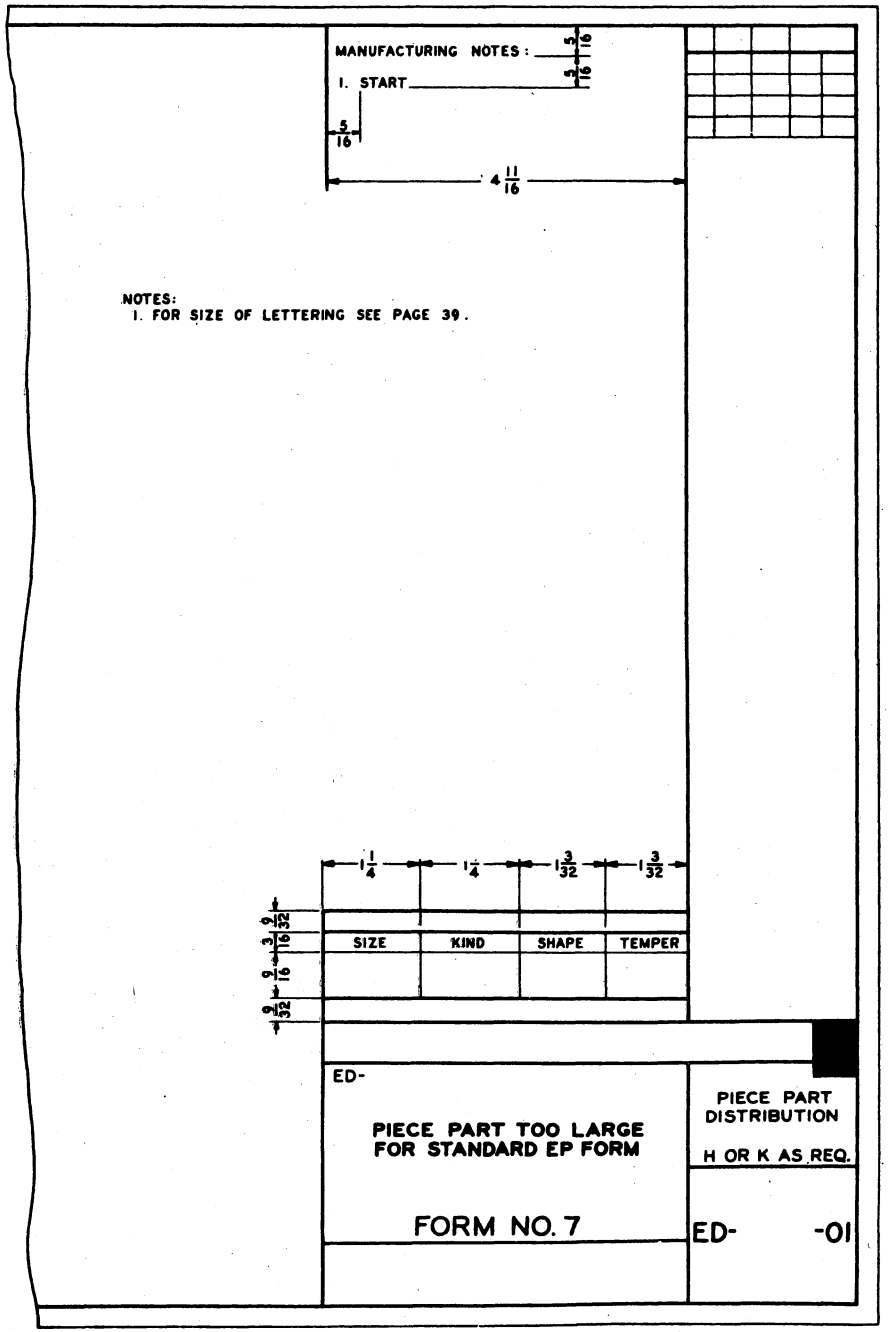

SHOP INST.
MANUFACTURING NOTES:
1. START
NOTE:
FOR SIZE OF LETTERING SEE PAGE 39
FOR ES- DWGS.
CHANGE NOTE REQ. FOR REISSUES ON ES- SERIES ONLY.
MAJOR SR. INITIALS
ENGINEER & SR. INITIALS
GI
CODE
DESCRIPTION
NOTES
LINE
ENGINEERING NOTES:
51. (RESERVE 2 LINES FOR W.E.CO. TO PLACE "MADE FROM B.T. LABS" DRAWING NUMBER)
2 1/2 MIN.
ON ED- DWGS. ONLY
ASSEMBLY DRAWINGS
ED- & ES- SERIES
FORM NO. 3



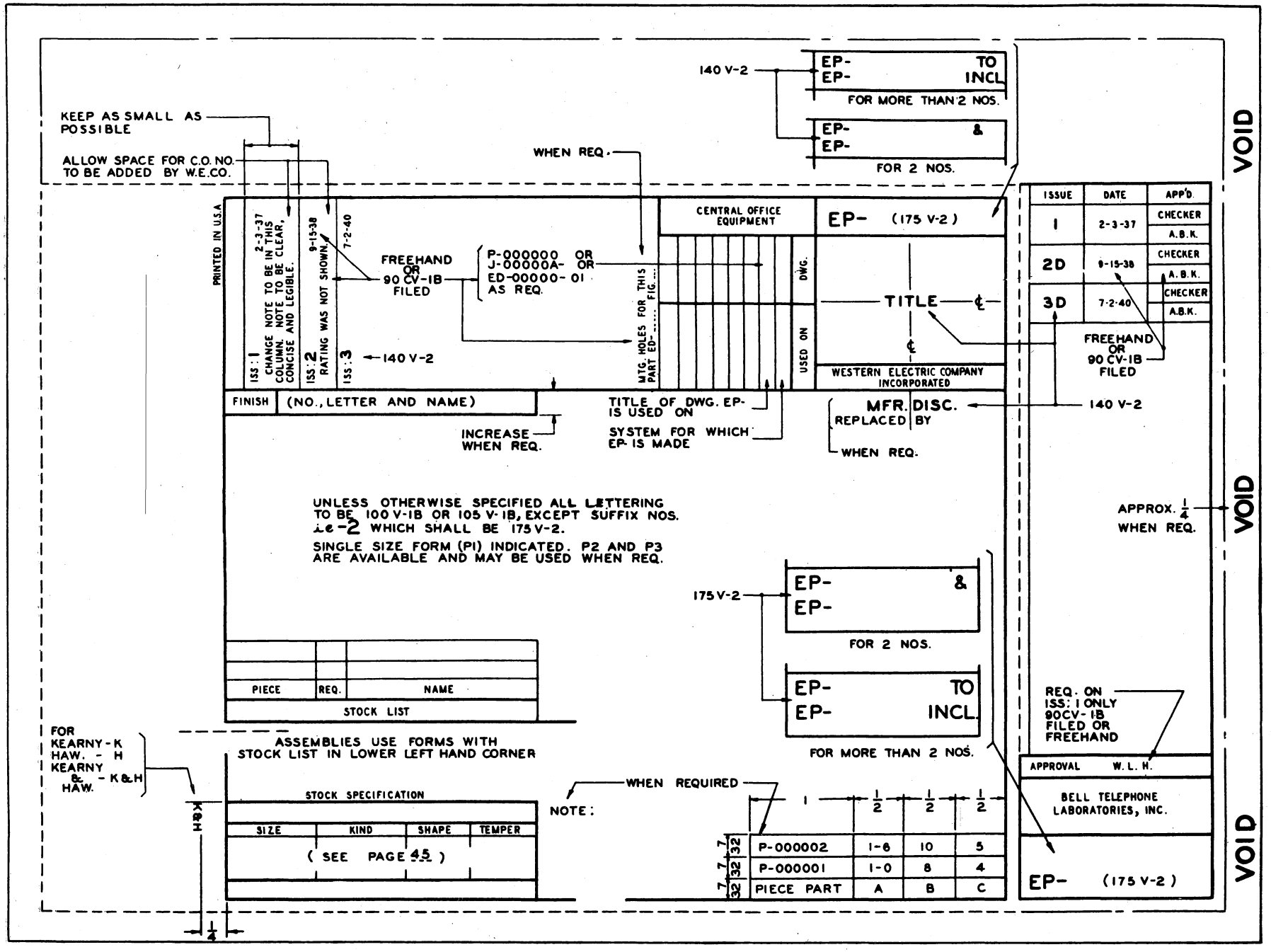
DRAWING FORM - NO. 5

X-62604


MANUFACTURING NOTES:
1. START
5/16
5/16
5/16
4 11/16
NOTES:
1. FOR SIZE OF LETTERING SEE PAGE 39.
1 1/4
3/8
3 1/16
7/32
5/16
PIECE
REQ
NAME
ED-
PIECE PART ASSEM. TOO LARGE FOR STANDARD EP FORM
FORM NO. 6
PIECE PART DISTRIBUTION
H OR K AS REQ.
ED- -01


MANUFACTURING NOTES:
1. START
5/16
5/16
4 11/16
NOTES:
1. FOR SIZE OF LETTERING SEE PAGE 39.
1 1/4
1 1/4
1 3/32
1 3/32
9/32
3/16
9/16
9/32
SIZE
KIND
SHAPE
TEMPER
ED-
PIECE PART TOO LARGE FOR STANDARD EP FORM
FORM NO. 7
PIECE PART DISTRIBUTION
H OR K AS REQ.
ED- -01

EP FORMS - LETTERING



STOCK SPECIFICATION

(MATERIAL OR MANUFACTURERS TRADE NAME)			
SIZE	KIND	SHAPE	TEMPER
(DIMENSION)	(TYPE OF STOCK)	(SHAPE OF STOCK)	(SPECIFY TEMPER WHEN CHOICE IS AVAILABLE IN SPEC. OR WHERE ADD'L TEMPER IS REQUIRED).
(GRADE - FINISH.- SPECIFICATION)			

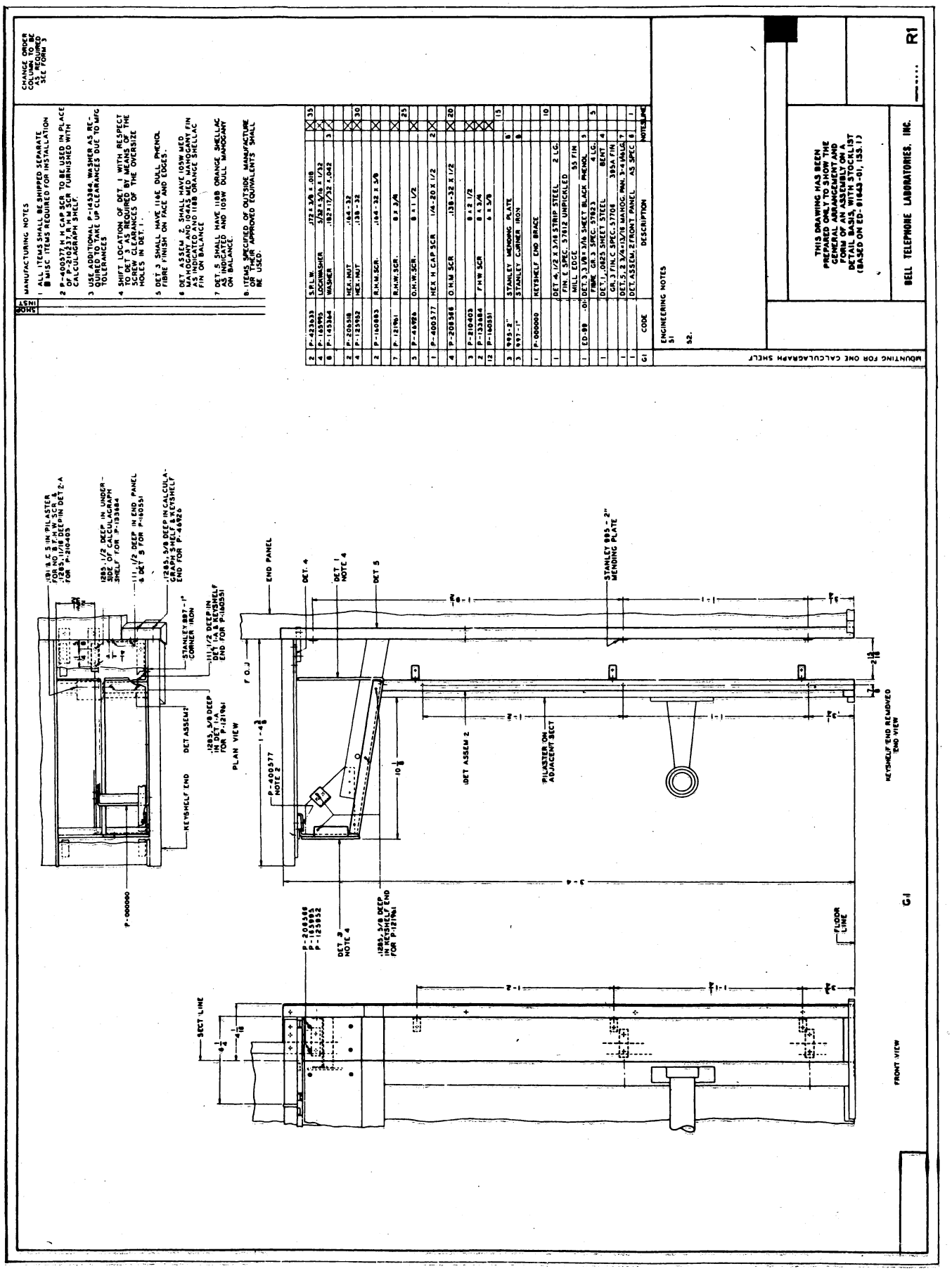
	MATERIAL OR MFR'S TRADE NAME	SIZE	KIND	SHAPE	TEMPER	(GRADE-FINISH - SPECIFICATION)
A	ALUMINUM ⊕	WIDTH X THICKNESS	H.R. ROD	RECT.	———	SPEC.( )
	ALUMINUM ALLOY ⊕	THICKNESS	SHEET	———	(SOFT)	GR.( ) SPEC.( )
B	BRASS ⊕	DIAMETER	ROD	ROUND	(HARD)	GR.( ) SPEC.( )
	BRASS ⊕	WIDEST WIDTH X WIDTH	BRAZED TUBING	RECT.	———	SPEC.( )
	BRISTOL BOARD	THICKNESS	(COLOR) SHEET	———	———	———
C	CAST BRASS	———	ALLOY (NO.)	———	———	(TYPE) OF CASTING & PATTERN (NO.)
	CAST IRON	———	MIX (NO.)	———	———	(TYPE) OF CASTING & PATTERN (NO.)
	CELLULOSE ACETATE	THICKNESS	(TYPE) GRADE (COLOR) SHEET	———	———	SPEC. ( )
	CLOTH	THICKNESS	(FINISH & COLOR)	———	———	GR.( ) SPEC.( )
	CONDUIT	COMMERCIAL SIZE	RIGID METAL (FINISH)	ROUND	———	KS-( )
	COPPER ⊕	IN. DIA. X OUT. DIA.	SEAMLESS TUBING	ROUND	(SOFT ANNEALED)	SPEC.( )
	COPPER ALLOY	DIAMETER	(TINNED) WIRE	ROUND	———	SPEC.( )
	COTTON DUCK	COMMERCIAL NO.	(COLOR) ROLL	———	———	———
F	FELT	THICKNESS X WT. PER SQ. YD.	(COLOR) SHEET	———	———	SPEC.( )
G	GLASS	THICKNESS	S.S., D.S. SHEET OR CLEAR PLATE	———	———	———
H	HARD RUBBER	THICKNESS	(COLOR) SHEET	———	———	GRADE ( )
	HARD RUBBER	IN. DIA. X OUT. DIA.	(COLOR) TUBING	ROUND	———	GRADE ( )
I	IMPREGNATED ASB. COMP.	THICKNESS	(MOLDED OR SHEET)	———	———	SPEC.( )
	IRON PIPE	COMMERCIAL SIZE	WROUGHT (FINISH)	ROUND	———	———
L	LINOLEUM	THICKNESS	(FINISH & COLOR)	———	———	SEE NOTE ( )
M	MAHOGANY	———	PERUVIAN OR CUBAN	———	———	———
	MAPLE	———	(HARD)	———	———	———
N	NICKEL SILVER ⊕	DIAMETER	ROD	ROUND	ROCKWELL (HARDNESS-)	SPEC.( )
	NICKEL SILVER ⊕	THICKNESS	SHEET	———	(EXTRA HARD)	GR.( ) SPEC.( )
O	OAK	———	(QUARTER - SAWED)	———	———	———
P	PAPER	WEIGHT	(COLOR) BOND	———	———	———
	PAPER	THICKNESS	(COLOR) COTTON, RAG, OR ROPE	———	———	GR.( ) SPEC.( )
	PHENOL FIBRE	THICKNESS	(COLOR) SHEET	———	———	GR.( ) SPEC.( )
	PHENOL FIBRE	IN. DIA. X OUT. DIA.	(COLOR) TUBING	ROUND	———	GR.( )
	PHOSPHOR BRONZE ⊕	THICKNESS	SHEET	———	(EXTRA SPRING)	GR.( ) SPEC.( )
	PLEXIGLAS	THICKNESS	———	———	———	SEE NOTE ( )
	PLYWOOD	THICKNESS	(NO.) PLY, (MAT.) OF FACE & CORE	———	———	(TYPE OF GLUE)
S	SELF TAPPING STEEL SCR.	THD. & LGTH.	TYPE ( )	———	———	SEE NOTE ( )
	STEEL ⊕	WIDEST FL. X FL. X THICKNESS	H.R.	ANGLE	———	SPEC.( )
		WIDTH X THICKNESS	C.F. BAR	RECT.	———	SAE( ) SPEC.( )
		DEPTH X FL. X THICKNESS	H.R.	CHANNEL	———	SPEC.( )
		DEPTH X WT. PER FT.	H.R.	CHANNEL	———	SPEC.( )
		ACROSS FLATS	C.F. BAR	HEX.	———	SAE( ) SPEC.( )
		DEPTH X WT. PER FT.	H.R.	I BEAM	———	SPEC.( )
		WIDTH X THICKNESS	H.R. ROD	ROUND EDGE RECT.	———	SPEC.( )
		WIDTH X THICKNESS	STAINLESS ROD	RECT.	———	SEE NOTE ( )
		DIAMETER	SCR. MACH. ROD	ROUND	———	SPEC.( )
		THICKNESS	STRETCHER LEVELED SHEET	———	———	GR.( ) FIN.( ) SPEC.( )
		THICKNESS	SHEET (SPRING)	(NO. 2 EDGE)	(BRIGHT TEMPERED)	SAE( ) SPEC.( )
		THICKNESS	STRIP	RECT.	———	(UNPICK MILL EDGE) FIN.( ) SPEC.( )
		ACROSS FLAT	H.R. ROD	SQUARE	———	SPEC.( )
		IN. DIA. X OUT. DIA.	WELDED TUBING	ROUND	(MEDIUM ANNEAL)	SPEC.( )
		THICKNESS	PERFORATED SHEET	———	———	( ) SQUARES ON ( ) CENTERS
T	TINPLATE	THICKNESS	SHEET	———	———	(GRADE) SPEC.( )
V	VULCANIZED FIBRE	THICKNESS	(COLOR) SHEET	———	———	SPEC.( )
Z	ZINC	THICKNESS	SHEET	———	———	———
	ZINC BASE ALLOY	———	NO.( )	———	———	DIE CAST SPEC.( )
			MISC. ARRANGEMENTS - SEE NOTES AT BOTTOM			
	———	———	———	NO.( ) BAR	———	A( )
	———	———	———	———	———	M.F.P.( )
	———	———	———	———	———	SEE NOTE ( )
	(MATERIAL)	GAUGE	(COLOR) (TYPE) WIRE	ROUND	———	———
	(MATERIAL)	(SIZE)	KIND	SHAPE	TEMPER	MAY BE M.F.P. ( )

⊕ ALL METALS SHALL BE DESIGNATED IN A SIMILAR MANNER; MOST ARRANGEMENTS ARE COVERED UNDER STEEL.

NOTES: 1. OMIT ALL INFORMATION IN STOCK SPEC. THAT IS COVERED BY THE A OR P DWG. OR THE MANUFACTURER'S CODE.
2. LIST REFERENCE TO A NOTE ON THE DRAWING IF INFORMATION WILL NOT FIT IN SPACE - AS IN THE CASE OF OUTSIDE SUPPLIERS WHERE THE FOLLOWING NOTE IS REFERRED TO:-

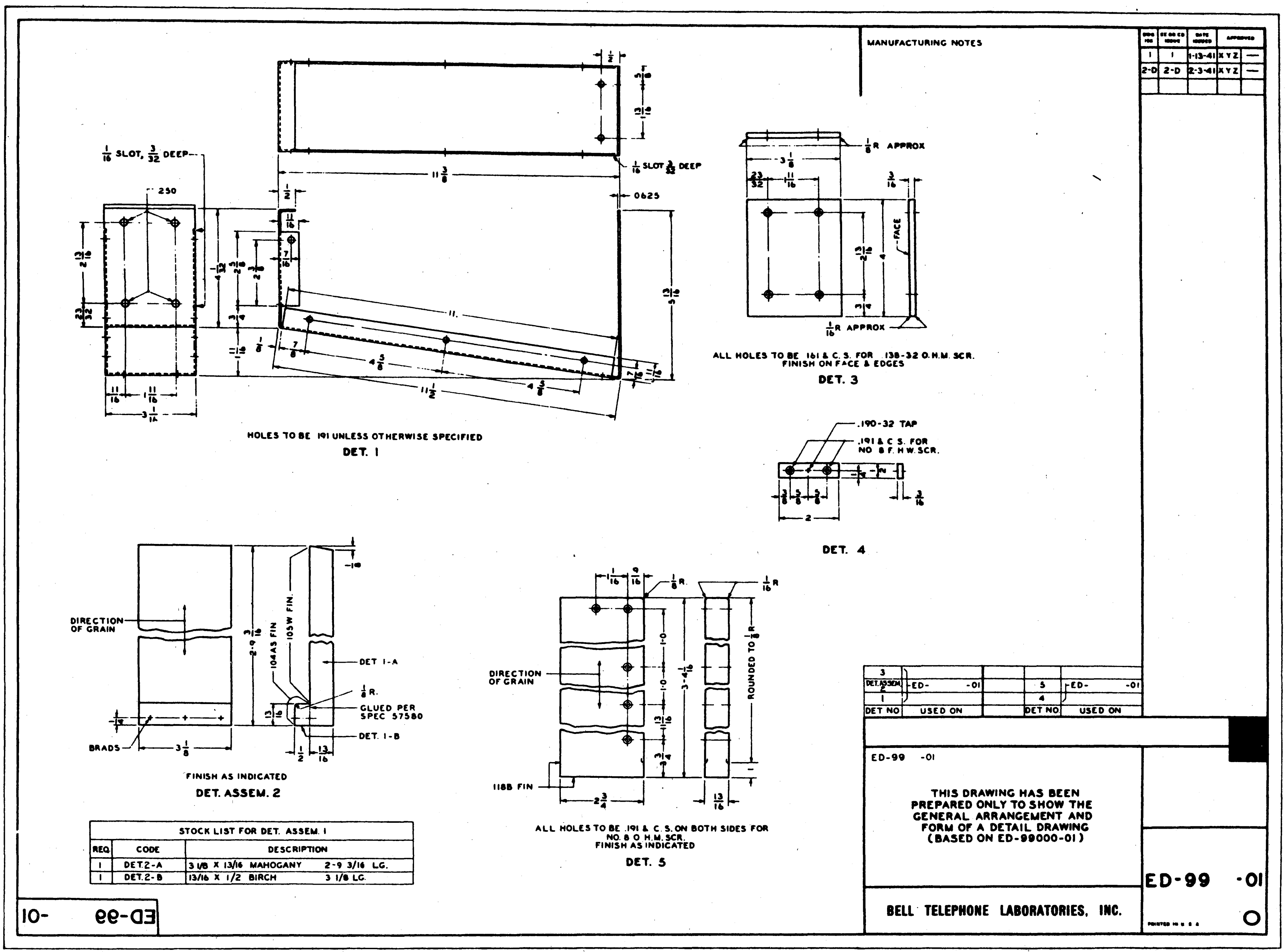
MAY BE OBTAINED FROM _____.

EP FORM - STOCK SPECIFICATION METHOD OF SPECIFYING MATERIAL



LSN	CODE	DESCRIPTION	NOTE	QUAN
2	P-423633	S.P.L.W.	.172 x 3/8 x .018	35
4	P-165995	LOCKWASHER	3/32 x 3/16 x 1/32	
8	P-143384	WASHER	.182 x 11/32 x .042	3
2	P-206518	HEX. NUT	.164 - 32	
4	P-125952	HEX. NUT	.138 - 32	30
2	P-160883	R.H.M.SCR.	.164 - 32 x 5/8	
7	P-121961	R.H.M.SCR.	8 x 3/4	25
3	P-44986	O.H.W.SCR.	8 x 1 1/2	
1	P-400577	HEX H CAP SCR	1/4 - 20 X 1/2	2
4	P-208366	O.H.M SCR	.138-32 X 1/2	20
3	P-210403		8 x 2 1/2	
2	P-133684	F.H.W SCR	8 x 3/4	
12	P-160351		6 x 5/8	
3	995-2"	STANLEY MENDING PLATE		15
3	887-1"	STANLEY CORNER IRON		8
1	P-000090	KEYSHELF END BRACE		8
1		DET 4, 1/2 X 3/16 STRIP STEEL 2 L.C.		10
1		TIN E SPEC. 37812 UNPICKLED 35 FIN		
1		MILL EDGE		
1	ED-89	DET. 3, 3/8 x 3/4 SHEET BLACK PHENOL	5	
1		DET. 1, .025 SHEET STEEL 2 L.C.		5
1		DET. .025 SHEET STEEL BENT		4
1		GR. J TINC SPEC. 57708 385A FIN		
1		DET. 5 2 3/4 x 11/16 MAHOG. PNL 3-4 VARN.	7	
1		DET. ASSEM. 2 FRONT PANEL AS SPEC.	6	1
G1				

TYPICAL DETAIL DRAWING


MANUFACTURING NOTES
1/16 SLOT, 3/32 DEEP
1/16 SLOT 3/32 DEEP
.250
.0625
HOLES TO BE .191 UNLESS OTHERWISE SPECIFIED
DET. 1
1/8 R APPROX
1/16 R APPROX
FACE
ALL HOLES TO BE .161 & C. S. FOR .138-32 O.H.M. SCR.
FINISH ON FACE & EDGES
DET. 3
.190-32 TAP
.191 & C S. FOR NO 8 F. H.W. SCR.
DET. 4
DIRECTION OF GRAIN
104AS FIN
105W FIN.
DET 1-A
1/8 R.
GLUED PER SPEC 57580
DET. 1-B
BRADS
FINISH AS INDICATED
DET. ASSEM. 2
DIRECTION OF GRAIN
ROUNDED TO 1/8 R
118B FIN
ALL HOLES TO BE .191 & C. S. ON BOTH SIDES FOR NO. 8 O H.M. SCR.
FINISH AS INDICATED
DET. 5
DET. ASSEM. 2
ED- -01
DET NO
USED ON
ED-99 -01
THIS DRAWING HAS BEEN PREPARED ONLY TO SHOW THE GENERAL ARRANGEMENT AND FORM OF A DETAIL DRAWING (BASED ON ED-99000-01)
BELL TELEPHONE LABORATORIES, INC.
ED-99 -01
X-62604

STOCK LIST FOR DET. ASSEM. 1

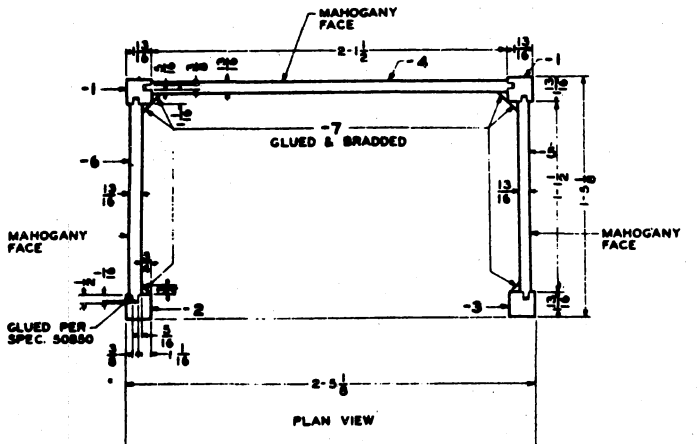
REQ.	CODE	DESCRIPTION
1	DET.2-A	3 1/8 X 13/16 MAHOGANY 2-9 3/16 LG.
1	DET.2-B	13/16 X 1/2 BIRCH 3 1/8 LG.

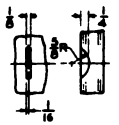
TYPICAL EP ASSEMBLY ON ED FORM

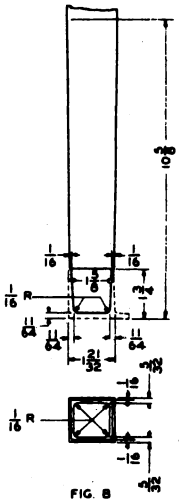
MANUFACTURING NOTES:

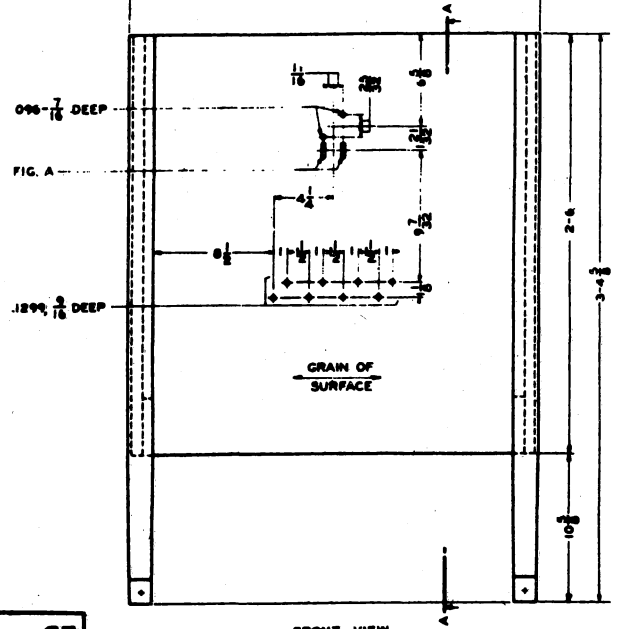
1. EXTERIOR SURFACES SHALL BE GIVEN A DULL MAHOGANY MEDIUM 105W FINISH. INTERIOR SHALL BE GIVEN A DULL BIRCH MEDIUM 104AS FINISH.
2. ALL CORNERS AND EDGES TO BE SLIGHTLY ROUNDED.

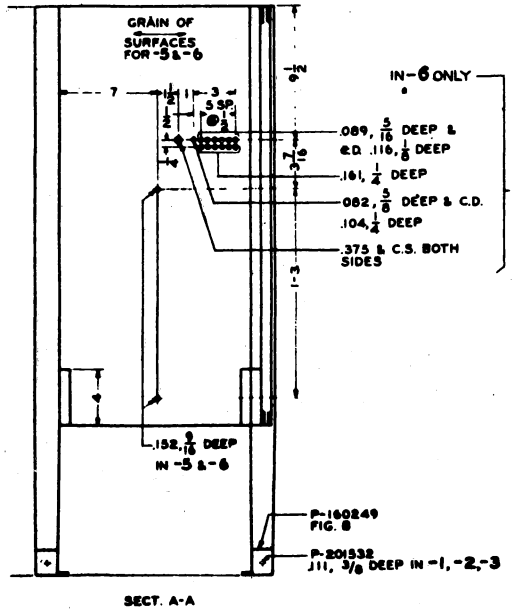
DWG. NO.	ED OR CD ISSUE	DATE ISSUED	APPROVED	
1	1	1-1-41	XYZ	—
2-D	2-D	2-4-41	XYZ	—











PIECE	REQ	NAME
P-160249	4	FERRULE
P-201532	16	F.H.W. SCR. 6 X 1/2"
P-431453-7	6	3/4 X 3/4 BIRCH OR MAPLE 4 LG.
P-431453-6	1	-13/16, 5 PLY PANEL
P-431453-5	1	MAH FACE, BIRCH BACK
P-431453-4	1	
P-431453-3	1	
P-431453-2	1	-1 13/16 X 1 13/16 MAH 3-4 5/8 LG
P-431453-1	2	

ED-

THIS DRAWING HAS BEEN PREPARED ONLY TO SHOW THE GENERAL ARRANGEMENT AND FORM OF AN EP ASSEMBLY WITH COMPONENT EP'S THEREON TOO LARGE FOR AN EP FORM (BASED ON ED-70422-01)

PIECE PART DISTRIBUTION

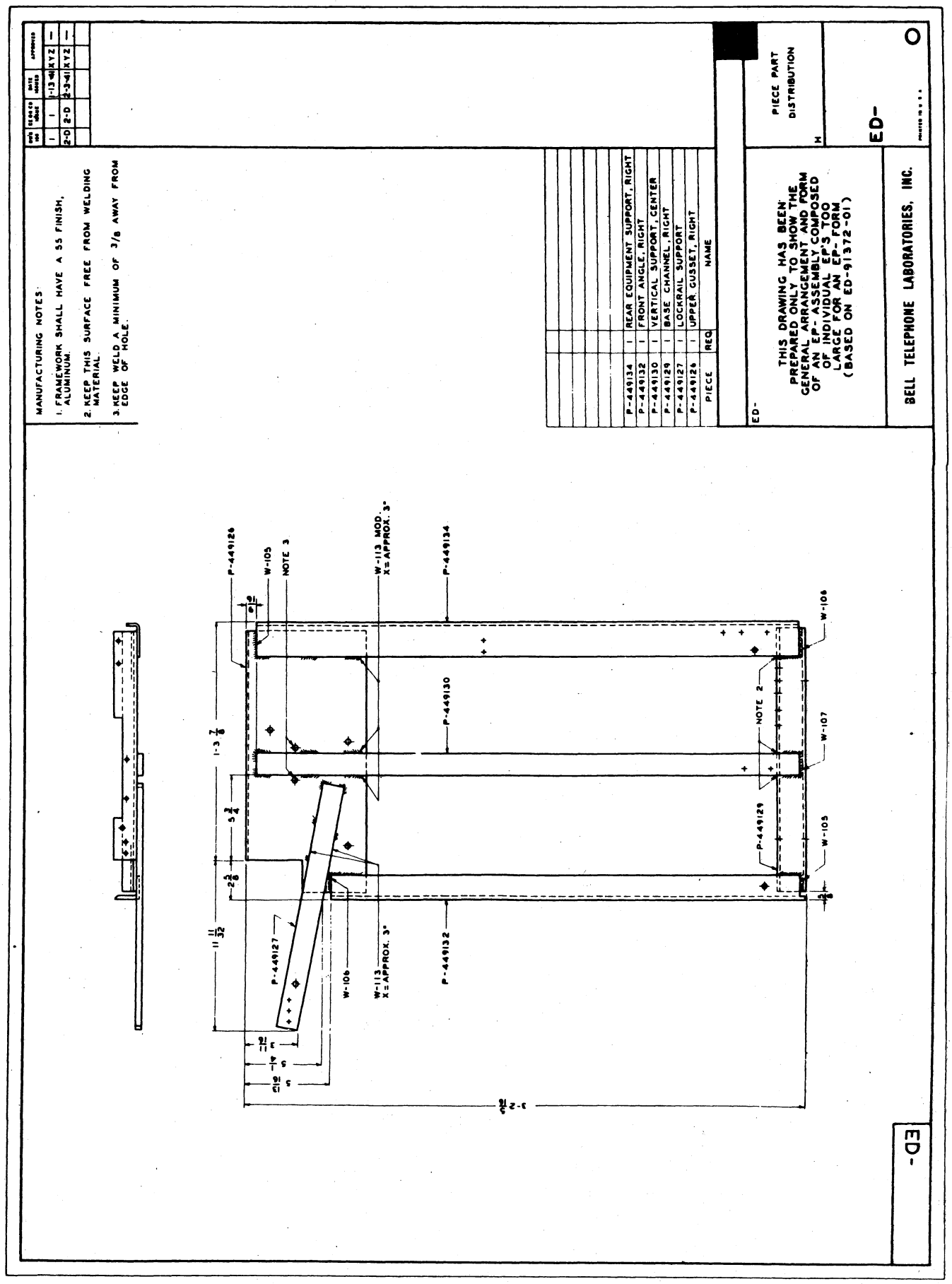
K

ED-

BELL TELEPHONE LABORATORIES, INC.

O

-CD



TYPICAL EP ASSEMBLY ON ED FORM

APPARATUS BLANKS

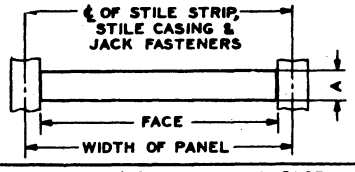
CODE NO.	FOR USE IN UNEQUIPPED POSITIONS OF:
2B	223, 375A, 373A, 390A, 393B, 397A and 399A Keys
4B	47 Type Plug
13B	6 and 32 Type Signals
14B	12 Type Number Plates
15B	1 Type Number Plates
17B	47 and 115 Plugs and No. 39 and 188 Type Keys
18B	30 Jack Mounting and No. 7 Type Transmitter Arms
19B	69, 183 and 242 Type Keys
22B	43, 129, 141 and 241 Type Plugs
*23B	77 and 78 Type Jacks
28A	39D Signal Mtg. on the 105 Magneto Swbds.
29B	373A Key
32B	Cord Circuit Positions of No. 1 Type Swbds. in No. 13 Lamp Socket Drillings
33B	109 Plug
37B	For Use on all Morse Boards for Plugging Unequipped Test Plug Drillings
39B	110 or Similar Type Plugs
39B	213 to 221, 223, 225, 226, 227, 230 to 246, 248, 249, 267, 280, 284, 285, 289, 290, 291, 293, 297, 300, 303, 309, 313, 317, 323, 324, 326, 327, 353, 355, 360
40B	34 Lamp Sockets and 92B Keys in the Piling Rails of Toll Swbds. Arranged for Pneumatic Tube Eqpt.
41B	Fuse Post in Unit Type Fuse Panels
42B	13 Type Lamp Sockets or No. 17 or Similar Type Plugs
43B	For Use in No. 11 Switchboard
44A	For Use in 550B PBX Swbds. in unequipped No. 30 Jack Mtg. Drillings where a permanently connected Receiver is required
45A	Arranged to Mount in Unequipped Clutch Positions of Single Speed Drives
45B	Arranged to Mount in Unequipped Clutch Positions of Two Speed Drives
47A	No. 1 Type Indicator
50B	Arranged to Clamp on No. 553 or No. 653 type Sub. Sets
50C-3 50C-13	Arranged to Mount on 50 or 150 Type Coin Collector or on a Wall
50E	Arranged to Mount on 50, 51, 151 and Similar Type Desk Stands
50H	Arranged to Mount on B and E Type Hand Set Mtgs.
50J	Arranged to Mount on D Type Hand Set Mtgs.
51A	Plunger of the 179, 442, 482 or Similar Type Keys
52A	Signals in the 94A Signal Mounting to Cover Two Unequipped Positions
52E	No. 139 Plug in Keyshelf Lockrail
54B	No. 52 Type Transmitter Arm in No. 550 PBX Swbds.
53A	Selectors on 10 Type Banks that are Mounted on Frames but not equipped with Selectors used as a Protective Cover
57A	To Cover a Bank of 100 Unused Multiple Jacks on No. 92 Jack Switchboards
58A	To Cover a Bank of 100 Unused Multiple Jacks on No. 49 Jack Switchboards
59B	No. 6 Type Key Levers
61B	Messenger Call Signal Position of the 230 Lamp Socket Mounting on No. 1 Toll Swbd.
62B	Switches on the Power Boards for 1D Swbd. Eqpt.
63B	No. 154 Plugs in the Keyshelf of the No. 1 Jack Panel
64A	For Use in Dial Systems with No. 203D or Similar Selector Equipped with only one Bank
66A	Signals, Middle Position on No. 60 Signal Mtg.
66B	Signals, Right End Position on No. 60 Signal Mtg.
66C	Signals, Left End Position on No. 60 Signal Mtg.
68A	493 Type Keys
69A	Signals, Middle Position on No. 61 Signal Mtg.
69B	Signals, Right End Position on No. 61 Signal Mtg.
69C	Signals, Left End Position on No. 61 Signal Mtg.
70B	50C Transmitter Arm
71B	52 Type Keys
72B	Transmitter Arms on Roof of No. 551 Type PBX
74A	For Use in Nos. 5 and 8 Telephone Booths when not equipped with 1A light
78B	288 Type Plugs
79A	80, 182 and 200A Jack Mountings
79B	30, 138 and 199A Jack Mountings
79C	79 and 198A Jack Mountings
79D	199B and 199C Jack Mountings
90A	300 Type Telephone Sets
82A-3	Dial Opening in H1-3 Telephone Set when used without dials for manual service
84B	520 Type Keys
85A	In place of dial on No. 320 type Tel. Sets when used in Manual Systems
86A	226A Jack Mounting
87A	Four 226A Jack Mountings
88A	229 Jack Mounting
89A	Four 229 Jack Mountings

* Special

KEY SPACES

CODE	WIDTH	ORDINARILY USED:
104B	3/4	In place of 136A or 155 Type Keys
479A	15/16	In place of 479 Type Keys
529A	1 1/16	In place of 529 Type Keys
546A	27/32	In place of 546 Type Keys
A3A	3/32	With A1 Type Keys
A4A	1/8	
A5A	5/32	
A6A	3/16	
A8A	1/4	With A18 Keys
A9A	9/32	With 217AU Keys
A9B	9/32	With A1 Type Keys
A9C	9/32	With A6 Type Keys
A10A	5/16	With A1 Type Keys
A11A	11/32	
A12A	3/8	
A13A	13/32	
A14A	7/16	
A15A	15/32	
A16A	1/2	
A16B	1/2	
A16D	1/2	
A18E	1/2	With A3, A9, A13 and A14 Type Keys
A17A	17/32	With A1 Type Keys
A17B	17/32	With A8, A9, A13 and A14 Type Keys
A18A	9/16	With A1 Type Keys
A18B	9/16	With A8, A9, A13 and A14 Type Keys
A20A	5/8	With A1 Type Keys
A20B	5/8	With A8, A9, A13 and A14 Type Keys
A20C	5/8	With A3 Type Keys
A21A	21/32	With A1 Type Keys
A21B	21/32	With A8, A9, A13 and A14 Type Keys
A22A	11/16	With A1 Type Keys
A24A	3/4	With A1 Type Keys
A24B	3/4	With A8, A9, A13 and A14 Type Keys
A26A	13/16	With A1 Type Keys
A27A	27/32	With A1 Type, 217AU, 217BU, 273CU, 273DU and 408AU Keys
A27C	27/32	With A18 Type Keys
A27D	27/32	With A8, A9, A13 and A14 Type Keys
A27E	27/32	With A6 Type Keys
A27F	27/32	With A8, A9, A13 and A14 Type Keys
A27G	27/32	
A27H	27/32	
B3A	3/32	With B Type Keys, arranged for Mounting in a Universal Keyshelf
B4A	1/8	
B5A	5/32	
B11A	11/32	
B16A	1/2	
B18A	9/16	
B18B	9/16	
B20A	5/8	
B20C	5/8	
B20D	5/8	
B20F	5/8	
B27A	27/32	
B33A	1 1/32	
C5A	5/32	With C Type Keys, arranged for Mounting in a Universal Keyshelf
C14A	7/16	
C18A	9/16	
C21A	21/32	
C24A	3/4	
C25A	25/32	
C27A	27/32	
E24A	3/4	In place of E1 Type Key Two will Mount in place of One E2 Type Key
E24B	3/4	Same as E24A, except equipped with 3U Desig. Strip
G11A	15/32	With G Type Keys in Universal Keyshelf
G27A	27/32	Having Single Mtg. Bars
E12A	3/8	With E Type Keys in Universal Keyshelf

STANDARD APPARATUS BLANKS AND KEY SPACES



JACK MTG.			LAMP SOCKET MTG.			KEY MTG.			DESIG. STRIP		JACK SPACE	
CODE	A	*	CODE	A	*	CODE	A	*	CODE	A	CODE	A
8 1/2" PANEL, 7 23/32" FACE												
113	3/8	20	111	7/16	10	299	7/16	10	6F	3/8	12AR	1/64
138	3/8	10	134	7/16	10	338	3/8	10	6J	7/16	12BF	1/64
139	3/8	10	256	7/16	10	339	3/8	20	6M	7/16	112A	3
145	11/16	10	257	7/16	4	344	7/16	10	6N	1/2	112C	3/8
164	3/8	10	265	7/16	20	347	1/2	10	14A	3/8	112D	7/16
190A	3/4	8	271	2 1/4	3	362A	1 61/64	1	14B	7/16	112K	1 1/2
228A	3/8	20	272	1 7/8	3	362B	1 61/64	1	54A	17/32	112M	29/64
			275A	2 1/4	4	362C	1 61/64	1	54C	17/32	112R	7/16
			275B	1 7/8	4	362D	1 61/64	2	54D	7/16	112T	3/16
			275D	2 1/4	5	362E	1 61/64	4	54E	7/16		
			275E	2 1/4	5	365A	2 1/4	5	60A	3/8	112AA	1
			275F	1 61/64	2	366A	1	7	60B	7/16	112AB	17/32
			275G	2 1/4	3	378A	2 1/4	5	60E	17/32	112AE	13/16
			275H	2 1/4	5	379A	1	3	61A	1	112AF	7/8
			275J	2 1/4	1	380A	1 5/8	5			112AG	3/4
			275K	1 61/64	1	381A	2 5/64	SEE CARD			112AH	29/32
			275L	1 61/64	3	383A	1	5			112AL	17/32
			275M	2 9/32	3						112AM	1/4
			275N	2 9/32	2						112AS	5/8
			275P	2 9/32	4						112AT	7/16
			275R	2 1/4	5						112AW	1 1/4
			275S	2 1/4	3						112AY	4 1/8
			275T	2 1/4	3							
			275U	2 1/4	3						112BC	2
			275W	2 1/4	1						112BD	1/2
			275Y	2 1/4	2						112BG	1 61/64
			278B	7/16	20						112BJ	2 1/4
			283A	7/16	20						112BK	3 13/16
											112BL	1/4
			294A	7/16	10						112BM	2 9/32
			295A	7/16	10						112BP	2 9/64
			296A	1 15/16	2	√358	2 3/4	6				
10 1/4" PANEL, 9 3/16" FACE												
21	11/16	10	101	7/16	10	211	7/16	10	1C	7/16	1AK	1/64
77	7/16	5	102	7/16	20	212	7/16	20	1D	3/8	101A	7/16
114	7/16	20	122	7/16	10	232	7/16	10	1G	1/2	101B	1/2
141	7/16	10	255	7/16	10	235	1/2	10	2C	7/16	101G	1/2
142	7/16	10	258	7/16	4	340	1	10	2E	1/2	101H	1/4
143	1	10	259	7/16	10	342	7/16	20	56A	1/2	101J	3/4
144	1	10	279C	2 9/32	5	343	1/2	20	57A	1/4	101U	1/2
163	7/16	20	281A	7/16	20	346	7/16	10	62A	1	101AB	7/8
165	7/16	10	288B	1	1	363A	2 9/32	1			101AC	15/16
174	7/8	20	293A			363B	2 9/32	1			101AD	15/16
176	7/8	40				363C	2 9/32	1			101AF	1
191A	7/8	10				363D	2 9/32	2			101AG	3/8
204A	1 3/16	5				368A	2 1/4	5			101AH	1 3/8
205A	2 5/8	13				368B	2 1/4	2			101AJ	1 5/16
218B	1 9/16	20				369A	1	6			101AL	1 3/16
											101AM	5/16
12 PANEL, 11 3/16" FACE												
112	1/2	20	136	7/16	10	332	1/2	10	50A	7/16	59AD	1/64
133	1/2	10	137	7/16	20	333	7/16	20	50B	1/2	159A	7/16
137	1/2	10	282A	7/16	20	372A	1	10	51A	1	159B	1/2
149	1 5/8	20	289A	2 1/4	1	376A	1/2	10	55A	7/16	159C	9/16
167	7/16	10							55B	1/2	159H	1 3/8
188	7/16	20							55C	7/16	159J	1 7/16
189A	1 3/8	20							55D	1/2	159K	15/16
189C	1 1/8	10									159L	1
197A	15/16	10									159U	1 5/8
207A	1 3/16	10									159W	1/8
209A	1/2	20									159AB	1 7/8
217A	1/2	20									159AC	2 1/4
10 1/2" FACE												
115	11/16	20	123	7/16	20	294	7/16	20	10E	1/2	127A	11/16
116	11/16	10	125	7/16	10	320	7/16	20	24A	7/16	127B	11/16
169	1 1/4	10							24B	1/2	127C	1/4
180	1 3/8	20									127D	11/16
181	1 3/8	40									127F	7/16
											127G	1/2
											127K	7/16
											127N	1 1/4
											127P	1/2
											127R	3/4

NOTES:
1. *Number of jacks, lamps or keys per strip.
2. √Special.

JACK, LAMP SOCKET & KEY MTGS., DESIG. STRIPS AND JK. SPACES – FACE EQUIPMENT TYPE

NUMBER OF GAUGE	AMERICAN OR BROWN & SHARPE	BIRMINGHAM OR STUBS IRON WIRE	U.S. STD.	ROEBLING MUSIC WIRE	STUBS STEEL WIRE
0000000			.5		
000000	.580		.4688		
00000	.5165	.5	.4375		
0000	.460	.454	.4063	.007	
000	.4096	.425	.375	.0075	
00	.3648	.380	.3438	.0085	
0	.3249	.340	.3125	.009	
1	.2893	.300	.2813	.010	.227
2	.2576	.284	.2656	.011	.219
3	.2294	.259	.25	.012	.212
4	.2043	.238	.2344	.013	.207
5	.1819	.220	.2188	.014	.204
6	.1620	.203	.2031	.016	.201
7	.1443	.180	.1875	.018	.199
8	.1285	.165	.1719	.020	.197
9	.1144	.148	.1563	.022	.194
10	.1019	.134	.1406	.024	.191
11	.0907	.120	.125	.026	.188
12	.0808	.109	.1094	.028	.185
13	.0720	.095	.0938	.030	.182
14	.0641	.083	.0781	.032	.180
15	.0571	.072	.0703	.034	.178
16	.0508	.065	.0625	.036	.175
17	.0453	.058	.0563	.038	.172
18	.0403	.049	.05	.040	.168
19	.0359	.042	.0438	.042	.164
20	.0320	.035	.0375	.044	.161
21	.0285	.032	.0344	.046	.157
22	.0253	.028	.0312	.048	.155
23	.0226	.025	.0281	.051	.153
24	.0201	.022	.025	.055	.151
25	.0179	.020	.0219	.059	.148
26	.0159	.018	.0188	.063	.146
27	.0142	.016	.0172	.067	.143
28	.0126	.014	.0156	.071	.139
29	.0113	.013	.0141	.074	.134
30	.0100	.012	.0125	.078	.127
31	.0089	.010	.0109	.082	.120
32	.0080	.009	.0102	.086	.115
33	.0071	.008	.0094	.090	.112
34	.0063	.007	.0086	.095	.110
35	.0056	.005	.0078	.100	.108
36	.0050	.004	.0070	.105	.106
37	.0045		.0066	.110	.103
38	.0040		.0063	.115	.101
39	.0035			.120	.099
40	.0031			.125	.097
41	.0028			.130	.095
42	.0025				.092
43	.0022				.088
44	.0020				.085
45	.00176				.081
46	.00157				.079
47	.00140				.077
48	.00124				.075
49	.00099				.072
50	.00088				.069

VARIOUS GAUGES USED FOR MATERIALS

AMERICAN OR BROWN & SHARPE

- ALUMINUM
  - SHEET
  - WIRE
  - BRONZE
- BRASS
  - SHEET
  - TUBING
  - WIRE
- COPPER
  - SHEET
  - TUBING
  - WIRE
- NICKEL SILVER
  - SHEET
  - WIRE
- PHOSPHOR BRONZE
  - SHEET
  - WIRE

BIRMINGHAM OR STUBS IRON WIRE

- BRASS
  - TUBING
  - ESCUTCHEON PINS
- COPPER
  - TUBING
- IRON
  - GALV. LINE WIRE
- STEEL
  - STRIP

U. S. STD.

- IRON
  - ARMATURE
  - SHEET
  - GALV. SHEET
- STEEL
  - SHEET
  - SPRING

ROEBLING MUSIC WIRE

- MUSIC WIRE

STUBS, STEEL WIRE

- DRILL ROD
- PUNCHED HOLE SIZES

GAUGES - SHEET METAL AND WIRE

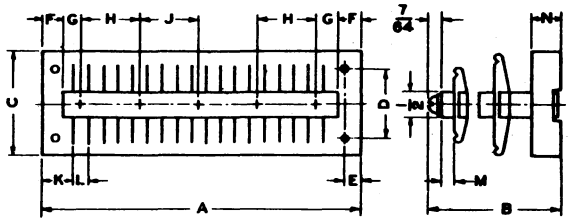


FIG. A

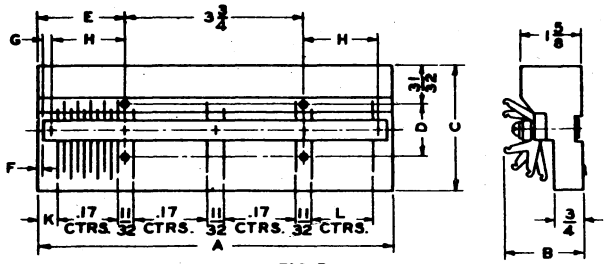


FIG. B

T.S.	FIG.	TERMS. ROWS	TERMS. EACH	A	B	C	D	E	F	G	H +	H DIM.	H θ	J DIM.	J θ	K	L	M	N	SCREWS *CLAMP	SCREWS /MTG.
35	A	3	20	$7\frac{31}{32}$	$2\frac{31}{64}$	$2\frac{17}{32}$	$1\frac{2}{8}$	$\frac{15}{64}$	$\frac{25}{64}$	$\frac{1}{2}$	2	$1\frac{3}{8}$	8	$1\frac{23}{32}$	10	$\frac{23}{32}$	$\frac{11}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
36	A	4	20	$7\frac{31}{32}$	$2\frac{55}{64}$	$2\frac{17}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{25}{64}$	$\frac{1}{2}$	2	$1\frac{3}{8}$	8	$1\frac{23}{32}$	10	$\frac{23}{32}$	$\frac{11}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
37	A	5	20	$7\frac{31}{32}$	$3\frac{15}{64}$	$2\frac{17}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{25}{64}$	$\frac{1}{2}$	2	$1\frac{3}{8}$	8	$1\frac{23}{32}$	10	$\frac{23}{32}$	$\frac{11}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
38	A	3	20	$6\frac{15}{32}$	$2\frac{31}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
39	A	4	20	$6\frac{15}{32}$	$2\frac{55}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
40	A	5	20	$6\frac{15}{32}$	$3\frac{15}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
41	A	6	20	$6\frac{15}{32}$	$3\frac{5}{8}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
48	A	7	20	$6\frac{15}{32}$	$3\frac{63}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	C
50	A	8	20	$6\frac{15}{32}$	$4\frac{3}{8}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	A
51	A	6	20	$7\frac{31}{32}$	$3\frac{5}{8}$	$2\frac{17}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{25}{64}$	$\frac{1}{2}$	2	$1\frac{3}{8}$	8	$1\frac{23}{32}$	10	$\frac{23}{32}$	$\frac{11}{32}$	$\frac{13}{64}$	$\frac{5}{8}$	5	C
35	B	1	40 3 WAY	$7\frac{31}{32}$	$2\frac{3}{32}$	$3\frac{3}{8}$	$1\frac{3}{16}$	$2\frac{7}{64}$	$\frac{1}{16}$	.166	4	1.87	11			$\frac{13}{32}$	.17			5	N
74		2	20								SEE DRAWING										
82	B	1	42 3 WAY	$7\frac{31}{32}$	$2\frac{2}{32}$	$2\frac{3}{8}$	$1\frac{3}{16}$	$2\frac{7}{64}$	$\frac{1}{16}$	.166	4	1.87	11			$\frac{13}{32}$	.14			5	N
84	A	6	20	$7\frac{31}{32}$	4	$2\frac{17}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{25}{64}$	$\frac{1}{2}$	2	$1\frac{3}{8}$	8	$1\frac{23}{32}$	10	$\frac{23}{32}$	$\frac{11}{32}$	$\frac{17}{32}$	$\frac{5}{8}$	5	D
85	A	6	20	$6\frac{15}{32}$	4	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{17}{32}$	$\frac{5}{8}$	5	D
87	A	5	20	$6\frac{15}{32}$	$3\frac{5}{8}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{17}{32}$	$\frac{5}{8}$	5	D
88	A	4	20	$6\frac{15}{32}$	$3\frac{15}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{17}{32}$	$\frac{5}{8}$	5	D
89	A	7	20	$6\frac{15}{32}$	$4\frac{23}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{17}{32}$	$\frac{5}{8}$	5	D
90	A	3	20	$6\frac{15}{32}$	$2\frac{55}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{15}{32}$	2	$1\frac{1}{8}$	6	$1\frac{13}{32}$	8	$\frac{9}{16}$	$\frac{9}{32}$	$\frac{17}{32}$	$\frac{5}{8}$	5	D
91	A	5	20	$7\frac{31}{32}$	$3\frac{23}{64}$	$3\frac{3}{8}$	$1\frac{3}{16}$	$2\frac{7}{64}$	$\frac{5}{64}$	$\frac{19}{32}$	2	$1\frac{31}{64}$	9	$1\frac{53}{64}$	12	$\frac{1}{2}$	SEE DWG.	$\frac{13}{64}$	$\frac{3}{4}$	5	E
92	A	3	20	$7\frac{31}{32}$	$2\frac{39}{64}$	$3\frac{3}{8}$	$1\frac{3}{16}$	$2\frac{7}{64}$	$\frac{5}{64}$	$\frac{19}{32}$	2	$1\frac{31}{64}$	9	$1\frac{53}{64}$	12	$\frac{1}{2}$	SEE DWG.	$\frac{13}{64}$	$\frac{3}{4}$	5	E
93	A	4	20	$7\frac{31}{32}$	$2\frac{62}{64}$	$3\frac{3}{8}$	$1\frac{3}{16}$	$2\frac{7}{64}$	$\frac{5}{64}$	$\frac{19}{32}$	2	$1\frac{31}{64}$	9	$1\frac{53}{64}$	12	$\frac{1}{2}$	SEE DWG.	$\frac{13}{64}$	$\frac{3}{4}$	5	E
99	A	6	50	$1-2\frac{7}{16}$	$3\frac{1}{2}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{23}{32}$	$\frac{1}{2}$	6	$1\frac{3}{4}$	11	$1\frac{1}{2}$	9	$1\frac{3}{32}$	$\frac{1}{4}$	$\frac{11}{64}$	$\frac{5}{8}$	8	D

NOTES:

1. θ Number of characters that can be stamped between screw heads.
   + Number of "H" dimensions, balance are "J" dimensions.
   ✓ Mounting material furnished with terminal strips is listed on page 59.
   * Number of screws on clamping strip.

TERMINAL STRIPS - 35 TO 99

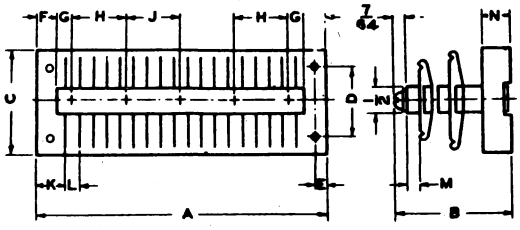
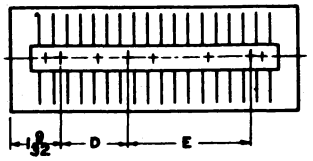


FIG. A



OTHERWISE SAME AS FIG. A

FIG. B

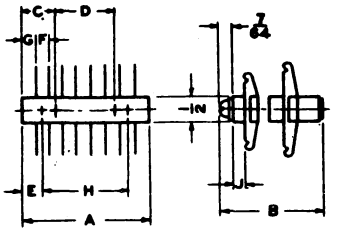


FIG. C

T.S.	FIG.	TERMS. ROWS	TERMS. EACH	A	B	C	D	E	F	G	H +	H DIM.	H θ	J DIM.	J θ	K	L	M	N	SCREWS *CLAMP	SCREWS ✓MTG.
100A	B	3	20	6 1/16	2 57/64	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
100B	B	4	20	6 1/16	3 9/32	2 15/16	1 1/4	2 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	5/8	5/8	5	F
100C	B	5	20	6 1/16	3 41/64	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
100D	B	6	20	6 1/16	4 1/64	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
100E	B	7	20	6 1/16	4 25/64	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
100F	B	8	20	6 1/16	4 49/64	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
100G	B	9	20	6 1/16	5 1/4	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
100H	B	10	20	6 1/16	5 33/64	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
100J	B	11	20	6 1/16	5 57/64	2 15/16	1 1/4	3 1/4	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	5	F
101A	B	3	20	7 9/16	2 57/64	2 15/16	1 1/4	4 3/4	1/32	21/32	2	1 3/8	8	1 23/32	10	33/64	11/32	17/32	5/8	5	F
101B	B	4	20	7 9/16	3 17/64	2 15/16	1 1/4	4 3/4	1/32	21/32	2	1 3/8	8	1 23/32	10	33/64	11/32	17/32	5/8	5	F
101C	B	5	20	7 9/16	3 41/64	2 15/16	1 1/4	4 3/4	1/32	21/32	2	1 3/8	8	1 23/32	10	33/64	11/32	17/32	5/8	5	F
101D	B	6	20	7 9/16	4 1/64	2 15/16	1 1/4	4 3/4	1/32	21/32	2	1 3/8	8	1 23/32	10	33/64	11/32	17/32	5/8	5	F
101E	B	7	20	7 9/16	4 25/64	2 15/16	1 1/4	4 3/4	1/32	21/32	2	1 3/8	8	1 23/32	10	33/64	11/32	17/32	5/8	5	F
101F	B	8	20	7 9/16	4 49/64	2 15/16	1 1/4	4 3/4	1/32	21/32	2	1 3/8	8	1 23/32	10	33/64	11/32	17/32	5/8	5	F
108A	C	1	8	3 5/16	1 7/32	21/32	2	1/4	11/32	29/64	2	1 13/32	8	13/64	-					3	-
112	A	7	30	9 23/32	4 15/16	2 19/32	1 3/8	15/64	29/64	15/32	2	1 1/8	6	1 13/32	8	25/32	9/32	17/32	5/8	7	D
126		4	20				SEE DRAWING						-		-					-	-
127	A	8	22	8	4 1/64	2 19/32	1 3/8	3/8	51/64	25/64	4	1 13/32	8	-	-	1 3/64	9/32	17/32	5/8	5	D
132	A	8	22	7 23/32	4 1/64	2 19/32	1 3/8	3/8	21/32	25/64	4	1 13/32	8	-	-	29/64	9/32	17/32	5/8	5	D
133	A	7	50	1-2 7/16	4 1/4	2 19/32	1 3/8	15/64	23/32	1/2	6	1 3/4	11	1 1/2	9	1 3/32	1/4	17/32	5/8	8	D
136	A	5	20	6 15/32	3 15/64	2 19/32	1 3/8	15/64	15/64	15/32	2	1 1/8	6	1 13/32	8	9/16	9/32	13/64	5/8	5	A
137B	A	8	50	1-2 7/16	3 7/8	2 19/32	1 3/8	15/64	23/32	1/2	6	1 3/4	11	1 1/2	9	1 3/32	1/4	17/32	5/8	8	D
138A	A	4	30	9 23/32	3 5/32	2 19/32	1 3/8	15/64	29/64	15/32	2	1 1/8	6	1 13/32	8	25/32	9/32	17/32	5/8	7	D
138B	A	6	30	9 23/32	3 7/8	2 19/32	1 3/8	15/64	29/64	15/32	2	1 1/8	6	1 13/32	8	25/32	9/32	5/16	5/8	7	D
138C	A	5	30	9 23/32	3 1/2	2 19/32	1 3/8	15/64	29/64	15/32	2	1 1/8	6	1 13/32	8	25/32	9/32	5/16	5/8	7	D

NOTES:

1. θ Number of characters that can be stamped between screw heads.
   + Number of "H" dimensions, balance are "J" dimensions.
   ✓ Mounting material furnished with terminal strips is listed on page 59
   * Number of screws on clamping strip.

2. While provision is made for three mounting screws, the top and bottom screws are ordinarily used on the 100 type terminal strips.

TERMINAL STRIPS - 100 TO 138

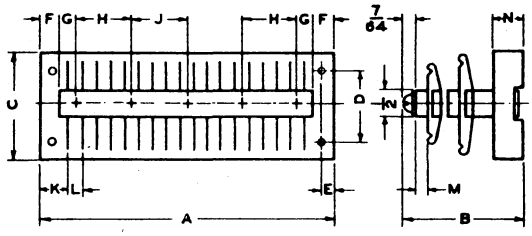
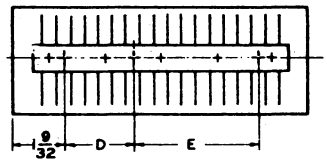


FIG. A



OTHERWISE SAME AS FIG. A

FIG. B

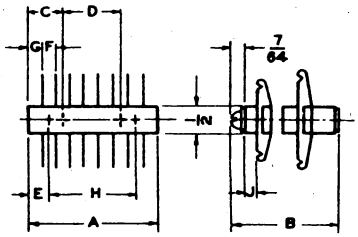


FIG. C

T.S.	FIG.	TERMS ROWS	TERMS EACH	A	B	C	D	E	F	G	H +	H DIM.	H θ	J DIM.	J θ	K	L	M	N	SCREWS *CLAMP	SCREWS ✓MTG.
140A	A	4	10	3 15/32	2 3/4	2 1/16	1 3/8	1/4	-	39/64	2	1 1/8	5	-	-	15/32	9/32	13/64	5/8	3	J
140C	A	8	10	3 15/32	4 17/32	2 1/16	1 3/8	1/4	-	39/64	2	1 1/8	6	-	-	15/32	9/32	39/64	5/8	3	H
140D	A	6	10	3 15/32	3 7/8	2 1/16	1 3/8	1/4	1/8	31/64	2	1 1/8	3	-	-	15/32	9/32	39/64	5/8	3	H
140E	A	7	10	3 15/32	3 25/32	2 1/16	1 3/8	1/4	1/8	31/64	2	1 1/8	6	-	-	15/32	9/32	17/64	5/8	2	H
141A	A	6	22	8 11/16	4 1/64	2 19/32	1 3/8	1/4	1 3/64	25/64	4	1 13/32	8	-	-	1 29/64	9/32	17/32	5/8	5	A
142A	A	4	15	5 7/32	2 3/4	2 1/16	1 3/8	1/4	3/16	19/32	2	1 1/8	6	1 13/32	8	37/64	9/32	13/64	5/8	4	H
146A	A	6	47	1-1 5/8	3 7/8	2 19/32	1 3/8	15/64	11/16	1/2	-	SEE DWG.	-	SEE DWG.	-	1 7/32	1/4	17/32	5/8	8	A
147A	A	8	20	6 15/32	4 23/32	2 19/32	1 3/8	15/64	15/64	15/32	2	1 1/8	6	1 13/32	8	9/16	9/32	17/32	5/8	5	D
148A	A	7	22	8	4 25/64	2 19/32	1 3/8	3/8	51/64	25/64	4	1 13/32	8	-	-	1 3/64	9/32	17/32	5/8	5	D
149A	B	6	30	8 7/8	4 1/64	2 15/16	1 1/4	6 1/16	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	17/32	5/8	7	F
149B	B	8	30	8 7/8	4 45/64	2 15/16	1 1/4	6 1/16	1/32	15/32	2	1 1/8	6	1 13/32	8	11/32	9/32	17/32	5/8	7	F
150A	A	6	20	7 31/32	3 5/8	2 17/32	1 3/8	15/64	25/64	1/2	2	1 3/8	8	1 29/32	10	23/32	11/32	13/64	5/8	5	A
155A									SEE DRAWING												R
156A	A	10	26	7 23/32	5 9/32	2 19/32	1 3/8	15/64	25/64	15/32	4	1 1/2	9	-	-	47/64	1/4	39/64	5/8	5	D
157A	C	4	10	3 15/32	2 1/8	55/64	1 3/4	39/64	9/32	15/32		2 1/4	13	33/64						3	P
157B	C	7	10	3 15/32	3 9/16	55/64	1 3/4	39/64	9/32	15/32		2 1/4	13	39/64						3	P
157C	C	6	10	2 15/32	3 1/4	55/64	1 3/4	39/64	9/32	15/32		2 1/4	13	39/64						3	P
157D	C	5	10	3 15/32	2 15/32	55/64	1 3/4	39/64	9/32	15/32		2 1/4	13	33/64						3	P
157E	C	7	10	2 15/32	3 1/8	55/64	1 3/4	39/64	9/32	15/32		2 1/4	13	33/64						3	P
158B	A	5	30	1-0 23/32	3 9/16	2 19/32	1 3/8	15/64	2 17/64	15/32	2	1 1/8	8	1 13/32	8	2 3/32	9/32	33/64	5/8	7	D
158E	A	6	30	1-0 23/32	3 29/32	2 19/32	1 3/8	15/64	1 61/64	15/32	2	1 1/8	6	1 13/32	8	2 9/32	9/32	39/64	5/8	7	A
○ 158F	A	3	40 EACH	1-0 23/32	3 29/32	2 19/32	1 3/8	15/64	9/16	23/64	2	1 1/8	6	1 13/32	8	25/32	9/32	33/64	5/8	3 EACH	D
○ 158G	A	5	40 EACH	1-0 23/32	3 9/16	2 19/32	1 3/8	15/64	9/16	23/64	2	1 1/8	6	1 13/32	8	25/32	9/32	39/64	5/8	5 EACH	D
159A	D	1	6	2 3/8	1 13/16	1/2		21/64	1/2	1 3/8		1 3/8	8							2	-
159B	D	2	6	2 3/8	2 1/16	1/2		21/64	1/2	1 3/8		1 3/8	8							2	-
159C	D	4	6	2 3/8	1 7/8	1/2		21/64	1/2	1 3/8		1 3/8	8							2	-
160A	D	4	7	2 11/16	2 9/32	.461		.310	.481	1 23/32		1 23/32	10							2	-
161A	D	4	10	3 47/64	2 9/32	.148		.320	47/64	2 27/32	2	1 23/32	10							3	-

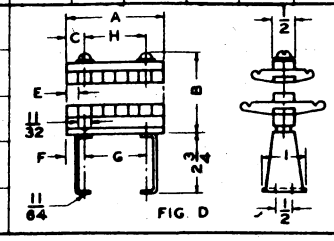


FIG. D

NOTES:

1. θ Number of characters that can be stamped between screw heads.
   + Number of "H" dimensions, balance are "J" dimensions.
   ✓ Mounting material furnished with terminal strips is listed on page 59
   * Number of screws on clamping strip.
   ○ Indicates double terminal strip.
2. While provision is made for three mounting screws, the top and bottom screws are ordinarily used on the 149 type terminal strips.

TERMINAL STRIPS - 140 TO 161

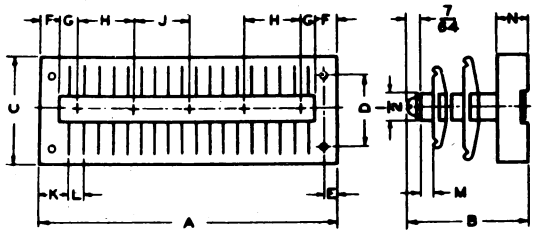
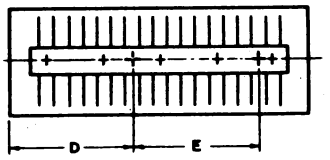


FIG. A



OTHERWISE SAME AS FIG. A

FIG. B

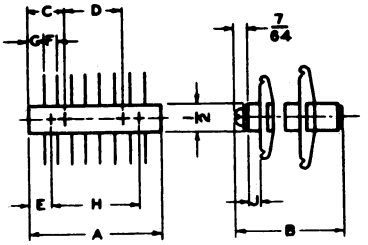


FIG. C

T.S.	FIG.	TERMS. ROWS	TERMS. EACH	A	B	C	D	E	F	G	H +	H DIM.	H θ	J DIM.	J θ	K	L	M	N	SCREWS *CLAMP	SCREWS ✓MTG.
163B	A	8	50	1-2 7/16	4 1/8	2 19/32	1 3/8	15/64	23/32	1/2	6	1 3/4	8	1 1/2	9	1 3/32	1/4	13/64	5/8	8	D
165A		4	100				SEE DRAWING								-						
166A	A	5	80	1-9 7/16	3 7/16	2 19/32	1 3/8	5/16	1/2	15/32	13	1 1/8	6	-	-	27/32	1/4	5/8	5/8	14	G
167A	A	6	15	5 7/32	3 19/32	2 19/32	1 3/8	1/4	3/16	19/32	2	1 1/8	6	1 13/32	8	37/64	9/32	29/64	5/8	4	J
168B	A	6	20	7 31/32	3 5/8	2 17/32	1 2/8	15/64	15/64	1/2	2	1 3/8	8	1 22/32	10	9/16	11/32	13/64	5/8	5	A
169A	B	5	35	10 9/32	3 41/64	2 15/16	4 7/8	4 1/2	1/32	15/32	2	1 1/8	6	1 13/32	8	23/64	9/32	39/64	5/8	8	K
170A	C	4	7	2	2 9/16	1/2	1	19/64	9/32	5/32		1 13/32	8	29/64						2	L
171B	C	5	5	1 21/32	2 1/2	11/64	1 5/16	13/32	9/32	17/64		27/32	4	13/64						2	L
171C	C	4	5	1 21/32	2 1/2	11/64	1 5/16	13/32	9/32	17/64		27/32	4	29/64						2	L
171D	C	6	5	1 21/32	2 3/4	11/64	1 5/16	13/32	9/32	17/64		27/32	4	13/64						2	L
172A	A	4	20	7 31/32	2 55/64	2 17/32	1 3/8	15/64	25/64	1/2	2	1 3/8	8	1 23/32	10	23/32	11/32	13/64	5/8	5	A
173A	A	4	25	7 11/16	2 61/64	2 1/16	1 3/8	1/4	1/8	31/64	2	1 1/8	6	1 13/32	8	15/32	9/32	29/64	5/8	6	V
177A	A	6	60	1-4 15/16	3 7/8	2 19/32	1 3/8	15/64	23/32	1/2	4	1 3/4	11	1 1/2	9	1 3/32	1/4	17/32	5/8	10	D
177B	A	7	60	1-4 15/16	4 1/4	2 19/32	1 3/8	15/64	28/32	1/2	4	1 3/4	11	1 1/2	9	1 3/32	1/4	17/32	5/8	10	D
178A	A	6	20	6 15/32	3 5/8	2 19/32	1 3/8	15/64	15/64	15/32	2	1 1/8	6	1 13/32	8	9/16	9/32	13/64	5/8	5	A
178B	A	7	20	6 15/32	3 25/32	2 19/32	1 3/8	15/64	15/64	15/32	2	1 1/8	6	1 13/32	8	9/16	9/32	13/64	5/8	5	A
178C	A	8	20	6 15/32	4 1/8	2 19/32	1 3/8	15/64	15/64	15/32	2	1 1/8	6	1 13/32	8	9/16	9/32	13/64	5/8	5	A
178D	A	6	20	6 15/32	3 7/16	2 19/32	1 3/8	15/64	15/64	15/32	2	1 1/8	6	1 13/32	8	9/16	9/32	13/64	5/8	5	A
178E	A	7	20	3 15/32	3 25/32	2 19/32	1 3/8	15/64	15/64	15/32	2	1 1/8	6	1 13/32	8	9/16	9/32	13/64	5/8	5	A
180A		3	100			SEE DRAWING							-		-						
181A	C	4	8	2 9/32	2 5/8	41/64	1	19/64	9/32	5/32		1 11/16		29/64							S
182B		1	100 3 WAY			SEE DRAWING															N
182A	A	3	50	1-3 31/32	2 39/64	3 3/8	1 3/16	2 7/64	5/64	15/32	2	1 27/64							3/4	9	E
183B	A	4	50	1-3 31/32	2 15/16	3 3/8	1 3/16	2 7/64	5/64	15/32	2	1 27/64							3/4	9	E
184A	A	6	20	.7 31/32	4 3/4	2 17/32	1 3/8	15/64	25/64	1/2	2	1 3/8	8	1 23/32	10	23/32	11/32	39/64	5/8	5	A
184B	A	7	20	7 31/32	3 23/32	2 17/32	1 3/8	15/64	25/64	1/2	2	1 3/8	8	1 23/32	10	23/32	11/32	39/64	5/8	5	A
185A	B	6	30	11	4	2 19/32	9 7/16		1/32	21/32	2	1 3/8	8	1 23/32	10	1/2	11/32	39/64	5/8	7	F
187A	A	6	20	6 31/32	4	2 19/32	1 3/8	15/64	31/64	15/32	2	1 1/8	6	1 13/32	8	13/16	9/32	39/64	5/8	5	D
187B	A	8	20	6 31/32	4 1/2	2 19/32	1 3/8	15/64	31/64	15/32	2	1 1/8	6	1 13/32	8	13/16	9/32	29/64	5/8	5	D

NOTES:
1. θ Number of characters that can be stamped between screw heads.
+ Number of "H" dimensions, balance are "J" dimensions.
✓ Mounting material furnished with terminal strips is listed on page 59
* Number of screws on clamping strip.

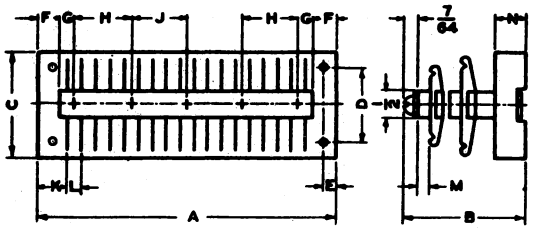
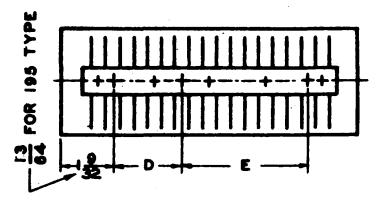


FIG. A



OTHERWISE SAME AS FIG. A

FIG. B

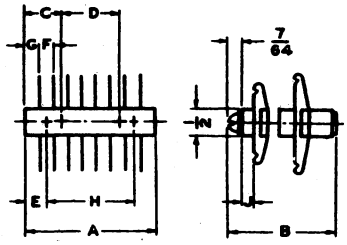


FIG. C

T.S.	FIG.	TERMS. ROWS	TERMS. EACH	A	B	C	D	E	F	G	H •	H DIM.	H θ	J •	J DIM.	J θ	K	L	M	N	SCREWS *CLAMP	SCREWS ✓MTG.
190A	D	12	100	2-4 9/16	5 1/4	4 1/2																	Z
190B	D	20	100	2-4 9/16	7 5/8	6 7/8																	Z
191A	E	3	100	2-4 9/16	2 5/32																		Z
191B	E	4	100	2-4 9/16	2 15/32																		Z
191C	E	5	100	2-4 3/16	2 25/32																		Z
192A	A	6	15	5 7/16	3 13/13	2 19/32	1 3/8	1/4	19/64	19/32	2	1 1/8	6	1 13/32	8		3/4	9/32	39/64	5/8	4	M
192B	A	8	15	5 7/16	4 1/2	2 19/32	1 3/8	1/4	19/64	19/32	2	1 1/8	6	1 13/32	8		3/4	9/32	39/64	5/8	4	M
193A	A	6	25	7 27/32	3 13/16	2 19/32	1 3/8	1/4	13/64	31/64	2	1 1/8	6	1 13/32	8		35/64	9/32	39/64	5/8	6	M
194A	B	7	25	9 9/32	4 3/8	2 15/16	3 23/64	4 23/64	1/32	21/32	2	1 3/8	8	1 22/32	10		33/34	11/32	39/64	5/8	6	F
195A	B	5	5	1 23/32	3 7/16	2 11/32	1 5/16		1/32	13/32		27/32	4	-	-		19/64	9/32	39/64	5/8	2	W
195B	B	3	5	1 23/32	2 22/32	2 11/32	1 5/16		1/32	13/32		27/32	4	-	-		19/64	9/32	39/64	5/8	2	U
195C	B	6	5	1 23/32	3 13/16	2 11/32	1 5/16		1/32	13/32		27/32	4	-	-		19/64	9/32	39/64	5/8	2	T
195D	B	4	5	1 23/32	2 61/64	2 11/32	1 5/16		1/32	13/32		27/32	4	-	-		19/64	9/32	39/64	5/8	2	U
197A	A	4	48	1-1 1/16	3 1/8	2 1/16	1 3/8	1/4	11/32	7/16	4	1 3/4	10	1 1/2	9		21/32	1/4	39/64	5/8	8	X
198A	A	4	51	1-2 31/32	3 1/8	2 17/32	1 3/8	15/64	5/8	15/32	4	1 11/16	10	1 13/32	8		61/34	9/32	39/64	5/8	10	B
199A		4	20			SEE DRAWING																	F
200A	A	6	60	1-4 31/32	3 7/8	2 19/32	1 3/8	19/64	23/32	1/2	4	1 3/4	10	1 1/2	9				17/32	5/8	10	D
202A	C	4	10	3 1/16	2 9/16	5/8	1 13/16	13/32	9/32	17/64	2	1 1/8	8	29/64	-						3	S
203A	F	1	16	3/32																			-
203B	F	1	8	3/16																			-
204A	A	8	60	1-7 15/16	4 1/2	2 19/32	1 3/8	15/64	1 21/64	21/64	2	1 1/8	6	1 13/32	8		1 43/64	9/32	39/64	5/8	13	Y
205A	D	20	40	1-0 5/8	7 3/4	7																	AC
206A	E	3	40	1-0 5/8	2 1/4																		AC
207A	G	2	80	2 3/64																			AC
207B	G	5	80	3 1/8																			AC

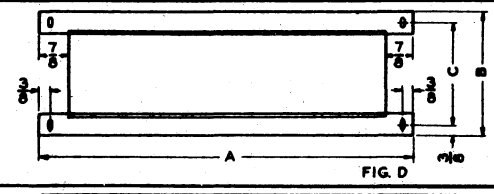


FIG. D

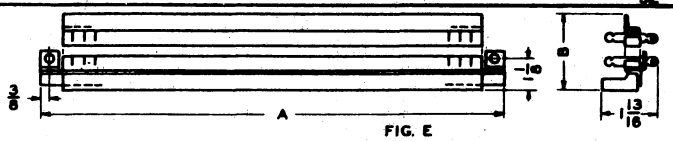


FIG. E

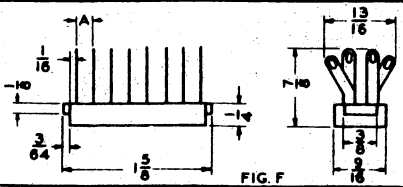


FIG. F

MOUNT BY MEANS OF A 28 TYPE BRACKET, WHICH MUST BE ORDERED SEPARATELY.

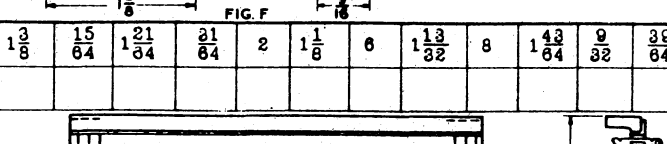


FIG. G

NOTES:

1. θ Number of characters that can be stamped between screw heads.
   • Number of "H" dimensions, balance are "J" dimensions.
   ✓ Mounting material furnished with terminal strips is listed on page 59
   * Number of screws on clamping strip.

TERMINAL STRIPS-190 TO 207

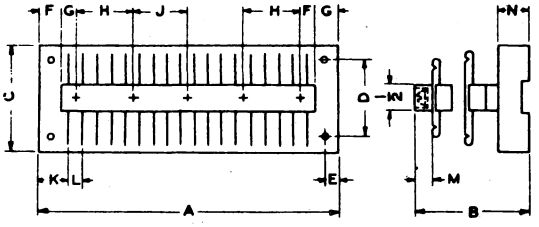
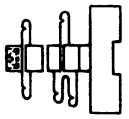


FIG. A



OTHERWISE SAME AS FIG. A

FIG. B

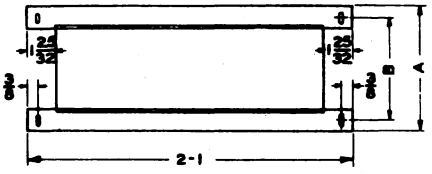
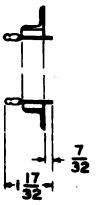


FIG. C



T.S.	FIG.	TERMS. ROWS	TERMS. EACH	A	B	C	D	E	F	G	H +	H DIM.	H θ	J DIM.	J θ	K	L	M	N	SCREWS *CLAMP	SCREWS ✓MTG.
209A	D	2	80	$1\frac{29}{32}$																	AC
208B	D	3	80	$2\frac{15}{64}$																	AC
208C	D	5	80	$2\frac{57}{64}$																	AC
08D	D	6	80	$3\frac{7}{32}$																	AC
209A	C	12	80	$5\frac{1}{4}$	$4\frac{1}{2}$																AC
209B	C	20	80	$7\frac{5}{8}$	$6\frac{7}{8}$																AC
210A	A	2	50	$1-1\frac{15}{32}$	$2\frac{3}{32}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{1}{2}$	6	$1\frac{3}{4}$	8	$1\frac{1}{2}$	7	$\frac{39}{64}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{8}$	8	A
210B	B	2	50	$1-1\frac{15}{32}$	$2\frac{3}{32}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{1}{2}$	6	$1\frac{3}{4}$	8	$1\frac{1}{2}$	7	$\frac{39}{64}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{8}$	8	A
210C	A	3	50	$1-1\frac{15}{32}$	$2\frac{15}{64}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{1}{2}$	6	$1\frac{3}{4}$	8	$1\frac{1}{2}$	7	$\frac{39}{64}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{8}$	8	A
210D	B	3	50	$1-1\frac{15}{32}$	$2\frac{15}{32}$	$2\frac{19}{32}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{15}{64}$	$\frac{1}{2}$	6	$1\frac{3}{4}$	8	$1\frac{1}{2}$	7	$\frac{39}{64}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{8}$	8	A
211A	A	4	25	$7\frac{31}{32}$	$2\frac{3}{4}$	$2\frac{5}{8}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
211B	A	4	25	$7\frac{31}{32}$	$2\frac{3}{4}$	$2\frac{6}{9}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
211C	A	4	25	$7\frac{31}{32}$	$2\frac{3}{4}$	$2\frac{5}{8}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
211D	A	2	25	$7\frac{31}{32}$	$2\frac{1}{16}$	$2\frac{5}{9}$	$1\frac{3}{9}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
211E	A	3	25	$7\frac{31}{32}$	$2\frac{3}{16}$	$2\frac{5}{9}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
211G	A	5	25	$7\frac{31}{32}$	$3\frac{3}{32}$	$2\frac{5}{8}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
211H	A	5	25	$7\frac{31}{32}$	$3\frac{3}{32}$	$2\frac{5}{8}$	$1\frac{3}{8}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
211J	A	6	25	$7\frac{31}{32}$	$2\frac{7}{32}$	$2\frac{5}{8}$	$1\frac{3}{9}$	$\frac{15}{64}$	$\frac{17}{64}$	$\frac{31}{64}$	2	$1\frac{1}{8}$	5	$1\frac{13}{32}$	6	$\frac{39}{64}$	$\frac{9}{32}$	$\frac{5}{16}$	$\frac{5}{8}$	6	A
212A		10	100				SEE DRAWING														AC
215A	E	7	90	$3\frac{29}{32}$																	AC
215B	E	4	90	$2\frac{7}{8}$																	AC
216A		1	20				SEE DRAWING														AP
217A	F	3	20	$2\frac{21}{64}$																	AA
217B	F	4	20	$2\frac{21}{32}$																	AA
217C	F	5	20	$2\frac{63}{64}$																	AA
217D	F	6	20	$3\frac{5}{16}$																	AA
217E	F	7	20	$3\frac{41}{64}$																	AA
217F	F	8	20	$3\frac{31}{32}$																	AA

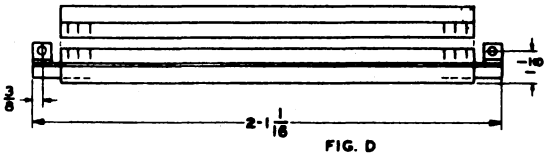


FIG. D

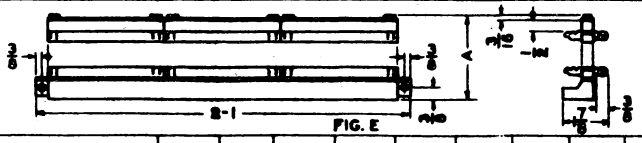


FIG. E

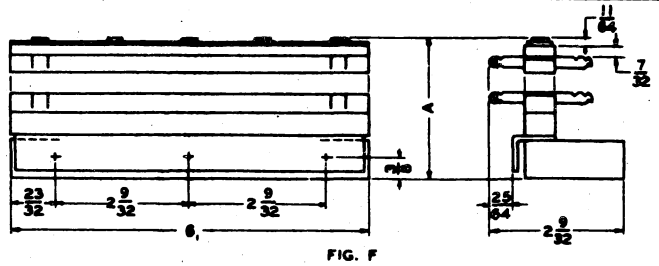


FIG. F

NOTES:

1. θ Number of characters that can be stamped between screw heads.
   + Number of "H" dimensions, balance are "J" dimensions.
   ✓ Mounting material furnished with terminal strips is listed on page 59
   * Number of screws on clamping strip.

TERMINAL STRIPS - 208 TO 217

T.S.	FIG.	TERMS ROWS	TERMS EACH	A	B	MTG. MAT.
218A	A	3	10	$\frac{28}{32}$	-	AB
218B	A	4	10	$\frac{31}{32}$	-	AB
218C	A	5	10	$1\frac{1}{16}$	-	AB
218D	A	6	10	$1\frac{15}{64}$	-	AB
219A	-	2	20	SEE DWG.		AC
220A	-	1	2	SEE DWG.		-
221A	B	40	100	$1-6\frac{1}{2}$	$1-5\frac{1}{2}$	AE
221B	C	20	100	$10\frac{1}{2}$	$9\frac{1}{2}$	AE
222A	-	5	100	SEE DWG.		AC
223A	D	4	30	$2\frac{7}{8}$	-	AD
223B	E	4	30	$2\frac{13}{16}$	-	AD
224A	F	4	8	$1\frac{9}{16}$	-	AH
224B	F	4	5	$1\frac{11}{32}$	-	AH
700A	-	2 2 WAY	4 2 WAY	SEE DWG.		-

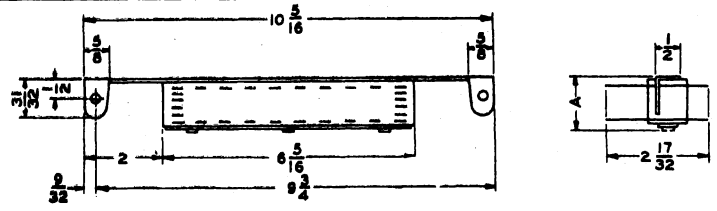


FIG. A

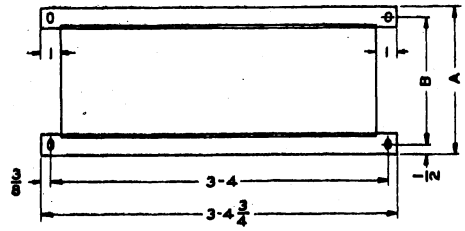
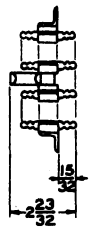


FIG. B




OTHERWISE SAME AS FIG. B
FIG. C

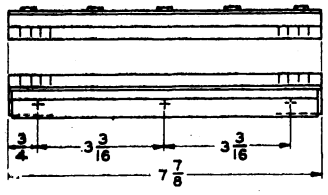
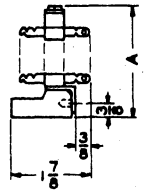
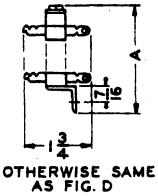
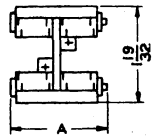


FIG. D





OTHERWISE SAME AS FIG. D
FIG E



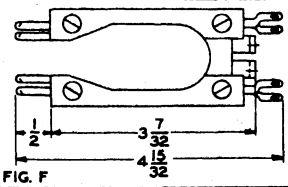


FIG. F

TABLE OF MATERIAL FURNISHED WITH TERMINAL STRIPS FOR MOUNTING

MTG. MAT.	SCREW PART NO.	SCREW SIZE	SCREW FIN.	HEX. NUT PART NO.	HEX. NUT FIN.	WASHER PART NO.	WASHER SIZE	WASHER FIN.
A	P-133796	.138-32x3/4 R.H.M.Scr.	289	P-125952	289	P-135239	.148x19/64x.095	
B	P-112697	.141-32x3/4 R.H.M.Scr.	289	P-265	BRASS	P-135239	.148x19/64x.095	
C	P-117211	.141-32x3/4 R.H.M.Scr.	STEEL	P-265	BRASS	P-135239	.148x19/64x.095	
D	P-138380	.138-32x7/8 R.H.M.Scr.	289	P-125952	289	P-135239	.148x19/64x.095	
E	P-217496	.164-32x13/16 R.H.M.Scr.	289					
F	P-126448	.190-32x3/4 R.H.M.Scr.	289					
G	P-117213	.141-32x7/8 R.H.M.Scr.		P-265	BRASS	P-135239	.148x19/64x.095	
H	P-118257	.164-36x5/8 R.H.M.Scr.	BRASS					
J	P-131216	.164-36x5/8 R.H.M.Scr.	289					
K	P-130814	.190-32x1 1/4 R.H.M.Scr.	289					
L	P-118053	.164-30x7/8 R.H.M.Scr.	BRASS			P-139617	.173x23/64x1/32	3
M	P-205316	.164-32x1 1/8 R.H.M.Scr.	289	P-202816	BRASS			
N	P-160953	.164-32x1 R.H.M.Scr.	289					
	P-250366	.164-32x1 5/8 R.H.M.Scr.	289					
P	P-118062	.164-30x1 1/4 R.H.M.Scr.	BRASS			P-139617	.173x23/64x1/32	3
R	P-160201	8x3/4 R.H.W.Scr.	21					
S	P-168379	.164-30x7/8 R.H.M.Scr.	289			P-139617	.173x23/64x1/32	3
T	P-129524	.164-30x3/8 R.H.M.Scr.	289					
U	P-130370	.164-30x5/8 R.H.M.Scr.	31					
V	P-208618	.164-30x19/32 R.H.M.Scr.	269					
W	P-159083	.164-30x3/8 H.H.M.Scr.	289					
X	P-160883	.164-32x5/8 R.H.M.Scr.	289					
Y	P-160809	.164-32x7/8 R.H.M.Scr.	393	P-206518	3			
Z	P-210236	1/4-20x3/8 R.H.M.Scr.	289					
AA	P-205652	.164-32x5/16 R.H.M.Scr.	289					
	P-205653	.164-32x1/2 R.H.M.Scr.	289					
AB	P-133810	.213-24x7/16 R.H.M.Scr.	269			P-351000	3/32x3/64x27/64	31
AC	P-353448	.216-24x3/8 R.H.M.Scr.	289			P-423635	.021x15/32	3
AD	P-217497	.164-32x7/16 R.H.M.Scr.	289			P-221761	5/64x3/64x21/64	289
AE	P-353447	.216-24x1/2 R.H.M.Scr.	289			P-423635	.021x15/32	3
AF	P-142033	.138-32x5/8 R.H.M.Scr.	289			P-229969	.143x3/8x.0375	3
AG	P-172461or	.138-32x9/64 R.H.M.Scr.	289					
	P-218038	.138-32x5/32 H.H.M.Scr.	289					
AH	P-139909	.136-32x13/32 BUT.H.M.Scr.	31					

TERMINAL STRIPS - 218 TO 700

CODE	AVERAGE SIZE ±.03	GAUGE	NO. OF CONDUC.	PAIRS	SINGLES	SPARES		INSULATION OF CONDUC.	BENDING RADIUS	
						PAIRS	SINGLES		ON EDGE	ON FLAT
18L	.70 x .37	22	36	20	20	1	1	DCL	3	1 1/2
18CL	.79 x .36	22	36	20	20	1	1	DSCL	3	1 1/2
24L	.56 x .33	22	48	20		1	1	DCL	2	1
24CL	.56 x .37	22	48	20		1	1	DSCL	2	1
50L	.37 DIA.	22	38	10	10	1	1	DCL		2
50CL	.40 DIA.	22	38	10	10	1	1	DSCL		2
62L	.50 DIA.	22	63	30		1	1	DCL		3
62CL	.55 DIA.	22	63	30		1	1	DSCL		3
36L	.62 DIA.	22	103	50		1	1	DCL		3
36CL	.69 DIA.	22	103	50		1	1	DSCL		3
69L	.95 DIA.	22	208	100		3	2	DCL		4
69CL	.95 DIA.	22	208	100		3	2	DSCL		4
70L	.76 x .43	22	83	40		1	1	DCL	3	1 1/2
70CL	.79 x .45	22	83	40		1	1	DSCL	3	1 1/2
74L	.30 DIA.	22	21	10			1	DCL		1
74CL	.36 DIA.	22	21	10			1	DSCL		1
97L	.71 DIA.	22	132	64		2		DCL		4
97CL	.78 DIA.	22	132	64		2		DSCL		4
100L	.64 x .42	24	83	40		1	1	DCL	3	1 1/2
100CL	.70 x .46	24	83	40		1	1	DSCL	3	1 1/2
103L	.50 x .31	24	43	20		1		DCL	2	1
103CL	.55 x .34	24	43	20		1		DSCL	2	1
106L	.62 DIA.	22	103	40	20	1	1	DCL		3
106CL	.69 DIA.	22	103	40	20	1	1	DSCL		3
125L	.58 x .32	19	23	10		1	1	DCL	2	1
125CL	.58 x .32	19	23	10		1	1	DSCL	2	1
132L	.26 DIA.	22	13	6			1	DCL		1
132CL	.30 DIA.	22	13	6			1	DSCL		1
183L	.47 DIA.	22	53	20	10	1	1	DCL		3
183CL	.52 DIA.	22	53	20	10	1	1	DSCL		3
191L	.59 DIA.	22	93	30	30	1	1	DCL		3
191CL	.61 DIA.	22	93	30	30	1	1	DACL		3
205L	.41 DIA.	22	39	12	12	1	1	DCL		2
205CL	.42 DIA.	22	39	12	12	1	1	DACL		2
230L	.72 DIA.	22	136	66		2		DCL		4
230CL	.73 DIA.	22	136	66		2		DACL		4
232L	1.57 x .35	22	93	40		1	1	DCL	12	1 1/2
232CL	1.57 x .37	22	93	40		1	1	DSCL	12	1 1/2
233L	.67 DIA.	22	123	40	40	1	1	DCL		4
233CL	.68 DIA.	22	123	40	40	1	1	DACL		4
234L	.79 DIA.	22	164	80		2		DCL		4
234CL	.81 DIA.	22	164	80		2		DACL		4
235L	.86 DIA.	22	205	80	40	2	1	DCL		4
235CL	.88 DIA.	22	205	80	40	2	1	DACL		4
236L	.78 x .38	24	63	20	20	1	1	DCL	6	1 1/2
236CL	.79 x .41	24	63	20	20	1	1	DSCL	6	1 1/2
239C	1.57 x .37	22	103	40	20	1	1	DSC	12	1 1/2
239L	1.57 x .37	22	103	40	20	1	1	DCL	12	1 1/2
239CL	1.59 x .39	22	103	40	20	1	1	DSCL	12	1 1/2
241L	.73 x .38	22	43	20		1	1	DCL	3	1 1/2
241CL	.74 x .38	22	43	20		1	1	DSCL	3	1 1/2
242L	1.57 x .38	22	63	20	20	1	1	DCL	12	1 1/2
242CL	1.56 x .42	22	63	20	20	1	1	DSCL	12	1 1/2
243L	1.09 DIA.	22	312	100	100	4	4	DCL		6
243CL	1.15 DIA.	22	312	100	100	4	4	DSCL		6
252L	.24 DIA.	24	12	6				DCL		1
252CL	.24 DIA.	24	12	6				DACL		1
253L	.31 DIA.	24	22	10		1		DCL		1
253CL	.32 DIA.	24	22	10		1		DACL		1
254L	.36 DIA.	24	33	10	10	1	1	DCL		2
254CL	.37 DIA.	24	33	10	10	1	1	DACL		2
255L	.41 DIA.	24	43	20		1	1	DCL		2
255CL	.42 DIA.	24	43	20		1	1	DACL		2
256L	.47 DIA.	24	63	20	20	1	1	DCL		3
256CL	.48 DIA.	24	63	20	20	1	1	DACL		3
257L	.55 DIA.	24	93	40		1	1	DCL		3
257CL	.56 DIA.	24	93	40		1	1	DACL		3
258L	.73 x .40	24	103	40	20	1	1	DCL	3	1 1/2
259CL	.73 x .41	24	103	40	20	1	1	DACL	3	1 1/2
259L	.65 DIA.	24	127	40	40	3	1	DCL		4
259CL	.33 DIA.	24	127	40	40	3	1	DACL		4
260L	.70 DIA.	24	158	50	50	1	1	DCL		4
260CL	.72 DIA.	24	158	50	50	1	1	DACL		4
261L	.74 DIA.	24	134	80				DCL		4
261CL	.76 DIA.	24	134	80		2		DACL		4
262L	.85 DIA.	24	205	100		2	1	DCL		4
262CL	.93 DIA.	24	208	100		3	2	DACL		4
263L	1.01 DIA.	24	312	100	100	4	4	DCL		4
263CL	1.03 DIA.	24	312	100	100	4	4	DACL		4
264CL	.73 DIA.	24	185	80	80	2	1	DACL		4
275CL	.74 x .35	22	103	40	20	1	1	DACL	3	1 1/2
500CL	.23 DIA.	22	8	2				DSCL		1
501CL	.41 DIA.	22	16	4				DSCL		1
502CL	.50 DIA.	22	32	8	QUADS		QUADS	DSCL		2
503CL	.58 DIA.	22	40	10				DSCL		2
504CL	.52 DIA.	22	52	12		1		DSCL		3
505CL	.62 DIA.	22	68	16		1		DSCL		3
506CL	.72 DIA.	22	84	20		1		DSCL		3

SWITCHBOARD CABLES

CODE	AVERAGE SIZE ±.03	GAUGE	NO. OF CONDUC.	PAIRS	SINGLES	SPARES		INSULATION OF CONDUC.	BENDING RADIUS	
						PAIRS	SINGLES		ON EDGE	ON FLAT
720	.88 DIA.	22	2							1
721	.88 DIA.	22	2							1
1016	.72 x .35	22	63	20	20	1	1	EDSC	3	1 1/2
1016CL	.79 x .41	22	63	20	20	1	1	EDSCL	3	1 1/2
1024	.59 x .32	22	43	20		1	1	EDSC	2	1
1024CL	.56 x .42	22	43	20		1	1	EDSCL	2	1
1050	.47 x .28	22	33	10	10	1	1	EDSC	2	1
1050CL	.43 DIA.	22	33	10	10	1	1	EDSCL		2
1062	.62 x .44	22	63	30		1	1	EDSC	3	1 1/2
1066	.62 DIA.	22	103	50		1	1	EDSC.		3
1066CL	.74 DIA.	22	103	50		1	1	EDSCL		3
1089	1.13 DIA.	22	205	100		2	1	EDSC		4
1089CL	1.03 DIA.	22	208	100		3	2	EDSCL		4
1070	.80 x .43	22	83	40		1	1	EDSC	3	1 1/2
1070CL	.79 x .52	22	93	40		1	1	EDSCL	3	1 1/2
1074	.33 DIA.		21		20		1	EDSC		1
1074CL	.36 DIA.	22	21	10			1	EDSCL		1
1079	.41 x .25	22	23	10		1	1	EDSC	1	1/2
1084	1.30 x .31	22	63	20	20	1	1	EDSC	8	1 1/2
1097	1.11 x .61	22	132	64		2		EDSC	4	3
1100	.62 x .50	24	83	40		1	1	EDSC	3	1 1/2
1103	.54 x .26	24	42	20		1		EDSC	2	1
1106	.74 x .50	22	103	40	20	1	1	EDSC	3	1 1/2
1116	.74 x .37	19	43	20		1	1	EDSC	3	1 1/2
1117	.92 x .45	19 & 22	83	20 & 20		1	1	EDSC	4	2
1119	.90 x .66	19	103	50		1	1	EDSC	4	3
1125	.52 x .30	19	23	10		1	1	EDSC	2	1
1126	.62 x .36	19 & 22	43	10 & 10		1	1	EDSC	3	1 1/2
1182	.42 x .26	22	13	6			1	EDSC	1	1/2
1182CL	.32 DIA.	22	13	6			1	EDSCL		1
1183	.59 x .36	22	53	20	10	1	1	EDSC	3	1 1/2
1186	.36 x .25	18	6	3				EDSC	2	1
1187	.50 x .32	18	12	6				EDSC	2	1
1188	.62 x .35	16	8					EDSC	2	1
1200	.41 x .24	19	12	6				EDSC	2	1
1231	.79 DIA.		51		50		1	EDSC		3
1232	1.57 x .35	22	83	40		1	1	EDSC	12	1 1/2
1233	.74 x .34	24	63	20	20	1	1	EDSC	3	1 1/2
1237	1.04 DIA.	22	312	100	100	4	4	EDSC		6
1450	.28 DIA.	20	6	3				ESCB		1
1451	.37 DIA.	20	12	6				ESCB		2
1452	.43 DIA.	20	16	8				ESCB		2
1453	.47 DIA.	20	22	11				ESCB		2
1454	.50 DIA.	18	20	10				ESCB		2
1455	.20 DIA.		3		3			ESCB		1/2
1475	.50 DIA.	20	12	6				ESCB		3
1475CL	.37 DIA.	22	12	6				EDSCL		2
1476	.70 DIA.	20	24	12				ESCB		4
1476CL	.50 DIA.	22	24	12				EDSCL		3
6016	.72 x .35	22	63	20	20	1	1	EDC	3	1 1/2
6024	.54 x .31	22	43	20		1	1	EDC	2	1
6050	.47 x .28	22	33	10	10	1	1	EDC	2	1
6062	.62 x .39	22	83	30		1	1	EDC	3	1 1/2
6066	.70 DIA.	22	103	50		1	1	EDC		3
6089	.87 DIA.	22	205	100		2	1	EDC		4
6070	.72 x .42	22	83	40		1	1	EDC	3	1 1/2
6074	.32 DIA.		21		20		1	EDC		1
6079	.41 x .25	22	23	10		1	1	EDC	1	1/2
6084	1.30 x .31	22	63	20	20	1	1	EDC	8	1 1/2
6097	.84 x .59	22	132	64		2		EDC	4	3
6100	.64 x .42	24	83	40		1	1	EDC	2	1 1/2
6102	.72 x .44	24	103	40	20	1	1	EDC	3	1 1/2
6103	.50 x .31	24	43	20		1		EDC	3	1 1/2
6106	.74 x .50	22	103	40	20	1	1	EDC	3	1 1/2
6115	.92 x .40	19 & 22	84	20	20	1	2	EDC	3	1 1/2
6113	.74 x .37	19	43	20		1	1	EDC	3	1 1/2
6117	.92 x .45	19 & 22	83	20 & 20		1	1	EDC	4	2
6119	.90 x .66	19	103	50		1	1	EDC	4	3
6125	.52 x .30	19	23	10		1	1	EDC	2	1
6126	.62 x .36	19 & 22	43	10 & 10		1	1	EDC	3	1 1/2
6182	.38 x .21	22	13	6			1	EDC	1	1/2
6183	.59 x .36	22	53	20	10	1	1	EDC	3	1 1/2
6191	.68 x .48	22	93	30	30	1	1	EDC	3	1 1/2
6198	.57 x .33	19 & 22	42	8 & 13				EDC	3	1 1/2
6199	.70 x .36	19 & 22	50	9 & 17				EDC	3	1 1/2
6201	.61 x .40	22	63	20	20	1	1	EDC	3	1 1/2
6205	.51 x .32	22	39	12	12	1	1	EDC	2	1
6215	.73 x .39	19 & 16	32	4	20	1	2	EDC	3	1 1/2
6221	.74 x .49	19	32	20		1		EDC	3	1 1/2
6223	.82 x .56	22	123	40	40	1	1	EDC	4	2
6234	.93 x .63	22	164	80		2		EDC	4	3
6235	.85 DIA.	22	205	80	40	2	1	EDC		4
6233	.74 x .34	24	63	20	20	1	1	EDC	.6	1 1/2
6237	1.04 DIA.	22	312	100	100	4	4	EDC		6

SWITCHBOARD CABLES

X-62604

DIMENSIONS OF RIGID METAL CONDUIT

SIZE OF CONDUIT	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
ACTUAL OUTSIDE DIAM.	.84	1.05	1.31	1.66	1.9	2.37	2.87	3.5
APPROXIMATE INSIDE DIAM.	.62	.82	1.05	1.38	1.61	2.07	2.47	3.07
CONDUIT ELBOW RADIUS	4	4.5	5.75	7.25	8.25	9.5	10.5	11.75
CONDUIT ELBOW OFFSET	6 3/4	6 27/32	8 1/2	9 15/16	11 5/8	14 5/16	17	19 29/32
MIN. CTRS. WITH KRANTZ BUSHING	1 1/4	1 5/8	2	2 1/2	2 5/8	3 1/8	3 3/4	4 1/2

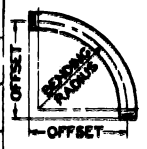


FIG. A

FLEXIBLE STEEL CONDUIT

SIZE	O. DIAM.	BEND. R.
1/2	.68	4.4
3/4	1.10	5.5
1	1.35	6.75
1 1/4	1.6	8
1 1/2	1.9	9.5
2	2.4	12
2 1/2	3.2	16

SEE NOTE 3

ALLOWABLE NUMBER OF WIRES IN CONDUIT (SEE NOTE 1)

SIZE OF CONDUIT / SIZE OF WIRE	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
18	4	7	11	16	20	34		
16	4	7	9	14	18	33		
14	4	7	9	12	18	33		
12	3	5	8	11	16	29		
10	1	4	6	10	14	26		
8	1	2	4	8	9	16		
6	1	1	2	4	6	9		
4		1	1	3	4	8	10	
2		1	1	2	4	6	9	
1		1	1	1	3	5	7	9
0			1	1	2	4	6	9
00			1	1	1	3	5	8
000			1	1	1	3	4	7
0000				1	1	2	4	6
300000				1	1	1	2	4
400000				1	1	1	1	3
500000					1	1	1	3
600000						1	1	2
700000						1	1	1
800000						1		1

SWITCHBOARD CONDUCTORS

NOTES:

1. For short sections of discontinuous conduit, no restrictions apply.
2. Figures in the above table are for double braided, rubber covered cable No. 6 and larger and single braided, rubber covered wire No. 8 and smaller.
3. For information regarding size of flexible steel covered cable and fittings, refer to specification KS-5497

CONDUIT - RIGID & FLEXIBLE DIMENSIONS AND CAPACITY

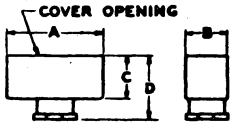
FIG. A

LEAD COVERED DUPLEX

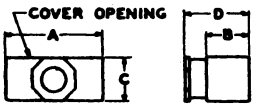
FIG. B

	AREA IN CIRCULAR MILS	GAUGE	CAP. IN AMPS.	DIAM. OF BARE CABLE	SIZE OF CABLE HOLE IN TERMINAL		DOUBLE BRAID RUBBER COVERED		LEAD COVERED CABLE				LEAD COVERED DUPLEX FIG. B	
					DRILL	DEPTH	DIAM. OVER INS.	MIN. BEND. RADIUS FIG. A	THICKNESS OF LEAD SHEATH	DIAMETER OVER LEAD SHEATH INCHES	DIAMETER OVER LEAD SHEATH DECIMAL	MIN. BEND. RAD. FIG. A	A	B
SOLID	4107	14	15	.064	42 .9035		3/16	1/2	1/32	1/4	.26	2 5/8	.44	.26
SOLID	6530	12	20	.081	30 .1285		7/32	1/2	1/32	9/32	.27	2 7/8	.51	.30
SOLID	10380	10	25	.102	23 .154		15/64	1/2	3/64	21/64	.33	3 1/2	.55	.32
STRANDED	16264	8	35	.148	12 .189		5/16	1	3/64	3/8	.40	4	.60	.35
STRANDED	26250	6	50	.184	2 .221		25/64	1	1/16	15/32	.45	4 3/4	.76	.45
STRANDED	41740	4	70	15/64	9/32	9/16	7/16	1	1/16	17/32	.52	5 3/8	.90	.52
STRANDED	66370	2	90	19/64	11/32	9/16	31/64	1 1/2	1/16	19/32	.58	5 7/8	1.02	.58
STRANDED	83690	1	100	21/64	25/64	9/16	9/16	1 1/2	1/16	21/32	.65	6 1/2	1.20	.68
STRANDED	105500	0	125	3/8	7/16	5/8	19/32	1 1/2	1/16	11/16	.69	6 7/8	1.28	.72
STRANDED	133100	00	150	27/64	31/64	3/4	21/32	3 1/2	1/16	3/4	.74	7 1/2	1.37	.76
STRANDED	167800	000	175	15/22	17/32	3/4	45/64	3 1/2	1/16	13/16	.79	8 1/8	1.47	.82
STRANDED	211600	0000	225	17/32	19/32	1	3/4	3 1/2	1/16	7/8	.85	8 3/4	1.59	.87
STRANDED	300000		275	41/64	45/64	1 1/8	29/32	5	5/64	1 1/64	1.01	10 1/8		
STRANDED	400000		325	47/64	51/64	1 1/8	1	5	5/64	1 1/8	1.11	11 1/4		
STRANDED	500000		400	53/64	57/64	1 1/4	1 1/8	5	5/64	1 7/32	1.20	1-0 1/4		
STRANDED	600000		450	57/64	31/32	1 3/8	1 7/32	7	3/32	1 11/32	1.34	1-1 1/2		
STRANDED	700000		500	31/32	1 1/32	1 3/8	1 5/16	7	3/32	1 13/32	1.41	1-2 1/8		
STRANDED	800000		550	1 1/32	1 3/32	1 3/8	1 3/8	7	3/32	1 1/2	1.47	1-3		

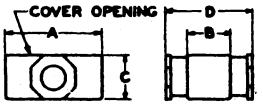
POWER CABLE - SIZE AND CAPACITY



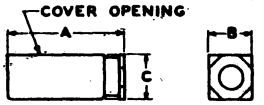
TYPE A



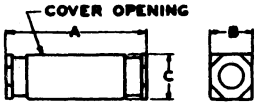
TYPE B



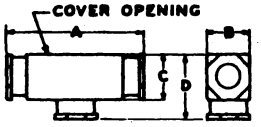
TYPE D



TYPE E



TYPE C



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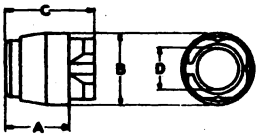

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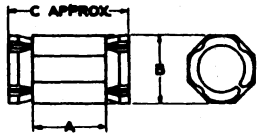
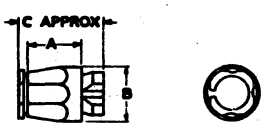


TYPE H

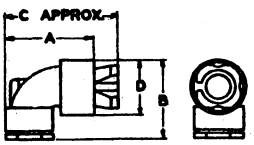
TYPE	CODE	CONDUIT SIZE	A	B	C	D
A	A-2	1/2	3 1/4	1 3/8	1 3/8	2 3/32
	A-3	3/4	3 1/2	1 3/4	1 3/4	2 15/32
	A-4	1	4 1/8	2 1/8	2 1/8	3
	A-5	1 1/4	4 3/4	2 1/2	2 1/2	3 9/16
	A-6	1 1/2	5	2 7/8	2 7/8	4 1/8
	A-8	2	7 1/2	3 7/16	3 1/2	4 3/4
	A-10	2 1/2	8 7/8	4	4 1/16	5 17/32
	A-12	3	9 1/2	4 11/16	4 11/16	6 3/8
B	B-2	1/2	3 1/4	1 3/8	1 3/8	2 3/32
	B-3	3/4	3 1/2	1 3/4	1 3/4	2 15/32
	B-4	1	4 1/8	2 1/8	2 1/8	3 1/32
	B-5	1 1/4	4 3/4	2 1/2	2 1/2	3 19/32
	B-6	1 1/2	5	2 7/8	2 7/8	4 5/32
	B-8	2	7 1/2	3 7/16	3 1/2	4 3/4
	B-10	2 1/2	8 7/8	4	4 1/16	5 17/32
	B-12	3	9 1/2	4 11/16	4 11/16	6 7/16
C	C-2	1/2	4 11/16	1 3/8	1 3/8	
	C-3	3/4	4 31/32	1 3/4	1 3/4	
	C-4	1	5 7/8	2 1/8	2 1/8	
	C-5	1 1/4	6 15/16	2 1/2	2 1/2	
	C-6	1 1/2	7 9/16	2 7/8	2 7/8	
	C-8	2	10 1/8	3 7/16	3 1/2	
	C-10	2 1/2	11 15/16	4	4 1/16	
	C-12	3	1-1	4 11/16	4 11/16	
CB	CB-2	1/2	4 11/16	1 3/8	1 3/8	2 3/32
	CB-3	3/4	4 31/32	1 3/4	1 3/4	2 15/32
	CB-4	1	5 7/8	2 1/8	2 1/8	3 1/2
	CB-5	1 1/4	6 15/16	2 1/2	2 1/2	3 19/32
	CB-6	1 1/2	7 9/16	2 7/8	2 7/8	4 5/32
	CB-8	2	10 1/8	3 7/16	3 1/2	4 13/16
	CB-10	2 1/2	11 15/16	4	4 1/16	5 15/32
	CB-12	3	1-1	4 11/16	4 11/16	6 7/16

TYPE	CODE	CONDUIT SIZE	A	B	C	D
D	D-2	1/2	3 1/4	1 3/8	1 3/8	2 13/16
	D-3	3/4	3 1/2	1 3/4	1 3/4	3 7/32
	D-4	1	4 1/8	2 1/8	2 1/8	3 15/16
	D-5	1 1/4	4 3/4	2 1/2	2 1/2	4 11/16
	D-6	1 1/2	5	2 7/8	2 7/8	5 7/16
	D-8	2	7 1/2	3 7/16	3 1/2	6 1/16
	D-10	2 1/2	8 7/8	4	4 1/16	7 1/16
	D-12	3	9 1/2	4 11/16	4 11/16	8 3/16
E	E-2	1/2	3 31/32	1 3/8	1 3/8	
	E-3	3/4	4 9/32	1 3/4	1 3/4	
	E-4	1	5	2 1/8	2 1/8	
	E-5	1 1/4	5 7/8	2 1/2	2 1/2	
	E-6	1 1/2	6 5/16	2 7/8	2 7/8	
	E-8	2	8 7/8	3 7/16	3 1/2	
	E-10	2 1/2	10 15/32	4	4 1/16	
	E-12	3	11 5/16	4 11/16	4 11/16	
EF	EF-2	1/2	1 5/16	1 9/32	1 3/4	19/32
	EF-3	3/4	1 15/32	1 9/16	2 1/16	25/32
	EF-4	1	1 3/4	2	2 5/16	1 1/32
	EF-5	1 1/4	2 3/32	2 13/32	2 15/32	1 3/8
	EF-6	1 1/2	2 9/32	2 13/16	3 1/32	1 19/32
	EF-8	2	2 17/32	3 11/32	3 13/32	2 1/32
	EF-10	2 1/2	3	3 15/16	3 29/32	2 7/16
	EF-12	3	3 1/32	4 19/32	4	3 1/32
H	H-2	1/2	1 5/16	1.2	2 3/16	
	H-3	3/4	1 3/4	1 19/32	2 15/16	
	H-4	1	2 3/16	2	3 5/16	
	H-5	1 1/4	2 1/2	2 1/2	3 7/8	
	H-6	1 1/2	2 1/32	2 21/32	3 17/32	
	H-8	2	3 3/32	3 13/32	4 29/32	
	H-10	2 1/2	4	4	5 25/32	
	H-12	3	4 1/16	4 21/32	5 31/32	

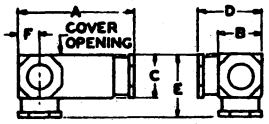
CONDUIT FITTINGS - KONDU TYPE - THREADLESS



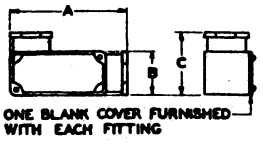
TYPE KO



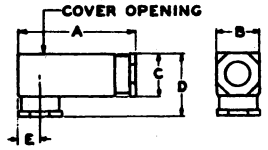
TYPE KOL



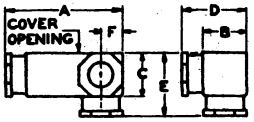
TYPE LBR



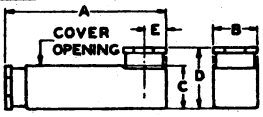
TYPE LD



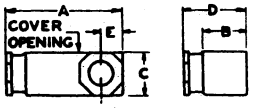
TYPE LB



TYPE LBL



TYPE LF

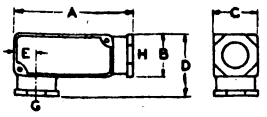


TYPE LL

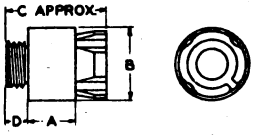
TYPE	CODE	CONDUIT SIZE	A	B	C	D	E	F
KO	KO-2	1/2	1 3/16	1 9/32	1 5/8			
	KO-3	3/4	1 7/16	1 9/16	2 1/32			
	KO-4	1	1 25/32	1 31/32	2 19/32			
	KO-5	1 1/4	2 1/8	2 15/32	2 3/4			
KOL	KOL-2	1/2	2 1/8	1 5/8	2 5/8	1 1/4		
	KOL-3	3/4	2 5/8	1 7/8	3 1/4	1 17/32		
	KOL-4	1	3 7/32	2 7/16	3 27/32	1 15/16		
	KOL-5	1 1/4	3 13/16	3 1/8	4 7/16	2 15/32		
	KOL-6	1 1/2	4 5/16	3 17/32	5 1/16	2 13/16		
	KOL-8	2	4 23/32	4 3/8	5 15/16	3 11/32		
LB	LB-2	1/2	3 31/32	1 3/8	1 3/8	2 3/32	11/16	
	LB-3	3/4	4 9/32	1 3/4	1 3/4	2 15/32	7/8	
	LB-4	1	5	2 1/8	2 1/8	3 1/32	1 1/16	
	LB-5	1 1/4	5 7/8	2 1/2	2 1/2	3 19/32	1 1/4	
	LB-6	1 1/2	6 5/16	2 7/8	2 7/8	4 5/32	1 7/16	
	LB-8	2	8 7/8	3 7/16	3 1/2	4 13/16	1 3/4	
	LB-10	2 1/2	10 15/32	4	4 1/16	5 19/32	2	
	LB-12	3	11 5/16	4 11/16	4 11/16	6 7/16	2 11/32	
LBL	LBL-2	1/2	8 31/32	1 3/8	1 3/8	2 3/32	2 7/32	11/16
	LBL-3	3/4	4 9/32	1 3/4	1 3/4	2 15/32	2 23/32	7/8
	LBL-4	1	5	2 1/8	2 1/8	3 1/32	3 11/32	1 1/16

TYPE	CODE	CONDUIT SIZE	A	B	C	D	E	F
LBR	LBR-2	1/2	3 31/32	1 3/8	1 3/8	2 3/32	2 7/32	11/16
	LBR-3	3/4	4 9/32	1 3/4	1 3/4	2 15/32	2 23/32	7/8
	LBR-4	1	5	2 1/8	2 1/8	3 1/32	3 11/32	1 1/16
LD	LD-2	1/2	3 31/32	1 3/8	2 3/32			
	LD-3	3/4	4 9/32	1 3/4	2 15/32			
	LD-4	1	5	2 1/8	3 1/32			
	LD-5	1 1/4	5 7/8	2 1/2	3 19/32			
	LD-6	1 1/2	6 5/16	2 7/8	4 5/32			
	LD-8	2	8 7/8	3 7/16	4 3/4			
LF	LF-2	1/2	5 15/32	1 3/8	1 13/32	2 1/16	3/4	
	LF-3	3/4	6 3/32	1 3/4	1 25/32	2 15/32	7/8	
	LF-4	1	7 11/32	2 1/8	2 5/32	3	1 1/16	
	LF-5	1 1/4	8 19/32	2 1/2	2 17/32	3 9/16	1 1/4	
	LF-6	1 1/2	9 13/32	2 7/8	2 29/32	4 1/8	1 7/16	
	LF-8	2	1-0 1/2	3 7/16	3 17/32	4 3/4	1 3/4	
	LF-10	2 1/2	1-2 21/32	4	4 1/16	5 19/32	2	
	LF-12	3	1-4 7/32	4 11/16	4 11/16	6 11/32	2 11/32	
LL	LL-2	1/2	2 31/32	1 3/8	1 3/8	2 3/32	11/16	
	LL-3	3/4	4 9/32	1 3/4	1 3/4	2 15/32	7/8	
	LL-4	1	5	2 1/8	2 1/8	3 1/32	1 1/16	
	LL-5	1 1/4	5 7/8	2 1/2	2 1/2	3 19/32	1 1/4	
	LL-6	1 1/2	6 5/16	2 7/8	2 7/8	4 5/32	1 7/16	
	LL-8	2	8 7/8	3 7/16	3 1/2	4 3/4	1 3/4	
	LL-10	2 1/2	10 15/32	4	4 1/16	5 17/32	2	
	LL-12	3	11 5/16	4 11/16	4 11/16	6 7/16	2 11/32	

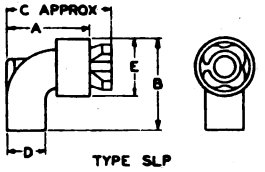
CONDUIT FITTINGS - KONDU TYPE - THREADLESS



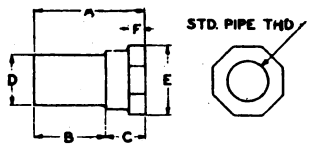
TYPE LR & REDUCING LR



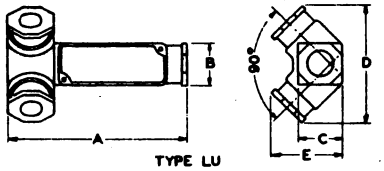
TYPE NO



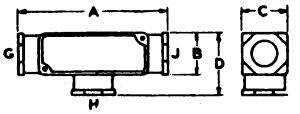
TYPE SLP



TYPE SCA



TYPE LU



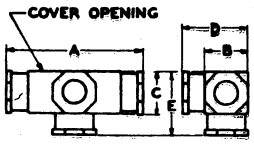
TYPE T & REDUCING T

TYPE	CODE	CONDUIT SIZE G	CONDUIT SIZE H	A	B	C	D	E
REDUCING LR								
	LR-23	1/2	3/4	4 9/32	1 3/4	1 3/4	2 15/32	
LR	LR-2	1/2		3 31/32	1 3/8	1 3/8	2 3/32	11/16
	LR-3	3/4		4 9/32	1 3/4	1 3/4	3 15/32	7/8
	LR-4	1		5	2 1/8	2 1/8	3 1/32	1 1/16
	LR-5	1 1/4		5 7/8	2 1/2	2 1/2	3 19/32	1 1/4
	LR-6	1 1/2		6 5/16	2 7/8	2 7/8	4 5/32	1 7/16
	LR-8	2		8 7/8	3 7/16	3 1/2	4 3/4	1 3/4
	LR-10	2 1/2		10 15/32	4	4 1/16	5 17/32	2
	LR-12	3		11 5/16	4 11/16	4 11/16	6 7/16	2 11/32
LU	LU-2	1/2		5 17/32	1 3/8	1 13/32	3 7/8	2 11/32
	LU-3	3/4		6 1/8	1 3/4	1 25/32	4 3/8	2 5/8
	LU-4	1		7 13/32	2 1/8	2 5/32	5 7/16	3 9/32
NO	NO-2	1/2		13/16	1 1/4	1 11/16	3/8	
	NO-3	3/4		15/16	1 7/16	1 27/32	13/32	
	NO-4	1		1 5/32	1 29/32	2 7/32	7/16	
	NO-5	1 1/4		1 3/16	2 5/16	2 5/16	1/2	
	NO-6	1 1/2		1 9/32	2 21/32	2 17/32	1/2	
	NO-8	2		1 5/16	3 5/32	2 9/16	1/2	
	NO-10	2 1/2		1 3/8	3 23/32	3 1/16	11/16	
	NO-12	3		1 17/32	4 3/8	3 11/32	11/16	

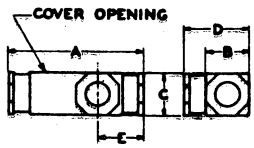
TYPE	CODE	CONDUIT SIZE	A	B	C	D	E	F
SLP	SLP-2	1/2	1 31/32	2 7/16	2 15/22	27/32	1 1/4	
	SLP-3	3/4	2 15/22	2 11/16	3 3/32	1 1/32	1 17/32	
	SLP-4	1	3 1/8	3 7/16	3 3/4	1 19/64	1 15/16	
	SLP-5	1 1/4	3 39/64	4 7/16	4 3/8	1 5/9	2 15/32	
	SLP-6	1 1/2	4 3/32	4 29/32	4 27/32	1 7/8	2 13/16	
	SLP-8	2	4 17/32	5 17/32	6 7/16	2 11/32	3 11/32	
SCA	SCA-2	1/2	1 23/32	1	22/22	.835	1 3/32	5/16
	SCA-3	3/4	2	1 5/32	27/32	1.039	1 13/32	5/16
	SCA-4	1	2 19/64	1 13/32	29/32	1.326	1 35/32	5/16
	SCA-5	1 1/4	2 3/4	1 23/32	1 1/32	1.68	2 1/16	5/16
	SCA-6	1 1/2	3 1/32	1 31/32	1 1/16	1.907		
	SCA-8	2	3 3/8	2 3/32	1 9/32	2.375		
	SCA-10	2 1/2	3 25/32	2 13/32	1 3/8	2.902		
T	T-2	1/2	4 11/16	1 3/8	1 3/8	2 3/32		
	T-3	3/4	4 31/32	1 3/4	1 3/4	2 15/32		
	T-4	1	5 7/8	2 1/8	2 1/8	3 1/32		
	T-5	1 1/4	6 15/16	2 1/2	2 1/2	3 19/32		
	T-6	1 1/2	7 9/16	2 7/8	2 7/8	4 5/32		
	T-8	2	10 1/8	3 7/16	3 1/2	4 2/4		
	T-10	2 1/2	11 15/16	4	4 1/16	5 17/32		
	T-12	3	13	4 11/16	4 11/16	6 7/16		

REDUCING T		G	H	J						
	T-232	1/2	3/4	1/2						
	T-322	2/4	1/2	1/2	4 31/32	1 3/4	1 3/4	2 15/32		
	T-323	3/4	1/2	3/4						
	T-332	2/4	2/4	1/2						
	T-334	3/4	3/4	1						
	T-344	2/4	1	1						
	T-424	1	1/2	1	5 7/8	2 1/8	2 1/8	3 1/32		
	T-433	1	3/4	3/4						
	T-434	1	3/4	1						

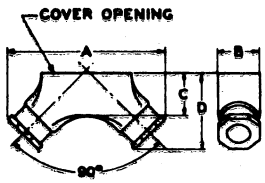
CONDUIT FITTINGS - KONDU TYPE - THREADLESS



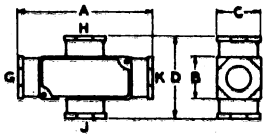
TYPE TB



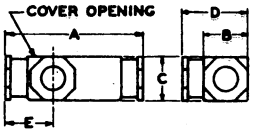
TYPE TL



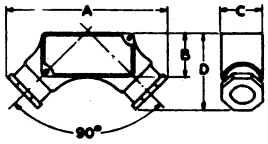
TYPE UB



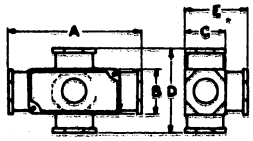
TYPE X & REDUCING X



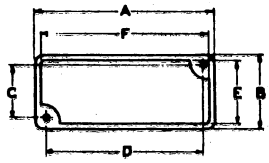
TYPE TR



TYPE U



TYPE XB



DRAFTING INFORMATION ONLY
FIG. A

TYPE	CODE	CONDUIT SIZE	A	B	C	D	E
TB	TB-2	1/2	4 11/16	1 3/8	1 3/8	2 3/32	2 7/32
	TB-3	3/4	4 31/32	1 3/4	1 3/4	2 15/32	2 23/32
	TB-4	1	5 7/8	2 1/8	2 1/8	3 1/32	3 11/32
	TB-5	1 1/4	6 15/16	2 1/2	2 1/2	3 19/32	3 29/32
	TB-6	1 1/2	7 9/16	2 7/8	2 7/8	4 3/16	4 17/32
	TB-8	2	10 1/8	3 7/16	3 1/2	4 13/16	5 1/4
TL	TL-2	1/2	4 13/16	1 3/8	1 3/8	2 3/32	1 17/32
	TL-3	3/4	5 3/16	1 3/4	1 3/4	2 15/32	1 27/32
	TL-4	1	6 9/32	2 1/8	2 1/8	3 1/32	2 7/32
TR	TR-2	1/2	4 13/16	1 3/8	1 3/8	2 3/32	1 17/32
	TR-3	3/4	5 3/16	1 3/4	1 3/4	2 15/32	1 27/32
	TR-4	1	6 9/32	2 1/8	2 1/8	3 1/32	2 7/32
U	U-2	1/2	5 1/4	1 3/8	1 17/32	2 13/32	
	U-3	3/4	5 15/16	1 3/4	1 3/4	2 31/32	
	U-4	1	7 1/8	2 1/8	2 1/8	3 9/16	
	U-5	1 1/4	8 1/4	2 1/2	2 1/2	4 1/8	
	U-6	1 1/2	9 3/16	2 7/8	2 7/8	4 19/32	
	U-8	2	11 5/16	3 7/16	3 9/16	5 21/32	
	U-10	2 1/2	1-1 1/16	4	4 1/16	6 17/32	
	U-12	3	1-3 1/4	4 11/16	4 11/16	7 11/16	

TYPE	CODE	CONDUIT SIZE	A	B	C	D	E	F
UB	UB-2	1/2	5 1/4	1 3/8	1 3/8	2 3/8		
	UB-3	3/4	5 11/16	1 3/4	1 3/4	2 27/32		
	UB-4	1	6 13/16	2 1/8	2 1/8	3 13/32		
	UB-5	1 1/4	8 1/16	2 1/2	2 1/2	4 1/32		
	UB-6	1 1/2	9 3/8	2 7/8	2 7/8	4 11/16		
	UB-8	2	11 3/4	3 7/16	3 1/2	5 7/8		
	UB-10	2 1/2	1-1 3/4	4	4 1/16	6 7/8		
	UB-12	3	1-3 1/8	4 11/16	4 11/16	7 9/16		
X	X-2	1/2	4 11/16	1 3/8	1 3/8	2 13/16		
	X-3	3/4	4 31/32	1 3/4	1 3/4	3 7/32		
	X-4	1	5 7/8	2 1/8	2 1/8	3 15/16		
	X-5	1 1/4	6 15/16	2 1/2	2 1/8	4 11/16		
	X-6	1 1/2	7 9/16	2 7/8	2 7/8	5 7/16		
	X-8	2	10 1/8	3 7/16	3 1/2	6 1/16		
	X-10	2 1/2	11 15/16	4	4 1/16	7 1/16		
	X-12	3	1-1	4 11/16	4 11/16	8 3/16		

TYPE	CODE	G	H	J	K	A	B	C	D	E	F
REDUCING X	X-3223	3/4	1/2	1/2	3/4	4 31/32	1 3/4	1 3/4	3 7/32		
	X-4224	1	1/2	1/2	1	5 7/8	2 1/8	2 1/8	3 15/16		
	X-4334	1	3/4	3/4	1	5 7/8	2 1/8	2 1/8	3 15/16		

TYPE	CODE	CONDUIT SIZE	A	B	C	D	E	F
XB	XB-2	1/2	4 11/16	1 3/8	1 3/8	2 13/16	2 7/32	
	XB-3	3/4	4 31/32	1 3/4	1 3/4	3 7/32	2 23/32	
	XB-4	1	5 7/8	2 1/8	2 1/8	3 15/16	3 11/32	
BOX COVER OPENING SEE FIG. A		1/2	3 1/4	1 3/8	29/32	2 25/32	1 1/8	3
		3/4	3 1/2	1 3/4	1 3/16	2 15/16	1 7/16	3 3/16
		1	4 1/8	2 1/8	1 17/32	3 17/32	1 13/16	3 13/16
		1 1/4	4 3/4	2 1/2	1 13/16	4 1/16	2 3/16	4 7/16
		1 1/2	5	2 7/8	2 1/8	4 1/4	2 9/16	4 11/16
		2	7 1/2	3 7/16	2 1/2	6 5/8	3	7 1/16
		2 1/2	8 7/8	4	3	7 7/8	3 9/16	8 7/16
		3	9 1/2	4 11/16	3 3/4	8 1/2	4 1/4	9 1/16

CONDUIT FITTINGS - KONDU TYPE - THREADLESS

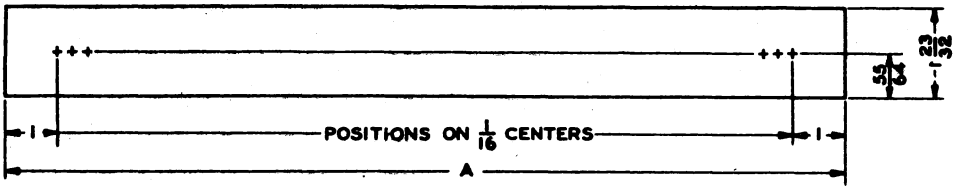


FIG. A

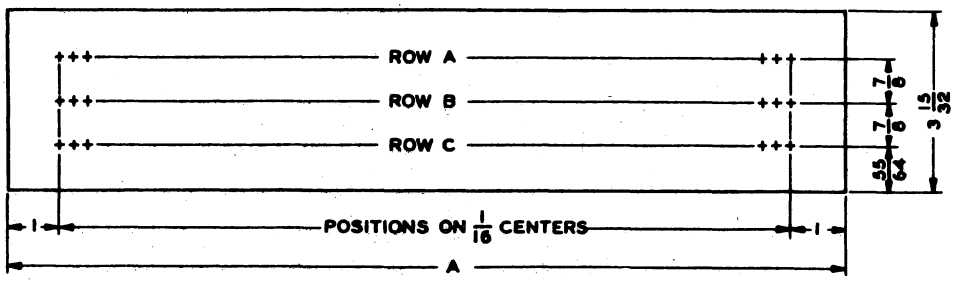


FIG. B

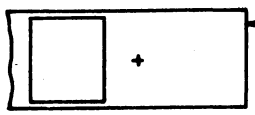
FIG.	TYPE	D SPEC.	A	NO. OF POS.
A	600	D-48929	1-7	273
	606	D-48929	1-9 5/8	315
	609	D-48930	1-11	337
	677	D-48931	2-3	401
B	894	D-157783	1-7	273 PER ROW
	693	D-157944	1-11	337 PER ROW

POS. NO.	DIM. FROM LEFT END	POS. NO.	DIM. FROM LEFT END	POS. NO.	DIM. FROM LEFT END	POS. NO.	DIM. FROM LEFT END	POS. NO.	DIM. FROM LEFT END	POS. NO.	DIM. FROM LEFT END	POS. NO.	DIM. FROM LEFT END	POS. NO.	DIM. FROM LEFT END
1	1	51	4 1/8	101	7 1/4	151	10 3/8	201	13 1/2	251	16 5/8	301	19 3/4	351	22 7/8
2	1 1/16	52	4 3/16	102	7 5/16	152	10 7/16	202	13 9/16	252	16 11/16	302	19 13/16	352	22 15/16
3	1 1/8	53	4 1/4	103	7 3/8	153	10 1/2	203	13 5/8	253	16 3/4	303	19 7/8	353	23
4	1 3/16	54	4 5/16	104	7 7/16	154	10 9/16	204	13 11/16	254	16 13/16	304	19 15/16	354	23 1/16
5	1 1/4	55	4 3/8	105	7 1/2	155	10 5/8	205	13 3/4	255	16 7/8	305	20	355	23 1/8
6	1 5/16	56	4 7/16	106	7 9/16	156	10 11/16	206	13 13/16	256	16 15/16	306	20 1/16	356	23 3/16
7	1 3/8	57	4 1/2	107	7 5/8	157	10 3/4	207	13 7/8	257	17	307	20 1/8	357	23 1/4
8	1 7/16	58	4 9/16	108	7 11/16	158	10 13/16	208	13 15/16	258	17 1/16	308	20 3/16	358	23 5/16
9	1 1/2	59	4 5/8	109	7 3/4	159	10 7/8	209	14	259	17 1/8	309	20 1/4	359	23 3/8
10	1 9/16	60	4 11/16	110	7 13/16	160	10 15/16	210	14 1/16	260	17 3/16	310	20 5/16	360	23 7/16
11	1 5/8	61	4 3/4	111	7 7/8	161	11	211	14 1/8	261	17 1/4	311	20 3/8	361	23 1/2
12	1 11/16	62	4 13/16	112	7 15/16	162	11 1/16	212	14 3/16	262	17 5/16	312	20 7/16	362	23 9/16
13	1 3/4	63	4 7/8	113	8	163	11 1/8	213	14 1/4	263	17 3/8	313	20 1/2	363	23 5/8
14	1 13/16	64	4 15/16	114	8 1/16	164	11 3/16	214	14 5/16	264	17 7/16	314	20 9/16	364	23 11/16
15	1 7/8	65	5	115	8 1/8	165	11 1/4	215	14 3/8	265	17 1/2	315	20 5/8	365	23 3/4
16	1 15/16	66	5 1/16	116	8 3/16	166	11 5/16	216	14 7/16	266	17 9/16	316	20 11/16	366	23 13/16
17	2	67	5 1/8	117	8 1/4	167	11 3/8	217	14 1/2	267	17 5/8	317	20 3/4	367	23 7/8
18	2 1/16	68	5 3/16	118	8 5/16	168	11 7/16	218	14 9/16	268	17 11/16	318	20 13/16	368	23 15/16
19	2 1/8	69	5 1/4	119	8 3/8	169	11 1/2	219	14 5/8	269	17 3/4	319	20 7/8	369	24
20	2 3/16	70	5 5/16	120	8 7/16	170	11 9/16	220	14 11/16	270	17 13/16	320	20 15/16	370	24 1/16
21	2 1/4	71	5 3/8	121	8 1/2	171	11 5/8	221	14 3/4	271	17 7/8	321	21	371	24 1/8
22	2 5/16	72	5 7/16	122	8 9/16	172	11 11/16	222	14 13/16	272	17 15/16	322	21 1/16	372	24 3/16
23	2 3/8	73	5 1/2	123	8 5/8	173	11 3/4	223	14 7/8	273	18	323	21 1/8	373	24 1/4
24	2 7/16	74	5 9/16	124	8 11/16	174	11 13/16	224	14 15/16	274	18 1/16	324	21 3/16	374	24 5/16
25	2 1/2	75	5 5/8	125	8 3/4	175	11 7/8	225	15	275	18 1/8	325	21 1/4	375	24 3/8
26	2 9/16	76	5 11/16	126	8 13/16	176	11 15/16	226	15 1/16	276	18 3/16	326	21 5/16	376	24 7/16
27	2 5/8	77	5 3/4	127	8 7/8	177	12	227	15 1/8	277	18 1/4	327	21 3/8	377	24 1/2
28	2 11/16	78	5 13/16	128	8 15/16	178	12 1/16	228	15 3/16	278	18 5/16	328	21 7/16	378	24 9/16
29	2 3/4	79	5 7/8	129	9	179	12 1/8	229	15 1/4	279	18 3/8	329	21 1/2	379	24 5/8
30	2 13/16	80	5 15/16	130	9 1/16	180	12 3/16	230	15 5/16	280	18 7/16	330	21 9/16	380	24 11/16
31	2 7/8	81	6	131	9 1/8	181	12 1/4	231	15 3/8	281	18 1/2	331	21 5/8	381	24 3/4
32	2 15/16	82	6 1/16	132	9 3/16	182	12 5/16	232	15 7/16	282	18 9/16	332	21 11/16	382	24 13/16
33	3	83	6 1/8	133	9 1/4	183	12 3/8	233	15 1/2	283	18 5/8	333	21 3/4	383	24 7/8
34	3 1/16	84	6 3/16	134	9 5/16	184	12 7/16	234	15 9/16	284	18 11/16	334	21 13/16	384	24 15/16
35	3 1/8	85	6 1/4	135	9 3/8	185	12 1/2	235	15 5/8	285	18 3/4	335	21 7/8	385	25
36	3 3/16	86	6 5/16	136	9 7/16	186	12 9/16	236	15 11/16	286	18 13/16	336	21 15/16	386	25 1/16
37	3 1/4	87	6 3/8	137	9 1/2	187	12 5/8	237	15 3/4	287	18 7/8	337	22	387	25 1/8
38	3 5/16	88	6 7/16	138	9 9/16	188	12 11/16	238	15 13/16	288	18 15/16	338	22 1/16	388	25 3/16
39	3 3/8	89	6 1/2	139	9 5/8	189	12 3/4	239	15 7/8	289	19	339	22 1/8	389	25 1/4
40	3 7/16	90	6 9/16	140	9 11/16	190	12 13/16	240	15 15/16	290	19 1/16	340	22 3/16	390	25 5/16
41	3 1/2	91	6 5/8	141	9 3/4	191	12 7/8	241	16	291	19 1/8	341	22 1/4	391	25 3/8
42	3 9/16	92	6 11/16	142	9 13/16	192	12 15/16	242	16 1/16	292	19 3/16	342	22 5/16	392	25 7/16
43	3 5/8	93	6 3/4	143	9 7/8	193	13	243	16 1/8	293	19 1/4	343	22 3/8	393	25 1/2
44	3 11/16	94	6 13/16	144	9 15/16	194	13 1/16	244	16 3/16	294	19 5/16	344	22 7/16	394	25 9/16
45	3 3/4	95	6 7/8	145	10	195	13 1/8	245	16 1/4	295	19 3/8	345	22 1/2	395	25 5/8
46	3 13/16	96	6 15/16	146	10 1/16	196	13 3/16	246	16 5/16	296	19 7/16	346	22 9/16	396	25 11/16
47	3 7/8	97	7	147	10 1/8	197	13 1/4	247	16 3/8	297	19 1/2	347	22 5/8	397	25 3/4
48	3 15/16	98	7 1/16	148	10 3/16	198	13 5/16	248	16 7/16	298	19 9/16	348	22 11/16	398	25 13/16
49	4	99	7 1/8	149	10 1/4	199	13 3/8	249	16 1/2	299	19 5/8	349	22 3/4	399	25 7/8
50	4 1/16	100	7 3/16	150	10 5/16	200	13 7/16	250	16 9/16	300	19 11/16	350	22 13/16	400	25 15/16

SPECIAL MTG. PLTS. - POSITIONS ON 1/16 CENTERS

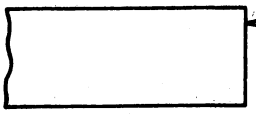
NOTES:

1. The special 600, 606, 609 & 677 1 3/4 wide mounting plates and the 884 & 863 3 1/2 wide mounting plates are to be used only where regular coded plates will not meet the requirements. Apparatus mounted on these plates shall not be mounted on centers less than the recommended mounting centers for the particular type of apparatus.
2. Center position number of apparatus shall be specified only.
3. Positions will be drilled for apparatus as specified.
4. Common covers may be specified for these special mounting plates. When covers are specified it will not be necessary to specify the guides; however, the drilling position for the guides shall be specified. A center guide may be used with covers over 12" long. A space of 3/8" is required for this guide. See table of covers for the 1 3/4 mounting plates.
5. *Dimensions of covers are inside dimensions.
6. For dimensions of the special mounting plates see page 68.



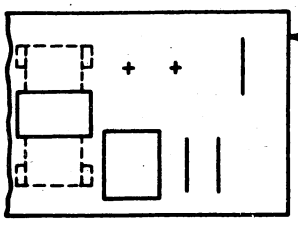
SPL. 600 MTG. PLT., D-48928
EQUIP WITH — IN POS.
207C RET. COIL — 255
19 RES. DR. FOR — 264
UNDRILLED — ALL OTHERS

WITHOUT COMMON COVER

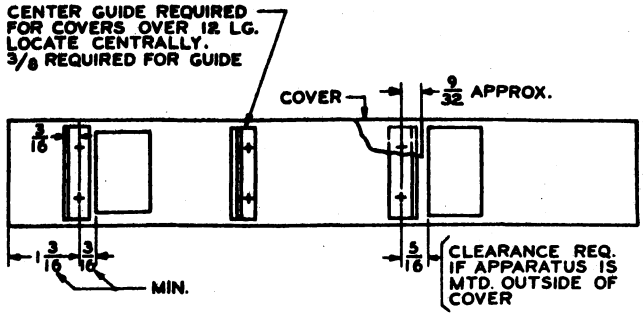


SPL. 600 MTG. PLT., D-48928
EQUIP WITH — IN POS.
P——— COVER
GUIDES — 4, 270
E100 REL. — 126
R101 REL. — 176, 200, 210
UNDRILLED — ALL OTHERS

WITH COMMON COVER



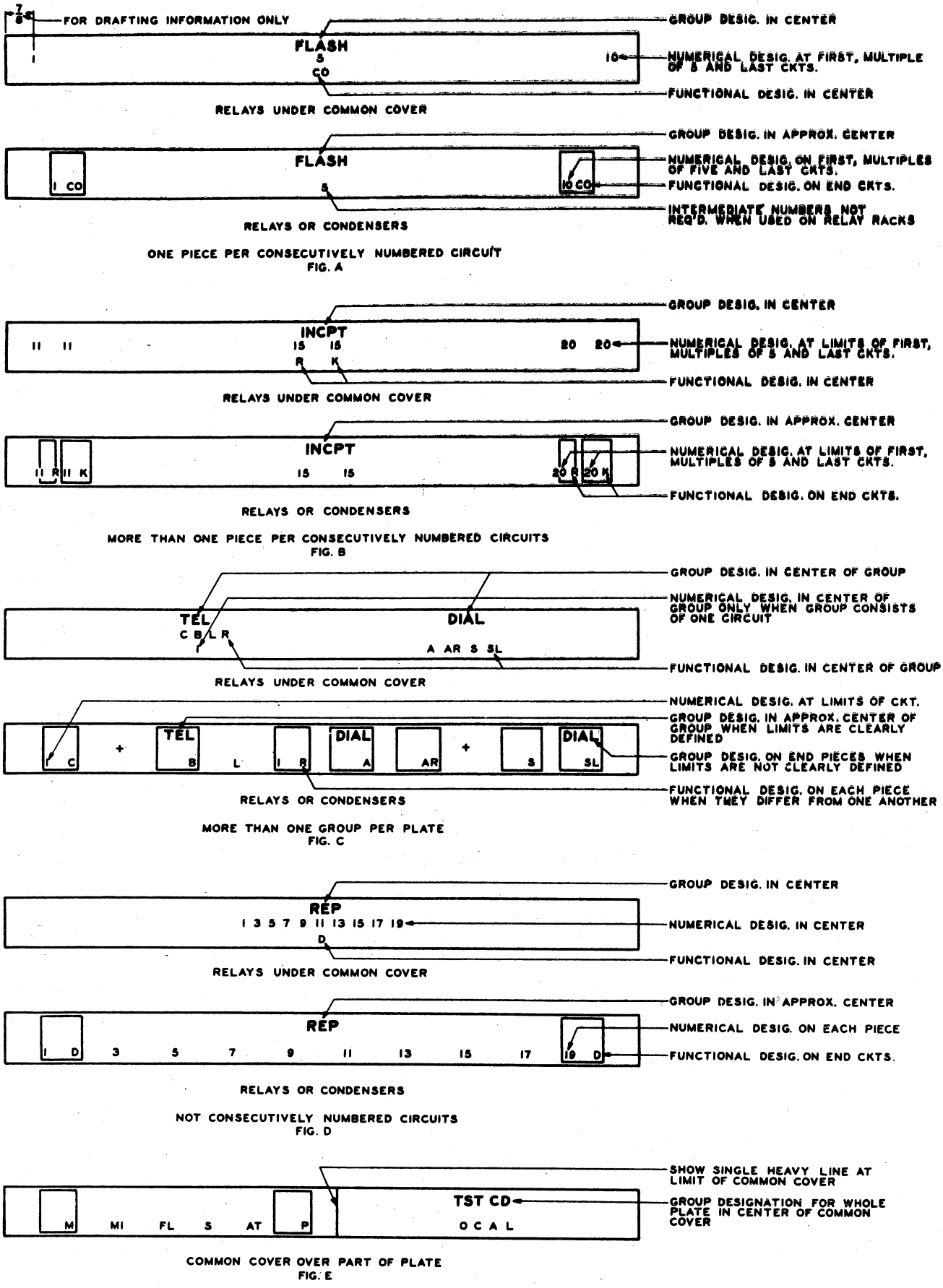
SPL. 884 MTG. PLT. D-157783
EQUIP WITH — IN POS.
18F CONN. BLK. — B249
175AL COND. — C259
19AC RES. — C266
18B RES. — A273, C270
19 RES. DR. FOR — A259, A265
UNDRILLED — ALL OTHERS



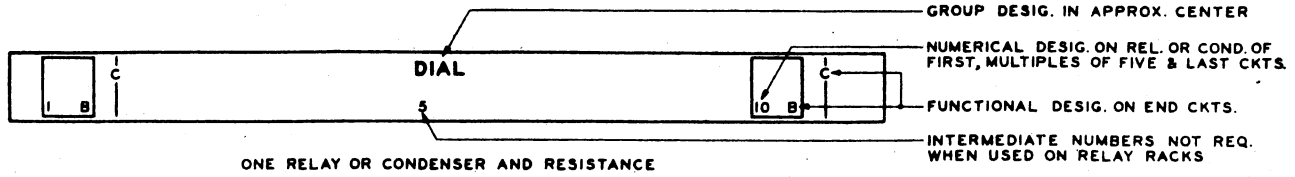
COVER GUIDE LOCATION

COMMON COVERS FOR 1 23/32 MOUNTING PLATES			
PART NO.	LENGTH*	HEIGHT*	REMARKS
P-201128	3 13/16	3 1/2	
P-220430	5	3 1/2	
P-235481	5	3 3/4	
P-209447	5 3/8	3 1/2	ONE HANDLE
P-165885	5 21/32	3 11/16	
P-223571	6	7	
P-218667	6 3/4		
P-206090	7		
P-221364	7 1/2	3 1/2	
P-204364	7 11/16		
P-201503	7 13/16		
P-207748	8		
P-233953	8	3 3/4	
P-209401	8 1/4		
P-219094	8 1/2		WITH HANDLES
P-203933	8 13/16	3 1/2	
P-203441	8 15/16		
P-219229	9		
P-209437	9 1/2	4	
P-207351	9 3/4		
P-215013	10	3 1/2	
P-162863	10 1/4		
P-235482	10 1/2	3 3/4	
P-201779	10 13/16	3 1/2	
P-218793	11	3 1/2	
P-235478	11 1/2	3 3/4	
P-203191	11 25/32		
P-217317	12		
P-218396	12 1/2		WITH HANDLES
P-156385	12 11/16		
P-222307	12 3/4		WITH HANDLES
P-209344	13		
P-208382	13 1/2		
P-218659	13 3/4	3 1/2	WITH HANDLES
P-223419	14 1/2		
P-207499	14 3/4		
P-163029	15 5/16		
P-225350	15 1/2		WITH HANDLES
P-208427	15 13/16		
P-207580	16 1/2		
P-141137	17 1/16		
P-218901	17 1/4		
P-235480	17 1/4	3 3/4	
P-208349	17 7/16	5	
P-209369	17 1/2		
P-208406	18 3/4		
P-141079	19 11/16	3 1/2	
P-208399	19 3/4		
P-141008	20 1/16		
P-208448	20 1/4		
P-207750	21 1/4		
P-236777	21 1/4	3 3/4	
P-145192	21 7/16	3 1/2	
P-235488	21 7/16	3 3/4	
P-169147	21 7/16	4 3/8	
P-169940	21 3/4	3 1/2	
P-219231	25 9/16	4 3/8	

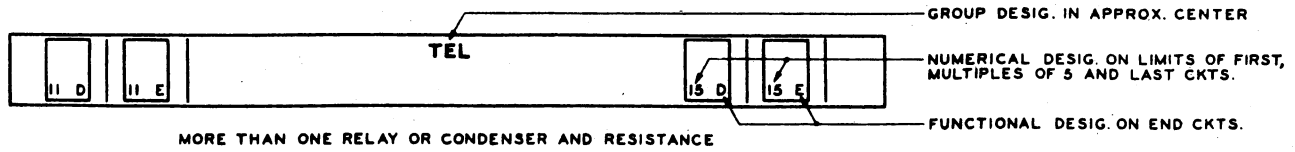
METHOD OF ORDERING SPECIAL MOUNTING PLATES & COVERS



NUMBERING AND LETTERING - RELAYS AND CONDENSERS



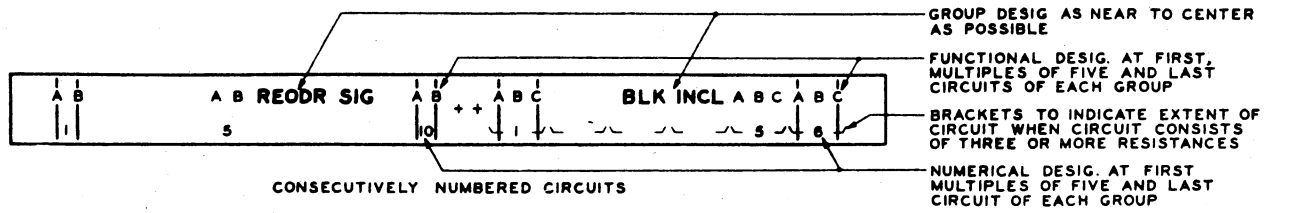
ONE RELAY OR CONDENSER AND RESISTANCE



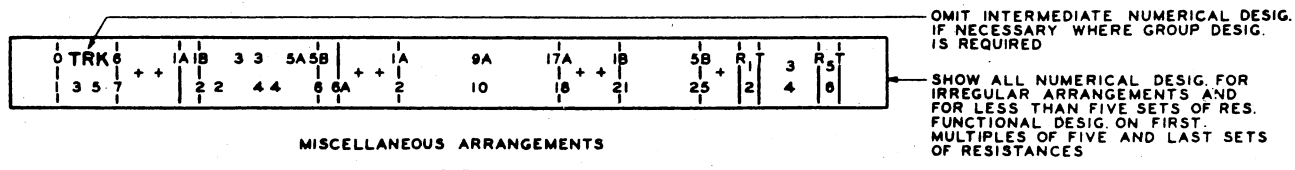
MORE THAN ONE RELAY OR CONDENSER AND RESISTANCE

RELAYS OR CONDENSERS AND RESISTANCES COMBINED IN CONSECUTIVELY NUMBERED CIRCUITS

FIG. A



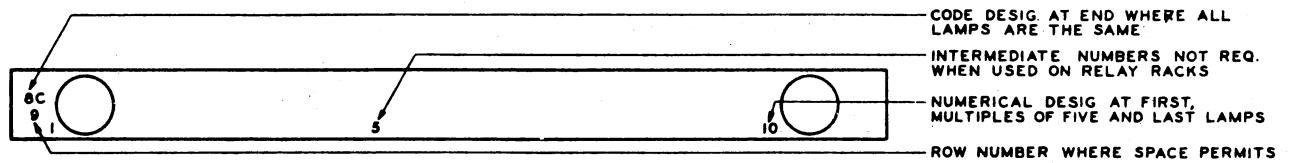
CONSECUTIVELY NUMBERED CIRCUITS



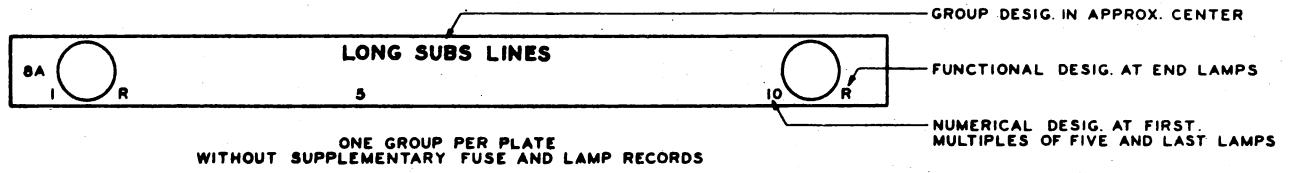
MISCELLANEOUS ARRANGEMENTS

18 OR 19 TYPE RESISTANCES

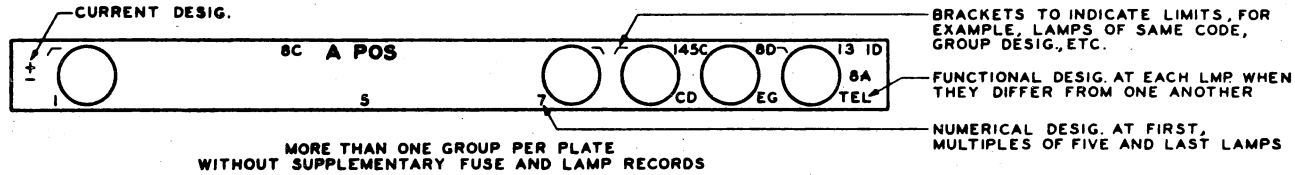
FIG. B



ONE GROUP PER PLATE
WITH SUPPLEMENTARY FUSE AND LAMP RECORDS



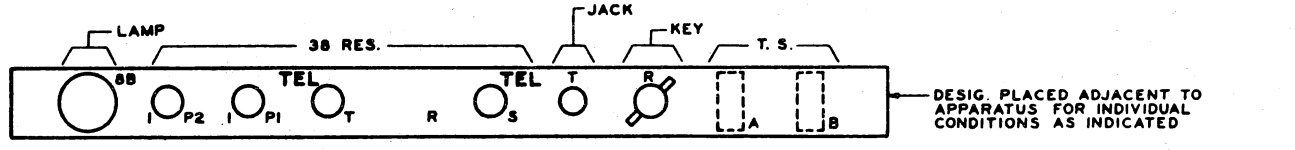
ONE GROUP PER PLATE
WITHOUT SUPPLEMENTARY FUSE AND LAMP RECORDS



MORE THAN ONE GROUP PER PLATE
WITHOUT SUPPLEMENTARY FUSE AND LAMP RECORDS

8 AND SIMILAR TYPE RESISTANCE LAMPS

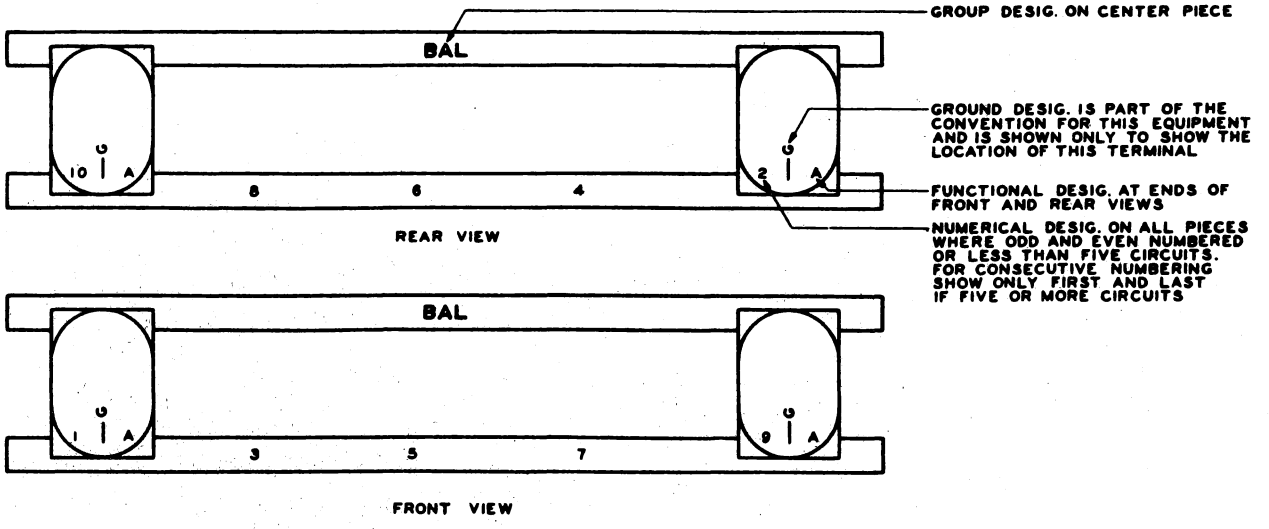
FIG. C



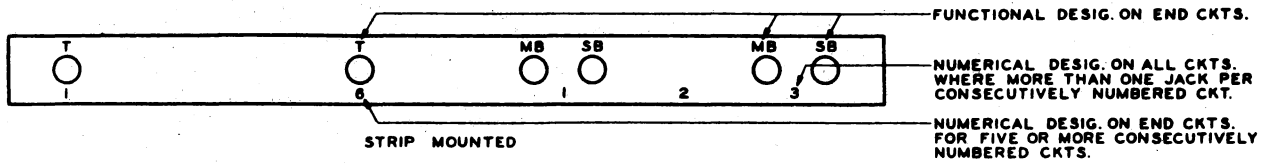
MISCELLANEOUS APPARATUS

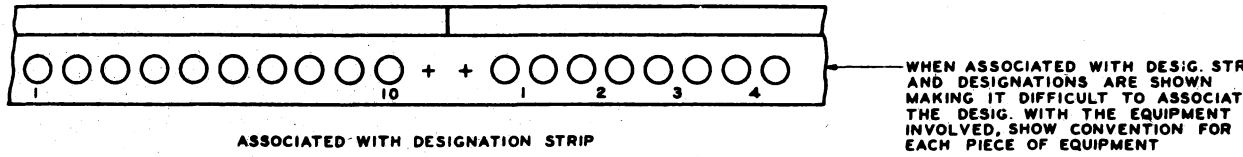
FIG. D

NUMBERING AND LETTERING - MISCELLANEOUS EQUIPMENT

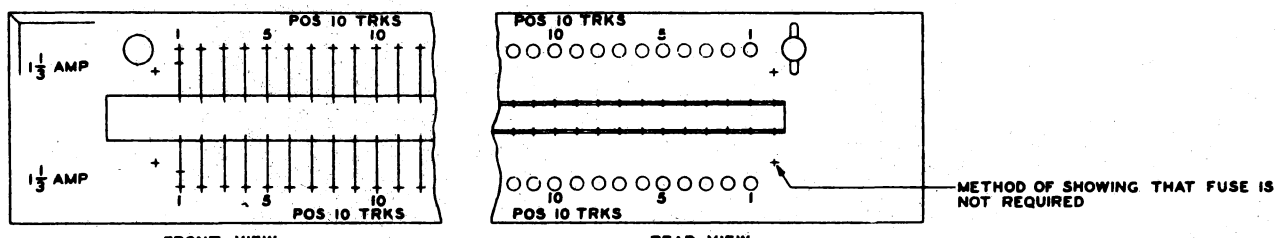


REPEATING COILS, RETARDATION COILS AND TRANSFORMERS
FIG. A

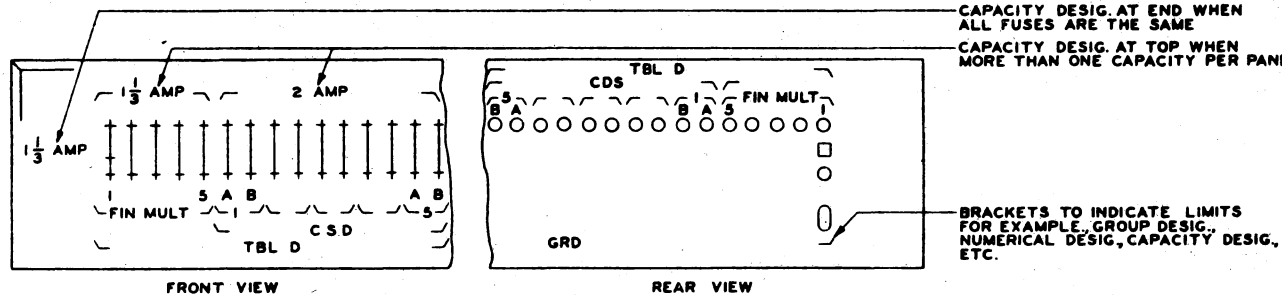




JACKS, KEYS AND LAMPS
FIG. B

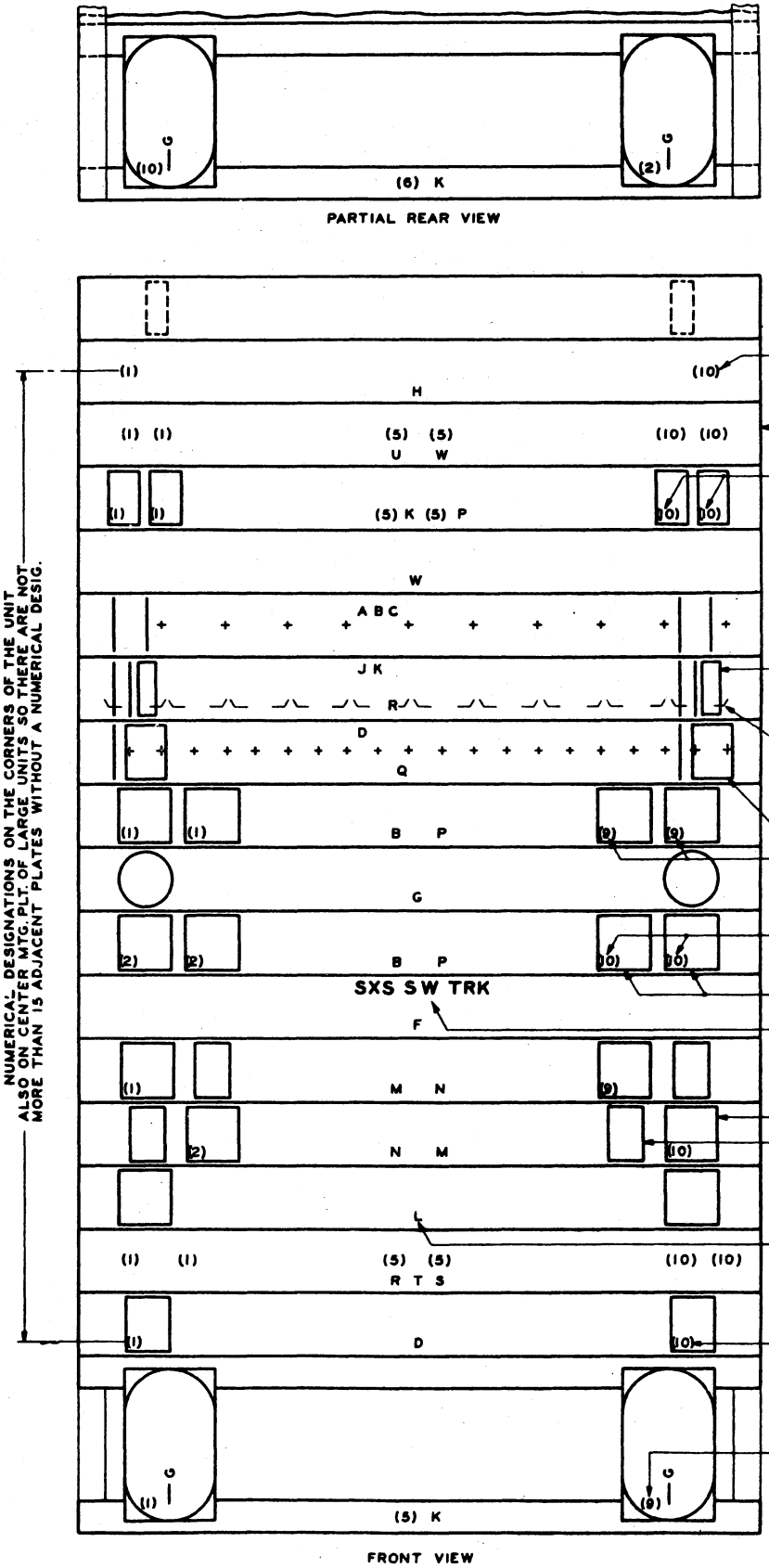


DOUBLE ROW WITH COMMON BAR



SINGLE ROW WITH INDIVIDUAL FUSE POST
FUSE PANELS
NOT ARRANGED FOR SUPPLEMENTARY FUSE RECORD
FIG. C

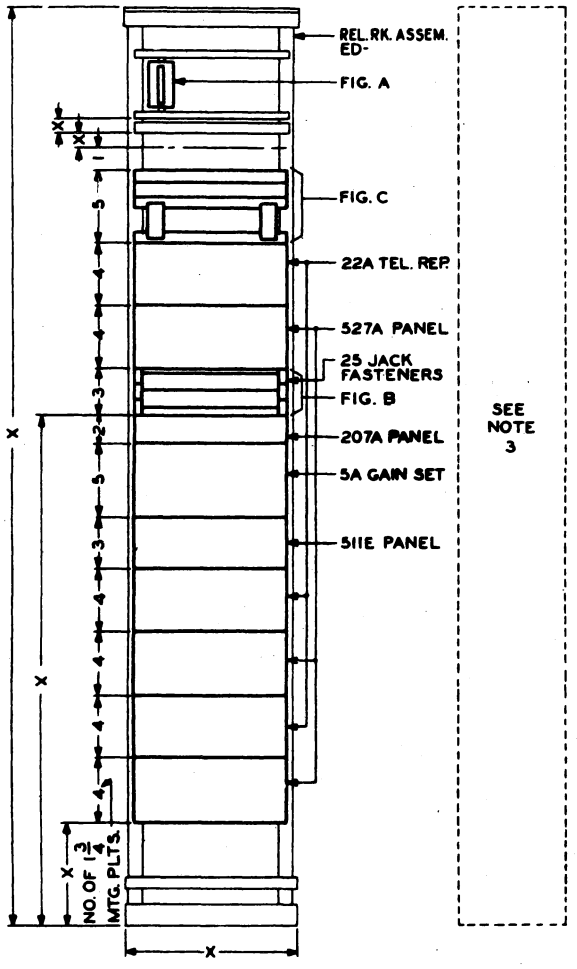
NUMBERING AND LETTERING - MISCELLANEOUS EQUIPMENT



NUMBERING AND LETTERING - 2 OR MORE CKTS. ARR. VERTICALLY RELAY RACK MOUNTED

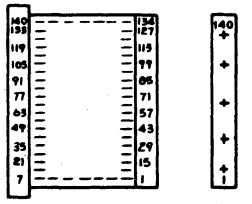
RELAY RACK—TYPICAL EQUIPMENT

THE MAIN FIGURES IN THE LEFT HAND CORNER SHALL BE DRAWN TO THE MAXIMUM STANDARD SCALE POSSIBLE. THE SPACE ABOVE THESE FIGURES SHALL BE LEFT BLANK.



FRONT VIEW END VIEW

FIG. 1



DRAFTING INFORMATION:
1. NOTES IN BRACKETS ARE FOR DRAFTING INFORMATION ONLY.
2. SHOW THE OVERALL DIMENSIONS OF FRAME. LOCATE JACK FIELD AND OTHER EQUIPMENT AS INDICATED BY DIMENSION X.
3. AN END VIEW ON ED DRAWINGS ONLY WHEN THE VIEW WILL SERVE TO CLARIFY CONDITIONS SUCH AS WHEN EQUIPMENT MOUNTED ON THE FRAME PROJECTS BEYOND THE GUARD RAIL, ETC. NO END VIEW IS REQUIRED ON ES MFG. DRAWINGS.

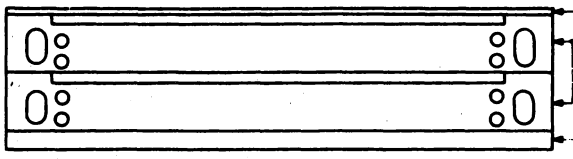
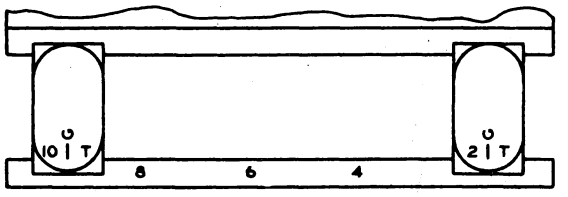
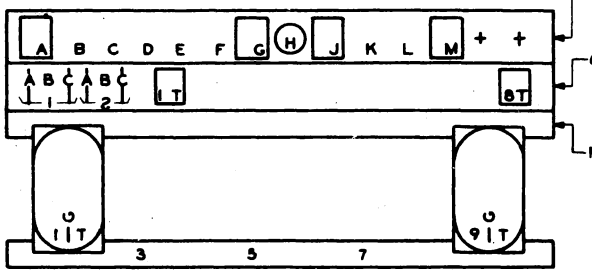


FIG. B



PARTIAL REAR VIEW



600BN MTG. PLT. EQUIP WITH — IN POS.
216B — 1, 2
U614 — 3
R25 — 4, 5
B285 — 6
Y104 — REL. — 7
178H — 8
E1288 — 9
S80 — 10
206CB — 11, 12
UNDRILLED — ALL OTHERS

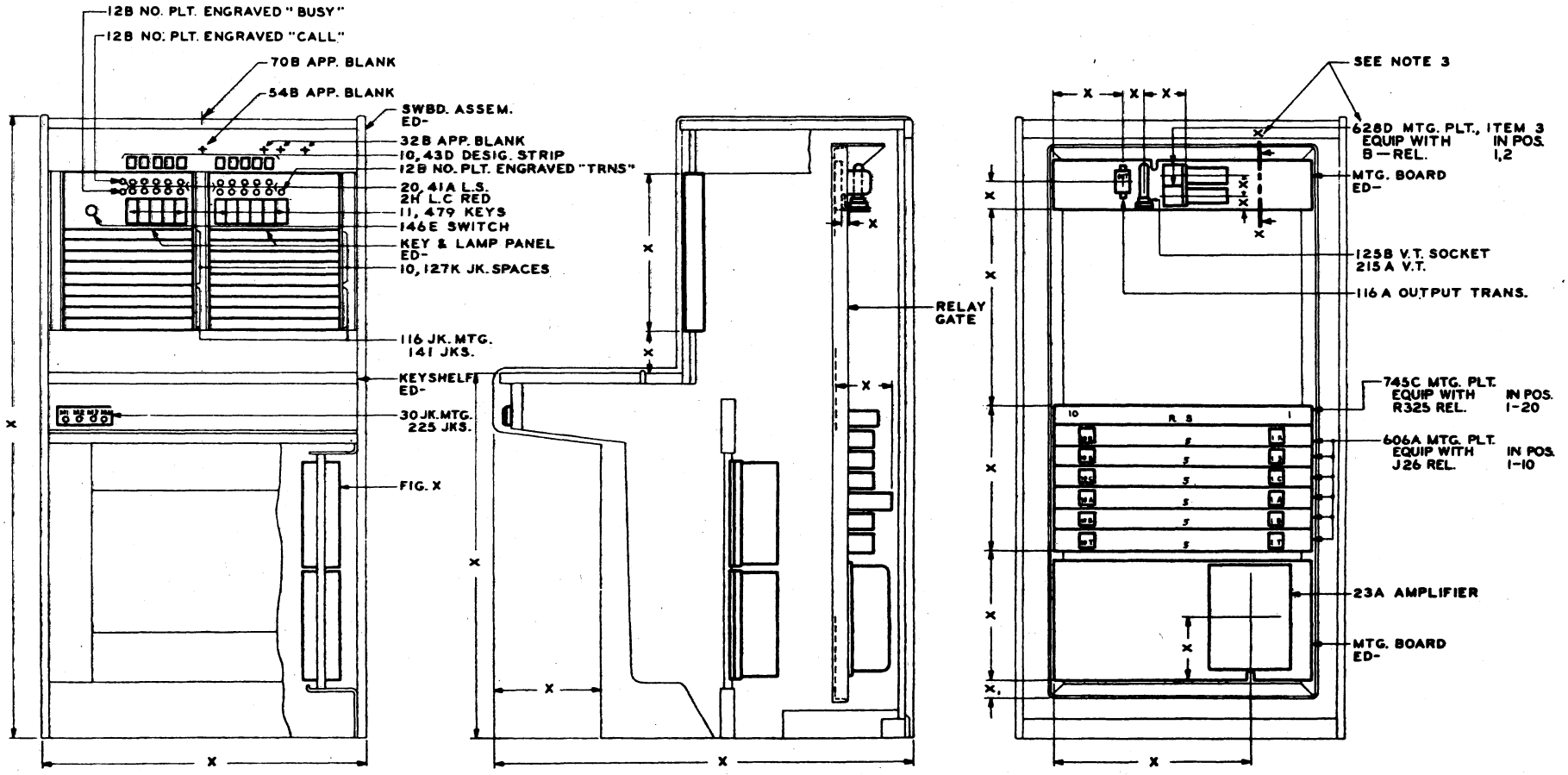
600CG MTG. PLT. EQUIP WITH — IN POS.
18D RES. — 1 TO 6
R 320 REL. — 7 TO 14

MTG. BARS ED-91804-01 EQUIP WITH — IN POS.
74 REP. COIL — 1, 5 FRONT & REAR

FRONT VIEW

FIG. C

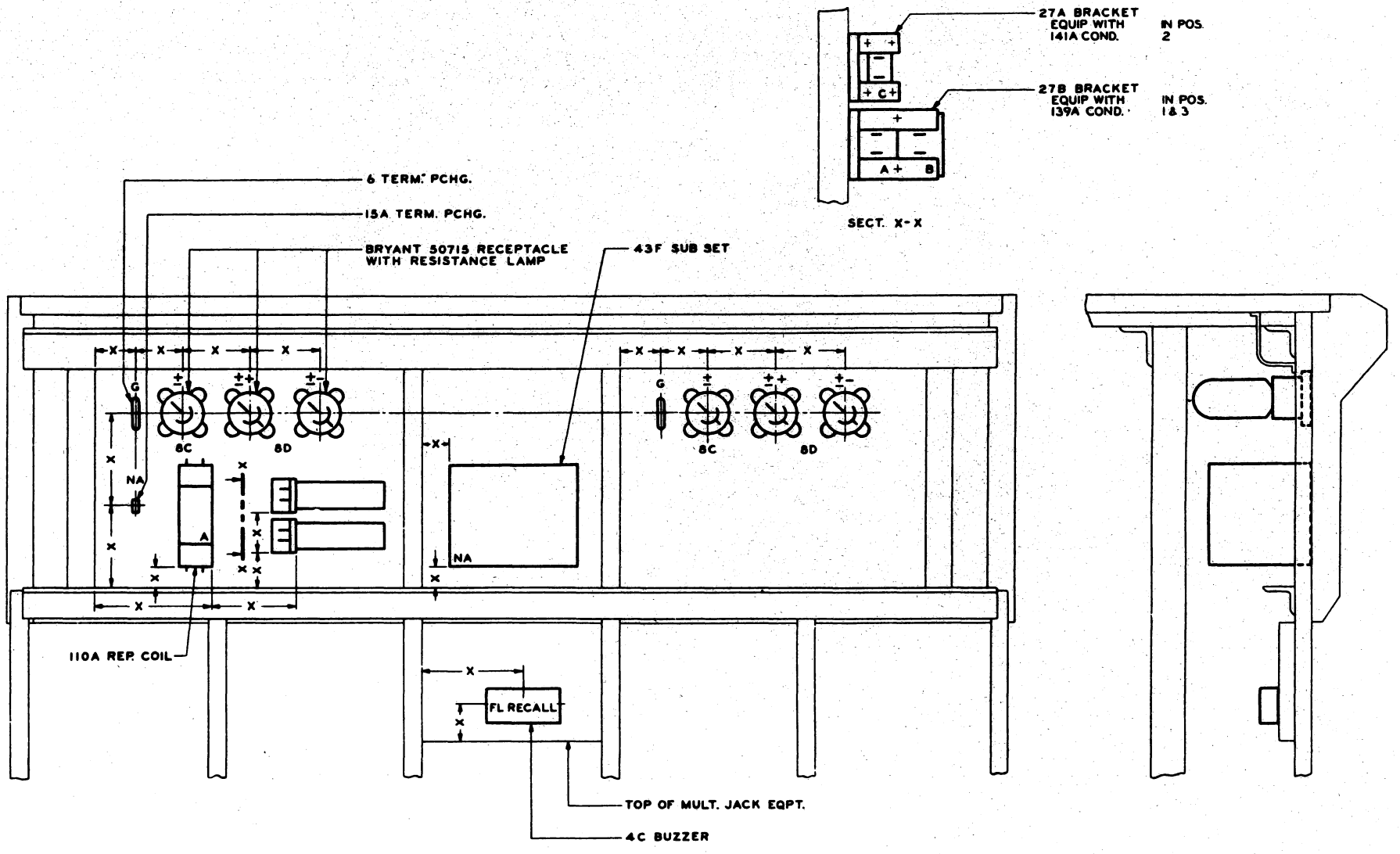
SWITCHBOARD - TYPICAL EQUIPMENT



DRAFTING INFORMATION:

1. ON FRONT EQUIPMENT DRAWING, SHOW FRONT AND END VIEWS. ON REAR EQUIPMENT DRAWING, SHOW END AND REAR VIEWS. ON FRONT AND REAR EQUIPMENT DRAWING, SHOW FRONT, END AND REAR VIEWS.
2. FOR LARGE SWITCHBOARDS WHERE SCALE DOES NOT PERMIT SHOWING DETAILED EQUIPMENT, SEPARATE FIGURES SHALL BE SHOWN FOR JACK EQPT., MTG. PLATES., ETC.
3. A VIEW SHALL BE REQUIRED FOR ANGLE TYPE MOUNTING PLATES IN ORDER TO SHOW NUMBERING AND LETTERING OF EQUIPMENT. DESIGNATION OF MOUNTING PLATE AND EQUIPMENT SHALL PREFERABLY BE COVERED IN THIS VIEW.

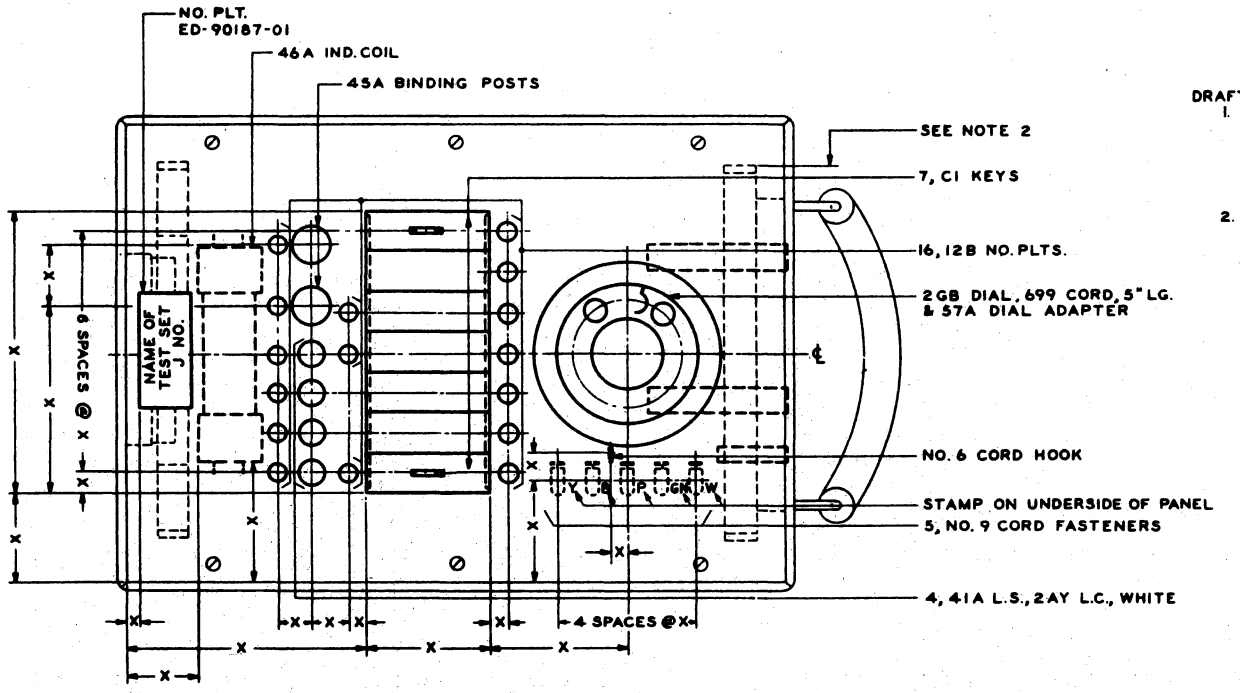
SWITCHBOARD - TYPICAL ROOF EQUIPMENT



SWITCHBOARD CURTAIN, CURTAIN CASE AND POSTS REMOVED
REAR VIEW

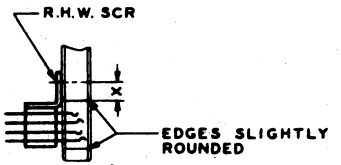
END VIEW

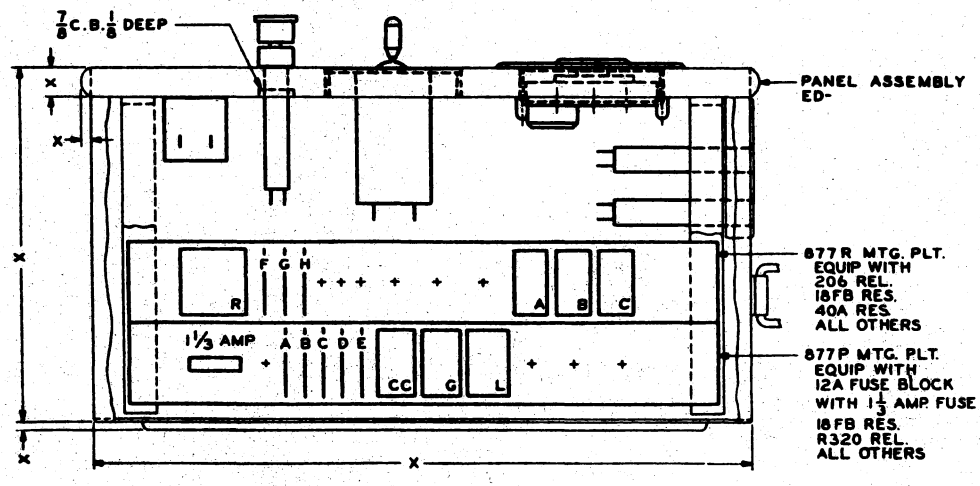
PORTABLE TEST SET - TYPICAL EQUIPMENT

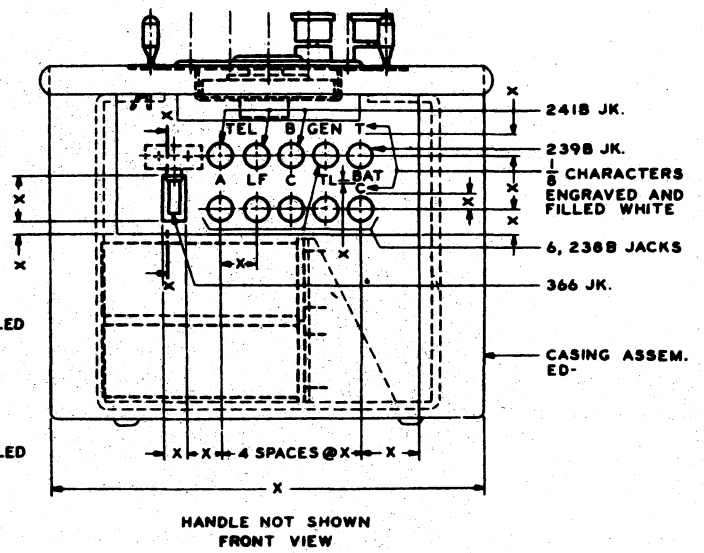


DRAFTING INFORMATION:

1. THE FOLLOWING NOTE SHALL BE SHOWN ON ED DRAWINGS WHEN 12B OR SIMILAR TYPE NUMBER PLATES ARE SHOWN: "ALL 12B NUMBER PLATE DESIGNATIONS AND ENGRAVED DESIGNATIONS SHALL ALSO BE STAMPED ON THE REVERSE SIDE OF THE PANELS.
2. EQUIPMENT MOUNTED ON UNDERSIDE OF PANEL SHALL NOT PROJECT BEYOND EQUIPMENT MTG. BRACKET.

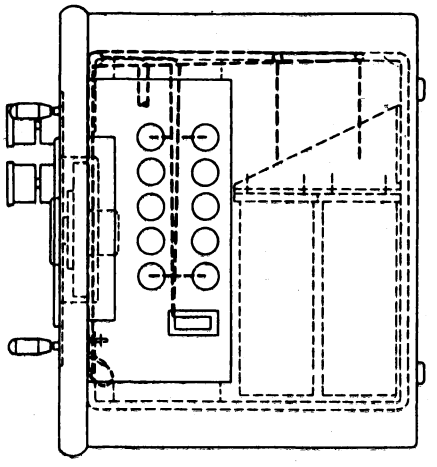




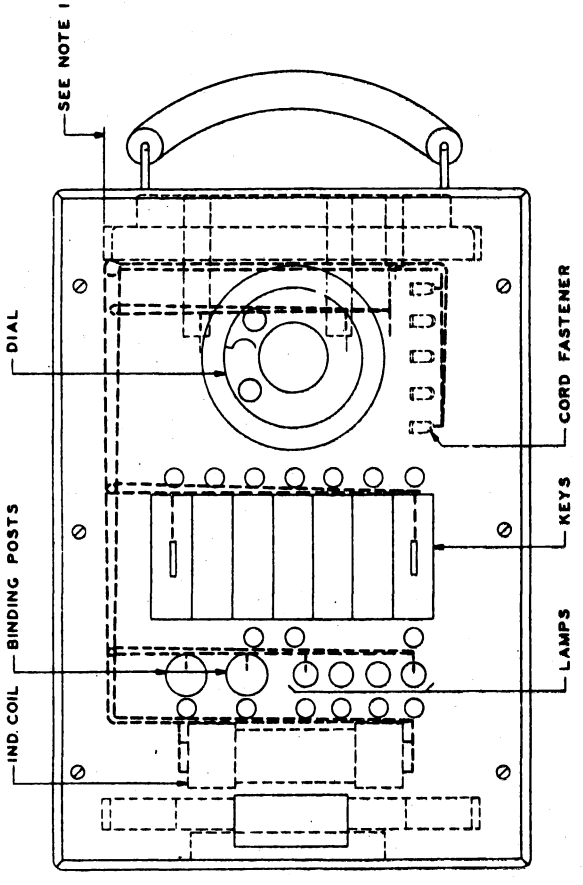


X-62604

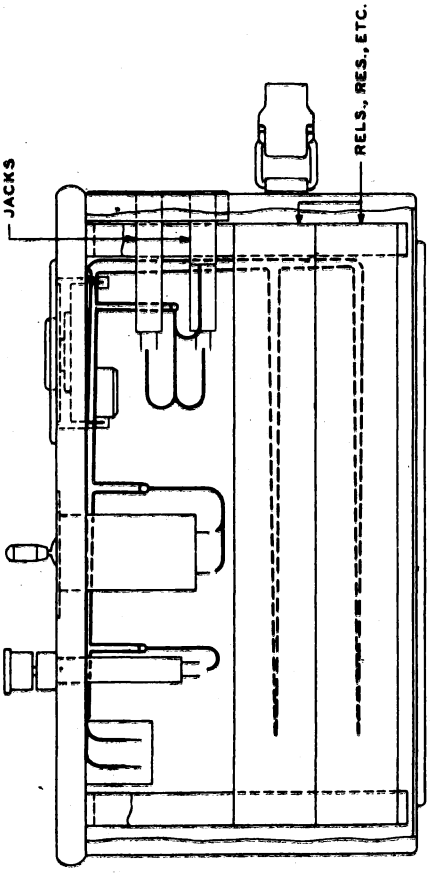
DRAFTING INFORMATION:
1. LOCAL CABLE SHALL NOT EXTEND BEYOND EQUIPMENT MOUNTING BRACKETS.



FRONT VIEW



PLAN VIEW



SIDE VIEW

PORTABLE TEST SET - TYPICAL LOCAL CABLE

PIECE PART	SIZE		SCR. REQ.	SCR. NO.	MADE FROM PIECE PART	FIN.
237796	7/16 x 6 17/32	3/32	14	0		
223164	1/2 x 2 3/8		6	0		
149837	5/8 x 3 1/4	3/32	9	2*	150937	
241822	5/8 x 5	3/32	10	0		
150892	5/8 x 7 3/8	3/32	10	0*	150937	
239870	5/8 x 7 3/8	3/32	10	2	150937	31
226458	5/8 x 7 3/4	3/32	4	0		
			4	4		
152101	5/8 x 1-5 3/16	3/32	12	0*	152110	299
237113	3/4 x 6 3/16		9	4		
150810	3/4 x 10 1/2	1/8	10	5*	150822	2
226908	3/4 x 1-9 1/2		4	0		
			4	5		
226088	13/16 x 4 13/16	3/16	8	4		
221088	13/16 x 5	3/16	8	4*	229283	258
227856	1 x 9 7/8		10	5		
230727	1 x 11 3/4		12	4		31K
217244	1 1/32 x 8 11/16		9	8*		258
237810±	1 1/16 x 2 1/2	3/16				
233898±	1 1/16 x 3 1/2	3/16				
464384	1 1/16 x 4 3/8	15/64	4	2	112605	
			4	6		
464385	1 1/16 x 5 5/8	15/64	4	2	112605	
			4	6		
450422±	1 1/4 x 1 3/4	15/64	4	8	421954	55
240192±	1 1/4 x 2		2	6	240058	
248760	1 1/4 x 2 3/8	15/64	4	8	112605	31A
65283	1 1/4 x 2 11/16	15/64	6	4	112605	258
65700	1 1/4 x 3 3/8	15/64	6	4	112605	258
65183	1 1/4 x 3 7/16	15/64	6	4	112605	259
219295	1 1/4 x 3 1/2	15/64	6	8*	112605	
65701	1 1/4 x 3 1/2	15/64	6	4	112605	258
65194	1 1/4 x 3 15/16	15/64	6	4	112605	17
65702	1 1/4 x 4 1/4	15/64	6	4	112605	258
65703	1 1/4 x 4 1/2	15/64	6	4	112605	258
295398	1 1/4 x 4 31/32	15/64	9	8	112605	492K
65718	1 1/4 x 5	15/64	8	4	112605	258
231770	1 1/4 x 5 5/16	15/64	4	5	233984	
			4	6		
65704	1 1/4 x 5 1/2	15/64	8	4	112605	259
65705	1 1/4 x 5 9/16	15/64	8	4	112605	258
65185	1 1/4 x 5 5/16	15/64	8	4	112605	17
65706	1 1/4 x 6 7/16	15/64	8	4	112605	258
65707	1 1/4 x 6 1/2	15/64	8	4	112605	258
65719	1 1/4 x 7	15/64	10	4	112605	258
149838	1 1/4 x 7 1/16	15/64	10	4	112605	
65708	1 1/4 x 7 1/2	15/64	10	4	112605	259
238843	1 1/4 x 7 13/16	15/64	4	5	233984	
			4	6		
420047	1 1/4 x 7 15/16	15/64	10	4	112605	258
223889	1 1/4 x 8 7/16	15/64	8	8	112605	
65186	1 1/4 x 8 1/2	15/64	10	4	112605	258
65709	1 1/4 x 8 11/16	15/64	10	4	112605	259
231771	1 1/4 x 8 3/4	15/64	6	5	233984	
			6	6		
65710	1 1/4 x 9 3/4	15/64	12	4	112605	258
65711	1 1/4 x 11 3/16	15/64	12	4	112605	258
65712	1 1/4 x 11 1/4	15/64	14	4	112605	258
225942	1 1/4 x 11 31/32		10	5		
65713	1 1/4 x 1-0 1/2	15/64	14	4	112605	258
229232	1 1/4 x 1-0 1/2	15/64	12	4	112605	31
65714	1 1/4 x 1-1 7/16	15/64	16	4	112605	258

PIECE PART	SIZE		SCR. REQ.	SCR. NO.	MADE FROM PIECE PART	FIN.
65715	1 1/4 x 1-3 1/4	15/64	19	4	112605	259
237278+	1 1/4 x 1-4	3/16	7	6		
221743	1 1/4 x 1-4 1/4	15/64	18	3	112605	
150885	1 1/4 x 1-4 3/8	15/64	12	5*	112605	2
65284	1 1/4 x 1-8	15/64	22	4	112605	258
65187	1 1/4 x 1-8 3/4	15/64	22	4	112605	258
65351	1 1/4 x 1-11 15/16	15/64	26	4	112605	17
226442+	1 1/4 x 2-0 7/8	3/16	18	3		
65352	1 1/4 x 2-0 15/16	15/64	26	4	112605	258
65353	1 1/4 x 2-5 1/4	15/64	30	4	112605	259
65716	1 1/4 x 3-10 1/2	15/64	42	4	112605	258
65717	1 1/4 x 4-3 13/16	15/64	54	4	112605	258
65354	1 1/4 x 4-6	15/64	58	4	112605	258
219674	1 5/8 x 1-5 29/32	15/64	14	3	67475	
370933±	1 3/4 x 1-1 1/16		14	4		BRPLT
68282+	1 3/4 x 1-5 1/2	15/64	18	6	114168	POL.
67311	1 3/4 x 1-9 5/8	15/64	16	6	67475	POL.
217739Δ	1 3/4 x 1-10 3/4	15/64	12	4	217761	299
150445	1 3/4 x 1-11 3/8	1/4	16	6	150444	2
217740Δ	1 3/4 x 2-1 1/8	15/64	13	4	217761	21
69272+	1 3/4 x 2-4	15/64	30	6	114168	POL.
422951✓	1 3/4 x 2-4 7/16	15/64	30	6	114168	POL.
422952✓	1 3/4 x 2-0 7/8	15/64	26	6	114168	POL.
422996✓	1 3/4 x 1-7 1/16	15/64	16	6	114168	POL.
423290✓	1 3/4 x 1-10 15/32	15/64	26	6	114168	POL.
370242	3 1/4 x 6-2 3/4	19/64	22	3		442A
68349+	3 1/4 x 6-3 23/32	5/16	36	8	68348	282

BLANKS

150937	5/8 x 7 3/8	3/32				
152110	5/8 x 1-5 3/16	3/32				
201975	5/8 x 10 3/16	3/32				
150822	3/4 x 10 1/2	1/8				
229283	13/16 x 3-0	3/16				
424231±	1 x 8-0	11/64				
229286±	1 1/8 x 7	3/16			224082	
223892±	1 1/8 x 7 3/8	3/16				
224092±	1 1/4 x 7	3/16				
223458±	1 1/4 x 8 1/4	3/16				
226622	1 1/4 x 11 1/2	3/16				
240058±	1 1/4 x 1-1 13/16	3/16				
421954±	1 1/4 x 1-5 19/32	15/64				
233984	1 1/4 x 4-6	15/64				
112605	1 1/4 x 4-6	15/64				
338714±	1 1/4 x 8-0	11/32				
151008	1 3/4 x 1-6 9/16	1/4				
151933	1 3/4 x 1-10 11/16	1/4				
150444	1 3/4 x 1-11 3/8	1/4				
152286	1 3/4 x 2-3	1/4				
67475✓	1 3/4 x 4-0	15/64				
409258✓	1 3/4 x 4-4	15/64				
217761Δ	1 3/4 x 4-6	15/64				
421919✓	1 3/4 x 2-10 11/16	15/64				
114168✓	1 3/4 x 5-0	15/64				
400357✓	1 3/4 x 5-1	15/64				
409257✓	1 3/4 x 5-2	15/64				
423873±	1 7/8 x 6-0	5/16				
68348±	3 1/4 x 6-3 23/32	5/16				

NOTES:

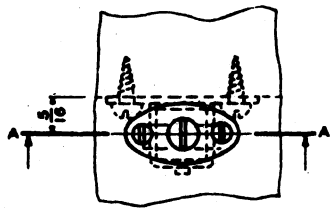
1. All hinges are made of brass except those marked which are made of material as follows: hinges marked + are made of german silver, hinges marked ✓ are made of nickel silver; hinges marked ± are made of steel· hinges marked Δ are made of zinc.
2. All screws are flat head screws except those marked * which are round head screws.

PIECE PART	SIZE		SCR. REQ.	SCR. NO.	MADE FROM PIECE PART	FIN.	PIECE PART	SIZE		SCR. REQ.	SCR. NO.	MADE FROM PIECE PART	FIN.
155383	5/8 x 7/8	9/64	4	1			155152	1 9/16 x 1	3/16	6	6*		
140954	3/4 x 1	5/32	4	2	155385		156800	1 9/16 x 1	3/16	4	4		
155385	3/4 x 1	5/32	4	2			68720	1 3/4 x 2	1/4	6	8	65741	
155370	3/4 x 1 1/4	.135	4	3			156374	2 x 1 1/2	7/32	6	6		
112682	3/4 x 1 1/4	.135	4	3	155370	222	65785	2 x 1 1/2	7/32	6	6	155374	258
101496	25/32 x 7/8	5/32	4	3			228038	2 x 2		6			
24389	25/32 x 7/8	5/32	4	3	101496	68	215282	2 x 3		6	8		
160782	27/32 x 1	5/32	4	3									
152143	27/32 x 1	5/32	4	3	150782	31							
153452	27/32 x 1	5/32	4	3									
46861	27/32 x 1	5/32	4	3	153452	31K							
150143	27/32 x 1	5/32	4	3									
150113	27/32 x 1	5/32	4	3	150143	299							
150782	27/32 x 1	5/32	4	3			BLANKS						
180066	7/8 x 1 1/4	5/32	4	4	155371	1							
203224	7/8 x 1 1/4		4	3		17	237185	3/4 x 1					
155371	7/8 x 1 1/4	5/32	4	4			+375052	15/16 x 1					
236281	7/8 x 1 1/2		3	3		17	155364	1 x 7/8	5/32				
155372	15/16 x 1 5/16	.165	4	3			+240006	1 1/16 x 1 1/4					
24704	15/16 x 1 5/16	.165	4	3	155372	68	+225778	1 3/8 x 2					
111590	15/16 x 1 5/16	.135	4	3	155372		+375051	1 1/2 x 2					
167178	15/16 x 1 5/16	.165	4	3	155372	31K	155373	1 1/2 x 1 1/2	7/32				
205344	15/16 x 1 5/16	.165	4	3	155372	223	35741	1 3/4 x 2	1/4				
113186	1 x 7/8	5/32	4	3	155364								
155367	1 x 1	5/32	4	3									
151981	1 x 1	5/32	4	3	155367								
151982	1 x 1	5/32	4	3	155367	31							
155368	1 x 1	5/32	4	4									
150783	1 x 1	5/32	4	4	155368	31							
159451	1 x 1	5/32	4	3									
167341	1 x 1	5/32	4	3									
167340	1 x 1	5/32	4	3	167341								
297929	1 x 1 1/2	3/16	4	6									
138871	1 x 1 1/2	11/64	4	4									
126814	1 x 1 1/2	11/64	4	4	138871	1							
138777	1 x 1 1/2	3/16	4	6	297929	31A							
161115	1 x 2	3/16	6	5									
223275	1 x 2		4										
155382	1 1/32 x 3/4	7/64	4	4									
93800	1 1/32 x 1		4	5*									
155378	1 1/32 x 2	3/16	6	5									
214959	1 1/32 x 2	3/16	6	5	155378	258							
167743	1 3/16 x 2	3/16	6	5									
149828	1 3/16 x 2	3/16	6	5	167743								
155375	1 1/4 x 1 3/4	3/16	6	5									
46577	1 1/4 x 1 3/4	1/4	6	8		17							
138469	1 5/16 x 1 3/4	3/16	6	5									
37951	1 5/16 x 1 3/4	3/16	6	5	138469	68							
231149	1 5/16 x 1 3/4	3/16	6	5	138469	31							
159052	1 5/16 x 1 3/4	3/16	6	5	138469	31							
155378*	1 5/16 x 2 1/4	7/32	6	5									
47048	1 5/16 x 2 1/4	7/32	6	5	155378	223							
156449	1 3/8 x 2	13/64	6	5									
128819	1 3/8 x 2	13/64	4	5	156449	1							
155377	1 3/8 x 2	13/64	6	5									
164503	1 3/8 x 2	13/64	6	5	155377	258							
130734	1 3/8 x 2	13/64	6	5	155377	31A							
+406877	1 3/8 x 2		6	5									
112058	1 1/2 x 1 1/2	7/32	6	5	155373	68							
420165	1 1/2 x 1 1/2		6	4									
420166	1 1/2 x 1 1/2		6	4	420165	223							
156450	1 9/16 x 1	3/16	6	4									
150877	1 9/16 x 1	3/16	6	4	156450								
155152	1 9/16 x 1	3/16	6	6*									

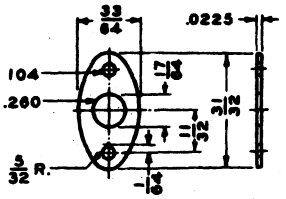
NOTES:

1. All hinges are made of brass except those marked + which are made of steel.
2. All screws are flat head screws except those marked * which are round head screws.

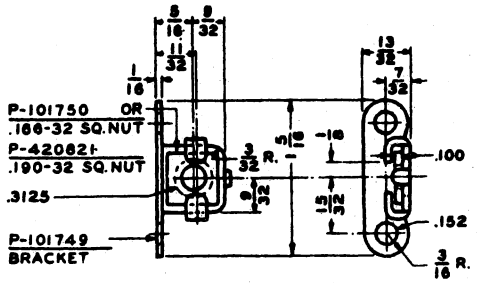
HINGES - BUTT



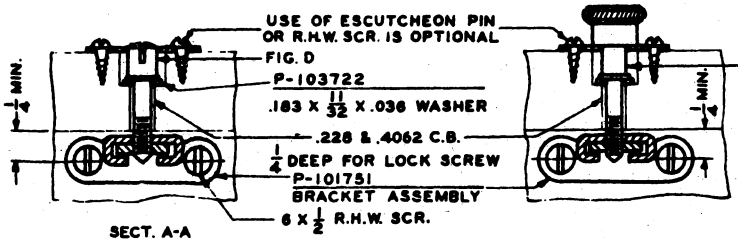
PLAN VIEW



P-226637, 422 FIN.
P-103671, 258 FIN.
P-131372, 391D FIN.
ESCUTCHEON



P-101751 OR P-420822
BRACKET ASSEMBLY, 31 FIN.



SECT. A-A
FIG. A

FIG. B

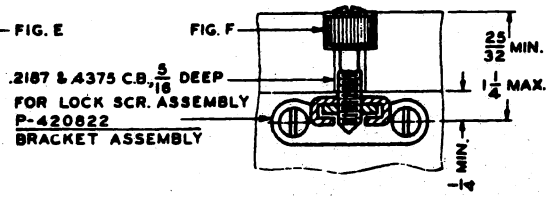
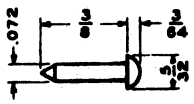
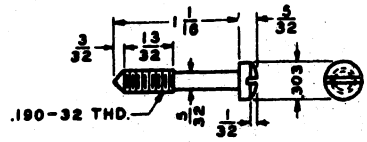


FIG. C

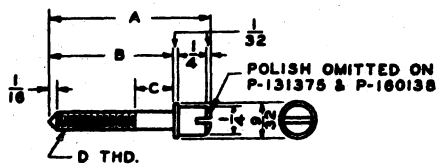


P-122622
P-101794, 31 FIN.
P-131374, 21 FIN.
P-226635, 297 FIN.
ESCUTCHEON PIN

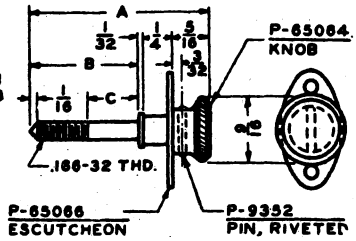
P-160104, 21 FIN.
P-136222, 223 FIN.
2 X 3/8 R.H.B.W. SCR.



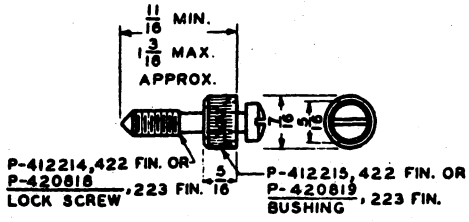
P-420818, 223 FIN.
P-412214, 422 FIN.
LOCK SCREW



LOCK SCREW
SEE TABLE A
FIG. D



LOCK SCREW ASSEMBLY
SEE TABLE B
FIG. E

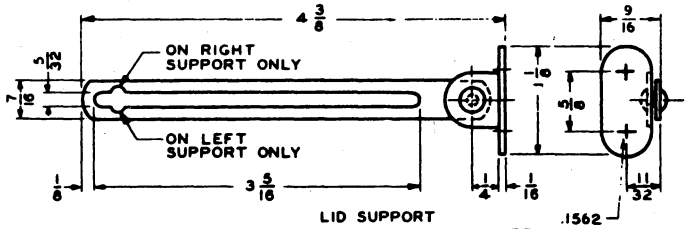


P-420820, 223 FIN.
P-412213, 422 FIN.
LOCK SCREW ASSEMBLY
FIG. F

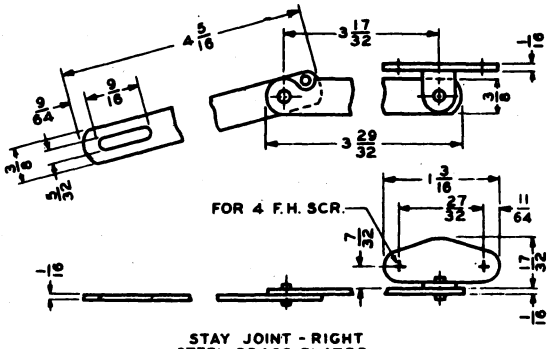
TABLE A					
LOCK SCREW	A	B	C	D THD.	FIN.
P-226636	27/32	17/32	1/4	.164-32	297
P-129972	27/32	17/32	1/4	.166-32	223
P-101758	1 1/32	23/32	1/4	.166-32	223
P-160182	1 3/16	7/8	3/8	.166-32	75
P-160250	1 1/4	15/16	7/16	.166-32	75
P-400473	1 3/8	1 1/16	3/8	.166-32	75
P-408896	1 7/16	7/8	3/8	.164-32	223
P-68226	1 15/32	1 5/32	5/8	.166-32	223
P-160138	1 5/8	1 5/16	3/4	.166-32	75
P-93562	1 5/8	1 5/16	13/16	.166-32	223
P-129624	2 1/16	2 1/2	1 31/32	.166-32	223

TABLE B					
ASSEMBLY	LOCK SCREW	A	B	C	FIN.
P-65063	P-65065	1 9/32	11/16	1/4	
P-69962	P-65065	1 9/32	11/16	1/4	21
P-400760	P-400761	1 15/32	7/8	7/16	21
P-400475	P-400474	1 23/32	1 1/8	1/4	21

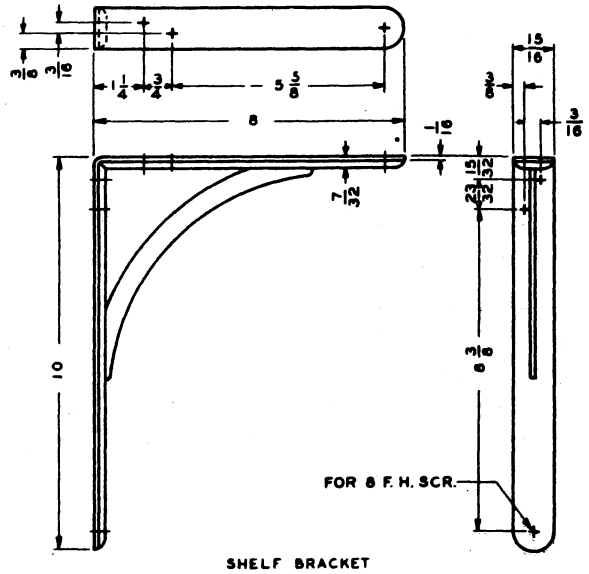
FLOATING LOCK SCREWS



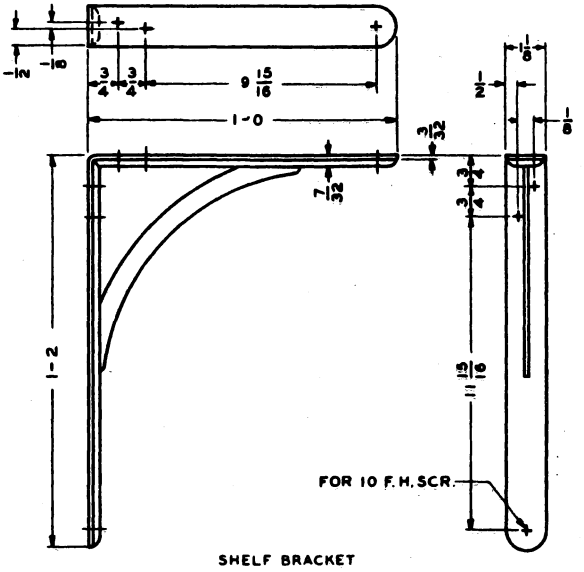
LID SUPPORT
P-411763 RIGHT P-411764 LEFT



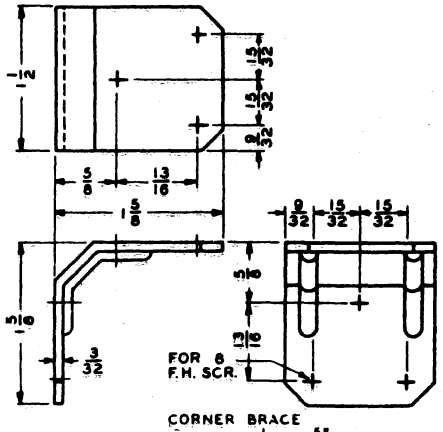
STAY JOINT - RIGHT
STEEL, BRASS PLATED
HAMMACHER SCHLEMMER CO., 1751



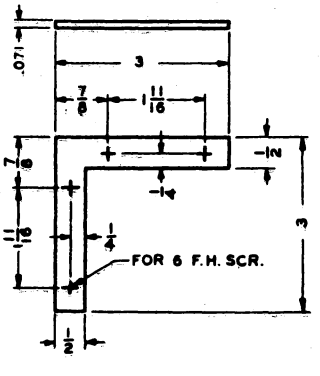
SHELF BRACKET
STANLEY, 792, 8 X 10



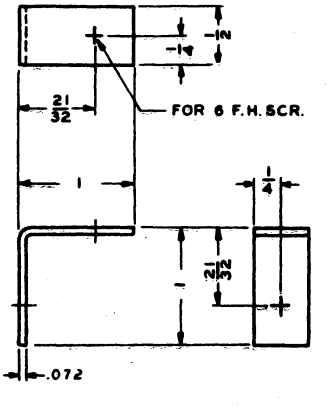
SHELF BRACKET
STANLEY, 792, 12 X 14



CORNER BRACE
STANLEY, 997½ J - 1⅝"

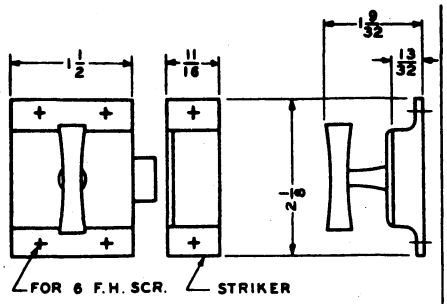


FLAT CORNER BRACE
STANLEY, 999-3"

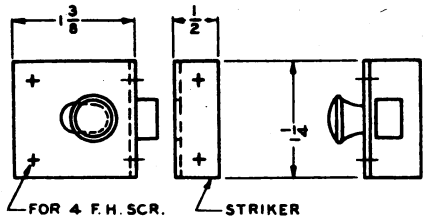


ANGLE CORNER BRACE
STANLEY, 997-1"

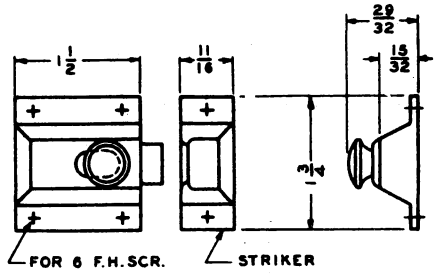
HARDWARE - BRACES AND BRACKETS



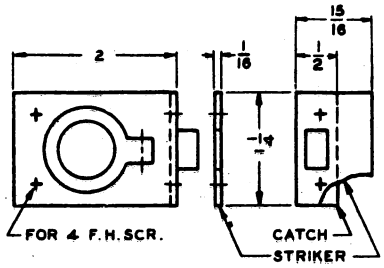
CUPBOARD TURN
CAST IRON
P. & F. CORBIN Y13039



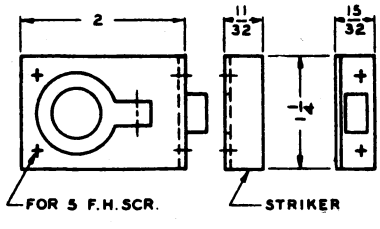
CUPBOARD CATCH
BRONZE
P. & F. CORBIN 2280 1/2



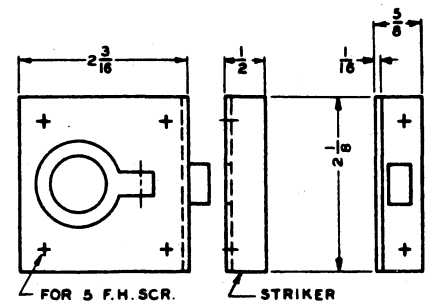
CUPBOARD CATCH
BRONZE
P. & F CORBIN 2272 1/2



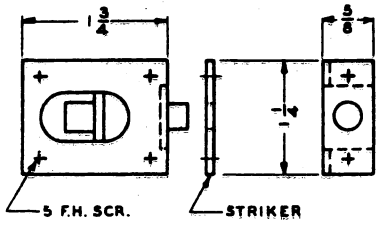
SHOWCASE CATCH
NICKEL PLATE
KYLE 9510



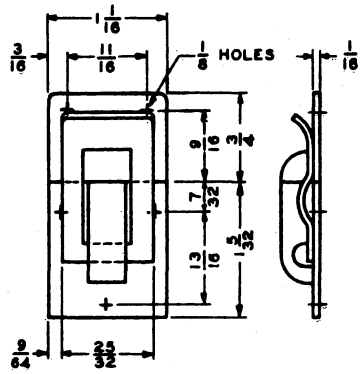
SHOWCASE CATCH
BRONZE
P. & F. CORBIN 1410 1/2



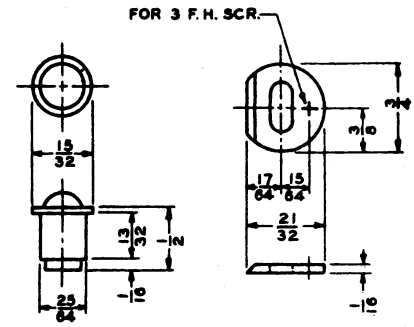
FLUSH RING CATCH
P-68648 & P-68649, 21 FIN.



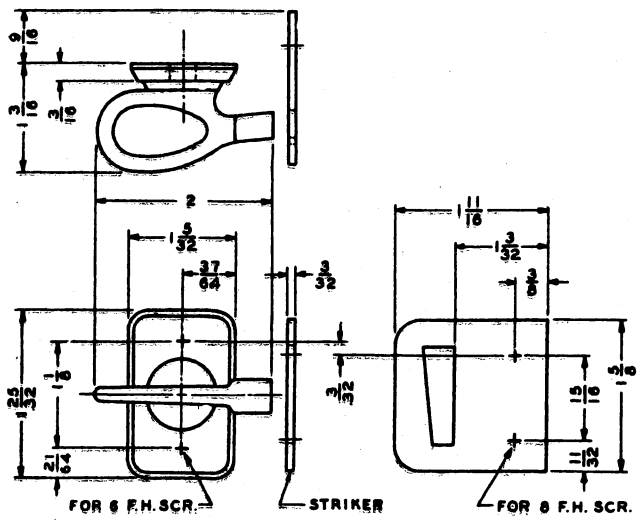
FLUSH BOLT
BRASS
SARGENT 820



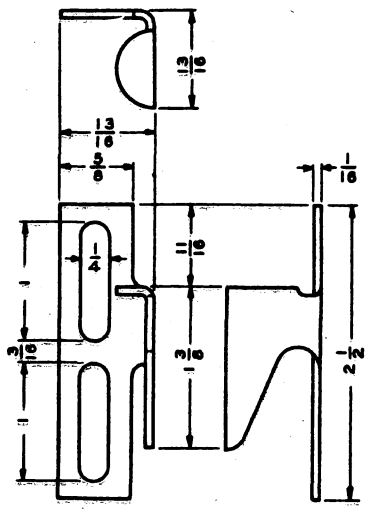
SUITCASE BOLT
P-411760 & P-411761
SEE P-403975 FOR 3 3/8 X 1 7/8 SUITCASE BOLT



DOOR CATCH
STEEL & BRASS
FORG 85

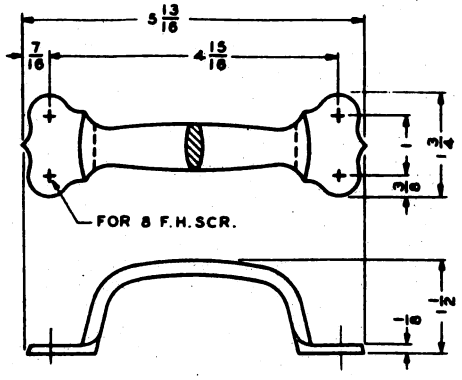


CASEMENT FASTENER WITH RIM TYPE STRIKER PLATE
P-406845 NO FIN.
P-406694 329 FIN.



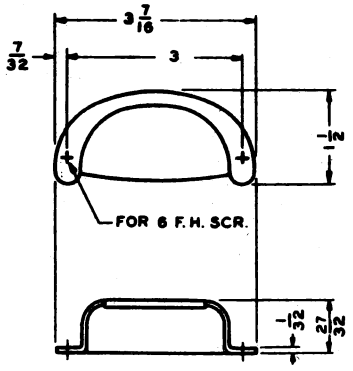
STORM WINDOW FASTENER
STEEL
STANLEY 1706, SET RT&LT

HARDWARE - CATCHES AND FASTENERS



DOOR PULL

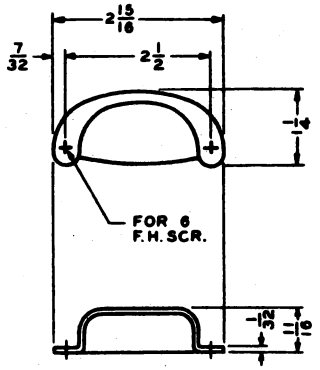
P-403718, IRON, NO FIN.
P-403046, IRON, 345 FIN.



DRAWER PULL
STEEL

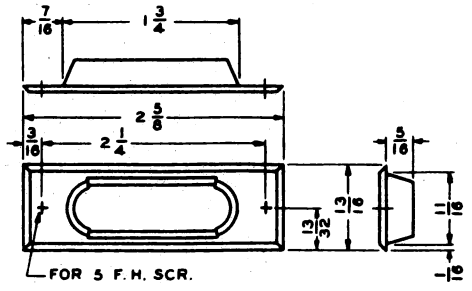
P-4C5847

SEE P-423855 FOR 3 3/4 DRAWER PULL



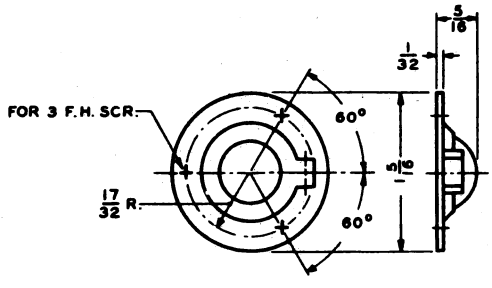
DRAWER PULL
STEEL

P-402995



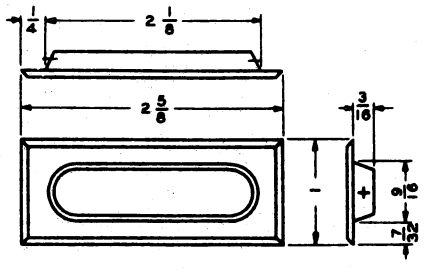
SASH LIFT
BRASS

P-420054 21 FIN.
P-420055 NO FIN.



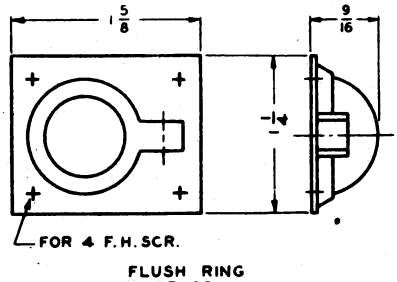
FLUSH RING
BRASS, 210 FIN.

P-65726



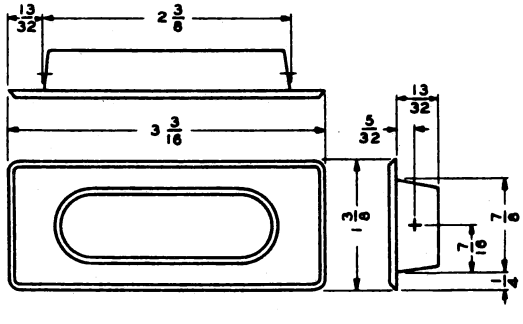
SASH LIFT
BRASS

P-406688 21 FIN.
P-406844 NO FIN.



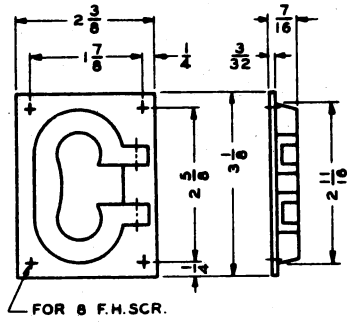
FLUSH RING
BRASS

P. & F. CORBIN, 1179-1 1/4"



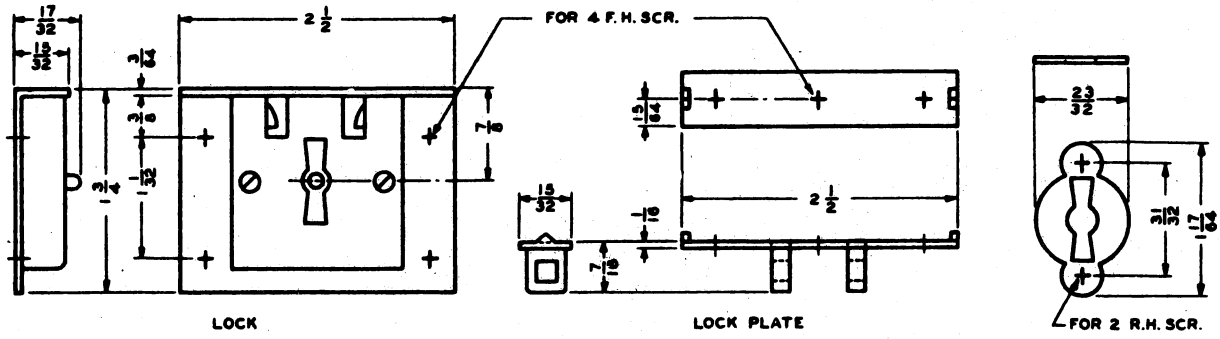
SASH LIFT
CAST BRONZE

P-406693



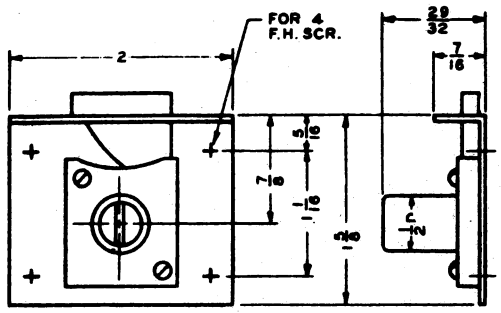
CHEST HANDLE
READING 21

HARDWARE — HANDLES AND LIFTS

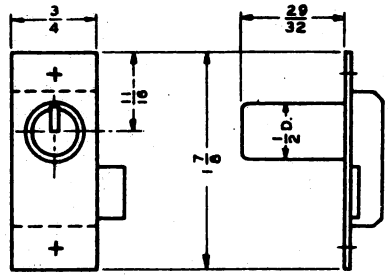


LOCK | LOCK PLATE | ESCUTCHEON

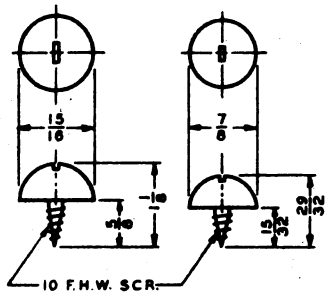
CHEST LOCK
BRASS
CORBIN CABINET LOCK CO., 080



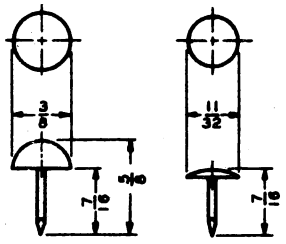
DRAWER LOCK
BRASS
CORBIN CABINET LOCK CO., 0650



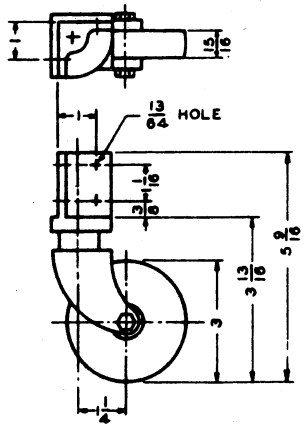
LOCK
EAGLE LOCK CO., 02304



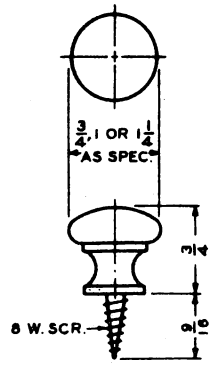
RUBBER SCREW TIP
P-406691 P-163603



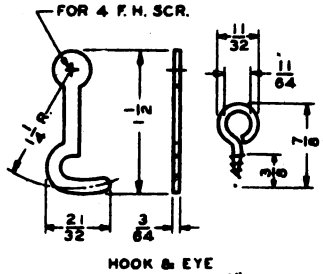
RUBBER HEADED NAIL P-423413
GILT FURNITURE NAIL P-421529



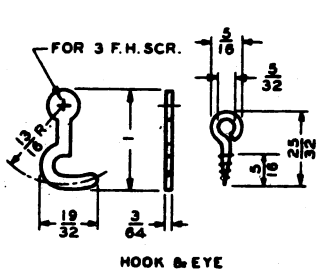
CASTER
P-421995



KNOB
CAST BRONZE
P. & F. CORBIN, 1531

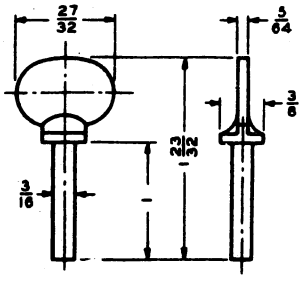


HOOK & EYE
SARGENT 61-1½"

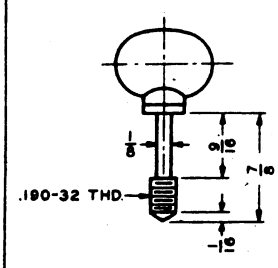


HOOK & EYE
SARGENT 61-1"

FOR 1¼" HOOK AND EYE SEE P-69924 AND P-69925

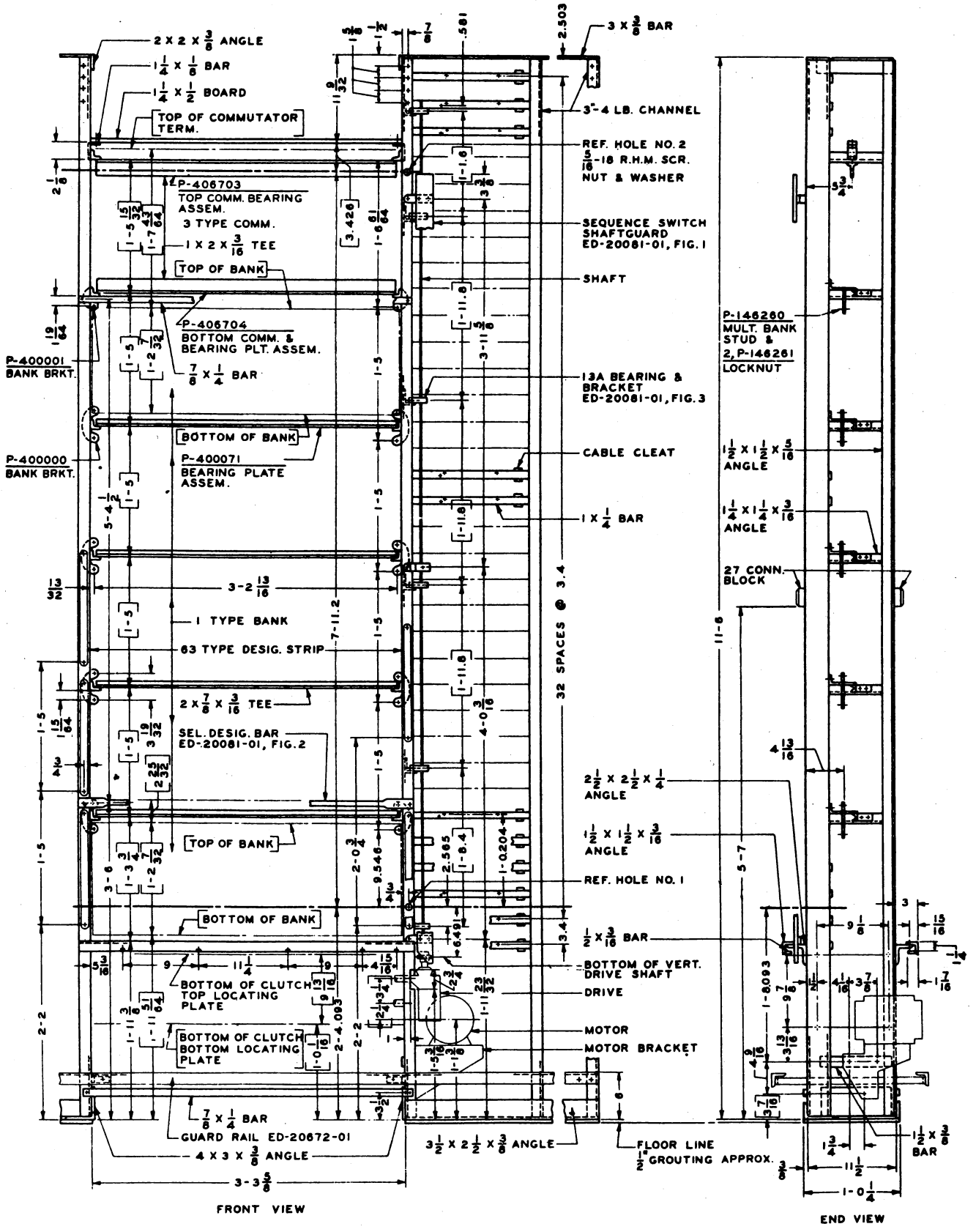


BLANK THUMB SCREW
P-423451



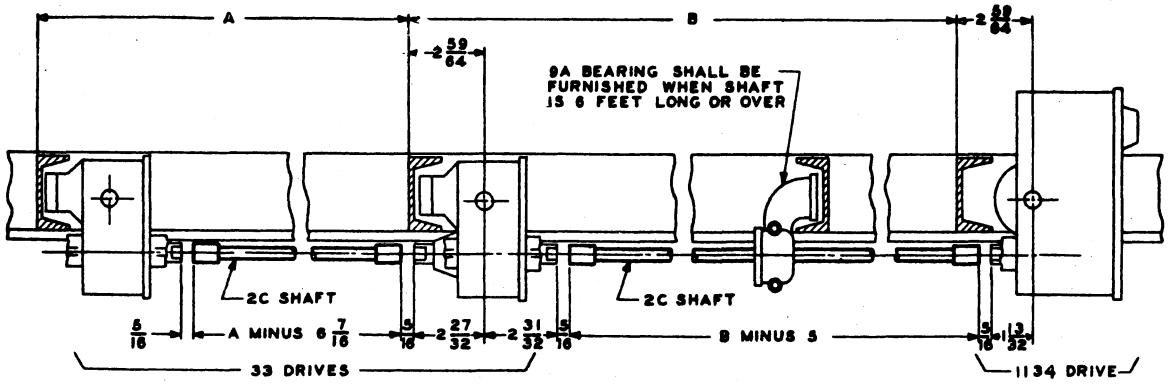
THUMB SCREW
P-423452

HARDWARE - LOCKS & MISCELLANEOUS



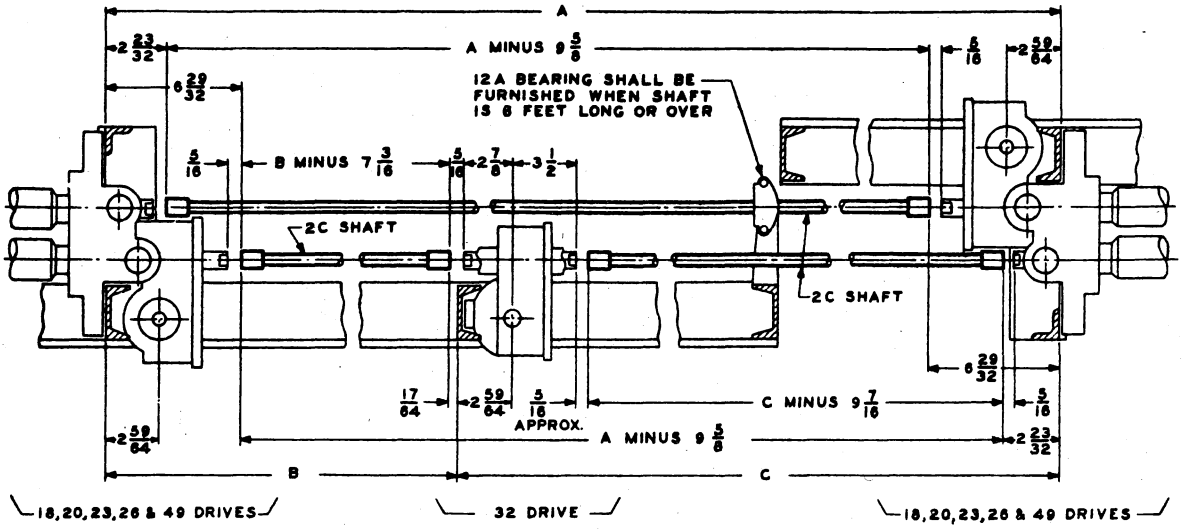
NOTES:
1. DIMENSIONS & NOTES IN BRACKETS ARE FOR DRAFTING INFORMATION ONLY.

SELECTOR FRAME - STANDARD DIMENSIONS



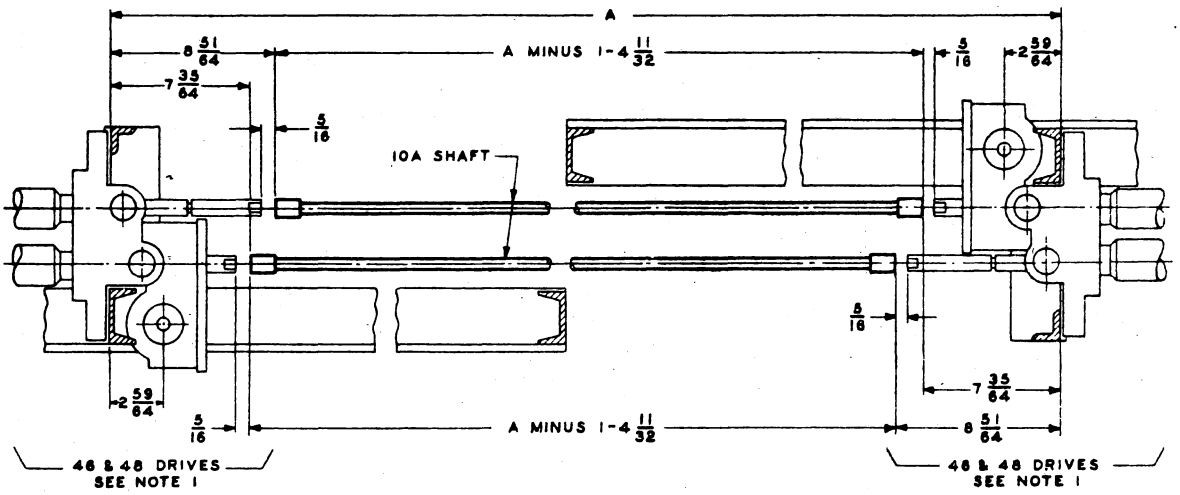
METHOD OF FIGURING LENGTHS OF CONNECTING SHAFTS FOR SINGLE SIDED FRAMES

FIG. A



METHOD OF FIGURING LENGTHS OF CONNECTING SHAFTS FOR DOUBLE SIDED FRAMES WITH 18,20,23,26,32 & 49 TYPE DRIVES

FIG. B

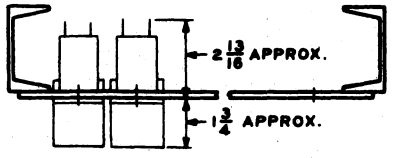


METHOD OF FIGURING LENGTHS OF CONNECTING SHAFTS FOR DOUBLE SIDED FRAMES WITH 46 & 48 TYPE DRIVES

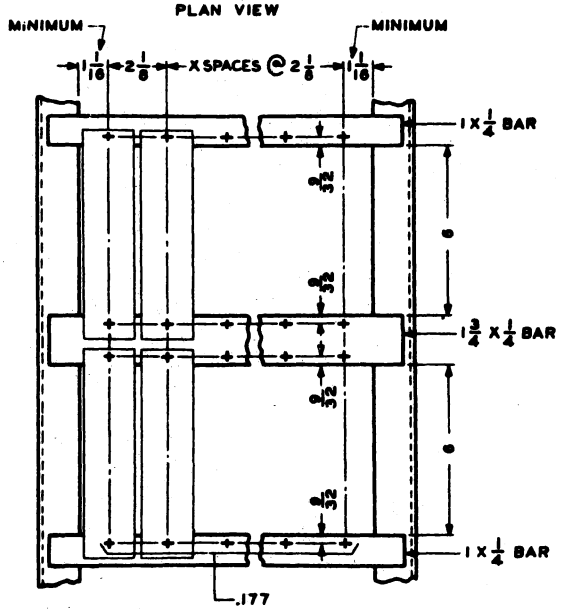
FIG. C

NOTE:
1. 46 AND 48 TYPE DRIVES AN NOT BE USED FOR DRIVING ADJACENT FRAMES EQUIPPED WITH 18,20,23,26 AND 49 TYPE DRIVES.

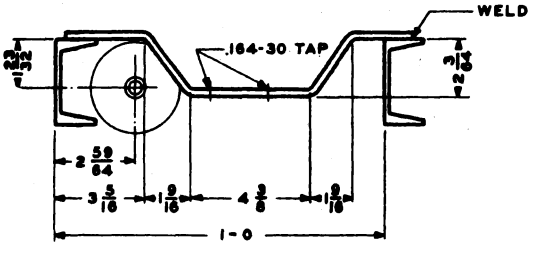
CONNECTING SHAFTS - METHOD OF FIGURING LENGTHS



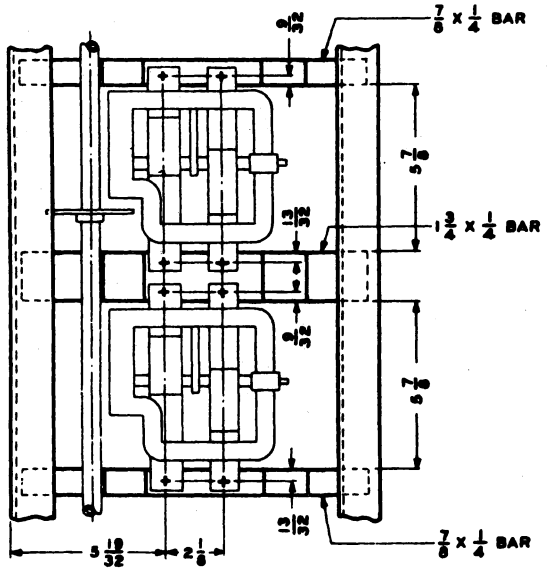
PLAN VIEW



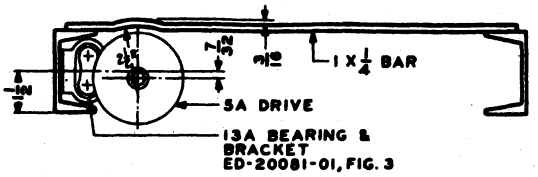
METHOD OF MOUNTING 206 SELECTORS
FRONT VIEW
FIG. A



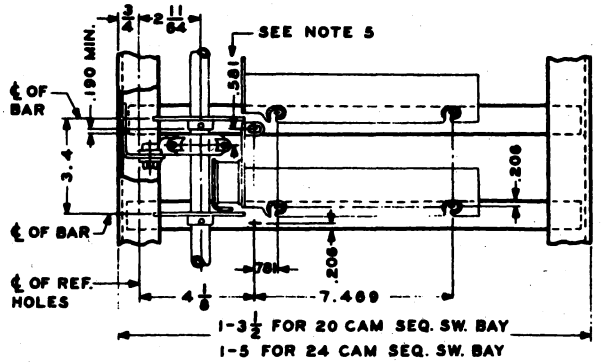
PLAN VIEW



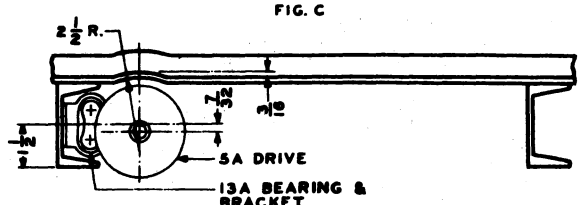
METHOD OF MOUNTING 207 & 208 SELECTORS
FRONT VIEW
FIG. B



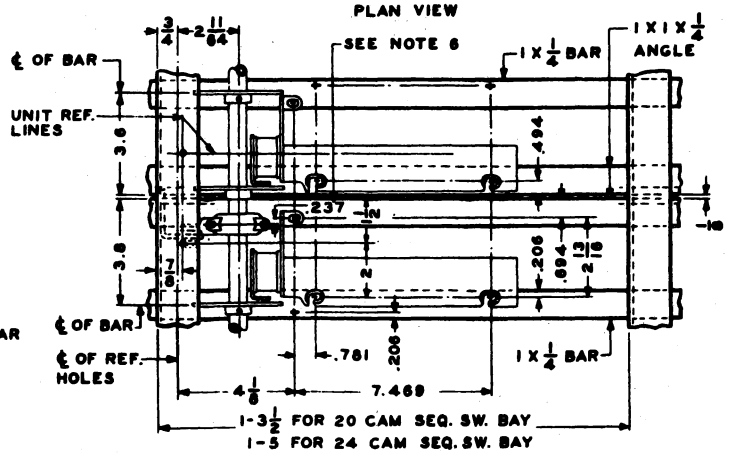
PLAN VIEW



MTG. OF SEQUENCE SWITCHES AND 165 & 166 TYPE INTERRUPTERS AND LOCATION OF BEARINGS
FRONT VIEW
FIG. C



PLAN VIEW

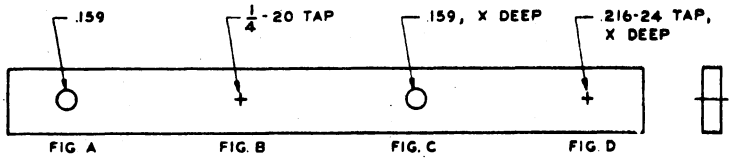


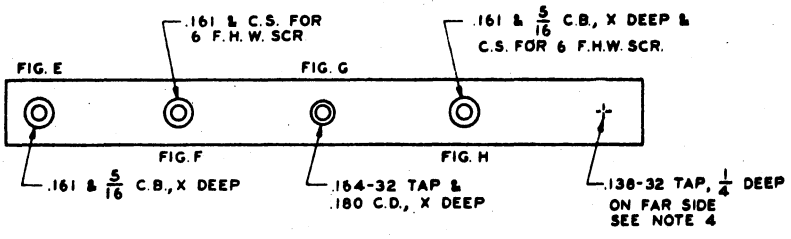
MOUNTING OF SEQUENCE SWITCHES AND LOCATION OF BEARINGS ON UNIT TYPE FRAMES
FRONT VIEW
FIG. D

NOTES:

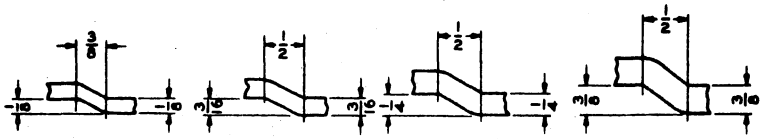
1. THE 165 AND 166 INTERRUPTERS MOUNT ON 1 X 1/4 BARS ON 3.4" CENTERS IN THE SAME DRILLINGS USED FOR MOUNTING A SEQUENCE SWITCH.
2. NOT MORE THAN SEVEN SEQUENCE SWITCH SPACES SHALL BE ALLOWED BETWEEN TWO BEARINGS.
3. NOT MORE THAN A TOTAL OF SEVEN SEQUENCE SWITCHES AND INTERRUPTERS SHALL BE MOUNTED BETWEEN TWO BEARINGS AND NO INTERRUPTER SHALL BE MOUNTED MORE THAN TWO INTERRUPTER SPACES AWAY FROM A BEARING.
4. NOT MORE THAN FOUR INTERRUPTERS SHALL BE MOUNTED BETWEEN TWO BEARINGS.
5. THE BEARINGS SHALL BE LOCATED FROM REFERENCE HOLE NO. 1
6. THE BEARINGS SHALL BE AT THE TOP OF EACH UNIT APPROX. 1/4" BELOW TOP SEQUENCE SWITCH MOUNTING HOLE AND LOCATED FROM REFERENCE HOLE NO. 1.
7. ON UNIT DIRECTLY BELOW INTERRUPTER UNIT, NO BEARING IS REQUIRED UNLESS OTHERWISE SPECIFIED.

MOUNTING OF SELECTORS, SEQUENCE SWITCHES, & INTERRUPTERS & LOCATION OF BEARINGS

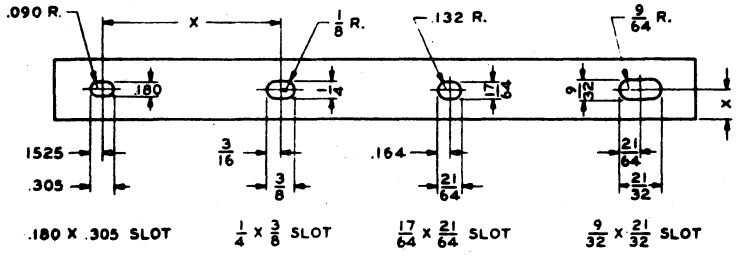


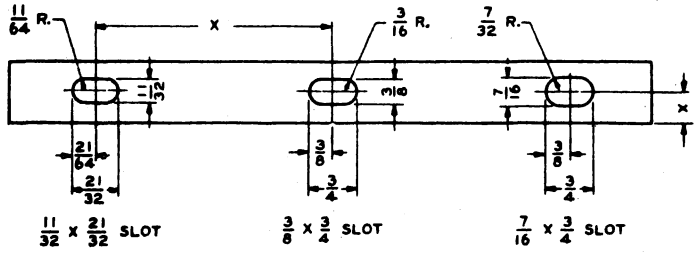


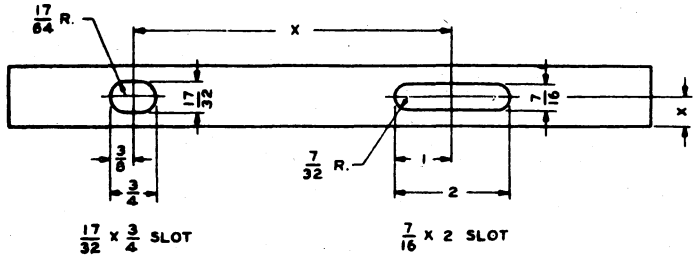
CLEARANCE & TAPPED HOLES
FIG. J



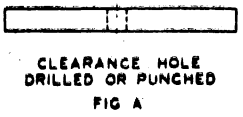
SEE NOTE 2
STANDARD OFFSETS
FIG. K







SIZES OF PUNCHED SLOTS
FIG L

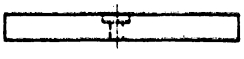


CLEARANCE HOLE DRILLED OR PUNCHED
FIG A

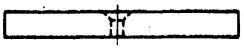
TAPPED HOLE
FIG. B

DEPTH DRILL
FIG. C

BLIND TAP
FIG. D



COUNTERBORED HOLE
FIG. E



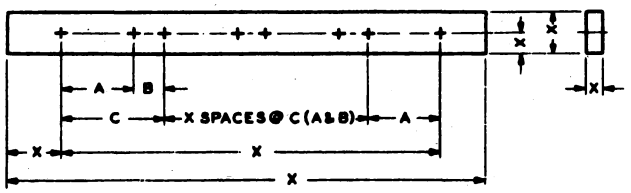
COUNTERSUNK HOLE
FIG. F

COUNTERDRILLED HOLE
FIG. G

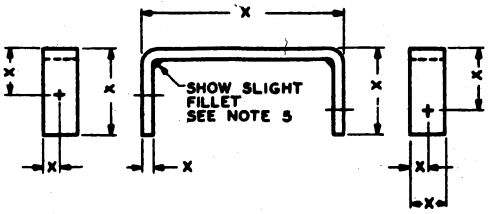
COUNTERBORED & COUNTERSUNK HOLE
FIG H

NOTES:
1. ON SHOP DRAWINGS SHOW ALL DIMENSIONS FOR EACH SLOT. ON INFORMAT ON DRAWINGS SHOW ONLY THE SIZE OF THE SLOT AS 9/32 X 21/32 SLOT
2. UNLESS OTHERWISE SPECIF ED THE RADII FOR BENDING BARS WILL BE APPROXIMATELY 1/8
3. FIGURES A TO H ARE FOR ILLUSTRATION ONLY AND SHALL NOT BE SHOWN ON DRAWINGS
4. WHEN IT IS NOT REASONABLY CLEAR THAT HOLES HAVE BEEN DR LLED FROM FAR SIDE ADD TO THE DRILLING INFORMAT ON "ON FAR SIDE

DRILLED, PUNCHED AND TAPPED HOLES AND STANDARD OFFSETS



SEE NOTE 4
FIG. A



SEE NOTE 2
FIG. F

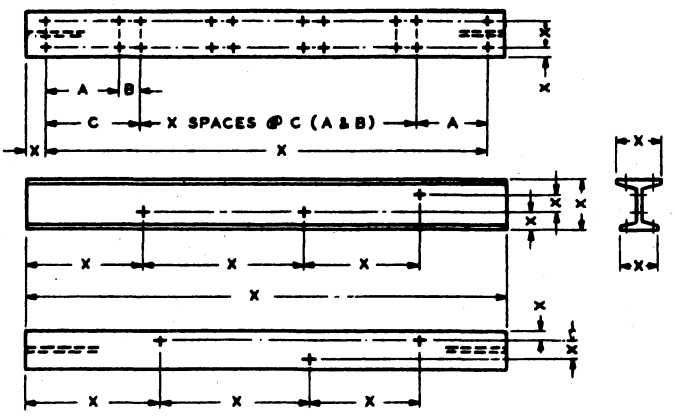
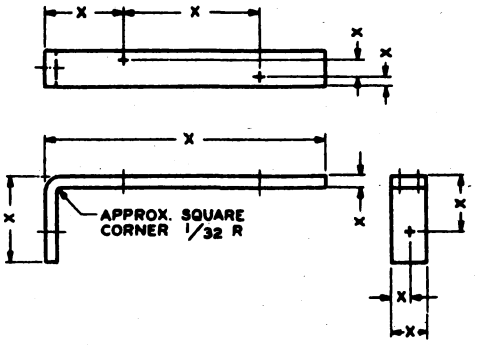


FIG. B



SEE NOTE 2
FIG. G

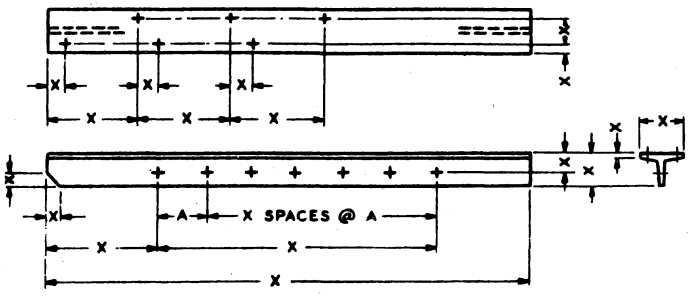
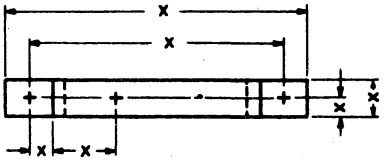
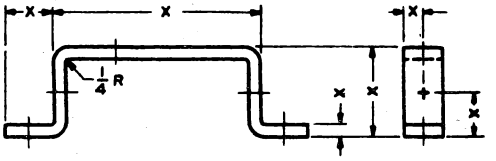


FIG. C





SEE NOTE 2
FIG. H

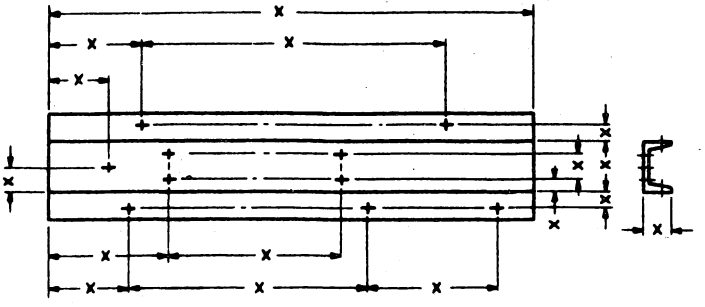


FIG. D

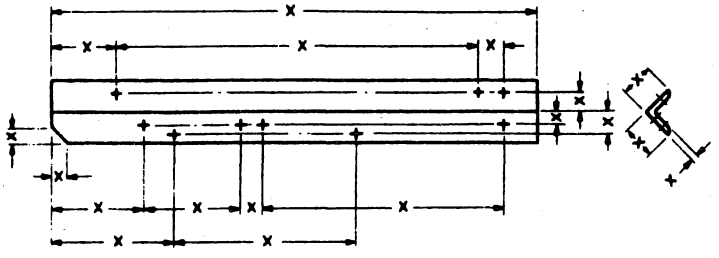
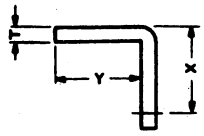


FIG. E

NOTES:
1. PROJECTIONS OF DETAILS SHOWN HORIZONTALLY SHALL BE AT THE RIGHT PROJECTIONS OF DETAILS SHOWN VERTICALLY SHALL BE AT THE TOP.
2. IF INFORMATION CAN BE CLEARLY SHOWN IN TWO VIEWS, OTHER VIEWS SHALL NOT BE REQUIRED.
3. DIMENSIONS SHALL BE CUMULATIVE FROM ONE POINT. DIMENSIONS SHALL BE SHOWN TO THE OUTSIDE OF ALL BENDS AND TO THE INSIDE ONLY WHEN SUCH POINTS ARE WORKING POINTS.
4. WHERE A DIMENSION IS REPEATED 3 OR MORE TIMES AN X SPACE DIMENSION MAY BE SHOWN.
5. BENDS WITHOUT SPECIFIC DESIGNATION AS TO RADIUS SHALL BE CONSIDERED AS BEING APPROX. 1/8 RADIUS AND ARE SHOWN PER FIG. F SQUARE CORNER BENDS ARE SHOWN PER FIG. G. BENDS WITH SPECIFIC DESIGNATION AS TO RADIUS ARE SHOWN PER FIG. H.

DIMENSIONING OF BENDS, BARS, I-BEAMS, TEES, CHANNELS AND ANGLES



SEE NOTE 2
FIG. A

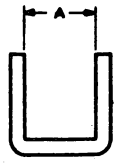


FIG. B

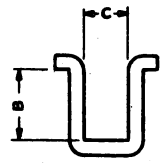
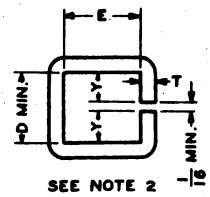


FIG. C



SEE NOTE 2
FIG. D

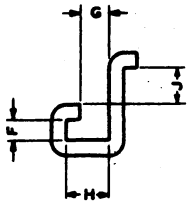


FIG. E

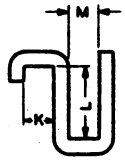


FIG. F

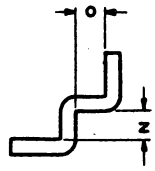


FIG. G

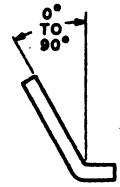
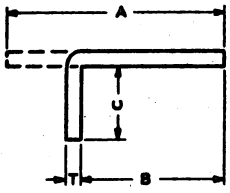


FIG. H

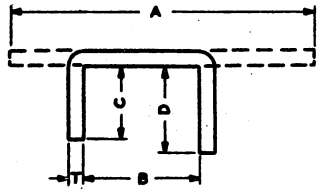
STANDARD FOR COLD BENDS

TABLE OF MINIMUM DIMENSIONS FOR FIGURES B TO G INCLUSIVE SEE NOTE 1

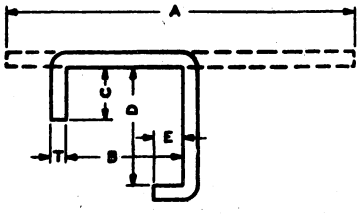
MAX. SIZE OF STOCK	A	B	C	D	E	F	G	H	J	K	L	M	N	O
$\frac{3}{4}$ SQ.INCH OR 3 X $\frac{1}{4}$ $2\frac{1}{2}$ X $\frac{5}{16}$, 2 X $\frac{3}{8}$, $1\frac{1}{2}$ X $\frac{1}{2}$, 1 X $\frac{3}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	6	$7\frac{1}{2}$	$5\frac{1}{4}$	$3\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$
$1\frac{1}{2}$ X $\frac{1}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{8}$	$1\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{1}{16}$	$1\frac{5}{8}$	$\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
$\frac{5}{8}$ SQ.INCH OR $1\frac{1}{2}$ X $\frac{3}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{1}{16}$	$1\frac{7}{8}$	1	1	1	1	1	1
$1\frac{1}{4}$ X $\frac{1}{2}$	1	$1\frac{9}{16}$	$1\frac{3}{16}$	$1\frac{7}{8}$	$\frac{7}{8}$	1	$\frac{1}{16}$	$1\frac{3}{4}$	$1\frac{9}{16}$	$\frac{7}{8}$	$1\frac{9}{16}$	$\frac{7}{8}$	$1\frac{9}{16}$	$1\frac{9}{16}$
1 X $\frac{5}{8}$	$1\frac{1}{8}$	$1\frac{5}{8}$	$1\frac{1}{4}$	2	1	1	$\frac{1}{16}$	$1\frac{7}{8}$	$1\frac{5}{8}$	1	$1\frac{5}{8}$	1	$1\frac{5}{8}$	$1\frac{5}{8}$
$\frac{3}{4}$ X $\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{11}{16}$	$1\frac{5}{16}$	$2\frac{1}{8}$	$1\frac{1}{8}$	1	$\frac{1}{16}$	2	$1\frac{11}{16}$	$1\frac{1}{8}$	$1\frac{11}{16}$	$1\frac{1}{8}$	$1\frac{11}{16}$	$1\frac{11}{16}$



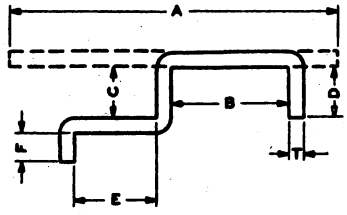
B+C+W = CUTTING LENGTH "A"
ONE BEND
FIG. J



B+C+D+X = CUTTING LENGTH "A"
TWO BENDS
FIG. K



B+C+D+E+Y = CUTTING LENGTH "A"
THREE BENDS
FIG. L



B+C+D+E+F+Z = CUTTING LENGTH "A"
FOUR BENDS
FIG. M

BENDING ALLOWANCES FOR COLD RIGHT ANGLE BENDS FOR FIGURES J TO M INCL.

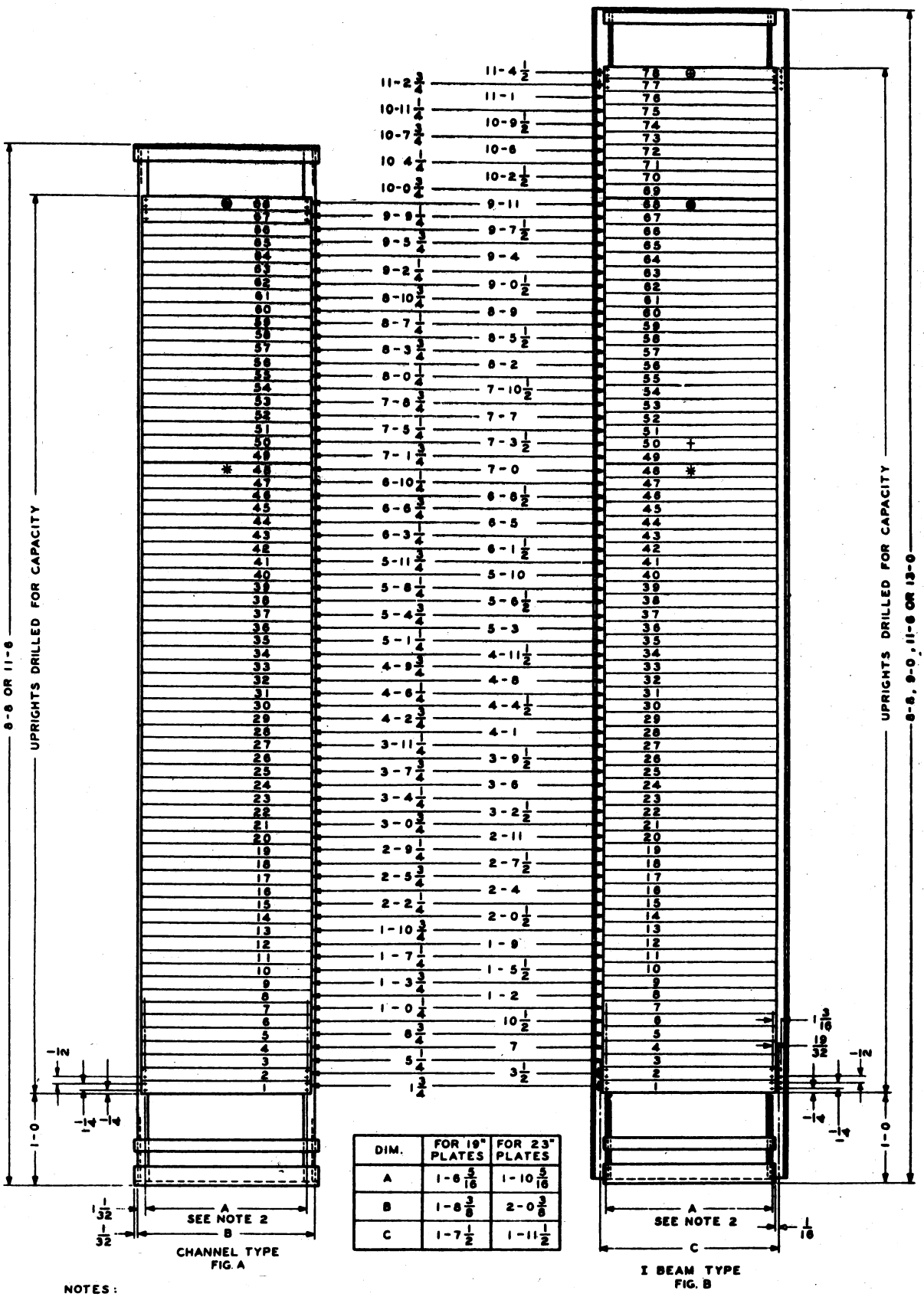
T SIZE OF STOCK	W ONE BEND	X TWO BENDS	Y THREE BENDS	Z FOUR BENDS
$\frac{1}{8}$	$\frac{1}{32}$	$\frac{1}{16}$	$\frac{3}{32}$	$\frac{1}{8}$
$\frac{3}{16}$	$\frac{1}{32}$	$\frac{3}{32}$	$\frac{1}{8}$	$\frac{3}{16}$
$\frac{1}{4}$	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$
$\frac{5}{16}$	$\frac{3}{32}$	$\frac{3}{16}$	$\frac{9}{32}$	$\frac{3}{8}$
$\frac{3}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
$\frac{7}{16}$	$\frac{1}{8}$	$\frac{9}{32}$	$\frac{7}{16}$	$\frac{9}{16}$
$\frac{1}{2}$	$\frac{3}{16}$	$\frac{3}{8}$	$\frac{9}{16}$	$\frac{3}{4}$

NOTES:

1. THE MAXIMUM CROSS SECTION AREA OF STOCK FOR COLD BENDING IS 3/4 SQ. INCH. THE INSIDE RADII OF COLD BENDS ARE 1/8 APPROX. IF LARGER RADII ARE REQUIRED 1/2 OR 13/16 IS PREFERABLE.

2. THE DIMENSION "Y" IN FIGURES A AND D SHALL PREFERABLY BE NOT LESS THAN 3/4" BUT TWICE THE THICKNESS "T" SHALL BE THE MINIMUM. THE MINIMUM DIMENSION "X" IN FIGURE A FROM THE OUTSIDE OF A COLD BEND TO THE NEAREST HOLE SHALL NOT BE LESS THAN 2 1/2 TIMES THE THICKNESS "T" TO PERMIT LAYING OUT AND DRILLING OR PERFORATING HOLES WITHOUT THE USE OF JIGS OR FIXTURES.

COLD BENDS - ALLOWANCES AND MINIMUM DIMENSIONS



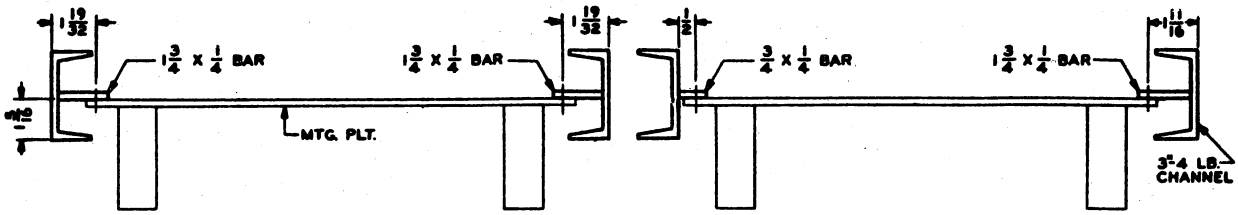
DIM.	FOR 19" PLATES	FOR 23" PLATES
A	1-8 5/16	1-10 5/16
B	1-8 3/8	2-0 3/8
C	1-7 1/2	1-11 1/2

NOTES:

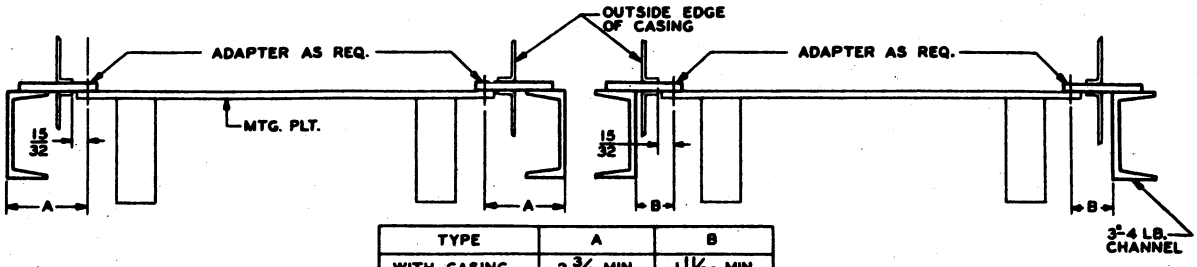
1. RELAY RACKS ARE FURNISHED DRILLED FOR THE CAPACITY INDICATED:
   * CAPACITY FOR 8-8 RELAY RACKS , ⊜ CAPACITY FOR 11-6 RELAY RACKS
   + CAPACITY FOR 9-0 RELAY RACKS , ⊕ CAPACITY FOR 13-0 RELAY RACKS

2. THE DISTANCE BETWEEN MOUNTING HOLES FOR MOUNTING PLATES IS THE LENGTH OF THE MOUNTING PLATE MINUS 11/16.

RELAY RACK DIMENSIONS & 1 3/4" MOUNTING PLATE SPACES

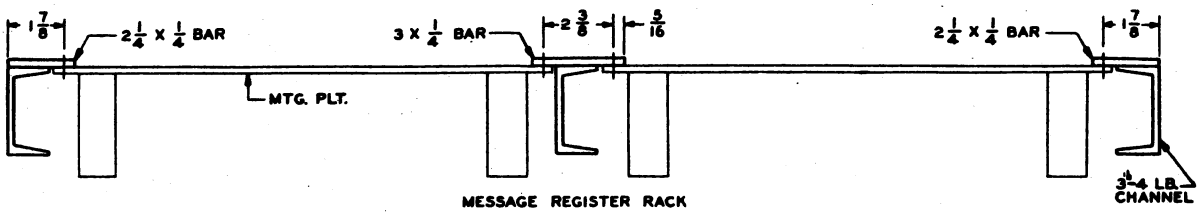


SELECTOR FRAMES
FIG. A

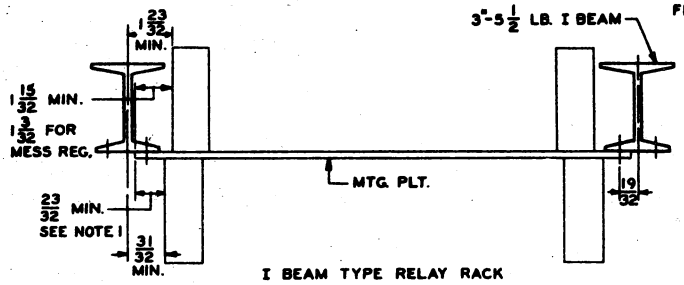


TYPE	A	B
WITH CASING	2 3/4 MIN.	1 11/32 MIN.
WITHOUT CASING	1 1/8 MIN.	15/32 MIN.

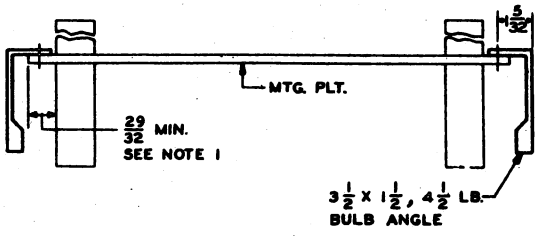
SINGLE SIDED FRAMES
FIG. B



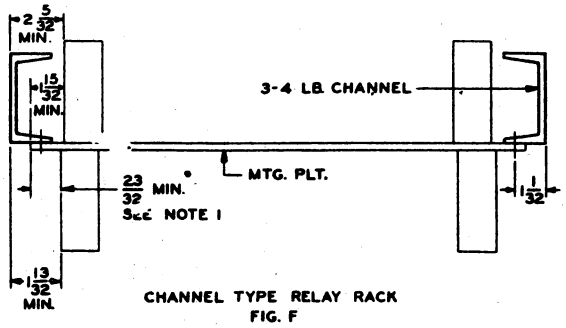
MESSAGE REGISTER RACK
FIG. C



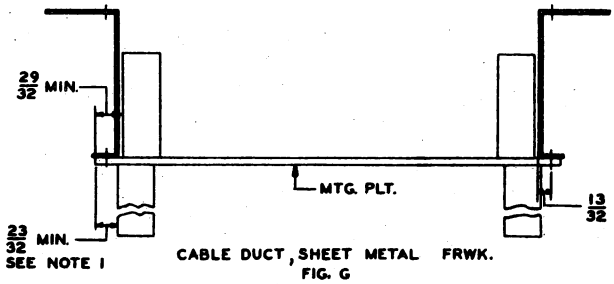
I BEAM TYPE RELAY RACK
FIG. D



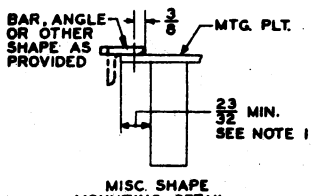
BULB ANGLE TYPE RELAY RACK
FIG. E



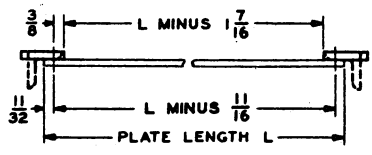
CHANNEL TYPE RELAY RACK
FIG. F



CABLE DUCT, SHEET METAL FRWK.
FIG. G



MISC. SHAPE MOUNTING DETAIL
FIG. H



FRWK. IN SWBDS. & MISC. LOCATIONS
FIG. J

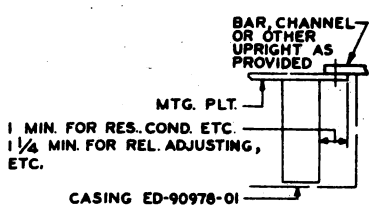
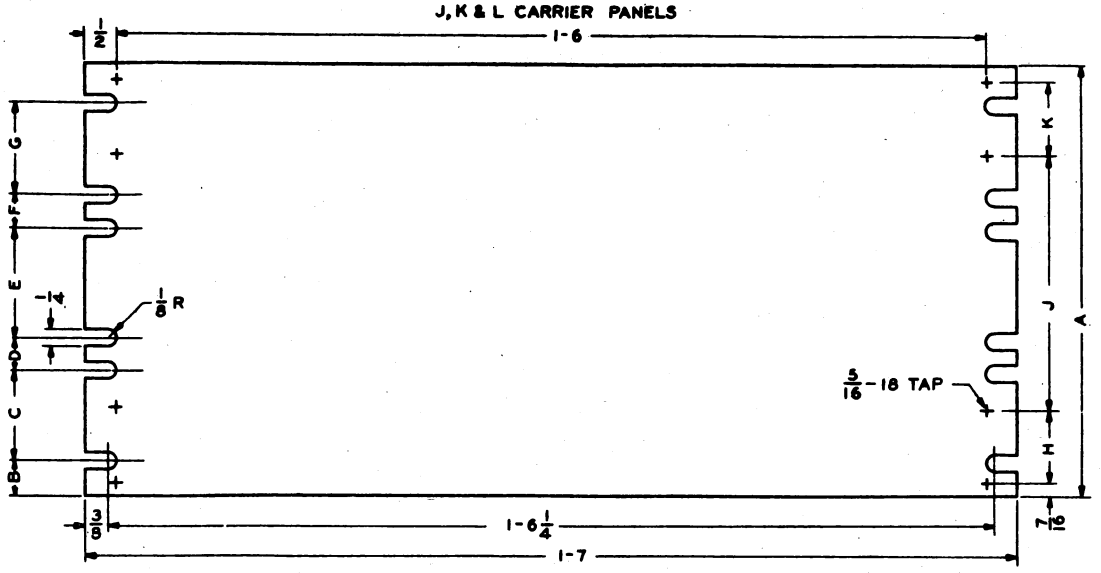


FIG. K

NOTE:
1. THE 23/32 MIN. DIMENSION (29/32 IN FIG. E) CAN BE EMPLOYED ONLY WHERE THE TERMINALS ARE 3/16 OR MORE INSIDE THE APPARATUS LINE AND NO COVERS ARE USED. IF FRONT COVERS ARE PROVIDED THE 23/32 MIN. DIMENSION BECOMES 1 9/32.

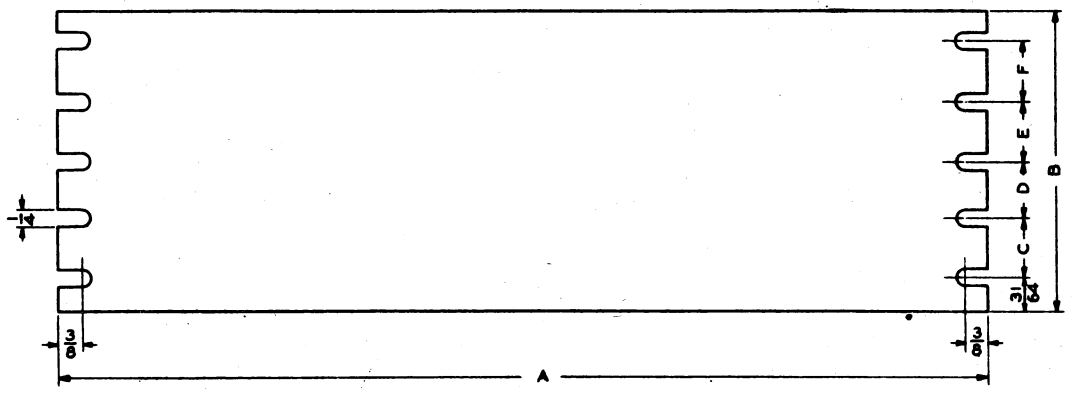
MOUNTING PLATES-SPACE REQUIRED FOR THEIR SUPPORT

J, K & L CARRIER PANELS



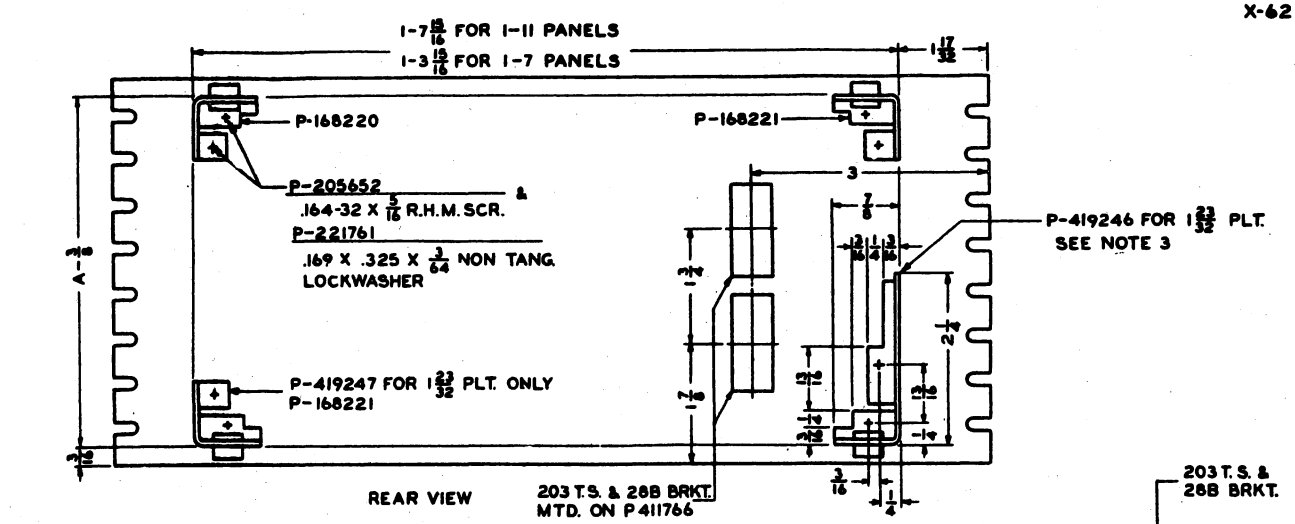
PANEL DIMENSIONS										ED-61887-01 DETAIL NUMBER		
										PANEL		COVER
A	B	C	D	E	F	G	H	J	K	STEEL	ALUMINUM	
3 15/32	1 31/64	1/2					2 19/32			102	202	2
5 7/32		2 1/4					4 11/32			103	203	3
6 31/32		4					6 3/32			104	204	4
8 23/32		2 1/4	1 1/4	2 1/4			7 27/32			105	205	5
10 15/32		2 1/4	3	2 1/4			2 17/32	4 13/32	2 17/32	106	206	6
1-0 7/32		2 1/4	4 3/4	2 1/4				6 5/32		107	207	7
1-1 31/32		3 1/2	4	3 1/2				7 29/32		108	208	8
1-3 23/32		3 1/2	5 3/4	3 1/2				9 21/32		109	209	9
1-5 15/32		3 1/2	7 1/2	3 1/2				11 13/32		110	210	10
1-7 7/32		5 1/4	5 3/4	5 1/4				1-1 5/32		111	211	11
1-8 31/32		2 1/4	4 3/4	4	4 3/4	2 1/4		1-2 29/32		112	212	12
1-10 23/32		5 1/4	1 3/4	5 3/4	1 3/4	5 1/4		1-4 21/32		113	213	13
2-0 15/32		2 1/4	4 3/4	7 1/2	4 3/4	2 1/4		1-6 13/32		114	214	14

CROSSBAR PANELS



PANEL DIMENSIONS						STEEL PANEL ED-25260-01		PANEL DIMENSIONS						STEEL PANEL ED-25260-01		PANEL DIMENSIONS						STEEL PANEL ED-25260-01	
A	B	C	D	E	F	ITEM	PART NO.	A	B	C	D	E	F	ITEM	PART NO.	A	B	C	D	E	F	ITEM	PART NO.
20 1/2	1 31/32	1				1		30 1/2	1 31/32	1				11		23						21	
	3 31/32	3				2			3 31/32	3				12	P-296571							22	
						3								13			5 31/32	2	1	2		23	
						4								14								24	
						5			9 31/32	2	5	2		15								25	
						6								16								26	
						7								17								27	
						8								18								28	
						9								19								29	
						10								20								30	

PANELS - CROSSBAR AND J, K & L CARRIER



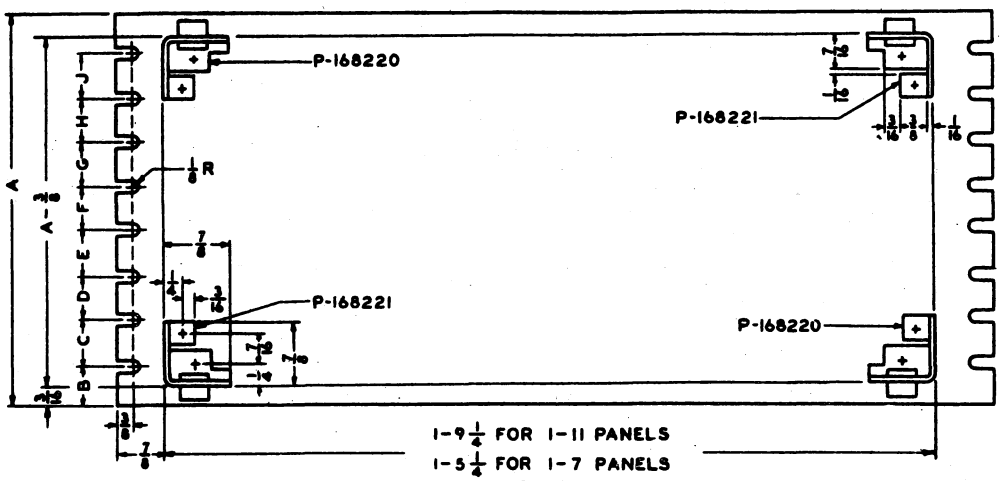
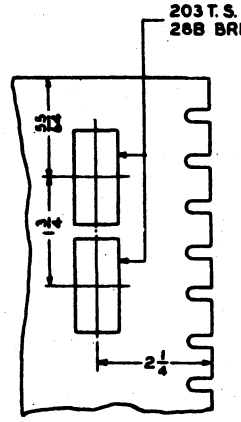


FIG. A



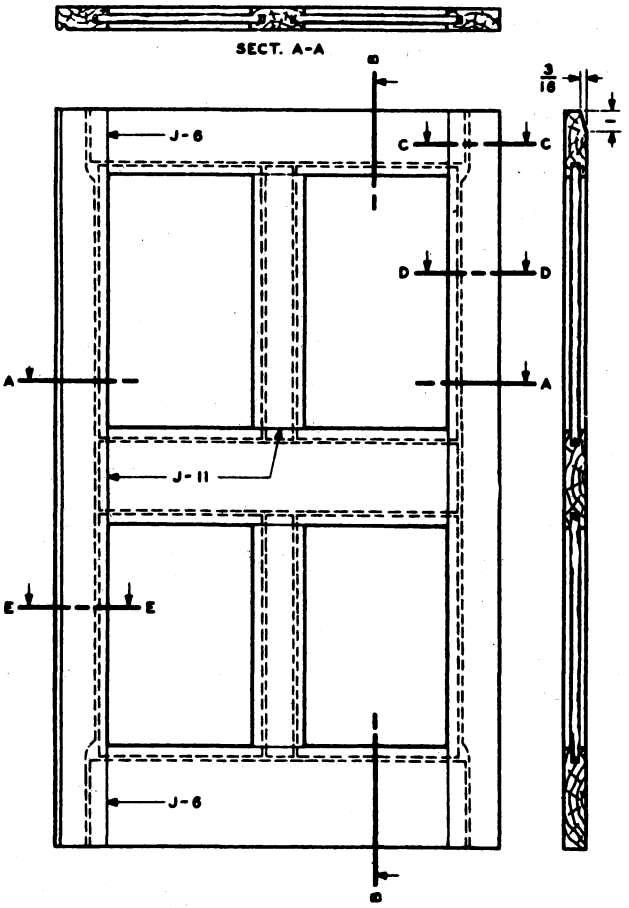
LOCATION OF TERMINAL STRIP ON PANELS WITHOUT COVERS

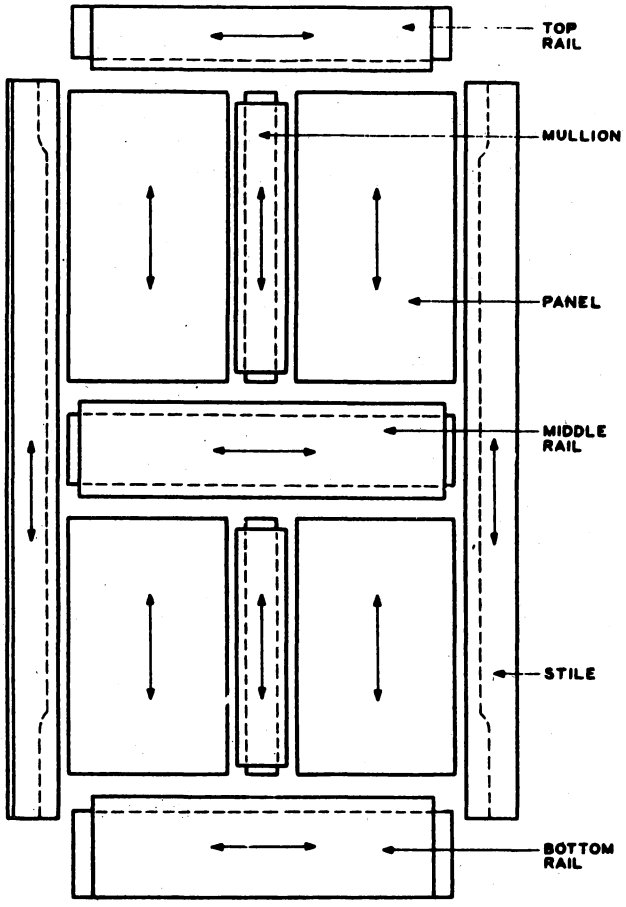
FIG. B

PANEL WIDTH A	STEEL PANELS ED-90929-01 UNFINISHED				VARIABLE DIMENSIONS								COVERS ED-61166-01 FOR 1-7 PANELS (SEE NOTE 5)						
													FRONT			REAR			
	7/32 X 1-7		7/32 X 1-11										5 3/8 DEEP			5 3/8 DEEP		7 DEEP	
	DET.	PART NO.	DET.	PART NO.	B	C	D	E	F	G	H	J	DET.	UNFINISHED	402A AL. FIN.	DET.	UNFINISHED	402A AL. FIN.	UNFINISHED	402A AL. FIN.
1 23/32	1	P-83250	101	P-83253	25/64	1 1/4							SEE NOTE 4					P-419136		
3 15/32	2	P-201791	102	P-234187	25/64	3							1A	P-205246	P-215337	1R	P-201785	P-215336	P-203493	P-215342
5 7/32	3	P-163441	103	P-163663		2 1/4							2A	P-203479	P-215338	2R	P-201786	P-215325	P-203492	P-403936
6 31/32	4	P-158769	104	P-419946		4							3A	P-205245	P-215343	3R	P-201787	P-203920	P-203494	P-215341
8 23/32	5	P-208967	105			1 3/4	2 1/4	1 3/4					4A	P-205247	P-205240	4R	P-201788	P-203535	P-206048	P-215339
10 15/32	6	P-208968	106			2 1/4	3	2 1/4					5A	P-353070	P-351326	5R	P-201789	P-203536	P-207332	P-207331
1-0 7/32	7	P-208969	107			1 3/4	5 3/4	1 3/4					6A	P-353074	P-353061	6R	P-201790	P-203946	P-205162	P-205178
1-1 31/32	8	P-229854	108			3 1/2	4	3 1/2					7A		P-353439	7R			P-203501	P-404049
1-3 23/32	9	P-353180	109			3 1/2	5 3/4	3 1/2					8A	P-353135	P-430908	8R			P-353212	P-353179
1-5 15/32	10		110		1 31/64	3 1/2	7 1/2	3 1/2					9A			9R				
1-7 7/32	11		111			5 1/4	5 3/4	5 1/4					10A			10R				
1-8 31/32	12		112			1 3/4	5 1/4	4	5 1/4	1 3/4			11A			11R				
1-10 23/32	13		113			5 1/4	1 3/4	5 3/4	1 3/4	5 1/4			12A			12R				
2-0 15/32	14		114			1 3/4	5 1/4	7 1/2	5 1/4	1 3/4			13A			13R				
2-2 7/32	15		115			1 3/4	7	5 3/4	7	1 3/4			14A			14R				
2-3 31/32	16		116			1 3/4	5 1/4	3 1/2	4	3 1/2	5 1/4	1 3/4	15A			15R				
2-5 23/32	17		117			1 3/4	5 1/4	3 1/2	5 3/4	3 1/2	5 1/4	1 3/4	16A			16R				
2-7 15/32	18		118			1 3/4	5 1/4	3 1/2	7 1/2	3 1/2	5 1/4	1 3/4	17A			17R			P-203498	

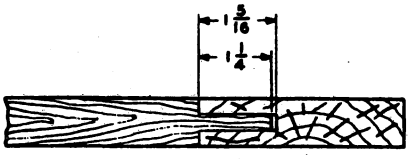
NOTES:-
1. DIMENSIONS OF THE COVER SUPPORTS ARE FOR DRAFTING INFORMATION ONLY ANC SHALL NOT BE SHOWN ON THE DRAWING, BUT LOCATIONS SHALL BE AS INDICATED.
2. ON ED DRAWINGS SPECIFY PANEL AS FOLLOWS:-"PANEL ED-—DET.—" SPECIFY COVERS AS FOLLOWS -"COVER ED-61166-01, DET.—5 3/8 OR 7 DEEP" AS REQUIRED. WHERE PIECE PART IS AVAILABLE SPECIFY IT IN PREFERENCE TO ED DRAWING CODE.
3. FOR COVERS 5 3/8 DEEP USE P353208 FOR 1/2 CABLE HOLE, P353206 FOR 3/4 CABLE HOLE, AND P168346 WHEN SIZE OF CABLE HOLE IS NOT SPECIFIED. FOR 7 DEEP COVERS USE P353344 FOR 1/2 CABLE HOLE, AND P211526 WHEN SIZE OF CABLE HOLE IS NOT SPECIFIED.
4. CAN COVER SUPPORTS FOR FRONT COVERS AND FRONT COVERS FOR 1 23/32 MTG. PANELS ARE SHOWN ON A149355. SUPPORTS FOR REAR COVERS ARE SHOWN ON E5-256349.
5. FOR PARTIAL COVERS SEE ED-61166-01.

STEEL PANELS AND COVERS

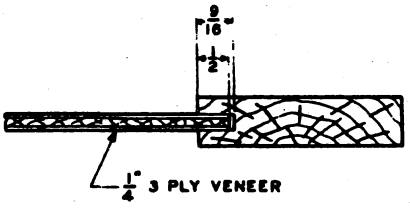




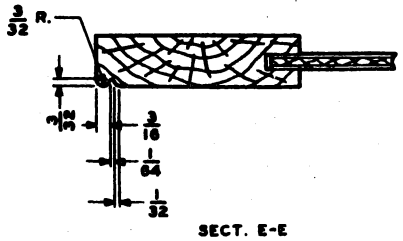
PANEL KNOCKED DOWN TO SHOW DETAIL CONSTRUCTION
FIG. B



SECT. C-C



SECT. D-D



SECT. E-E

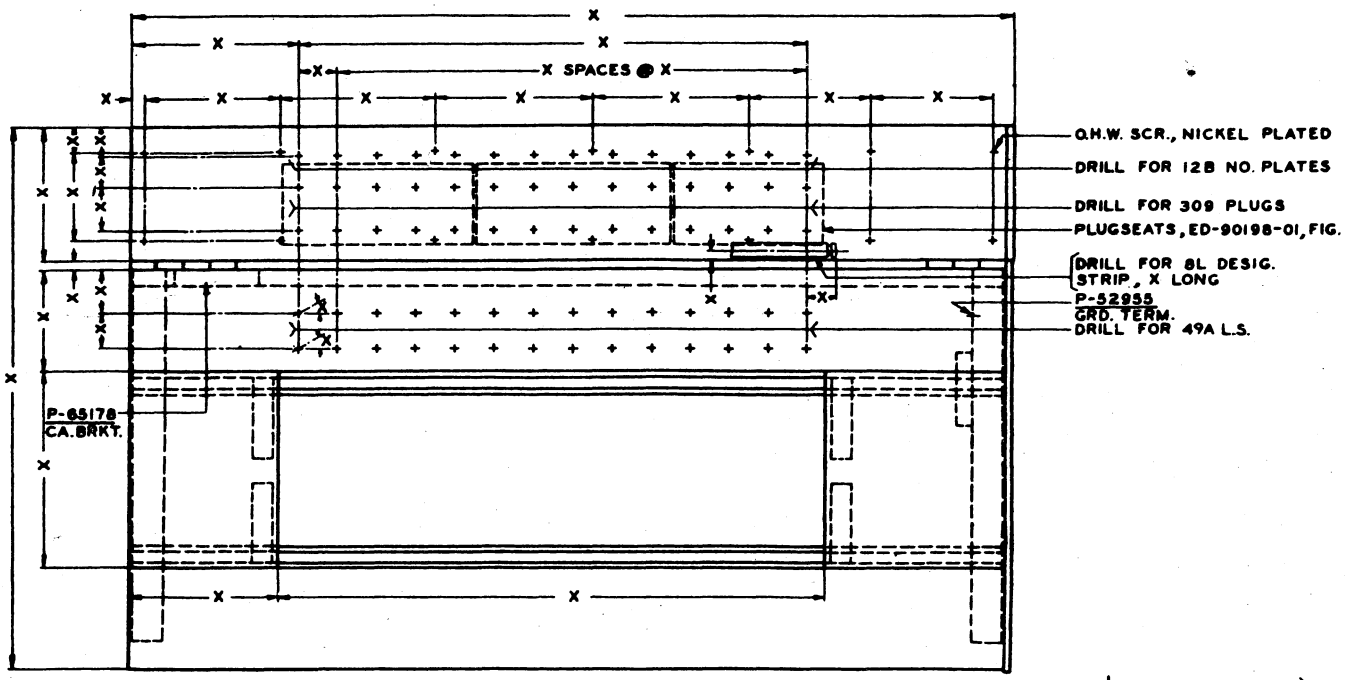
NOTES:

1. THE FOLLOWING DIMENSIONS SHALL BE CONSIDERED STANDARD FOR PANELS AND REMOVABLE DOORS:

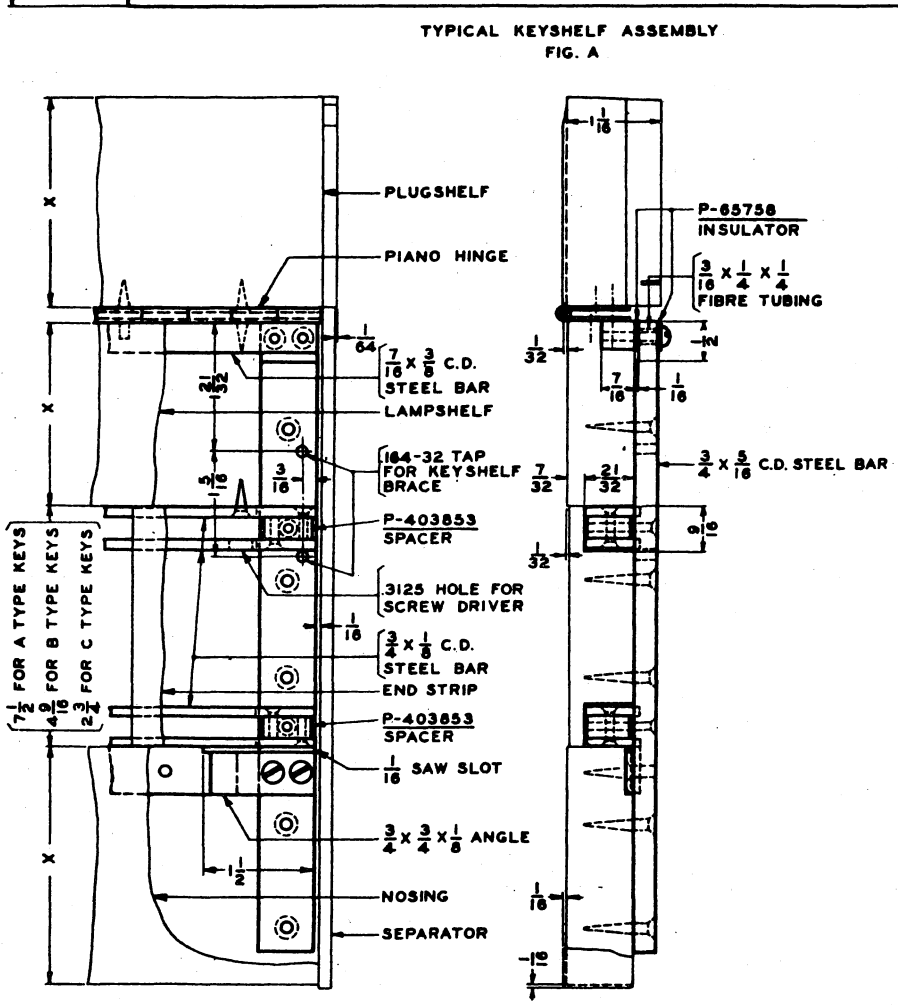
MAXIMUM WIDTH OF DOORS	2-6
MAXIMUM WIDTH OF PANELS (7/16 SOLID)	1-0
MINIMUM WIDTH OF PANELS	5 1/2
MAXIMUM WIDTH OF STILE & MULLION	4
PREFERABLY	3 1/2 OR 3
MINIMUM WIDTH OF STILE & MULLION	2 3/4
WIDTH OF TOP RAIL	4 1/2
WIDTH OF MIDDLE & BOTTOM RAILS	7

2. DOORS WIDER THAN 1-6 TO HAVE TWO HANDLES. DOORS 1-6 WIDE OR LESS TO HAVE ONE HANDLE. THE HANDLES SHALL BE OF THE DRAWER PULL TYPE UNLESS OTHERWISE SPECIFIED.
3. UNLESS OTHERWISE INSTRUCTED ALL CABLE TURNING SECTION ENDS ARE TO BE MADE IN ONE REMOVABLE PANEL WITHOUT HANDLES.
4. ⟷ INDICATES DIRECTION OF GRAIN.

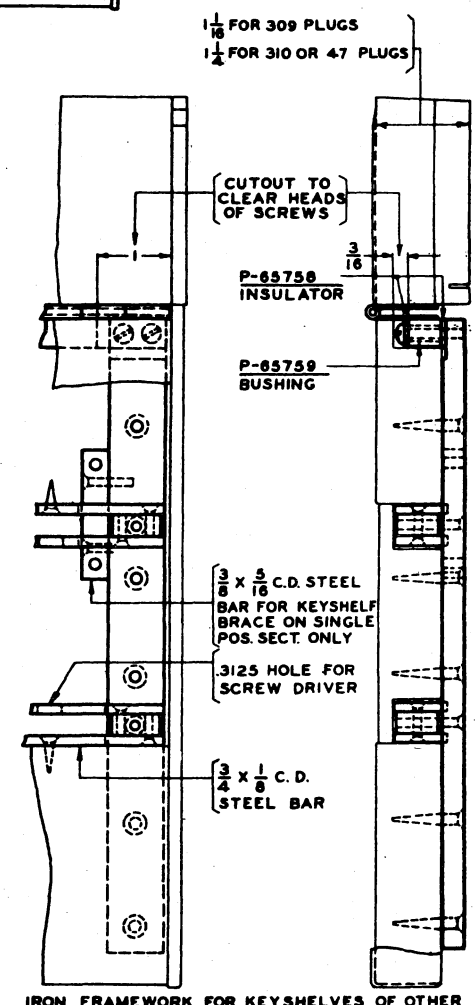
PANELS AND REMOVABLE DOORS - TYPICAL CONSTRUCTION



TYPICAL KEYSHELF ASSEMBLY
FIG. A



IRON FRAMEWORK FOR KEYSHELVES OF 8 1/2 PANEL UNIVERSAL SWITCHBOARDS
FIG. B



IRON FRAMEWORK FOR KEYSHELVES OF OTHER THAN 8 1/2 PANEL UNIVERSAL SWITCHBOARDS SAME AS FIG. B EXCEPT AS SHOWN
FIG. C

NOTES:
1. ON ED ASSEMBLY DRAWINGS SPECIFY NOTE AS FOLLOWS: DETAILS OF CONSTRUCTION NOT COVERED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH ED_____." FOR UNIVERSAL KEYSHELF ED-90492-01, FOR 1 1/4 SHELF ED-90203-01 & FOR 7/8 SHELF ED-90366-01.
2. FIG. A IS TYPICAL AND WILL VARY IN ACCORDANCE WITH KEYSHELF CONSTRUCTION DRAWING. DETAILS THAT ARE NOT COVERED BY THE REFERENCE DRAWING SHALL BE COVERED ON THE ASSEMBLY DRAWING.

KEYSHELVES - IRON FRAMEWORK CONSTRUCTION AND TYPICAL ASSEMBLY

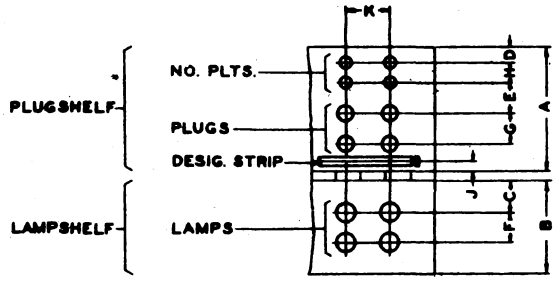


FIG. A

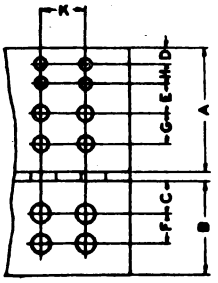


FIG. B

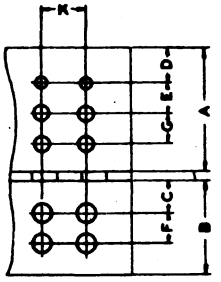


FIG. C

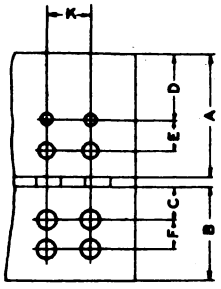


FIG. D

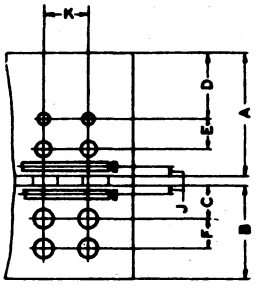


FIG. E

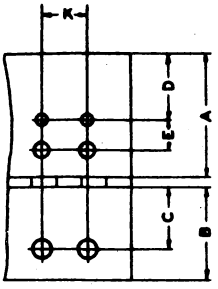


FIG. F

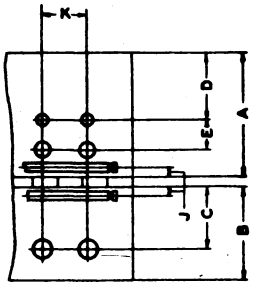


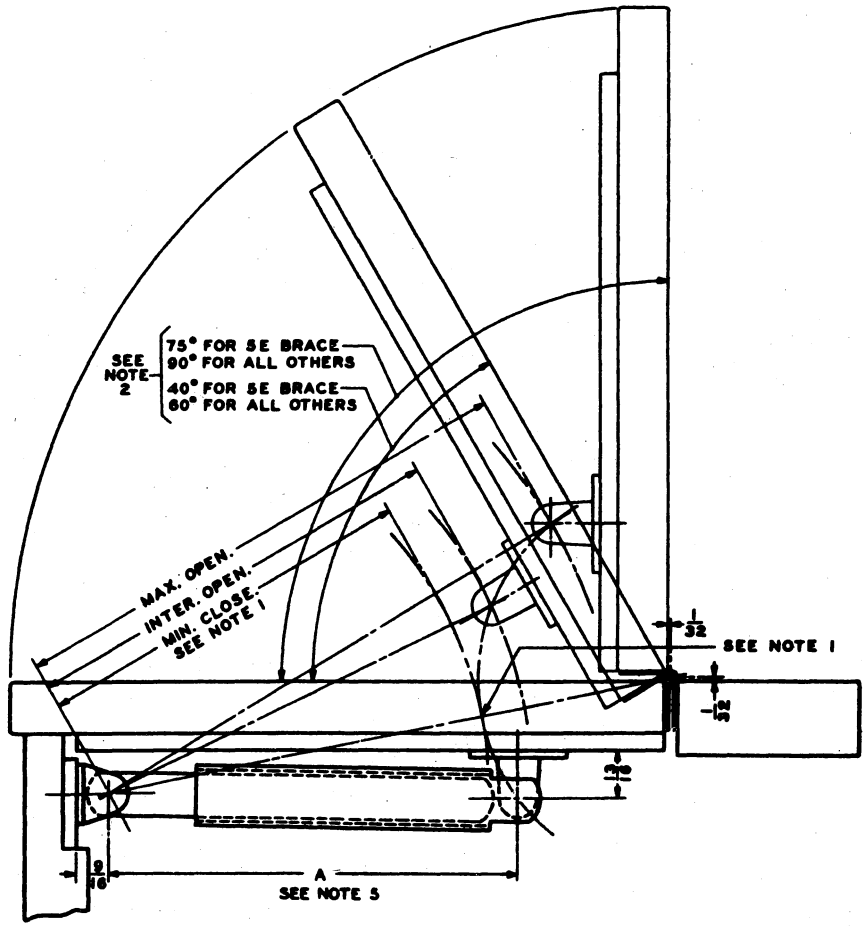
FIG. G

SWBD.	TYPE POS.	FIG.	A	B	C	D	E	F	G	H	J	K See Note 2	EQUIPMENT PLUGSHELF	EQUIPMENT LAMPSHELF
NO. 1 SUBS.	SUBS.	C	3 5/32	2 3/8	13/16	11/16	3/4	5/8	1	-	-	9/16+	1 Row No. Plates 2 Rows Plugs	2 Rows Lamps
	TRUNK	F	3 5/32	2 3/8	1 5/8	1 7/32	1	-	-	-	-	AS SPEC	1 Row No. Plates 1 Row Plugs	1 Row Lamps
	TRUNK	D	3 5/32	2 3/8	31/32	1 7/32	1	13/16	-	-	-	9/16	1 Row No. Plates 1 Row Plugs	2 Rows Lamps
	TRUNK	E	3 5/32	2 3/8	1 1/8	1 7/32	1	5/8	-	-	1/4	9/16+	1 Row No. Plates 1 Row Plugs 1 Desig. Strip	1 Desig. Strip 2 Rows Lamps
	TRUNK	B	3 5/32	2 3/8	1 1/8	5/16	11/16	5/8	1	7/16	-	9/16+	2 Rows No. Plates 2 Rows Plugs	2 Rows Lamps
NO. 1 TRK.	TRUNK	F	3 3/8	2 5/32	1 13/32	1 7/16	1	-	-	-	-	AS SPEC	1 Row No. Plates 1 Bow Plugs	1 Row Lamps
	TRUNK	D	3 3/8	2 5/32	29/32	1 7/16	1	5/8	-	-	-	9/16+	1 Row No. Plates 1 Row Plugs	2 Rows Lamps
	TRUNK	D	3 5/32	2 3/8	31/32	1 7/32	1	13/16	-	-	-	9/16	1 Row No. Plates 1 Row Plugs	2 Rows Lamps
	TRUNK	B	3 3/8	2 5/32	29/32	5/16	11/16	5/8	1	7/16	-	9/16+	2 Rows No. Plates 2 Rows Plugs	2 Rows Lamps
NO. 3 TOLL		G	2 3/8	1 27/32	1 11/32	1 7/16	1	-	-	-	1/4	AS SPEC	1 Row No. Plates 1 Row Plugs 1 Desig. Strip	1 Desig. Strip 1 Row Lamps
		C	3 5/32	2 1/16	15/16	11/16	3/4	5/8	1	-	-	9/16+	1 Row No. Plates 2 Rows Plugs	2 Rows Lamps
		F	3 5/32	2 1/16	1 9/16	1 7/16	1	-	-	-	-	AS SPEC	1 Row No. Plates 1 Row Plugs	1 Row Lamps
NO. 11	SUBS.	C	3 5/32	2 3/8	15/16	17/32	11/16	13/16	1	-	-	AS SPEC	1 Row No. Plates 2 Rows Plugs	2 Rows Lamps
	TOLL	C	3 5/32	2 3/8	15/16	17/32	11/16	12/16	1	-	-	AS SPEC	1 Row No. Plates 2 Rows Plugs	2 Rows Lamps
	TRUNK	E	3 5/32	2 3/8	15/16	1 3/32	1	12/16	-	-	1/4	AS SPEC	1 Row No. Plates 1 Row Plugs 1 Desig. Strip	1 Desig. Strip 2 Rows Lamps
	TROUBLE	A	3 5/32	2 3/8	15/16	9/32	1/2	5/8	1	7/16	1/4	9/16	2 Rows No. Plates 2 Rows Plugs 1 Desig. Strip	2 Rows Lamps
	MACH. RING. TRUNK	F	3 5/32	-	15/16	1 3/32	1	±3/6	-	-	-	AS SPEC	1 Row No. Plates 1 Row Plugs	1 Row Lamps
NO. 12	ALL POS.	C	3 5/32	2 3/8	15/16	17/32	11/16	13/16	1	-	-	AS SPEC	1 Row No. Plates 2 Rows Plugs	2 Rows Lamps

NOTES:

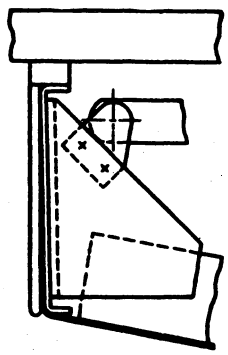
1. The locations given may be used as a guide for plug or lamp shelves but are not to be considered as fixed locations for this type of equipment.
2. Dimension "K" is not the actual dimension for the switchboards indicated but only shows the clearance requirements when using similar equipment arrangements.

KEYSHELVES
EQUIPMENT LOCATIONS ON PLUGSHELVES & LAMPSHELVES



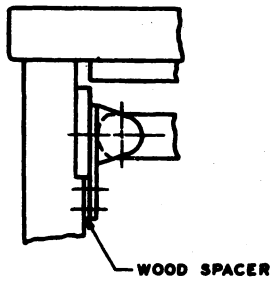
KEYSHELF BRACE MOUNTED ON METAL BAR OF LOCKRAIL

FIG. A



MOUNTED ON END FRAME OF SWBD. OTHERWISE SAME AS FIG. A

FIG. B



MOUNTED ON WOOD PORTION OF LOCKRAIL OTHERWISE SAME AS FIG. A

FIG. C

DIMENSIONS OF KEYSHELF BRACES					
CODE OF BRACES		FIGURE SEE NOTE 3	MAXIMUM OPENING	INTERMEDIATE OPENING	MINIMUM CLOSING SEE NOTE 1
LEFT	RIGHT				
5A	6A	A	$9\frac{1}{32}$	$7\frac{3}{16}$	$5\frac{11}{16}$
7A	8A	C			
5B	6B	A	$10\frac{19}{32}$	$8\frac{1}{2}$	$6\frac{13}{32}$
7B	8B	C			
5C	6C	A	$1-1\frac{3}{16}$	$10\frac{19}{32}$	$8\frac{1}{4}$
7C	8C	C			
5D	6D	A	$1-2\frac{19}{32}$	$1-0\frac{29}{32}$	$8\frac{7}{8}$
5E			$1-0\frac{1}{16}$	$10\frac{1}{32}$	$7\frac{7}{32}$
5G	6G		$7\frac{3}{32}$	$5\frac{19}{32}$	$4\frac{11}{16}$
11G		B			

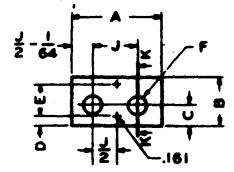
DRAFTING INFORMATION:

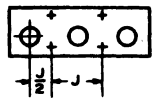
1. THE ARC OR PATH OF THE RIVET CENTER ON THE SHELF BRACKET MUST NOT INTERSECT THE ARC OF THE MINIMUM CLOSING DIMENSION, OR THE KEYSHELF BRACE WILL BIND.
2. THE OPEN POSITIONS OF THE KEYSHELF AS SHOWN IN FIGURE A ARE PREFERABLE, BUT MAY VARY DUE TO MECHANICAL CLEARANCES OF DIFFERENT KEYSHELVES. HOWEVER, THE INTERMEDIATE OPEN POSITION OF THE SHELF MUST BE SUCH AS TO PERMIT THE INSERTION OF A HAND TO RELEASE THE KEYSHELF BRACE PAWL.
3. FIGURES A, B AND C ARE TYPICAL FOR SWITCHBOARDS, BUT THE SAME LIMITATIONS WILL APPLY WHEREVER THE KEYSHELF BRACES MAY BE USED.
4. FOR LOCATION OF KEYSHELF BRACES ON STANDARD SWITCHBOARDS, SEE ED-90062-01.
5. DIMENSION A MUST BE LESS THAN "INTERMEDIATE OPEN" DIMENSION TO PREVENT KEYSHELF BRACE FROM LOCKING WHEN IN CLOSED POSITION.

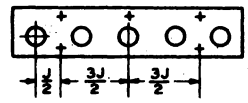
KEYSHELF BRACES - REQUIREMENTS

FIG. A

FOR 2 PLUGS IN ROW			FOR 3 PLUGS IN ROW			FOR 4 PLUGS IN ROW			FOR 5 PLUGS IN ROW			FOR 6 PLUGS IN ROW		
PART NO.	J	PLUG	PART NO.	J	PLUG	PART NO.	J	PLUG	PART NO.	J	PLUG	PART NO.	J	PLUG
P-400365	27/32	309	P-400368	27/32	309	*P-411217	31/32	310	P-411977	9/16	309	P-411978	9/16	309
P-404093	1	309	P-412389	1	309				P-400371	27/32	309	P-400374	27/32	309
P-400363	27/32	310	P-400366	27/32	310				P-400369	27/32	310	P-400372	27/32	310
									*P-411216	31/32	310			







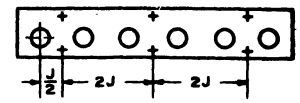
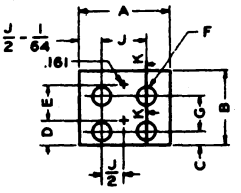
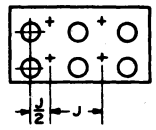
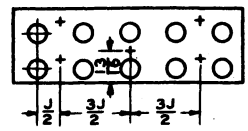


FIG. B

PART NO.	J	PLUG	PART NO.	J	PLUG	PART NO.	J	PLUG	PART NO.	J	PLUG	PART NO.	J	PLUG
⊕P-67322	27/32	309	P-400386	27/32	309	P-404094	1 1/32	309	P-404091	27/32	309	P-400763	27/32	309
P-400380	1 1/32	309	P-400387	31/32	309	P-404383	15/16	310	⊕P-67321	27/32	309	P-400764	31/32	309
P-400376	27/32	310	P-400388	1 1/32	309	P-411369	1	310	P-407039	1	309	P-404092	1	309
P-400377	31/32	310	P-400382	27/32	310				P-400394	1 1/32	309	P-400765	1 1/32	309
			P-400383	31/32	310				P-400390	27/32	310	P-449273	1 3/32	309
			P-411368	1	310				P-409384	15/16	310	P-400767	27/32	310
			P-400384	1 1/32	310				P-400391	31/32	310	P-400768	31/32	310
									P-400392	1 1/32	310	P-400769	1 1/32	310







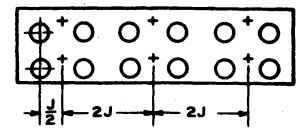
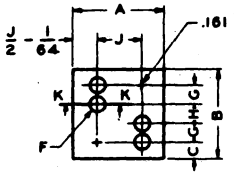
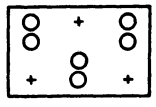
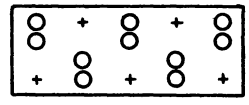


FIG. C

						PART NO.	J	PLUG				PART NO.	J	PLUG
						P-404089	1 1/32	211				P-404087	1 1/32	211







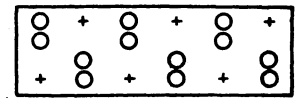
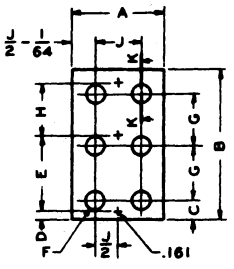
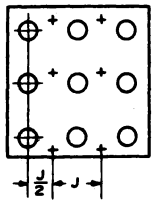
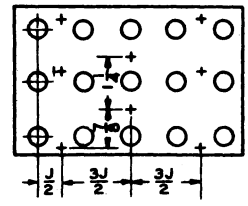
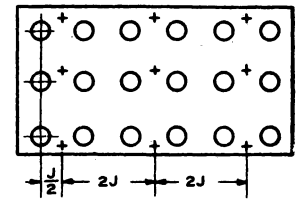


FIG. D



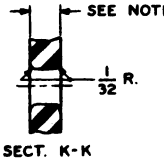






⊕ DIMENSIONS SHOWN DO NOT APPLY TO THESE PLUGSEATS

FIG.	A	B	C	D	E	F	G	H	J SEE NOTE 1	PLUG USED	ED-90198-01 FIG. NO.
A	A = NO. OF PLUGS IN ROW SEE NOTE 5 X J - 32	1	3/8	9/64	23/32	.359 .349			MORE THAN 9/16	310	1
		1	3/8		23/32	.316 .306			AS SPEC.	309	1
		1 1/8	1/2		27/32	.359 .349			9/16	310 SEE NOTE 2	11
		1 1/8	1/2		27/32	.316 .306			9/16	309 SEE NOTE 2	11
		1 5/8	13/16	5/16	1	.359 .349			AS SPEC.	47, 241, 247	10
B		1 3/16	3/8	9/64	29/32		7/16		3/4 MIN.	211 TWIN PLUG	7
		1 5/16	5/16	1/8	1 1/16		11/16		3/4 MIN.	213 TWIN PLUG	8
		1 5/8		9/16	3/4		3/4		9/16 OR MORE	310 SEE NOTE 3	5
		1 5/8			3/4	.316 .306	3/4		AS SPEC.	309	5
		1 7/8			1	.359 .349	1		9/16 OR MORE	310 SEE NOTE 3	2
		1 7/8			1	.316 .306	1		AS SPEC.	309	2
		1 5/8	7/16	9/64	1 11/32	.359 .349	3/4			47, 310	2
C		2 3/16	3/8				7/16	9/16		211 TWIN PLUG	4
D		3 11/16	9/16	5/16	1 3/4		1 1/4	1 1/4		47	4



SECT. K-K

NOTES:

1. DIMENSION "J" SHALL BE DETERMINED BY THE KEYSHELF REQUIREMENTS AND NOTES 2 & 3.
2. USED ONLY WHEN PLUGSHELF HOLES ARE LINED WITH RUBBER BUSHINGS.
3. USED ALSO FOR A SINGLE ROW OF PLUGS WHEN HOLES ARE NOT LINED WITH RUBBER BUSHINGS.
4. PLUGSEATS ARE 3/16 THICK RED FIBRE EXCEPT WHEN PLUGS ARE ON 9/16 CENTERS IN WHICH CASE FIBRE IS 1/4 THICK.
   *PLUGSEATS P-411216 & P-411217 ARE 1/8 THICK WITH ONE EDGE BEVELED.
5. LENGTHS OF PLUGSEAT SHALL NOT EXCEED THAT REQUIRED BY 6 PLUGS IN A SINGLE ROW. PLUGSEATS SHALL SHALL PREFERABLY BE LENGTH OF 5 OR 6.
6. PIECE PARTS LISTED SHALL BE USED WHEREVER POSSIBLE. IF NO PIECE PART IS AVAILABLE SPECIFY PLUGSEATS AS FOLLOWS: "PLUGSEAT ED-90198-01, FIG. —".
7. PLUGSEATS SHALL BE FASTENED WITH 6 X 3/4 R.H.W. SCREWS, 289 FINISH, AS SPECIFIED.

PLUGSEATS

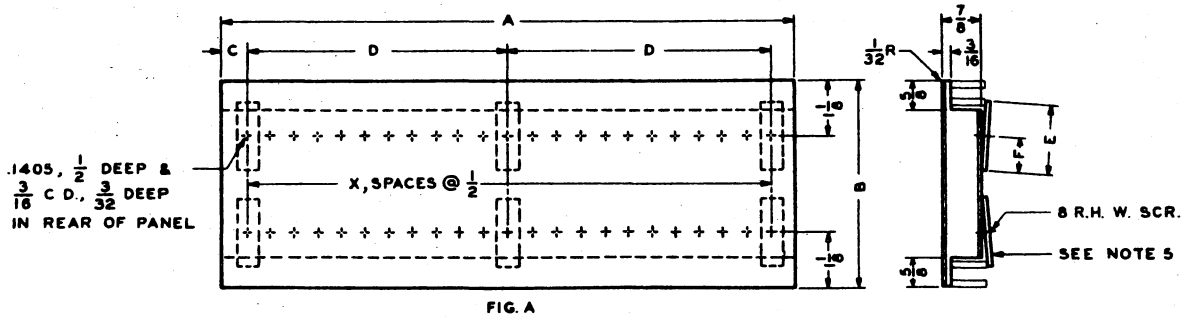


FIG. A

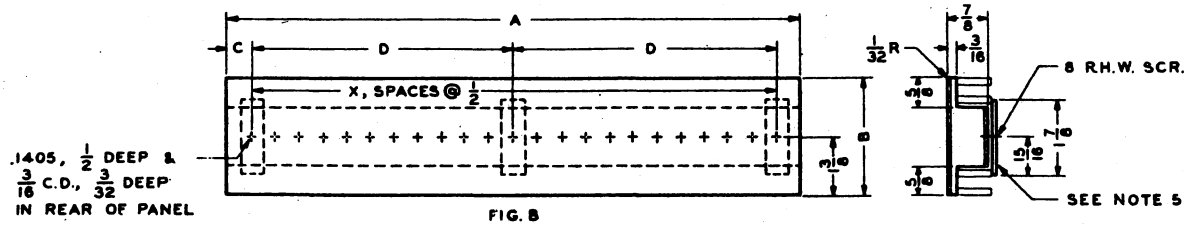


FIG. B

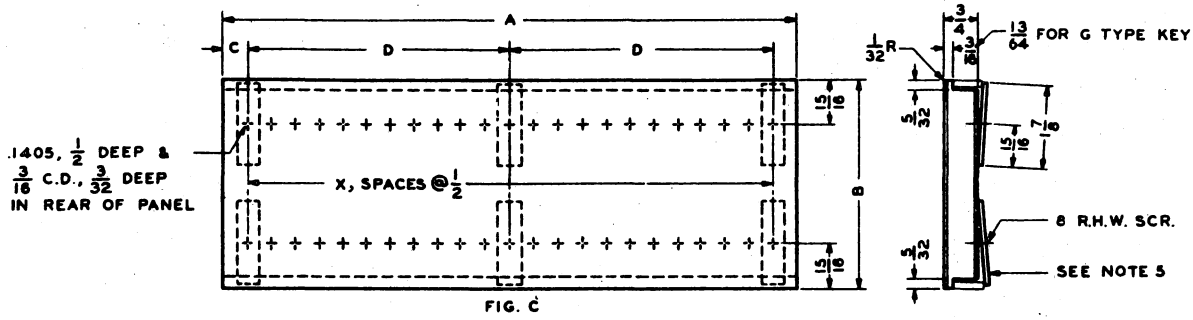


FIG. C

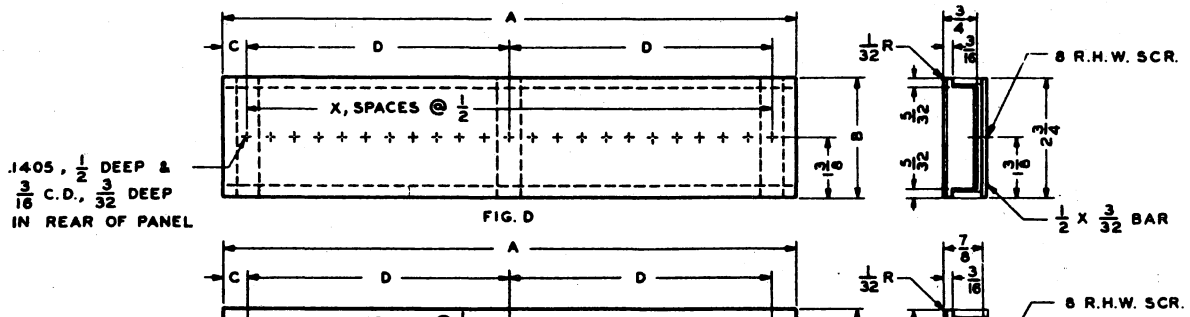


FIG. D

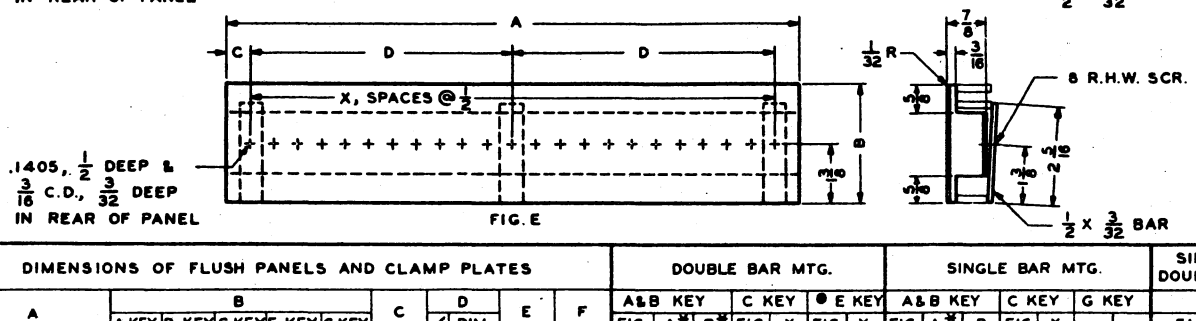
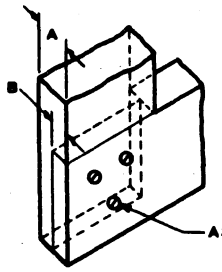


FIG. E

DIMENSIONS OF FLUSH PANELS AND CLAMP PLATES											DOUBLE BAR MTG.								SINGLE BAR MTG.								SINGLE AND DOUBLE BAR MTG.	
A	B					C	D		E	F	A & B KEY			C KEY		● E KEY			A & B KEY			C KEY		G KEY			C KEY	
	A KEY	B KEY	C KEY	E KEY	G KEY		✓	DIM.			FIG.	A*	B*	FIG.	*	FIG.	*		FIG.	A*	B	FIG.	*				FIG.	*
3/8 TO 31/64	7 1/2	4 9/16	2 3/4	11 1/16	5 1/2	A/2	–	—	1 1/2	3/4	A	28	29	B	17	A	30	C	39	40	D	27●	C	42	E	—	—
1/2 TO 1						1/4 MIN.	–	—	1 1/2	3/4		19	20		18		21		35	31		26		43		—	—
1 1/64 TO 3						1/2 MIN.	–	—	1 7/8	15/16		9	5		1		13		35	31		22		43			
3 1/64 TO 1-0							1	A-2C				10	6		2		14		36	32		23		44			
1-0 1/64 TO 2-0							2	A-2C/2				11	7		3		15		37	33		24		45			41
2-0 1/64 TO 2-6							4	A-2C/4				12	8		4		16		38	34		25		46			

NOTES:
1. * GROUP NUMBER ON ED-90002-01. ON ED DRAWINGS SPECIFY PANELS AS FOLLOWS: FLUSH PANEL ED-90002-01, G___
2. ✓ NUMBER OF "D" DIMENSIONS PER PANEL.
3. ⊕ WHEN MOUNTING E TYPE KEYS TO RIGHT OF FLUSH PANEL SEE PAGE 8.
4. THE CLAMP PLATES SHOULD BE LOCATED ON THE DRILLING NEAREST TO THE DIMENSION LISTED IN THE TABLE.
5. CLAMP PLATES FOR PANELS 3/8 TO 31/64 INCLUSIVE ARE 5/16 X 1/4 BARS. ALL OTHERS ARE 1/2 X 3/32 BARS.
6. ● DIMENSION "A" = 25/64 TO 31/64.

FLUSH PANELS

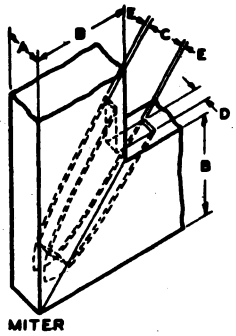


A = AS SPECIFIED
B = $\frac{A}{2}$

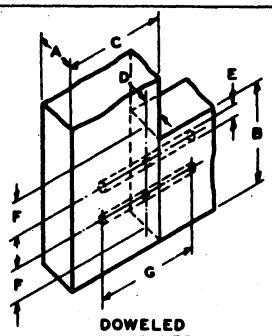
HALF LAP
J-1 GLUED & SCREWED
J-2 SCREWED

A = } AS SPECIFIED
B = }
C = $\frac{3B}{4}$
D = $\frac{A}{3}$
E = $\frac{1}{64}$

FEATHER CENTRALLY LOCATED



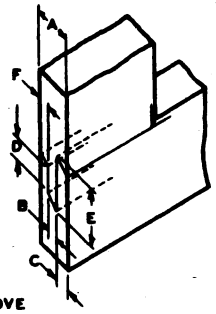
FEATHERED MITER
J-3 GLUED



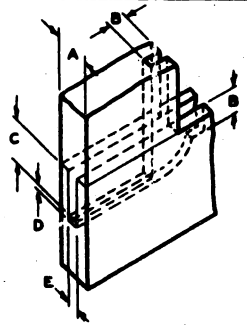
A = AS SPECIFIED
B = } A OR GREATER
C = }
D = $\frac{A}{2}$
E = $\frac{A}{3}$
F = $\frac{B}{4}$
G = C, $3\frac{1}{2}$ MAXIMUM

DOWELED
J-4 GLUED

A = $\frac{17}{32}$
B = $\frac{3}{16}$
C = $\frac{15}{64}$
D = $\frac{1}{4}$
E = $\frac{5}{8}$
F = $\frac{7}{64}$



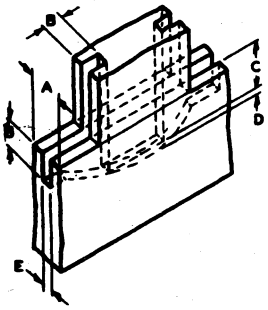
TONGUE & GROOVE
J-5 GLUED



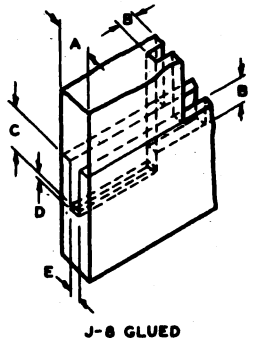
J-6 GLUED

A = $\frac{13}{16}$, $1\frac{1}{16}$, $1\frac{1}{8}$
B = $\frac{9}{16}$
C = $1\frac{1}{4}$
D = $\frac{1}{16}$
E = $\frac{1}{4}$ FOR RAISED PANELS
E = $\frac{1}{4}$ FOR FLAT PANELS WHEN A = $\frac{13}{16}$ & $\frac{3}{8}$ WHEN A = $1\frac{1}{16}$ OR $1\frac{1}{8}$
GROOVE CENTRALLY LOCATED

DEEP SQUARE TENON



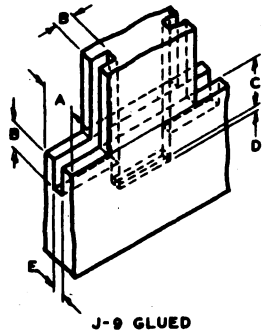
J-7 GLUED



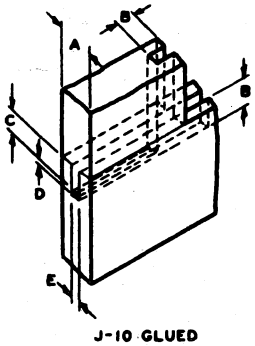
J-8 GLUED

A = $\frac{13}{16}$, $1\frac{1}{16}$, $1\frac{1}{8}$
B = $\frac{9}{16}$
C = $1\frac{1}{4}$
D = $\frac{1}{16}$
E = $\frac{1}{4}$ FOR RAISED PANELS
E = $\frac{1}{4}$ FOR FLAT PANELS WHEN A = $\frac{13}{16}$ & $\frac{3}{8}$ WHEN A = $1\frac{1}{16}$ OR $1\frac{1}{8}$
GROOVE CENTRALLY LOCATED

MORTISE & TENON



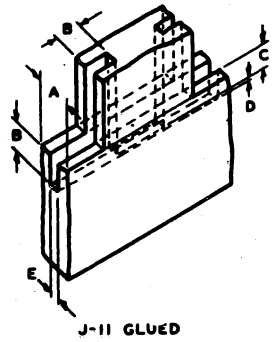
J-9 GLUED



J-10 GLUED

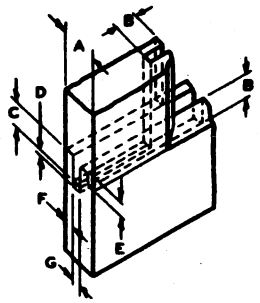
A = $\frac{13}{16}$, $1\frac{1}{16}$, $1\frac{1}{8}$
B = $\frac{9}{16}$
C = $\frac{1}{2}$
D = $\frac{1}{16}$
E = $\frac{1}{4}$ FOR RAISED PANELS
E = $\frac{1}{4}$ FOR FLAT PANELS WHEN A = $\frac{13}{16}$ & $\frac{3}{8}$ WHEN A = $1\frac{1}{16}$ OR $1\frac{1}{8}$
GROOVE CENTRALLY LOCATED

SQUARE TENON



J-11 GLUED

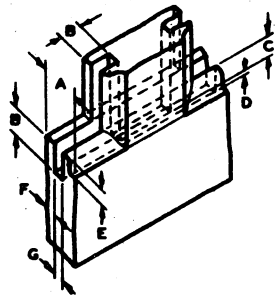
WOOD JOINTS – 1 TO 11



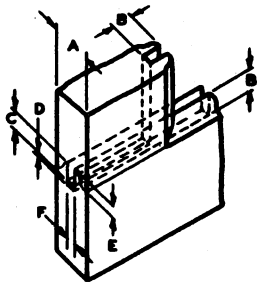
J-12 GLUED

A = $\frac{13}{16}$
B = $\frac{9}{16}$
C = $\frac{1}{2}$
D = $\frac{1}{16}$
E = $\frac{3}{8}$
F = $\frac{3}{16}$
G = $\frac{1}{4}$ FOR FLAT PANELS

SINGLE O-G TENON



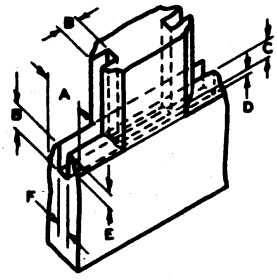
J-13 GLUED



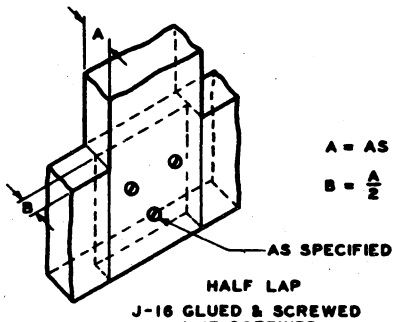
J-14 GLUED

A = $1\frac{1}{16}$
B = $\frac{9}{16}$
C = $\frac{1}{2}$
D = $\frac{1}{16}$
E = $\frac{3}{8}$
F = $\frac{5}{16}$ FOR FLAT PANELS
GROOVE CENTRALLY LOCATED

DOUBLE O-G TENON



J-15 GLUED

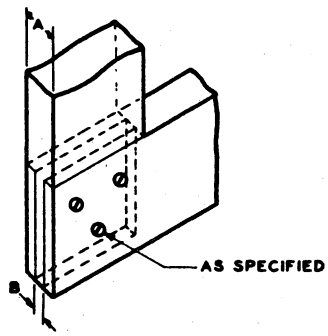


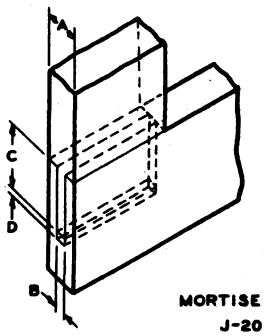
A = AS SPECIFIED
B = $\frac{A}{2}$

HALF LAP
J-16 GLUED & SCREWED
J-17 SCREWED

A = AS SPECIFIED
B = $\frac{A}{3}$
GROOVE CENTRALLY LOCATED

MORTISE & TENON
J-18 GLUED & SCREWED
J-19 SCREWED

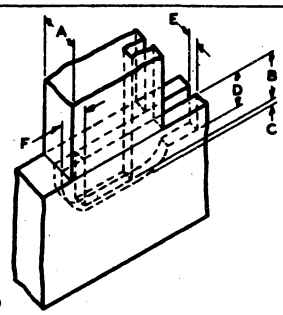




A = AS SPECIFIED
B = $\frac{A}{3}$
C = 1
D = $\frac{1}{16}$
GROOVE CENTRALLY LOCATED

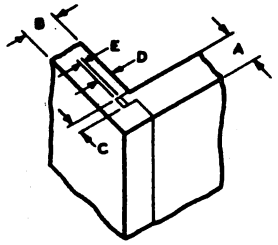
MORTISE & TENON
J-20 GLUED

A = $\frac{13}{16}$, $1\frac{1}{16}$, $1\frac{1}{8}$
B = $1\frac{1}{4}$
C = $\frac{1}{16}$
D = $\frac{9}{16}$
E = $\frac{1}{4}$ FOR FLAT PANELS
F = $\frac{3}{8}$
GROOVE CENTRALLY LOCATED



DEEP SQUARE TENON
J-21 GLUED

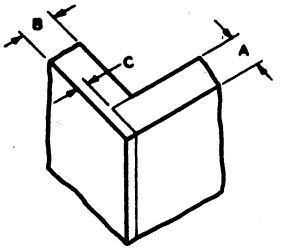
WOOD JOINTS - 12 TO 21



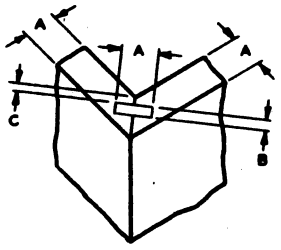
A = } AS SPECIFIED
B = }
C = $\frac{A}{3}$
D = $\frac{B}{3}$
E = $\frac{1}{32}$ TO $\frac{1}{16}$ ACCORDING TO A & B

TONGUE & GROOVE
J-40 GLUED

A = } AS SPECIFIED
B = }
C = $\frac{B}{4}$



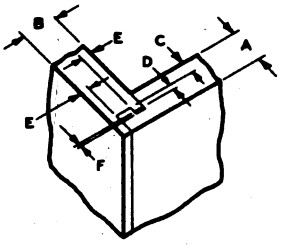
LAP & BUTT
J-41 GLUED



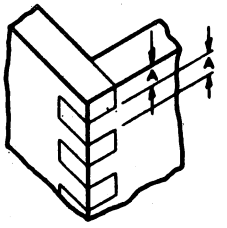
A = AS SPECIFIED
B = $\frac{A}{3}$
C = $\frac{1}{16}$
FEATHER CENTRALLY LOCATED

FEATHERED MITER
J-42 GLUED

A = } AS SPECIFIED
B = }
C = $\frac{2A}{5}$
D = $\frac{A}{5}$
E = $\frac{B}{5}$
F = $\frac{1}{32}$ TO $\frac{1}{16}$ ACCORDING TO A & B



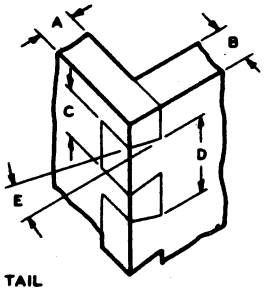
LAP BUTT TONGUE & GROOVE
J-43 GLUED



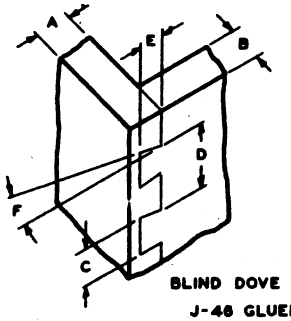
A = $\frac{5}{32}$

BOX LOCK
J-44 GLUED

A = } AS SPECIFIED
B = }
C = $\frac{3A}{2}$
D = $\frac{9A}{2}$
E = 10°



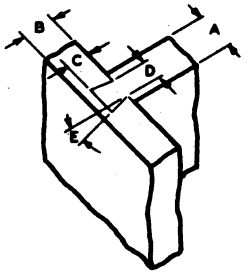
DOVE TAIL
J-45 GLUED



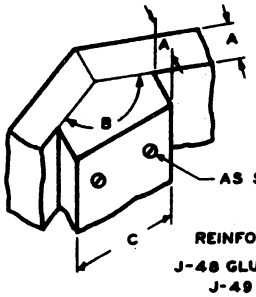
A = } AS SPECIFIED
B = }
C = $\frac{9}{16}$
D = 1
E = $\frac{3}{8}$ TO $\frac{1}{2}$ ACCORDING TO A
F = 10°

BLIND DOVE TAIL
J-46 GLUED

A = } AS SPECIFIED
B = }
C = $\frac{3}{8}$ TO $\frac{1}{2}$ ACCORDING TO B
D = $\frac{A}{2}$
E = 10°
TAIL CENTRALLY LOCATED



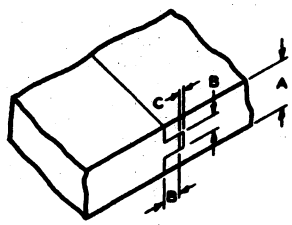
DOVE TAIL DADO
J-47 GLUED



A = AS SPECIFIED
B = MORE THAN 90°
C = 4A
CLEAT CENTRALLY LOCATED
AS SPECIFIED

REINFORCED MITER
J-48 GLUED & SCREWED
J-49 SCREWED

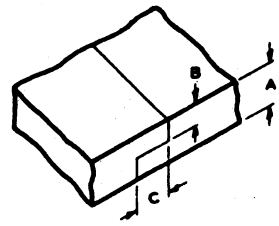
WOOD JOINTS - 40 TO 49



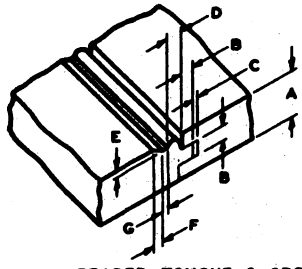
A = AS SPECIFIED
B = $\frac{A}{3}$
C = $\frac{1}{32}$ TO $\frac{1}{16}$ ACCORDING TO A
TONGUE CENTRALLY LOCATED

TONGUE & GROOVE
J-60 NOT GLUED
J-61 GLUED

A = AS SPECIFIED
B = $\frac{A}{2}$
C = $\frac{3}{8}$ TO $\frac{3}{4}$ ACCORDING TO A



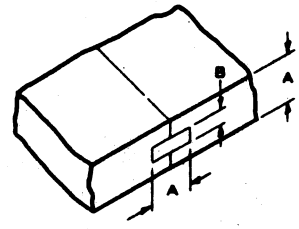
SHIP
J-62 GLUED



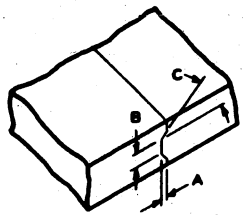
A = AS SPECIFIED
B = $\frac{A}{3}$
C = $\frac{1}{32}$ TO $\frac{1}{16}$ ACCORDING TO A
D = $\frac{3}{16}$
E = $\frac{3}{32}$
F = $\frac{1}{32}$
G = $\frac{1}{64}$
TONGUE CENTRALLY LOCATED

BEADED TONGUE & GROOVE
J-63 GLUED

A = AS SPECIFIED
B = $\frac{A}{3}$
FEATHER CENTRALLY LOCATED



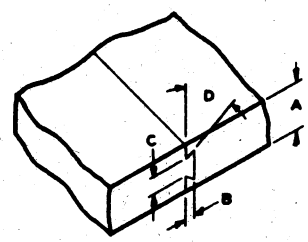
FEATHERED
J-64 GLUED



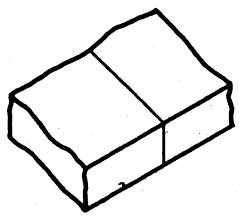
A = $\frac{1}{16}$
B = $\frac{1}{8}$
C = 30°
TONGUE CENTRALLY LOCATED

FALLS
J-65 GLUED

A = AS SPECIFIED
B = $\frac{3}{32}$
C = $\frac{5}{32}$ WHEN A = $\frac{3}{8}$ TO $\frac{5}{8}$
$\frac{9}{32}$ WHEN A = $\frac{5}{8}$ OR MORE
D = 60°
DOVE TAIL CENTRALLY LOCATED

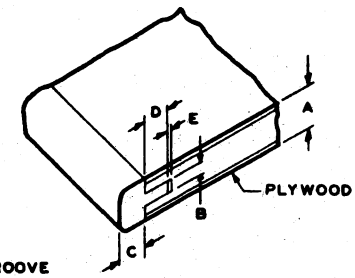


LINDERMAN
J-66 GLUED

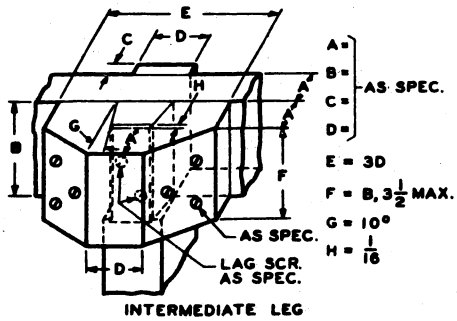


BUTT
J-67 GLUED

A = AS SPECIFIED
B = $\frac{A}{3}$
C = $\frac{1}{4}$ MIN
D = $\frac{9}{16}$
E = $\frac{1}{16}$

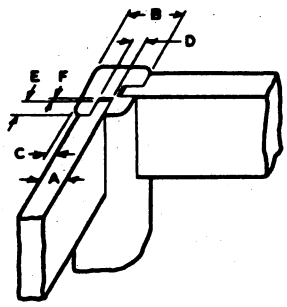


TONGUE & GROOVE
J-68 GLUED



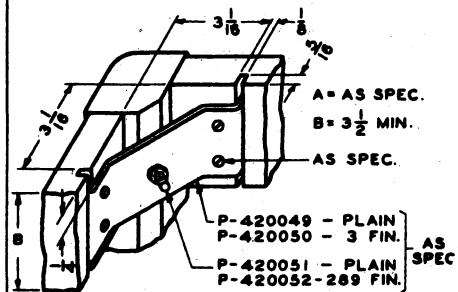
A = B = C = D = AS SPEC.
E = 3D
F = B, $3\frac{1}{2}$ MAX.
G = 10°
H = $\frac{1}{16}$

INTERMEDIATE LEG
J-100 GLUED & SCREWED
J-101 SCREWED



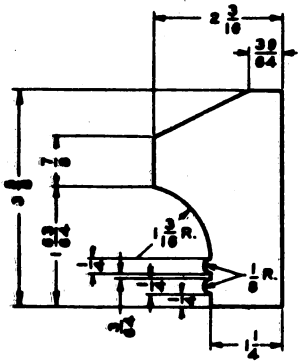
A = B = C = AS SPEC.
D = $\frac{A}{3}$
E = $\frac{1}{2}$
F = $\frac{1}{16}$

CORNER LEG
J-102 GLUED

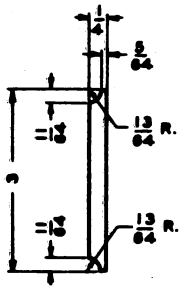


CORNER LEG
-103 SCREWED & BOLTED

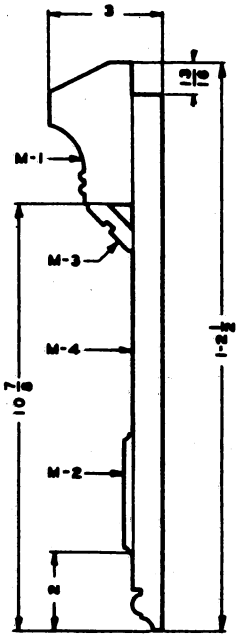
WOOD JOINTS - 61 TO 103



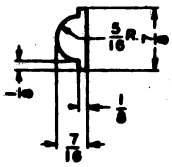
CROWN MOLDING
M-1



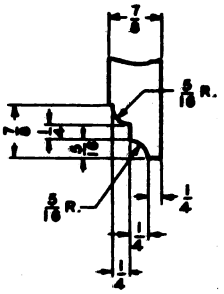
COVER STRIP MOLDING
M-2



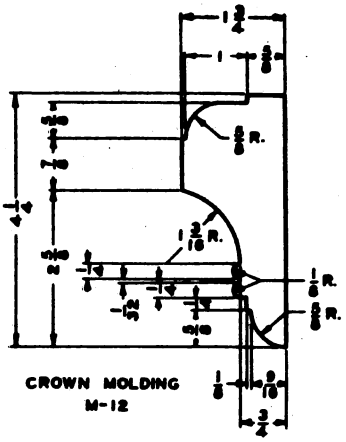
CORNICE MOLDING
M-5



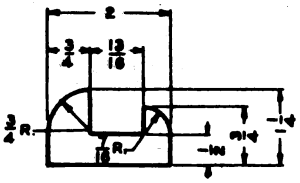
FACE MOLDING
M-8



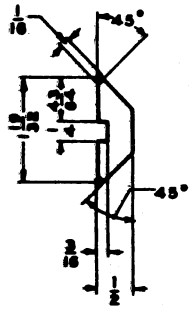
BASE MOLDING
M-9



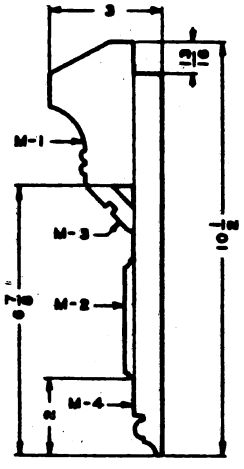
CROWN MOLDING
M-12



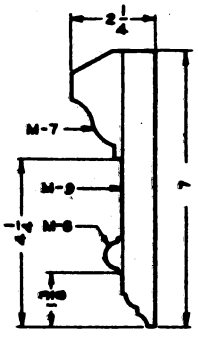
DOOR SHOE MOLDING
M-13



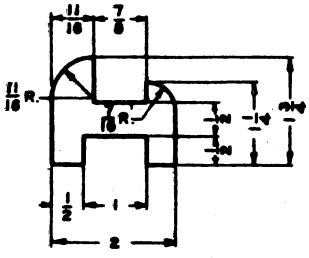
NOTCH MOLDING
M-3



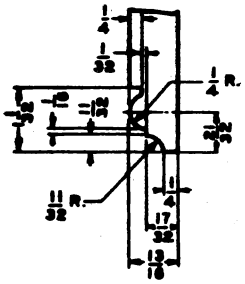
CORNICE MOLDING
M-6



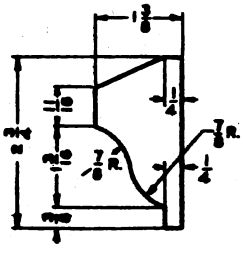
CORNICE MOLDING
M-10



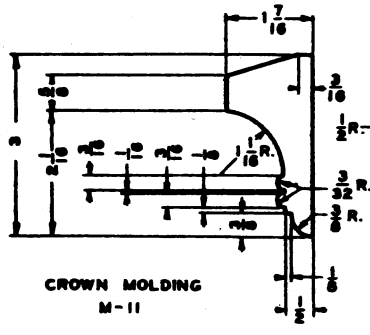
DOOR SHOE MOLDING
M-14



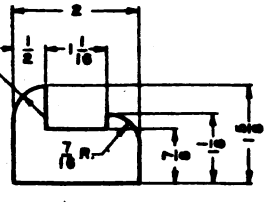
BASE MOLDING
M-4



CROWN MOLDING
M-7

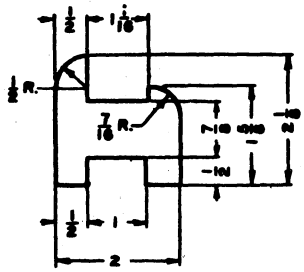


CROWN MOLDING
M-11

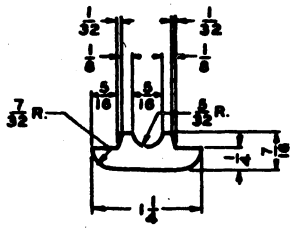


DOOR SHOE MOLDING
M-15

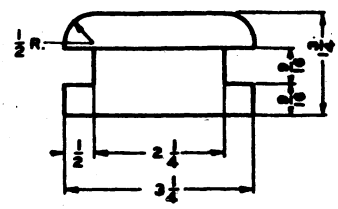
MOLDINGS-1 TO 15



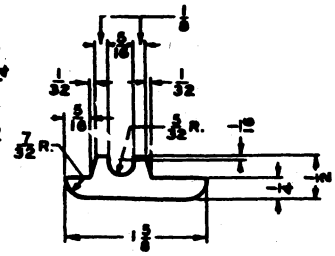
DOOR SHOE MOLDING
M-16



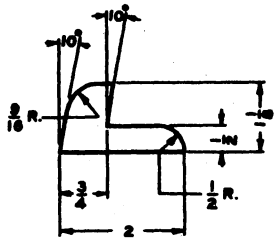
STILE CASING MOLDING
M-21



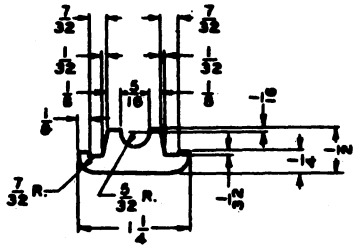
CURTAIN POST MOLDING
M-26



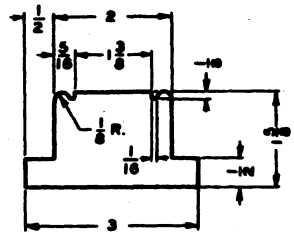
STILE CASING MOLDING
M-31



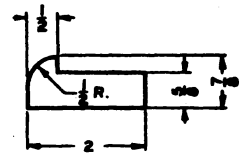
DOOR SHOE MOLDING
M-17



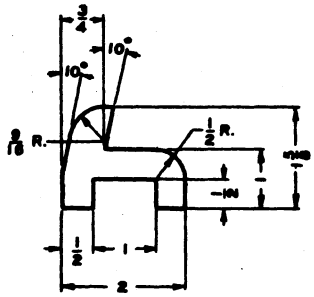
STILE CASING MOLDING
M-22



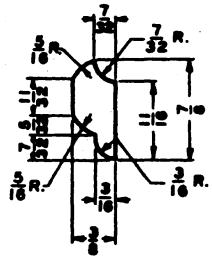
DOOR POST MOLDING
M-27



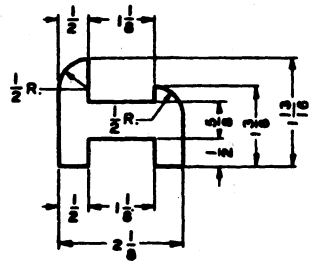
DOOR SHOE MOLDING
M-32



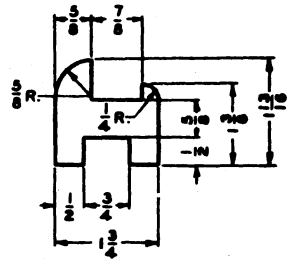
DOOR SHOE MOLDING
M-18



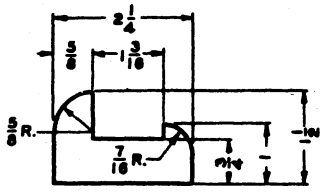
CURTAIN SLAT MOLDING
M-23



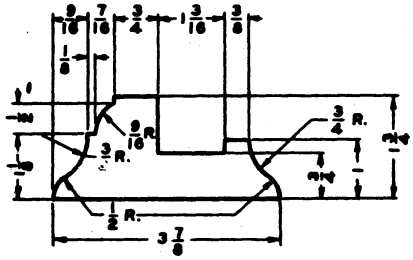
DOOR SHOE MOLDING
M-28



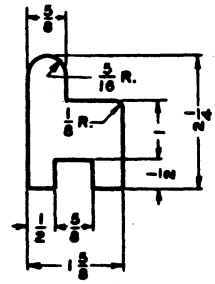
DOOR SHOE MOLDING
M-33



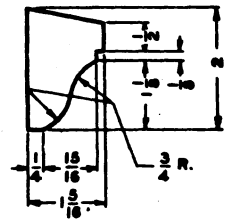
DOOR SHOE MOLDING
M-19



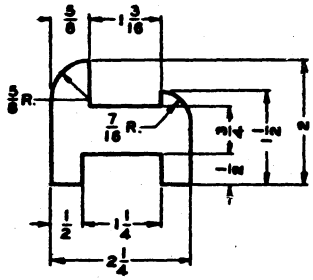
DOOR SHOE MOLDING
M-24



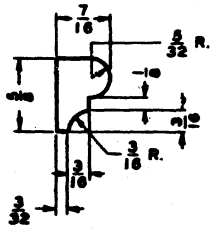
CURTAIN SHOE MOLDING
M-29



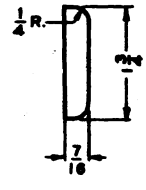
CROWN MOLDING
M-34



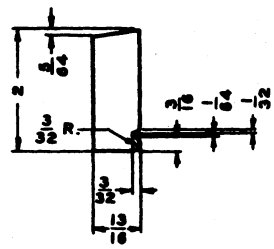
DOOR SHOE MOLDING
M-20



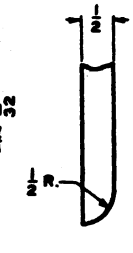
NOTCH MOLDING
M-25



DOOR STRIP MOLDING
M-30

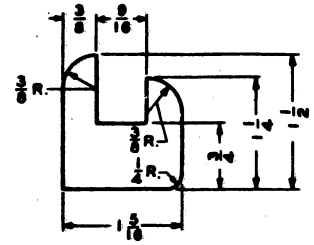


DOOR RAIL MOLDING
M-35

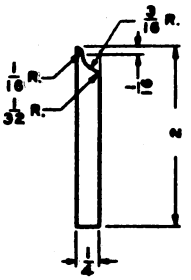


DOOR CLEAT
M-36

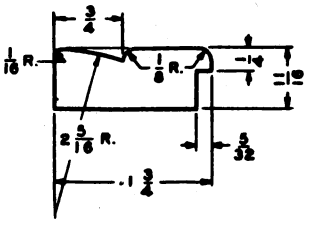
MOLDINGS-16 TO 36



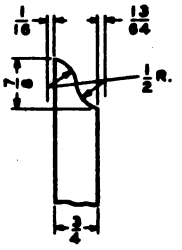
PROTECTION PANEL SHOE MOLDING
M-37



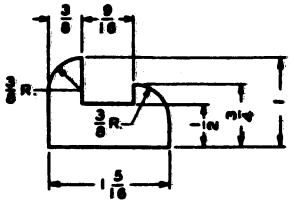
BASE MOLDING
M-42



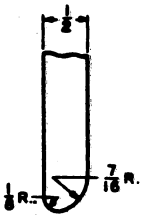
STILE CASING MOLDING
M-47



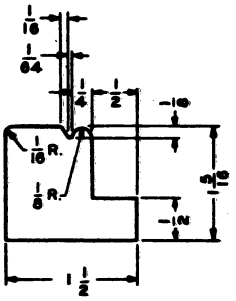
BASE MOLDING
M-53



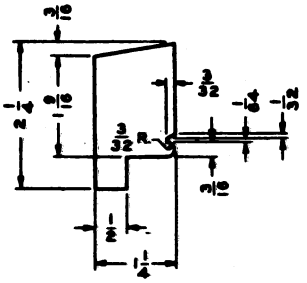
PROTECTION PANEL SHOE MOLDING
M-38



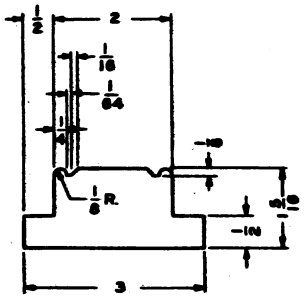
CABINET MOLDING
M-43



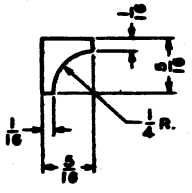
DOOR POST MOLDING
M-48



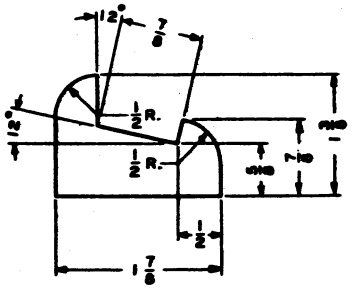
DOOR RAIL MOLDING
M-54



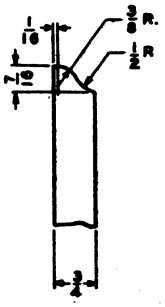
DOOR POST MOLDING
M-39



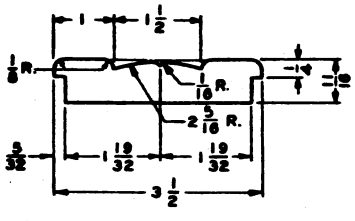
NOTCH MOLDING
M-44



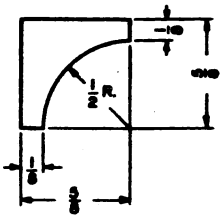
FRONT PANEL SHOE
M-49



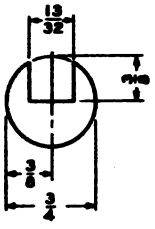
DESK MOLDING
M-55



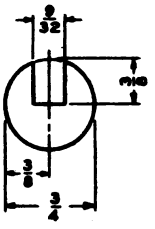
STILE CASING MOLDING
M-40



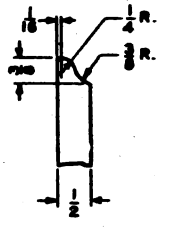
NOTCH MOLDING
M-45



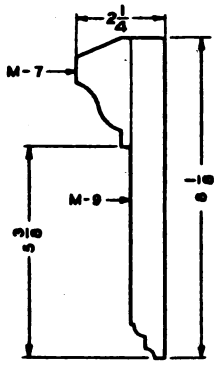
I.D.F.
INSULATING STRIP
M-50



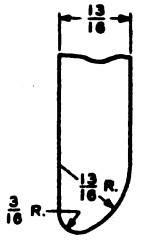
M.D.F.
INSULATING STRIP
M-51



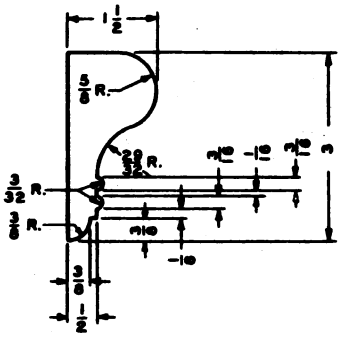
DESK MOLDING
M-56



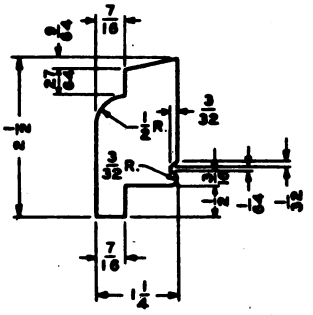
CORNICE MOLDING
M-41



DESK MOLDING
M-46

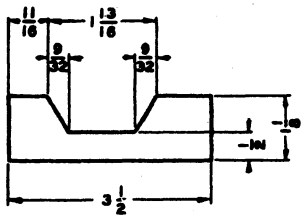


CROWN MOLDING
M-52

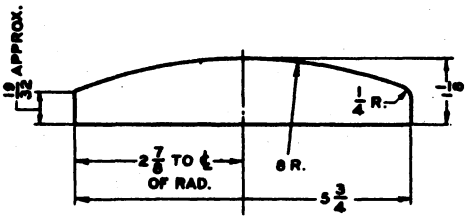


FRONT PANEL RAIL MOLDING
M-57

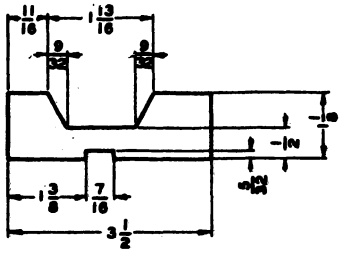
MOLDINGS-37 TO 57



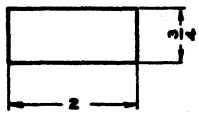
TERMINAL STRIP MOLDING
M-58



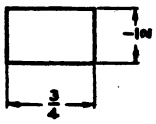
FRONT RAIL MOLDING
M-65



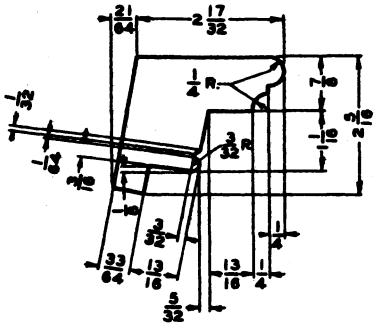
TERMINAL STRIP MOLDING
M-59



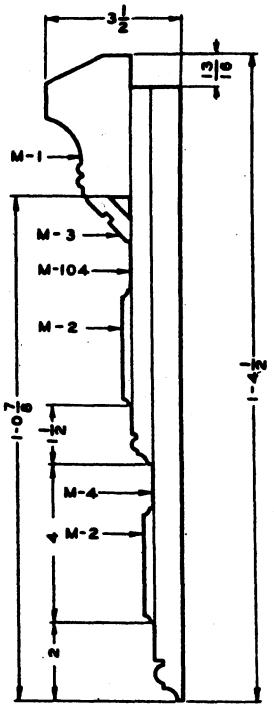
FANNING STRIP MOLDING
M-60



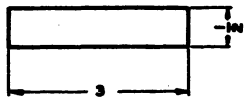
FANNING STRIP CLAMP MOLDING
M-61



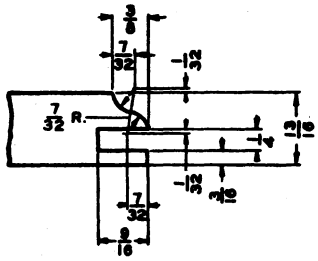
FRONT PANEL MOLDING
M-66



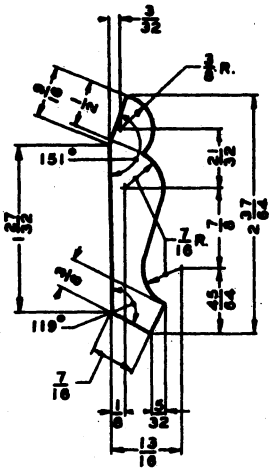
CORNICE MOLDING
M-101



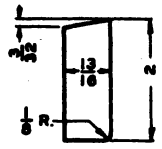
DUMMY BAR MOLDING
M-62



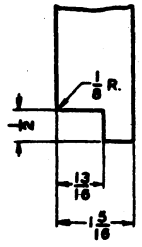
SINGLE O.G. MOLDING
M-63



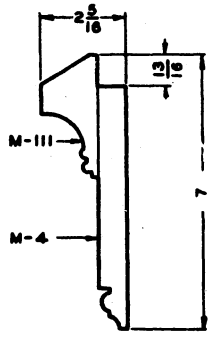
CROWN MOLDING
M-67



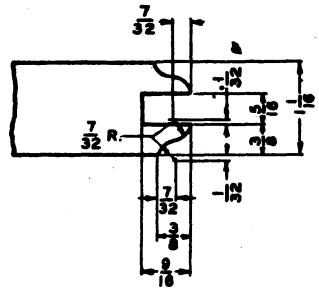
DOOR RAIL MOLDING
M-69



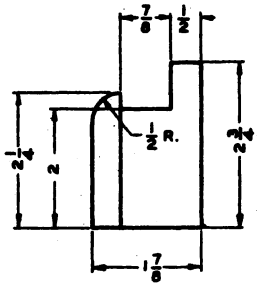
DOOR POST MOLDING
M-70



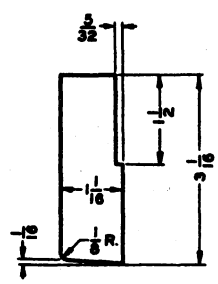
CORNICE MOLDING
M-102



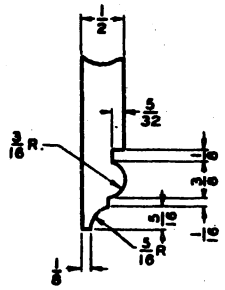
DOUBLE O.G. MOLDING
M-64



DOOR SHOE MOLDING
M-68

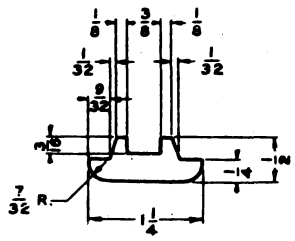


LOCK RAIL MOLDING
M-103

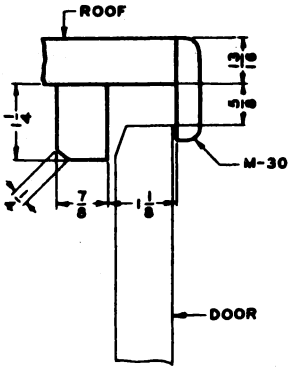


BASE MOLDING
M-104

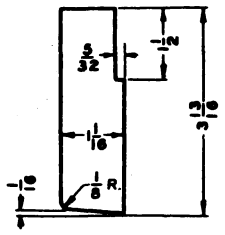
MOLDINGS-58 TO 104



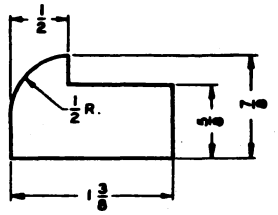
STILE CASING MOLDING
M-105



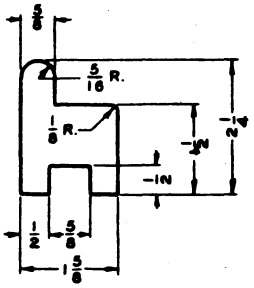
DOOR TOP MOLDING
M-110



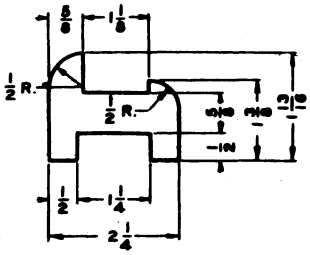
LOCK RAIL MOLDING
M-115



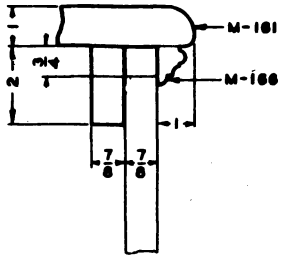
SHOE MOLDING
M-151

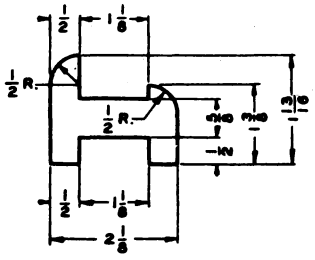


CURTAIN SHOE MOLDING
M-106

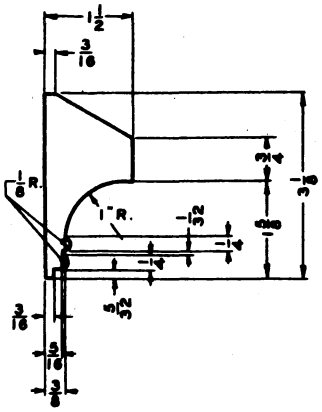


DOOR SHOE MOLDING
M-116

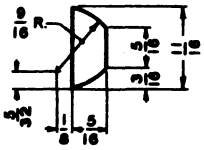




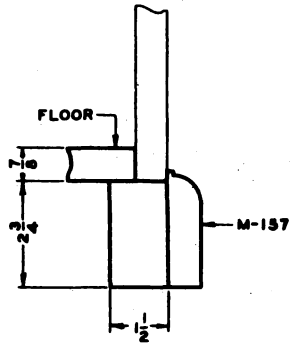
DOOR SHOE MOLDING
M-107



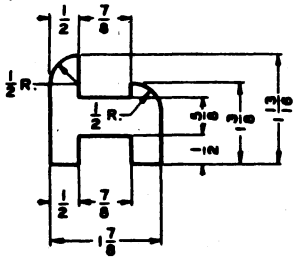
CROWN MOLDING
M-111



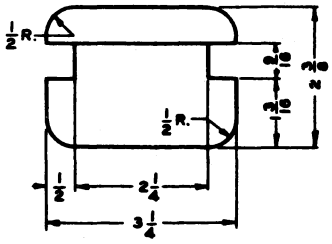
CURTAIN SLAT MOLDING
M-117



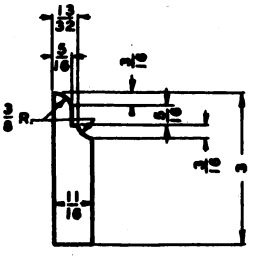
DESK MOLDING
M-152



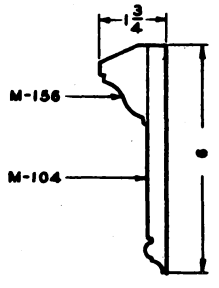
DOOR SHOE MOLDING
M-108



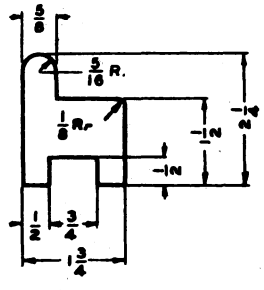
CURTAIN POST MOLDING
M-113



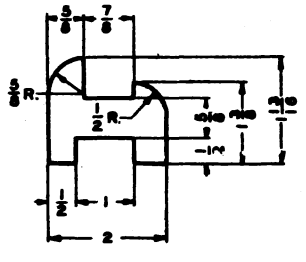
CURTAIN RAIL MOLDING
M-118



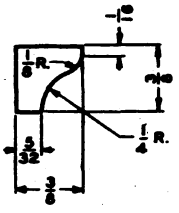
CORNICE MOLDING
M-153



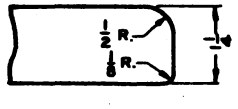
CURTAIN SHOE MOLDING
M-109



DOOR SHOE MOLDING
M-114

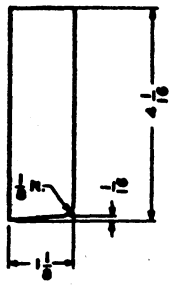


NOTCH MOLDING
M-150

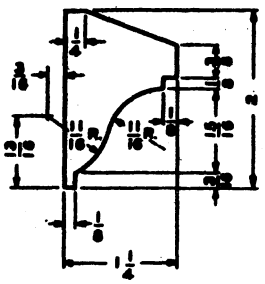


NOSING MOLDING
M-154

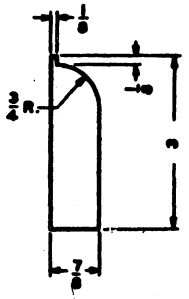
MOLDINGS-105 TO 154



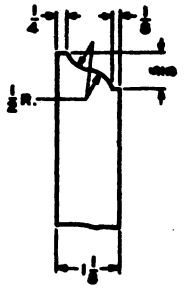
DESK MOLDING
M-155



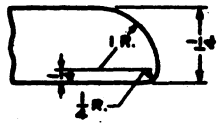
CROWN MOLDING
M-156



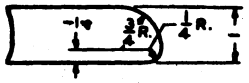
BASE MOLDING
M-157



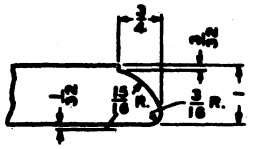
BASE MOLDING
M-159



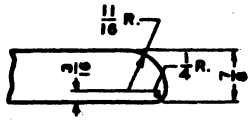
DESK TOP MOLDING
M-160



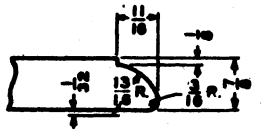
DESK TOP MOLDING
M-161



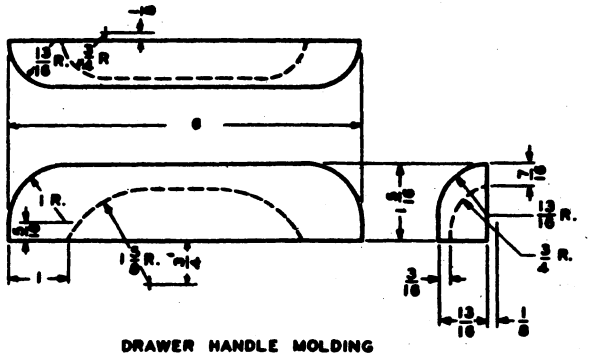
DESK TOP MOLDING
M-163



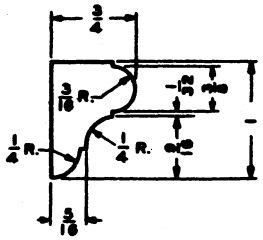
DESK TOP MOLDING
M-162



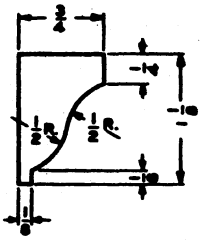
DESK TOP MOLDING
M-164



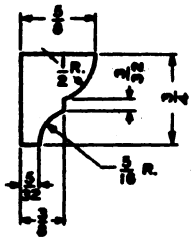
DRAWER HANDLE MOLDING
M-165



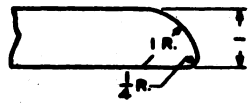
NOTCH MOLDING
M-166



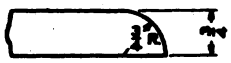
NOTCH MOLDING
M-167



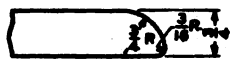
NOTCH MOLDING
M-168



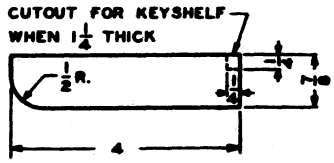
DESK TOP MOLDING
M-169



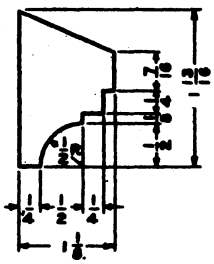
DESK TOP MOLDING
M-170



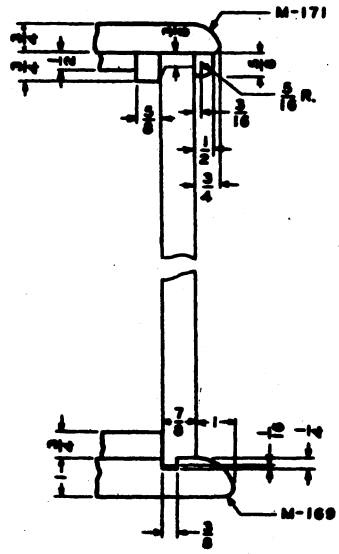
DESK TOP MOLDING
M-171



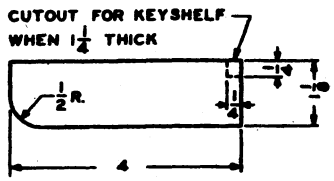
DESK MOLDING
M-174



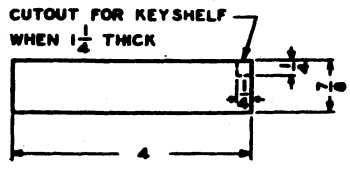
CROWN MOLDING
M-172



DESK MOLDING
M-173

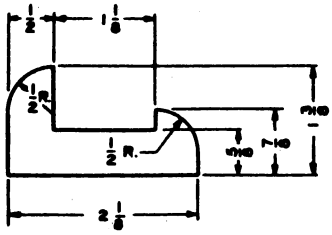


DESK MOLDING
M-175

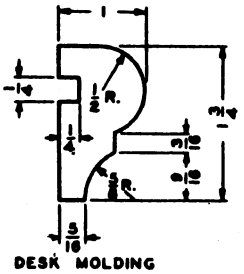


DESK MOLDING
M-176

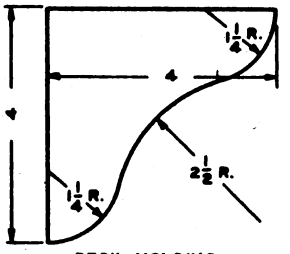
MOLDINGS-155 TO 176



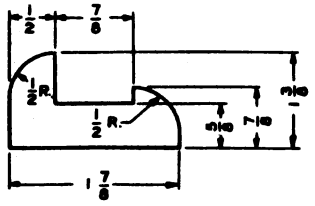
DOOR SHOE MOLDING
M-177



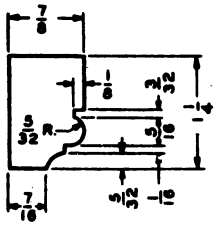
DESK MOLDING
M-183



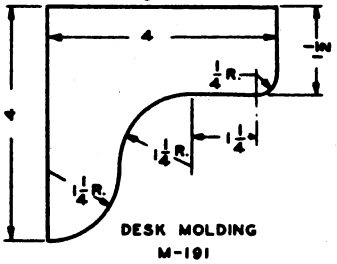
DESK MOLDING
M-190



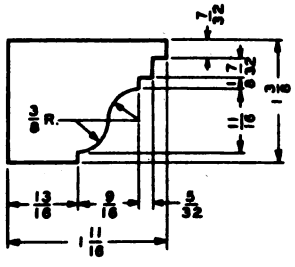
DOOR SHOE MOLDING
M-178



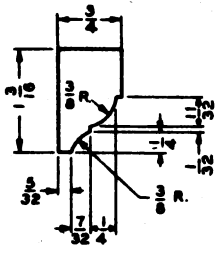
DESK MOLDING
M-184



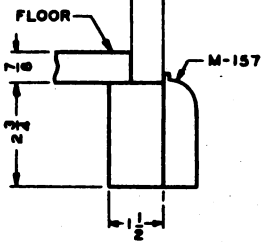
DESK MOLDING
M-191



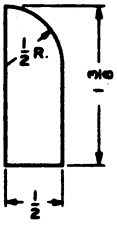
DESK MOLDING
M-179



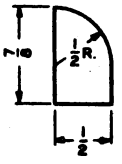
DESK MOLDING
M-185



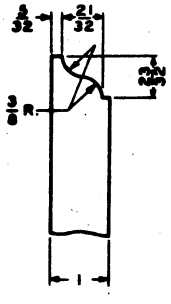
DESK MOLDING
M-188



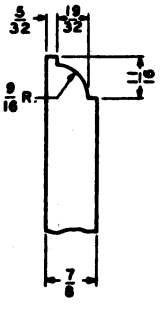
BASE MOLDING
M-194



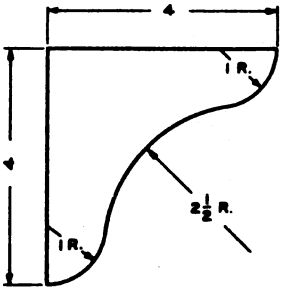
BASE MOLDING
M-196



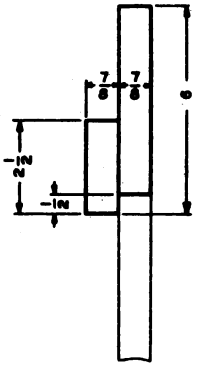
BASE MOLDING
M-180

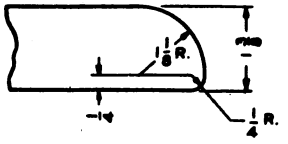


BASE MOLDING
M-181

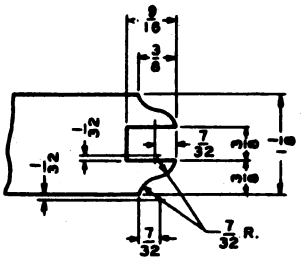


DESK MOLDING
M-186

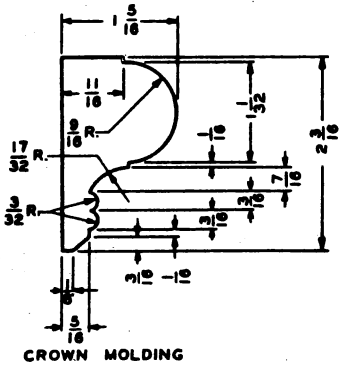




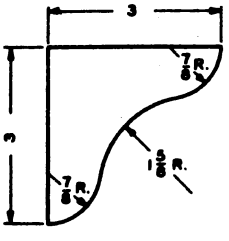
DESK TOP MOLDING
M-195



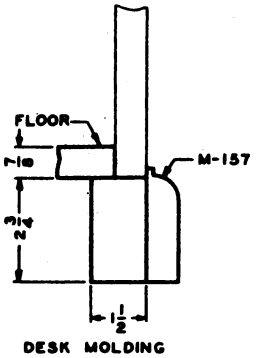
DOUBLE O.G. MOLDING
M-197



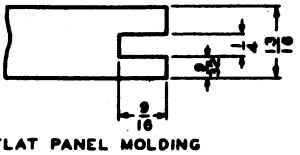
CROWN MOLDING
M-182



DESK MOLDING
M-187



DESK MOLDING
M-189



FLAT PANEL MOLDING
M-198

MOLDINGS-177 TO 198

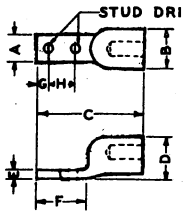


FIG. A

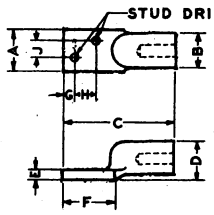


FIG. B

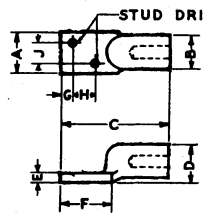


FIG. C

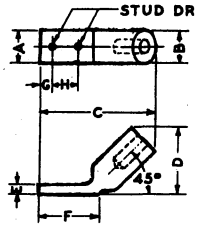


FIG. D

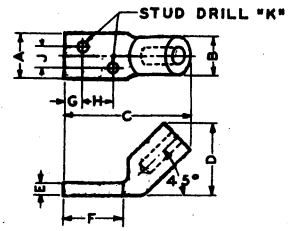


FIG. E

MAX. SIZE CABLE	FIG.	DIMENSIONS										PIECE PART NUMBER OF LUG DRILLED FOR STUD AND CABLE				BLANK LUG
		A	B	C	D	E	F	G	H	J	K					
2	A	1/2	1/2	2 5/16	9/16	3/16	1 3/8	5/16	3/4		9/32	P-68618 4	P-68617 2			P-68632
0		3/4	5/8	2 7/8	11/16	3/16	1 13/16	3/8	3/4		9/32	P-39051 0				P-68640
300000		3/4	15/16	3 1/8	1 1/16	1/4	1 5/8	3/8	3/4		9/32	P-46100 00	P-46101 000	P-46102 0000	P-65877 300000	P-68874
0000	B	1 1/2	15/16	3 1/2	1 1/16	1/4	2	5/8	3/4	3/4	13/32	P-44143 00	P-44144 000	P-44145 0000	P-405367 4 to 0	P-68856
400000		2	1 1/4	4	1 3/8	3/8	2	5/8	3/4	3/4	13/32	P-36851 300000	P-36852 400000			P-68867
750000		2	1 1/2	4 1/2	1 3/4	1/2	2	5/8	3/4	3/4	13/32	P-36853 500000	P-36854 650000	P-36855 750000		P-68868
1000000		2	1 3/4	4 1/2	2	3/4	2	5/8	3/4	3/4	13/32	P-36856 800000				P-68869
0	C	1 1/2	5/8	3 1/4	11/16	3/16	2	5/8	3/4	3/4	13/32	P-39050 0	P-405366 4 - 1			P-68870
0000		1 1/2	15/16	3 1/2	1 1/16	1/4	2	5/8	3/4	3/4	13/32	P-25507 00	P-25508 000	P-25509 0000		P-68856
300000		1	1	3 1/4	1 1/32	5/16	1 5/8	1/2	5/8	3/8	9/32	P-46259 0-00-000	P-46258 0000-300000			P-68876
400000		1 1/2	1 1/4	4	1 3/8	3/8	2	5/8	3/4	3/4	13/32	P-25510 300000	P-25512 400000			P-68857
800000		1 1/2	1 1/2	4 1/2	1 3/4	1/2	2	5/8	3/4	3/4	13/32	P-25513 500000	P-25514 650000	P-25515 750000		P-68858
1000000		1 1/2	1 3/4	4 1/2	2	3/4	2	5/8	3/4	3/4	13/32	P-25516 800000				P-68859
00	D	3/4	3/4	2 11/16	1 3/8	1/4	1 1/2	5/16	3/4		9/32	P-68622 4	P-68621 2	P-405365 0	P-68625 00	P-68633
300000	E	1	1	3 1/4	1 7/8	5/16	1 5/8	1/2	5/8	3/8	9/32	P-46262 0-00-000	P-46261 0000-300000			P-68878
+500000		1 1/2	1 1/4	3 9/16	2 3/16	3/8	1 1/2	3/8	3/4	2/4						P-68927
+1000000		2	1 3/4	4 2/4	2 7/8	9/16	2	5/8	3/4	3/4						P-68928

NOTE:

+ Dimensions G, H and J indicate standard drilling for mounting these terminals.

TERMINAL LUGS - FOR BUS BAR

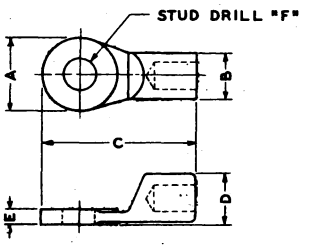


FIG. A

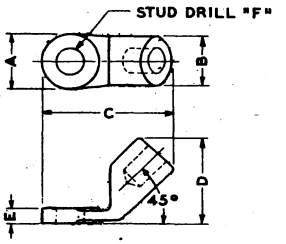


FIG. B

MAX. SIZE CABLE	FIG	DIMENSIONS						PIECE PART NUMBER DRILLED FOR STUD AND CABLE					BLANK LUG
		A	B	C	D	E	F						
4	A	3/4	7/16	1 5/8	29/64	3/16	1/4	P-101212 4					P-68831
1		3/4	5/8	1 11/16	41/64	3/16	.228	P-65215 4 to 1					P-68832
		3/4	5/8	1 11/16	41/64	3/16	11/32	P-46242 1-2-3	P-46243 4				
		1	5/8	2	41/64	3/16	13/32	P-65820 4					P-68899
000		3/4	2/4	1 15/16	25/32	1/4	11/32	P-65254 00					P-68895
		1 1/4	3/4	2 7/16	25/32	1/4	13/32	P-65828 0-00	P-65826 2	P-405357 000			P-65821
		1 1/4	2/4	2 7/16	25/32	1/4	17/32	P-65822 00	P-65823 1-0	P-65825 2	P-65824 4		
300000		1	1	2 3/4	1 1/32	5/16	13/32	P-405358 300000	P-65060 0000				P-68887
		1 1/4	1	3	1 1/32	5/16	17/32	P-65833 000	P-65832 0000	P-65831 300000			P-65830
		1 1/2	1	2 1/4	1 1/32	5/16	21/32	P-65841 00	P-65842 300000				P-68901
600000		1	1 1/4	2 7/8	1 9/32	3/8	13/32	P-65061 400000					P-68837
		1 1/4	1 1/4	3 1/4	1 9/32	3/8	17/32	P-405359 400000-500000-600000					P-68838
		2 1/4	1 1/4	4 1/4	1 9/32	7/16							P-68882
800000		1 1/2	1 1/2	3 3/4	1 17/32	7/16	21/32	P-405360 400000-500000-600000-700000-800000					P-68884
		1 3/4	1 1/2	4 1/16	1 17/32	7/16	25/32	P-65835 400000	P-65836 500000-600000	P-405361 700000-800000			P-65834
1000000		2	1 7/8	4 3/4	1 15/16	9/16							P-68860
		2 2/4	1 3/4	5 3/8	1 13/16	9/16							P-69188
1	B	3/4	5/8	1 11/16	1 1/8	2/16	11/32	P-405362 1-2	P-4799 3-4				P-68834
00		1	2/4	2 1/16	1 5/16	1/4	11/32	P-46955 0-00					P-68879
		1 1/4	3/4	2 5/16	1 5/16	1/4	17/32	P-65849 00	P-65850 2	P-405363 1-4-0			P-65848
300000		1	1	2 3/4	2	5/16							P-45702
		1 1/4	1	2 15/16	2	5/16	17/32	P-65852 300000	P-65853 0000	P-65854 000			P-65851
		1 1/2	1	3 1/4	2	5/16							P-68893
		1 3/4	1	3 1/2	2	5/16							P-68894
600000		1 1/4	1 1/4	3 1/16	2 1/4	5/16	17/32	P-405364 400000-500000-600000					P-65855
800000		1 3/4	1 1/2	4 1/16	2 5/8	7/16							P-65856
1000000		2 1/2	1 3/4	5 1/4	2 1/8	9/16							P-68907
		2	1 7/8	4 3/4	3 1/4	9/16							P-68861

TERMINAL LUGS - FOR STUDS

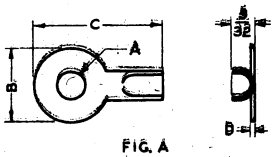


FIG. A

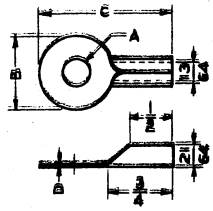
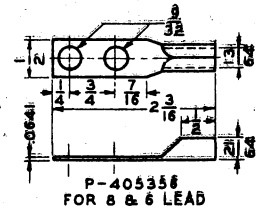
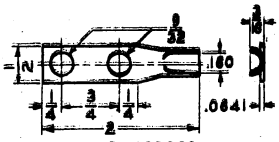


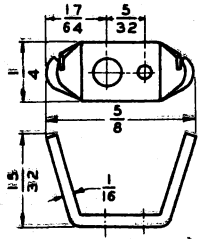
FIG. B

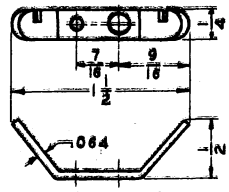


P-405356
FOR 8 & 6 LEAD
FIG. C

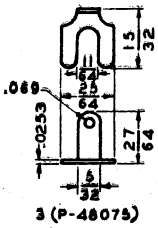


P-405355
FOR 14, 12 & 10 LEAD
FIG. D

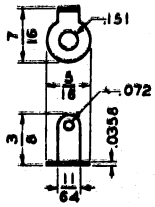

18A (P-87359)
FIG. E



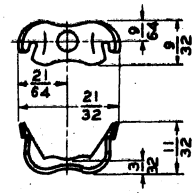
6 (P-27495)
FIG. F

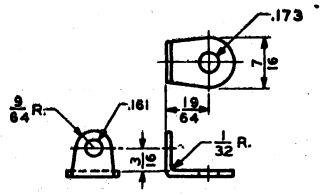


3 (P-48075)
FIG. G



12 (P-37010)
FIG. H

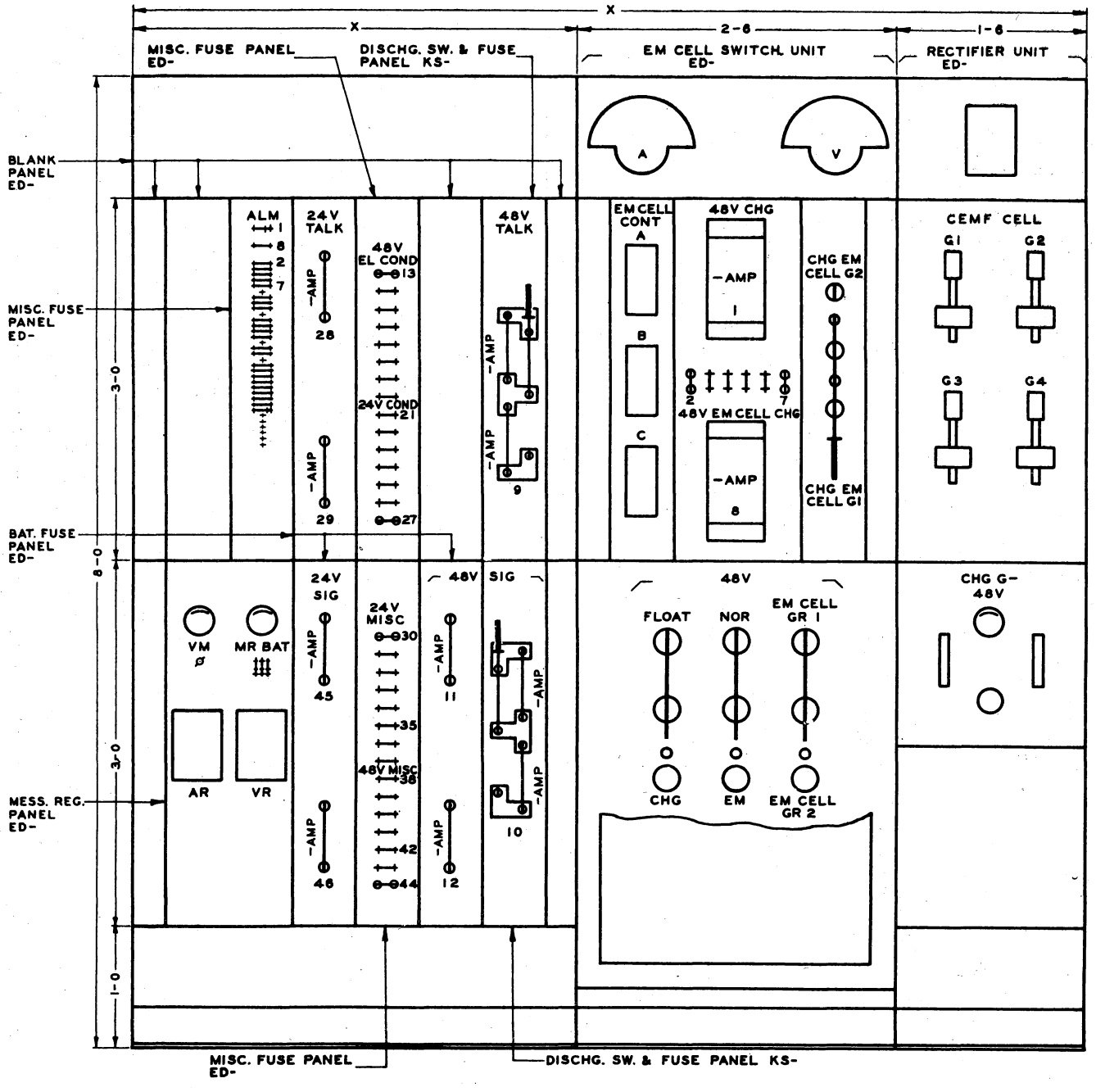

17A (P-48990)
FIG. J



P-172193
FIG. K

SIZE OF LEAD	FIG.	DIMENSIONS				PIECE PART NUMBER OF PUNCHING
		A	B	C	D	
14-12-10	A	~~.140~~	~~$\frac{33}{64}$~~	~~$1\frac{17}{64}$~~	~~.0319~~	~~P-5480~~ M.D.
		.196	$\frac{13}{32}$	$\frac{49}{64}$	.0508	P-52955
		$\frac{1}{4}$	$\frac{5}{8}$	1	.0403	P-5738
		$\frac{9}{32}$	$\frac{1}{2}$	$\frac{7}{8}$	.064	P-68952
		$\frac{11}{32}$	$\frac{3}{4}$	$1\frac{1}{4}$		P-402737
		$\frac{13}{32}$	1	$1\frac{3}{4}$		P-65235
		$\frac{17}{32}$	1	$1\frac{3}{4}$	.0319	P-46418
		$\frac{21}{32}$	$1\frac{1}{2}$	$2\frac{1}{4}$	.064	P-65234
		$\frac{25}{32}$	$1\frac{3}{4}$	$2\frac{1}{2}$		P-65236
		$\frac{29}{32}$	2	$2\frac{3}{4}$	.0319	P-69575
		$1\frac{1}{32}$	$2\frac{1}{4}$	3		P-69574
		$1\frac{5}{32}$	$2\frac{1}{2}$	$3\frac{1}{4}$		P-65738
		$1\frac{9}{32}$	$2\frac{1}{2}$	$3\frac{1}{4}$		P-69573
	D					P-405355
8-6	B	$\frac{9}{32}$	$\frac{1}{2}$	$1\frac{3}{8}$	.0641	P-405351
		$\frac{11}{32}$	$\frac{3}{4}$	$1\frac{5}{8}$		P-405352
		$\frac{13}{32}$	1	$1\frac{7}{8}$		P-405353
		$\frac{17}{32}$	$1\frac{1}{8}$	2		P-405354
	C					P-405356

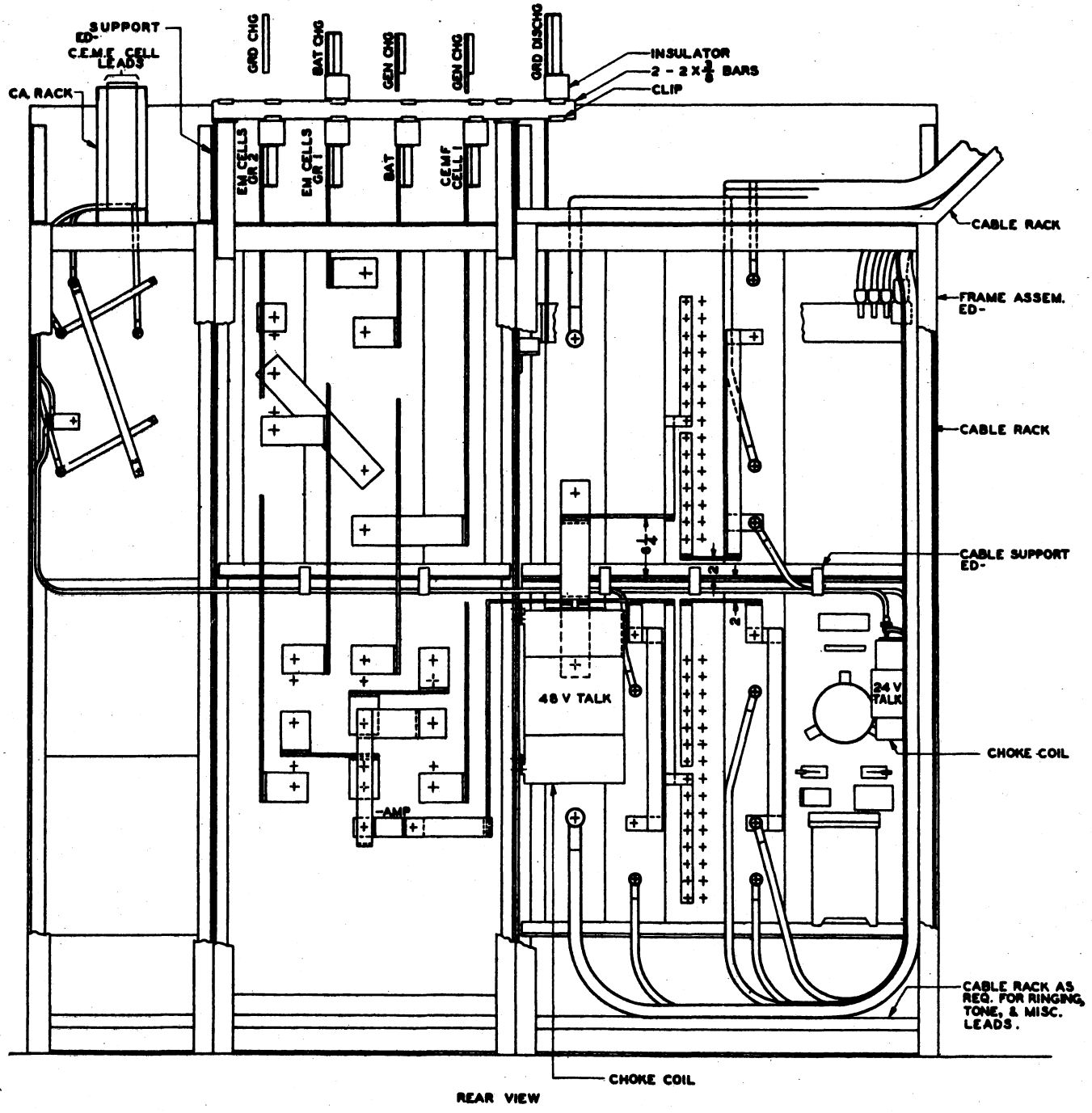
TERMINAL PUNCHINGS



FRONT VIEW

NOTES:
1. SPECIFY PANELS AND ED- DRAWING NUMBERS OUTSIDE OF FIGURE.
2. CIRCUIT AND FUNCTIONAL DESIGNATIONS FOR EQUIPMENT TO BE AS SPECIFIED BY THE ENGINEER.

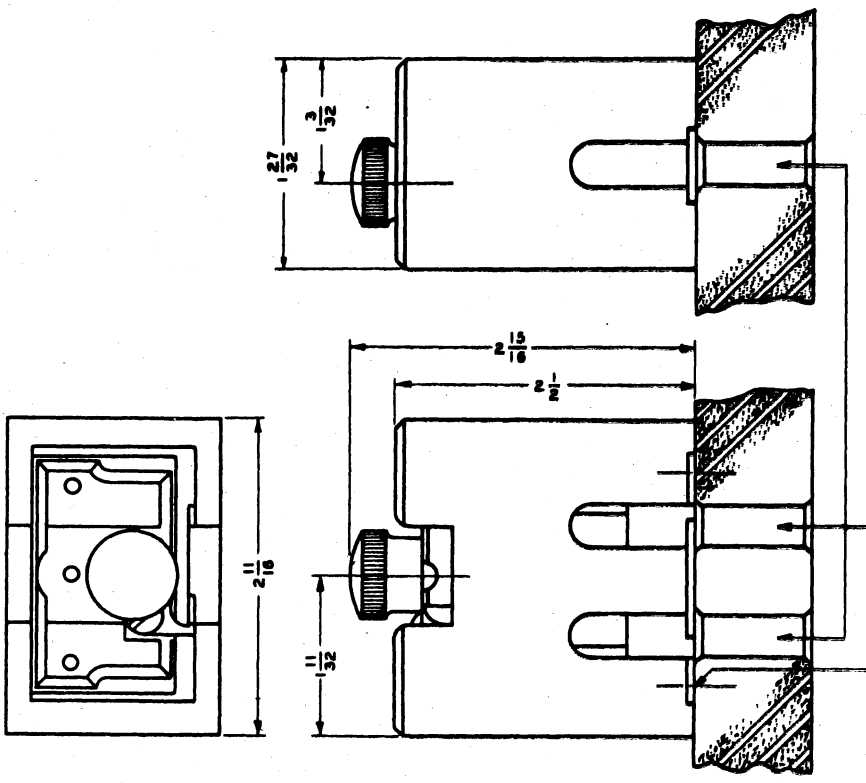
CONTROL BOARD - TYPICAL ASSEMBLY



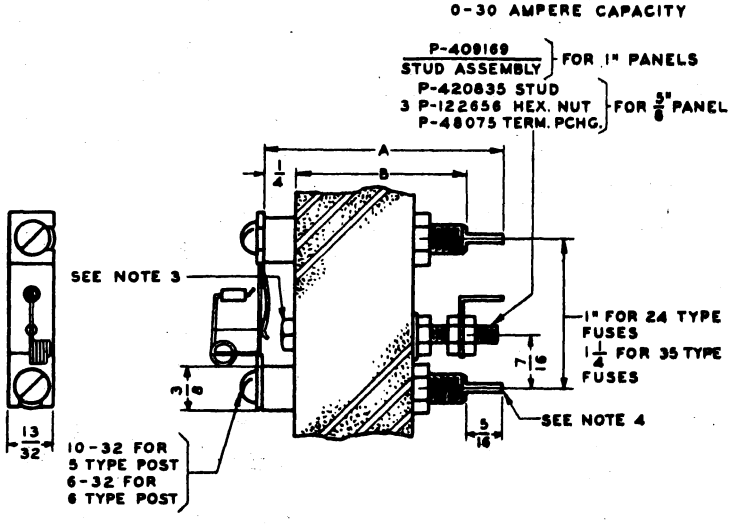
REAR VIEW

NOTES:
1. SIZE OF INTERPANEL CONNECTING BUS BARS AND BUS BARS ON SWITCH AND FUSE PANELS TO BE CALLED FOR ON THE ASSEMBLY DRAWINGS.

CONTROL BOARD - TYPICAL ASSEMBLY



SAF-TO FUSE UNIT
MUS 121
0-30 AMPERE CAPACITY



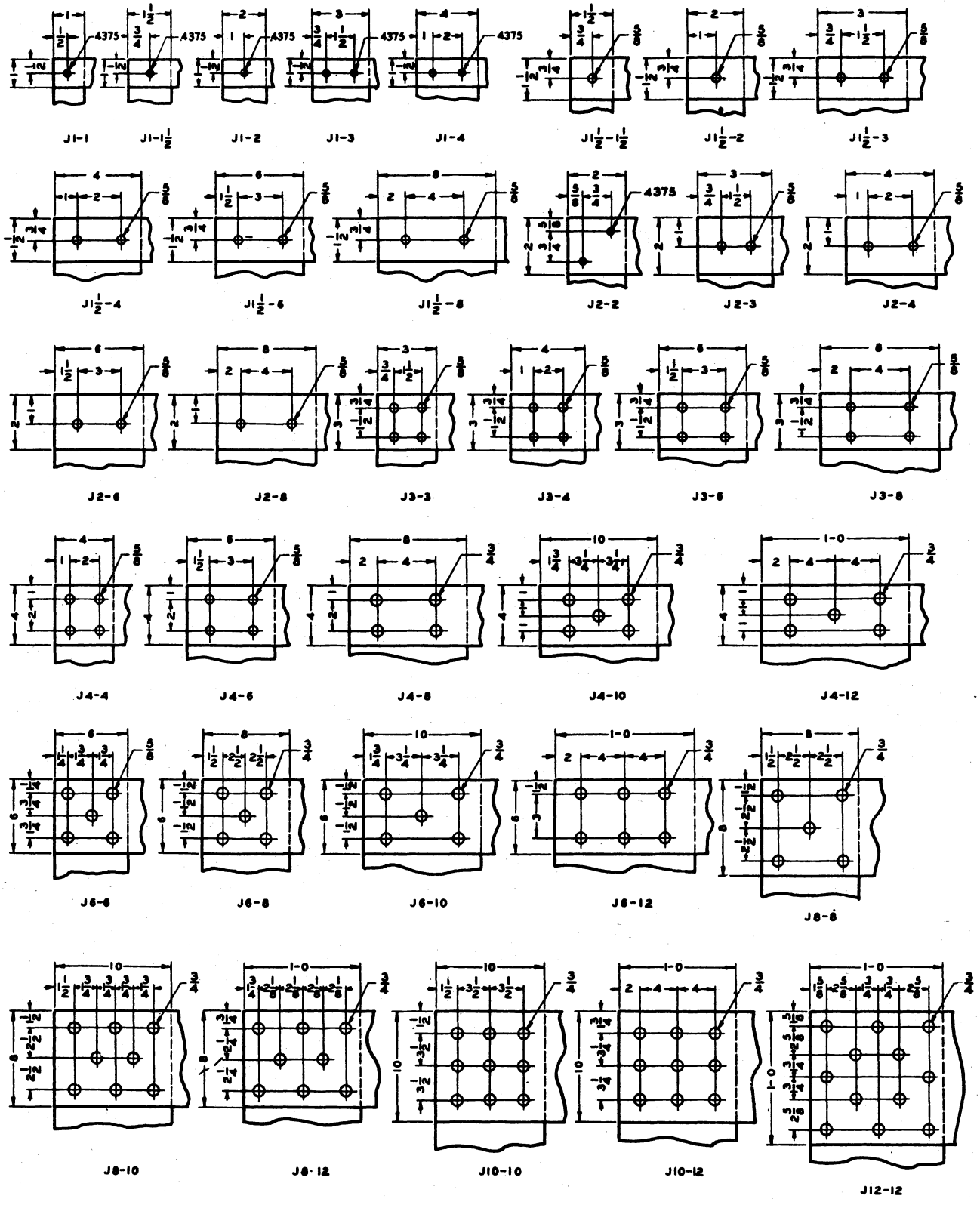
5 AND 6 TYPE FUSE POSTS
AND 24 AND 35 TYPE FUSES

	FUSE CODE	FUSE AMPS.	TYPE OF FUSE POST	FUSE POST CODE	FUSE POST DIMENSIONS A	FUSE POST DIMENSIONS B
NON ALARM	24A	1 1/3	5A-C OR E			
NON ALARM	24D	3/4	6B OR C	5A	2	1 7/16
ALARM	35A	1 1/3	5A-C-D E OR F	5C	2 3/4	2 3/16
ALARM	35C	2		5D +	2	1 7/16
ALARM	35F	1/2		5E	1 5/8	1 1/16
ALARM	35G	3	6B,C OR D	5F +	1 5/8	1 1/16
ALARM	35H	5		6B	2	1 7/16
ALARM	35J	⊕ 1/2	5A-D-E OR F	6C	1 5/8	1 1/16
ALARM	35K	• 1 1/3		6D +	2 3/4	2 3/16
ALARM	35L	• 2				
ALARM	35M	• 3	6B-C OR D			
ALARM	35N	• 5				

• 150 VOLT CIRCUITS - FUSE WIRE IN PORCELAIN TUBE.
⊕ 100-160 VOLT CIRCUITS - FUSE WIRE IN GLASS TUBE.
+ PROVIDED WITH CLIP TO PREVENT ENGAGEMENT OF TRANSVERSELY SLOTTED ENDS OF 35 TYPE FUSES.

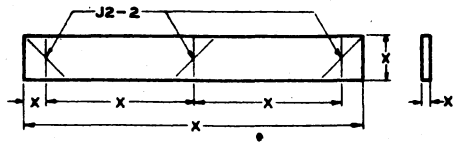
NOTES:
1. SPACING OF 24 AND 35 TYPE FUSES:
   SPACING OF 35 ALARM TYPE AND 24 NON ALARM TYPE FUSES SHALL BE IN ACCORDANCE WITH B.S.P. AA610.005 PARAGRAPHS 2.22 TO 2.27
2. ALARM STUD IS NOT REQUIRED FOR 24 TYPE FUSES OR FOR 35 TYPE WHEN THE LATTER IS USED IN PLACE OF N.E.C. CARTRIDGE TYPE FUSE.
3. USE TERM. PCHG. P-68952 FOR 14-10 OR 12 LEADS AND P-405351 FOR 8 OR 6 LEAD AND FURNISH EXTRA HEX. NUTS.

MUS-121 SAF-TO FUSE UNIT
5 & 6 TYPE FUSE POSTS-24 & 35 TYPE FUSES

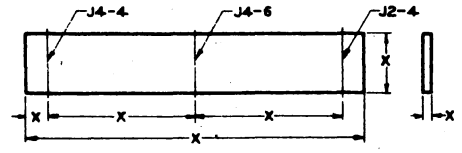


NOTES:
1. FOR BOLTING MATERIAL SEE PAGE 120

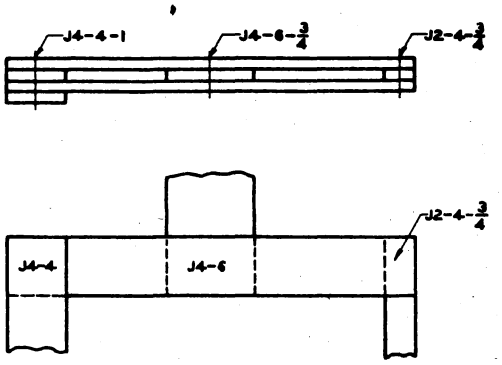
BUS BAR JOINTS J1-1 TO J12-12



METHOD OF SHOWING POSITION OF STAGGERED HOLES ON DET. DWG. WHEN J2-2 IS USED
FIG. A

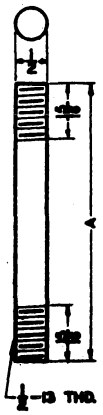


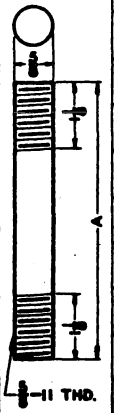
METHOD OF SHOWING DET. ON DET. DWGS.
FIG. B



METHOD OF SHOWING BUS BAR JOINT NUMBERS ON ASSEM. DWGS. SEE NOTE 3
FIG. C

BOLTING MATERIAL REQUIRED FOR BUS BAR JOINTS OUTSIDE BATTERY ROOM									BOLTING MATERIAL REQUIRED FOR BUS BAR JOINTS INSIDE BATTERY ROOM					
TABLE A BUS BARS WITH .4375 HOLES			TABLE B BUS BARS WITH 5/8 HOLES			TABLE C BUS BARS WITH 3/4 HOLES			TABLE D BUS BARS WITH 5/8 HOLES			TABLE E BUS BARS WITH 3/4 HOLES		
3/8-16 H.H. Cap Scr. P-47983 3/8-16 Hex. Nut 2-P-69966 .4375x1x.078 Washer			1/2-13 H.H. Cap Scr. P-65371 1/2-13 Hex. Nut 2-P-69967 .5625x1 3/8x.109 Washer			5/8-11 H.H. Cap Scr. P-65452 5/8-11 Hex. Nut 2-P-69968 .6875x1 3/8x.124 Washer			1/2-13 Stud Bolt 2-P-125614 1/2-13 Hex. Nut 2-P-49519 17/32x1x.050 Washer 2-P-400496 Alloy Cap			5/8-11 Stud Bolt 2-P-205261 5/8-11 Hex. Nut 2-P-129344 11/16x1 1/4x.050 Washer 2-P-400497 Alloy Cap		
JOINT THICK	H.H.CAP SCR. PART NO.	LENGTH OF SCR.	JOINT THICK	H.H.CAP SCR. PART NO.	LENGTH OF SCR.	JOINT THICK	H.H.CAP SCR. PART NO.	LENGTH OF SCR.	JOINT THICK	STUD BOLT	A	JOINT THICK	STUD BOLT	A
3/8	P-65366	1	1/2	P-65370	1 1/4	1/2	P-65453	1 1/2	3/8		2	1		3 1/4
1/2	P-49430	1 1/4	3/4	P-65456	1 1/2	3/4	P-210527	1 3/4	1/2 - 5/8		2 1/4	1 1/2		3 3/4
5/8			1	P-65457	1 3/4	1	P-210362	2	3/4 - 7/8		2 1/2	2		4 1/4
3/4			1 1/4	P-210096	2	1 1/4	P-210363	2 1/2	1		2 3/4	2 1/2		4 3/4
7/8	P-210525	1 1/2	1 1/2	P-210355	2 1/4	1 1/2			1 1/4 - 1 3/8		3	3		5 1/4
1.			1 3/4	P-210097	2 1/2	1 3/4	P-210364	3	1 1/2		3 1/4	3 1/2		5 3/4
1 1/4	P-210368	1 3/4	2	P-210357	2 3/4	2			1 3/4		3 1/2	4		6 1/4
1 1/2	P-210464	2	2 1/4	P-210358	3	2 1/4	P-422084	3 1/2	2		3 3/4			
1 3/4	P-210090	2 1/4				2 1/2			2 1/4		4			
2	P-210091	2 1/2				2 3/4	P-422085	3 3/4	2 1/2		4 1/4			
						3	P-422086	4	3		4 3/4			





NOTES:

1. Lines designated J2-4 etc. indicate center lines for cluster of holes, as shown in figures A and B.
2. Center lines for clusters of holes shall be shown and dimensioned as in figures A and B. For single hole joints horizontal and vertical center lines shall be shown and located.
3. In joint designations (J2-4-3/4 etc.) the first two numerals (2-4) indicate the width of the bars to be joined and the last numeral or fraction (3/4) indicates the total thickness of the joint.
4. For drilling of bus bars see page 119
5. Bus bar joint information shown in figures A, B and C to be used on shop drawings only.

BUS BAR JOINTS - BOLTING MATERIAL

FIG. A

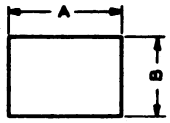


FIG. B

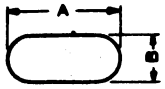
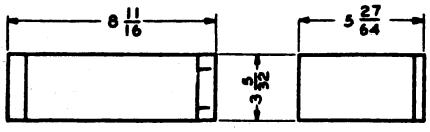


FIG. C

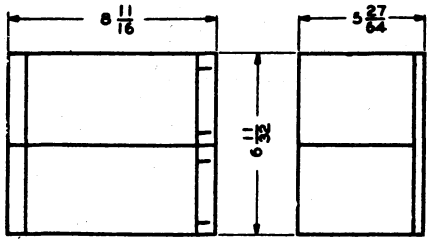
NOTES:
1. FOR MISCELLANEOUS ARRANGEMENTS, USE FIG. A B OR C AS CONVENTIONS, FOR STRIP MOUNTED EQUIPMENT AND SIMILAR ARRANGEMENTS SHOW APPARATUS BLANKS THUS: +
2. FOR APPLICATION OF APPARATUS BLANKS SEE PAGE 50

TYPE	FIG.	A	B	TYPE	FIG.	A	B	TYPE	FIG.	A	B	TYPE	FIG.	A	B	TYPE	FIG.	A	B	TYPE	FIG.	A	B
2B	A	1/2	—	32B	A	5/8	—	45B	B	1-1 3/8	1 1/16	56A	B	7 13/32	1 7/8	68A	C	1 9/16	3/4	79C	B	5 1/8	1 1/4
4B	A	1	—	33B	A	33/64	—	47A	B	9 3/16	3	57A	B	7 17/32	1 13/16	69A	B	1 1/8	1 3/8	79D	B	3 3/4	1 1/4
13B	A	1 1/8	—	37B	A	9/32	—	50B	A	2 7/8	—	58A	B	8 29/32	2 1/8	69B	B	2 5/32	1 3/8	80A	A	4 15/32	—
14B	A	5/8	—	38B	A	37/64	—	50C-3 50C-13	B	4 27/32	4 11/32	59B	B	3/16	9/16	69C	B	2 5/32	1 3/8	82A3	A	3	—
15B	A	7/8	—	39B	A	17/32	—	50E	A	2 7/8	—	61B	A	1 3/8	—	70B	A	1 1/8	—	84B	A	1 1/16	—
17B	A	3/4	—	40B	A	23/32	—	50H	A	2 15/16	—	62B	A	5/8	—	71B	A	1 11/32	—	85A	A	4 15/32	—
18B	B	4	1 13/16	41B	A	3/8	—	50J	A	3 3/32	—	63B	B	1 15/32	7/8	72B	A	1 3/8	—	86A	B	1 7/8	2 3/8
19B	A	3/8	—	42B	A	37/64	—	51A	A	9/32	—	64A	B	7 1/8	1 1/8	74A	B	8	8	87A	B	7 17/32	2 3/8
22B	B	1 15/32	25/32	43B	B	2 13/16	1 13/16	52A	B	3	1 1/4	66A	B	1 3/8	1 3/8	78B	B	1 15/32	13/16	88A	B	1 7/8	3 1/4
28A	B	6 23/32	1 3/4	44A	B	4	1 1/2	53E	B	7 1/2	2 1/4	66B	B	3 11/32	1 3/8	79A	B	2 3/8	1 1/4	89A	B	7 35/64	3 1/4
29B	A	1/2	—	45A	B	10 1/8	1 1/16	54B	A	1	—	66C	B	3 11/32	1 3/8	79B	B	3 3/4	1 1/4	90A	A	3	—

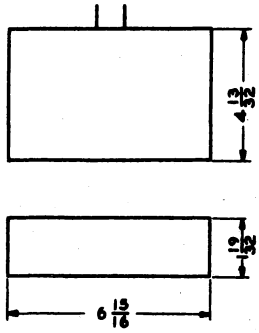
APPARATUS BLANKS



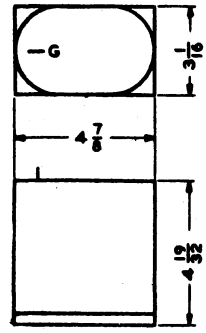
102, 104, 107, 108 & 602 TYPE



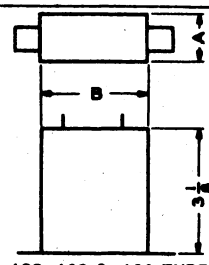
103 TYPE



113 TYPE



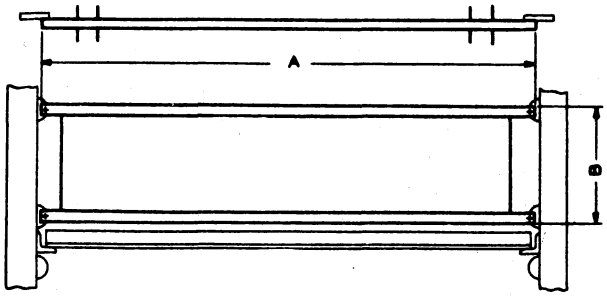
401 & 404 TYPE



402, 403 & 406 TYPE

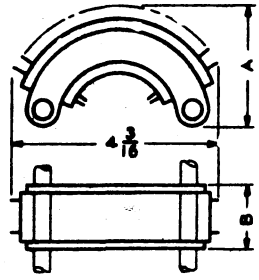
TYPE	A	B
402	1 3/8	2 5/16
403	1 3/8	2 5/16
406	1 1/8	2 5/8

BALANCING NETWORKS



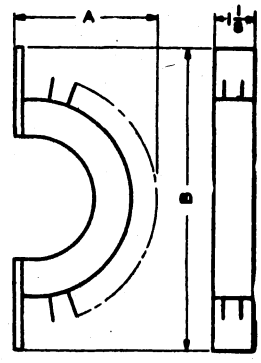
1, 2 & SIMILAR TYPES

TYPE	A	B	TYPE	A	B	TYPE	A	B	TYPE	A	B
1	3-4	1-2 21/32	5	1-7 3/4	1-2 2/32	15D	3-4	1-1 5/8	17	3-4	1-2 63/64
2	3-4	1-2 21/32	8	3-7 1/8	8 9/32	15E	3-4	1-3	18	3-4	6 31/32
4	1-1	1-2 21/32	15C	3-4	8 5/8	16	3-4	1-2 63/64	28	3-4	11 7/8



20, 21 & SIMILAR TYPES

TYPE	A	B	TYPE	A	B
20	2 17/64	1 1/8	25	2 7/16	1 3/4
21	2 17/64	1 37/64	30	2 7/16	1 9/16
22	2 7/16	1 39/64	31	2 17/64	1 39/64
24	2 7/16	1 39/64			

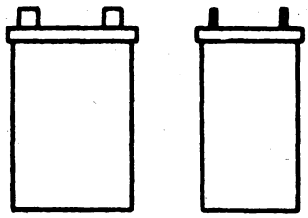


26 & 27 TYPE

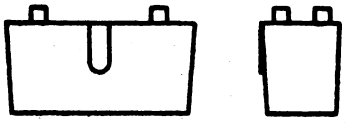
TYPE	A	B
26	2 15/16	7 13/32
27	2 57/64	7 1/8

BANKS

CONVENTIONS – APPARATUS BLANKS TO BANKS



FMGO & SIMILAR TYPES



KS-5361 & SIMILAR TYPES

SEALED JAR BATTERIES

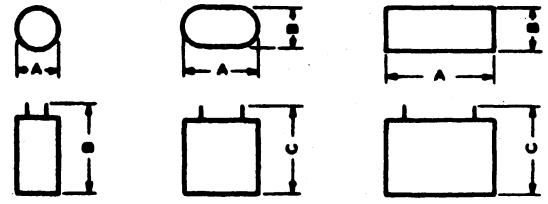
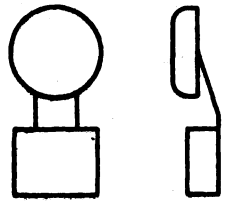


FIG. 1 FIG. 2 FIG. 3

BATTERY KS	BATTERY EVE-READY	VOLTAGE	FIG.	OVERALL DIM. A	B	C
—	935	1½	1	1 1/32	1 31/32	—
6822	950	1½	1	1 11/32	2 13/32	—
6842	*7111	1½	1	2 5/8	6 3/4	—
6867	786	3	2	2½	2 27/32	2 5/8
—	790	3	1	1 11/32	4 13/16	—
—	791	3	1	1 1/32	3 15/16	—
—	705	4½	1	1 11/32	7 7/32	—
6870	714	4½	3	4 1/16	1½	3 5/8
6566	760	4½	2	2½	2 27/32	2 5/8
6569 7342	771	4½	3	4 1/16	1½	3 15/16
6871	763	22½	3	3½	2 3/16	3 7/16
6872	764	22½	3	3 3/8	2 13/16	6 3/8
6873	766	22½	3	6 13/16	4 3/16	3 15/16
7105	768	22½	3	4¼	2 5/8	3¼
—	485	45	3	8¼	3 5/16	7 15/16
6948	486	45	3	8¼	4½	7 15/16

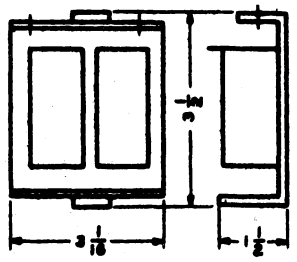
* OR COLUMBIA GRAY LABEL

BATTERIES

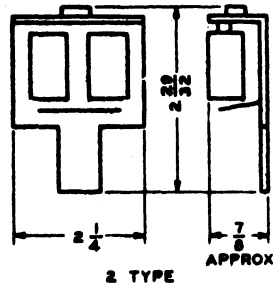


7, 11 & FARADAY TYPE

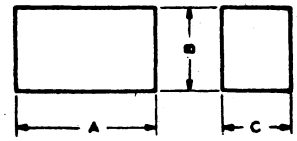
BELLS



1 TYPE



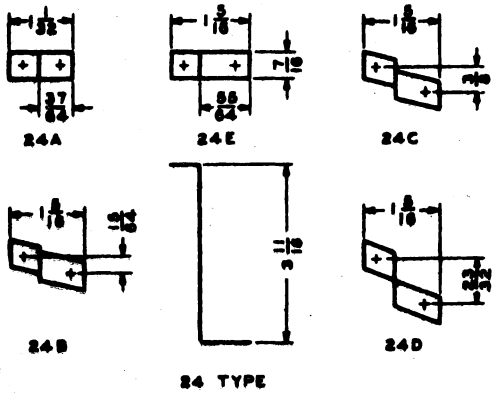
2 TYPE

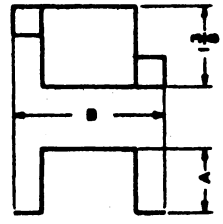


4&7 TYPE

CODE	A	B	C
4B	3 11/16	1 15/16	2¼
4C	3 51/64	2 5/16	2¼
7	1 31/32	2 11/16	1⅛

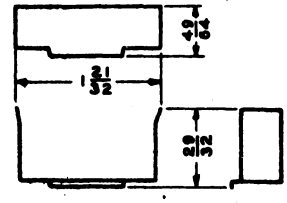
BUZZERS



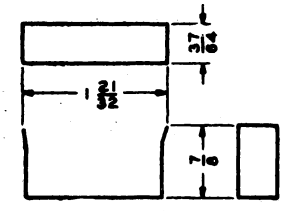


25 TYPE

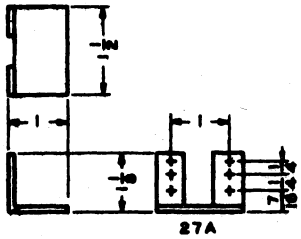
CODE	A	B
25A	1⅛	2 5/8
25B	7/8	2 17/32



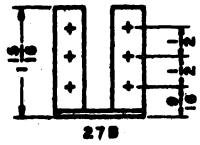
28A



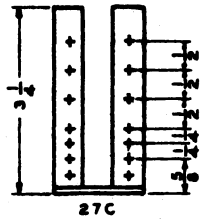
28B



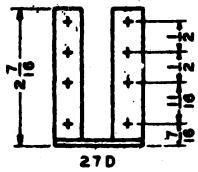
27A



27B



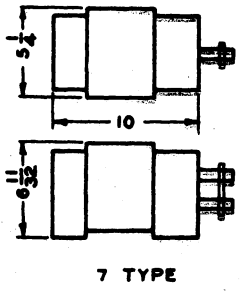
27C



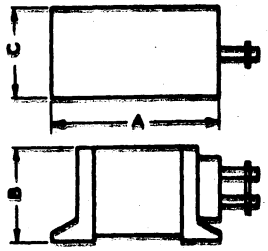
27D

BRACKETS

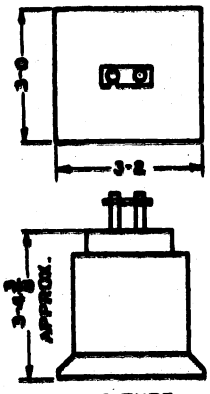
CONVENTIONS – BATTERIES TO BUZZERS



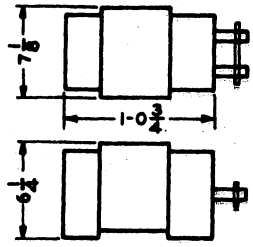
7 TYPE



11,12,13 & 14 TYPE



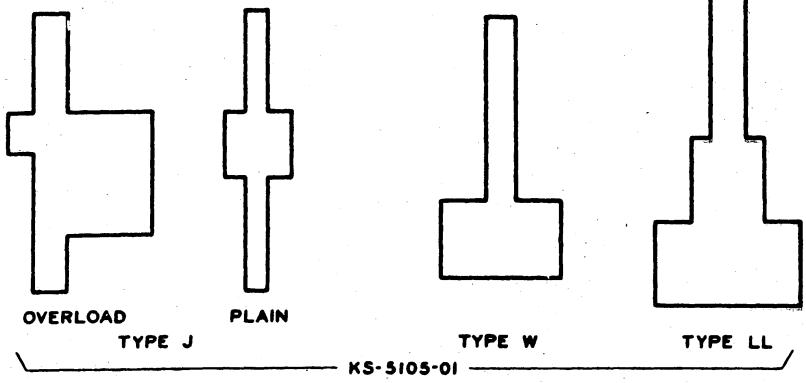
15 TYPE

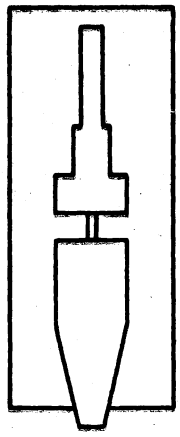


8 TYPE

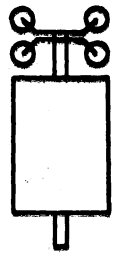
CODE	A	B	C
11	2-0 3/16	1-4 7/8	1-0 3/16
12	2-5	1-11	1-0 3/16
13	2-9	1-11	1-0 3/16
14	3-0 3/16	2-1 1/8	2-0 3/16

CHOKE COILS



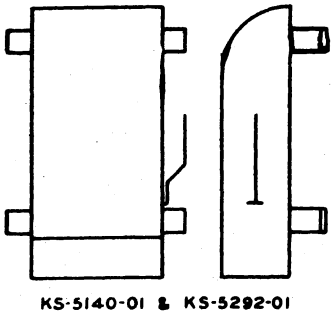


TYPE W KS-5181-01

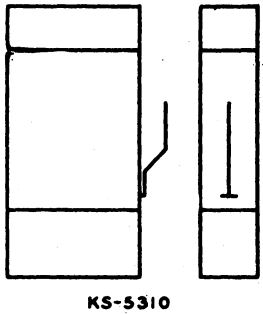


A.E. COS.

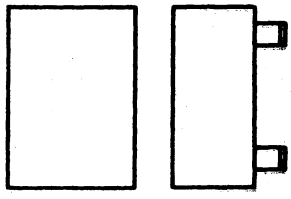
CIRCUIT BREAKERS



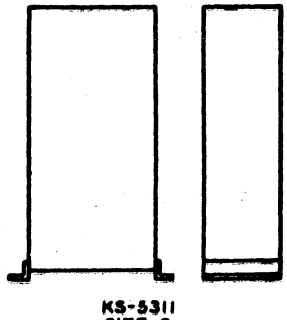
KS-5140-01 & KS-5292-01



KS-5310



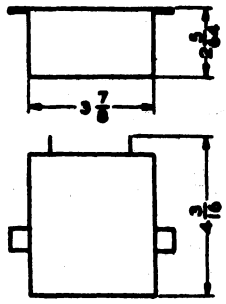
KS-5311
SIZE 1



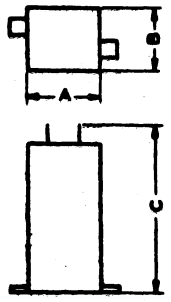
KS-5311
SIZE 2

COMPENSATORS

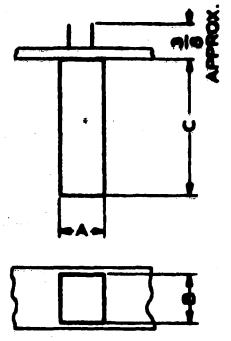
CONVENTIONS - CHOKE COILS TO COMPENSATORS



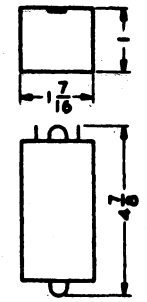
38 TYPE



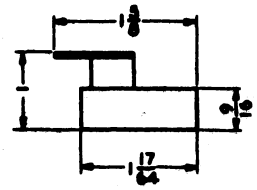
76 & SIMILAR TYPES

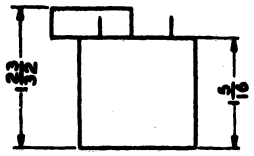


137 & SIMILAR TYPES



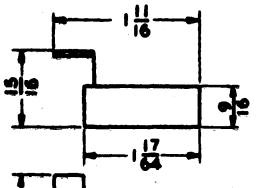
194 TYPE

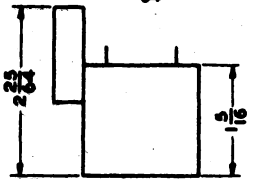




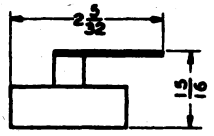
121C

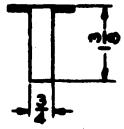
CODE	A	B	C
79	$1\frac{53}{64}$	$1\frac{3}{64}$	$2\frac{1}{2}$
88	$1\frac{59}{64}$	$1\frac{31}{64}$	$3\frac{1}{32}$
133	$1\frac{1}{8}$	$\frac{28}{32}$	$2\frac{3}{8}$
170	$1\frac{28}{32}$	$\frac{29}{32}$	$2\frac{1}{4}$
AA	$1\frac{27}{32}$	$1\frac{1}{2}$	3
AC	$1\frac{27}{32}$	$1\frac{3}{32}$	3
AE	$1\frac{27}{32}$	$1\frac{3}{32}$	$2\frac{1}{2}$
AJ	$1\frac{28}{32}$	$1\frac{13}{32}$	3
AL	$1\frac{28}{32}$	$1\frac{13}{32}$	3
AN	$1\frac{24}{32}$	$1\frac{1}{32}$	3
AR	$1\frac{25}{32}$	$1\frac{1}{32}$	$2\frac{1}{2}$
AU	$1\frac{3}{16}$	$\frac{21}{32}$	$1\frac{29}{32}$
CA	$1\frac{3}{4}$	$\frac{15}{16}$	$3\frac{3}{4}$
CE	$1\frac{5}{16}$	$\frac{29}{32}$	$2\frac{3}{8}$
CG	$1\frac{1}{16}$	$\frac{25}{32}$	$2\frac{3}{8}$

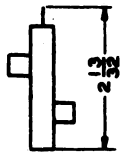




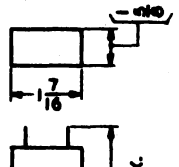
121D

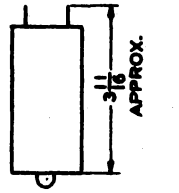






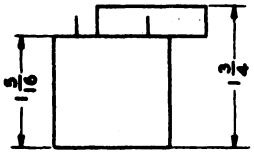
123 TYPE



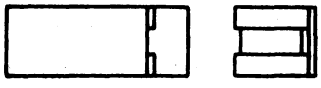


147, 149, 1147 & 1149 TYPE

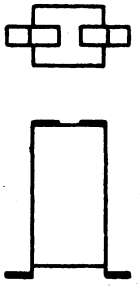
CODE	A	B	C
137	$1\frac{5}{8}$	$1\frac{1}{2}$	$3\frac{1}{2}$
138	$1\frac{5}{8}$	$1\frac{1}{2}$	$3\frac{15}{32}$
139	$\frac{31}{32}$	$1\frac{1}{2}$	$3\frac{1}{2}$
140	$\frac{15}{16}$	$1\frac{1}{2}$	$3\frac{1}{2}$
141	$\frac{15}{32}$	$1\frac{1}{2}$	$3\frac{7}{16}$
142	$\frac{15}{32}$	$1\frac{1}{2}$	$3\frac{7}{16}$
153	$1\frac{17}{32}$	$1\frac{15}{32}$	$3\frac{29}{64}$
155	$2\frac{13}{32}$	$1\frac{15}{32}$	$3\frac{29}{64}$
158	$4\frac{29}{32}$	$1\frac{15}{32}$	$3\frac{29}{64}$
175	$\frac{15}{32}$	$1\frac{1}{2}$	$3\frac{7}{16}$
187	$1\frac{5}{8}$	$1\frac{15}{32}$	$3\frac{39}{64}$
225	$2\frac{3}{16}$	$2\frac{7}{16}$	$3\frac{1}{2}$
227	1	$1\frac{1}{2}$	$3\frac{1}{2}$
228	$1\frac{1}{2}$	$1\frac{21}{32}$	$3\frac{1}{2}$
229	1	$1\frac{1}{2}$	$3\frac{1}{2}$
231	$1\frac{1}{2}$	$1\frac{21}{32}$	$3\frac{1}{2}$
234	$\frac{19}{32}$	$1\frac{1}{2}$	$3\frac{9}{16}$
268	$4\frac{15}{16}$	$1\frac{1}{2}$	$4\frac{23}{32}$
287	$1\frac{1}{2}$	$1\frac{21}{32}$	$3\frac{29}{32}$
288	$1\frac{1}{2}$	$1\frac{21}{32}$	$3\frac{29}{32}$
290	$2\frac{13}{32}$	$1\frac{15}{32}$	$4\frac{3}{4}$
294	$4\frac{15}{16}$	$1\frac{1}{2}$	$4\frac{3}{4}$
330	1	$1\frac{1}{2}$	$4\frac{3}{8}$
371	$\frac{15}{32}$	$1\frac{1}{2}$	$3\frac{7}{16}$
376	$3\frac{9}{32}$	$1\frac{11}{16}$	$1\frac{13}{16}$
437	$1\frac{3}{8}$	$1\frac{15}{32}$	$3\frac{1}{2}$
438	$1\frac{3}{8}$	$1\frac{15}{32}$	$3\frac{1}{2}$
439	$\frac{25}{32}$	$1\frac{15}{32}$	$3\frac{1}{2}$
440	$\frac{25}{32}$	$1\frac{15}{32}$	$3\frac{1}{2}$
441	$\frac{15}{32}$	$1\frac{15}{32}$	$3\frac{1}{2}$
442	$\frac{15}{32}$	$1\frac{15}{32}$	$3\frac{1}{2}$



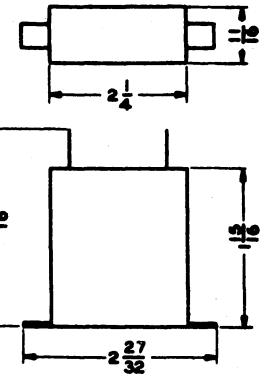
121E



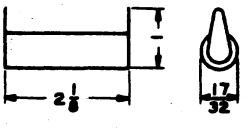
137, 139, 141 & 142 TYPE WITH 27 BRACKET



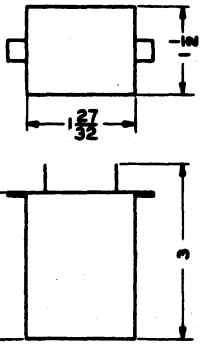
137, 139, 141 & 142 TYPE WITH 24 BRACKET



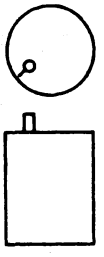
233A



310 TYPE

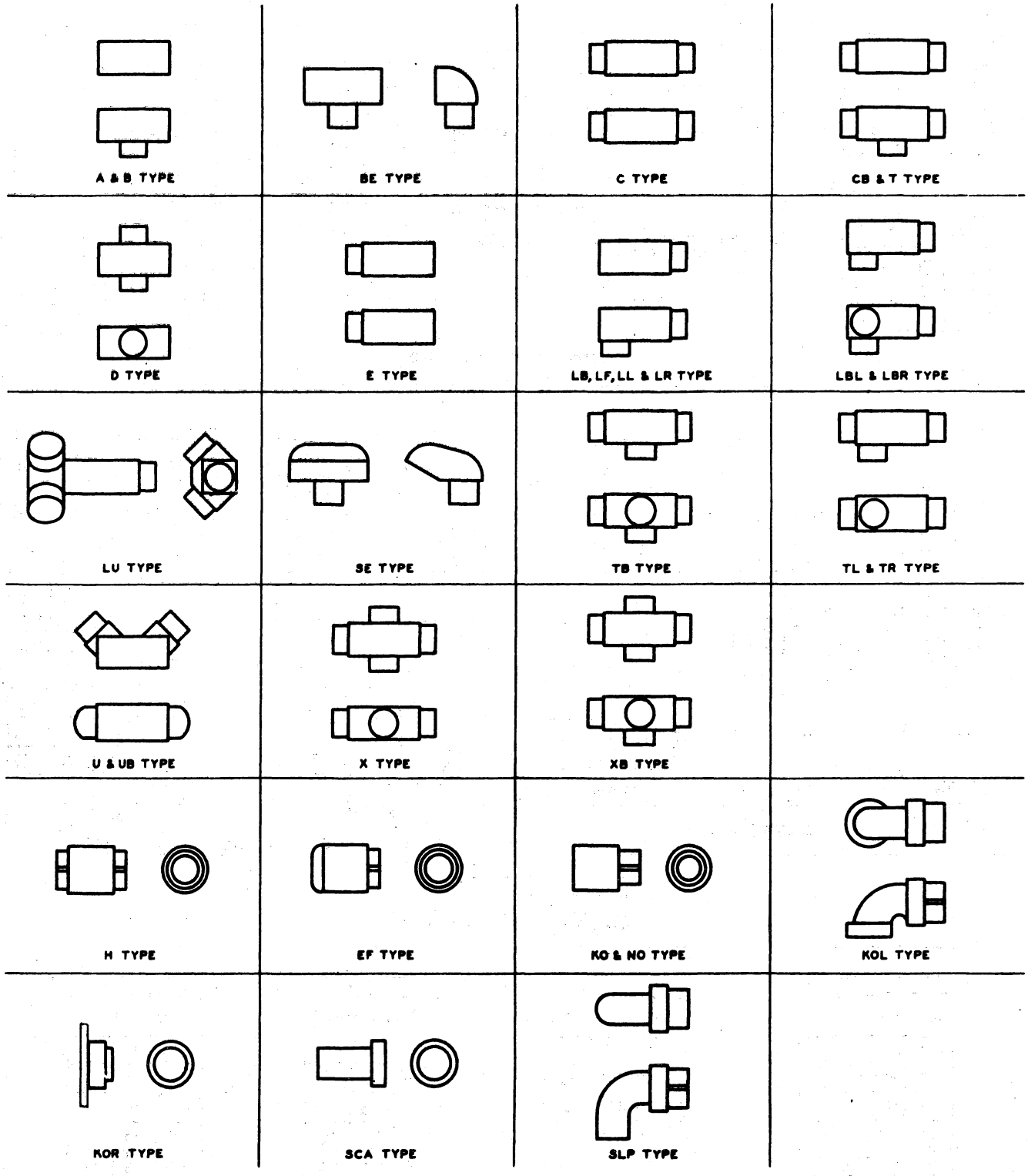


319A



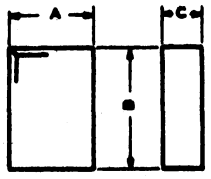
KS-5426 ELEC. COND.

CONVENTIONS - CONDENSERS



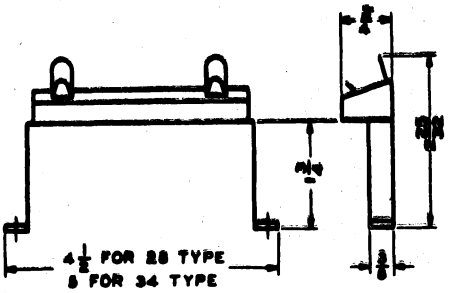
NOTES:
1. DETAIL INFORMATION ON PAGES 64 TO 67

CONVENTIONS - CONDUIT FITTINGS, THREADLESS

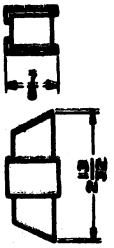


23 & 27 TYPE

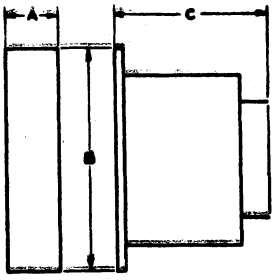
CODE	A	B	C
23	1 7/8	3 11/16	
27	1 3/8	2 5/16	5/8



28 & 34 TYPE



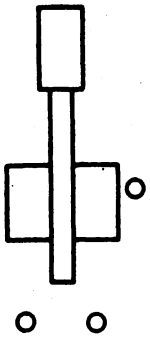
33 TYPE



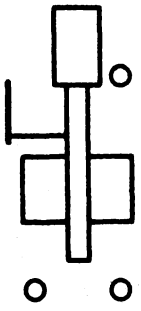
35 & 45 TYPE

CODE	A	B	C
35	1 25/64	4 5/16	5 5/16
45	47/64	5 1/2	5 5/16

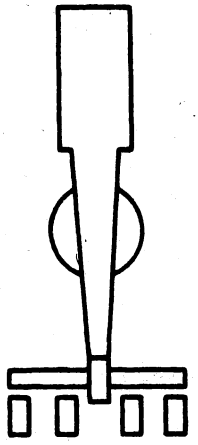
CONNECTING BLOCKS



NORMALLY CLOSED
KS-5422
60 AMP.

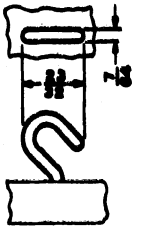


KS-5422
150 AMP.

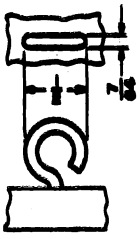


KS-5323-01
50-1500 AMP.

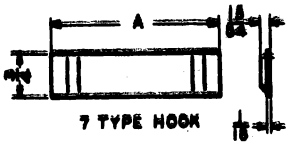
CONTACTORS



3 TYPE HOOK

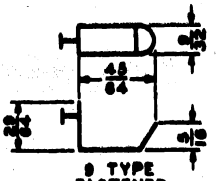


5 TYPE HOOK



7 TYPE HOOK

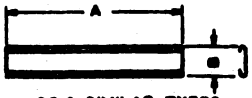
CODE	MAX. NO. HOOKS	C'T'R'S.	DIM. A
7A	14	9/32	11 5/8
7B	24	1/2	11 15/16
7C	16	3/4	11 15/16
7D	28	13/32	11 29/32
7E	19	1/8	11 7/8
7F	27	7/16	11 13/16
7G	22	17/32	11 13/32
7H	10	1 1/8	11 1/4
7J	32	3/8	1-0



9 TYPE
FASTENER

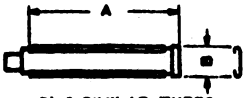
CORD FASTENERS AND CORD HOOKS

ALL TYPES ON FACE EQUIPMENTS
DETAIL INFORMATION ON PAGE 51



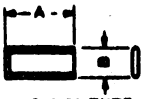
8G & SIMILAR TYPES

CODE	A	B
8G	AS SPEC.	7/16
8H	AS SPEC.	3/8
8K	6 1/8	5/8
8Y	AS SPEC.	3/4
43B	1 1/2	39/64
43C	1 1/4	39/64



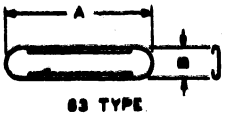
8L & SIMILAR TYPES

CODE	A	B
8L	AS SPEC.	7/16
8M	AS SPEC.	3/8
8P	1-10 37/64	7/16
8R	2-3 9/64	7/16
8U	AS SPEC.	5/8
8W	AS SPEC.	1
8AA	1-2 27/32	7/16
8AB	AS SPEC.	7/16
8AC	3 33/64	7/16



43D & 91 TYPE

CODE	A	B
43D	1 1/4	3/4
91B	1-0 3/4	2 3/16
91C	3 1/4	2 3/16
91D	1 9/32	1 37/64



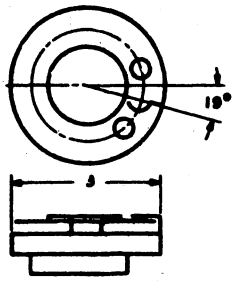
63 TYPE

CODE	A	B
63A	1-3	1 1/4
63C	8 1/2	31/32
63D	5 7/8	31/32
63E	4 13/16	1 1/4
63F	7 5/8	1 1/4
63G	10 1/2	1 1/4
63H	1-3	1 1/4
63J	1-3	1 1/4
63K	5 1/4	1 1/4

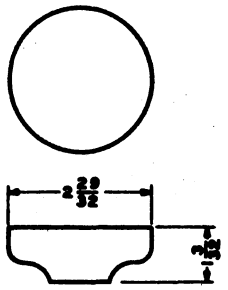
DESIGNATION STRIPS

CONVENTIONS - CONNECTING BLOCKS TO DESIGNATION STRIPS

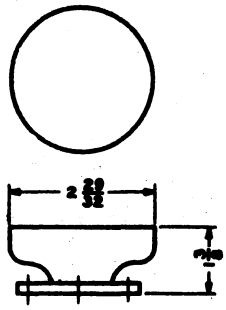
X-62604



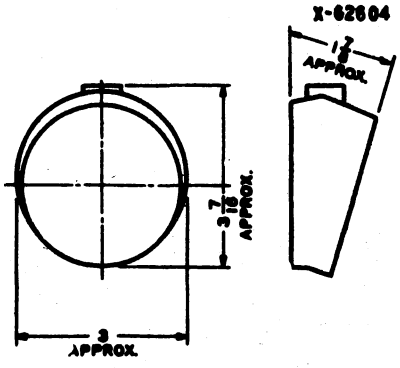
5 TYPE DIAL



30 TYPE MTG.



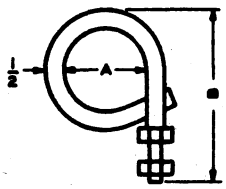
32 TYPE MTG.



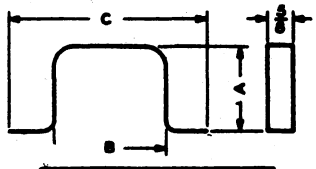
34 & 6000 TYPE MTG.

DIAL

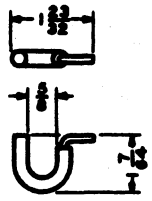
DIAL MOUNTINGS



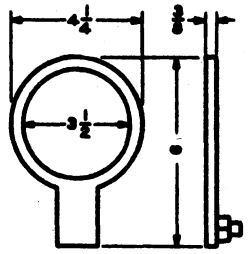
CODE	A	B
3	3	$4\frac{25}{32}$
6	$3\frac{7}{8}$	$6\frac{3}{16}$



CODE	A	B	C
4A	2	$2\frac{3}{8}$	$4\frac{7}{8}$
4B	3	$3\frac{5}{8}$	$6\frac{1}{8}$
4C	3	$5\frac{5}{8}$	$8\frac{1}{8}$

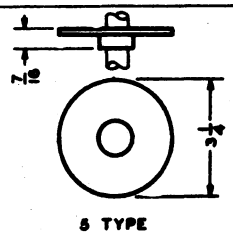


5 TYPE

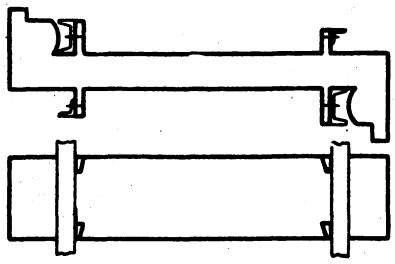


9 TYPE

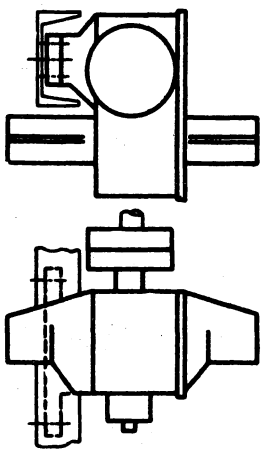
DISTRIBUTING RINGS



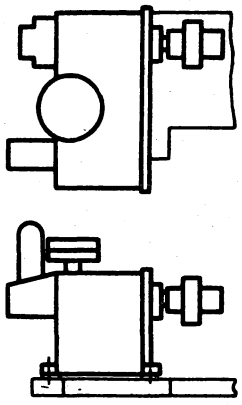
5 TYPE



17, 18 & SIMILAR TYPES

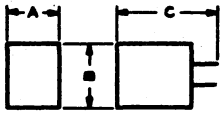


33 TYPE



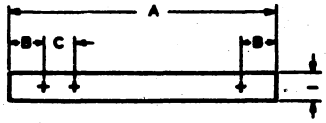
34 TYPE

DRIVES



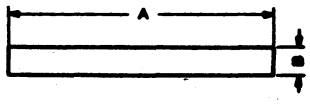
CODE	A	B	C
4A	$1\frac{1}{64}$	$1\frac{5}{16}$	$2\frac{3}{8}$
22A	$1\frac{11}{32}$	$1\frac{1}{2}$	$5\frac{9}{32}$
35A	$1\frac{1}{64}$	$1\frac{1}{32}$	$3\frac{37}{64}$
35C	$1\frac{1}{64}$	$1\frac{1}{32}$	$3\frac{37}{64}$
56	$\frac{31}{32}$	$\frac{15}{16}$	$3\frac{37}{64}$

DROPS



CODE	NO. OF POS.	A	B	C	CODE	NO. OF POS.	A	B	C
2	10	1-3	$1\frac{5}{16}$	$1\frac{3}{8}$	76	4	$7\frac{25}{32}$	$1\frac{1}{2}$	$1\frac{13}{32}$
56	20	2-0$\frac{9}{16}$	$1\frac{19}{32}$	$1\frac{1}{8}$	83	5	$7\frac{23}{32}$	$1\frac{7}{64}$	$1\frac{3}{8}$
57	15	2-0$\frac{9}{16}$	$2\frac{21}{32}$	$1\frac{3}{8}$	84	5	$9\frac{3}{16}$	$1\frac{3}{32}$	$1\frac{3}{4}$
58	15	1-9$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{3}{8}$	86	9	$9\frac{13}{16}$	$\frac{29}{32}$	1
69	10	$11\frac{3}{16}$	$1\frac{3}{32}$	1	87	8	$10\frac{31}{32}$	$1\frac{7}{64}$	$1\frac{1}{4}$
75	10	1-3$\frac{5}{16}$	$1\frac{15}{32}$	$1\frac{3}{8}$					

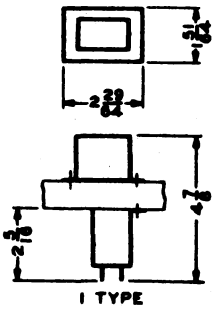
DROP MOUNTINGS



CODE	A	B
2	1-3	1
7	2-0$\frac{9}{16}$	$\frac{25}{32}$
11	2-0$\frac{9}{16}$	$1\frac{1}{32}$
12	1-9$\frac{3}{4}$	1
15	2-0$\frac{9}{16}$	$\frac{13}{32}$

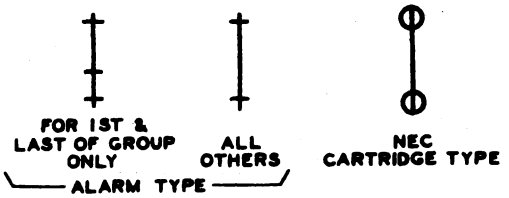
DROP SPACES

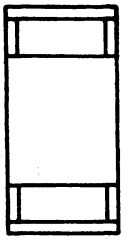
CONVENTIONS – DIALS TO DROP SPACES



1 TYPE

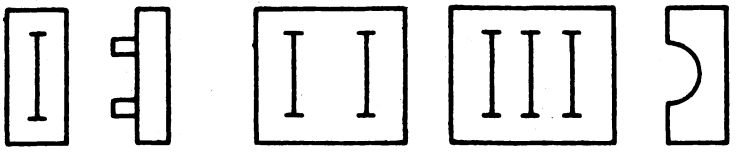
ELECTRIC CLOCK



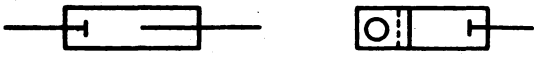


LINK FUSE & BARRIER

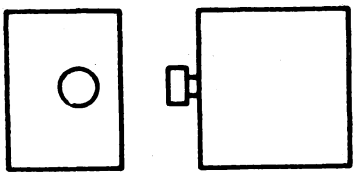
FUSES



FUSE CUTOUTS

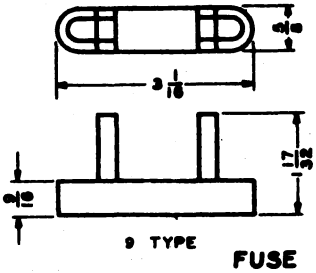


FUSE MOUNTINGS

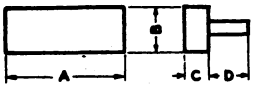


0-30 AMP

SAF-TO FUSE UNIT



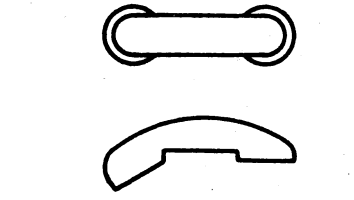
9 TYPE



12, 13 & 15 TYPE

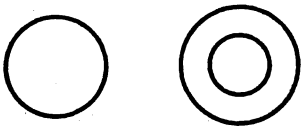
CODE	A	B	C	D
12E 12F	2	17/32	7/16	15/16
13	1 5/8	15/32	3/8	1
15	1 11/16	17/32	7/16	15/16

FUSE BLOCKS



E10, E4A, F1A & SIMILAR TYPES

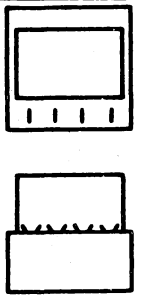
HAND SET



221, 234 & SIMILAR TYPES

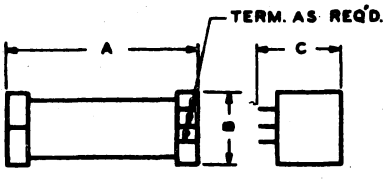
KS-5125-01

HAND WHEELS



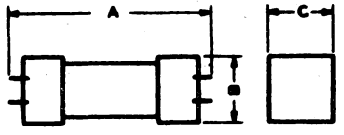
D-77817

HOWLER APP.



13 & SIMILAR TYPES

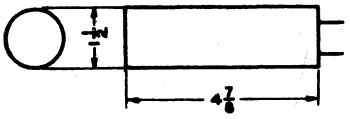
CODE	A	B	C
13	3 1/4	1	1 5/32
31	3 1/4	1	1 5/32
62	4 1/4	1 9/16	1 23/32
63	4 1/4	1 9/16	1 23/32
65	4 1/4	1 9/16	1 23/32
66	4 1/4	1 9/16	1 23/32
72	4 1/4	1 9/16	1 23/32
73	4 1/4	1 9/16	1 23/32
113	3 1/4	1 9/32	1



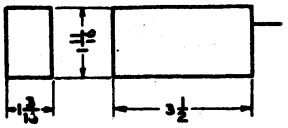
558 & SIMILAR TYPES

CODE	A	B	C
558	4 3/8	1 3/8	1 3/8
120	4 1/2	1 3/8	1 3/8
146C	5 1/16	1 3/8	1 17/32

INDUCTION COILS

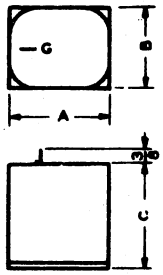


75 TYPE



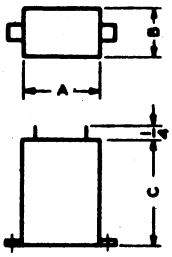
102 TYPE

CONVENTIONS - ELECTRIC CLOCK TO INDUCTION COILS



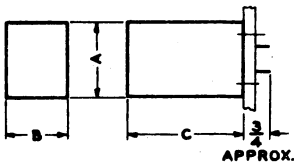
205 & SIMILAR TYPES

CODE	A	B	C
205	4 3/16	2 15/16	4 5/32
208, 230, 231, 2338, 241, 246 & 250	3 3/16	2 5/8	3 17/32
233F	3 3/16	2 5/8	3 25/32
240	3 3/16	2 5/8	3 19/32



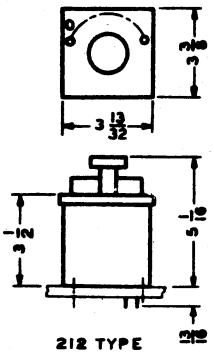
209 & SIMILAR TYPES

CODE	A	B	C
209	2 5/16	1 7/16	3 1/8
213	2 1/32	1 9/32	2 15/32
214	2 1/16	1 5/16	2 3/8

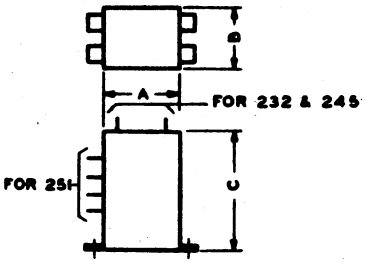


255 & SIMILAR TYPES

CODE	A	B	C	CODE	A	B	C
255	2 9/16	3 3/8	3 7/16	295	4 15/16	1 11/16	4 3/8
259	2 1/32	1 9/32	2 3/8	298	2 9/16	3 13/32	3 7/16
266	2 9/16	3 3/8	3 7/16	299			
270	3 5/16	1 11/16	3 7/16	600	3 9/32	1 11/16	3 7/16
274	3 9/32	1 11/16	3 7/16	604	1 11/16	1 11/16	4 13/32
277	2 9/16	3 13/32	3 7/16	605	3 9/32	1 11/16	3 7/16
280				606	3 13/32	2 9/16	3 7/16
281				607			
283	3 9/32	1 11/16	3 7/16	608	4 7/8	3 7/16	4 3/8
287				609			
288	1 3/4	1 3/4	3 1/4	619	2 17/32	1 11/16	3 7/16
291	3 1/4	1 11/16	3 7/16	620			
292	3 9/32	1 11/16	3 7/16	621			
293	3 11/32	1 11/16	4 3/8				
294	1 1/2	1 9/32	3 15/32				

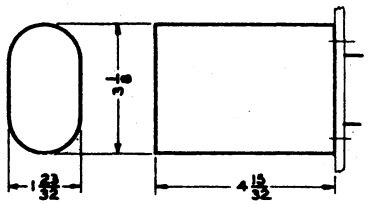


212 TYPE



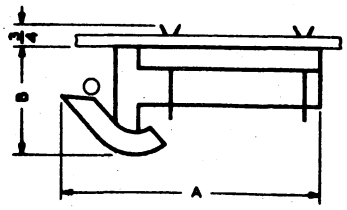
232 & SIMILAR TYPES

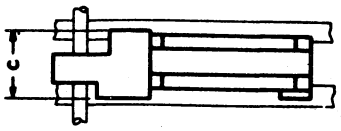
CODE	A	B	C
232	5 7/16	2 5/8	5 11/32
251	5 7/16	2 5/8	5 7/32



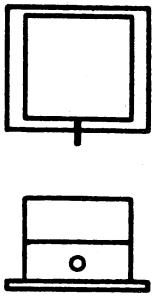
602, 603 & 623 TYPE

INPUT TRANSFORMERS





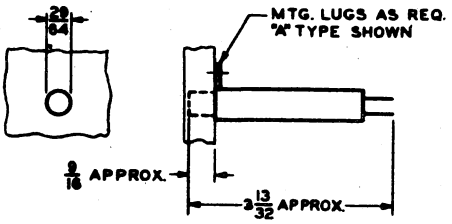
165 & SIMILAR TYPES



94 TYPE

CODE	A	B	C
165	11 3/4	4 11/16	3 1/2
166	1-0 1/16	5 1/16	3 7/16
167	8 5/8	4 3/4	3 1/2

INTERRUPTERS

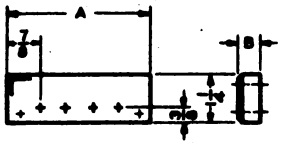


215, 216, 217, 218 & SIMILAR TYPES

JACKS

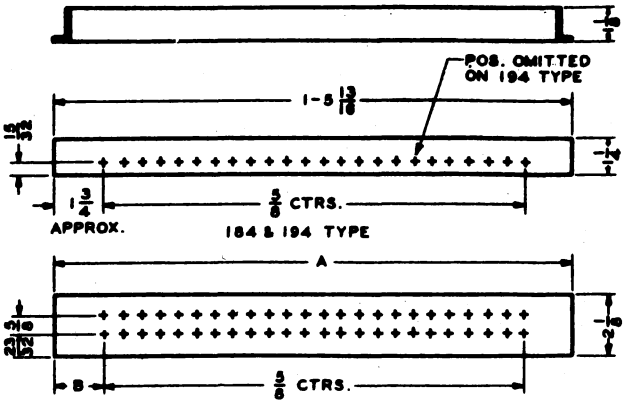
CONVENTIONS — INPUT TRANSFORMERS TO JACKS

X-62884



30 & SIMILAR TYPES

CODE	A	B	NO. OF POS.
30	3 3/4	5/8	4
78	5 1/8	5/8	6
80	2 3/8	5/8	2
198	5 1/8	1/4	6
199A	3 3/4	1/4	4
199B	3 3/4	1/4	3
200A	2 3/8	1/4	2



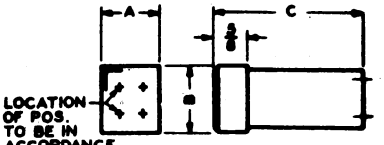
184 & 194 TYPE

185 & SIMILAR TYPES

CODE	A	B	NO. OF JKS.
185	1-5 13/16	1 23/32	48
206	1-9 15/16	1 29/32	60
227	1-5 15/16	1 25/32	48

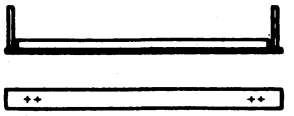
ALL TYPES ON FACE EQUIPMENTS
DETAIL INFORMATION ON PAGE 51

JACK MOUNTINGS

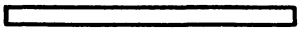


201 & SIMILAR TYPES

CODE	A	B	C	NO. OF JKS.
201A	2 1/4	1 13/16	6 1/2	4
201B	2 1/4	1 13/16	8 1/2	3
212A	1 3/16	1 5/8	2 19/32	1
213A	1 11/16	1 5/8	2 19/32	2
226A	1 7/8	2 3/8	3 1/8	2
226B	1 7/8	3 1/4	5 5/32	4

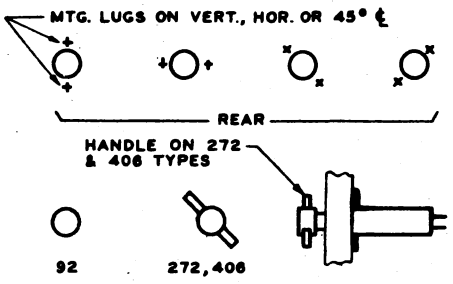


ALL STUD MTD. TYPES

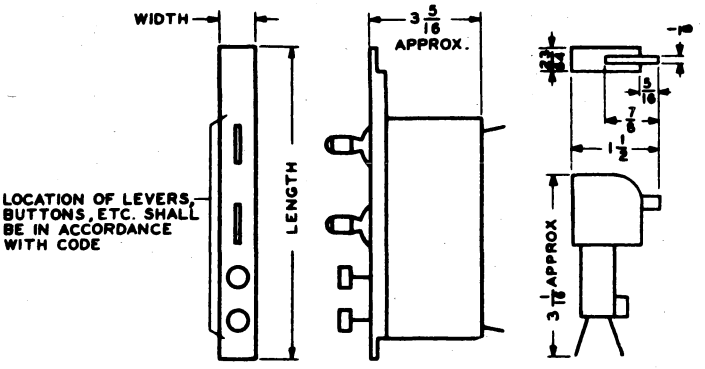


FOR ALL TYPES
DETAIL INFORMATION ON PAGE 51

JACK SPACES

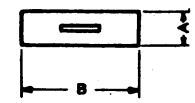


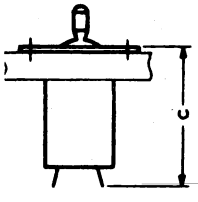
92,272,406 & SIMILAR TYPES



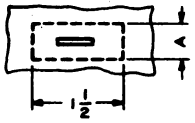
A,B,C,E & G TYPE

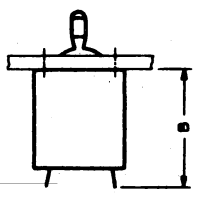
570A





479 & SIMILAR TYPES





501 & SIMILAR TYPES

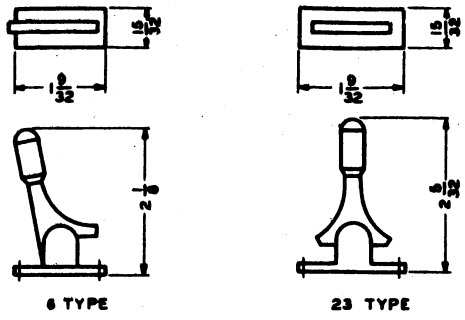
CODE	A	B	C
479	15/16	2 1/4	3 9/64
526	15/16	2 1/4	3 5/32
530	15/16	2 1/4	3 3/16

CODE	A	B
501	47/64	3 5/32
517	9/16	3 9/64
531 532	47/64	3 3/32
540	3/4	3 5/64

WIDTH	A TYPE 7 1/2 LONG	B TYPE 4 9/16 LONG	C TYPE 2 3/4 LONG	E TYPE 11/16 LONG	G TYPE 5 1/2 LONG
1/2	A3A & A3B	B11C			
9/16	A6, A7 & A24 A10 EXCEPT J & AA	B3	C2, C5 & C6		
5/8	A3E & A3G	B5 TO B8 B11A & B11B			
3/4				E1 & E5	
27/32	A1, A2, A4C, A5, A8 A9, A10J & AA, A11 TO A18, A27, A28, A29, A31, A32 & A33	B1 EXCEPT THOSE FOR 1 1/32 WIDE B10, B14, B15, B17 TO TO B20 & B23	C1, C3 & C8		G1, G2 & G3
1	A30				
1 1/32	A4A	B1C, B1D, B1W, B1AD, B1CL, B1CY, B1DD, B1DM, B1GU, B1HA, B1JC, B1JH, B1JN, B1JP, B1LC, B2 & B9			
1 1/2				E2	
1 11/16			C7 & C9		
1 7/8				E4	
2 3/8		B22			G4
5 1/16			C10		

KEYS

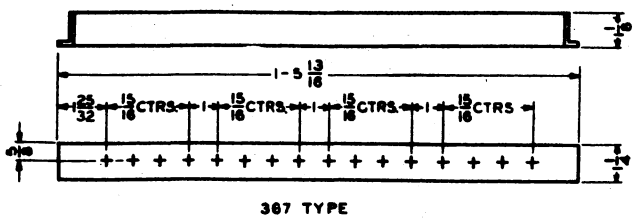
CONVENTIONS — JACK MOUNTINGS TO KEYS

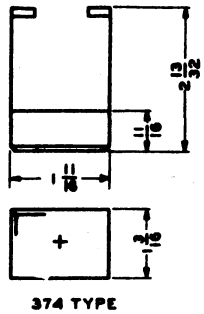


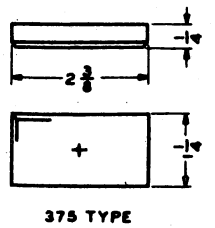
KEY LEVERS

ALL TYPES
DETAIL INFORMATION ON PAGE 50

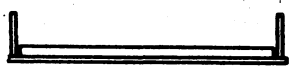
KEY SPACES





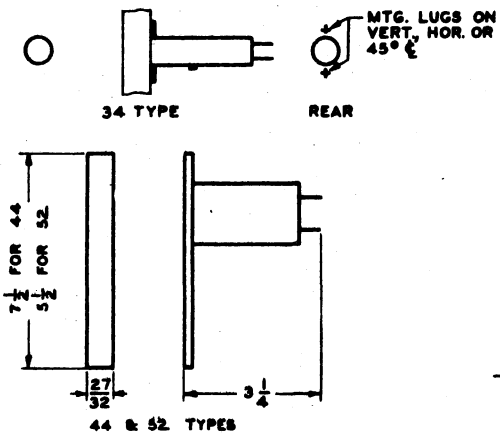


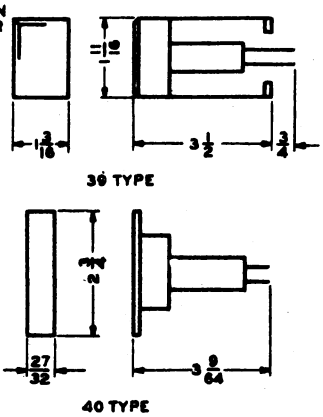
ALL TYPES ON FACE EQUIPMENTS
DETAIL INFORMATION ON PAGE 51

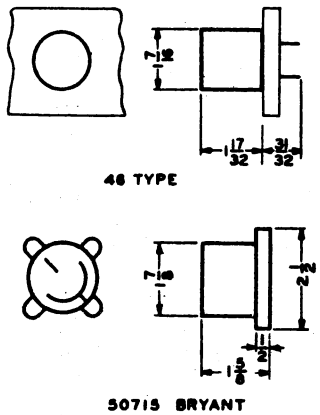


ALL STUD. MTD. TYPES

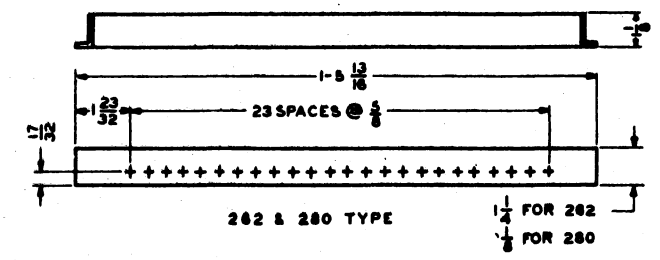
KEY MOUNTINGS

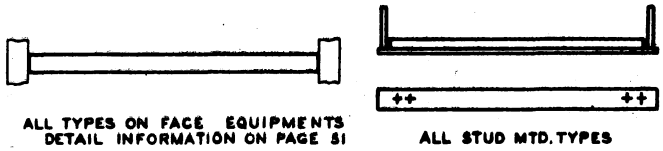






LAMP SOCKETS

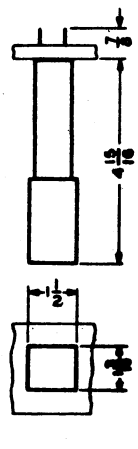


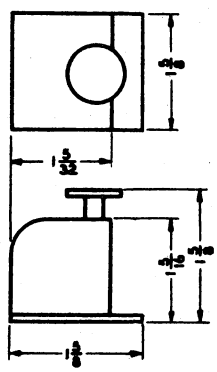


ALL TYPES ON FACE EQUIPMENTS
DETAIL INFORMATION ON PAGE 51

ALL STUD MTD. TYPES

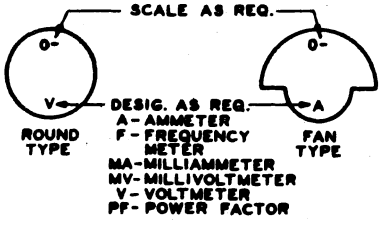
LAMP SOCKET MOUNTINGS



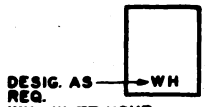


MESSAGE REGISTERS

CONVENTIONS- KEY LEVERS TO MESSAGE REGISTERS

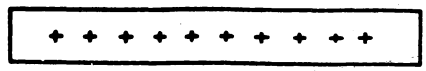


WESTON ELECTRICAL INSTRUMENT CO.

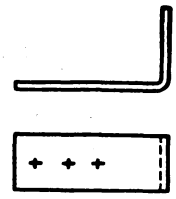


SQUARE OR RECT. TYPE

METERS



600, 601, 609 & SIMILAR TYPES WITH OR WITHOUT COVER



628, 629, 630 & SIMILAR TYPES

MOUNTING PLATES

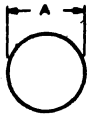


FIG. A

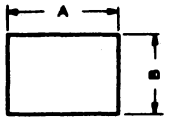


FIG. B

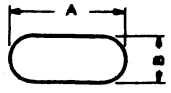
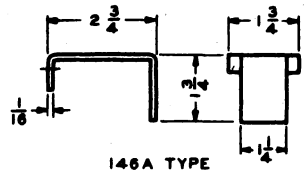


FIG. C



146A TYPE

CODE	FIG.	A	B
1	A	5/8	—
5	B	5/16	1/2
12	A	3/8	—
17	B	7/16	1/4
21	B	5/16	11/16
23	A	25/32	—
30	B	1/4	3/8
31	B	5/16	7/16
59	B	5/16	7/16
60	B	1/4	3/8

CODE	FIG.	A	B
107	A	19/32	—
108	B	15/64	25/32
109	B	19/64	27/32
127A	C	1 13/32	25/32
127B	C	1 1/4	25/32
129A	B	1 1/32	3/4
129B	B	1 1/32	3/8
130	B	6 13/32	7/32
137	B	6 1/2	9 1/2
138	B	2	1 3/16
139	B	6	2 1/4

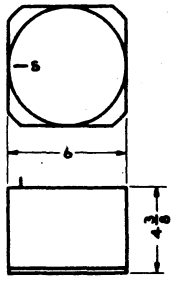
CODE	FIG.	A	B
140	B	1 5/32	5/8
141A			7/16
B			1/2
C			9/16
D			7/8
E			1 5/8
F			1 3/4
G			PER ORDER
AA			7/16
AB			1/2
AC			9/16

CODE	FIG.	A	B
141AD	B	1 5/32	7/8
AE			1 5/8
AF			1 3/4
AG			PER ORDER
142B	B	25/32	5/8
C			1
D			1
E			1
F			1
G			15/16
H			15/16

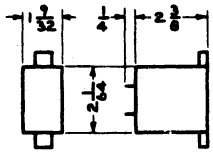
CODE	FIG.	A	B
143A	B	25/32	1/2
B			1 3/16
C			1 5/16
D			1 3/8
E			1 3/4
F			1
G			PER ORDER
H			1
K			1 3/4
AA			1/2
AB			1 3/16

CODE	FIG.	A	B
143AC	B	25/32	1 5/16
AD			1 3/8
AE			1 3/4
AF			3
AG			PER ORDER
AH			1
AK			1 3/4
147	A	4 11/32	—
149	A	2 7/8	—

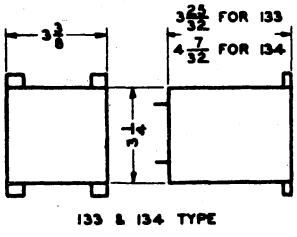
NUMBER PLATES



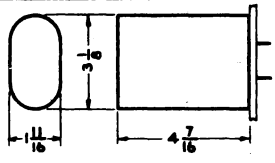
113 TYPE



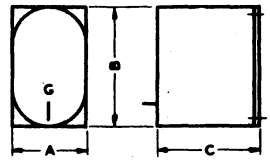
116 TYPE



133 & 134 TYPE

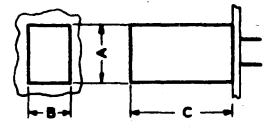


186 TYPE



104 & SIMILAR TYPES

CODE	A	B	C
104	2 9/16	4 3/16	4 5/32
109	2 5/8	3 3/16	3 17/32
121	2 9/16	4 3/16	4 5/32
122	2 5/8	3 3/16	3 17/32
123			
125			
129	2 9/16	4 3/16	4 5/32
135	4	6 3/8	5 27/32



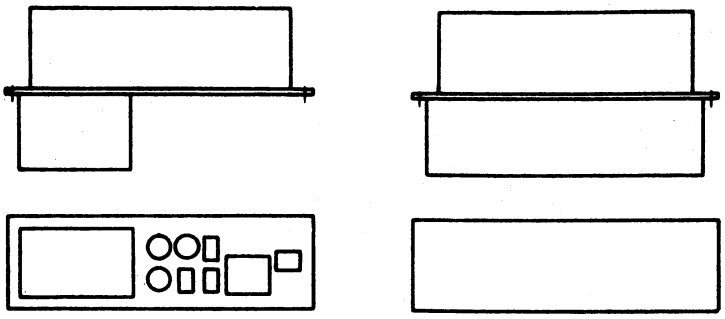
141 & SIMILAR TYPES

CODE	A	B	C
141	3 3/8	3 1/4	3 29/32
148	1 11/16	3 9/32	3 7/16
151			
154	2 9/16	3 13/32	3 7/16
155	3 13/32	2 9/16	3 7/16
157	1 11/16	3 9/32	3 7/16
159	3 13/32	2 9/16	3 7/16
161			
162	1 11/16	3 9/32	3 7/16
163			
176	1 11/16	5 5/32	4 3/8
177	1 11/16	3 3/32	4 3/8
180	3 13/32	2 9/16	3 7/16

CODE	A	B	C
181	1 11/16	3 9/32	3 7/16
184	2 9/16	4 5/16	4 3/8
187	3 7/16	4 7/8	4 3/8
189	1 11/16	3 9/32	3 7/16
190	5 3/16	5 3/16	4 3/8
193	1 11/16	2 17/32	3 7/16
194			
195			

OUTPUT TRANSFORMERS

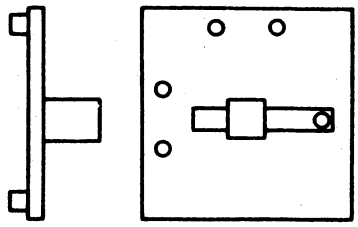
CONVENTIONS – METERS TO OUTPUT TRANSFORMERS



WITH EXPOSED APPARATUS 511D PANEL SHOWN

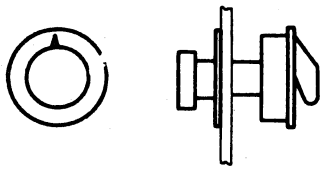
WITHOUT EXPOSED APPARATUS 156B INTERRUPTER SHOWN

PANEL TYPE EQPT.

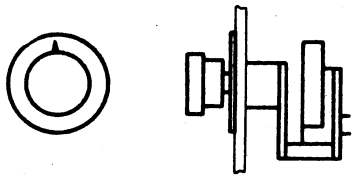


KS-5394

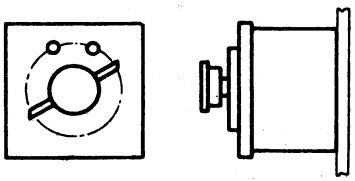
POWER FAILURE CONTROL MOTOR



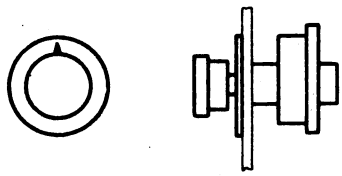
13,22,24 & SIMILAR TYPES



15 & SIMILAR TYPES

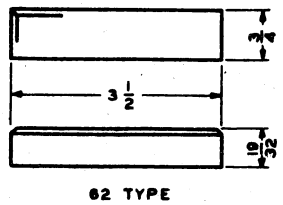


14 & SIMILAR TYPES



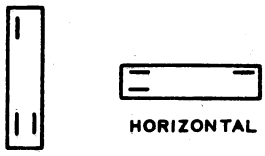
30 & SIMILAR TYPES

POTENTIOMETERS



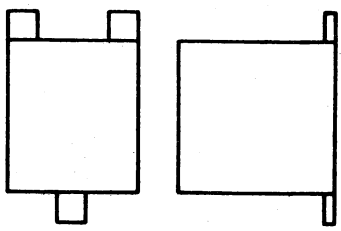
62 TYPE

PROTECTOR



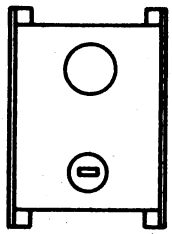
22B & 50C

PROTECTOR MOUNTING

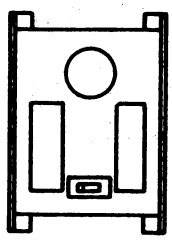


KS-5183

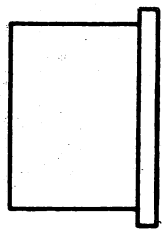
REACTOR



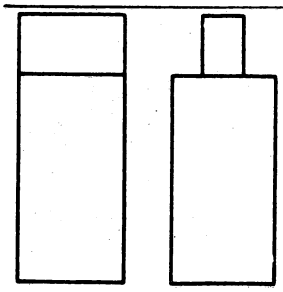
KS-5192



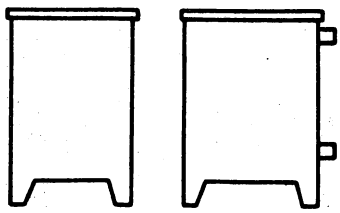
KS-5194



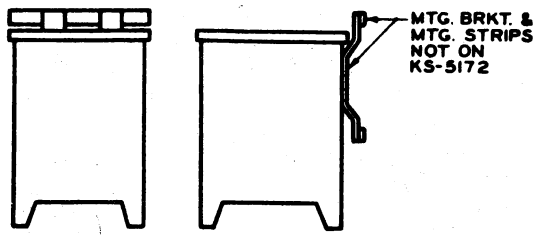
END VIEW



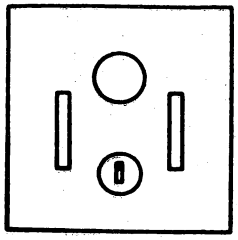
KS-5338



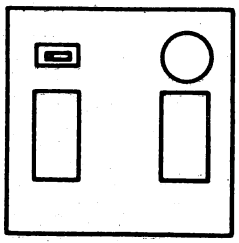
KS-5191-01



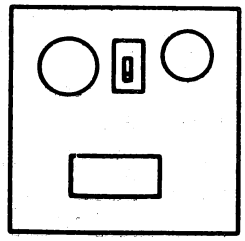
KS-5250, KS-5368, KS-5386, KS-5454 & KS-5172



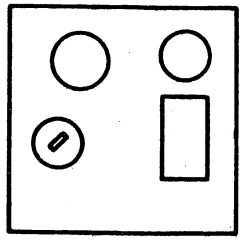
KS-5363-01



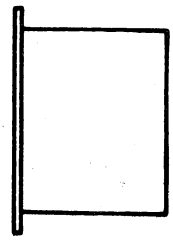
KS-5364



KS-5395 L1 & L3



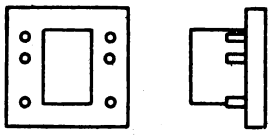
KS-5395 L2 & L4



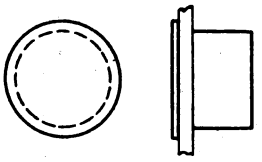
END VIEW

RECTIFIERS

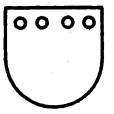
CONVENTIONS - PANEL TYPE EQPT. TO RECTIFIERS



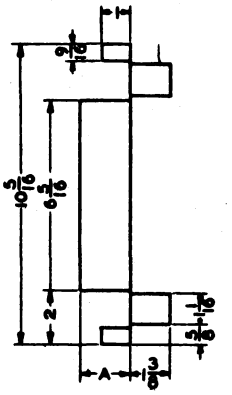
SIGNAL
KS-5483



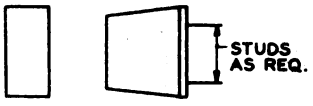
MODEL 534 &
SIMILAR TYPES



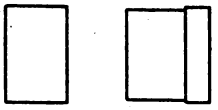
WESTON
MODEL 613



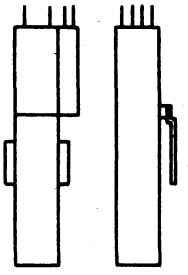
245 & SIMILAR TYPES



CONTROL
KS-5350

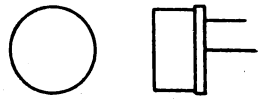


HG-101, G.E.CO.

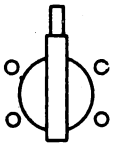


DASH POT TYPE

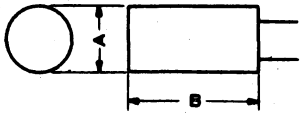
CODE	A
245A,D&E 263A,D&E 254A&B 264A&B	1 27/32
245B&C 263B&C	1 1/2



AMMETER
KS-5342 & SIMILAR TYPES

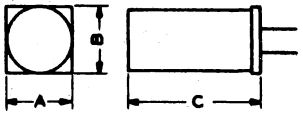


REVERSE
CURRENT
CONTACTOR
KS-5323-01



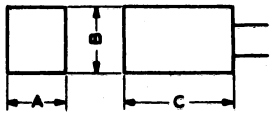
81 & SIMILAR TYPES

CODE	A	B	CODE	A	B
81	1 9/16	4 9/32	178	1 21/32	3 7/8
114	1 3/16	3 3/8	187	1 21/32	4 1/16
124	1 3/16	3 5/16	198	1 3/16	4 5/16
149	1 21/32	3 3/4	260	3 3/4	3 1/4
162	1 21/32	3 5/8			



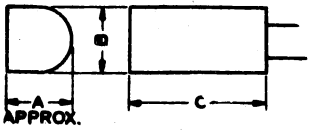
209, 215 & 255 TYPE

CODE	A	B	C
209	2 11/16	2 11/16	5 1/8
215	2 11/16	2 11/16	4 3/4
255	2 11/16	2 11/16	4 3/4



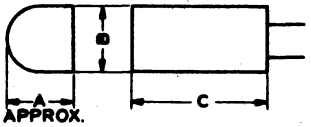
A,186 & SIMILAR TYPES

CODE	A	B	C	CODE	A	B	C
A	11/16	1 5/16	3 13/64	Y	*1 1/16	1 7/16	3 25/32
B	1 3/16	1 11/16	3 35/64	186	1 3/16	1 3/32	4 1/8
C	2 11/64	1 45/64	4 15/64	196	1 3/8	2 13/32	4 3/8
E	*7/8	1 3/8	3 5/16	206	1 1/2	1 11/16	4 5/8
F	*7/8	1 3/8	3 5/16	207	2 1/8	1 5/8	3 3/8
G	1 3/16	1 11/16	3 17/32	208	1 5/16	1 9/16	2 23/32
H	1 3/16	1 11/16	4 17/64	213	2 9/16	1 45/64	3 29/32
J	1 3/16	1 11/16	3 17/32	218B	3 17/64	2 17/32	5 1/8
L	1 3/16	1 3/8	3 5/16	231	1 23/32	1 23/32	4 3/4
M	1 27/32	1 3/8	3 5/16	236	1 3/16	1 11/16	3 13/16
N	1 17/32	1 11/16	3 7/8	239	1 3/4	1 3/4	4 3/4
R	*31/32	1 3/8	3 5/16	253	1 9/16	1 23/32	2 15/16
S	1 17/32	1 11/16	3 13/16				
T	*29/32	1 3/8	3 5/16				
U	*1 3/16	1 7/16	3 25/32				



221 & SIMILAR TYPES

CODE	A	B	C
221	1 21/32	1 1/4	3 1/2
223	1 27/32	1 15/32	3 1/2
247	1 7/8	1 11/32	3 1/2
251	1 13/16	1 7/32	3 19/32

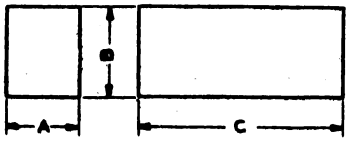


222 & SIMILAR TYPES

CODE	A	B	C
222	2 1/16	1 1/4	3 1/2
224	1 7/8	1 1/2	3 1/2
248	1 3/4	1 11/32	3 1/2
252	1 15/16	1 7/32	3 19/32

RELAYS

* APPROXIMATE

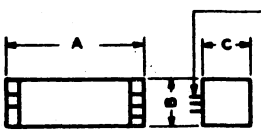


ALL TYPES

CODE	A	B	C	CODE	A	B	C	CODE	A	B	C
1A	1 9/16	1 23/32	3 27/32	E2	1 3/16	1 11/16	4 17/64	U4	1 21/32	1 21/32	4 17/64
2A	1 9/16	1 23/32	4 27/32	R1	1 7/32	1 11/16	3 51/64	U5	2 1/32	1 21/32	4 17/64
208	1 17/32	1 45/64	3 15/64	R2	1 11/32	1 11/16	3 51/64				
218	3 19/64	2 13/64	5 15/64	R3	1 11/32	1 11/16	3 27/32				
E1	1 3/16	1 11/16	3 51/64	U3	1 13/32	1 21/32	4 17/64				

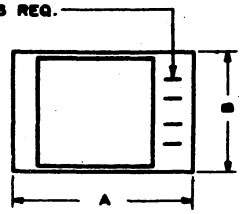
RELAY COVERS

CONVENTIONS – RELAYS AND RELAY COVERS



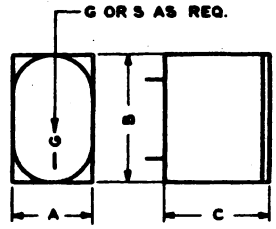
20 & SIMILAR TYPES

CODE	A	B	C
45	4 1/4	1 3/8	1 3/8
49	3 1/4	1 3/8	1 3/8
97	3 1/4	1	1
98	3 1/4	1 3/16	1 3/16



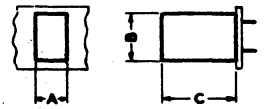
56 & SIMILAR TYPES

CODE	A	B	C
56	11	8 5/8	5 1/8
73	6	4	2 9/16
77	6	4	2 9/16



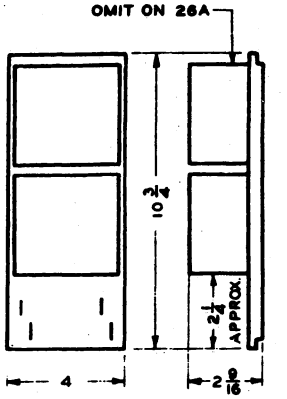
58 & SIMILAR TYPES

CODE	A	B	C
58, 59, 67, 74, 81, 83, 84, 89, 107, 111 & 113	2 9/16	4 3/16	4 5/32
80, 92, 96, 105 & 109	2 5/8	3 3/16	3 17/32
112 & 122	2 7/8	2 7/8	3 19/32

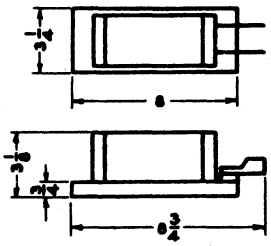


66 & SIMILAR TYPES

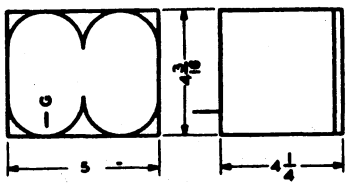
CODE	A	B	C
66	1 11/16	1 3/8	3 15/64
100	2 1/16	3 7/8	3 15/16
102	2 1/16	3 7/8	3 15/16
103	1 3/16	1 11/16	4 17/64
108	1 11/16	3 9/32	3 7/16
116	1 3/32	1 29/32	2
119	2 9/16	4 9/32	4 3/8
123	2 9/16	4 9/32	4 3/8
124	1 11/16	3 9/32	3 7/16
129	1 11/16	3 9/32	3 7/16
131	2 9/16	4 9/32	4 3/8
134	2 9/16	3 7/16	3 7/16
135	2 9/16	3 13/32	3 7/16
142	1 3/16	1 11/16	3 3/32
146	1 11/16	3 13/32	3 7/16
147	1 11/16	2 17/32	3 7/16
148	1 9/32	1 1/2	3 15/32
150	1 11/16	3 9/32	3 7/16
152	1 3/4	1 3/4	3 1/4
154	1 11/16	3 9/32	3 7/16
159	7 29/32	1 11/16	4 3/8
160	1 11/16	3 9/32	3 7/16
161	1 7/32	1 11/16	3 17/32
162	5 3/16	5 3/16	3 7/16
166	2 9/16	4 5/16	4 3/8
167	2 9/16	3 13/32	4 1/32
168	1 11/16	3 9/32	3 7/16
170	1 3/4	1 3/4	3 1/4



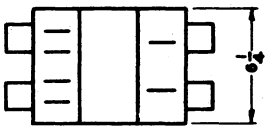
25A, 26A, 54A, 75, 76, 78 & 85 TYPE

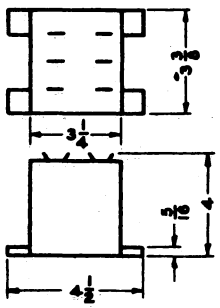


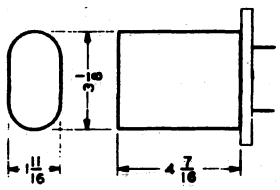
60A



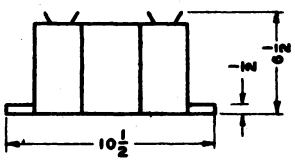
62, 91 & 93 TYPE







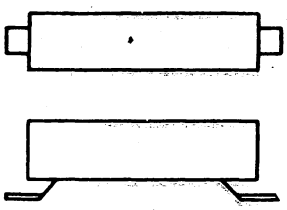
94, 120 & 151 TYPE



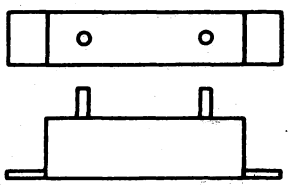
114A

115

REPEATING COILS



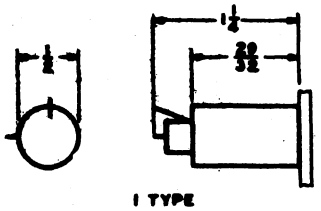
G.E. TYPE CR 9158



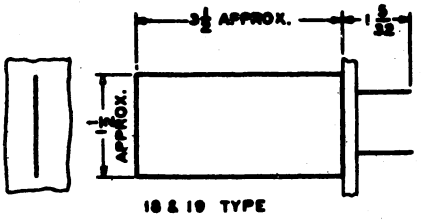
ITE CKT. BREAKER TYPE

RESISTORS

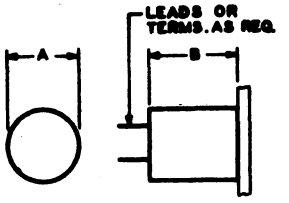
CONVENTIONS - REPEATING COILS AND RESISTORS



1 TYPE

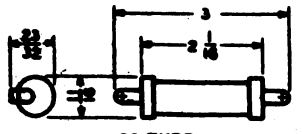


18 & 19 TYPE

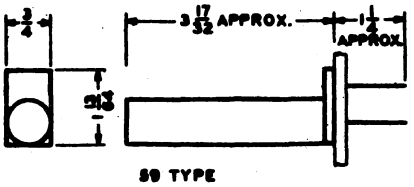


21 & SIMILAR TYPES

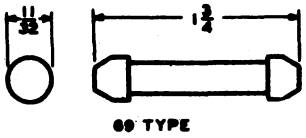
CODE	A	B
21	3/4	1 1/16
34	2 1/16	2 23/64
36	1 1/8	7/8
61	3/8	2 3/8
63	7/8	5/8
64	3/8	1 3/4
65	3/8	1 3/4
67	9/16	4
68	15/32	2
82	3/4	1 5/8



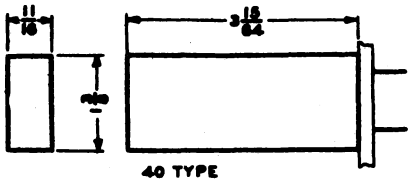
36 TYPE



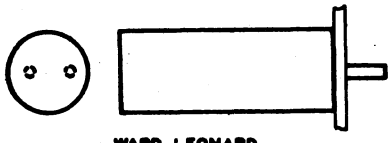
59 TYPE



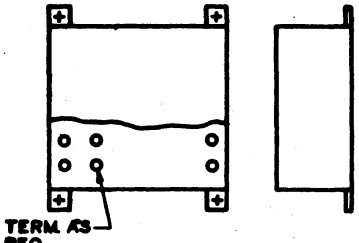
69 TYPE



40 TYPE

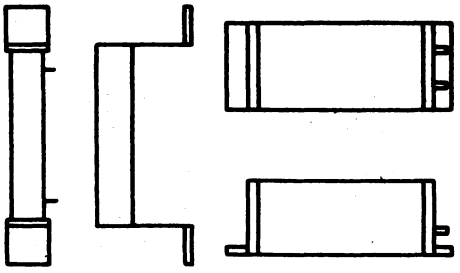


WARD LEONARD TYPE EP



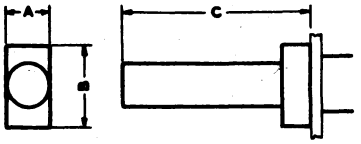
TERM. AS REQ.

WARD LEONARD TYPE T



BRACKET TYPE

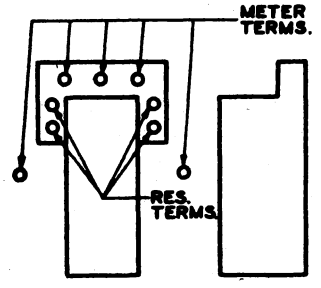
WARD LEONARD TYPE D



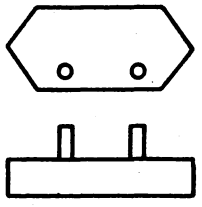
44 & SIMILAR TYPES

CODE	A	B	C
44	3/4	1 3/8	4 7/16
60	3/4	1 11/16	4 1/16
80	13/32	3/4	2 1/4
105	15/32	13/16	2 7/32

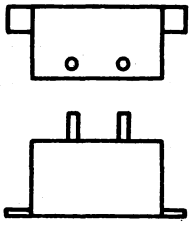
RESISTANCES



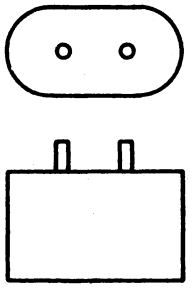
FOR WESTON 356 POWER FACTOR METER



WESTON TYPE 8

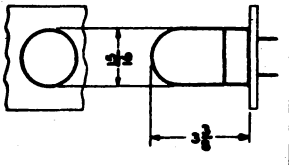


WESTON TYPE 3 NO.1



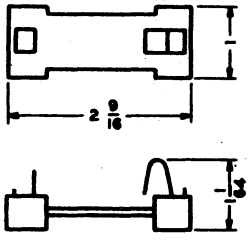
WESTON TYPE 5 NO.1

RESISTANCE BOXES

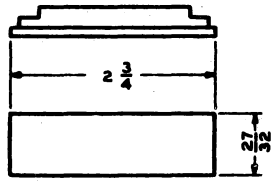


11 & 13 TYPES

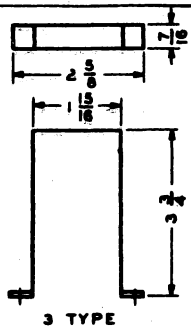
RES. LAMP



1 TYPE



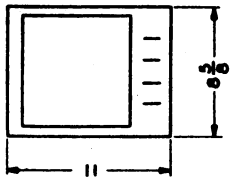
2 TYPE

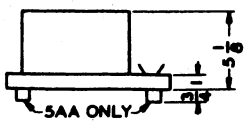


3 TYPE

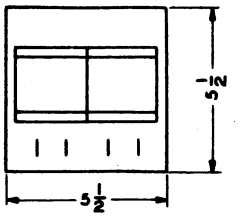
RESISTANCE MOUNTINGS

CONVENTIONS - RESISTANCES TO RESISTANCE MOUNTINGS

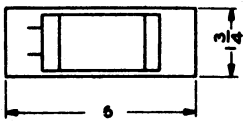




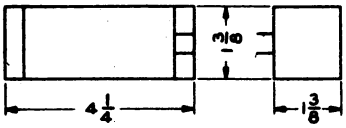
5AA & 59 TYPE



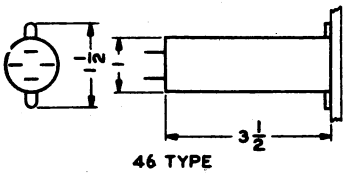
5A



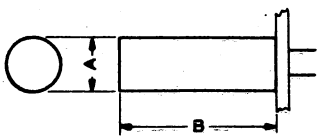
12A, E, F, L & S



12AB, AC, AD & AE

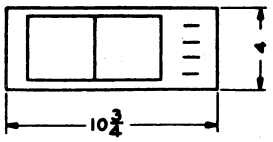


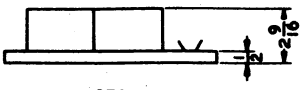
46 TYPE



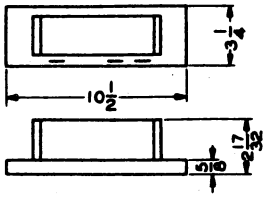
47 & 54 TYPE

CODE	A	B
47	1	3 5/8
54	1 1/2	4 7/8

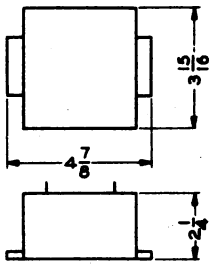




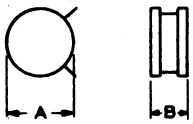
57A



60A & B

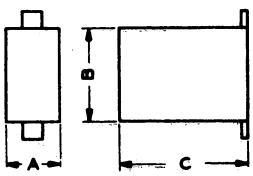


64C & 87A



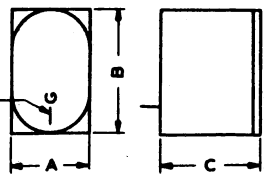
67 & SIMILAR TYPES

CODE	A	B
67	1 1/8	13/16
116	2 3/8	1 5/16
153	1 1/8	23/32
225	7/8	5/8



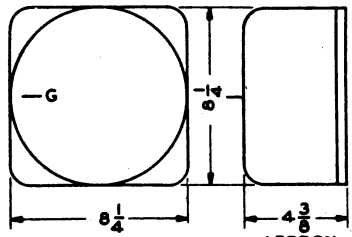
83 & 94 TYPE

CODE	A	B	C
83	1 9/32	2 1/32	2 15/32
94	1 7/16	2 3/8	3 3/16

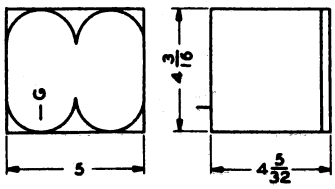


71 & SIMILAR TYPES

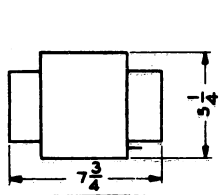
CODE	A	B	C
71	2 9/16	4 3/16	4 9/64
91	2 9/16	4 3/16	4 9/64
92	3 1/16	4 7/8	4 17/32
105	2 9/16	4 3/16	4 5/32
109	2 5/8	3 3/16	3 17/32
110	2 9/16	4 3/16	4 5/32
112	4 3/4	7 1/8	4 3/16
123	2 9/16	4 3/16	4 9/64
135	2 9/16	4 3/16	4 5/32
148	2 7/8	2 7/8	3 9/16
155	2 5/8	3 3/16	3 17/32
157	2 9/16	4 3/16	4 5/32



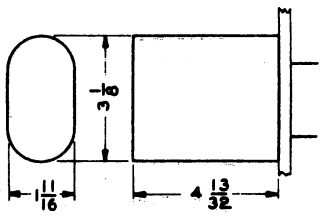
77 TYPE



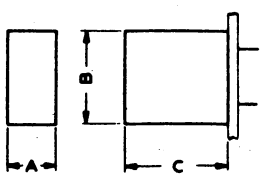
103 TYPE



146A



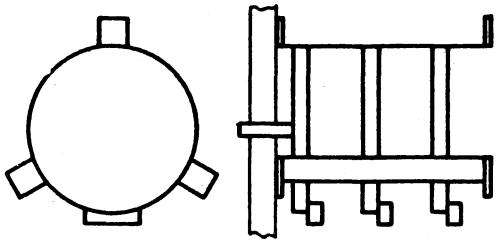
149 TYPE



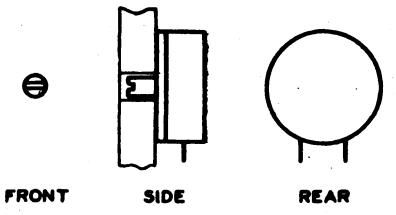
85 & SIMILAR TYPES

CODE	A	B	C
85	1 3/16	1 11/16	4 17/64
111	11/16	1 3/8	3 15/64
114	1 3/16	1 11/16	3 17/32
131	2 1/16	3 15/16	4
156	4 29/32	1 15/32	3 17/32
158	8 9/16	3 1/4	4 1/4
167	1 11/16	3 9/32	3 7/16
176	2 9/16	3 13/32	3 7/16
177	2 9/16	3 13/32	3 7/16
181	4 3/16	3 1/4	4 1/4
182	1 9/32	1 1/2	3 15/32
184	1 5/8	1 15/32	3 1/2
199	2 9/16	3 13/32	3 7/16
201	3 1/4	3 1/8	4 1/4
207	1 3/16	1 11/16	3 1/2
211	2 9/16	4 9/32	4 3/8
213	1 11/16	3 9/32	3 7/16
220	5 1/2	3 9/16	4 35/64
221	1 3/4	1 3/4	3 1/4
231	1 11/16	3 9/32	3 7/16
232	3 9/32	1 11/16	3 7/16
234	7 5/8	5 11/16	6 3/4
240	5 1/2	4 5/16	4 19/32
241	4 11/32	3 1/16	3 3/4
243	7 7/8	6 11/16	6 3/4
247	5 3/16	5 3/16	4 3/8
248	3 9/32	1 11/16	3 7/16
251	1 1/2	1 9/32	3 15/32
254	2 25/32	1 9/32	2 25/32
257	3 9/32	1 11/16	3 7/16
258	1 37/64	1 1/32	1 15/32
GIHI	1 29/32	1 3/32	2
307	1 3/16	1 11/16	3 1/2

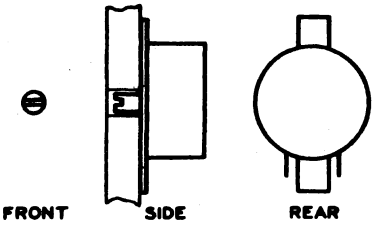
CONVENTIONS – RETARDATION COILS



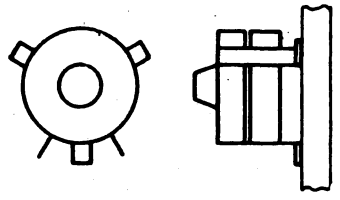
KS-5031 & KS-5125
3 PLATES SHOWN



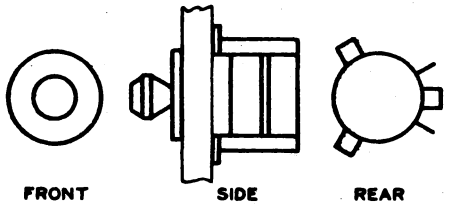
DEJUR AMSCO RADIO TYPE



WARD LEONARD RING TYPE

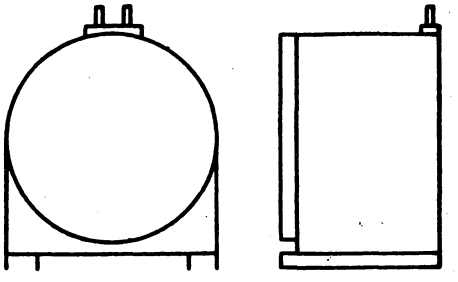


FRONT OF BOARD MOUNTED

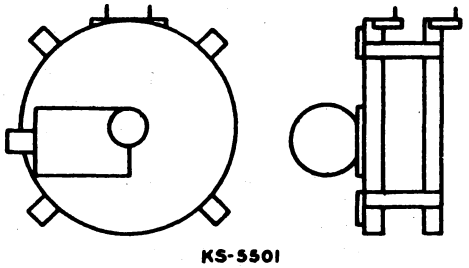


REAR OF BOARD MOUNTED

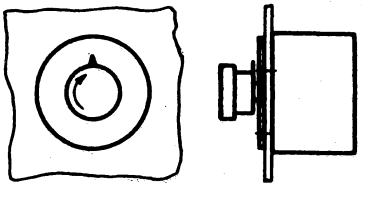
KS-5244



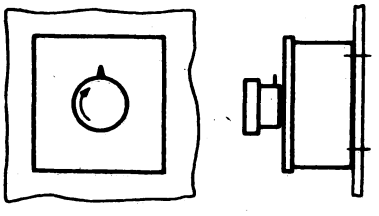
KS-5349 & KS-5445
KS-5349 SHOWN



KS-5501

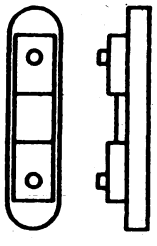


35,36,37 & SIMILAR TYPES

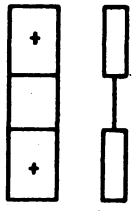


41,42,43 & SIMILAR TYPES

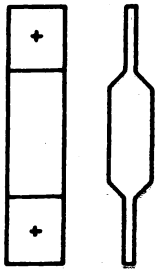
RHEOSTATS



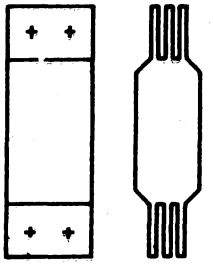
WESTON EXTERNAL
1-200



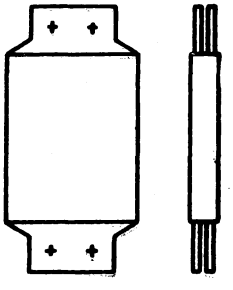
WESTON 250-400
SANGAMO 25-75
KS-5342 75-1200
KS-5348 100-1200



WESTON 500-800

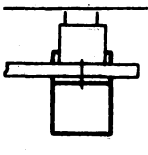


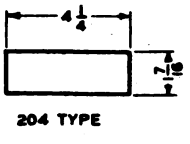
WESTON 1000-20,000



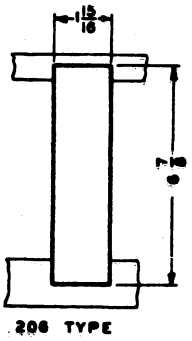
SANGAMO 300-5000

SHUNTS

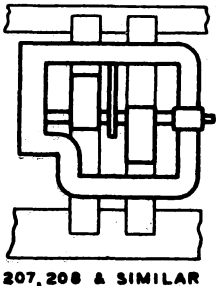




204 TYPE

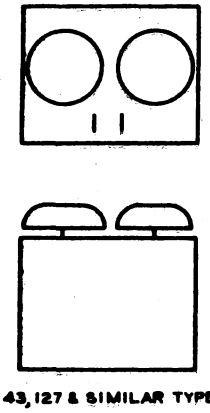


208 TYPE



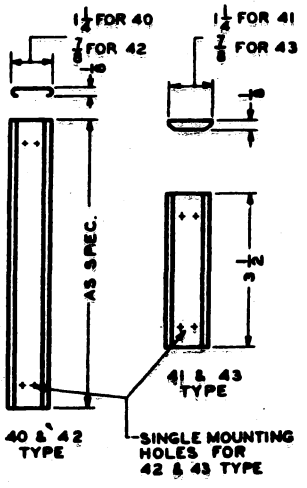
207, 208 & SIMILAR TYPES

SELECTORS



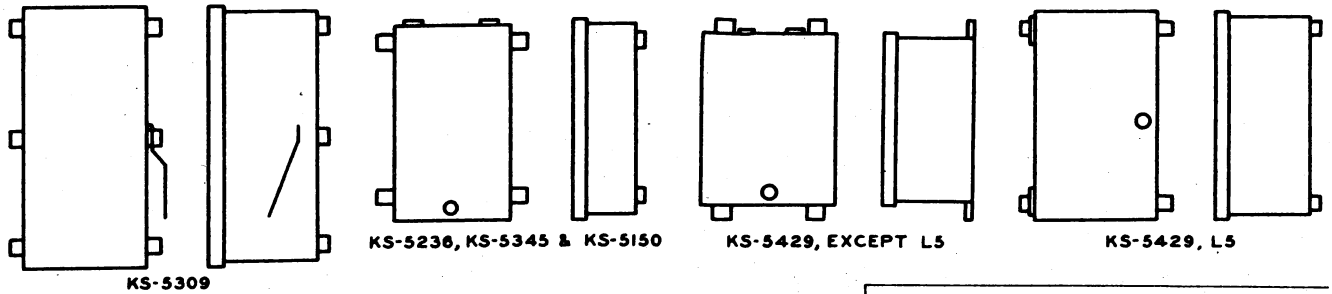
43, 127 & SIMILAR TYPES

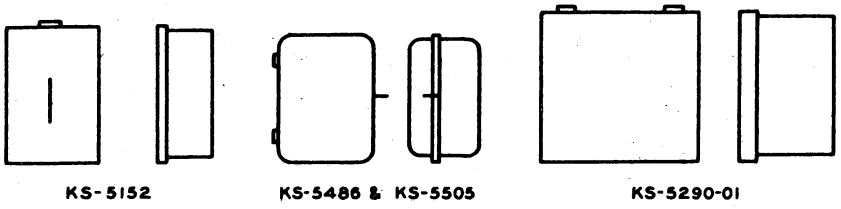
SUB SETS



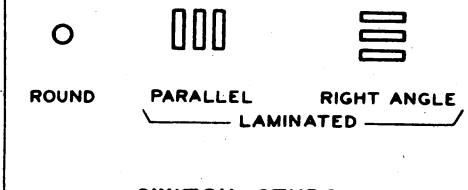
STILE CASINGS

CONVENTIONS - RHEOSTATS TO SUB SETS

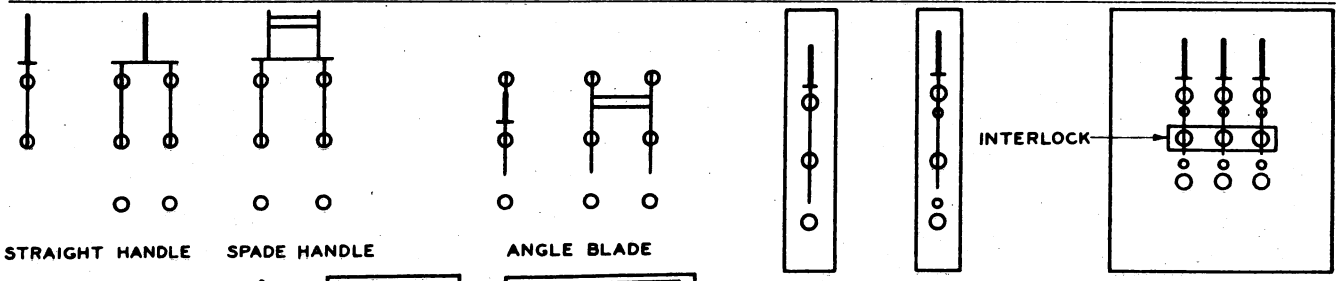


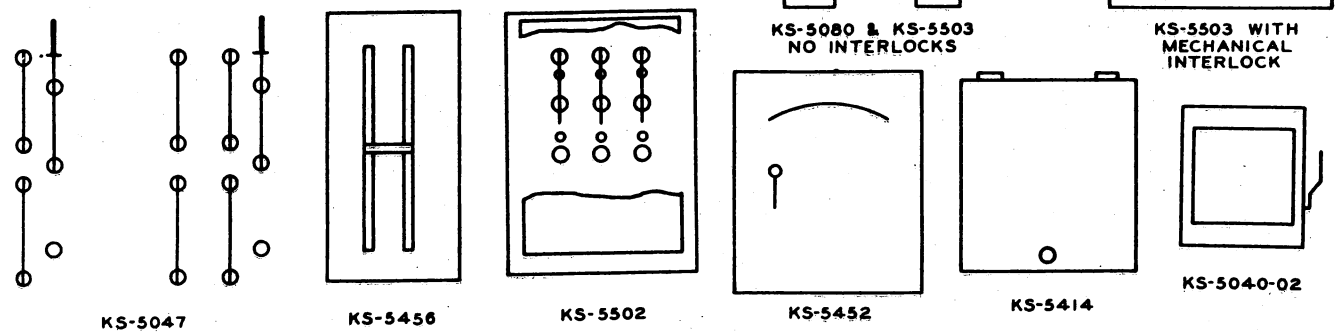


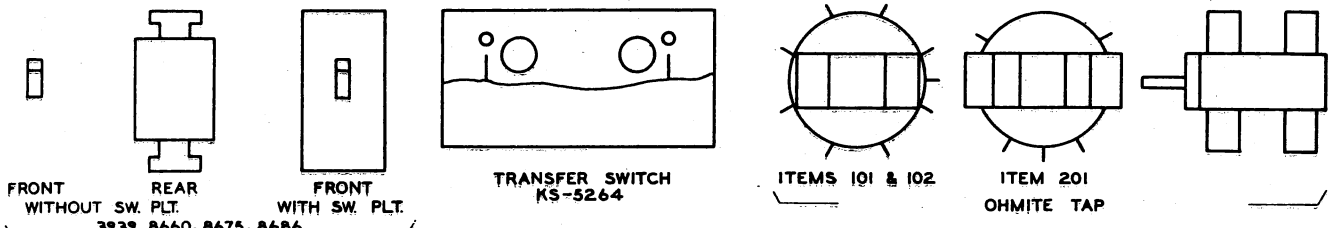
STARTERS

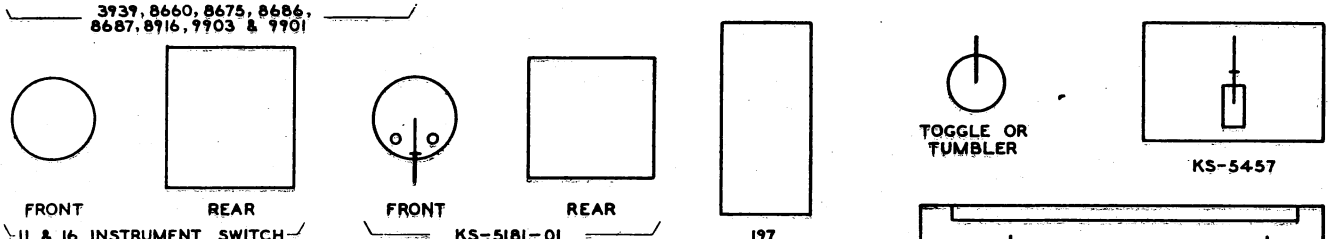


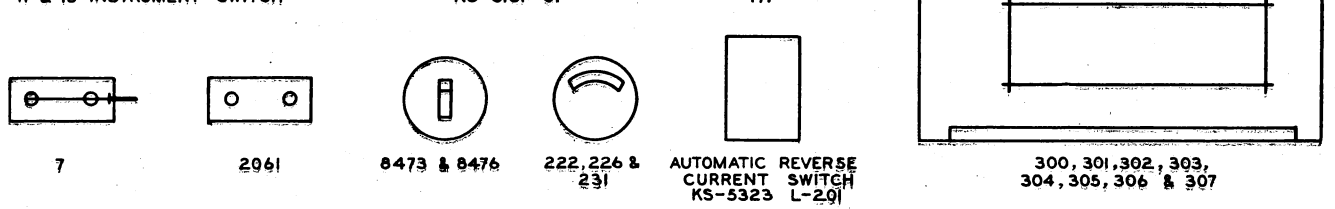
SWITCH STUDS





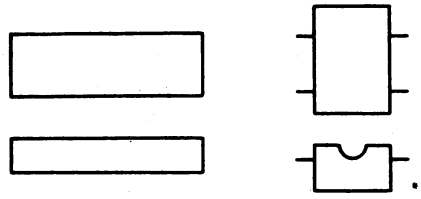






SWITCHES

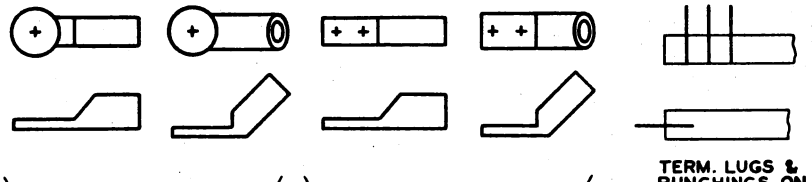
CONVENTIONS – STARTERS TO SWITCH STUDS



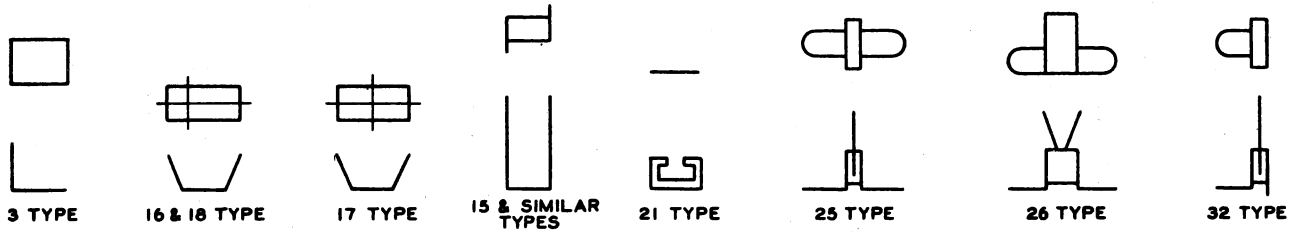
BURKE ELEC. CO. NO. 2008

THE STATES CO. NO. 25005-10 & 25015-10

TERMINAL BLOCKS

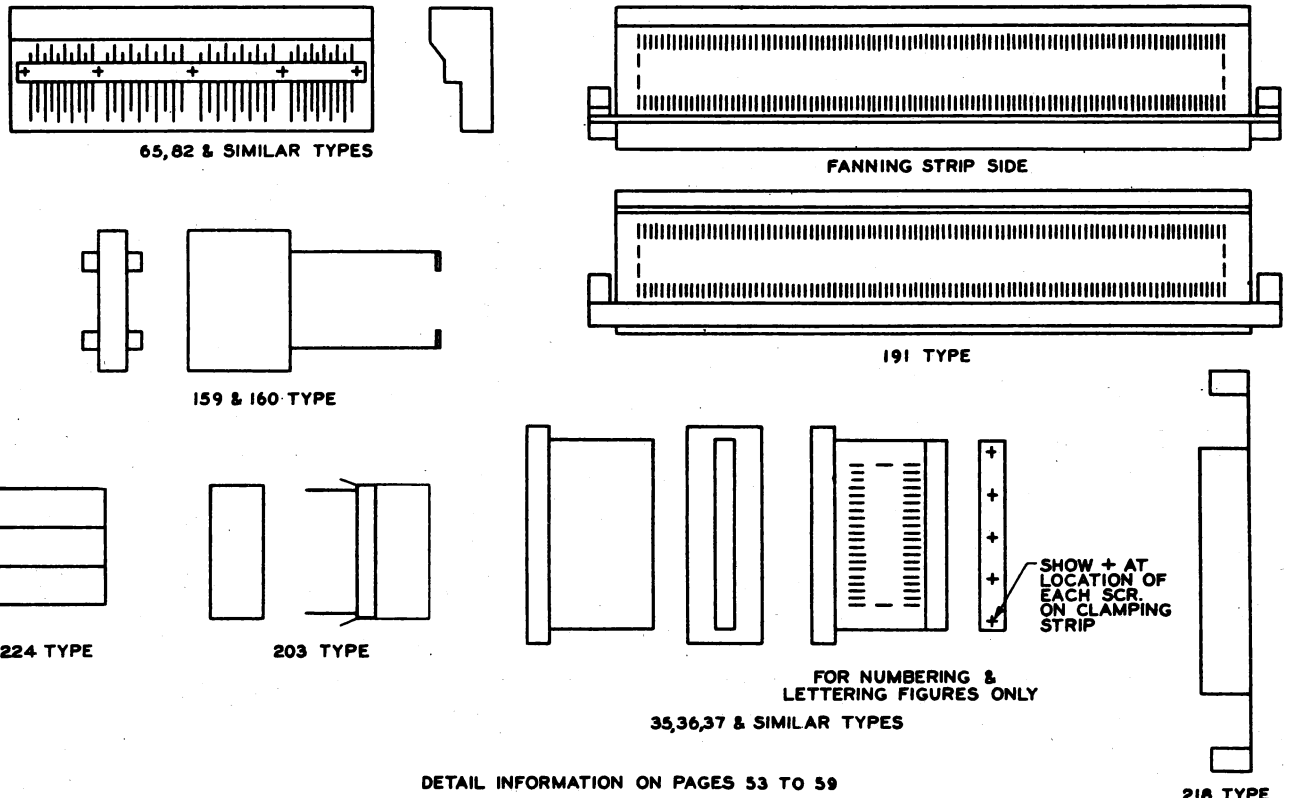


TERMINAL LUGS



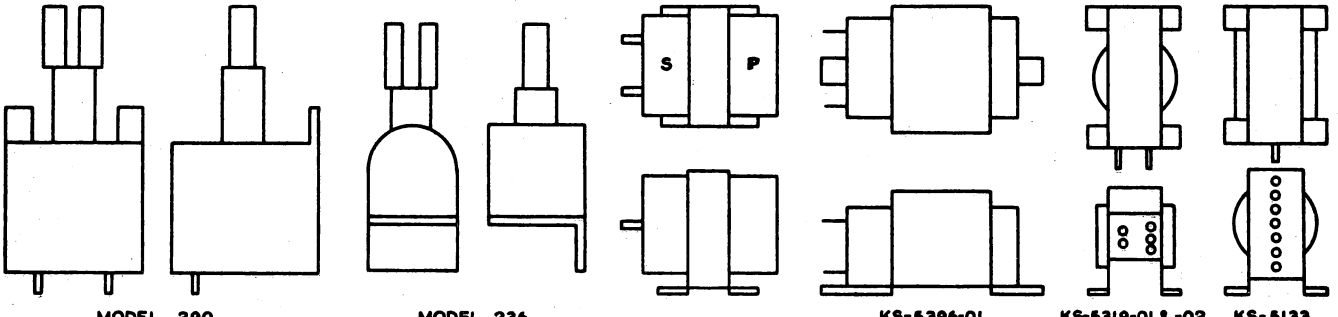
DETAIL INFORMATION ON PAGE 115

TERMINAL PUNCHINGS



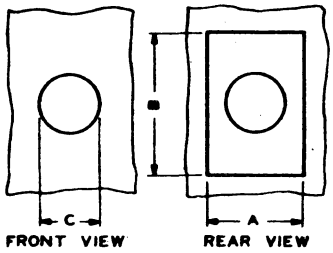
DETAIL INFORMATION ON PAGES 53 TO 59

TERMINAL STRIPS



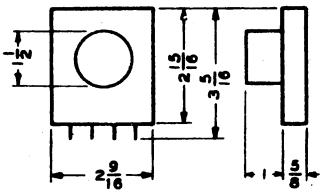
TRANSFORMERS

CONVENTIONS - TERMINAL BLOCKS TO TRANSFORMERS

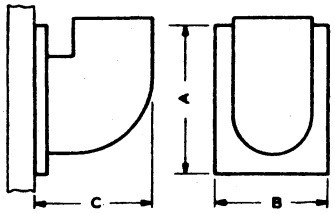


100R, 106A & SIMILAR TYPES

CODE	A	B	C
100R	$1\frac{7}{8}$	$2\frac{7}{8}$	$1\frac{1}{2}$
106A	$2\frac{3}{8}$	$2\frac{9}{16}$	$1\frac{33}{64}$
115	2	$2\frac{7}{8}$	$1\frac{1}{2}$
116	$1\frac{7}{8}$	$2\frac{7}{8}$	$1\frac{1}{2}$
117	$3\frac{1}{8}$	$3\frac{1}{4}$	$1\frac{1}{2}$
120	$2\frac{1}{2}$	$2\frac{11}{16}$	$1\frac{1}{2}$
125	$1\frac{3}{16}$	$1\frac{1}{2}$	$\frac{27}{32}$

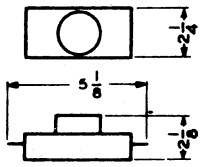


100L & 100M TYPE

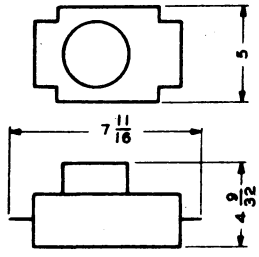


118 & 119 TYPE

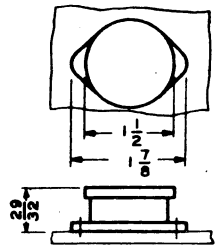
CODE	A	B	C
118	$3\frac{11}{16}$	$2\frac{7}{8}$	$2\frac{29}{32}$
119	$5\frac{3}{4}$	$3\frac{11}{16}$	$4\frac{15}{32}$



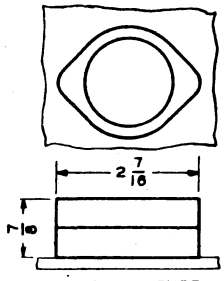
112 TYPE



113 TYPE

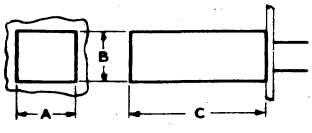


130 TYPE



131 & 134 TYPE

VACUUM TUBE SOCKETS



1 & 4 TYPE

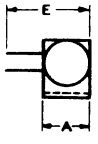


FIG. A

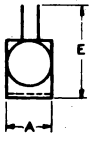


FIG. B

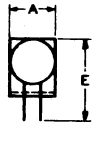
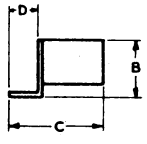
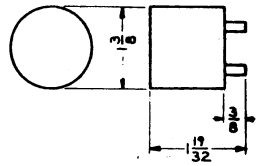


FIG. C



END VIEW



6A

CODE	A	B	C
1A	$\frac{1}{2}$	$1\frac{9}{32}$	$3\frac{15}{32}$
4A	1	$1\frac{5}{8}$	$2\frac{1}{2}$
34	$1\frac{17}{64}$	$1\frac{1}{2}$	$3\frac{15}{32}$

FIG.	CODE	A	B	C	D	E
A	3A	$1\frac{13}{32}$	$\frac{29}{32}$	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{13}{16}$
B	18A	$1\frac{1}{8}$	$\frac{7}{8}$	$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{8}$
B	21A	$1\frac{13}{32}$	$\frac{7}{8}$	$\frac{15}{16}$	$\frac{1}{2}$	$1\frac{9}{16}$

FIG.	CODE	A	B	C	D	E
C	22A	$1\frac{7}{16}$	1	$\frac{13}{16}$	$\frac{1}{2}$	$1\frac{7}{8}$
B	304A	$1\frac{1}{8}$	$\frac{7}{8}$	$\frac{13}{16}$	$\frac{5}{8}$	$1\frac{9}{16}$

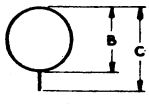


FIG. A

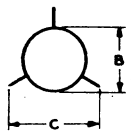


FIG. B

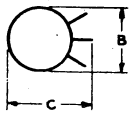


FIG. C

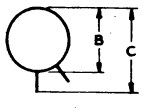


FIG. D

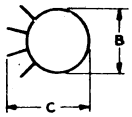
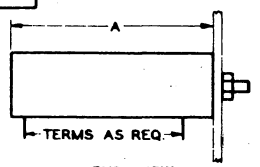


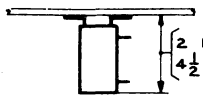
FIG. E

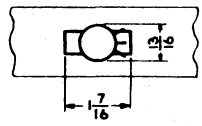


END VIEW

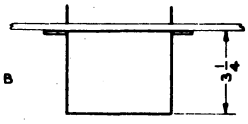
FIG	CODE	A	B	C
A	7A	$5\frac{9}{32}$	$1\frac{5}{8}$	$2\frac{1}{32}$
B	10A	$1\frac{7}{8}$	$1\frac{5}{8}$	$2\frac{1}{8}$
A	14A	$5\frac{23}{32}$	$1\frac{5}{8}$	$2\frac{1}{32}$
A	20A 20B	$1\frac{5}{32}$	$\frac{13}{16}$	$1\frac{1}{32}$

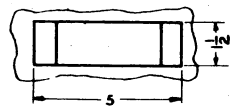
FIG.	CODE	A	B	C
C	23A	$2\frac{5}{32}$	$1\frac{5}{8}$	$2\frac{1}{16}$
D	25A	$1\frac{9}{16}$	$1\frac{5}{8}$	$2\frac{1}{32}$
C	26A	$5\frac{3}{16}$	$1\frac{5}{8}$	2
E	303A	$\frac{25}{32}$	$1\frac{15}{32}$	$1\frac{31}{32}$





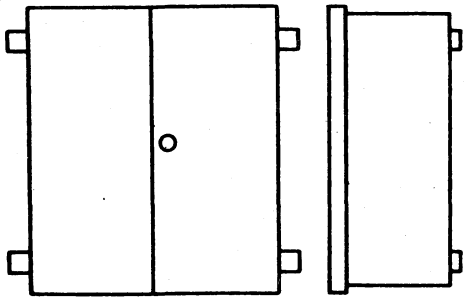
15A, 19A & B





300A

VARISTORS



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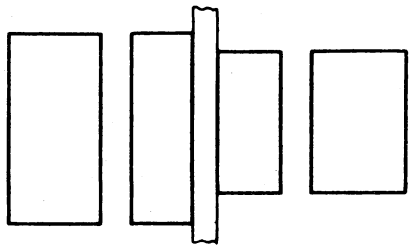
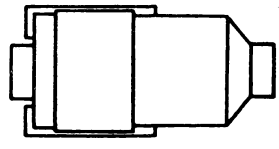


TYPE TA FORM B



KS-5376-01

VOLTAGE REGULATORS

CONVENTIONS - VACUUM TUBE SOCKETS TO VOLTAGE REGULATORS

1. GENERAL

This part of the specification covers all screws, nuts, bolts, washers, etc. considered standard for use on equipment work.

When possible the length of the screw shall be specified in varying steps of 1/8", 1/4" or 3/8" as listed.

Sizes and lengths of screws not listed in this specification shall not be used unless the design is of such a nature that the screws listed positively can not be used.

Screws up to 3/4" long are threaded full length. Screws 3/4" to 1 1/2" long inclusive are threaded 11/16" minimum. Screws over 1 1/2" are threaded 1 1/4" minimum. Cap screws 1" long or less are threaded minimum 3/4 of length. Cap screws over 1" long are threaded minimum 2 x diameter + 1/4".

The minimum length of hold for machine screws shall preferably be equal to its diameter.

Machine screws may project through a panel or nut not more than its diameter.

When used with a nut the screw shall be of sufficient length to be not more than one thread underflush.

Screws, nuts and washers shall be specified on drawings as follows:

On assembly drawings without stocklist:

P-160876
.164-32 x 7/8 F.H.M. Scr.
P-206518
.164-32 Hex. Nut
P-423631
.119 x 9/32 x .018 S.P.L.W.

On assembly drawings with stocklist:

Body of drawing
P-160876
4 x 5/8 F.H.W. Scr. (if not P-Parted)

In stocklist

1	P-160876	F.H.M. Scr. .164-32 x 7/8
4		F.H.I.W. Scr. 4 x 5/8, blued
4		R.H.I.W. Scr. 4 x 1/2, 54 fin.

MACHINE SCREWS, BOLTS, NUTS & WASHERS

SIZE OF SCREW		TYPE OF HEAD: FLAT			OVAL		ROUND		BINDING		HEXAGON HEAD CAP SCREW			SQUARE HEAD BOLT			HEXAGON NUT			WASHER			LOCK WASHER		
COMMERCIAL DESIGNATION	DIAMETER IN INCHES AND THREADS PER INCH	A	B	C	A	B	A	B	A	B	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
4	.112-40	.225	.067	.037	.211	.086	.235	.067									1/4	.289	3/32	.120	1/4	.031			
6	.138-32	.279	.083	.045	.260	.103	.290	.083									5/16	.361	1/8	.172	3/8	.031	.149	5/16	1/32
8	.164-32	.332	.100	.053	.309	.119	.344	.098									11/32	.397	1/8	.182	17/32	.042	.169	.325	3/64
10	.190-32	.385	.116	.061	.359	.136	.399	.114									3/8	.433	3/16	.238	35/64	.058			
12	.216-24	.438	.132	.069	.408	.152	.453	.130									7/16	.524	5/32	.250	9/16	.049	.250	7/16	1/16
1/4	1/4-20	.507	.153	.079	.472	.174			7/16	.510	3/16						1/2	.578	3/16	.3125	3/4	.065	.281	17/32	1/16
5/16	5/16-18	.636	.192	.098	.591	.214			1/2	.580	15/64						19/32	.686	5/16	.375	7/8	.065	.344	19/32	1/16
3/8	3/8-16	.762	.230	.117	.708	.254			9/16	.650	9/32						11/16	.794	3/8	.4375	1	.083	.390	45/64	1/16
1/2	1/2-13	1.017	.308	.155	.944	.333			3/4	.870	3/8						7/8	1.011	1/2	.5625	1 3/8	.109	.578	53/64	7/64
5/8	5/8-11								7/8	1.010	15/32	15/16	15/16	27/64			1 1/16	1.277	5/8	.6875	1 3/4	.134			
3/4	3/4-10								1	1.160	9/16						1 1/4	1.444	3/4	.8125	2	.1406			

WOOD SCREWS

SIZE OF SCREW		TYPE OF HEAD: FLAT			OVAL		ROUND	
COMMERCIAL DESIGNATION	DIAMETER IN INCHES	A	B	C	A	B	A	B
3	.097	.189	.053		.178	.069		
4	.110	.216	.060	.029	.202	.078		
5	.124	.242	.068		.227	.087		
6	.137	.268	.076		.251	.096		
8	.163	.321	.091		.299	.114		
10	.189	.374	.106		.347	.132		
12	.216	.426	.121		.395	.150		
14	.242	.479	.136		.444	.168		

WOOD SCREW THREAD LENGTHS

SCREW LENGTH MAX.	SCREW LENGTH MIN.	THREAD LENGTH
1/4	7/32	9/64
3/8	11/32	7/32
1/2	15/32	5/16
5/8	19/32	25/64
3/4	45/64	15/32
7/8	53/64	35/64
1	61/64	41/64
1 1/4	1 13/64	51/64
1 1/2	1 29/64	31/32
1 3/4	1 11/16	1 1/8
2	1 15/16	1 19/64
2 1/4	2 3/16	1 29/64
2 1/2	2 7/16	1 5/8
2 3/4	2 11/16	1 25/32
3	2 59/64	1 61/64

TYPE "Z" SELF TAPPING SCREWS

SIZE OF SCREW		TYPE OF HEAD: FLAT			OVAL		ROUND		BINDING		STOVE	
COMMERCIAL DESIGNATION	DIAMETER IN INCHES	A	B	C	A	B	A	B	A	B	A	B
4	.112	.221	.071	.029	.207	.078	.220	.061	.252	.057		
6	.137	.265	.086	.035	.248	.094	.263	.073	.308	.073		
8	.163	.311	.101	.041	.292	.110	.311	.086	.360	.087		
10	.186	.364	.122	.048	.340	.128	.364	.097	.405	.097		
12	.212	.414	.135	.054	.389	.146	.414	.115	.479	.115		
14	.243	.474	.155	.062	.445	.167	.474	.131	.548	.131		

* The actual length of a round head wood screw is approximately 1/16" less than the nominal length.

DIMENSIONS OF SCREWS, BOLTS, NUTS AND WASHERS

ROOT DRILL SIZES FOR SELF TAPPING SCREWS

SCR. SIZE		ROOT DRILL SIZES					
		IN SHEET STEEL		IN SHEET ALUM.			
COMMERCIAL DESIGNATION	DIAMETER IN INCHES	THICKNESS OF METAL	DIAMETER OF DRILLING	THICKNESS OF METAL	DIAMETER OF DRILLING	IN SLATE, HARD RUBBER OR PHENOL FIBRE	IN ASBESTOS COMPOSITION
4	.112	.015	.086	.031	.086		
		.018	.096	.040	.086		
		.025	.089	.050	.086		
		.031	.0937	.064	.089	.104	.0995
		.037	.0937	.090	.089		
		.050	.096	.101	.0937		
		.062	.0995				
		.078	.1024				
6	.137	.015	.104	.031	.104		
		.018	.104	.040	.104		
		.025	.1065	.050	.104		
		.031	.1065	.064	.1065		
		.037	.1094	.080	.1094	.120	.118
		.050	.1094	.101	.1094		
		.062	.116	.128	.118		
		.078	.120	.162	.116		
		.109	.1285	.250	.120		
8	.163	.025	.116	.040	.120		
		.031	.116	.050	.1285		
		.037	.116	.064	.136		
		.050	.1285	.080	.1406		
		.062	.136	.101	.147	.147	.144
		.078	.1406	.128	.147		
		.109	.147	.162	.152		
		.125	.147	.250	.152		
		.140	.152	.375	.152		
10	.186	.018	.144	.040	.144		
		.025	.144	.050	.144		
		.031	.144	.064	.144		
		.037	.144	.080	.147		
		.050	.144	.101	.147		
		.062	.152	.128	.152	.173	.166
		.078	.1562	.162	.161		
		.109	.161	.250	.166		
		.125	.1695	.375	.166		
		.140	.1695				
		.171	.173				
12	.212	.025	.166	.050	.161		
		.031	.166	.064	.166		
		.037	.166	.080	.173		
		.050	.1695	.101	.180		
		.062	.177	.128	.180	.199	.196
		.078	.180	.162	.1875		
		.109	.185	.250	.1935		
		.125	.196	.375	.199		
		.140	.196				
		.171	.199				
14	.242	.031	.185	.064	.199		
		.037	.185	.090	.199		
		.050	.191	.101	.2031		
		.062	.199	.128	.209		
		.078	.2031	.162	.213		
		.109	.209	.250	.2187	.2187	.213
		.125	.228	.375	.228		
		.140	.228				
		.171	.2344				
		.187	.2344				
		.203	.2344				

CLEARANCE HOLES FOR SCREWS

SCR. SIZE		CLEARANCE HOLE SIZES		
COMMERCIAL DESIGNATION	DIAMETER IN INCHES	IN METAL	IN COPPER OR AL.	IN WOOD ASBESTOS EBONY FIBRE SLATE OR RUBBER
3	.097	.120	.120	.120
4	.112	.136	.136	.136
5	.124	.147	.147	.147
6	.138	.161	.161	.161
8	.164	.191	.191	.191
10	.190	.2187	.2187	.2187
12	.216	.250	.250	.2656
14	.242	.2812	.3125	.3125
1/4	1/4	.2812	.3125	.3125
5/16	5/16	.3437	.375	.375
3/8	3/8	.4062	.4375	.4375
1/2	1/2	9/16	5/8	9/16
5/8	5/8	11/16	3/4	11/16
3/4	3/4	13/16	7/8	13/16

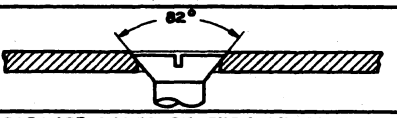
CLEARANCE HOLES FOR RIVETS

CLEARANCE HOLES FOR RIVETS	
DIA. OF RIVET	DIA. OF HOLE
1/8	.1406
5/32	.1719
3/16	.2031
7/32	.2344
1/4	.2656
9/32	.3125
5/16	.3427
3/8	.4062

HOLDING HOLES FOR WOOD SCREWS

COMMERCIAL DESIGNATION	HARD WOOD						SOFT WOOD
	SHORT HOLD		MED. HOLD		LONG HOLD		
	MAX. LENGTH OF HOLD	HOLE SIZE	LENGTH OF HOLD	HOLE SIZE	LENGTH OF HOLD	HOLE SIZE	MED. AND LONG HOLD HOLE SIZE
3	3/16	.0591	3/16	.070		.0781	.0591
4	13/64	.087	13/64	.0781		.089	.087
6	15/64	.0827	15/64 *	.093	SEE	.1094	.0827
8	1/4	.0995	1/4 UP	.113	NOTES	.1299	.0995
10	1/4	.116	1/4	.136	3 & 4	.152	.116
12			1/4	.152		.173	.1299
14			5/16	.1695		.1935	.144

CLEARANCE HOLES FOR FLAT HEAD SCREWS IN THIN STOCK



CLEARANCE HOLES IN THIN SHEET METAL

THICKNESS OF METAL	DIA. OF SCR. & SIZE OF CLEARANCE HOLE							
	.112	.138	.164	.190	.216	1/4	5/16	3/8
.020	.1875	.250						
.031	.1875	.2344	.2969	.3437				
.045	.1719	.2187	.2812	.3281	.375	.4375		
.062		.2031	.250	.2969	.3437	.4062	17/32	21/32
.078			.2187	.2656	.3125	.375	17/32	5/8
.094				.250	.3125	.3594	.500	19/32
.125						5/16	.4375	9/16

NOTES:

1. In general the standard clearance holes listed hereon shall be used. Larger or smaller or slotted holes as shown on page 89 may, however, be used as required.
2. These tables do not cover drillings for apparatus or power board equipment for which standard layout of holes or drilling templates are provided.
3. *The lengths of "Medium hold" are lengths specified in table and "up" to length of threaded portion of screw.
4. The lengths of "Long hold" are based on or over the length of the threaded portion of a screw.
5. For wood screw thread lengths see table on preceding page.

HOLE SIZES FOR SCREWS AND RIVETS

DECIMAL EQUIVALENTS

	.015625		1/64
1/32	.03125		
	.046875		3/64
1/16	.0625		
	.078125		5/64
3/32	.09375		
	.109375		7/64
1/8	.125		
	.140625		9/64
5/32	.15625		
	.171875		11/64
3/16	.1875		
	.203125		13/64
7/32	.21875		
	.234375		15/64
1/4	.25		
	.265625		17/64
9/32	.28125		
	.296875		19/64
5/16	.3125		
	.328125		21/64
11/32	.34375		
	.359375		23/64
3/8	.375		
	.390625		25/64
13/32	.40625		
	.421875		27/64
7/16	.4375		
	.453125		29/64
15/32	.46875		
	.484375		31/64
1/2	.5		
	.515625		33/64
17/32	.53125		
	.546875		35/64
9/16	.5625		
	.578125		37/64
19/32	.59375		
	.609375		39/64
5/8	.625		
	.640625		41/64
21/32	.65625		
	.671875		43/64
11/16	.6875		
	.703125		45/64
23/32	.71875		
	.734375		47/64
3/4	.75		
	.765625		49/64
25/32	.78125		
	.796875		51/64
13/16	.8125		
	.828125		53/64
27/32	.84375		
	.859375		55/64
7/8	.875		
	.890625		57/64
29/32	.90625		
	.921875		59/64
15/16	.9375		
	.953125		61/64
31/32	.96875		
	.984375		63/64
1	1.		

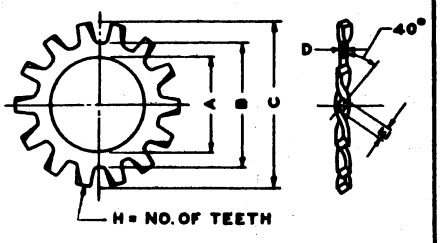
TWIST DRILLS

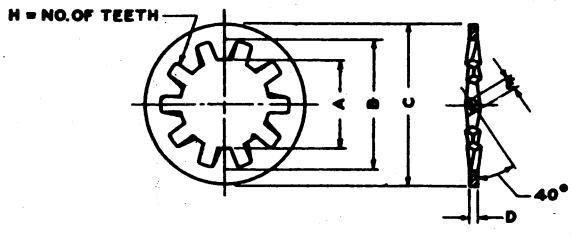
DESIG.	DIAM.	DESIG.	DIAM.	DESIG.	DIAM.	DESIG.	DIAM.	DESIG.	DIAM.	DESIG.	DIAM.
* 80	.0135		.0453		.0906	* 25	.1495	7/32	.2187	5/16	.3125
* 79	.0145	* 56	.0465	* 42	.0935	24	.152	* 2	.221	O	.316
1/64	.0156	3/64	.0469	3/32	.0937	* 23	.154		.2244	P	.323
* 78	.016		.0492	41	.096	5/32	.1562	1	.228	21/64	.3281
77	.018		.0512	* 40	.098	* 22	.157	* A	.234	Q	.332
76	.020	* 55	.052	39	.0995	* 21	.159	15/64	.2344	R	.339
* 75	.021		.0531	* 38	.1015	20	.161	* B	.238	11/32	.3437
74	.0225	54	.055		.1024	19	.166		.2402	S	.348
73	.024		.0571	37	.104	18	.1695	* C	.242		.3543
* 72	.025		.0591	36	.1065	11/64	.1719	D	.246	* T	.358
71	.026	* 53	.0595	7/64	.1094	17	.173	E or 1/4	.250	23/64	.3594
70	.028		.061	* 35	.110	16	.177		.252	U	.368
* 69	.0292	1/16	.0625	* 34	.111	15	.180	F	.257	3/8	.375
	.0295		.063	33	.113	* 14	.182	G	.261	* V	.377
* 68	.031	* 52	.0635	32	.116	13	.185	17/64	.2656	W	.386
1/32	.0312		.065	31	.120	3/16	.1875	* H/	.266	25/64	.3908
* 67	.032	51	.067		.122	* 12	.189	I	.272	X	.397
66	.033	50	.070	1/8	.125	11	.191	J	.277	* Y	.404
65	.035	49	.073	30	.1285	10	.1935	* K	.281	13/32	.4062
* 64	.036	48	.076		.1299	9	.196	9/32	.2812	* Z	.413
63	.037	5/64	.0781		.1339	8	.199		.2854	27/64	.4219
* 62	.038	* 47	.0785	29	.136	* 7	.201	* L	.290	7/16	.4375
61	.039	46	.081		.1378	13/64	.2031		.2913	29/64	.4531
* 60	.040	* 45	.082	* 28	.1405	* 6	.204	* M	.295	15/32	.4687
59	.041		.0827	9/64	.1406	* 5	.2055	19/64	.2969	31/64	.4844
* 58	.042	44	.086	27	.144	4	.209	N	.302	1/2	.500
57	.043	43	.089	26	.147	3	.213		.3071		

NOTES:
1. *Old standard drills, shown for reference only. All others are new standard. Reference to number, letter or fraction designation shall be omitted from drawing.
2. Drill sizes over .500 dia. shall be expressed in fractions.

DECIMAL EQUIVALENTS AND TWIST DRILLS

SHAKEPROOF LOCK WASHERS





SPRING STEEL - FOR BOLTS & NUTS

SCREW SIZE	MFGRS. NO.	A	B	C	D	E	H
.112	1104	.119	.180	.280	.017	.028	8
.138	1106	.145	.205	.312	.017	.038	8
.164	1108	.172	.245	.375	.018	.038	10
.190	1110	.199	.280	.400	.021	.040	10
.216	1112						
1/4	1114	.260	.360	.500	.025	.052	10
5/16	1118	.328	.440	.594	.030	.060	12
3/8	1120	.390	.520	.687	.035	.052	12
1/2	1124	.520	.660	.875	.040	.060	12
5/8	1128	.642	.803	1.062	.045	.068	14
3/4	1132	.780	.950	1.250	.050	.075	16

PHOSPHOR BRONZE - FOR BOLTS & NUTS

.112	1804			9/32	.018		8
.138	1806			5/16	.018		8
.164	1808			3/8	.021		10
.190	1810			13/32	.024		10
1/4	1814			1/2	.030		10

SPRING STEEL - FOR SCREWS

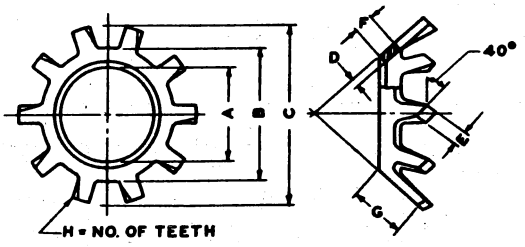
SCREW SIZE	MFGRS. NO.	A	B	C	D	E	H
.112	1204	.119	.200	.260	.017	.030	6
.138	1206	.145	.220	.280	.017	.030	8
.164	1208	.172	.260	.330	.018	.030	8
.190	1210	.199	.305	.375	.021	.038	8
.216	1212	.225	.320	.400	.021	.038	10
1/4	1214	.260	.375	.470	.025	.042	10
5/16	1218	.328	.490	.600	.030	.050	10
3/8	1220	.390	.560	.685	.035	.055	10
1/2	1224	.520	.725	.875	.040	.070	12
5/8	1228	.655	.890	1.062	.045	.075	12
3/4	1232	.780	1.050	1.250	.050	.075	14

PHOSPHOR BRONZE - FOR SCREWS

SCREW SIZE	MFGRS. NO.	A	B	C	D	E	H
.112	1904			1/4	.014		8
.138	1906			19/64	.014		8
.164	1908			11/32	.018		10
.190	1910			13/32	.021		10
1/4	1914			1/2	.024		10
5/16	1918			19/32	.030		12
3/8	1920			11/16	.035		12
1/2	1924			7/8	.040		14

SPRING STEEL - HEAVY DUTY

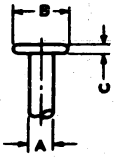
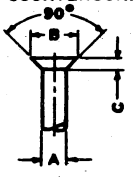
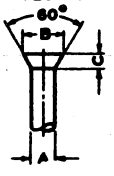
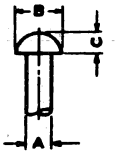
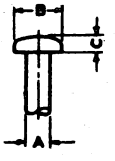
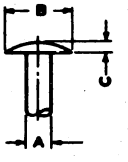
1/4	1414	.260	.420	.530	.040	.065	6
5/16	1418	.330	.480	.600	.045	.060	8
3/8	1420	.390	.600	.740	.045	.080	8
1/2	1424	.520	.745	.915	.062	.092	10
5/8	1428	.650	.925	1.125	.062	.090	10
3/4	1432	.780	1.040	1.250	.072	.090	12



SPRING STEEL - FOR COUNTERSUNK SCREWS

SCREW SIZE	MFGRS. NO.	A	B	C	D	E	F	G	H
.138	1506	.145	.205	.290	.017	.030	.028	.105	8
.164	1508	.172	.248	.352	.018	.038	.036	.105	10
.190	1510	.193	.283	.368	.021	.040	.044	.096	10
.216	1512	.225	.325	.439	.021	.045	.052	.123	10
1/4	1514	.260	.362	.475	.021	.052	.059	.123	10
5/16	1518	.320	.448	.624	.025	.060	.072	.197	12
3/8	1520	.390	.554	.788	.030	.070	.090	.247	12

SMALL RIVETS

NOMINAL SIZE	TYPE OF HEAD: FLAT		COUNTERSUNK		SECTION		BUTTON		PAN		TRUSS OR WAGON	
												
A	B	C	B	C	B	C	B	C	B	C	B	C
3/32	.190	.032	.176	.040			.166	.071	.163	.054	.238	.032
1/8	.250	.042	.231	.053	.200	.060	.219	.094	.215	.072	.313	.042
5/32	.312	.052	.289	.066	.250	.080	.273	.117	.268	.089	.390	.052
3/16	.374	.062	.346	.079	.300	.100	.327	.140	.321	.107	.468	.062
7/32	.440	.073	.407	.095	.350	.110	.385	.165	.378	.126	.550	.073
1/4	.500	.083	.463	.106	.400	.130	.438	.188	.429	.143	.625	.083
9/32	.562	.094	.520	.119	.450	.150	.492	.211	.482	.161	.703	.094
5/16	.624	.104	.577	.133	.500	.160	.546	.234	.535	.178	.780	.104
11/32	.696	.114	.635	.146			.600	.257	.589	.196	.858	.114
3/8	.750	.125	.694	.159	.600	.190	.656	.281	.644	.215	.938	.125

RIVETS AND SHAKEPROOF LOCK WASHERS

DIAMETER AND THREADS PER INCH	LENGTH				MATERIAL, FINISH & PIECE PART NUMBERS						
					IRON				BRASS		
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	DULL BLACK LACQUER	COPPER PLATE	BRIGHT NICKEL	PLAIN	DULL BLACK LACQUER	BRIGHT NICKEL
.112-40	1/4				P-210799						
	1/2				P-210798						
	3/4							P-368977			
	1				P-210850						
.138-32			3/16		P-226071						
	1/4				P-111874	P-160849					
			5/16		P-210167						
		3/8			P-142993					P-160826	P-93866*
			7/16		P-126492						P-220047
	1/2				P-97055						
		5/8			P-201519						
	3/4				P-170078						
		7/8			P-210001						
	1					P-160980					
		1 1/8			P-155020						
	1 1/4				P-238197						
.164-32	1/4				P-210442						
			5/16		P-210302						
		3/8			P-205654	P-160899					
			7/16		P-210321						
	1/2				P-206479	P-160827	P-160713				
		5/8			P-206480		P-160715				
			11/16		P-352227						
	3/4				P-160780						
		7/8								P-160753	
	1				P-160828	P-160899					
		1 1/8								P-160754	
	1 1/4					P-210170					
.190-32	1/4				P-201518						
		3/8			P-132976						
	1/2				P-160597						
		5/8			P-133483						
	3/4				P-134837						
		7/8				P-210131					
	1				P-160974				P-119160		
	1 1/2				P-201515						
.216-24	1/4				P-210290						
		3/8			P-160178						
	1/2				P-160645						
		5/8			P-160099						
	3/4				P-160174						
		7/8			P-160100						
	1										
		1 1/8			P-134001						
	1 1/4				P-160975						
		1 3/8							P-119766	P-210192	
	1 1/2				P-160957						
	2				P-210892						
		2 3/8			P-297751						

*These screws have a 31 nickel plated finish.

FLAT HEAD MACHINE SCREWS

FLAT HEAD

DIAMETER AND THREADS PER INCH	LENGTH				MATL., FIN. AND PART NO.	
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	IRON	
					ZINC	DULL BLACK LACQUER
1/4-20	1/2				P-210247	
			9/16		P-210880	
		5/8			P-210849	
	3/4				P-210250	
		7/8			P-210251	
	1				P-210285	
		1 1/8			P-210252	P-210264
	1 1/4				P-210253	P-210282
		1 3/8			P-210870	P-210265
	1 1/2				P-210254	P-210288
	1 3/4				P-210255	P-210284
	2				P-210256	
	2 1/2				P-210258	
	2 3/4				P-210259	
	3				P-210260	
5/16-18	3/4				P-210218	
		7/8			P-210214	
	1				P-132103	
	1 1/4				P-210405	
	1 1/2					
	2					P-210261
3/8-16		5/8			P-210228	
		7/8			P-160822	
	1				P-160386	
	1 1/4				P-160385	
	1 1/2				P-210519	
	2				P-210396	
1/2-13	1 1/2				P-210316	
	2					P-210514

BINDING HEAD

DIAMETER AND THREADS PER INCH	LENGTH				BRASS
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	PLAIN
.112-40			3/16		P-236125
	1/4				P-295663
.138-32	1/4				P-128912
			5/16		P-146320
.164-32	1/4				P-160934

OVAL HEAD

DIAMETER AND THREADS PER INCH	LENGTH				BRASS
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	BRIGHT NICKEL
.112-40	1/4				P-210627
.138-32		3/8			P-210598
	1/2				P-206566
	3/4				P-201765
		1 1/8			P-201766
.164-32	3/4				P-160924
	1				P-160773
	1 1/2				P-160774
.190-32		7/8			P-210404
	1				P-215920
		1 1/8			P-158618
.216-24	1				P-210378
			1 1/16		P-210528

FLAT, BINDING & OVAL HEAD MACHINE SCREWS

DIAMETER AND THREADS PER INCH	LENGTH				MATERIAL, FINISH AND PIECE PART NUMBERS						
					IRON				BRASS		
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	DULL BLACK LACQUER	COPPER PLATE	BRIGHT NICKEL	PLAIN	DULL BLACK LACQUER	BRIGHT NICKEL
.112-40		1/8			P-253985						
			3/16		P-210951						P-210808
	1/4				P-210800						
		3/8			P-210810	P-210811					
			7/16			P-210868					
				15/32				P-242577			
	1/2				P-210813						
		5/8			P-210814	P-210869					
	3/4				P-210815						
	1				P-210816				P-242870		
		1 3/8				P-242824					
.138-32		1/8			P-251072						
				5/32	P-218068						
			3/16		P-129732						
				7/32	P-251616						
	1/4				P-92619	P-147396			P-116852		
				9/32	P-215530						
			5/16		P-124483						
				11/32	P-251364						
		3/8			P-125043	P-160585					
			7/16		P-126029				P-116855		P-166549*
	1/2				P-125949						
			9/16		P-129849						
		5/8			P-142036						
			11/16		P-145296						
	3/4				P-133796				P-116860		
			13/16		P-251239						
		7/8			P-138380			P-206871	P-116862		
			15/16					P-166120			
	1				P-160750				P-116864		
		1 1/8			P-297395			P-233820			
				1 5/32	P-166781						
	1 1/4				P-160808						
		1 3/8									P-218032
	1 1/2				P-160882						
	1 3/4										P-92845*
		1 7/8			P-210269				P-116872		
		4 1/8			P-210577						
.164-32				7/32	P-297756						
	1/4				P-205651				P-205603		
			5/16		P-205652						
		3/8			P-206519						
			7/16		P-217497						
	1/2				P-205653						
			9/16		P-210648						
		5/8			P-160883						
				21/32	P-251754						
	3/4				P-206568	P-210007					
			13/16		P-217496						
		7/8			P-160809	P-160935					
			15/16		P-166120						
	1				P-160853				P-205615		
		1 1/8			P-160810						
	1 1/4				P-160884						
		1 3/8			P-160811						
	1 1/2				P-210678						
	1 3/4				P-210270						
	2				P-160871				P-205623		
	2 1/4				P-160642						
	2 1/2				P-160885						

*These screws have a 31 nickel plated finish.

DIAMETER AND THREADS PER INCH	LENGTH				MATL., FIN. AND PART NO.			
					IRON			
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	DULL BLACK LACQUER	COPPER PLATE	
.190-32			3/16		P-147288			
	1/4				P-160171			
			5/16		P-140692		P-160670	
				11/32	P-145898			
		3/8			P-168625			
			7/16		P-143985			
	1/2				P-128322		P-160674	
			9/16		P-125208			
		5/8			P-125209		P-160675	
	3/4				P-126446		P-160677	
		7/8			P-250886		P-160679	
			15/16		P-251706			
	1				P-142274		P-160680	
		1 1/8			P-160813			
			1 3/16		P-123701			
	1 1/4				P-160814	P-210043	P-160681	
		1 3/8			P-160751			
	1 1/2				P-160815			
	2				P-160816			
		2 1/8				P-210493		
	2 1/4					P-210813		
	3 3/4					P-160818		
.216-24	1/4				P-205227			
			5/16		P-253501		P-160856	
		3/8			P-358446		P-160695	
			7/16		P-352500			
	1/2				P-353447			
			9/16		P-353502			
		5/8			P-353448			
	3/4				P-353449			
		7/8			P-352503			
	1				P-353450	P-210047		
		1 1/8			P-160899			
	1 1/4				P-204744			
		1 3/8			P-160237			
	1 1/2				P-201510			
	1 3/4				P-204949			
	2				P-160617	P-210053		
	2 1/4				P-160887			
	2 1/4				P-210821			

ROUND HEAD MACHINE SCREWS

DIAMETER AND THREADS PER INCH	LENGTH				MATL., FIN. AND PART NO.			
					IRON			
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	DULL BLACK LACQUER	COPPER PLATE	
1/4-20	1/4				P-210426			
		3/8			P-210286		P-210488	
			7/16		P-210871			
	1/2				P-210280		P-210489	
		5/8			P-210287		P-210810	
	3/4				P-210281		P-210485	
		7/8			P-210282	P-210425	P-210486	
	1				P-210289		P-210487	
	1 1/4				P-210305		P-210613	
		1 3/8			P-210284			
	1 1/2				P-210241		P-210614	
	1 3/4				P-210242		P-210722	
	2				P-210306		P-210724	
	2 1/4				P-210244		P-210725	
	2 1/2				P-210307			
5/16-18	1/2				P-210211			
		5/8			P-210212			
	3/4				P-210215			
		7/8			P-210216			
	1				P-210213			
		1 1/8			P-210220			
	1 1/4				P-210428			
		1 3/8			P-210427			
	1 1/2				P-210221			
3/8-16	1/2				P-160877			
	3/4				P-160393			
		7/8			P-160391			
	1				P-160113			
		1 1/8			P-160392			
	1 1/4				P-160114			
		1 3/8			P-160390			
	1 1/2				P-160377			
	2				P-160389			
	2 1/4					P-160962		

ROUND HEAD MACHINE SCREWS

DIAMETER AND THREADS PER INCH	LENGTH				MATL., FIN. AND PART NO.			
					IRON			
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	COPPER PLATE	DULL BLACK LACQUER	
1/4-20	1/2				P-400577	P-65480		
			9/16			P-160859		
		5/8			P-172485	P-47981		
	3/4				P-125616	P-65745		
		7/8				P-65746		
	1				P-146298	P-62242		
	1 1/4				P-160839			
	1 1/2				P-160125			
	1 3/4				P-160191			
	2							
	2 1/4						P-210865	
	2 1/2						P-210864	
	3						P-210450	
5/16-18	1/2				P-160884			
		5/8			P-160190			
	3/4				P-146283			
		7/8			P-160126			
	1				P-160127	P-49425		
		1 1/8			P-143355	P-210298		
	1 1/4				P-160128	P-49434		
		1 3/8				P-210554		
	1 1/2				P-210179	P-160860		
		1 5/8				P-210555		
	1 3/4				P-160883	P-210082		
	2				P-423918	P-210463		
	2 1/4				P-218530	P-210084	P-210866	
	2 1/2				P-210528	P-210086		
	3				P-218561	P-210087		
3/8-16	1/2				P-160841	P-49433		
		5/8			P-210224	P-210521		
	3/4				P-108511	P-49432		
		7/8			P-125775	P-65268		
	1				P-127312	P-65366		
		1 1/8			P-228678	P-160861		
	1 1/4				P-147284	P-49430		
		1 3/8			P-210134	P-210517		
	1 1/2				P-147285	P-210525		
	1 3/4				P-146278	P-210368		
	2				P-160879	P-210464		
	2 1/4				P-210524	P-210090		
	2 1/2				P-210801	P-210091		
	2 3/4				P-160880	P-210522		
	3				P-423919	P-210092		
	3 1/4				P-423920	P-210523		
	3 1/2				P-160872	P-210414		
	3 3/4				P-423921	P-210727		
	4				P-423922	P-210415		

HEXAGON HEAD CAP SCREWS

DIAMETER AND THREADS PER INCH	LENGTH				MATL., FIN. AND PART NO.			
					IRON			
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	COPPER PLATE		
1/2-13	3/4				P-210834	P-210349		
		7/8			P-210317			
	1				P-160282	P-210350		
	1 1/4				P-170012	P-65370		
	1 1/2				P-170283	P-65456		
	1 3/4				P-210741	P-65457		
	2				P-210182	P-210096		
	2 1/4				P-210620	P-210355		
	2 1/2				P-422923	P-210097		
	2 3/4				P-210805	P-210357		
	3				P-423924	P-210358		
	3 1/4				P-423925	P-422076		
	3 1/2					P-422077		
	3 3/4				P-423926	P-422078		
	4				P-423927	P-422079		
	4 1/4				P-423928	P-422080		
	4 1/2				P-423929	P-422081		
	4 3/4				P-423930	P-422082		
5/8-11		5/8			P-426635			
	3/4				P-426636	P-210259		
	1				P-210580	P-210360		
	1 1/2				P-422082	P-65458		
	1 3/4				P-423931	P-210527		
	2				P-217884	P-210362		
	2 1/2				P-423932	P-210363		
	3				P-423933	P-210364		
	3 1/2				P-160842	P-422084		
	3 3/4					P-422085		
	4				P-210599	P-422086		
	4 1/4					P-422087		
	4 1/2				P-423934	P-422088		
	4 3/4					P-422089		
	5				P-423935	P-422090		
	5 1/2				P-423936	P-422091		
	6				P-423937	P-422092		
	6 1/2				P-423938	P-422093		
	7				P-423939	P-422094		
	7 1/2				P-423940	P-422095		
	8				P-423941	P-422096		

HEXAGONAL NUTS

THREAD SIZE	MATERIAL, FINISH & PIECE PART NUMBERS						
	IRON				BRASS		
	ZINC	DULL BLACK LACQUER	COPPER PLATE	POLISHED COPPER	NICKEL PLATE	DULL BLACK LACQUER	PLAIN
.112-40	P-210828				P-210693		P-210797
.138-32	† P-125952 *	P-201524	P-160639		P-132705	P-210366	P-138117 *
.164-32	† P-206518 *	P-160915	P-160649		P-234200	P-210145	† P-202816 *
.190-32	† P-125918 *	P-160593	P-160650		P-121772	P-160969	P-139469
.216-24	† P-125953 *	P-160652	P-160651				P-160755
1/4 -20	† P-94442 *	P-160592	P-65747 *		P-252987		P-210431
5/16-18	† P-154248 *		P-49459			P-210146	P-69931
3/8 -16	† P-160120 *	P-160594	P-47983 *				P-69932
1/2 -13	P-125614	P-210111		P-210459			
5/8 -11	P-205261		P-65452	P-210460			
3/4 -10	P-210394			P-210461			

WASHERS

DIAMETER OF SCREW OR BOLT	MATERIAL, FINISH & PIECE PART-NUMBERS						
	IRON				BRASS		
	ZINC	DULL BLACK LACQUER	COPPER PLATE	POLISHED COPPER	NICKEL DIP	DULL BLACK LACQUER	PLAIN
.112	P-137070	P-210099			P-103705		P-103704
.138	P-125085	P-160835			P-126800		P-103706
.164	† P-145364 *	P-210158			P-164738	P-148802	P-132739
.190	P-160107		P-49466		P-43456		P-5215
.216	† P-110258 *	P-160752	P-210023		P-103713	P-98704	P-103712
1/4	† P-160105 *	P-210518	P-49465 *				P-131551
5/16	† P-160106 *		P-49464	P-210457			
3/8	† P-170089 *	P-65046	P-49463 *	P-210452			
1/2	P-133117	P-65368	P-69967		P-154876		
5/8	P-160834	P-65102	P-69968	P-210455			
3/4			P-69969	P-210458			
✓ 1/4	P-160744		† P-160738 *	P-210456			
✓1 3/4			P-210227				

SCREW BUSHINGS, BRASS

SIZE OF SCREW	SIZE OF BUSHINGS			ROOT DRILL SIZE	PIECE PART NUMBER
	OUTSIDE THREAD	INSIDE THREAD	LENGTH		
.112-40	.190-24	.112-40	3/16	29-.136	P-210830
.138-32	.246-20	.141-32	1/4	16-.177	P-33496
	17/64-16	.141-32	1/2	9-.196	P-37472
	.246-24	.138-32	9/32	16-.177	P-92837
	.246-32	.141-32	15/64	16-.177	P-91683
.164-32	17/64-16	.166-32	3/4	9-.196	P-93942
	17/64-16	.166-32	1/2	9-.196	P-14952
	17/64-16	.166-32	7/8	9-.196	P-157114
	.375-16	.166-32	7/16	J-.277	P-81301
.216-24	1/2 -18	.221-24	5/8	R-.339	P-130365
	7/16-14	.221-24	5/8	21/64	P-85590

LOCK WASHERS

DIAMETER OF SCREW OR BOLT	MAT'L., FIN. & PART NUMBERS		
	STEEL		
	ZINC	BLUED	NICKEL DIP
.138	P-230916	P-134878	
.164	P-221761		
.216	P-210674	P-65028	P-351000
1/4		P-169996	
5/16	P-210435	P-154173	
3/8	† P-205862		
1/2	P-136674	P-136680	

NOTES:

1. Dimensions for the iron nuts and washers listed on this page are shown on page 143 with the exception of the item designated ✓. Dimensions of these washers are as follows: For the 1/4" screw size 9/32"x7/16"x.065" & For the 1 3/4" screw size 1 7/8"x4"x.1719"

* Indicates items that are furnished to the installer in the S X S screw kit.

† Indicates items that are furnished to the installer in the panel screw kit.

These items may be selected for ☒ items.

HEXAGONAL NUTS, WASHERS AND SCREW BUSHINGS

TYPE "Z" SELF TAPPING SCREWS

SCREW NUMBER	LENGTH	MATERIAL, FINISH & PIECE PART NUMBERS									
		FLAT HEAD					ROUND HEAD				
		IRON									
		PLAIN	COPPER PLATE	POLISHED COPPER	BLACK LACQUER	ZINC	PLAIN	COPPER PLATE	POLISHED COPPER	BLACK LACQUER	ZINC
4	1/2	P-403954		P-403950	P-405622		P-405629	P-403953	P-405631	P-403965	P-420936
	3/4						P-405630			P-405600	P-420941
6	3/8	P-423354									
	1/2						P-420810				P-420814
	5/8	P-423355					P-405627		P-403956	P-403957	P-420937
	1						P-405634			P-405603	P-422003
	1 1/4						P-405635			P-405605	
	1 1/2						P-405636			P-405606	P-422004
	2						P-405637			P-405607	P-422005
8	5/8	P-405649		P-405650		P-405651	P-405652	P-405653			P-422006
	3/4	P-405646		P-403951			P-405638	P-403952		P-403958	P-422007
	1	P-405647	P-403960		P-403955		P-405639	P-403959		P-405609	P-422008
	1 1/4						P-405640			P-405610	P-422009
	1 1/2						P-405641			P-405611	
10	3/4						P-405642	P-405628		P-405614	P-422010
	1	P-405648	P-403963				P-405643	P-403962		P-405615	P-422011
	1 1/4						P-405644	P-405633		P-403964	P-422012
	1 1/2						P-405645			P-405618	P-422013

FRAMES AND RACKS - "J" BOLTS

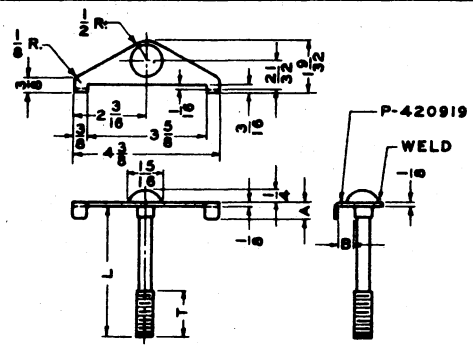


FIG. A

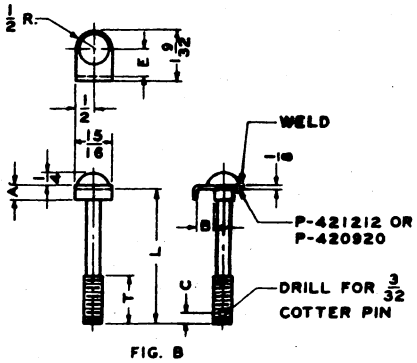


FIG. B

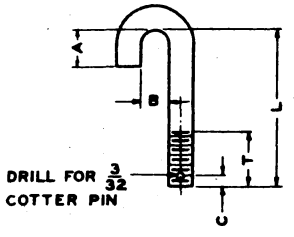


FIG. C

FIG	L LENGTH	PART NO.	B BAR THICK	C COT.PIN LOC.	E	A	T THREAD LENGTH	THREAD
A	2 1/2	P-421218	13/32	NO PIN	21/32	1/2	1 1/2	1/2-13
	4 1/4	P-420915	13/32	NO PIN	21/32	1/2	1 1/2	1/2-13
	4 3/4	P-420916	13/32	NO PIN	21/32	1/2	1 1/2	1/2-13
B	1 1/4	P-421216	17/32	NO PIN	23/32	3/8	7/8	3/8-16
	2 1/2	P-421217	13/32	NO PIN	21/32	1/2	1 1/2	1/2-13
	2 7/8	P-421977	13/32	3/16	21/32	1/2	1 1/2	1/2-13
	3 3/8	P-421978	13/32	3/16	21/32	1/2	1 1/2	1/2-13
	4 1/2	P-420913	13/32	NO PIN	21/32	1/2	1 1/2	1/2-13
	4 3/4	P-420914	13/32	NO PIN	21/32	1/2	1 1/2	1/2-13
	5	P-421979	13/32	3/16	21/32	1/2	1 1/2	1/2-13

FIG	L LENGTH	PART NO.	B BAR THICK	C COT.PIN LOC.	A	T THREAD LENGTH	THREAD
C	2 3/8	P-406594	7/16	NO PIN	1	2 1/4	1/4-20
	2 7/8	P-403855	7/16	3/16	1	1 1/8	3/8-16
	3 3/8	P-403854	7/16	3/16	1	1 1/8	3/8-16
	3 3/4	P-407045	3/16	NO PIN	3/4	1 3/4	3/8-16
	3 7/8	P-421403	7/16	NO PIN	1	2 1/4	1/4-20
	4 1/8	P-401764	7/16	NO PIN	1	1 3/4	3/8-16
	4 3/4	P-406117	7/16	3/16	1	1 1/2	3/8-16
	4 3/4	P-405543	7/16	NO PIN	1	1 1/2	3/8-16

"J" BOLTS AND SELF TAPPING SCREWS

FLAT HEAD

COMMERCIAL DESIGNATION	LENGTH				MATERIAL, FINISH AND PIECE PART NUMBERS						
					IRON		BRASS				
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	DULL BLACK LACQUER	DULL BLACK LACQUER	BRIGHT NICKEL			
NO. 4		3/8			P-210296						
	1/2				P-160576						
		5/8				P-210021					
NO. 6		3/8			P-155979		P-210384				
			7/16		P-204288						
	1/2				P-68718	P-201582	P-160947				
	3/4				P-124361		P-123480	P-86477			
	1				P-136184						
	1 1/4				P-160777						
NO. 8	1/2				P-160625						
		5/8			P-160554						
	3/4				P-123684	P-121869					
		7/8			P-160102						
	1				P-130826						
		1 1/8			P-204885						
	1 1/4				P-160747						
	1 1/2				P-149675						
	1 3/4				P-210125						
NO. 10	3/4				P-160801						
		7/8			P-160103						
	1				P-130825						
	1 1/4				P-123687						
	1 1/2				P-123688	P-69920					
	1 3/4				P-124864						
	2				P-130729						
	2 1/2				P-146053						
NO. 12	3/4				P-160776						
	1				P-160579						
	1 1/4				P-160580						
	1 1/2				P-160931						
	1 3/4				P-160805						
NO. 14	3/4				P-160122						
	1				P-204844						
		1 1/8			P-160952						
	1 1/4				P-204866						
	1 1/2				P-68824						

OVAL HEAD

COMMERCIAL DESIGNATION	LENGTH				BRASS
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	BRIGHT NICKEL
NO. 4	3/4				P-82905
NO. 6	3/4				P-46116
NO. 8	1				P-39327
	1 1/4				P-49279
	1 1/2				P-46926
	1 3/4				P-210207
NO. 10	1				P-46928
	1 1/4				P-46929
	1 1/2				P-160784
	1 3/4				
	2				P-49477
	2 1/4				P-46932

FLAT AND OVAL HEAD WOOD SCREWS

COMMERCIAL DESIGNATION	LENGTH				MATERIAL, FINISH AND PIECE PART NUMBERS						
					IRON			BRASS			
	PREFERRED	2ND CHOICE	3RD CHOICE	4TH CHOICE	ZINC	DULL BLACK LACQUER	BRIGHT NICKEL		PLAIN	DULL BLACK LACQUER	BRIGHT NICKEL
NO. 4		3/8			P-111558						
	1/2				P-149668		P-111151				P-24654
	3/4				P-160398						
NO. 5	1/2						P-24626				
		5/8					P-24657				
NO. 6		3/8			P-157642						
	1/2				P-160775						
		5/8			P-113642						
	3/4				P-113617						
	1				P-149671						
	1 1/4				P-160764						
	1 1/2				P-160768						
NO. 8	1/2				P-112837						
		5/8			P-110991						
	3/4				P-121961	P-160201					
		7/8			P-123635						
	1				P-149672						
	1 1/4				P-149673						
		1 3/8			P-160786						
	1 1/2				P-149674						
	1 3/4					P-210152					
	2 1/2				**P-210136**						
NO. 10		5/8			P-160906						
	3/4				P-160643						
		7/8			P-160787						
	1				P-160789						
		1 1/8			P-160582						
	1 1/4				P-160790						
	1 1/2				P-210193						
	2				P-160945						
	2 1/4				P-160792						
	2 1/2				P-160852						
NO. 12	3/4				P-94795						
		7/8			P-160795						
	1				**P-153802**						
	1 1/4				**P-123685**						
	1 1/2				P-210190						
NO. 14	3/4				P-160234						
	1				P-160946						
	1 1/4				P-160798						
	1 1/2				P-210186						
	1 3/4				P-160799						

ROUND HEAD WOOD SCREWS

INDEX