PLACING, FASTENING AND ALIGNING SWITCHBOARD SECTIONS, DESKS AND ASSOCIATED PARTS 23A, 23B AND 23C TYPE DESKS

CONTENTS

1. INDEX
2. GENERAL
   - 2.1 Scope of Section
   - 2.2 Associated Information
   - 2.3 Cabling
   - 2.4 Precautions
   - 2.5 Removal of Desk Units from Shipping Skids
   - 2.6 Verification
3. INSTALLING EQUIPMENT
   - 3.1 Tools
   - 3.2 Supplies
4. DESCRIPTION OF DESKS
5. LOCATION OF DESKS
6. LAYING OUT FLOORS
7. DETERMINING HIGH AND LOW POINTS IN FLOOR
8. FLOOR FASTENINGS
9. GENERAL ASSEMBLY
10. PLACING, LEVELING, AND ALIGNING DESKS
11. MISCELLANEOUS ASSEMBLIES

1. INDEX

Subject	Figure	Paragraph
Aligning		9.2,9.3,10.3 to 10.32
Assembly, General		9.1, to 9.6
Assembly Units, Types of	1 to 3	4.2 to 4.23
Assembling		
Arm Rests		11.07
Baffles		
23A Desks		11.03
23B and 23C Desks		11.03, 11.06 to 11.064
Bookrests		11.03, 11.04
Horizontal Bookshelves		11.01, 11.011, 11.11, 11.111, 11.12
Jack Mountings		11.08, 11.09
Key Panels		11.13
Kick-Skirts		11.10, 11.101
Lamp Stanchions		11.05
Molding, Shelf Linoleum		11.02
Strip, Stile		11.03
Cabling		2.31
Description of Desks	1 to 3	4.1 to 4.23
Floors		
Drilling		8.4
High and Low Points		7.1
Laying Out	4 to 8	6.1 to 6.3
Floor Fastenings		
Installing		8.4, 10.13, 10.14, 10.24
Location	9 to 12	8.2, 8.21
Number of		8.1, 8.11
Leveling		10.2 to 10.25
Leveling Screws		
Adjusting		10.14, 10.21 to 10.24
Interference with floor Angle		9.6
Location	9 to 12	8.2 to 8.4
Location, Desks		5.1, 5.2
Placing Desks		10.1 to 10.14
Shipping Skids, Removal of Desk Units		2.51
Templates, Floor	9 to 12	8.2
Trammel Points, Use of	8	6.3

This section includes material from BSP AA614.004
Copyright, 1956, by the American Telephone and Telegraph Company
Printed in U.S.A.

ASSOCIATED HANDBOOK INFORMATION REFERENCE CHART

Subject	Handbook	Section
Drilling Holes in Masonry and Setting Expansion Shields and Anchors	30	9
Determining Level, and High and Low Spots in Floors	30	4
General Requirements and Information	30	1B
General Safety Precautions	30	1A
Laying Out Floors	30	6A
Painting and Retouching, and Cleaning of Finishes	30	70
Precautions Against Personal Injury, Equipment Damage and Service Interruptions	0	13A, 13B 13C, 13D

2. GENERAL

2.1 Scope of Section

2.11 This section covers specific requirements and methods for placing, fastening, assembling and aligning 23A, 23B and 23C operating room desks and associated parts.

2.2 Associated Information

2.21 Floor plan and desk assembly drawings furnished the job.

2.22 Drawing H-299-201 showing location of floor bolt holes for switchboards and desks.

2.23 Refer to the Associated Handbook Information Reference Chart above for the location of handbook information to which reference may be necessary when performing operations covered by this section.

2.3 Cabling

2.31 It is desirable to run all cabling and wiring into the desk (including the No. 6 ground leads) immediately after the major assemblies for the entire lineup have been placed, leveled and aligned. The assembly of the horizontal bookshelves and associated parts should be deferred until the cabling and wiring is completed.

2.4 Precautions

2.41 General safety precautions against personal injury and equipment damage are outlined in Handbook 0 and the "General" section of this handbook and are to be observed at all times, as they apply to the operations being performed. Specific precautions to be taken are covered in this section.

2.5 Removal of Desk Units From Shipping Skids

2.51 The desk units should remain on their shipping skids until they are brought into the building and placed near their permanent location. After the single slope and twin slope desk units are removed from their skids, they should be handled carefully and carried in an upright position to prevent permanent distortion of the sheet metal assemblies.

2.6 Verification

2.61 Items for verification of the equipment installed by the operations covered in this section are listed in Section 30V.

2.62 The items in Section 30V may be used as a self-check guide when performing operations covered by this section.

3. INSTALLING EQUIPMENT

3.1 Tools

3.11 Tools used for operations covered in this section are generally available on the job. The following additional tools should also be available on the job. Items marked (★) should be ordered separately.

	CODE	DESCRIPTION
	R-1451	Chisel, Point
	R-2092	Chisel, Ripping
	R-2421	Chuck, Drill, Hand
	R-2981	Drill, .136 - No. 29
	R-1274	File, Round, 6"
★	R-2135	Knife, Linoleum
	R-1370	Level, Bench
★	R-3119	Points, Trammel
	R-2226	Screwdriver, with screw holding attachment
	R-3051	Set, Level and Straight-edge
★	R-3094	Wrench Set, Nut and Bolt, Small

3.2 Supplies

3.21 In addition to the ordinarily available supplies, the following will be required.

CODE	DESCRIPTION	REFERENCE
R-2974	Paint, Enamel, Gray, Federal	
612.169	Pencil, Red China	
Obtain Loc.	Pressboard or Masonite	Par.8.2
R-2805	Tape, Acetate Fiber, 3/4"	Par.8.21

4. DESCRIPTION OF DESKS

4.1 These desks are of sheet metal construction with a gray finish. They are supported by tubular or formed legs, provided with leveling screws and arranged for hold-down bolts which are concealed by kick-skirts. Adjacent operator positions are separated by transparent plastic baffles. General views of the desks are shown in Figures 1 to 3.

4.2 There are three major preassembled units which are used in various combinations to make up the A, B, and C types of 23 desks as shown in Figures 1 to 3. The A, B, or C types denotes one, two, or three bookshelves, respectively for each operator's position.

4.21 Two Position Desk Unit - contains two longitudinal bookshelves back-to-back and above each bookshelf there is an operator's key panel. This is the basic unit provided for 23A, 23B, and 23C desks.

4.22 Single Slope Bookshelf Unit - contains a single transverse bookshelf used at each end of a lineup of 23C desks and may or may not be required for 23B desks.

4.23 Twin Slope Bookshelf Unit - contains two transverse bookshelves back-to-back used between two 2 position desk units for 23B and 23C desks.

5. LOCATION OF DESKS

5.1 Locate desks to conform to the particular plans for each installation.

5.2 Where limiting dimensions or tolerances are not specified, locate the desk equipment to within such limits of the specified dimensions as will insure satisfactory functioning and workmanlike appearance of the equipment.

6. LAYING OUT FLOORS

6.1 Determine from the floor plan drawings, the location of the desk.

6.2 Using the dimensions shown on the floor plan drawings, mark lines on the floor as shown in Figures 4 to 7 for the type of desk being installed. Outside dimensions do not include skirts on bottom of legs.

6.3 It is important for the alignment of the desks that the hold-down bolts be accurately located. The use of the R-3119 Trammel Points for constructing lines at right angles as shown in Figure 8 will help to insure this when laying out floor for 23B and 23C desks.

7. DETERMINING HIGH AND LOW POINTS IN FLOOR

7.1 Using the R-3052 Straightedge determine and mark the variations in floor level in the ultimate desk area including the location of the legs at the ends of the single and twin slope bookshelf units as outlined in the section on Determining Level, and High and Low Spots in Floors.

8. FLOOR FASTENINGS

8.1 All legs of a 23 type operating room desk which are equipped with leveling screws, should be fastened to the floor with one or two hold-down bolts or lag screws per leg as indicated by the holes in the leg. In the case of legs with two base angles, install leveling screws and hold-down bolts in only one base angle.

8.11 The first 2 position desk unit in a lineup should be supported by four leveling screws and fastened to the floor by four hold-down bolts by using both leg base angles that are part of the 2 position desk unit. Other units in the lineup should use floor fastenings at only one leg and should be supported at the other leg by the junctioning screws between units.

8.2 Mark the location of leveling screw plates and expansion shields on the floor, using pressboard or masonite templates dimensioned as shown in Figures 9 to 12. Check the desk units furnished the job to determine which floor base angle was furnished on the 19" leg (A leg) of the units. If the base angle is 7/8" wide, the template in Figure 9 should be used. If the base angle is 1-1/2" wide, then the expansion shields and leveling screw plates should be centered on the center line of the A leg.

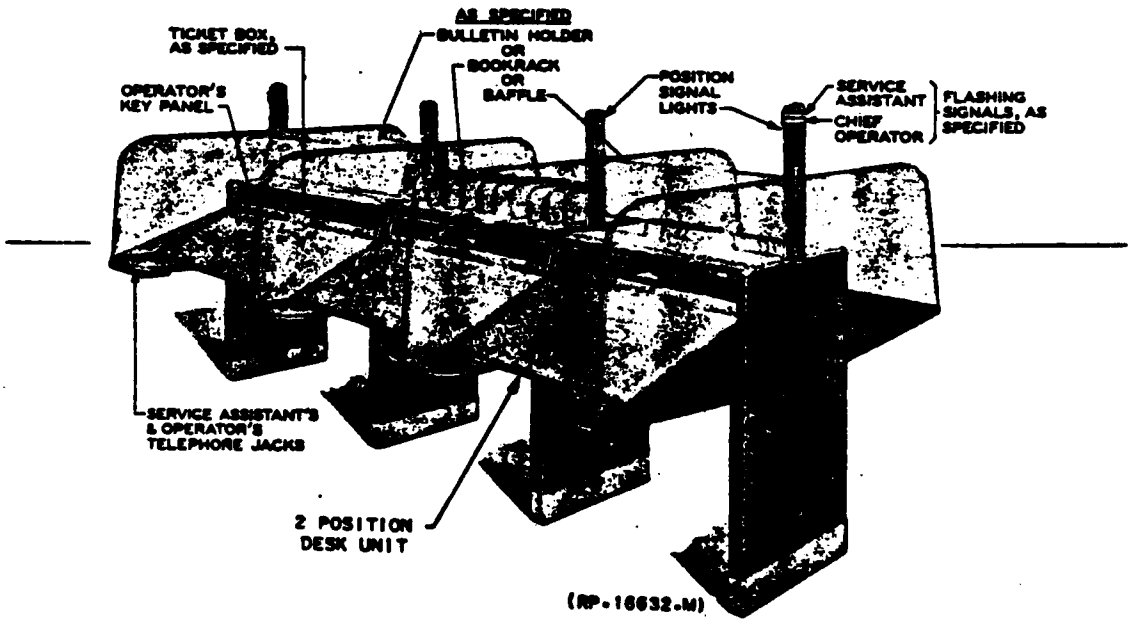


FIG. 1 NO. 23A DESK (Par. 4.1 to 4.23)

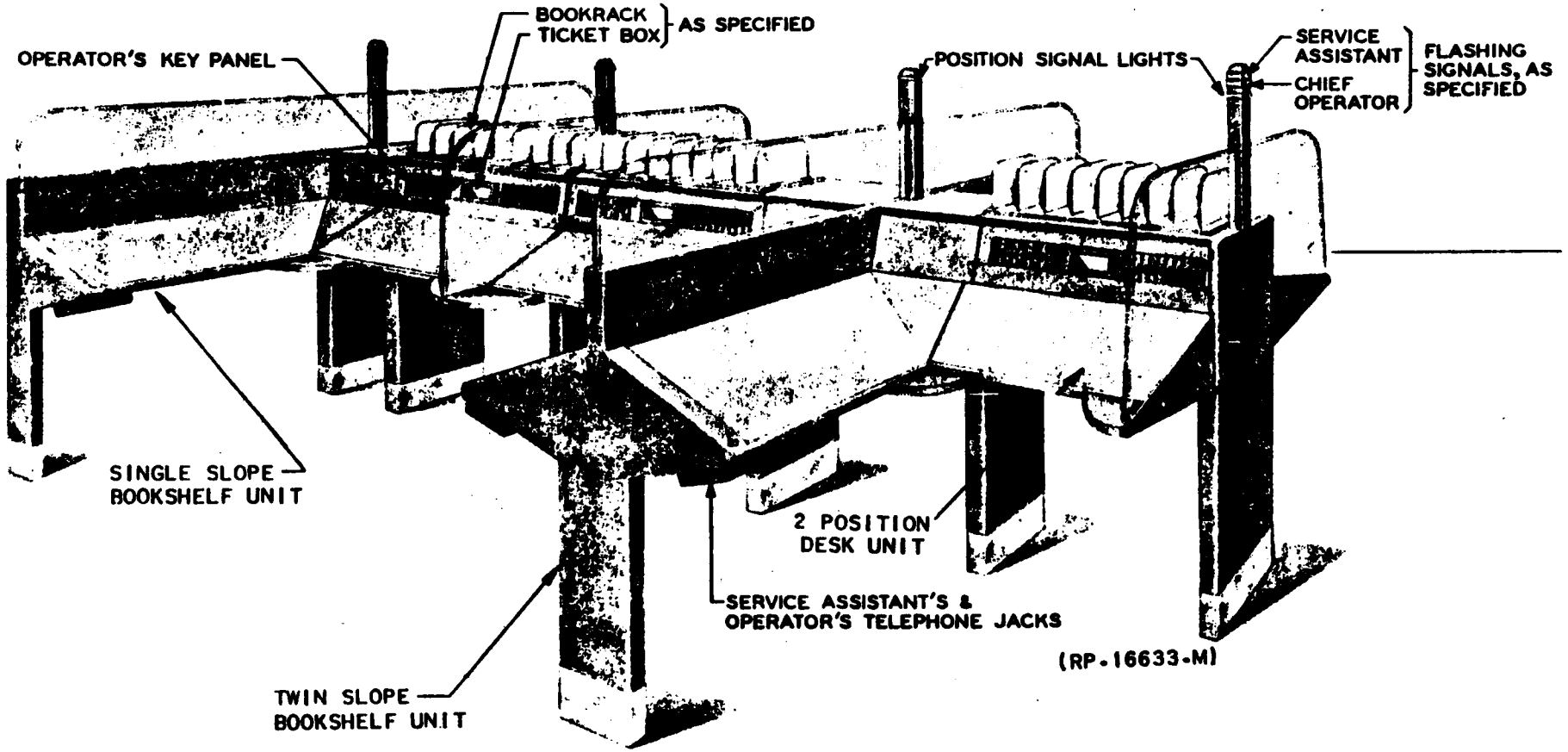


FIG. 2 NO. 23B DESK
(Par. 4.1 to 4.23)

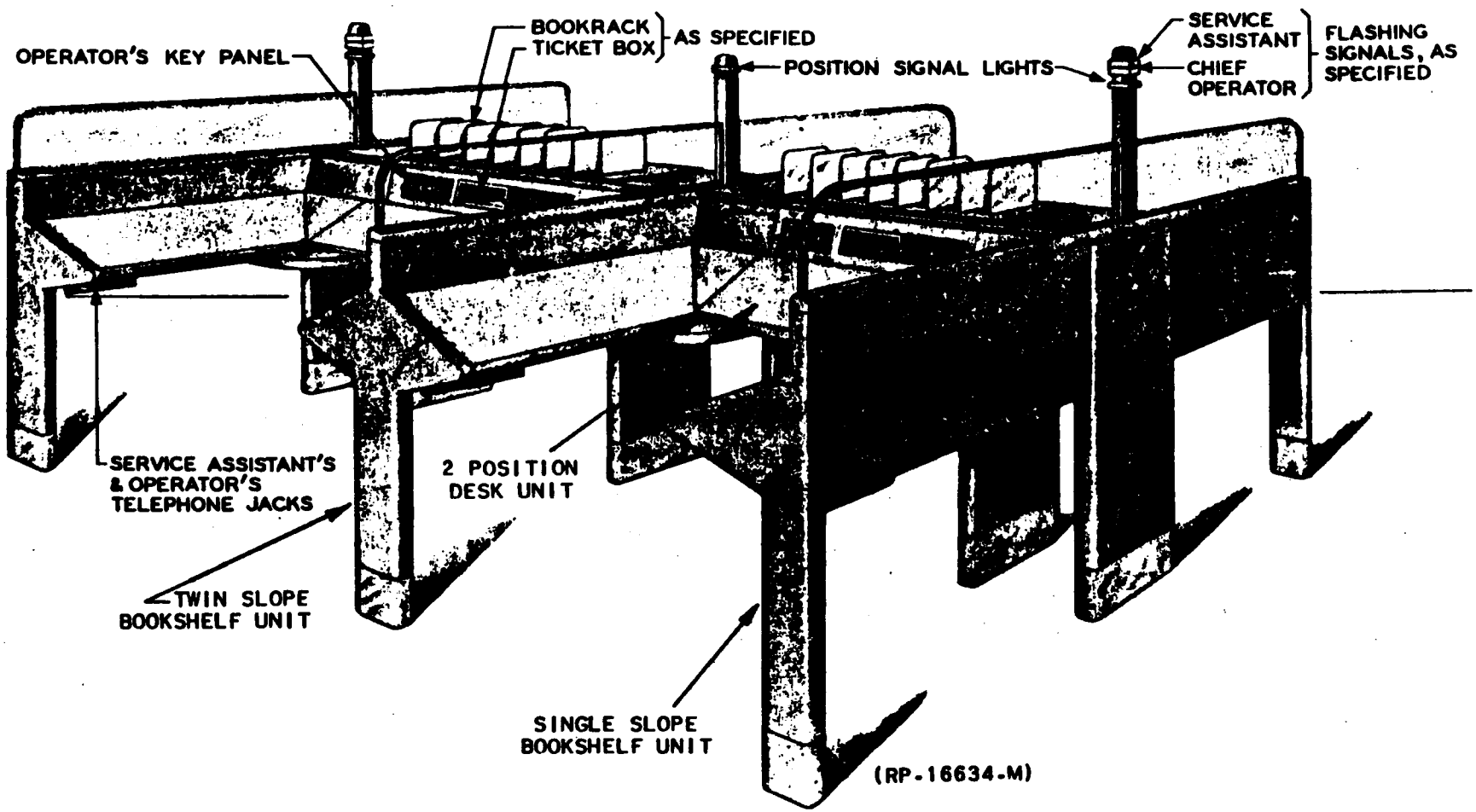


FIG. 3 NO. 23C DESK
(Par. 4.1 to 4.23)

8.21 After all markings are complete cover them with R-2805 Acetate Fiber Tape to prevent them from being obliterated.

8.3 Steel plates are provided for use under the leveling screws to permit shifting the desks as necessary for proper alignment.

8.4 Drill the holes for the expansion shields and install the shields as outlined in the section on "Drilling Holes in Masonry and Setting Expansion Shields and Anchors." In the case of wooden floors, drill the holes for lag screws.

9. GENERAL ASSEMBLY

9.1 Tap out all tapped holes if necessary to remove paint, before starting to assemble the affected parts.

9.2 Utilize the adjustment provided by clearance holes in the various parts, to provide the best alignment, close up gaps, insure rigidity of baffles and lamp stanchions, etc. In some cases it may be necessary to enlarge the holes by filing or redrilling, to provide additional adjustment.

9.3 See that major assemblies are aligned before tightening the junctioning screws and nuts. Where two parts or assemblies are involved in junctioning, install the full complement of screws and nuts, finger tight, then align the various parts and tighten screws and nuts as a whole, rather than individually.

9.4 Use the R-2226 Screwdriver with screw holding attachment, when placing screws in hard to reach locations.

9.5 After parts are assembled, remove or round any exposed sharp edges or corners which might present accident hazards.

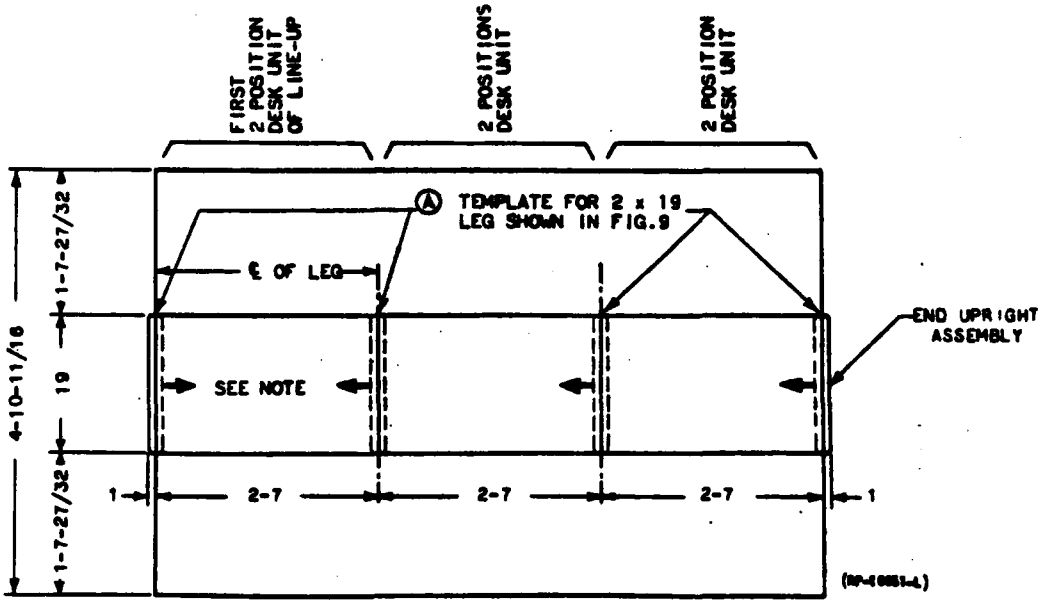
9.6 When adding a desk unit with a 7/8" wide leg base angle to a desk unit with a 1-1/2" wide leg base angle it may be necessary to shorten the leveling screws in the 1-1/2" base angle or cut notches in the 7/8" base angle to clear the leveling screws and hold-down bolts.

10. PLACING, LEVELING AND ALIGNING DESKS

10.1 Placing

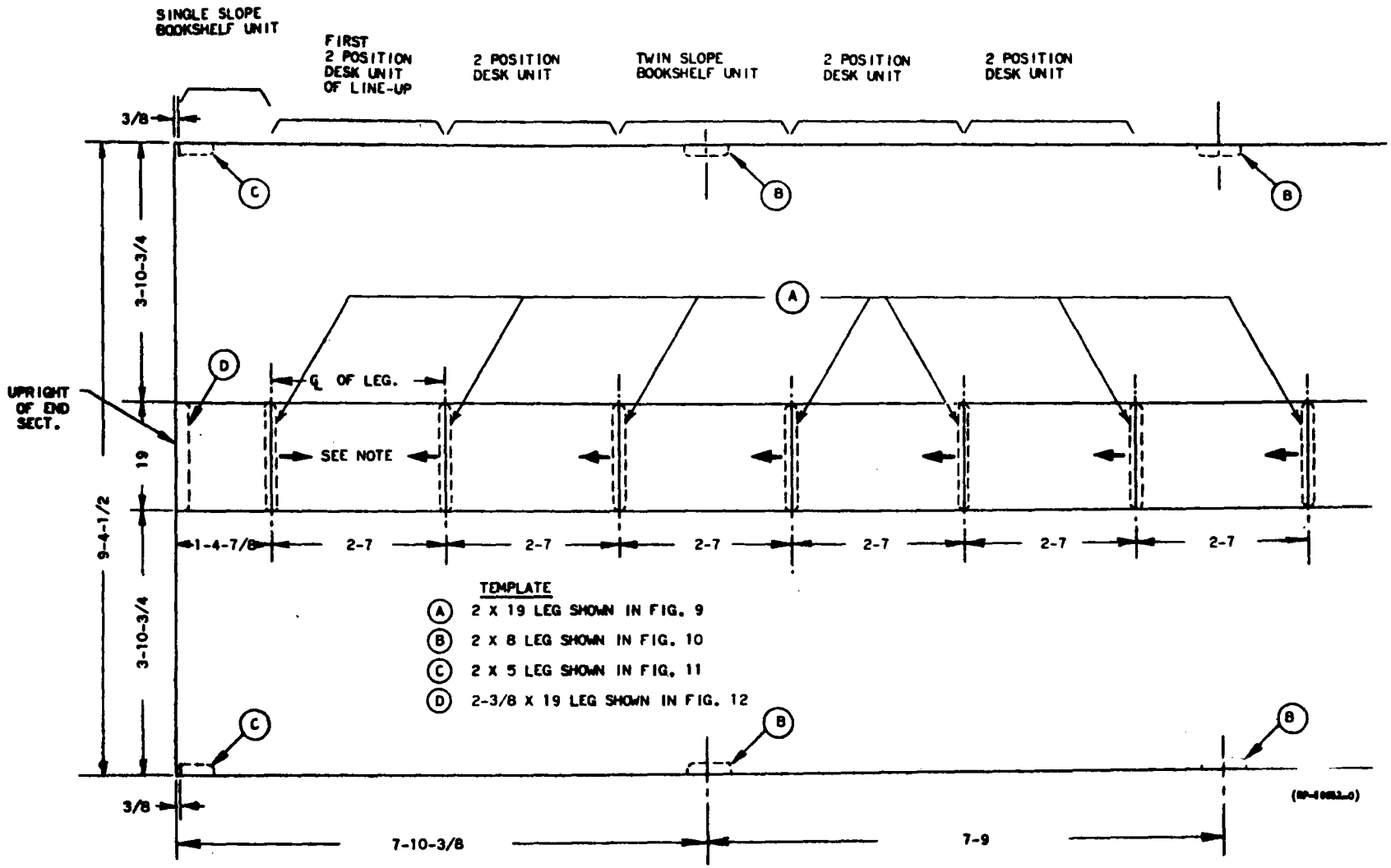
10.11 After being fastened in place, the following conditions should be met.

10.111 Upright parts should be approximately vertical.



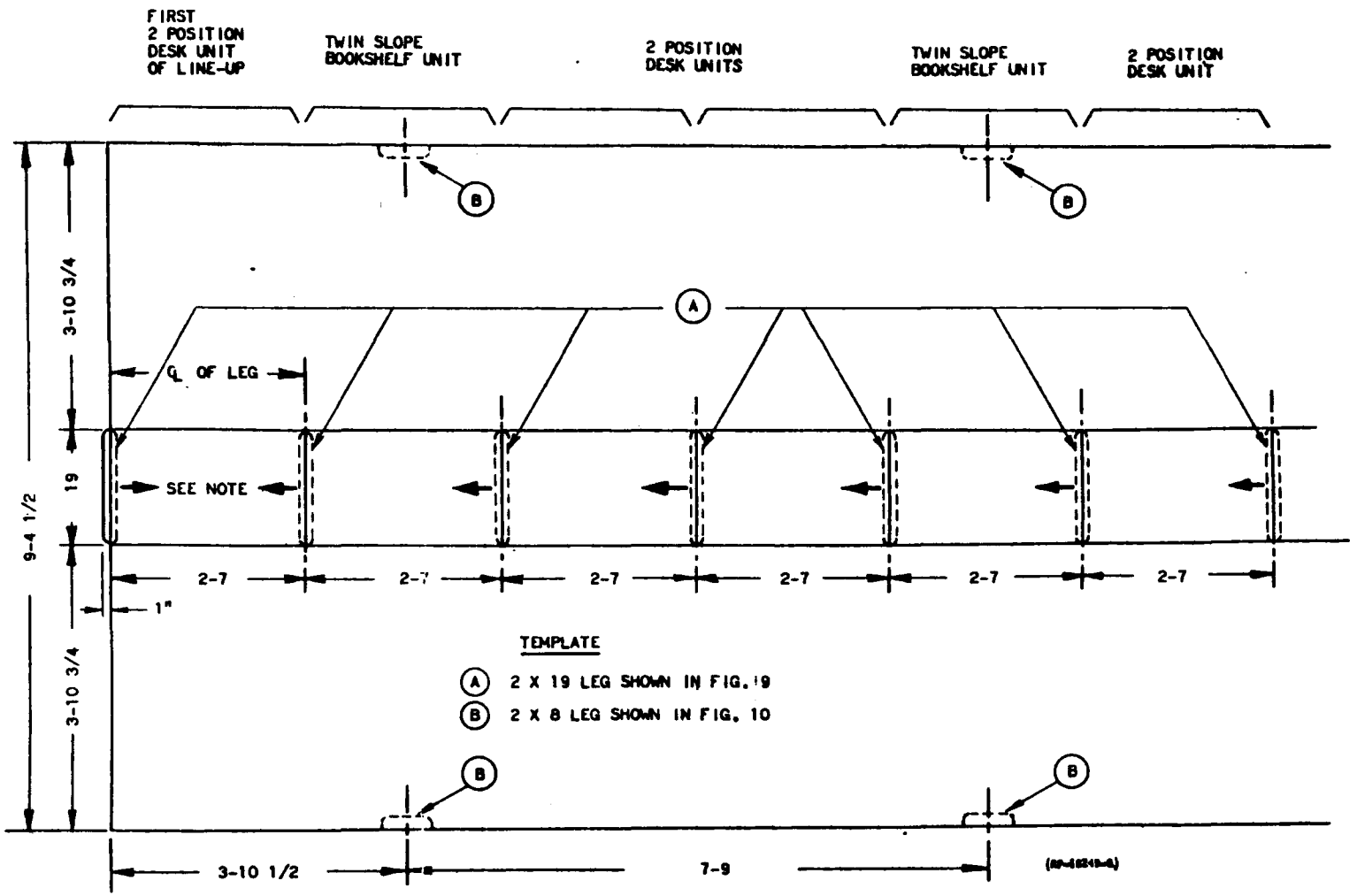
NOTE: PLACE TEMPLATE FOR Ⓐ LEG SO THAT ARROW ON TEMPLATE IS IN THE SAME DIRECTION AS SHOWN IN FIGURE.

FIG. 4 FLOOR LAYOUT FOR 23A DESK (Par. 6.2)



NOTE: PLACE TEMPLATE FOR (A) LEG SO THAT ARROW ON TEMPLATE IS IN THE SAME DIRECTION AS SHOWN IN FIGURE.

FIG. 5 FLOOR LAYOUT FOR 23B DESK WITH SINGLE SLOPE BOOKSHELF UNIT AT START OF LINEUP (Par. 6.2)



NOTE: PLACE TEMPLATE FOR (A) LEG SO THAT ARROW ON TEMPLATE IS IN THE SAME DIRECTION AS SHOWN IN FIGURE.

FIG. 6 FLOOR LAYOUT FOR 23B DESK WITH 2 POSITION DESK UNIT AT START OF LINEUP (Par. 6.2)

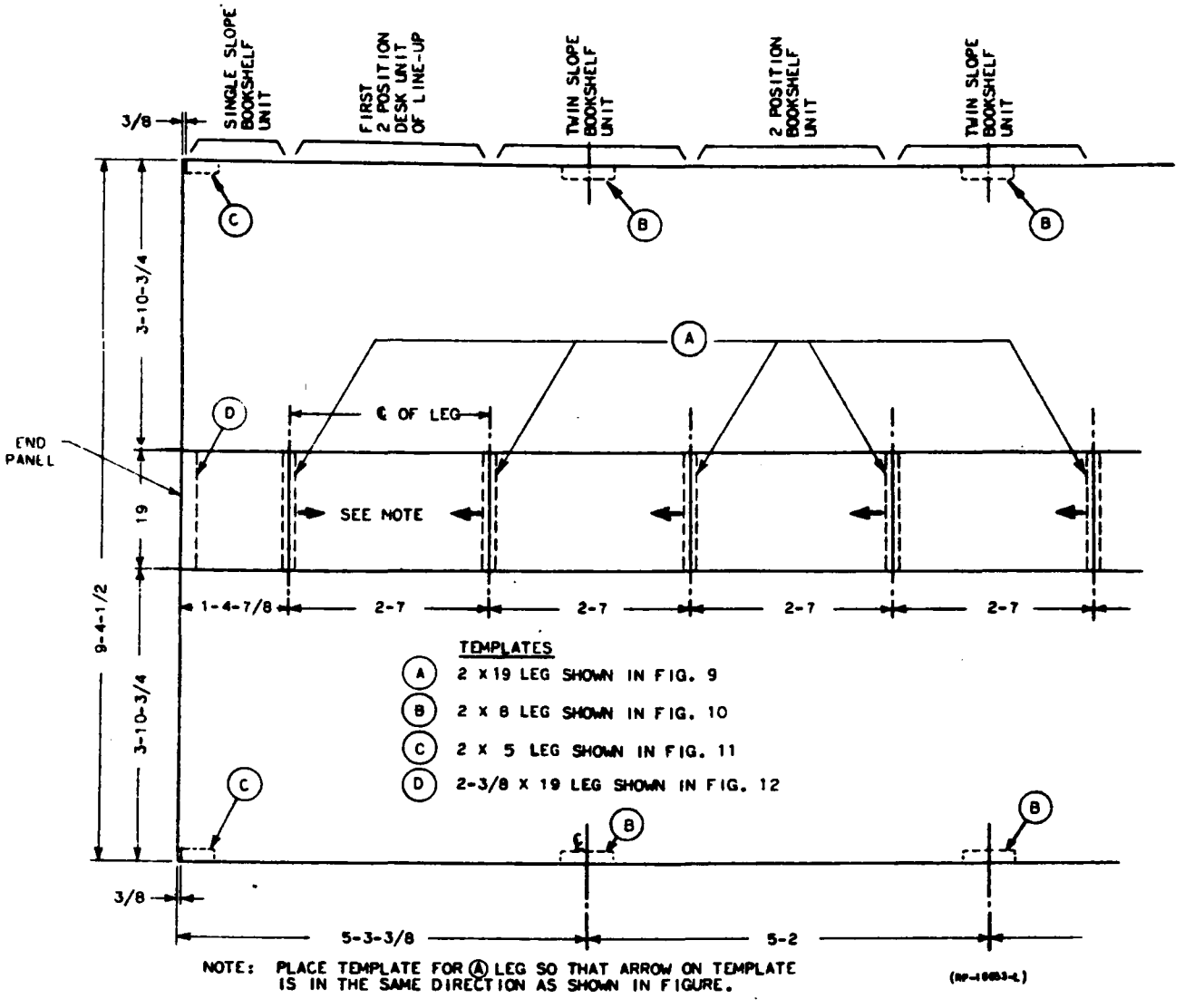


FIG. 7 FLOOR LAYOUT FOR 23C DESK
(Par. 6.2)

10.112 Horizontal parts should be approximately level.

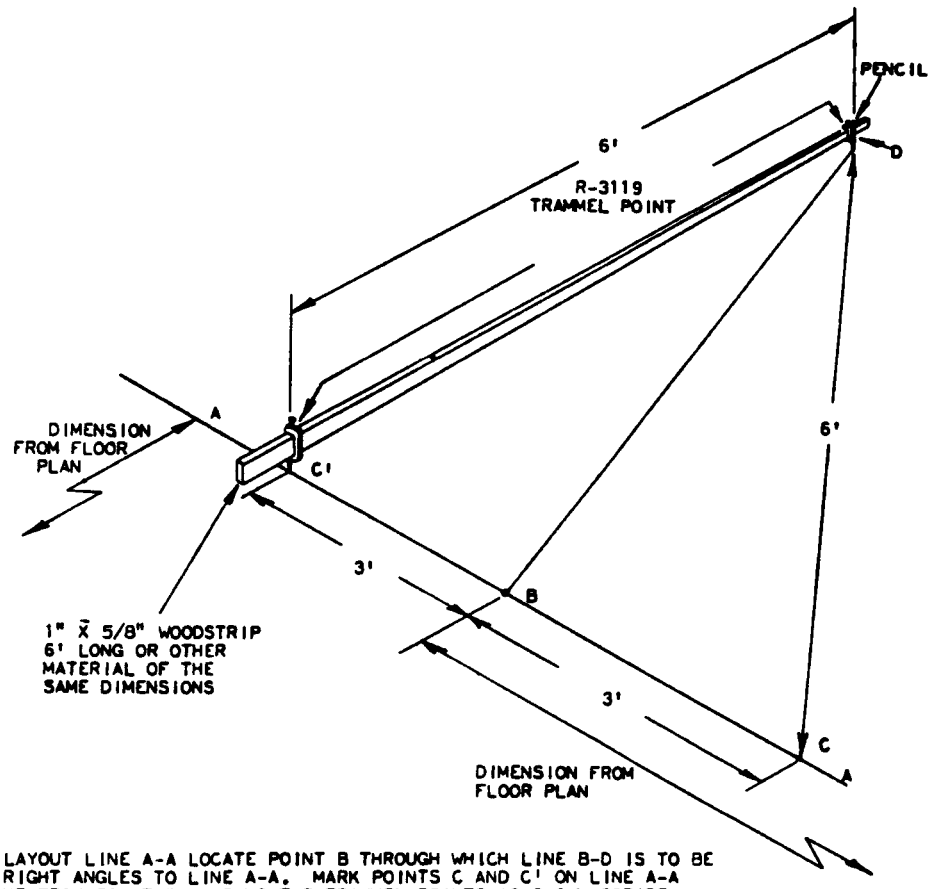
10.113 Other than horizontal or vertical parts should be at the angle specified as far as practicable.

10.114 No pronounced irregularity should exist throughout a lineup.

10.12 As the first 2 position desk unit is supported by four leveling screws begin by placing this unit in its proper position in the lineup. If a single slope bookshelf unit is specified at the head of the lineup, it should be junctioned to the 2 position desk unit and the two units leveled and aligned.

10.13 Install floor studs in the shields just before each unit is placed so as to utilize the better access on the open floor.

10.14 As each unit is placed, screw the leveling screws down to the plates, place washers on floor studs and just start the nuts, and place the screws finger tight in the leg junction with the preceding unit.



ON FLOOR LAYOUT LINE A-A LOCATE POINT B THROUGH WHICH LINE B-D IS TO BE DRAWN AT RIGHT ANGLES TO LINE A-A. MARK POINTS C AND C' ON LINE A-A EQUIDISTANT FROM POINT B. USING THE TRAMMEL POINTS AS SHOWN SCRIBE AN ARC WITH POINT C' AS A CENTER AND ONE WITH POINT C AS A CENTER. THE INTERSECTION OF THESE TWO ARCS IS POINT D. CONNECT POINTS B AND D WITH A LINE. LINE B-D AND LINE A-A ARE AT RIGHT ANGLES.

(RP-18252-L)

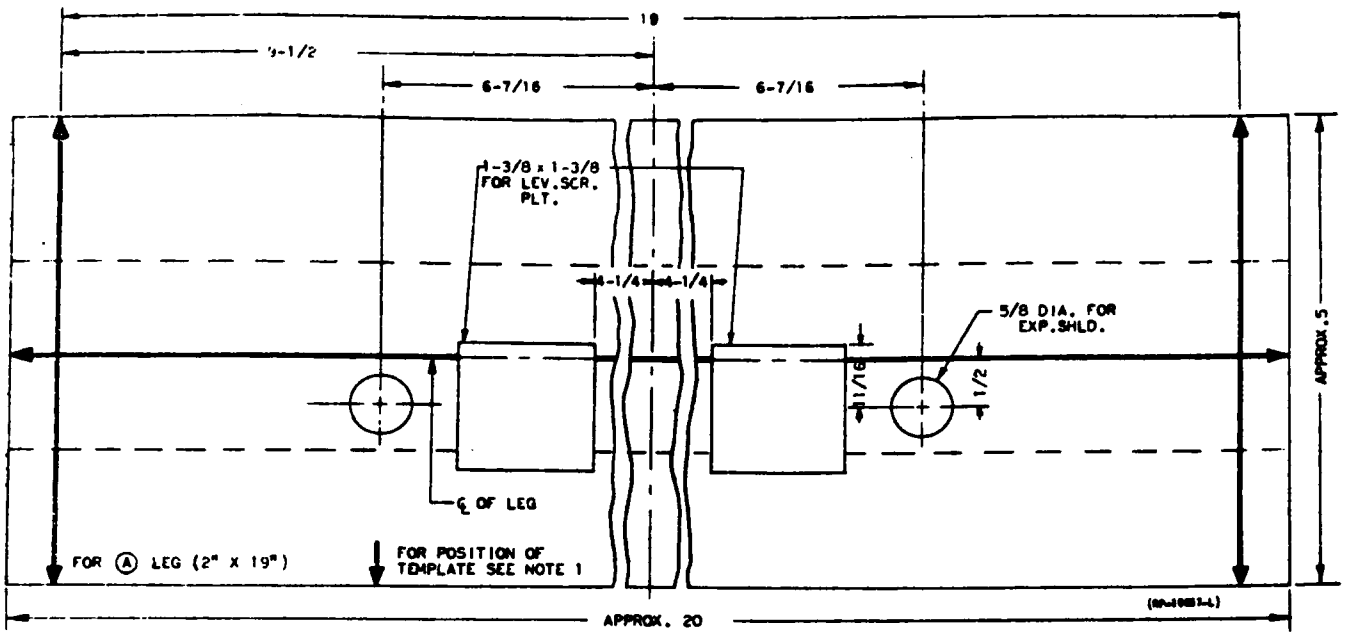
FIG. 8 USING R-3119 TRAMMEL POINT FOR CONSTRUCTING LINES AT RIGHT ANGLES (Par. 6.3)

10.2 Leveling

10.21 The level of the desks should be maintained throughout the lineup. Where the variation in the floor level is 3/4" or more, the leveling screws should be adjusted to the minimum at the high points in the floor to insure that the space at the low points will not exceed 3/4". If an excessive space would be required to maintain a level, the lineup as a whole may be set with the minimum slope practicable.

10.22 The leveling screws of the first two position desk unit should be adjusted so as to maintain the level of the lineup above the high points in the floor. The information described in Paragraph 7.1 can be used to determine the approximate distance the bottom of the legs are raised above the floor.

10.221 The leveling screws may be adjusted with the fingers by using an R-2092 Ripping Chisel or other suitable lever to ease the weight of the unit (use a wood block to protect the linoleum).



NOTE 1: WHEN LAYING OUT Ⓐ LEGS, POSITION THE TEMPLATE SO THAT THE DIRECTION OF THE ARROW ON THE TEMPLATE MATCHES THE DIRECTION OF ARROWS ADJACENT TO THE Ⓐ LEGS AS SHOWN IN FIGURES 4 TO 7. THIS WILL LOCATE THE HOLD-DOWN BOLTS AND LEVELING SCREWS IN ACCORDANCE WITH PARAGRAPH 8.11.

NOTE 2: THIS TEMPLATE IS FOR DESK UNITS HAVING THE NEW 7/8" WIDE LEG BASE ANGLES. FOR DESK UNITS WITH THE 1-1/2" WIDE LEG BASE ANGLE THE EXPANSION SHIELDS AND LEVELING SCREW PLATES SHOULD BE CENTERED ON THE CENTER LINE OF THE LEG.

FIG. 9 FLOOR TEMPLATE FOR 2 X 19 LEG 23A, 23B OR 23C DESK (LEGS OF 2 POSITION DESK UNITS OR CENTER LEG OF SINGLE SLOPE BOOKSHELF UNIT, OR CENTER LEG OF TWIN SLOPE BOOKSHELF UNIT.) (Par. 8.2)

10.23 As each succeeding unit is placed, adjust the leveling screws to level the area over the 19" legs by using the R-3052 Straightedge or R-3053 Level on the top surface of the desk units.

10.24 Having leveled the center area of single and twin slope desk units as indicated in Paragraph 10.23 the top rail on each side should be leveled by adjusting the leveling screws in the front legs. While adjusting these screws use the R-1370 Bench level to check that the legs are plumb. See Figure 13.

10.25 After each unit is leveled, tighten the hold-down bolts.

10.3 Aligning

10.31 Align adjacent units so that the surface of the sloping bookshelves are as nearly in alignment as practicable.

10.311 A space between adjacent sloping bookshelves is provided for mounting linoleum moldings and baffles. Where two 2 position desk units are adjacent the space is 3/8", and where a 2 position desk unit is adjacent to a single or twin slope bookshelf unit the space is 1/16".

10.312 The alignment and spacing of adjacent sloping bookshelves as indicated in Paragraph 10.31 and 10.311, is to help insure the proper fit of the corner cover on the bookrests at the junction of the bookshelves on 23B and 23C desks. Refer to Figure 13 for method of checking alignment between sloping bookshelves. In most cases, misalignment at this point may be corrected by checking the adjustment of the leveling screws, the location of the legs along the floor layout lines and the number of spacers installed at the junction of the bookshelves.

10.32 After each unit is aligned, install moldings and spacers as indicated in Paragraph 11.02 and tighten the screws joining the unit with the preceding unit.

11. MISCELLANEOUS ASSEMBLIES

11.01 On 23A desks, the horizontal bookshelves should be removed to permit access for other assembly operations.

11.011 The shelves should be suitably identified so that they can be replaced on the same sections since they may have been matched to the individual sections by the shop to cancel out deviations.

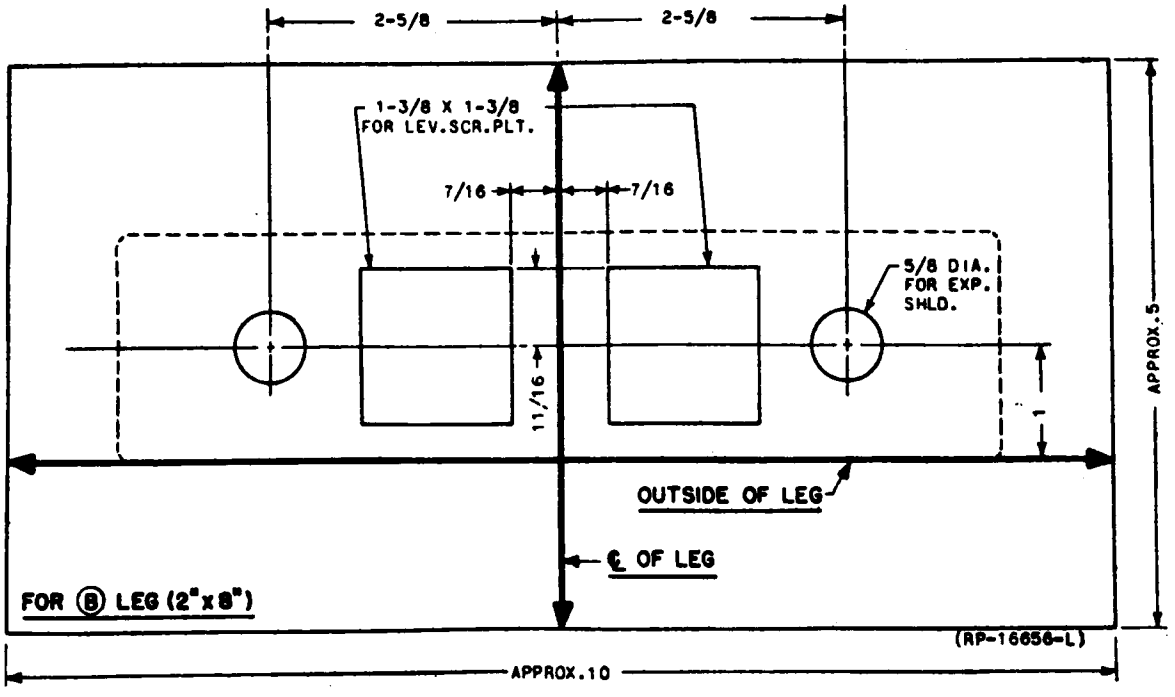


FIG. 10 FLOOR TEMPLATE FOR 2X8 LEG 23B OR 23C DESK
(Legs at Ends of Twin Slope Bookshelf Units)
(Par. 8.2)

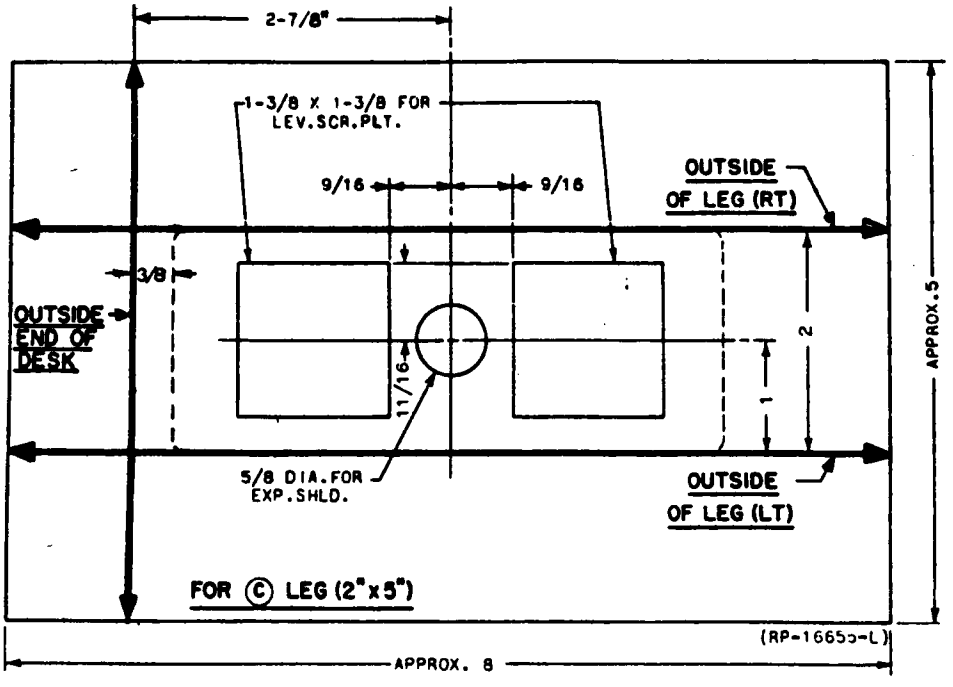


FIG. 11 FLOOR TEMPLATE FOR 2X5 LEG 23B OR 23C DESK
(Legs at Ends of Single Slope Bookshelf Units)
(Par. 8.2)

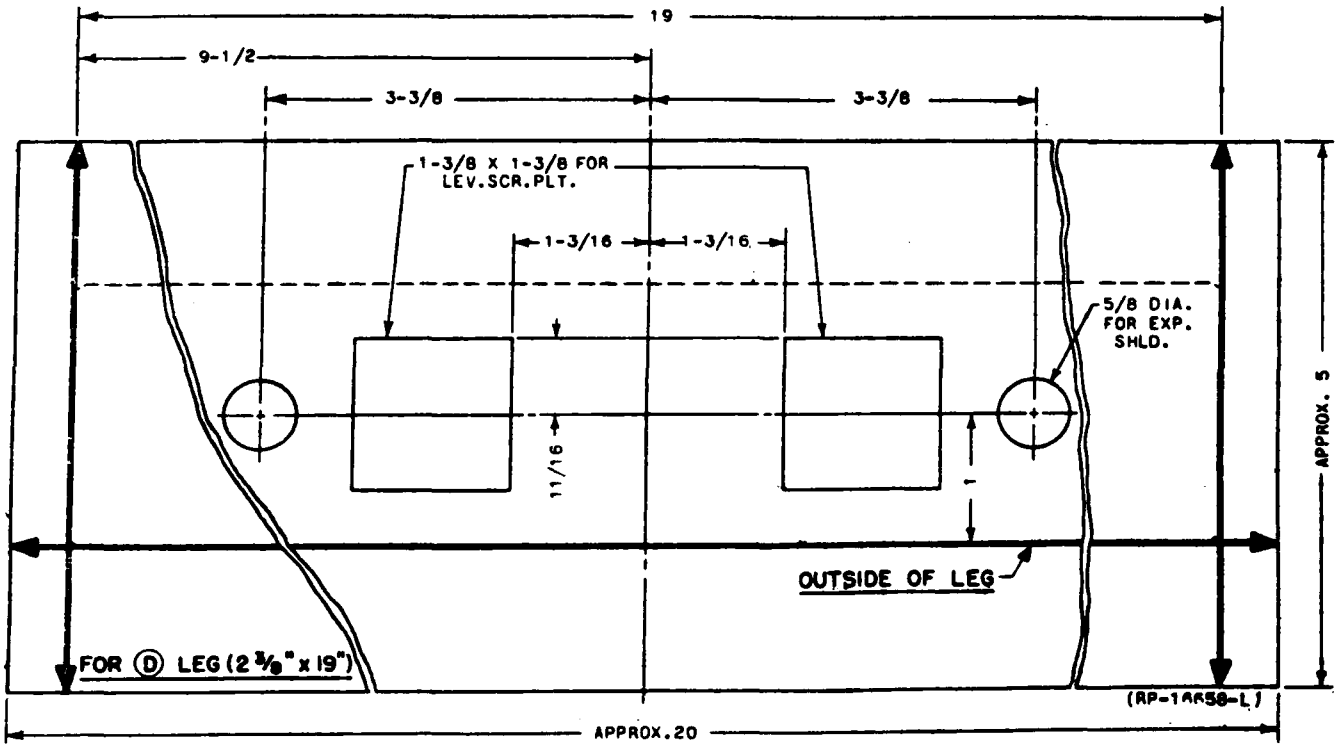


FIG. 12 FLOOR TEMPLATE FOR 2-3/8 X 19 LEG 23B OR 23C DESK (LEG AT CENTER OF SINGLE SLOPE BOOKSHELF UNIT) (Par. 8.2)

11.02 File the upper ends of linoleum molding, if necessary, to make them fit cleanly against stile strips or filler panels. Include spacers, if necessary, with the linoleum moldings to insure a tight fit.

11.03 At the junction between 2 position desk units on 23A and 23B desks the stile strips and bookrests should be adjusted to fit snugly against the baffles.

11.04 To fit the bookrests on the bottom edge of the sloping bookshelves follow the procedure outlined in Figure 13.

11.05 Mount the stanchion support bars and lamp stanchions in conjunction with the installation of the baffles.

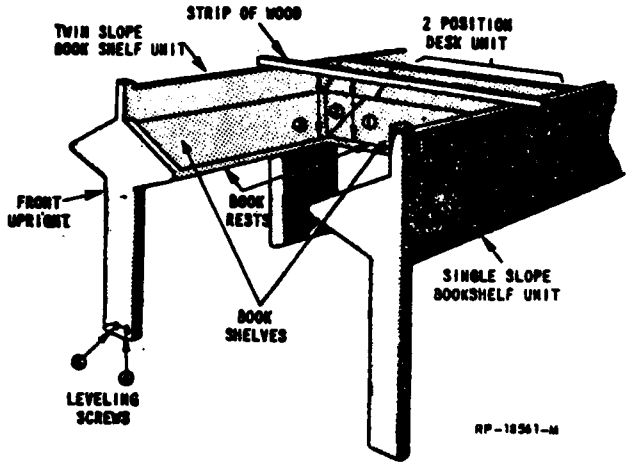
11.06 To install baffles and baffle molding on the single slope and twin slope bookshelf units proceed as follows:

11.061 Fasten the upper and lower baffle and molding brackets to the bookshelf unit with self-tapping screws.

11.062 Place the baffle between the brackets and position the baffle toward the front of the desk.

11.063 Install the screws and nuts for the baffle. If any of the screw holes in the baffle are not aligned with the holes in the stanchion or brackets enlarge the holes in the baffle.

11.064 The baffle molding is installed by engaging the lower edge in the space between the upper bracket and the desk and then by pushing the upper edge of the molding to engage the top of the brackets. If difficulty is experienced in mounting the baffle molding, check to see that the brackets set square on the top rail of the bookshelf unit.



1. INSTALL BOOKRESTS ON 2 POSITION DESK UNITS WITHOUT FULLY TIGHTENING THE SCREWS.
   (A) ON 23B DESKS, POSITION THE BOOKREST SO THAT ONE END FITS AGAINST THE BAFFLE.
   (B) ON 23C DESKS, CENTER THE BOOKREST BETWEEN THE MITERED CORNERS OF THE BOOKSHELVES.
2. INSTALL BOOKRESTS ON SINGLE SLOPE AND TWIN SLOPE DESKS UNITS WITHOUT FULLY TIGHTENING THE SCREWS. POSITION THESE BOOKRESTS SO THAT ONE END FITS AGAINST THE FRONT UPRIGHT (THESE BOOKRESTS DO NOT REQUIRE CUTTING TO FIT).
3. PLACE CORNER COVER AT THE JUNCTION OF THE TWO BOOKRESTS. INSTALL AND TIGHTEN SCREW HOLDING COVER TO BOOKSHELF. THEN TIGHTEN SCREWS FASTENING BOOKRESTS TO BOOKSHELVES. IF CORNER COVER DOES NOT PROPERLY FIT AGAINST BOTH BOOKRESTS, THE DIFFICULTY MAY BE CAUSED BY MISALIGNMENT OF THE BOOKSHELVES.
   (A) CHECK ALIGNMENT BETWEEN BOOKSHELVES AT 1 AND 2, LOOSEN JUNCTION SCREWS AND REALIGN IF NECESSARY.
   (B) IF THE PROCEDURE IN (A) DOES NOT FULLY CORRECT THE ALIGNMENT OF THE BOOKRESTS, CHECK THE DISTANCE FROM A STRIP OF WOOD PLACED ACROSS THE TOPS OF THE DESK UNITS TO THE BOOKRESTS AT 1 AND 3. IF THE DISTANCE TO 3 IS GREATER THAN THE DISTANCE TO 1, REPLUMB THE LEG OF THE FRONT UPRIGHT BY SCREWING DOWN THE LEVELING SCREW AT 4. IF THE DISTANCE TO 1 IS GREATER THAN THE DISTANCE TO 3, THE BOOKREST AT 3 CAN BE LOWERED BY LOOSENING THE LEVELING SCREW AT 4.

FIG. 13 ALIGNING BOOKRESTS ON 23B AND 23C DESKS 23C DESK SHOWN (Pars. 10.312, 11.04)

→ Arrowed lines indicate new or changed information.

[Vertical lines at side of paragraphs indicates requirements.

11.07 When assembling arm rests on the bookshelves a 1/16" space between the arm rests and bookrests is provided for the corner covers. This space is permissible in other locations where corner covers are not used.

11.08 Assemble support brackets and jack mountings and remove unused jack mounting bracket studs (weld screws) as covered on the assembly drawing for 23C desks.

11.09 Assemble brackets and jack mountings to the left arm rests for 23A desks and to the right arm rests when specified.

11.10 Assemble kick-skirts on the desk legs.

11.101 Use R-2981, No. 29 drill for the .136 holes in legs for the self-tapping skirt screws as shown on the assembly drawings.

11.11 After connecting is completed at the terminal strips, mount the horizontal bookshelves, equalizing any spaces at each end of the shelves insofar as practicable.

11.111 On 23A desks, be sure to match the shelves with the sections from which they were removed, in order to obtain the best fit.

11.12 Mount longitudinal baffles, bulletin holders and bookracks, as specified, on the horizontal bookshelves.

11.13 A final check should be made to see that the key panels fit properly and that the screws for fastening the panels align with the floating nuts. Any necessary adjustments can usually be made by utilizing the clearance of the screws in the screw holes used for fastening the key panel braces, floating nut brackets, stile strips, filler panels and horizontal bookshelves to the desk framework.

R. W. HILLEGAS

Superintendent, Installation Engineering

Reason for Reissue:
(1) To remove information pertaining to cutting linoleum prior to placement of the leveling screw plate in Par. 8.3.
(2) To remove Par. 8.4 and renumber Par. 8.5 to be Par. 8.4.

Replaces Section 30R dated 10-17-57.