Installation Engineering Handbook 30
Western Electric Company, Incorporated
Columbus Works

10-9-70
Replaces: Section 19D
Dated 4-20-61

ERECTING FRAMES 1A CARD TRANSLATORS (NO. 4A TOLL)

CONTENTS

1. INDEX
2. GENERAL
3. INSTALLING EQUIPMENT
4. DESCRIPTION
5. SEQUENCE OF INSTALLATION
6. LOCATION OF EQUIPMENT
7. LAYING OUT FLOOR
8. NUMBER AND LOCATION OF FLOOR BOLTS
9. LEVEL OF FLOORS
10. UNPACKING AND MOVING CABINETS
11. UNPACKING AND MOUNTING 4A APPARATUS UNITS
12. PLACING CABINETS IN LINEUP
13. LEVELING AND ALIGNING
14. FASTENING TO FLOOR
15. FLOOR SUPPORTED CABLE RACK AND GROUND BARS
16. FILLING SPACE BETWEEN CABINET BASES AND FLOOR

1. INDEX

Subject	Figure	Paragraph
Apparatus Unit, 4A		
Conveying		5.1,11.12
Description of	1	4.31
Hoisting and Mounting	8A,9	11.13,11.21,11.22
Method of Packing	8A	11.11
Bolts, Nuts and Screws		
Requirements Applying to (See Section 1B)		
Bolts, Floor		
Accuracy of Location		8.2 (Note)
Drilling Holes in Masonry, for (See Section 9)		
Fastening	7C	12.4,13.13,14.1
Number and Location	3	8.1
Cabinets, Card Translator		
Caulking Under Base (See Section 29)		16.1,16.11
Conveying in Shipping Case	6	10.23
Conveying Outside of Shipping Case	10	10.12,12.1
Description of	1	4.21
Fastening to Floor	7C	12.4,14.1
Leveling and Aligning		
Preliminary Alignment	13	13.11 to 13.13
Final Alignment	13	13.21 to 13.27
Requirements Applying to		13.28 to 13.286
Method of Packing	6,8	10.1
Placing Shims Under Floor Plates	13	13.111,13.21
Placing in Lineup	10,11	12.1 to 12.3
Removing from Shipping Skid	8	10.33 to 10.342
Cable Racks		
Locating and Fastening		15.1 to 15.12
Equipment		
Description of	1	4.11,4.12
Floor Plan Arrangement	2	7.1 (Note)
Location of, Requirements Applying to		6.1 to 6.13

This section includes material from BSP's 800-610-155 and 800-614-154
Copyright, 1967 and 1956 respectively by American Telephone and Telegraph Company
Printed in U.S.A.

1. INDEX (Cont'd)

Subject	Fig.	Paragraph
Frame, Lifting, R-3093		
Details of	7	10.31
Method of Assembly	8	10.32 to 10.323
Use of	8,10	10.31
Ground Bars, Assembly of		15.2
Jacks, Hydraulic Lift		
Filling with Oil	5A	10.25
Operation of		10.24
Use of R-3099 Jack and Lift	13	13.12
Laying Out Floor		
Accuracy Required		7.3
Constructing Lines at Right Angles	4	7.3
Determining Basic Locating Dimensions	2	7.2
Lines to be Marked on Floor	2	7.2 to 7.4
Protecting Lines on Floor		7.5
Precautions		
Equipment Damage		2.32,10.24,11.12,13.12
Personal Injury		10.22,10.341
Service Interruptions		2.31
Selectors, 214A (See Handbook 15)		2.13
Trucks, Hydraulic Lift, R-3083		
Description of	5	10.21
Procedure if Maximum 5" Lift is not Obtained		10.342
Number Required		10.21
Use of	6,8,10,11	10.21 to 10.23,12.1,12.2

ASSOCIATED HANDBOOK INFORMATION REFERENCE CHART

Subject	Handbook	Section
Location, Erection and Assembly		
General Safety Precautions	30	1A
General Requirements and Information	30	1B
Determining Level, and High and Low Spots in Floors	30	4
Drilling Holes in Masonry and Setting Expansion Shields and Anchors	30	9
Grouting and Caulking Beneath Frames	30	29
Painting and Retouching and Cleaning of Finishes	30	70

2. GENERAL

2.1 Scope

2.11 This section covers the specific requirements and installing procedures for locating and aligning 1A Card Translator Cabinets and mounting the associated 4A Apparatus Units.

2.12 This section also contains information for laying out the floor and for locating the floor fastenings for the cabinets and for the floor supported cable rack.

2.13 Information for mounting the 214A Selectors in their associated 4A Apparatus Units is contained in Handbook 15.

2.14 The requirements in this section shall be followed except as modified by specifications and drawings furnished the job.

2.15 The information in this section is arranged in the approximate sequence in which the operations are normally performed.

2.2 Associated Information

2.21 Refer to the chart above for the location of information to which reference may be necessary when performing operations covered by this section.

2.22 Reference should also be made to the specifications, floor plan and cabinet and translator unit assembly drawings furnished the job.

2.3 Precautions Against Personal Injury and Equipment Damage

2.31 The precautions to be taken against personal injury, damage to equipment and to prevent service interruptions are covered in this section with the associated operations. General precautions, as covered in Section 1A of this handbook and in Handbook 0, are to be observed at all times as they apply to the particular operation being performed.

2.32 The covers inclosing the translator cabinets and 4A Apparatus Units should be kept in position at all times except when it is necessary to remove them for installation reasons.

2.4 Arrangement of Tools

2.41 Prior to starting operations covered by this section the tools and other items required should be arranged at the work locations so as to minimize fatigue and inconvenience when handling.

3. INSTALLING EQUIPMENT

3.1 Tools

3.11 The major tools required for the operations covered in this section are contained in the No. 57 kit. The items listed below, normally available in other kits furnished the job, will also be needed.

R-72068	Bolt, U, Chain Hoist
R-2092	Chisel, Ripping
R-9430	Hammer, Claw
R-1844	Hoist, Chain, 1/4 Ton
R-1503	Nail Puller
R-2599	Truck, Dolly, Pipe Frame
R-2443	Screwdriver, Cabinet, 3"
R-1324	Screwdriver, 8"
R-1518	Square, Steel, 16" x 24"
R-7860	Tape, Steel, 50 Ft.
R-1384	Line, Chalk
R-4199	Wrench, Adjustable, 10"

NOTE: The tools required for associated operations, such as drilling floors, installing expansion shields, caulking beneath cabinet bases, painting and retouching, etc. are listed in the sections of this handbook covering the operations in question.

3.2 Supplies

Purchase	Oil, Hydraulic Jack (See Par. 10.25)
Purchase	Lumber 2"x 8"x 36" (See Note Fig. 8) or use lumber on shipping cases as substitute in emergencies.
★625.370	Pencil, Red China Marking
RM-646482	Shellac, Orange
★★R-3117	Shim, Cabinet Corner, 1/32"
★★R-3118	Shim, Cabinet Corner, 1/8"
★83542330	Tape, Cellophane Transparent 3/4"

★ Stationery Supplies
★★ Order 12 of each size shim per cabinet.

4. DESCRIPTION

4.1 General

4.11 Briefly, the card translator equipment consists of a floor mounted sheet metal cabinet upon which a 4A Apparatus Unit, containing a 214A Selector and the associated cards, is mounted. See Figure 1.

4.12 The cabinets, with their associated 4A Apparatus Units, are located back-to-back with adjacent translators staggered so that adjacent cabinets overlap to form a continuous 8-1/2" wide cable space between the two staggered lines of cabinets. A 5" floor supported cable rack is run through openings provided in the removable end casings at the overlapping ends of the cabinets. The external switchboard and power cables are run over this rack and connect to terminal strips and to bus bars in the cabinets. See Figures 2 and 12.

4.2 Cabinets

4.21 The cabinets are 3'-5-9/16" high, 2'-0" wide and 5'-2-1/2" deep and weigh approximately 600 lbs. They contain the shop mounted fuse panels, relays, transistor amplifier equipment, cables for inter-connecting to the associated 4A Apparatus Unit and the terminal strips and bus bars to which the external wiring is connected. They are provided with four removable side panels (two per side) and removable casings enclose the front and rear ends. Four rubber shock mountings, on which the 4A Apparatus Unit rests, are attached to the top of the cabinet. Perforations for fastening to the floor are provided in the four corners of the cabinet base. Two fastenings in diagonally opposite corners are normally used, except in earthquake areas, in which case fastenings are placed in all four corners.

4.3 4A Apparatus Unit

4.31 These units are 2'-1-7/16" high, 1'-10" wide and 3'-1-1/16" long, and are mounted on top of the cabinets through four rubber shock absorbers attached to the cabinet. They have removable covers on all four sides and a removable top cover assembly. They are arranged for mounting a 214A Selector and automatically aligning and connecting it to the associated components in the apparatus unit. Terminal strips are provided for attaching the inter-connecting cables from the equipment in the cabinet. Without the 214A Selector and associated cards the 4A Apparatus Unit weighsapproximately 250 lbs. With the selector and cards the weight is approximately 460 lbs.

5. SEQUENCE OF INSTALLATION

5.1 The preferred sequence of installing card translator cabinets and their associated 4A Apparatus Units is as outlined below:

NOTE: It is the intention that the 4A Apparatus Units be mounted on their associated cabinets before the cabinets are placed in their final locations. This eliminates the necessity of installing temporary framing bars, for supporting the chain hoist, over each cabinet position as would otherwise be required. In some cases ceiling inserts for that purpose may not be available over the translator floor area and in very congested offices the aisle space around the translators may be so narrow as to make it difficult to move a 4A Apparatus Unit into position for hoisting on its cabinet. It is also very difficult and hazardous to attempt to mount a 4A Apparatus Unit on its cabinet without the aid of the R-3073 Hoisting Chain and a chain hoist. This is due to having to feed the local cables from the cabinet through holes in the bottom of the apparatus unit as the unit is being lowered on to the cabinet. Mounting the unit on its cabinet before the cabinet is placed into final position eliminates the difficulties otherwise encountered under the above condition.

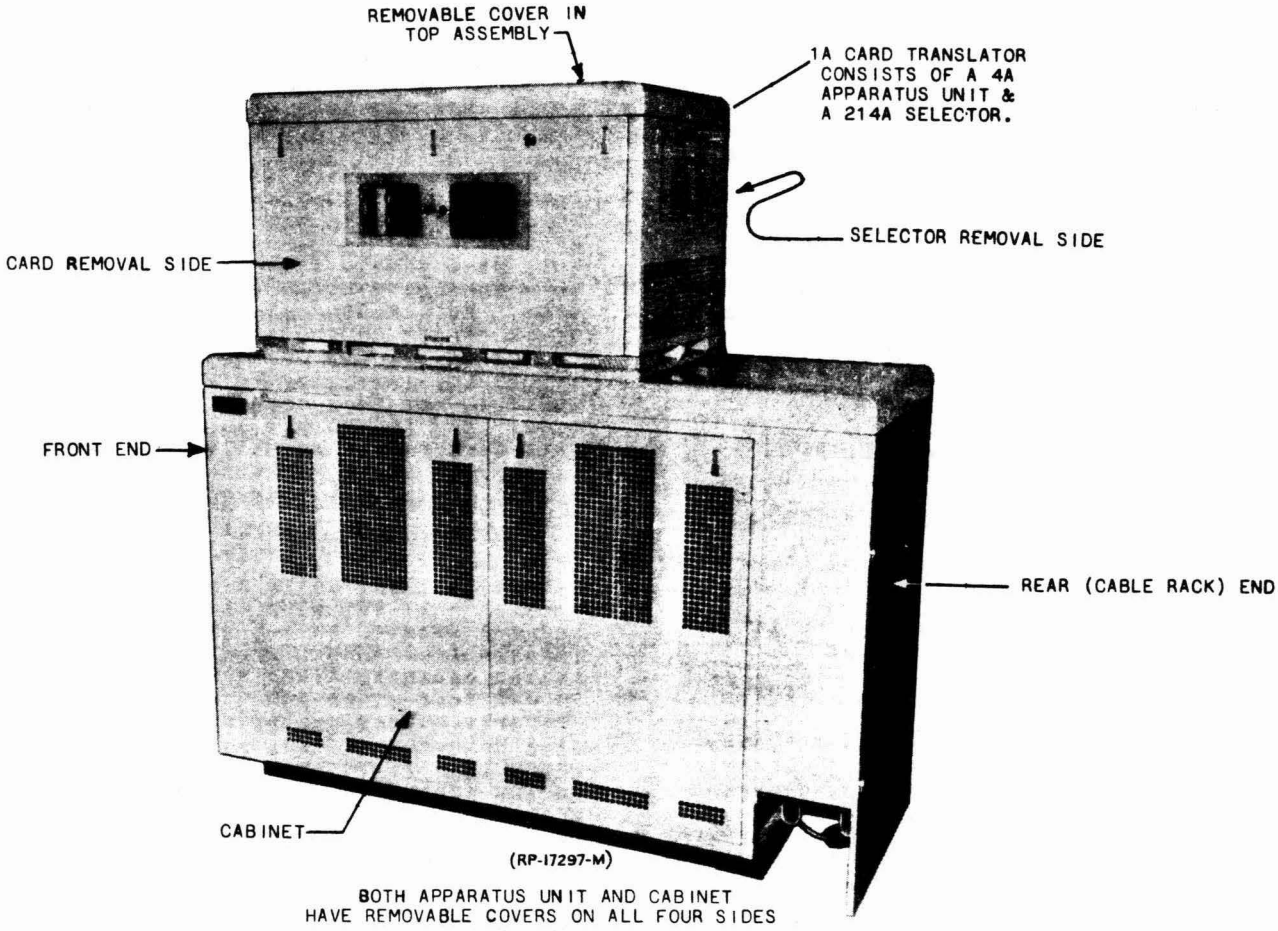


FIG. 1 1A CARD TRANSLATOR AND CABINET (PAR. 4.11)

(1) Layout the floor.

(2) Drill holes and install expansion shields.

(3) Determine level, and high and low spots in the floor.

(4) Remove tops and four sides of both the outer and inner shipping cases containing a cabinet.

(5) Assemble the R-3093 Lifting Frame around cabinet. Place the R-3083 Hydraulic Lift Trucks into position and remove the cabinet from its shipping skid.

(6) Remove top of shipping case containing a 4A Apparatus Unit. Move unit into position under a chain hoist. Attach the R-3073 Hoisting Chain and raise unit approximately 5 ft. above the floor.

(7) Remove the four rubber shock mountings from the apparatus unit and reassemble them on the cabinet.

(8) Move the cabinet into position under the apparatus unit. Lower the unit to about 5" above its position on the cabinet. Feed the local cable forms from the cabinet into the openings in the bottom of the unit. Place fastening bolts through holes in unit, and gradually lower the unit into its final position. Secure the fastenings.

(9) Move the cabinet and apparatus unit into their final positions in the lineup.

(10) Remove the R-3083 Lifting Trucks and the R-3093 Lifting Frame and loosely assemble the floor fastenings.

(11) Repeat above operation until all translators are in position.

(12) Level and align the cabinets. On initial installations start with the cabinet located over the high point in the floor.

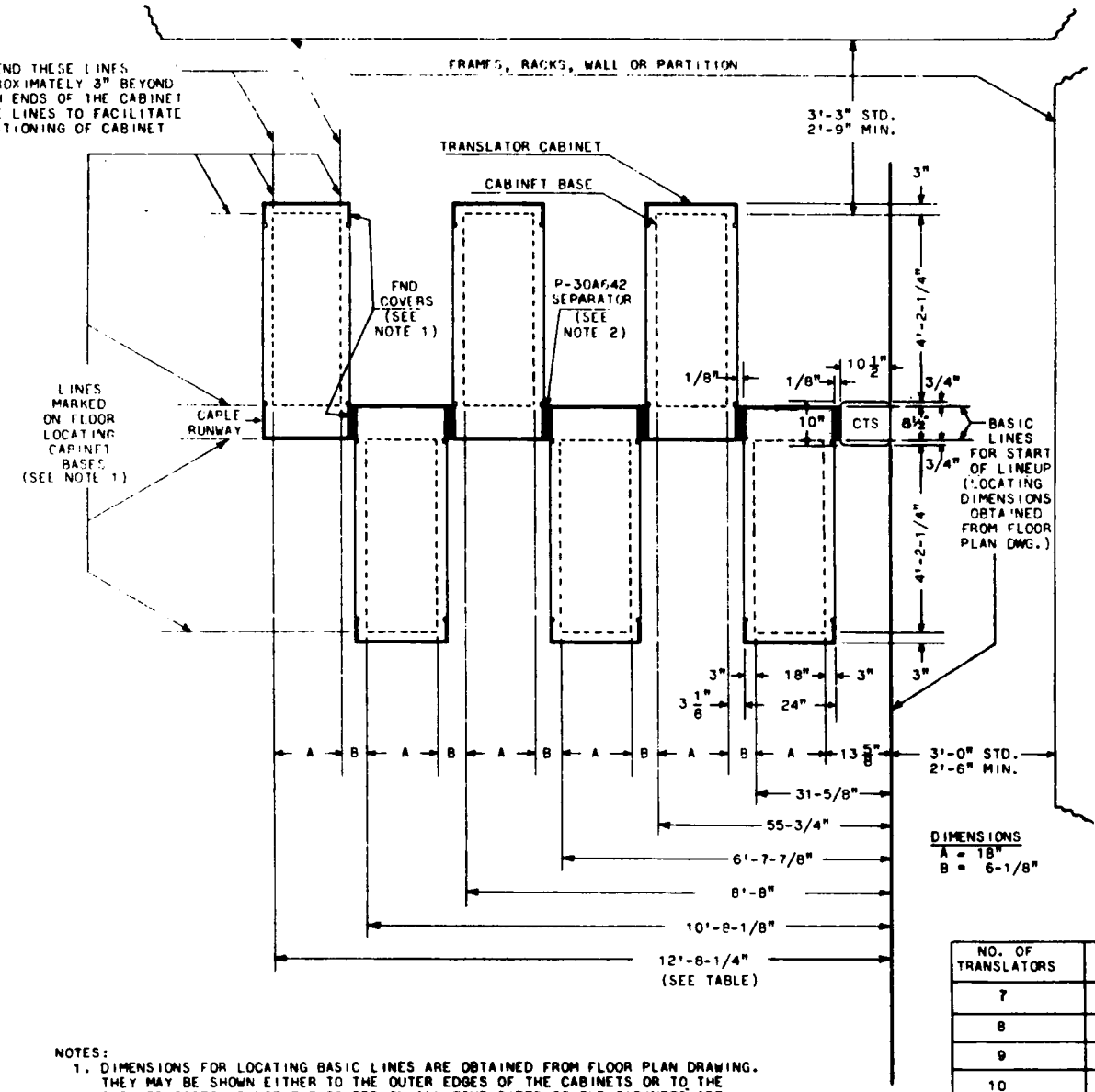
(13) Tighten the floor fastenings.

(14) Place and fasten the floor mounted cable rack.

(15) Install bus bar junctioning details.

(16) Fill in excess space between cabinet bases and floor with caulking compound.

(17) Retouch finishes where necessary.



NO. OF TRANSLATORS	TOTAL LENGTH (INCL. CTS)
7	14'-8-3/8"
8	16'-8-1/2"
9	18'-8-5/8"
10	20'-8-3/4"
11	22'-8-7/8"
12	24'-9"

NOTES:
1. DIMENSIONS FOR LOCATING BASIC LINES ARE OBTAINED FROM FLOOR PLAN DRAWING. THEY MAY BE SHOWN EITHER TO THE OUTER EDGES OF THE CABINETS OR TO THE CABINET BASES. SINCE THE COVERS ON ALL FOUR SIDES OF THE CABINETS ARE REMOVED DURING THE LOCATING AND ALIGNING OPERATIONS IT IS NECESSARY THAT LINES LOCATING THE SIDES OF THE BASE, RATHER THAN THE SIDES OF THE CABINET, BE MARKED ON THE FLOOR. MAKE THE NECESSARY CORRECTIONS IN THE DIMENSIONS TO COMPENSATE FOR THE OVERHANG OF THE SIDES AND END COVERS OF THE CABINET WHEN THE FLOOR PLAN DRAWING SHOWS THE LOCATING DIMENSIONS TO THE SIDES OF THE CABINETS.
2. A P-30A642 SEPARATOR IS ATTACHED TO THE LEFT SIDE OF THE TOP COVER OF EACH CABINET BY THE SHOP. THEY SHOULD BE RELOCATED TO THE OPPOSITE SIDE BY THE INSTALLER TO SUIT CONDITIONS OF THE LINEUP.

(RP-17141-P)

FIG. 2 FLOOR PLAN CONVENTIONS AND DETAILS OF EQUIPMENT FOR TYPICAL LINEUP OF 1A CARD TRANSLATORS (PARS. 4.12, 7.1 Note. 7.2 and 12.3)

6. LOCATION OF EQUIPMENT

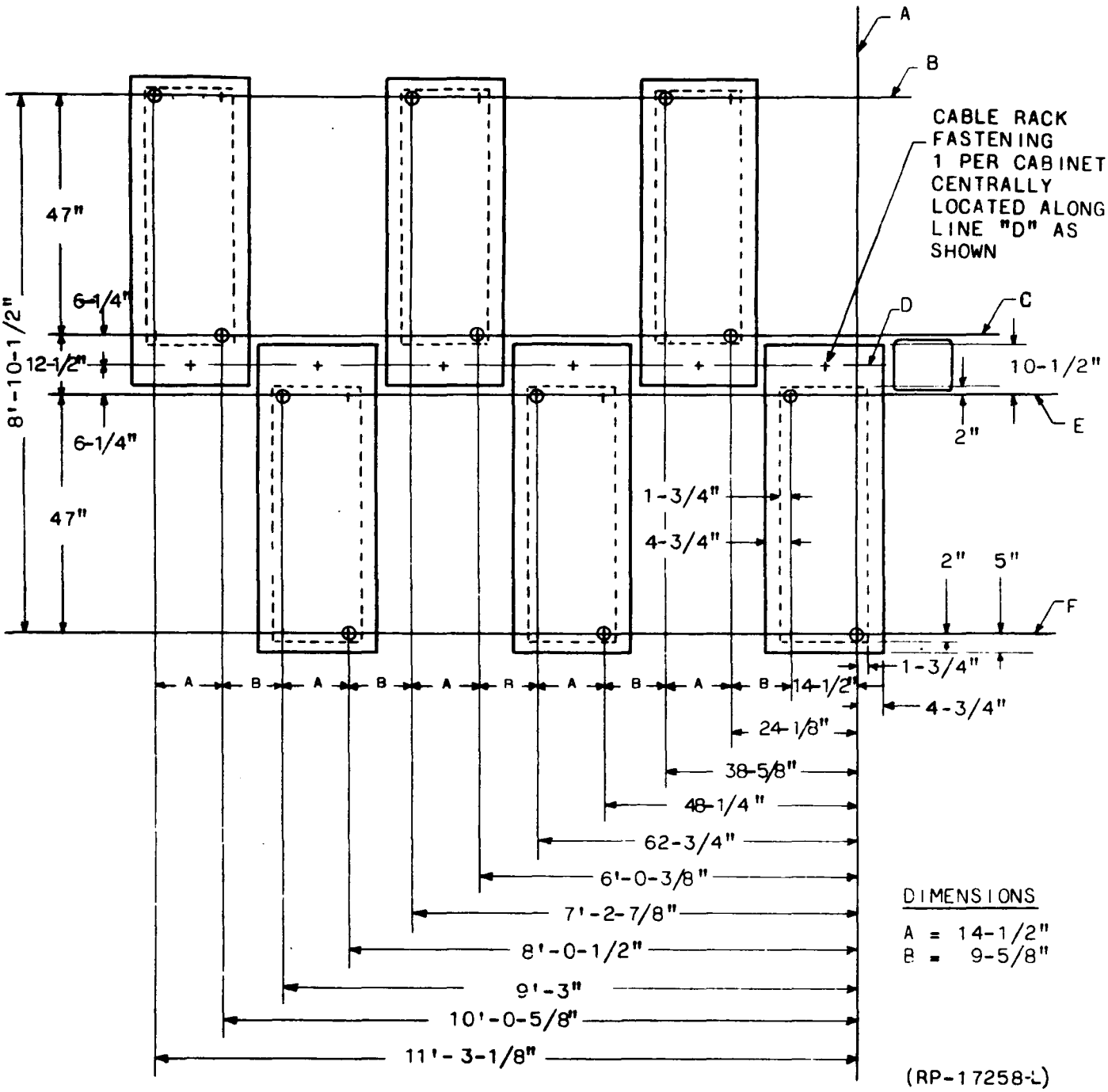
6.1 The location of the equipment shall conform to that shown on the associated floor plan and equipment drawings as specified in the job specifications for each installation.

6.2 Where limiting dimensions are not specified the equipment shall be located to within such limits of the specified dimensions as will insure satisfactory functioning and workmanlike appearance of the equipment.

6.3 The card translator cabinets should be placed directly on the floor or the linoleum where the floor covering is laid prior to the installation of the cabinets.

7. LAYING OUT FLOOR

7.1 Lay out the floor in accordance with the floor plan drawing furnished the job.



ALTHOUGH 4 HOLES ARE PROVIDED IN BASE OF CABINET ONLY 2 FASTENINGS PER CABINET ARE REQUIRED. THESE FASTENINGS ARE LOCATED IN DIAGONALLY OPPOSITE CORNERS AS SHOWN. HOLES INDICATED ⊕ ARE THOSE WHICH PROVIDE MAXIMUM CLEARANCE FOR SCREWDRIVER USED FOR TURNING STUDS.

PLACE CHALK LINES "A","B","C","D","E" AND "F" ON FLOOR. LOCATE BOLT HOLES BY MEASURING FROM LINE "A".

FIG. 3 LOCATION OF FLOOR BOLTS FOR A TYPICAL LINEUP OF 1A CARD TRANSLATOR CABINETS (PAR. 8.2)

NOTE: Floor plan conventions and details of the equipment for a typical lineup of 1A Card Translators are shown in Figure 2 as an aid in laying out the floor.

7.2 First locate the basic line at the originating or cable turning section, end of the lineup (heavy line on Figure 2). Using the R-1384 chalk line extend this line approximately 9 ft. beyond either side of the cable turning section location.

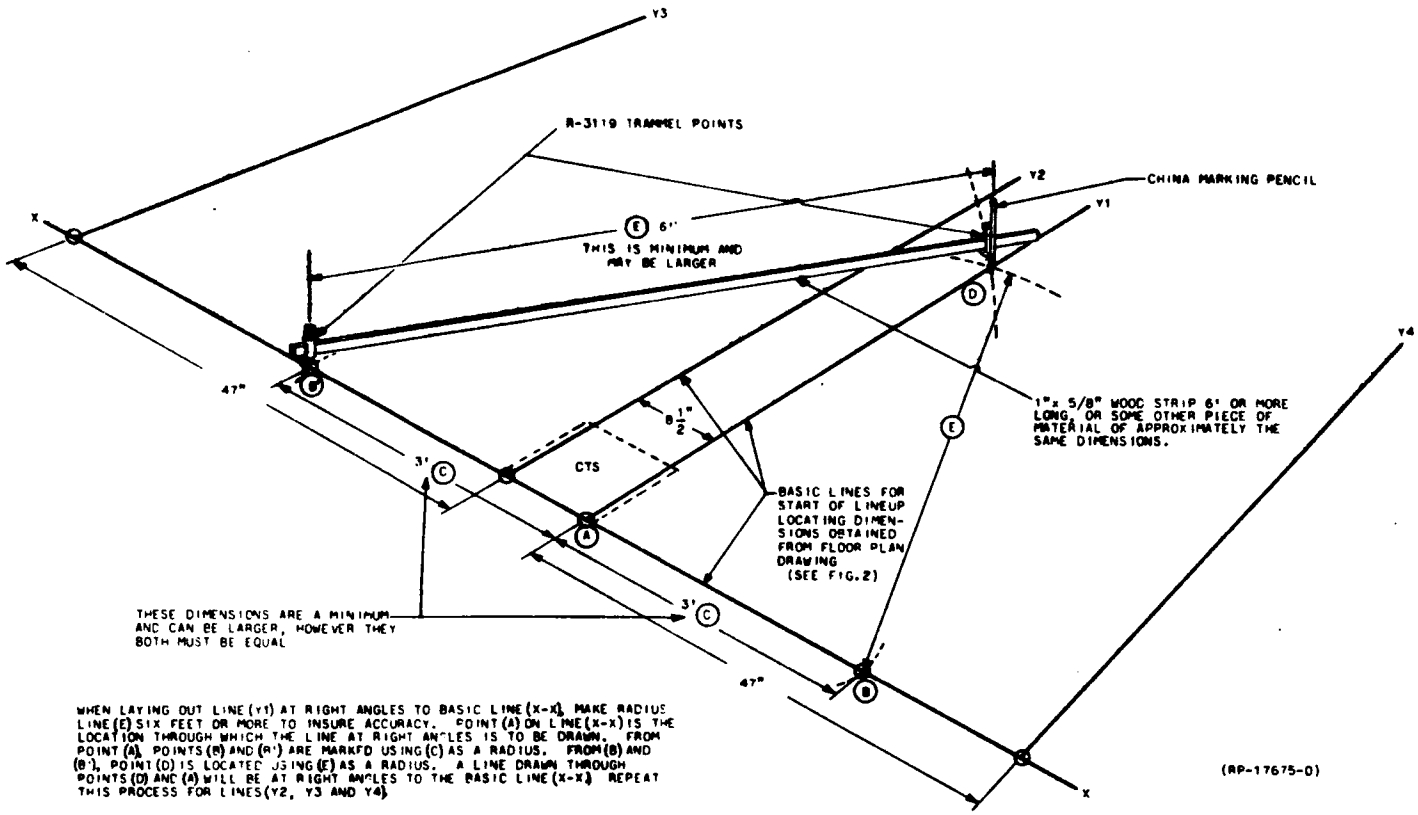


FIG. 4 USE OF R-3119 TRAMMEL POINTS FOR CONSTRUCTING LINES AT RIGHT ANGLES (PAR. 7.3)

7.3 Using the R-7860 Steel Tape locate on this line the intersecting points of the four lines representing the front and rear edges of the cabinet bases. It is very important that these four lines be parallel to each other and perpendicular to the line previously laid out on the floor. The use of the R-3119 Trammel Points as shown in Figure 4 will insure that these conditions are met.

7.4 Use the R-7860 Steel Tape for locating the lines representing the sides of the cabinet bases.

7.5 After establishing the chalk lines locating the cabinet bases mark over them with a red china pencil and apply a coat of shellac. This will prevent the lines from becoming obliterated during the course of the installation.

8. NUMBER AND LOCATION OF FLOOR BOLTS

8.1 Two fastenings, located in diagonally opposite corners, shall be used in fastening the translator cabinets to the floor except where earthquake protection is specified in which case four fastenings shall be used.

8.2 Dimensions for locating the floor fastenings are shown in Figure 3.

NOTE: Due to the relative small diameter of the floor bolt holes in the base of the cabinets and permissible variations in the manufacture of the parts it is very important that the expansion shield holes in the floor be very accurately located, otherwise trouble will be encountered when aligning the cabinets and when installing the floor fastenings. The use of the R-3119 Trammel Points for laying out and for checking the location of the floor bolt holes will insure the greatest accuracy in the location of these holes.

9. LEVEL OF FLOORS

9.1 Before proceeding with the following operations it would be well to determine the degree of level and the high and low spots in the floor throughout the area where a new lineup of translator cabinets is to be located. This information is needed so that the leveling and aligning operations may start with the cabinet at the high point otherwise the amount of shimming required under other cabinets to insure that the required level can be maintained throughout the ultimate lineup would not be known until the high point in the floor had been reached.

10. UNPACKING AND MOVING CABINETS

10.1 Method of Packing

10.11 The card translator cabinets are double packed, that is, the cabinet is placed in one box which, in turn, is placed in another larger box with felt wadding between the two boxes to provide

cushioning. The cabinet is attached by bolts to the bottom of the inner box which serves as a shipping skid. See Figures 6 and 8.

10.12 When ready to move the cabinets into position for mounting the 4A Apparatus Units remove the outer shipping cases and the top and four sides of the inner cases.

10.2 Use of R-3083 Hydraulic Lift Trucks

10.21 These trucks, one of which is illustrated in Figure 5, are of pipe frame construction with much the appearance of a conventional hand truck. However, unlike the hand trucks they must be used in pairs, placed on opposite sides of the equipment to be moved. They are equipped with swivel casters to permit moving the load in any direction and with an elevating device, under the control of a hand operated hydraulic jack, for lifting the load. They are intended for lifting and moving heavy pieces of equipment while still in their shipping cases and, in conjunction with separate attachments, for lifting and moving the equipment outside of their shipping cases. Their use eliminates the need of chain hoists or other lifting devices for raising the load when placing it on a four wheel dolly as would otherwise be required.

10.22 When the wheels of the swivel casters are swung to the front side of the R-3083 Truck (line through wheel axles directly under the side uprights) the trucks have a tendency to fall backwards if left standing in the upright position.

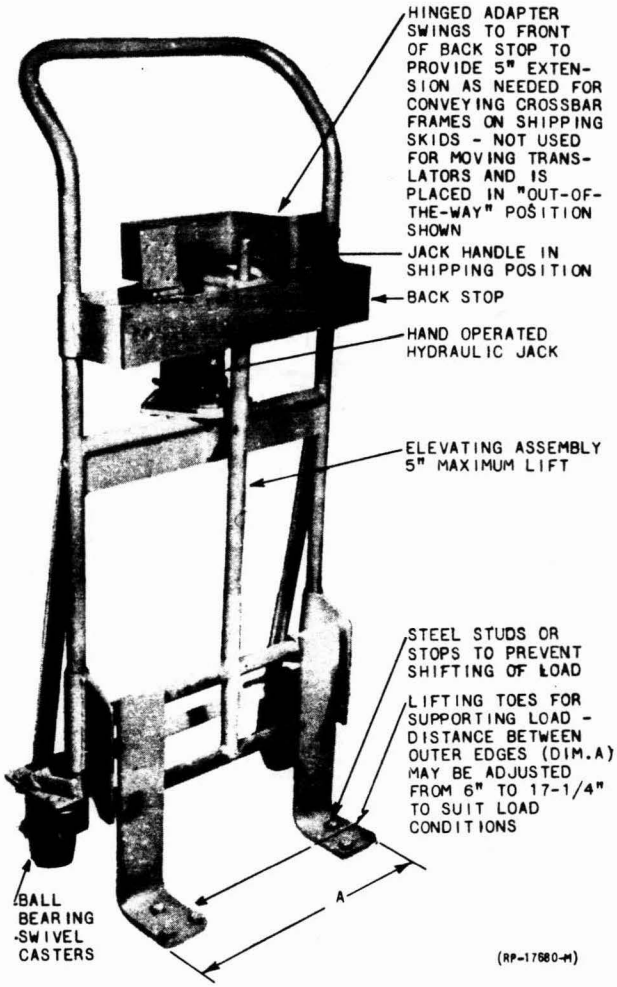
CAUTION: Avoid the possibility of the trucks accidentally falling backward by making sure that the wheels are swung to the rear side (position shown in Figure 5) or, better still, place the trucks in the horizontal position on the floor when not actually being used.

10.23 Use two R-3083 Hydraulic Lift Trucks, as shown in Figure 6 for moving the shipping cases containing translator cabinets. Adjust the spacing between the lifting toes of the trucks to fit between the 2" x 4" cleats under the bottom of the cases.

10.24 The operating valves on the hydraulic jacks must be in the closed position (finger tight in the clockwise direction) before the pump action will raise the jacks. To lower the jack the valves are turned in the counter-clockwise direction. The slotted ends of the jack handles may be used to operate the valves.

CAUTION: Open the valves very gradually so as to prevent any sudden dropping of the load.

10.25 When necessary to add oil to the hydraulic jacks, the jacks should first be removed from the lift trucks and placed on the floor or a bench in the position shown in Figure 5A. Remove the screw from the filling hole and add oil



NOTE: TRUCKS MUST BE USED IN PAIRS - HAVE COMBINED CAPACITY OF 2000 POUNDS.

FIG. 5 R-3083 HYDRAULIC LIFT TRUCKS (PARS. 10.21 and 10.22 Caution)

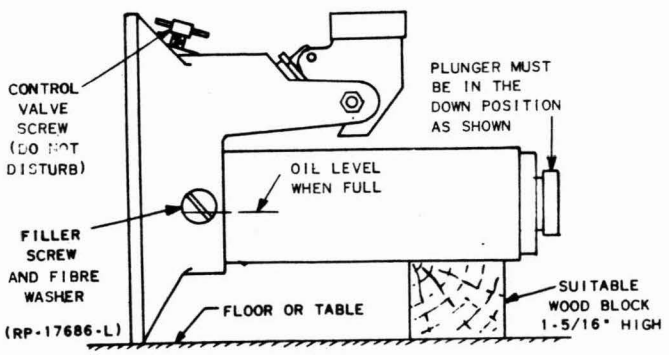


FIG. 5A POSITION OF HYDRAULIC JACKS WHEN ADDING OIL (PAR. 10.25)

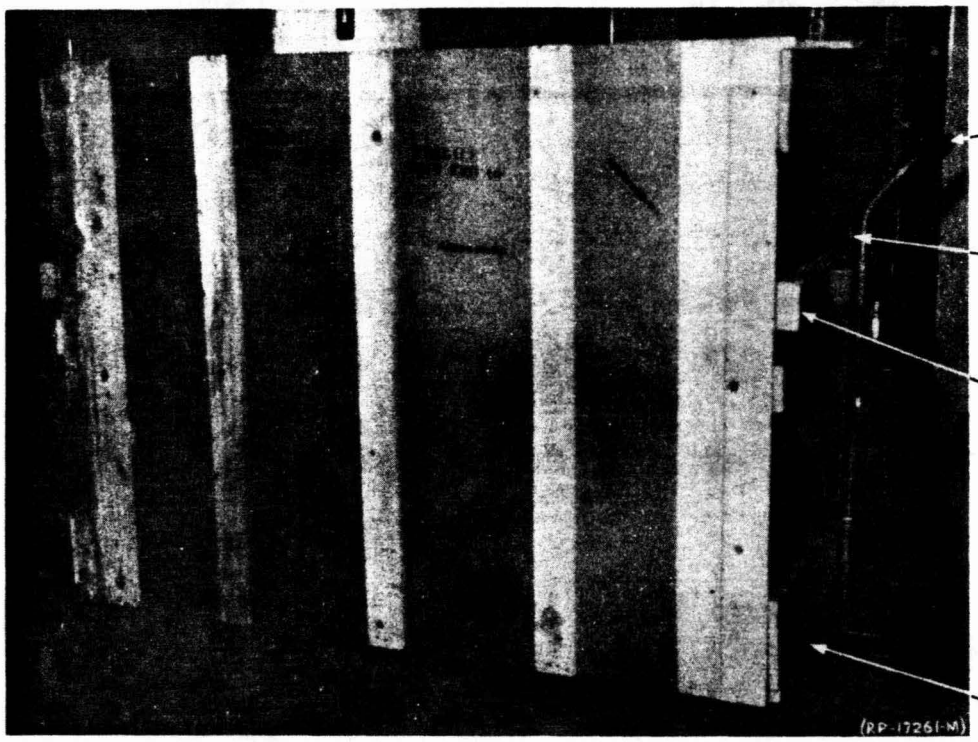


FIG. 6 USE OF R-3083 HYDRAULIC LIFT TRUCKS FOR MOVING CASES CONTAINING TRANSLATOR CABINETS (PAR. 10.23)

to the level of the hole. Only HYDRAULIC JACK OIL should be used in these jacks and when required should be purchased locally. Try to obtain the oil in a can equipped with a filling spout, otherwise use a paper funnel or other device to prevent spilling the oil.

CAUTION: Do not remove any part of the control valve or the control valve screw, located on opposite side of jack from the filler screw, since this may result in the loss of the spring and ball portion of the valve.

10.3 Use of R-3093 Lifting Frame

10.31 The R-3093 Lifting Frames consist essentially of an upper and lower set of steel tubing details that may be loosely assembled around the card translator cabinet to provide a means of transferring the weight of the cabinet to the lifting toes of the R-3083 Hydraulic Trucks, when (1) removing a cabinet from its shipping skid and (2) for moving the cabinet into its final position in the lineup. Information for readily identifying the parts is shown in Figure 7.

10.32 The R-3093 Lifting Frame is assembled around a cabinet as outlined below. See Figure 8.

10.321 First place the two lower side units (Det. 11) in position under the overhanging sides of the cabinet with the "L" shaped brackets supporting the weight from the cabinet floor.

10.322 Next place the lower end unit details (Det. 10) over the ends of the side units and place the locking pins in position. Shift the front-to-rear position of the assembly as necessary to permit the spacing details (Det.12) to fit over the front end unit with the guide plugs in the floor bolt holes in the base of the cabinet. This is to insure the proper location of the assembly for engaging the lifting toes of the hydraulic lift trucks.

10.323 Place the upper unit (Det. 2 Assembly) in position over the cabinet, supporting its weight with the Detail 17 straps as shown in Figure 8.

10.33 Place the hydraulic lift trucks in position at each end of the cabinet. Adjust the height of the lifting toes so that the lower end details, or pipes, of the lifting frame fit between the stops in the toes. (See Figure 10.) Slightly operate the jacks as if to pick up the load. Note that the lifting frame pipes are still in their correct position and that the end pipes of the top lifting frame assembly are approximately centered against the backstops of the trucks. See Figure 8.

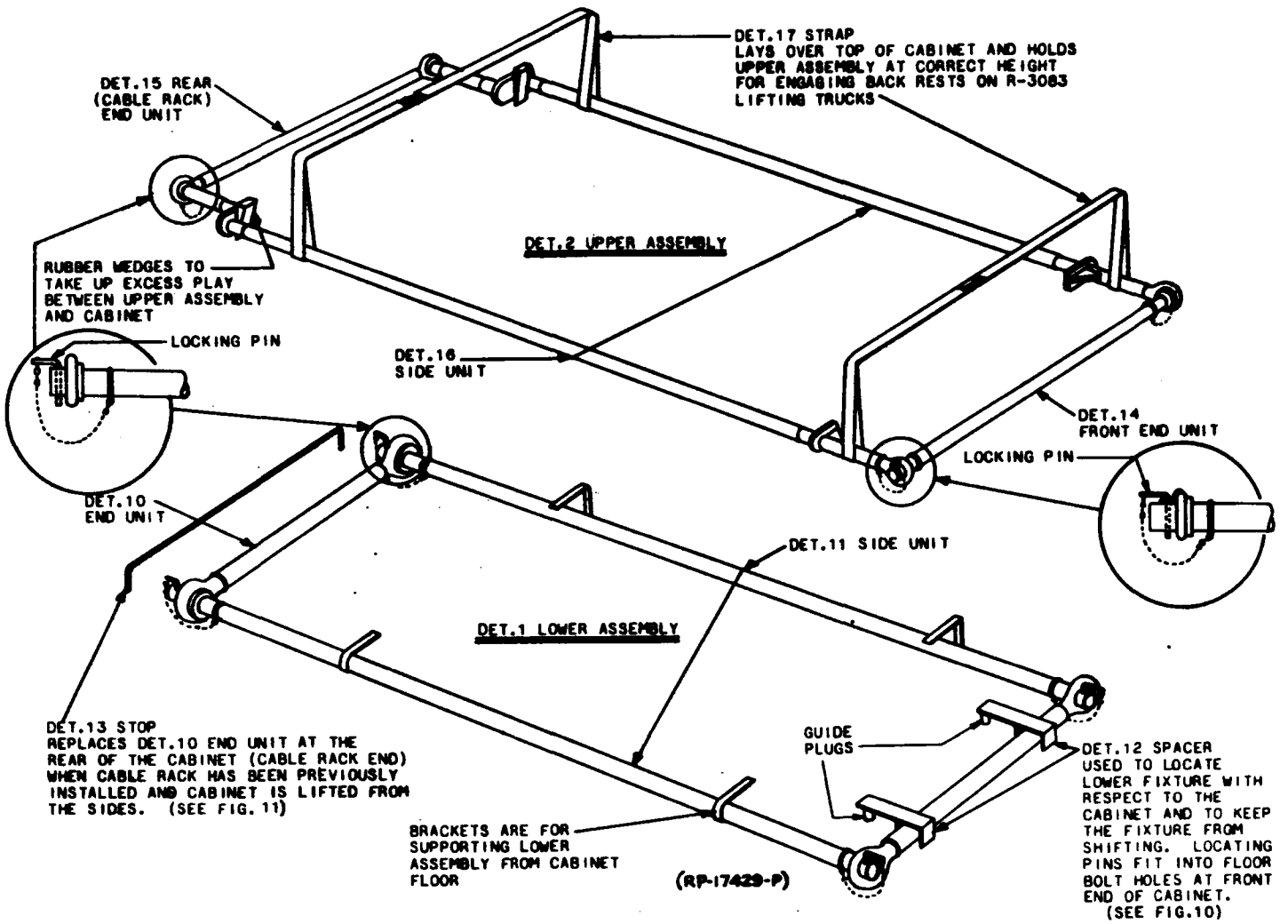


FIG. 7 DETAILS OF THE R-3093 LIFTING FRAME (PAR. 10.31)

10.34 Remove the bolts securing the cabinet to its shipping skid. Raise the cabinet as required to clear the shipping skid and remove the skid.

10.341 If trouble is encountered in removing the nuts on the bolts fastening the cabinet to the skid it will be necessary to raise the cabinet, with the shipping skid attached, a sufficient distance above the floor to permit using a wrench to hold the nut from turning until the bolt can be removed.

CAUTION: To eliminate the personal injury hazard that would otherwise exist, never put the hands under the shipping skid until 2" x 4" blocks have been placed between the skid and the floor.

10.342 If it is found that the R-3083 Lifting Trucks, when used as shown in Figure 8, will not raise the cabinet a sufficient distance above the floor as necessary to remove the shipping skid, it is an indication that the oil level is low in the hydraulic jacks. If this occurs remove the jack from the truck and add oil. See Paragraph 10.25.

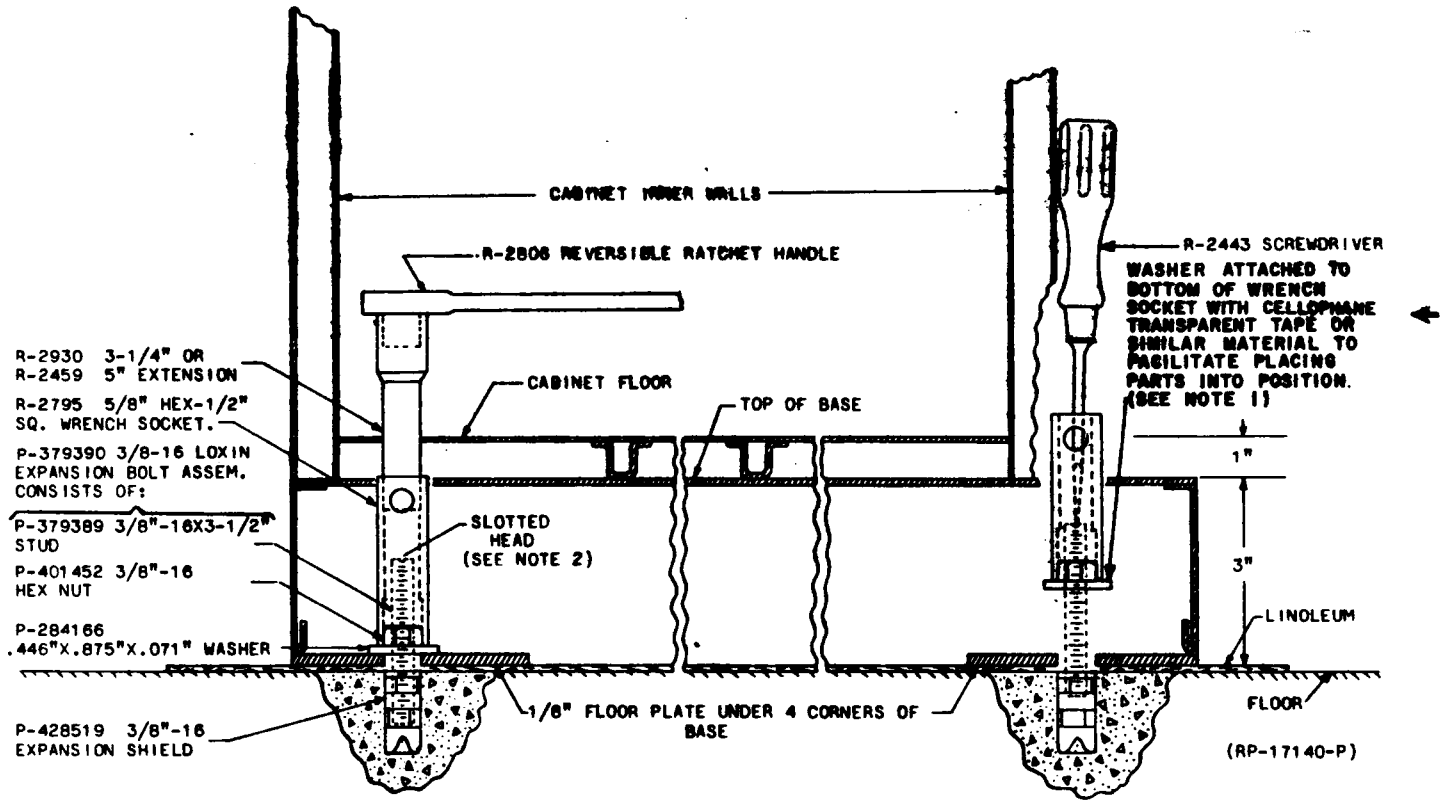
11. UNPACKING AND MOUNTING 4A APPARATUS UNITS

11.1 Unpacking and Moving Units

11.11 The 4A Apparatus Units are double packed, that is, the unit is first placed in a heavy cardboard container which is then placed in a second container with wadding between the two containers to provide cushioning.

11.12 Place the container, with the apparatus unit in it, on a R-2599 Dolly Truck and move it into a position under a chain hoist. Remove the tops of both the outer and inner cases and attach the R-3073 Hoisting Chain as shown in Figure 8A.

CAUTION: Be sure to place the R-3073 Hoisting Chain with the spreader bar parallel to the length of the unit as shown in Figure 8A. This is to reduce strains on the aluminum casting when the unit is in the suspended position.



NOTES:

1. TO FACILITATE ASSEMBLING STUD, NUT AND WASHER INTO SHIELD THROUGH THE 1" HOLES IN FLOOR AND BASE FIRST PLACE THE PARTS IN THE R-2795 SOCKET AND WRAP TAPE AROUND END OF SOCKET AND THE WASHER AS SHOWN AFTER ENGAGING A FEW THREADS IN SHIELD REMOVE SOCKET AND FINISH TURNING STUD INTO SHIELD.
2. ENDS OF STUDS ARE SLOTTED TO PERMIT USE OF SCREWDRIVER FOR TURNING STUD INTO SHIELD. BE SURE THAT STUD BOTTOMS IN EXPANDING NUT OF THE SHIELD.
3. DIAMETER OF HOLES IN CABINET FLOOR AND TOP OF BASE WILL BE ENLARGED FROM 1" TO 1-3/8" TO FACILITATE INSTALLING FLOOR FASTENINGS ON CABINETS MANUFACTURED IN THE FUTURE.

FIG. 7C EXPANSION BOLT ASSEMBLIES IN BASE OF TRANSLATOR CABINET SHOWING METHOD FOR PLACING AND FASTENING BOLTS (PARS. 12.4 and 14.1) (BSP 800-614-154, Fig. 7C)

11.13 Attach the load hook of the chain hoist and raise the unit out of the containers to a position approximately 5 feet above the floor.

11.2 Mounting Units

11.21 While still supported on the hydraulic lift trucks move the translator cabinet into position under the 4A Apparatus Unit suspended from the chain hoist.

11.22 Complete the mounting and fastening operations as shown in Figure 9.

12. PLACING CABINETS IN THE LINEUP

12.1 Move the cabinets with the 4A Apparatus Units mounted on them into their final position in the lineup. See Figure 10. Lower the cabinets to the floor so that the edges of the cabinet bases coincide with the lines previously marked on the floor.

12.2 Where a cabinet is to be located between two cabinets previously installed, as may occur on additions, interference from the floor mounted cable rack and ground junction bars will prevent the cabinet from being placed in its final

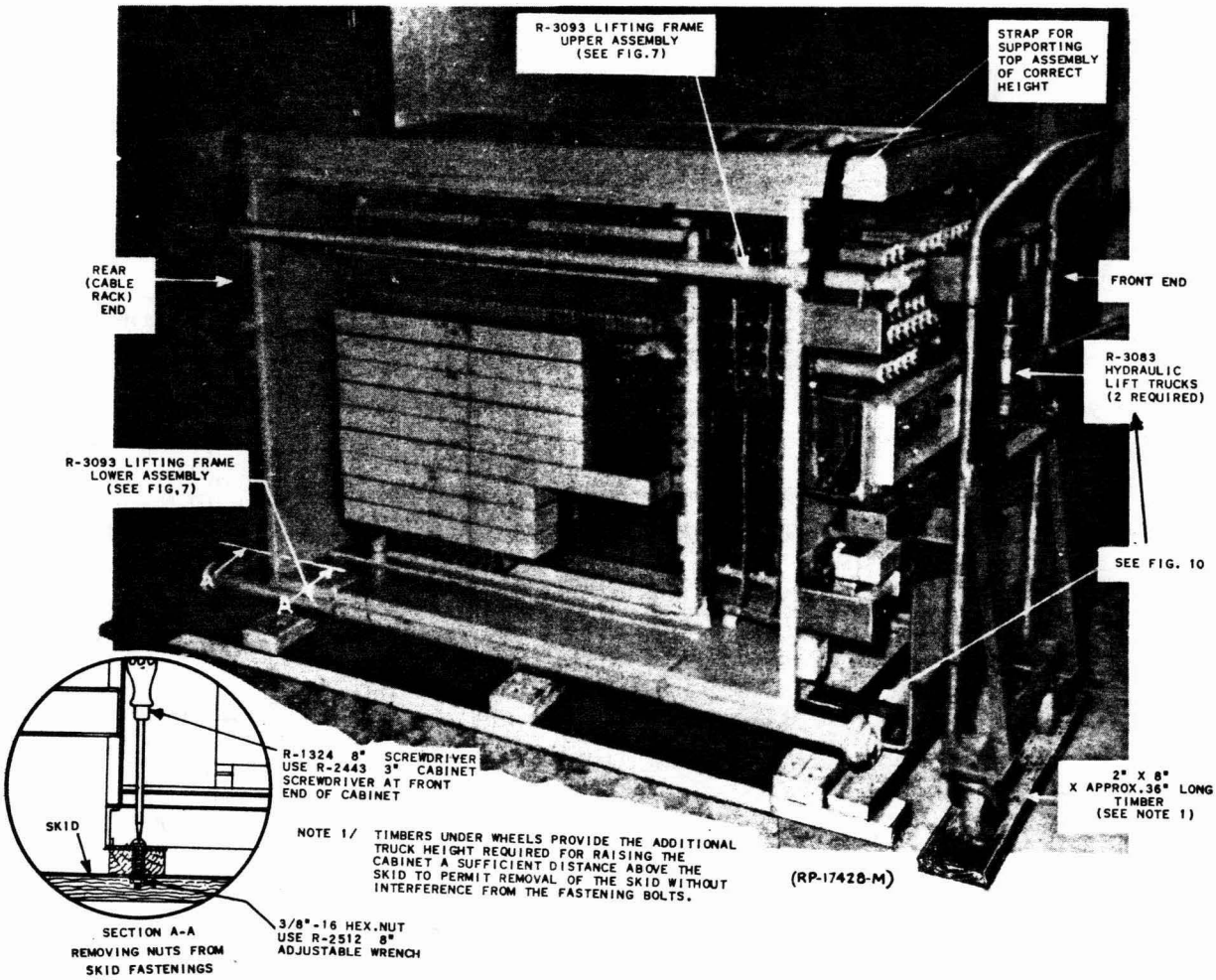


FIG. 8 REMOVING CABINET FROM SHIPPING SKID (PARS. 10.23, 10.32, 10.323 and 10.33)

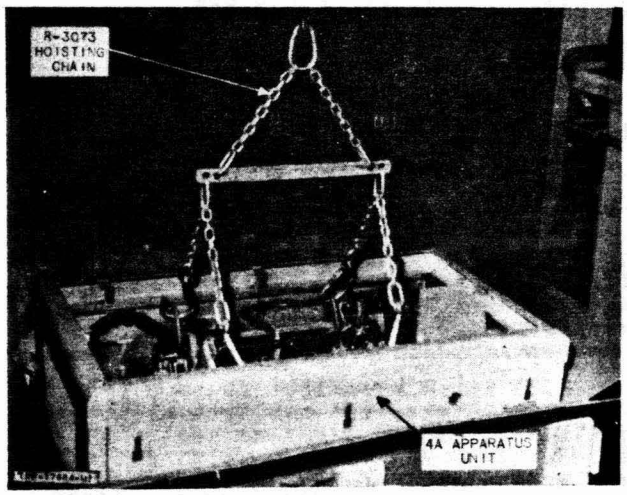
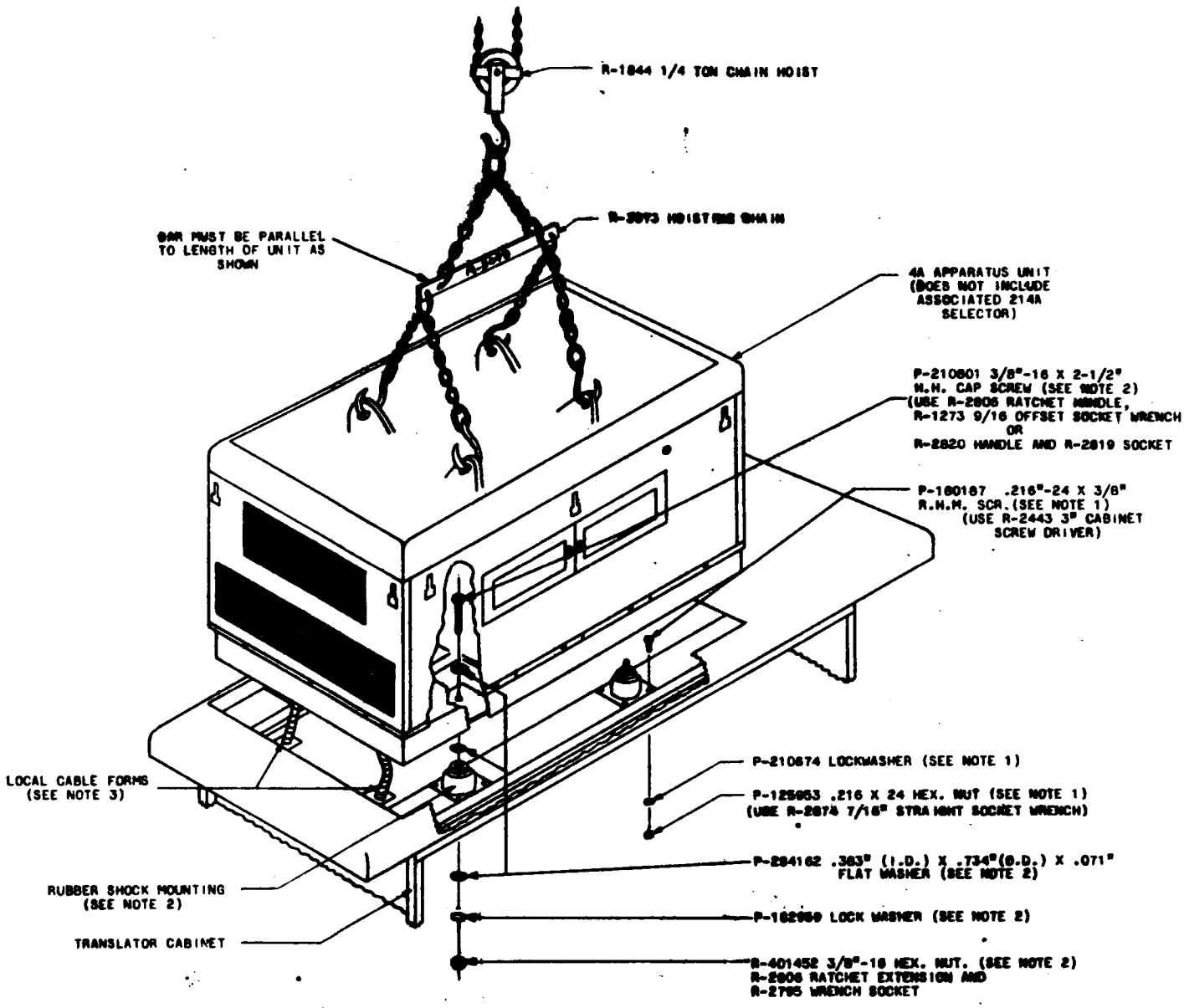


FIG. 8A REMOVING 4A APPARATUS UNIT FROM SHIPPING CASE (PAR. 11.12)

location, that is, with the hydraulic lift trucks at the ends of the cabinet. Under such condition move the cabinet to within approximately two feet of the cable rack, lower it to the floor and rearrange the lower unit of the R-3093 Lifting Frame as shown in Figure 11. Then place the two hydraulic lift trucks on the side of the cabinet and move it into the final position.

12.3 As indicated in Note of Figure 2 a P-30A642 Separator is attached to the left side of the top cover of each cabinet by the shop. When cabinets are moved into position in the lineup, relocate the separators to the opposite side as required to provide a separator between the cable turning section and the first cabinet as well as between adjacent cabinets.

12.4 Place the floor fastenings into position in each cabinet before removing the hydraulic lift trucks and the lifting frame. This is to facilitate shifting the cabinet in the event that the holes in the cabinet base are not directly



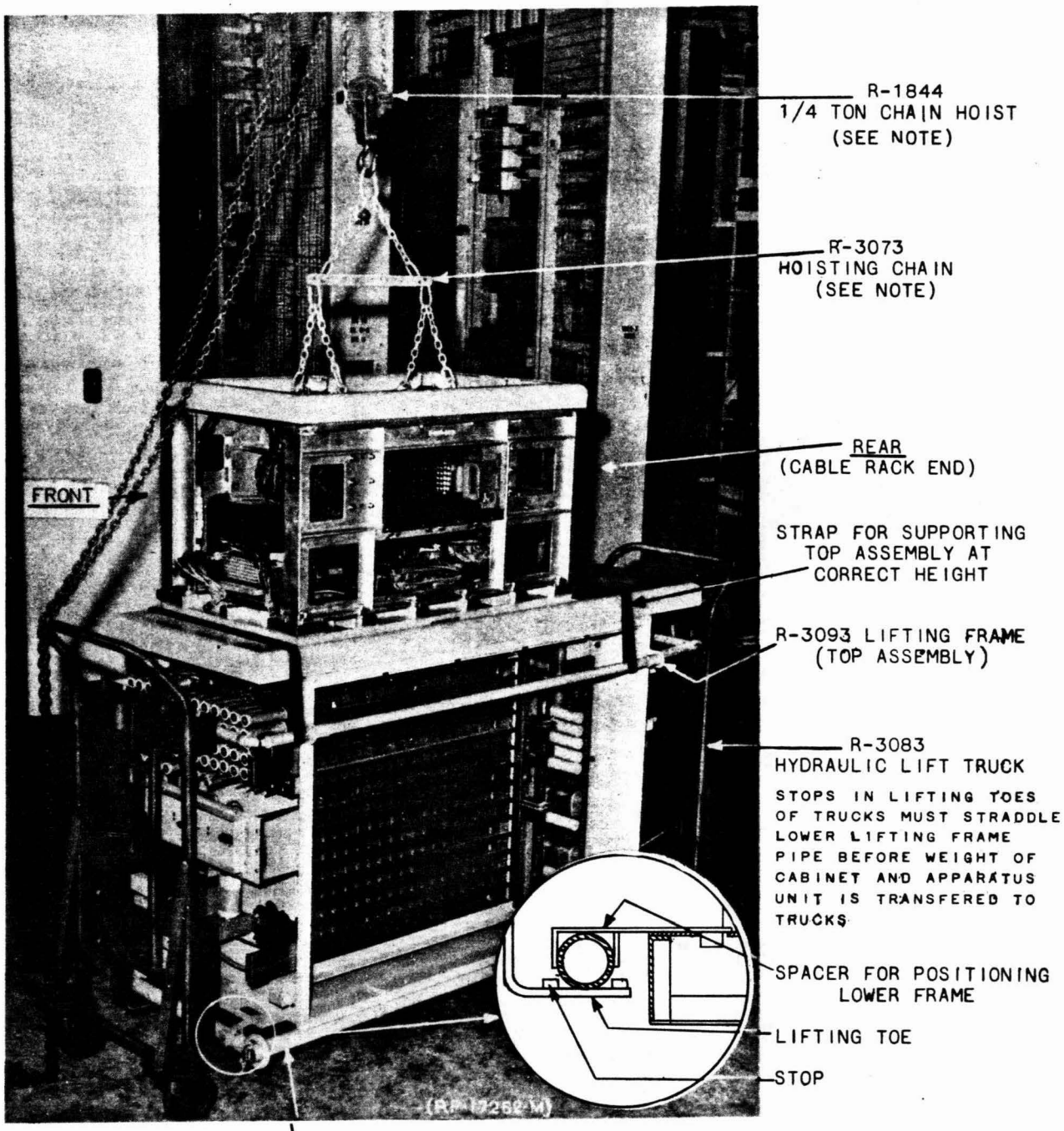
NOTES:

1. FOUR SCREWS, LOCKWASHERS AND NUTS ARE FURNISHED FOR EACH SHOCK MOUNTING. THESE PARTS ARE RECEIVED ASSEMBLED IN THE IR ASSOCIATED HOLES ON THE CABINET. THE SHOCK MOUNTINGS, WHICH ARE FURNISHED AS PART OF THE APPARATUS UNIT MUST BE REMOVED AND REASSEMBLED ON THE CABINET AS SHOWN.
2. THESE PARTS ARE FURNISHED ON THE APPARATUS UNIT. THEY SHOULD BE REMOVED WHILE THE APPARATUS UNIT IS SUSPENDED FROM THE CHAIN HOIST. AFTER THE SHOCK MOUNTINGS HAVE BEEN FASTENED TO THE CABINET, THE P-210801 H.H. CAP SCREWS ARE INSERTED IN THE MOUNTING HOLES FROM THE TOP AS SHOWN AND ARE USED AS A GUIDE FOR CENTERING THE APPARATUS UNIT AS IT IS LOWERED INTO THE CABINET. BE SURE THAT THE NUMBER AND LOCATION OF THE WASHERS ARE AS SHOWN.
3. LOCAL CABLE FORMS LOCATED ON TOP OF TRANSLATOR CABINET MUST BE FED INTO THE APPROPRIATE HOLES IN THE BASE OF THE 4A APPARATUS UNIT AS IT IS BEING LOWERED INTO PLACE.

(RP-17289-P)

HOISTING 4A APPARATUS UNIT AND FASTENING IT TO TRANSLATOR CABINET.

FIG. 9 MOUNTING 4A APPARATUS UNIT AND FASTENING IT TO CABINET (PAR. 11.22)



NOTE: SEE FIG.9 FOR MOUNTING APPARATUS UNIT.

FIG. 10 TRANSLATOR CABINET AND 4A APPARATUS UNIT ON LIFT TRUCKS READY TO BE MOVED INTO THEIR POSITION IN THE LINEUP (PARS. 10.33 and 12.1)

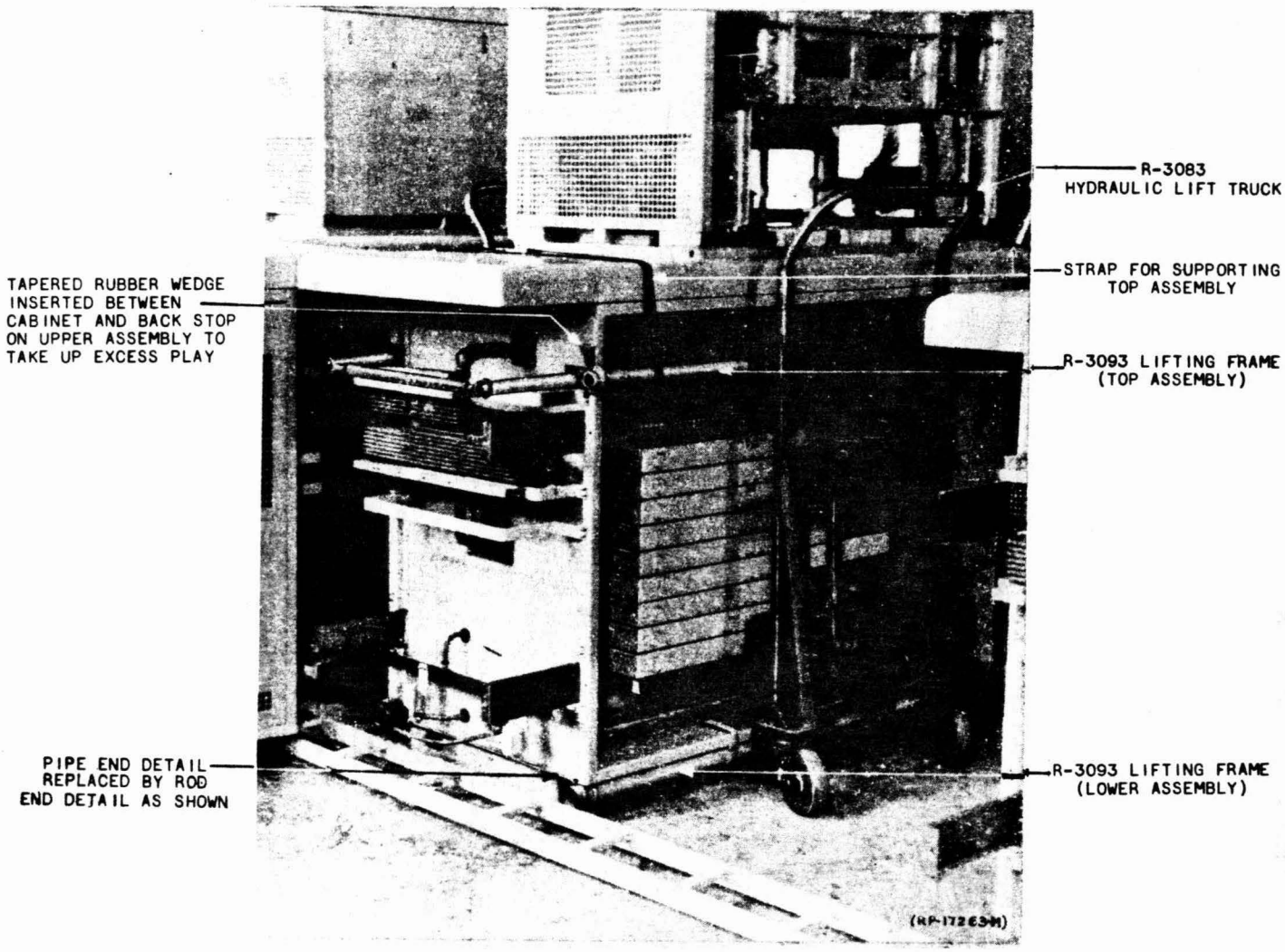


FIG. 11 POSITION OF LIFTING TRUCKS TO AVOID INTERFERENCE FROM CABLE RACK IF PREVIOUSLY INSTALLED (PAR. 12.2)

over the expansion shields previously placed in the floor. Information for installing the floor fastening is shown in Figure 7C.

13. LEVELING AND ALIGNING

13.1 Preliminary Operations

13.11 Starting with the cabinet located over the high point in the floor shift each cabinet, if necessary, so that the outer edges of the bases coincide with the base lines previously marked on the floor.

13.111 Variations in the level of the floor will cause the top of one cabinet to hit against the separator of an adjacent cabinet before the base of either cabinet can be correctly located. Under such condition place shims under the low corners of the cabinets as required to bring the top surfaces of the adjacent cabinets to approximately the same level. With the exception of the cabinet over the high point in the floor, shims may be required under all four corners of the cabinet bases.

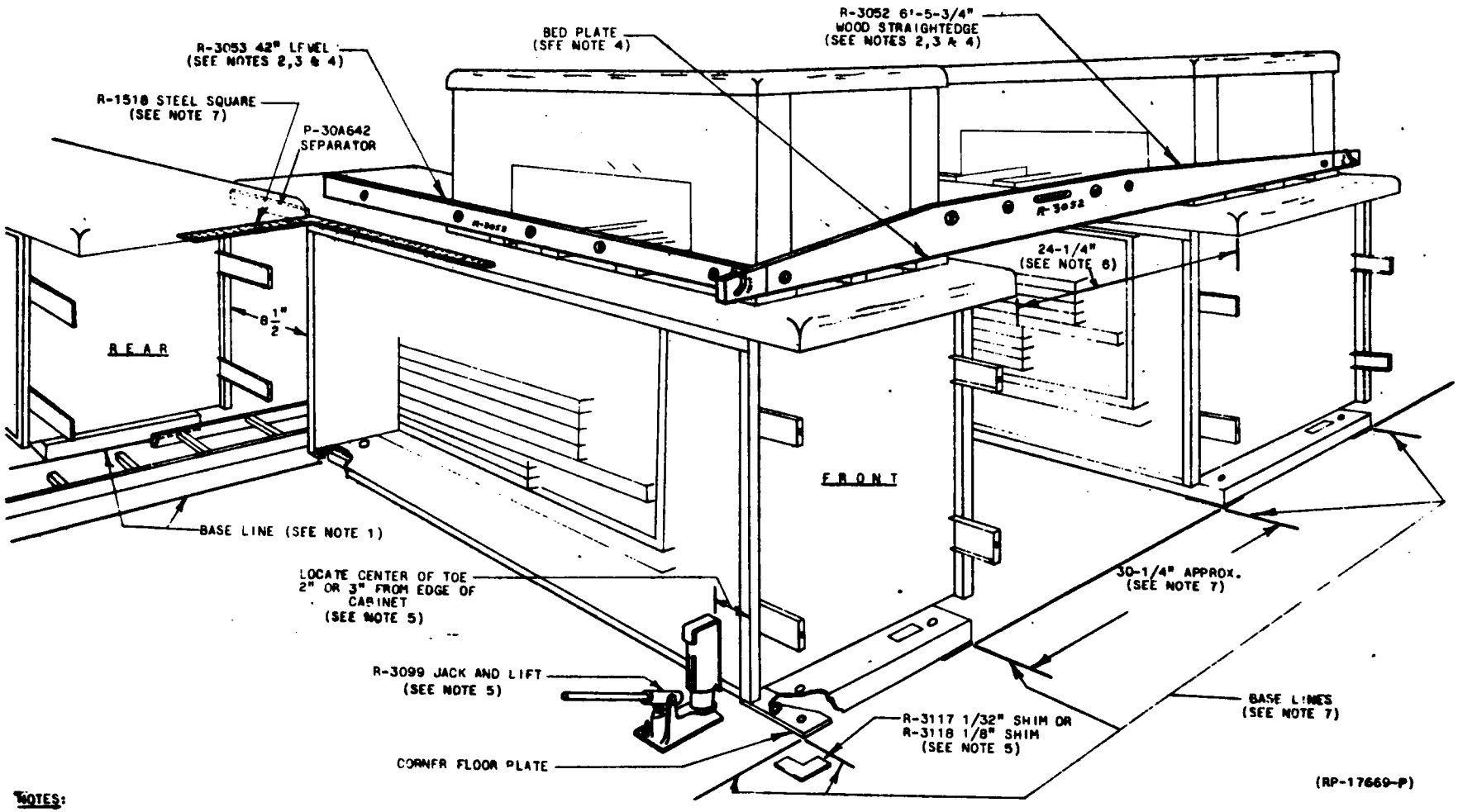
13.12 Use the R-3099 Jack and Lift as shown in Figure 12 for raising the corner of a cabinet when inserting the floor shims.

CAUTION: Do not place the R-3099 Jack and Lift under the cabinet in other than the corner locations shown. If used in any other position the cabinet framework will be distorted.

13.13 Do not tighten the floor fastenings until after the following operations have been completed.

13.2 Final Alignment

13.21 Starting with the cabinet over the high point in the floor check the level in both directions using



NOTES:

1. THE REAR EDGES OF THE CABINET BASES MUST COINCIDE WITH THE BASE LINES PREVIOUSLY PLACED ON THE FLOOR.
2. THE TOP SURFACES OF THE INDIVIDUAL CABINETS SHOULD BE APPROXIMATELY LEVEL (WITHIN 1/32") IN BOTH DIRECTIONS.
3. THE DIFFERENCE IN LEVEL BETWEEN THE TOP SURFACES OF ADJACENT CABINETS SHOULD BE AS SMALL AS PRACTICABLE (NOT EXCEED 1/32").
4. THE USE OF THE R-3053 LEVEL AND R-3052 STRAIGHT-EDGE PLACED ON THE PROTRUDING ENDS OF THE APPARATUS UNIT BED PLATES, AS SHOWN, WILL FACILITATE THE LEVELING AND ALIGNING OPERATIONS.
5. SHIMS OF SUITABLE THICKNESS SHOULD BE PLACED UNDER THE CORNER FLOOR PLATES AS FOUND NECESSARY TO OBTAIN PROPER LEVEL OF CABINETS. USE THE R-3099 JACK AND LIFT, LOCATED AS SHOWN, FOR RAISING THE CORNER OF A CABINET WHEN INSERTING THE SHIMS.
6. THE SPACING BETWEEN ADJACENT CABINETS, MEASURED AT THEIR TOP SURFACES, SHOULD BE 24-1/4". ANY DEVIATION FROM THIS DIMENSION SHOULD BE AS SMALL AS POSSIBLE.
7. THE FRONT AND SIDE EDGES OF THE CABINET BASES SHOULD NORMALLY COINCIDE WITH THE BASE LINES PREVIOUSLY PLACED ON THE FLOOR. HOWEVER, PERMISSIBLE VARIATIONS IN THE MANUFACTURE AND ASSEMBLY OF THE PARTS ARE SUCH THAT WITH ALL OTHER CONDITIONS MET THE FRONT AND SIDE EDGES OF THE BASE MAY NOT COINCIDE EXACTLY WITH THE FLOOR LINES. WHERE THIS CONDITION EXISTS THE USE OF THE R-1518 STEEL SQUARE, AS SHOWN, WILL AID IN ESTABLISHING THE PROPER RELATION OF THE PARTS.

LEVELING AND ALIGNING 1A CARD TRANSLATOR CABINETS AND 4A APPARATUS UNITS

FIG. 12 LEVELING AND ALIGNING CABINETS AND APPARATUS UNITS (PARS. 4.12, 13.12, 13.21, 13.23 and 13.25)

the 42" Wood Level, R-3053 as shown in Figure 12. Hold the level on the protruding ends of the apparatus unit bed plate, first on one side and then on the other three sides, noting the degree of out-of-level. Remove or add to the shims previously placed under the corners of the cabinet as necessary to bring the bubble in the level vial within the two limit lines scribed on the glass.

13.22 Level the adjacent cabinets following the same procedure as outlined above.

13.23 Check the dimensions between the front ends of alternate cabinets, both at the floor line and at the cabinet tops. Should there by any difference from the dimensions shown on Figure 12 recheck the level of the cabinets or shift the bases as found necessary. The use of the R-1518 Steel Square as shown in Figure 12 will indicate better than the base lines on the floor which of the cabinets is out of relation with respect to the adjacent cabinets.

NOTE: It is important that the spacing between the top sides of alternate cabinets be as close as possible to the 24-1/4" specified. If less than 24-1/4" difficulty will be encountered in placing and removing the "U" shaped enclosing panels at the overlapping ends of the cabinets.

13.24 The 8-1/2" dimension between the overlapping ends of the staggered lineup of cabinets, should also be frequently checked as the aligning operations progress. Readjust the shims under the cabinets as necessary to maintain this dimension, at the same time keeping the level of the top surfaces within the limits of the R-3053 level vial.

13.25 The use of the R-3052 Wood Straightedge, placed over the protruding front and rear surfaces of the apparatus unit bed plates of alternate cabinets, as shown in Figure 12 will materially aid in obtaining the required degree of level between adjacent cabinets. The space, if any, between the straightedge and the surfaces of the bed plates should be as small as practicable.

13.26 Check the front-to-rear alignment of alternate cabinets by holding the straightedge against the side edges of the bed plates with the straightedge spanning two cabinets. It is not necessary that the bed plates on alternate cabinets be in exactly the same plane. However with the straightedge held flush against one bed plate, the surface of the other bed plate should be parallel to the surface of the straightedge.

13.27 Level and align all the cabinets in the lineup following the procedure outlined above.

13.28 When in final alignment the following requirements shall be met.

13.281 The overlapping sides of the cabinets should be approximate flush against the faces of the separators on the adjacent cabinets.

13.282 The cabinets shall be level within 1/32".

13.283 The cabinets should be plumb within 1/16".

NOTE: The plumbing requirement shall be considered as met providing the top surface of the cabinets are within the leveling requirements.

13.284 The difference in level between adjacent cabinets, measured at their top surfaces, shall be as small as practicable and normally should not exceed 1/32".

13.285 The spacing between the rear uprights at the overlapping ends of adjacent cabinets should be as close to 8-1/2" as practicable; variations should not exceed 1/16".

13.286 A cabinet should not be out of its normal front-to-rear position, with respect to a straight line extending the full length of the lineup, more than 1/8".

NOTE: This requirement should be checked with respect to one of the rear base lines.

14. FASTENING TO FLOOR

14.1 After the required level and alignment between adjacent cabinets has been established tighten the floor fastenings. Check to see that the level and alignment has not been adversely affected by the tightening operation. Tools used for tightening the floor bolts are shown in Figure 7C.

15. FLOOR SUPPORTED CABLE RACK AND GROUND BARS

15.1 Determine if the P-30A106 wooden blocks, for supporting the 5" cable rack, between the overlapping ends of the cabinets, can be placed between the side stringers of the cable rack. The portion that fits between the cable rack stringers, on some of these blocks, have been running oversize. The corner notches on the affected blocks may therefore need to be slightly increased in length. This can be done with a hand hack saw. Fasten the blocks to the expansion shields previously placed in the floor for that purpose.

15.11 The originating end of the cable rack should be located approximately flush with the side of the cabinet adjacent to the cable turning section.

15.12 The ends of side stringers should be approximately 4" from the first cross strap. Closing details per Figure 25 of Section 13B should be installed at both ends of the cable rack.

15.2 Assemble the ground bars and associated junction plates to their supports on the rear ends of the cabinets. Information for treating the contacting surfaces of the parts is contained in Section 28.

→ Arrowed lines indicate new or changed information.

[Vertical lines at side of paragraphs indicates requirements.

16. FILLING SPACE BETWEEN CABINET BASES AND FLOOR

[16.1 Conspicuous spaces (approximately 3/16" or over) between the bases of the cabinets and the floor should, as far as practicable, be filled with Caulking → Compound, RM-641598.

16.11 Information for applying the compound is contained in Section 29.

Manager, Crossbar Product Engineering
Control Center

Reason for Reissue:
(1) To update BSP AA614.004 to 800-614-154.
(2) To update Installing Equipment (Paragraph 3).
(3) To change 4'3" dimensions from CTS to outside end of cabinet base to read 4'2-1/4" (Figure 2).
(4) To correct Caulking Compound RM number (Paragraph 16).
(5) To correct Responsible Organization.