J1H011A SWITCH UNIT

IDENTIFICATION AND INSTALLATION

NO. 101 ELECTRONIC SWITCHING SYSTEM

1. GENERAL

1.01 This section is reissued for the following reasons:

(a) To include the code number of the switch unit in title and body of section.

(b) To include changes in types of power available from switch unit (3.06) and use of auxiliary power supplies (3.01 and 3.03) with grounding (8.02).

(c) To include information on attendant direct station selection (DSS) circuits covered in 2.09 and 7.06 (added) and in Fig. 3 and 5.

(d) To add paragraphs giving section references for connection of 1B- telephone console (7.05) and miscellaneous circuits (7.07). Because this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.02 This section provides information for the identification and installation of the J1H011A (1A) switch unit for the No. 101 electronic switching system (ESS).

1.03 For a general description of the No. 101 ESS, see Section 966-300-100.

1.04 A set of schematic drawings, cabling diagrams, circuit description sheets, and one copy of the equipment diagram are furnished with the switch unit. The drawings are provided in a binder which is stored in the space provided between the frame upright and the cabinet sheeting. The issue number of the schematic from which the equipment was manufactured is stamped on the units comprising the switch unit.

2. IDENTIFICATION

2.01 The cabinet housing the switch unit (Fig. 1) is a completely enclosed welded aluminum cabinet measuring 20 by 57 inches at the base by 5 feet high.

2.02 The switch unit contains the circuitry of the No. 101 ESS which is required at the customer premises. The equipment is so arranged that the cabinet accommodates the equipment for 200 station lines, 40 CO, tie, and miscellaneous trunks, 2 data trunks, and 6 digit trunks. The trunk capacity may be increased to a maximum of 56 by using 16 line positions, thereby decreasing the number of line positions to a maximum of 184. Attendant conference circuits, when added, occupy a total of six line positions per circuit. Simplified consoles, if used, require one line position for each line assigned to the console.

2.03 The switch unit, together with its associated batteryless power plant, is arranged in a console-type cabinet designed to be located in general office space on the customer premises. Circuit components are mounted on plug-in packages, called circuit packs, measuring 4 inches high by 6 inches deep, including the 28-contact connector. In special cases where more connector contacts or more components are necessary than would mount on the 4-inch package, a larger 5-inch high package with a 38-contact connector is used.

2.04 These circuit packs are placed in package mounting (trays) designed to mount in a standard 23-inch bay. One tray in each bay accommodates the 5-inch packs. Each mounting has a locking bar assembly with a designation strip attached to it. The locking bar assembly provides a security function, and the designation strip carries the circuit pack position and functional titles for sections of the equipment.

2.05 Switch unit circuits are organized into equipment units, consisting of from two to ten trays, which are mounted in four bays (Fig. 2). Bays 1 and 2 are hinged and swing out to give front access to the circuit packs in the rear bays and to provide access room for maintenance. The two rear bays contain the translators, scanners, and line and trunk circuits while the front two bays contain the switch stores, attendant circuits, transfer and alarms, data transmitters, data receivers, and data distributors.

2.06 Fig. 3 shows the equipment layout of the four bays for a fully equipped switch unit. The number of trunk circuits and station line circuits are determined by customer requirements. The figure notes explain variations permitted in the assignment of the trunk and station

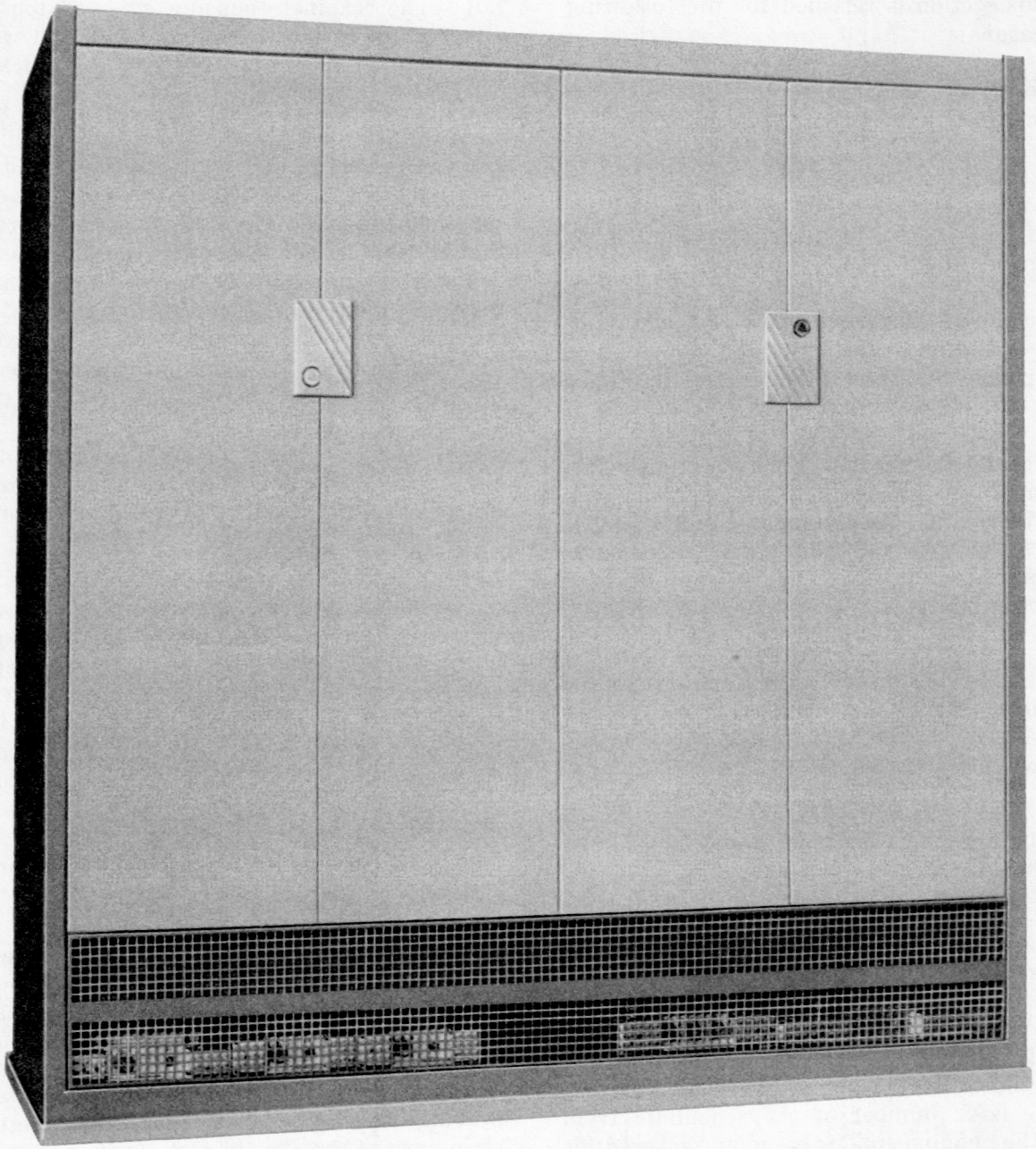


Fig. 1 — J1H011A Switch Unit

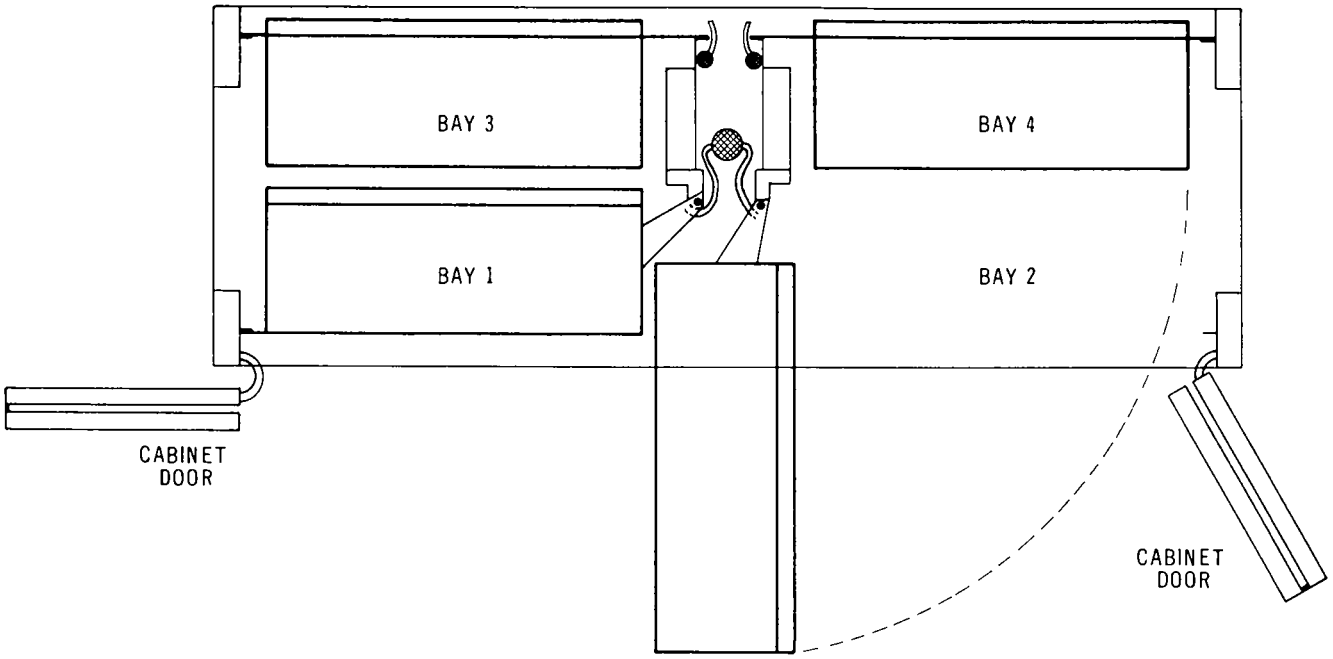


Fig. 2 — Sectional View of Switch Unit

line locations. The No. 2 and No. 3 attendant circuits and the attendant conference circuits are optional. Normally those circuit packs which are not common to all switch units are packaged separately. Trunk circuits are installed to agree with the control unit connections at the central office. Station line circuits must be in agreement with station numbers. The station numbers are obtained by adding 152 to the scan point (equipment number) for station number group 200 to 399. Add 352 for number group 400 to 599 and 552 for number group 600 to 799.

2.07 Equipment units of the switch unit are wired with solderless wrapped surface wiring. The wiring between units is by means of local cables that are positioned in a vertical channel in the center of the cabinet. The local cables connect to the equipment units at terminal blocks located at the end of each equipment tray.

2.08 The top of the switch unit cabinet lifts up at the front and hinges at the rear to provide access to the plug and socket connectors. The top may be locked open by engaging the locking bars on either side of the cabinet. When necessary, the top may also be completely removed.

2.09 Attendant equipment normally used with the No. 101 ESS is the 1B- telephone console, a G3CR handset, or a 52-type headset. The 1B- telephone console includes the following features: (1) a TOUCH-TONE (25-type) dial, (2) audible signal with adjustable volume control, and (3) jacks for the hand or head telephone set. Simplified consoles using 1A1 or 1A2 key telephone system can also be used. The 1A-selection console for direct station selection is optional.

3. POWER

3.01 The switch unit is equipped with a batteryless power supply. Auxiliary power supplies are added as required by optional equipment.

3.02 The power equipment provided as an integral part of the switch unit consists of three rectifiers, together with a ringing generator, located behind a removable grill at the bottom front of the cabinet. (See Fig. 1.)

3.03 The customer must provide a 115-volt, 60-cycle individual branch, single grounding receptacle for the switch unit, separately fused at 15 amperes. This receptacle should be located at the switch unit and must be compatible

with the Hubbell No. 4721 plug of the power cord. Additional receptacles are required for any auxiliary power supplies.

3.04 Refer to Section 167-400-200 covering general installation requirements for power plants located on customer premises.

3.05 Requirements for placing the J87242, J87243, and J87244 power plants in service are covered in Sections 169-431-301, 169-432-301, and 169-433-301, respectively.

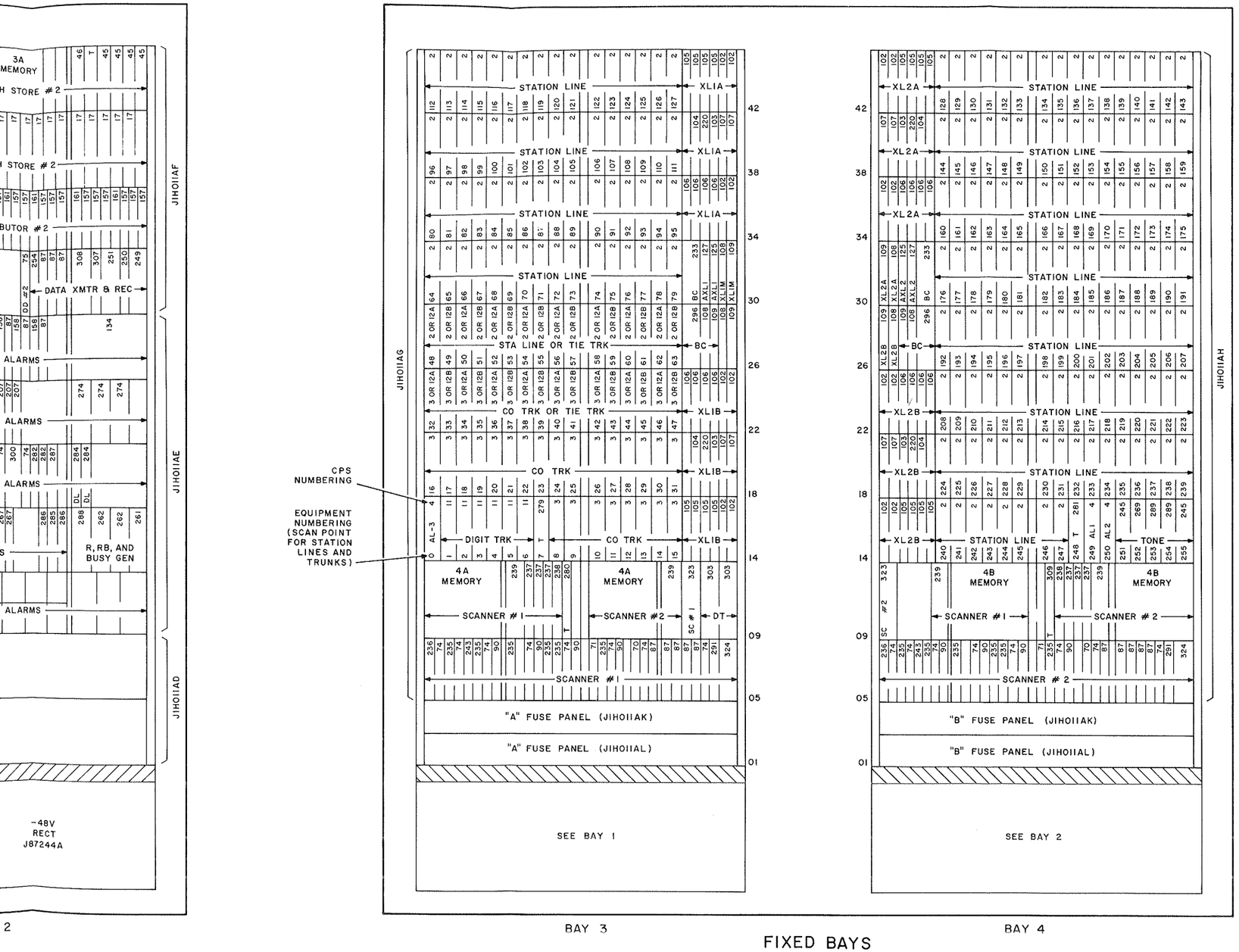
3.06 Pairs of battery and ground feeders for +12, +24, and −48 volts are extended to the cross-connecting terminal for use with externally mounted equipment as required.

3.07 Table A lists fuse assignments for the trunk and station line circuits and the tray and equipment numbers served by each fuse. A fuse is required if any position in the group is equipped. Normally, fuses are supplied with the switch unit.

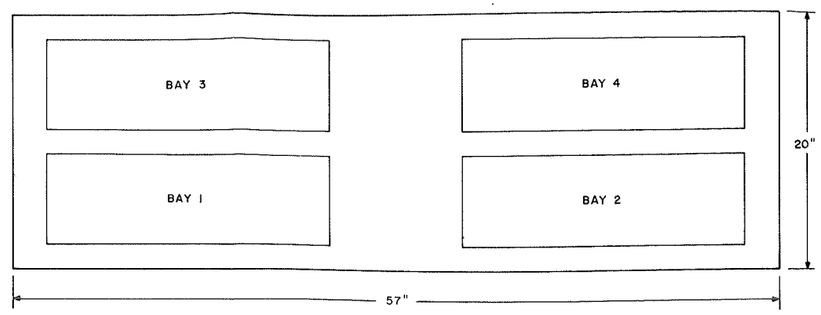
TABLE A
TRUNK AND STATION LINE CIRCUIT FUSING

NUMBER EQUIPMENT	LOCATION		POWER CIRCUIT			
			+12V		−48V	
	BAY	TRAY	FUSE DESIG*	FUSE AMP	FUSE DESIG*	FUSE AMP
8, 9, 12, 13	3	14	16A	1 1/3		
10, 11, 14, 15	3	14	17A	1 1/3		
16, 17, 20, 21, 24, 25, 28, 29	3	18	18A	1 1/3		
18, 19, 22, 23, 26, 27, 30, 31	3	18	19A	1 1/3		
32, 33, 36, 37, 40, 41, 44, 45	3	22	20A	1 1/3	80A	1 1/3
34, 35, 38, 39, 42, 43, 46, 47	3	22	21A	1 1/3	81A	1 1/3
48-63	3	26	14B	1 1/3	76B	1 1/3
64-79	3	30	15B	1 1/3	77B	1 1/3
80-95	3	34	16B	1 1/3	78B	1 1/3
96-111	3	38	17B	1 1/3	79B	1 1/3
112-127	3	42	18B	1 1/3	80B	1 1/3
128-143	4	42	19B	1 1/3	81B	1 1/3
144-159	4	38	20B	1 1/3	82B	1 1/3
160-175	4	34	21B	1 1/3	83B	1 1/3
176-191	4	30	22B	1 1/3	84B	1 1/3
192-207	4	26	23B	1 1/3	85B	1 1/3
208-223	4	22	24B	1 1/3	86B	1 1/3
224-239	4	18	25B	1 1/3	87B	1 1/3
240-247	4	14	26B	1 1/3	88B	1 1/3

* A fuses are in bay 3. B fuses are in bay 4.



FIXED BAYS



NOTES:

1. NUMBERS AT TOP OF POSITION INDICATE THAT POSITION IS WIRED TO ACCEPT CORRESPONDING CIRCUIT PACK ALTHOUGH ALL PACKS WILL NOT BE SUPPLIED. TRUNK AND STATION LINE POSITIONS (EQUIPMENT NUMBERS) MAY USE OTHER PACKS AS EXPLAINED IN THE FOLLOWING NOTES. THE CIRCUIT PACK NUMBER IS DERIVED FROM THE EQUIPMENT DRAWING NUMBER. THE CIRCUIT PACK 2 IS ED-1H002.
2. EQUIPMENT NUMBERS 8-13 (CP3) ARE NON-DID OR 2-WAY DID TRUNK CIRCUITS WHICH CAN BE USED DURING POWER FAILURE TO FURNISH UP TO SIX DIRECT CIRCUITS TO THE CENTRAL OFFICE, OR ARE USED FOR NON-DID CO TRUNKS OR 2-WAY DID TRUNKS.
3. EQUIPMENT NUMBERS 14-47 MAY BE USED FOR NON-DID OR DID CO TRUNK CIRCUITS (CP110).
4. EQUIPMENT NUMBERS 32-63 MAY BE USED FOR TIE TRUNK CIRCUITS (CP12) OR IDLE TRUNK TERMINATING TRUNK CIRCUITS (CP327).
5. EQUIPMENT NUMBERS 44-51 MAY BE USED FOR CODE CALL TRUNK CIRCUITS (CP328), LOUD SPEAKER PAGING TRUNK CIRCUIT (CP329), OR TELEPHONE DICTATION TRUNK CIRCUIT (CP330).
6. EQUIPMENT NUMBERS 48-247 MAY BE USED FOR LONG LINE CIRCUITS (CP318).
7. THE FOLLOWING EQUIPMENT NUMBERS ARE TEST POSITIONS AND ARE NOT ASSIGNED.

EQUIPMENT NUMBER	IN	SWITCH UNITS
15		0,24
17		1,25
18		2,26
27		3,27
36		4,28
45		5,29
54		6,30
56		7,31

8. EQUIPMENT NUMBERS 241-246 MAY BE USED FOR CONFERENCE CIRCUIT NUMBER 1 AND 235-240 MAY BE USED FOR CONFERENCE CIRCUIT NUMBER 2. EACH CIRCUIT USES SIX CP329'S.
9. EQUIPMENT NUMBER 247 MAY BE USED WITH A DID ANSWERING MACHINE FOR MACHINE INTERCEPT.
10. EQUIPMENT NUMBERS FOR STATION LINES CAN BE CONVERTED TO STATION NUMBERS BY ADDING A NUMBER TO THE EQUIPMENT NUMBER.

STATION NUMBER GROUP	ADD TO EQUIPMENT NUMBER
200-399	152
400-599	352
600-799	552

11. IF SIMPLIFIED CONSOLES ARE USED, JIHOIIAN BELOW REPLACES JIHOIIAA (ATTENTANT CIRCUIT #3) IN BAY 1.

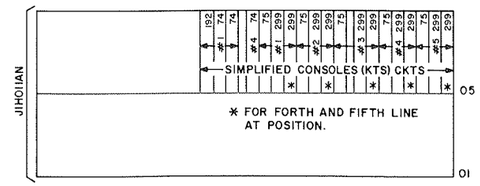
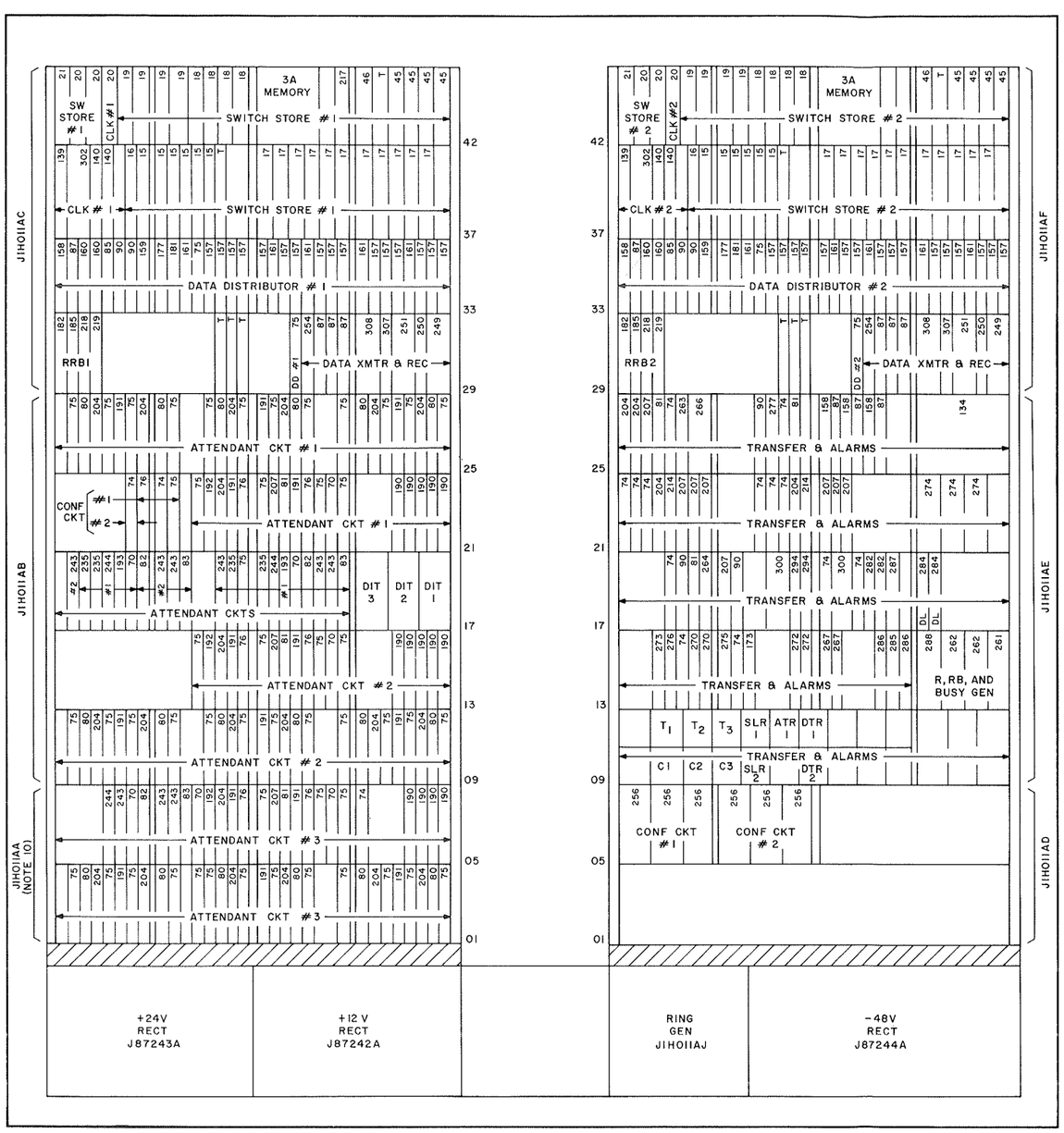
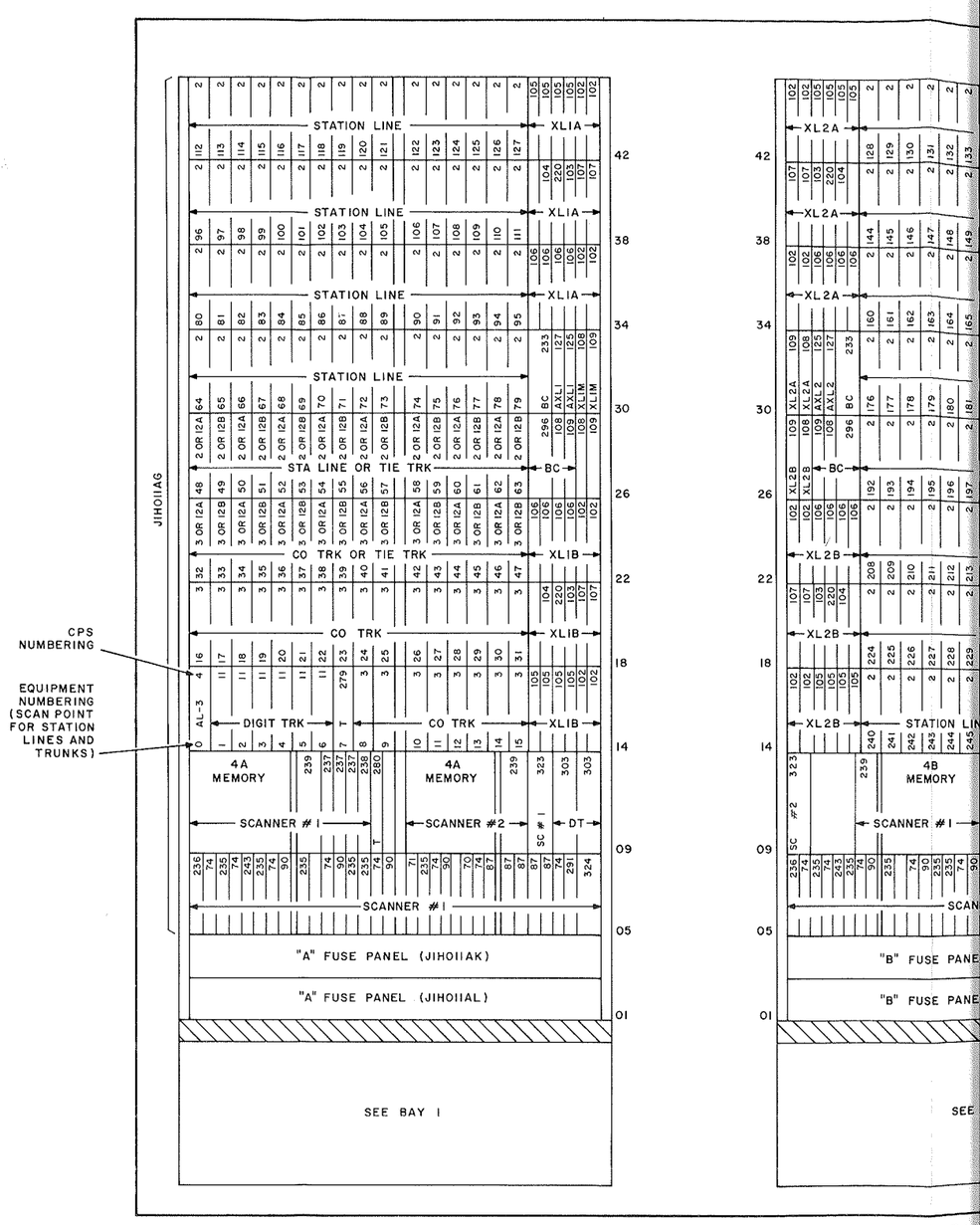


Fig. 3 — Switch Unit Showing Equipment Locations


JIHOIIAB
JIHOIIAC
JIHOIIAF
JIHOIIAE
JIHOIIAA (NOTE 10)
JIHOIIAD
3A MEMORY
SW STORE #1
SW STORE #2
CLK #1
CLK #2
SWITCH STORE #1
SWITCH STORE #2
DATA DISTRIBUTOR #1
DATA DISTRIBUTOR #2
RRB1
RRB2
DATA XMTR & REC
ATTENDANT CKT #1
ATTENDANT CKT #2
ATTENDANT CKT #3
ATTENDANTS CKTS
CONF CKT
DIT 3
DIT 2
DIT 1
TRANSFER & ALARMS
R, RB, AND BUSY GEN
T1 T2 T3 SLR ATR DTR
C1 C2 C3 SLR 2 DTR 2
CONF CKT #1
CONF CKT #2
+24V RECT J87243A
+12 V RECT J87242A
RING GEN JIHOIIAJ
-48V RECT J87244A
BAY 1
BAY 2
HINGED BAYS


CPS NUMBERING
EQUIPMENT NUMBERING (SCAN POINT FOR STATION LINES AND TRUNKS)
JIHOIIAG
STATION LINE
STA LINE OR TIE TRK
CO TRK OR TIE TRK
CO TRK
DIGIT TRK
XL1A
XL1B
XL2A
XL2B
BC
4A MEMORY
4B MEMORY
SCANNER #1
SCANNER #2
DT
"A" FUSE PANEL (JIHOIIAK)
"A" FUSE PANEL (JIHOIIAL)
"B" FUSE PANEL
SEE BAY 1
BAY 3
FIXED BAYS

4. TOOLS

4.01 In addition to standard PBX installation tools, the following tools or their equivalent are required.

1 — 12-inch R-1257 adjustable bench level

1 — 30-inch R-2384 pinch bar

1 — 734A tool (for installing and removing RM-672292 jumper clips)

1 — 731A tool (for removing circuit packs)

5. PLANNING

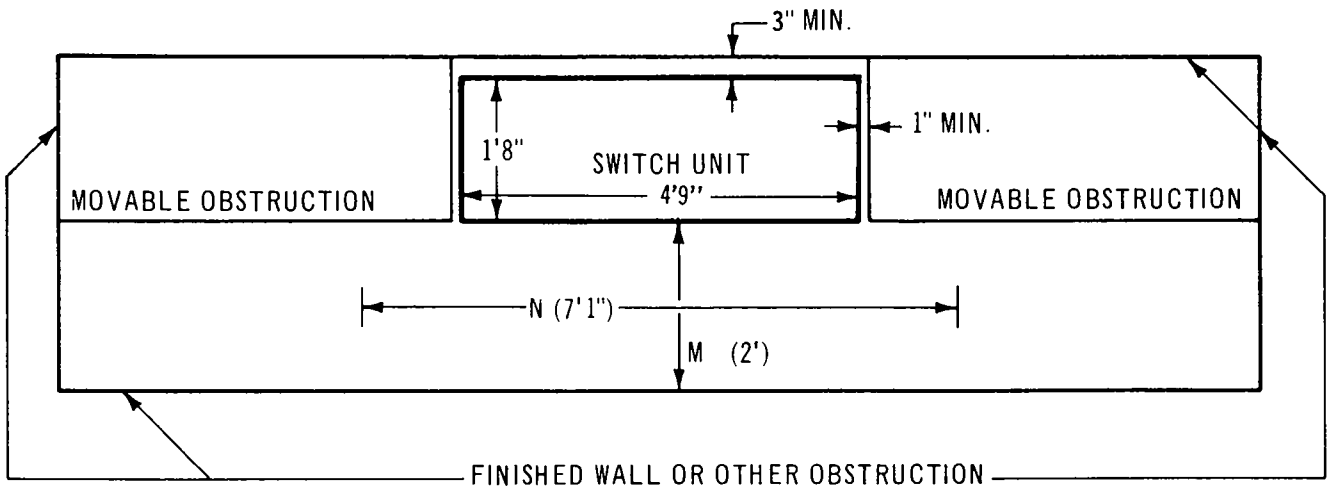
5.01 The floor space and maintenance space requirements are shown in Fig. 4. Space shown at the front of the cabinet may be aisle space.

5.02 Cabinet weights vary according to the equipment installed in each at time of installation. This weight may vary from 600 to 900 pounds. Normally circuit packs which are not common to all switch units are packaged separately. An average weight of 750 pounds per cabinet may be used to determine the overall system weight.

Caution: Prior to installation of the switch unit, it must be determined that the carrying capacity of the floor is adequate.

6. SWITCH UNIT INSTALLATION

6.01 The switch unit is packed and shipped in the normal upright position. A floating arrangement is used consisting of a polyfoam base, on which the unit rests, and a polyfoam sheet covering the top. Each corner of the switch unit is protected by a polyfoam block which holds the unit tight within the crate. There is no physical



NOTES:

1. DIMENSIONS M AND N ARE NEEDED IN FRONT OF SWITCH UNIT DURING MAINTENANCE VISITS.
2. HEIGHT OF CABINET IS 5 FEET WITH TOP IN PLACE.

Fig. 4 — Floor Space Requirements for J1H011A Switch Unit

attachment between the unit and the skid. The two hinged bays within the switch unit are bolted to prevent accidental opening in transit.

6.02 The approximate dimensions of the overall crating are 30 inches wide by 80 inches long by 64 inches high with a weight of approximately 900 pounds.

6.03 The switch unit should be placed as near as possible to the designated installation area before attempting to uncrate it.

Caution: The unit is not attached to the skid after uncrating; therefore, care should be exercised when positioning the cabinet.

6.04 Remove the switch unit from the skid, and position it with reference to Fig. 4.

6.05 The J code, list number, and serial number may be observed at the upper left corner of the switch unit when the left door of the cabinet is opened.

6.06 Level and align the switch unit cabinet. If necessary, shim the base of the unit with small strips of hardwood. A sufficient number of shims should be used to equalize weight distribution at the base.

6.07 Open the cabinet doors and remove the two hinged bay tie-in screws which are located at the center portion of each bay.

6.08 Remove the four lock-down clamps placed to lock the individual power supply units stationary for shipment. On occasion power supply units may be packaged separately and installed during installation of the switch unit.

6.09 The circuit packs which are packaged separately are placed in their assigned equipment locations, and the locking bar assemblies are positioned to secure the packages.

6.10 When switch unit is equipped with 50 to 125 line circuits, switch S1 on CP233 at 30D7 and 30A16 of bays 3 and 4, respectively, is to be closed. When switch unit is equipped with 126 to 200 line circuits, switch S1 is to be open.

7. CROSS-CONNECTING TERMINALS

7.01 Connecting blocks (66-type quick connect) are recommended for cable terminations from the switch unit. They should be located in a suitable cross-connecting or house terminal box and used to terminate the house and feeder cables from the switch unit and any associated equipment mounted in external wall boxes. (See Fig. 5.)

7.02 All cables from the switch unit to the cross-connecting terminal should be terminated and stenciled as described in the sections covering connections.

7.03 Cables and wiring from the attendant and station equipment should be terminated directly on the cross-connecting terminal blocks.

7.04 For connection information for the switch unit, see Section 240-202-201.

7.05 For connection information for the 1B-telephone console, see Section 240-204-201.

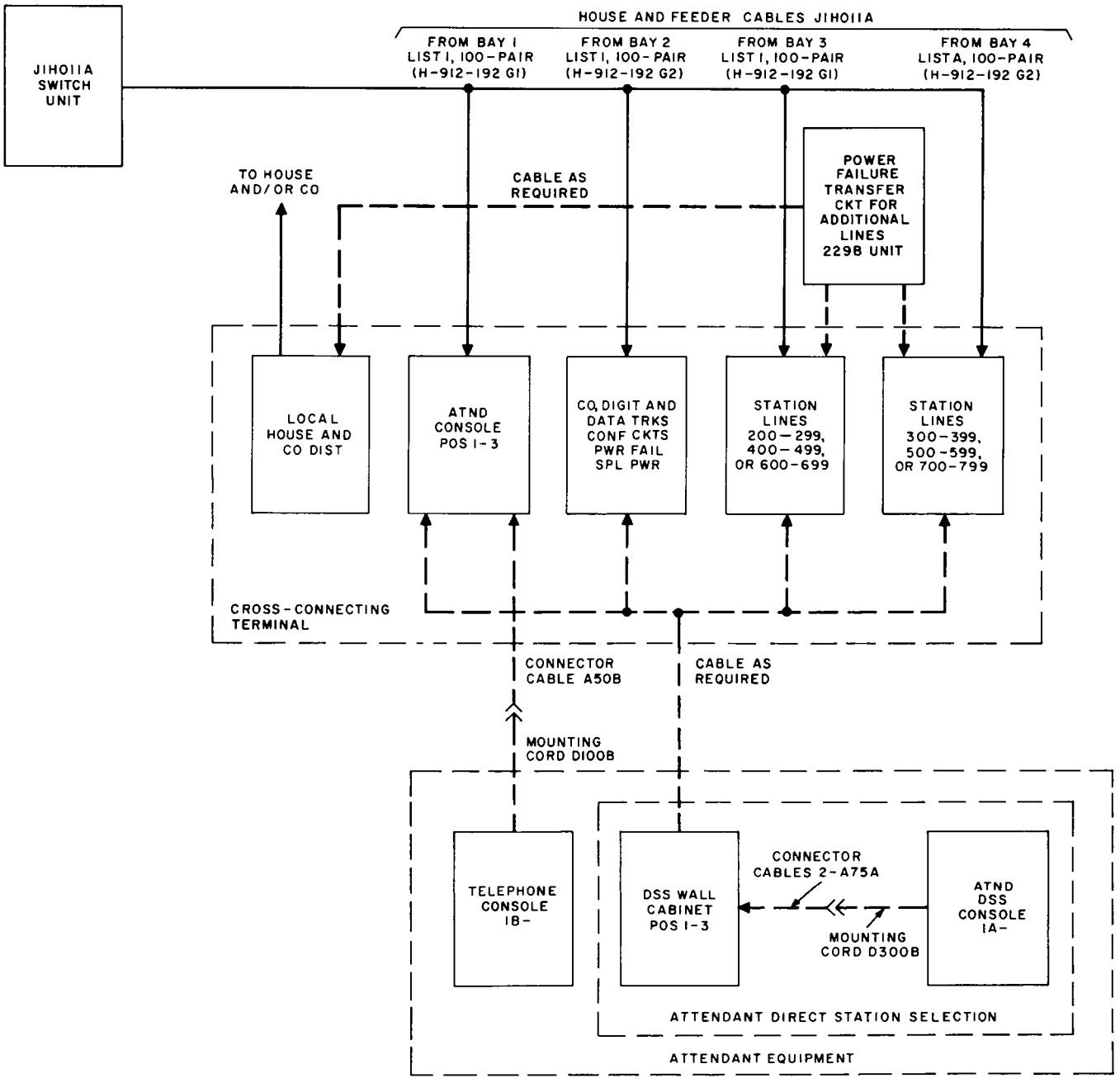
7.06 For connection information for the attenddant DSS circuit, see Section 240-204-202.

7.07 For connection of other miscellaneous circuits, see Section 240-207-201.

8. GROUNDING

8.01 The ground for the switch unit is normally obtained through the third wire in the power cord; however, to insure that the switch unit remains grounded should the power cord be removed, an approved local ground shall be connected to the frame ground terminal to which the power supplies and the ringing generator connect. This local ground lead shall be 14-gauge wire at minimum with a spade lug termination for connection at the switch unit.

8.02 Ground for any auxiliary power supplies is obtained through the third wire in the power cord or by connecting a 14-gauge wire to an approval local ground.



NOTES:

1. (J) CODED CABLES, LIST I, ARE FURNISHED WITH THE SWITCH UNIT. LIST A CABLE MUST BE ORDERED INDIVIDUALLY WHEN SWITCH UNIT IS TO EQUIPPED FOR STATION LINES 300-399, 500-599, OR 700-799.
2. HOUSE AND FEEDER CABLES ARE PROVIDED WITH A LENGTH OF 30 FEET.
3. CONNECTOR CABLES AND CONNECTING BLOCKS SUPPLIED LOCALLY.
4. EQUIPMENT SHOWN CONNECTED BY DASHED CABLE IS OPTIONAL DEPENDING UPON CUSTOMER REQUIREMENTS.

Fig. 5 — Switch Unit Cabling to Cross-Connecting Terminal