

**CAMA SWITCHBOARD  
AUTOMATIC MESSAGE ACCOUNTING  
EQUIPMENT DESIGN REQUIREMENTS  
NO. 5 AND TANDEM CROSSBAR,  
NO. 4 TYPE TOLL SWITCHING, AND STEP-BY-STEP SYSTEMS**

**1. GENERAL**

**SCOPE**

**1.01** This specification, together with the supplementary information listed herein, covers the equipment design requirements for the framework, equipment, and circuits to be used in the manufacture and installation of a CAMA switchboard for offices arranged for automatic message accounting.

**1.02** This specification is being reissued to add a new BSP division number 814-118-150, and to bring it into conformity with the general Plant Series plan.

**CAPACITY**

**1.03** The capacity of the CAMA switchboard is as follows.

|                                           |     |
|-------------------------------------------|-----|
| Positions per switchboard sections        | 2   |
| Cable turning sections per line-up        | 1   |
| Maximum positions per supervisor division | 10  |
| Maximum positions per office              | 100 |

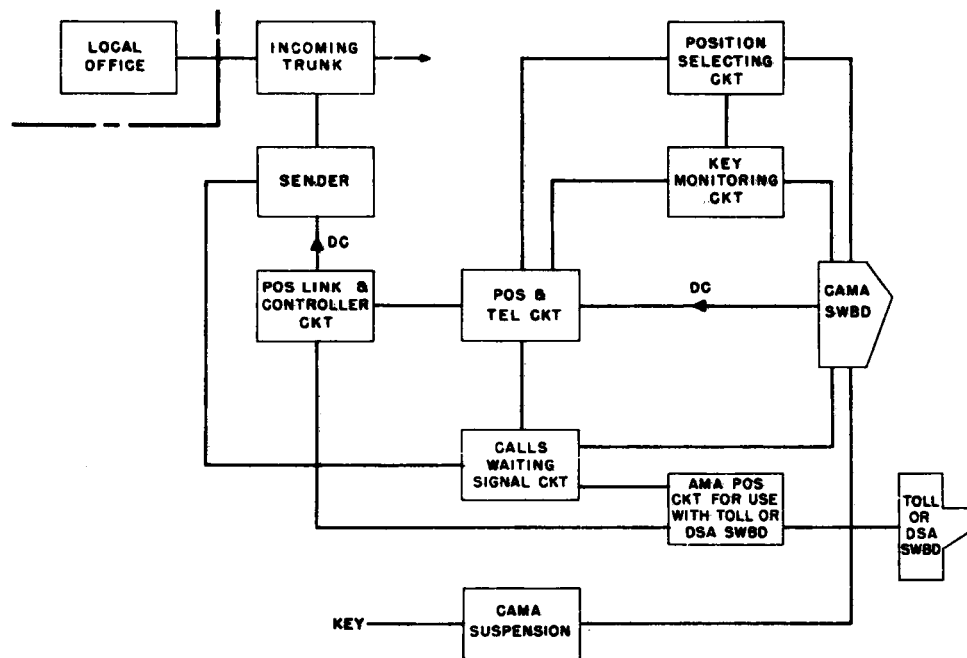
**DESCRIPTION**

**1.04** The CAMA switchboard is used with offices arranged for automatic message accounting for the purpose of obtaining the calling customer telephone number on calls which are recorded on AMA tape. The calling number is keyed into the CAMA equipment by the operator before the call is allowed to be completed, and forms a part of the initial entry on the tape. Calls are connected to the operators on an automatic distribution basis, and the load on the switchboard is indicated by the lighting of differ-

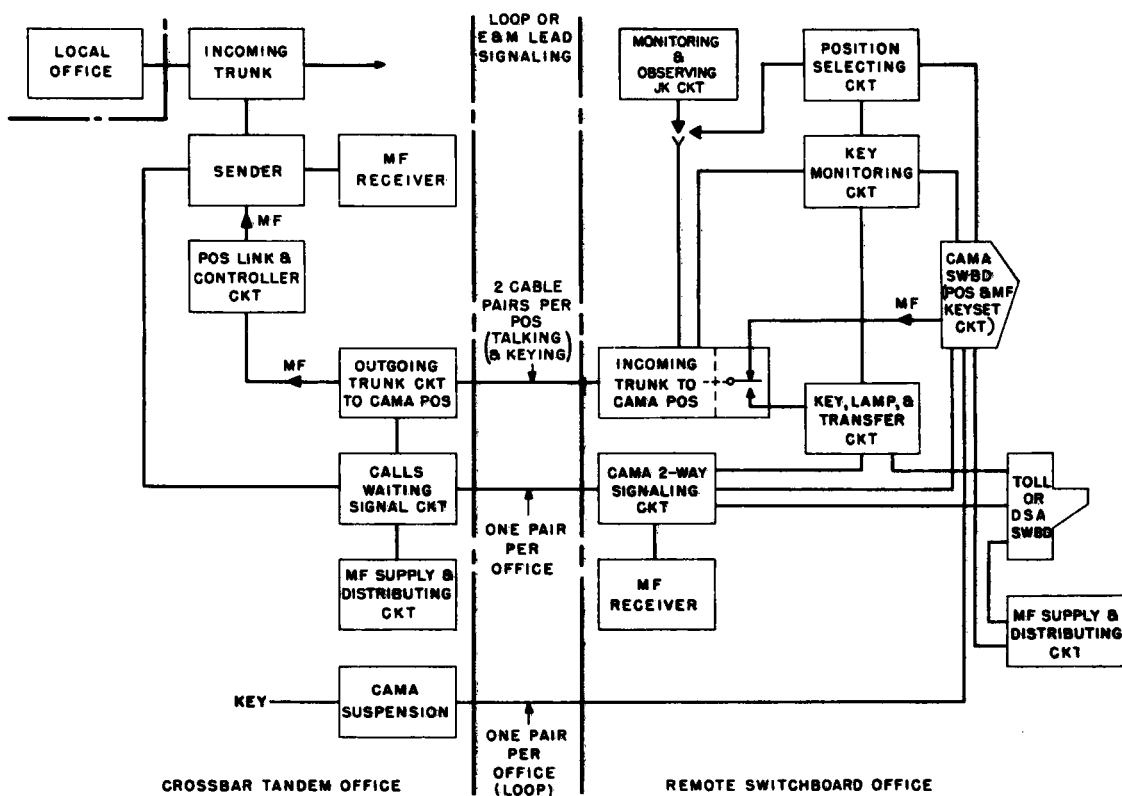
ent colored lamps of a calls-waiting signal circuit. Arrangements may be provided for the operators to be located either in the same building as the office or in a location other than the building in which the office is located. (See Fig. 1, 2, 3, 4, 5, and 6.) Arrangements may also be provided for the calls to be transferred to a toll or DSA board for night or light-load operation. A combined regular and key monitoring position can be provided when monitoring at CAMA switchboard is required. The monitoring operator through the use of the keyset and position-selecting circuit can observe on any regular position. If all positions must be abandoned due to an emergency, CAMA traffic can be handled on a non-CAMA basis.

**1.05** The switchboard consists of one or more line-ups of a number of 2-position sections and a cable turning section. (See Fig. 7.) Growth may be either right to left or left to right. Arrangements may be provided for the switchboard to be in a single line-up or in two line-ups back to back, separated by a transparent baffle. The section framework is of sheet-metal construction and has an adjustable foot to compensate for floor variations. Each position is equipped with a keyshelf on which is mounted a 10-button keyset and miscellaneous keys and lamps. The combined position has in addition two banks of indicator lamps to display the number keyed by the observed operator and a transfer key to convert to a regular position when necessary. A lamp standard containing the calls-waiting signal lamps and a service assistant call lamp is furnished for each division of ten positions maximum. The dimensions of the switchboard section are 4 feet 3 inches long, 1 foot 10 inches deep, and 2 feet 8-7/8 inches high. Positions are numbered from 1 up. The combined key monitoring position when required should be assigned position 1.

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**SECTION 814-118-150, 817-101-150, 818-102-150, 819-101-150**



**Fig. 1 - CAMA Switchboard in Same Building With Tandem Crossbar Office — DC Pulsing**



**Fig. 2 - CAMA Switchboard in Building Remote From No. 4A, 4M, or Tandem Crossbar Office — MF Pulsing**

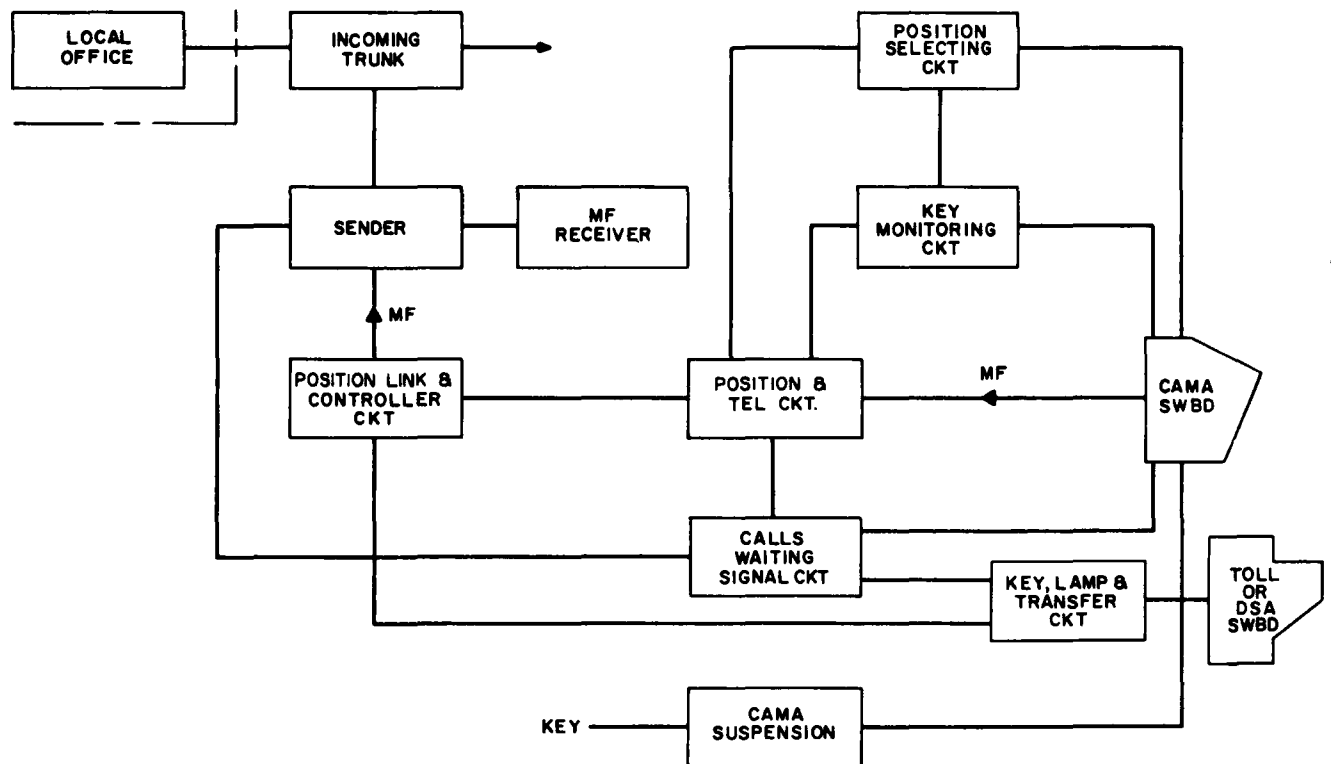


Fig. 3 – CAMA Switchboard in Same Building With No. 4A, 4M, or Tandem Crossbar Office — MF Pulsing

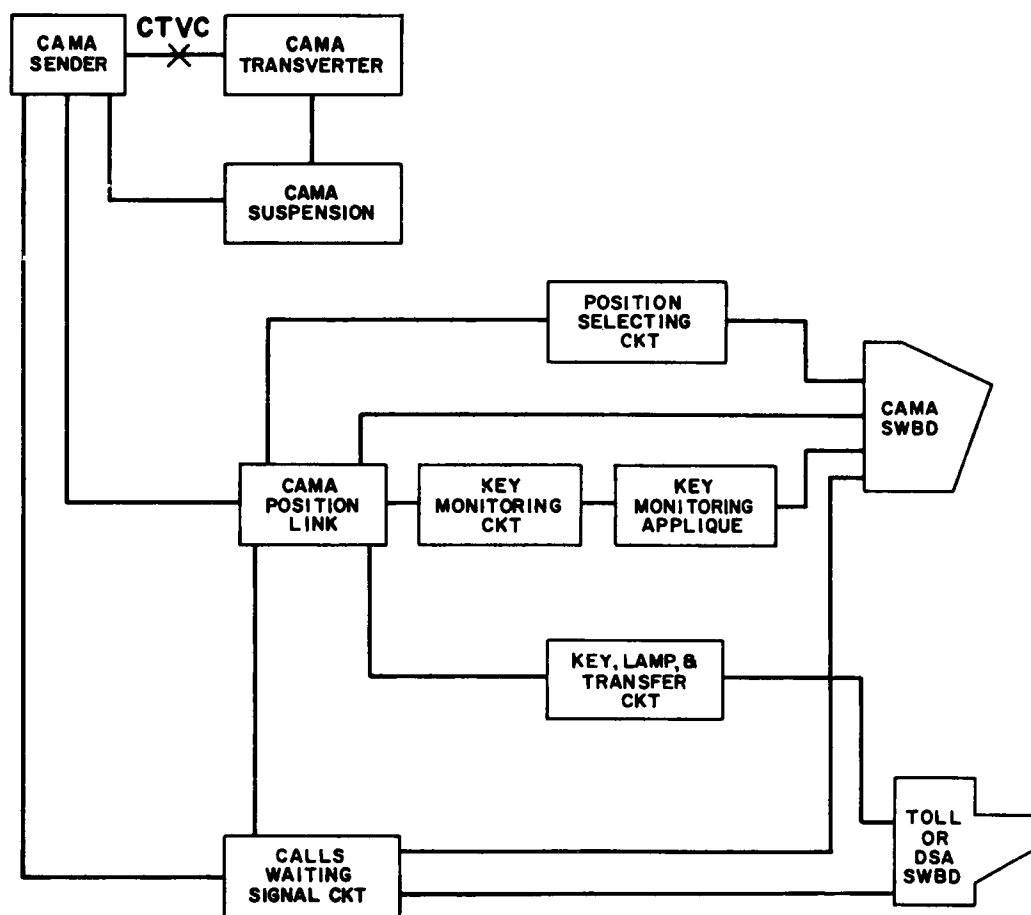


Fig. 4 – CAMA Switchboard in Same Building With No. 5 Crossbar Office — MF Pulsing

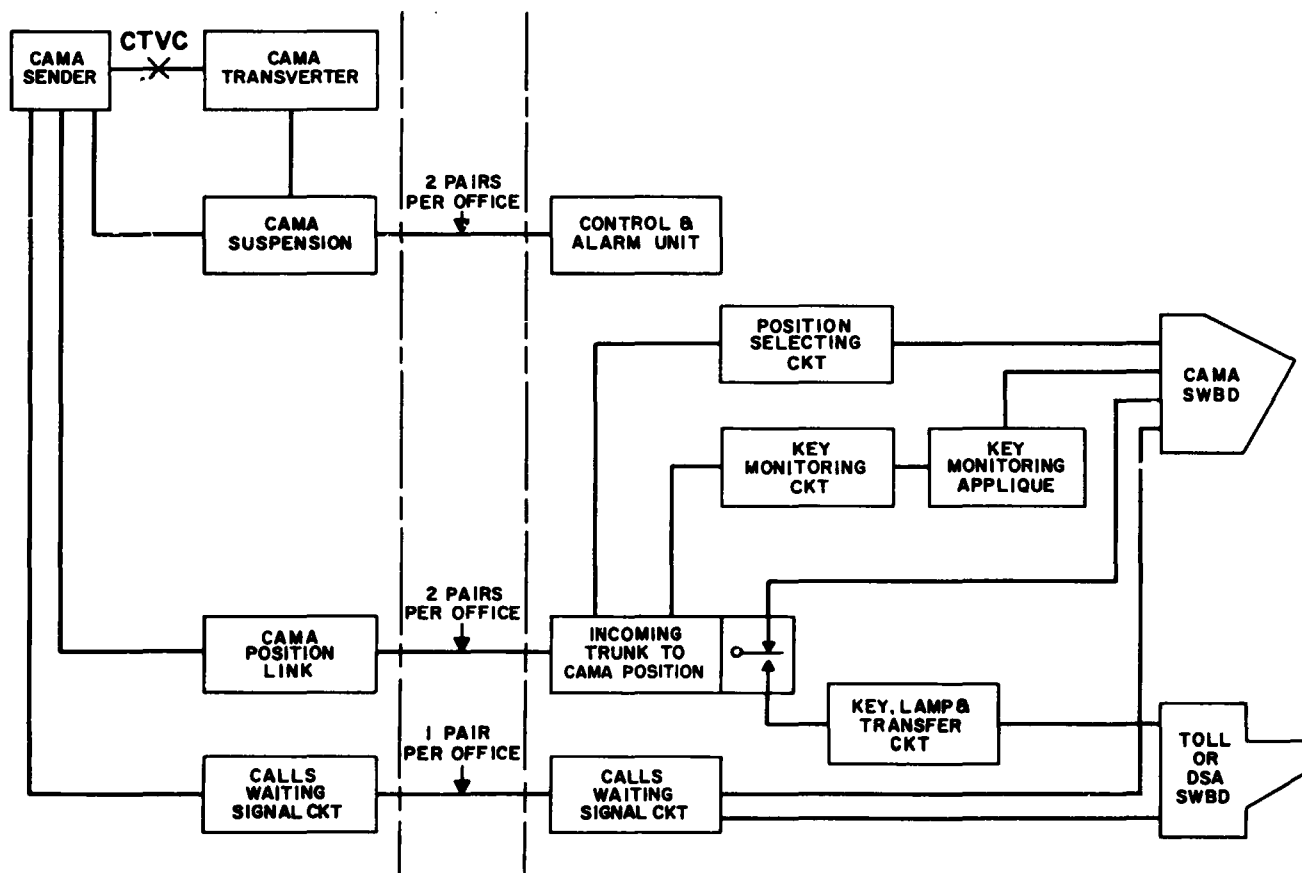


Fig. 5 — CAMA Switchboard in Building Remote From No. 5 Crossbar Office —  
MF Pulsing

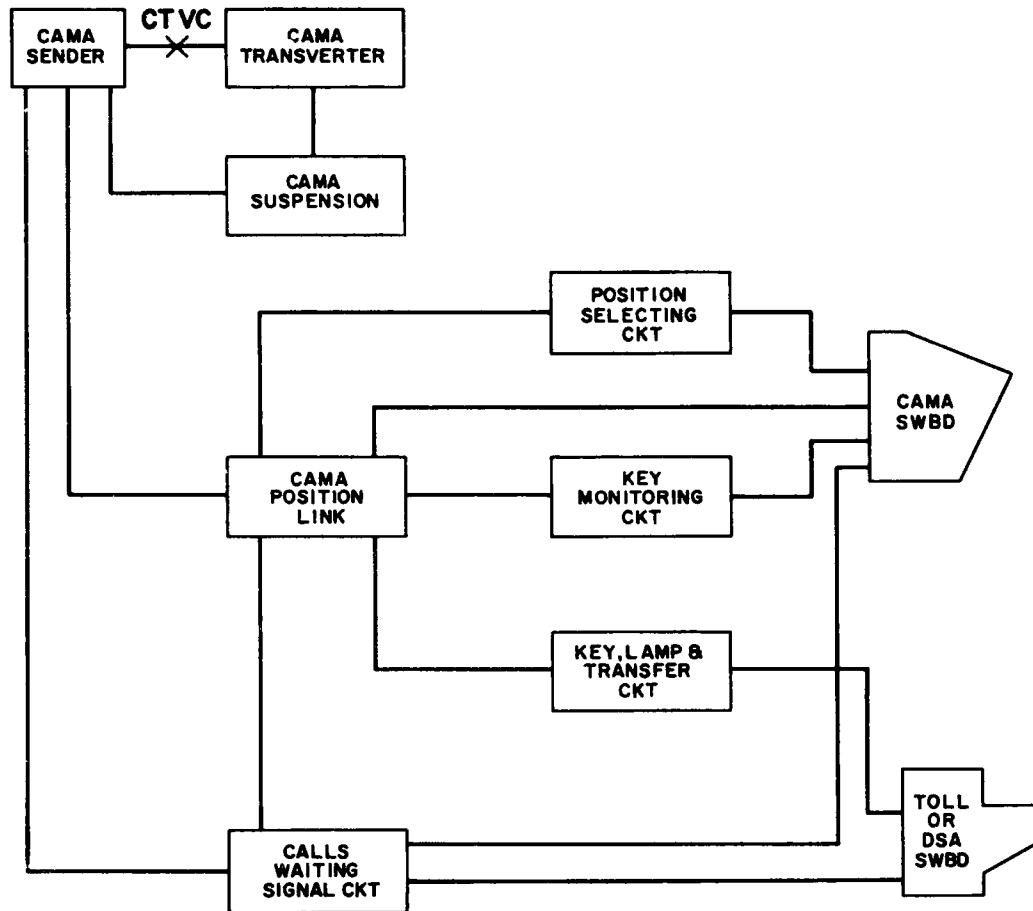
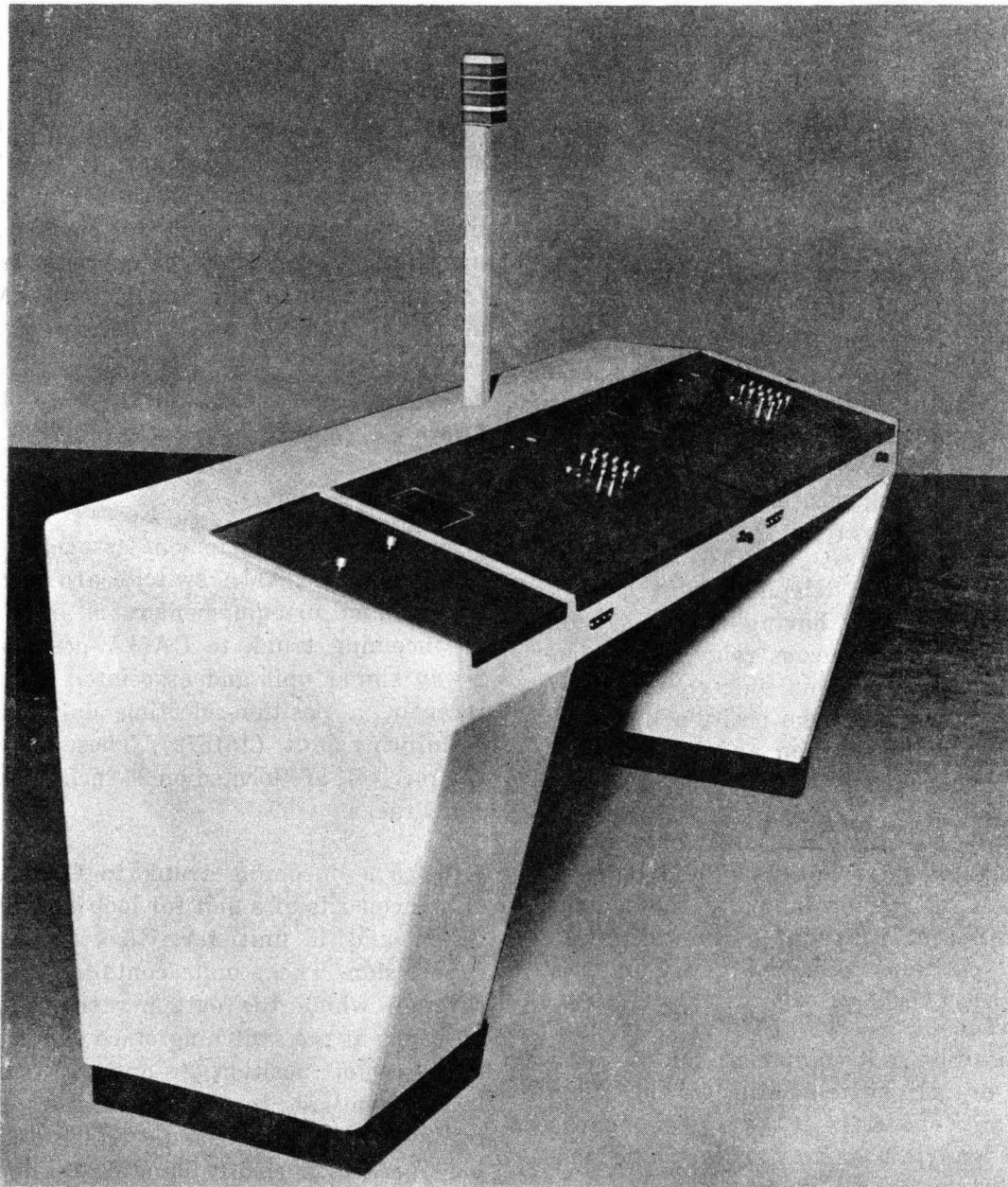


Fig. 6 – CAMA Switchboard in Same Building With Step-by-Step Office —  
MF Pulsing



**Fig. 7 – Switchboard Section and Cable Turning Section**

**1.06** The cable turning section is also of sheet-metal construction with an adjustable foot for floor variations. This section is equipped with a keyshelf containing a team size key for different numbers of occupied positions, a calls-waiting signal key which puts the calls-waiting signal circuit into operation, and an abandon switchboard key and lamp which is required only when CAMA suspension is specified. The abandon switchboard key is guarded to prevent false

operation. Cable turning sections may be provided for cables that enter from above or below. The dimensions of the cable turning section are 10-1/2 inches long, 1 foot 10 inches deep, and 2 feet 8-7/8 inches high.

**1.07** Both the switchboard and cable turning sections have a light gray finish on the metal framework and a blue-green finish on the keyshelves, and have removable rear panels to

facilitate cabling. No relay equipment is provided in the switchboard.

**Relay Equipment — CAMA Switchboard (not arranged for remote operation)**

**1.08** The relay equipment associated with the CAMA switchboard is located in the terminal room and consists of operator, dc pulsing position, and telephone units which are mounted on position and telephone unit frame designated POS or on miscellaneous relay rack when specified, a calls-waiting signal unit, DSA or toll switchboard dc pulsing position units, a position-selecting unit, a CAMA suspension unit, and a multifrequency pulsing position unit which are located on miscellaneous relay racks.

**1.09** The position and telephone unit is furnished on frames having a capacity of 30 units or on a miscellaneous relay rack when specified. (See Fig. 8.) This unit contains the equipment through which the position link connects a sender to the position and is furnished one per switchboard position.

**1.10** The calls-waiting signal unit contains relay equipment, a voltmeter, and potentiometers which register on lamps at the switchboard the different ratios of calls waiting to switchboard positions occupied. This unit is required one per office.

**1.11** The position unit equipment for use with DSA or toll switchboards in the same building permits operators at these switchboards during light-load periods to handle traffic normally handled by operators at CAMA switchboard positions.

**1.12** The position-selecting unit contains the relay equipment through which the key monitoring operator selects the desired position for observation.

**1.13** The CAMA suspension unit contains the relay equipment which permits the CAMA traffic to be handled non-CAMA when the abandon switchboard key is operated. This unit also provides means for the various alarms to function both in the terminal and operating rooms during this condition.

**1.14** The local multifrequency pulsing position unit is used in conjunction with either the CAMA position and keyset equipment at the CAMA switchboard or the DSA or toll switchboard to permit an operator to challenge the calling customer for the purpose of registering the calling number. Using this position, the calling number is keyed by the operator on a multifrequency basis into the associated CAMA equipment.

**Relay Equipment — Crossbar Tandem — Remote CAMA Switchboard**

**Switchboard End**

**1.15** The relay equipment associated with the remote CAMA switchboard is located in the terminal or equipment room and consists of an incoming trunk to CAMA position, CAMA 2-way signal unit and associated standard MF receiver, a position-selecting unit, and a key monitoring unit (J61579). These units, except the receiver, are located on 23-inch miscellaneous relay racks.

**1.16** The incoming trunk to CAMA position consists of a unit for loop signaling supervision and a unit for E&M lead signaling supervision. These units contain the equipment through which the outgoing trunk to CAMA positions at the switching office end is connected to the remote position. An optional transfer unit is also available to permit operators at DSA or toll switchboards to handle traffic during light-load periods normally handled by operators at CAMA switchboard positions. These units are furnished one per switchboard position, except the E&M lead unit which is furnished one per two switchboard positions.

**1.17** The CAMA 2-way signal circuit unit contains the equipment through which the calls-waiting signal circuit at the switching office connects to the remote CAMA switchboard.

**1.18** The position-selecting unit contains the relay equipment through which the key monitoring operator selects the desired position for observation.

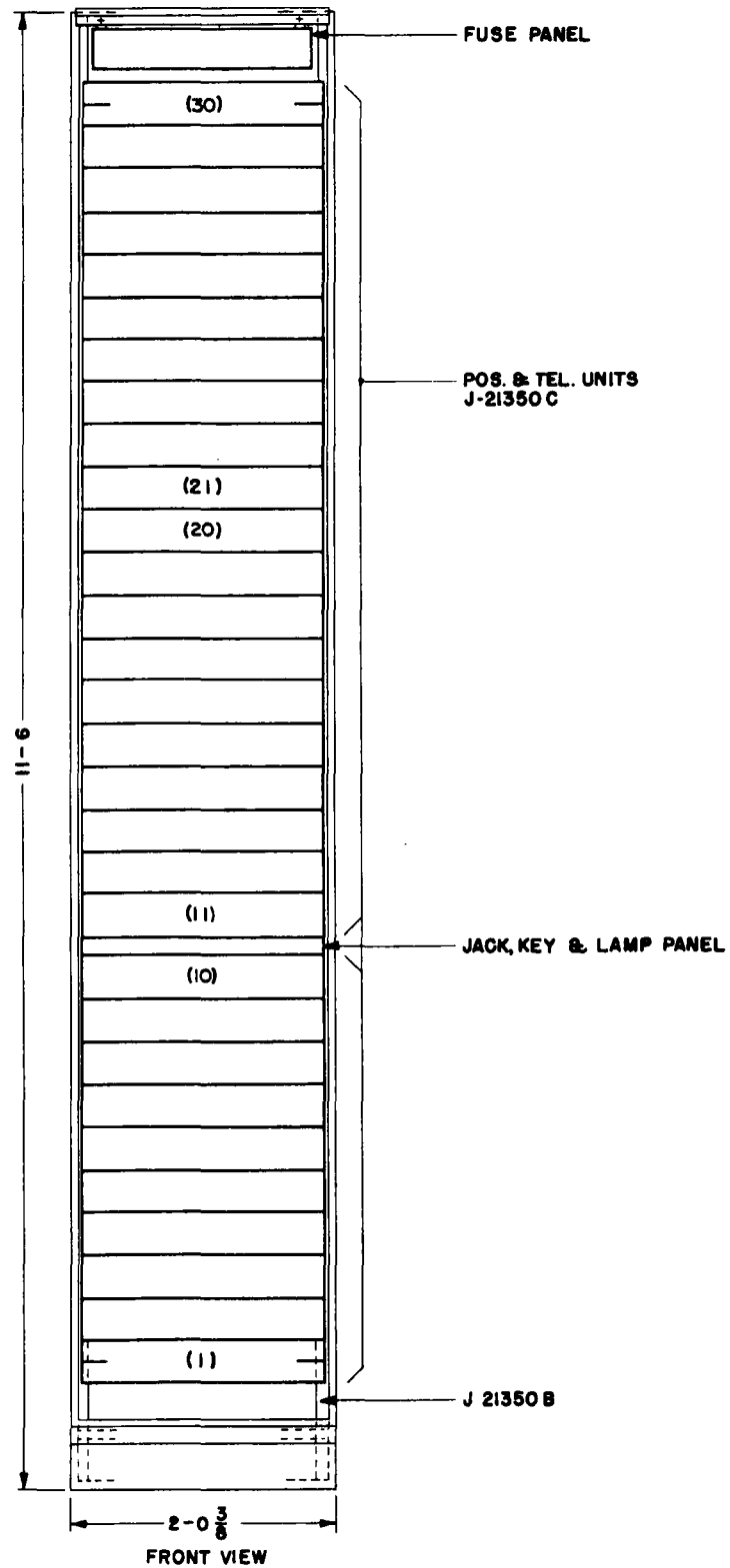


Fig: 8 - Position and Telephone Unit Frame

**Switching Office End**

**1.19** The relay equipment associated with the remote CAMA switchboard (switching office end) consists of an outgoing trunk to CAMA position unit, a calls-waiting signal unit, and a CAMA suspension unit. These are 23-inch miscellaneous relay rack units.

**1.20** The outgoing trunk to CAMA position unit contains the equipment through which the position link connects a sender to the incoming trunk to CAMA position. This unit is furnished one per switchboard position.

**1.21** The calls-waiting signal unit contains relay equipment, a voltmeter, and potentiometers which, through the CAMA 2-way signal circuit, register on lamps at the switchboard different ratios of calls waiting to switchboard positions occupied. This unit is required one per office.

The CAMA suspension unit contains the relay equipment which permits the CAMA traffic to be handled non-CAMA when the abandon switchboard key is operated. This unit also provides means for the various alarms to function both in the terminal and operating rooms during this condition. The abandon switchboard key may be located in the cable turning section of the CAMA switchboard, in another switchboard, in the sender make-busy frame for tandem and No. 4, or in the master test frame, jack, lamp, and key bay for No. 5, or in the jack, key, and lamp panel of the trouble ticketer and test frame for step-by-step CAMA specified by the telephone company.

**1.23** The control and alarm unit contains the relay and power equipment which functions in conjunction with the No. 5 crossbar or No. 4A CAMA suspension circuit, permitting the operators in a remote building handling CAMA traffic to abandon their switchboards during emergency conditions without any traffic interruptions.

**SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX**

WECo J drawings should be ordered by referring to the prefix and base number and requesting the current dash (—) number.

| CIRCUIT<br>DRAWING         | EQUIPMENT<br>CODE | RATING<br>OF UNIT | TITLE                                                                                      | EQUIPMENT<br>DRAWING | CKT<br>PER UNIT<br>OR FRAME | SPACE OF<br>2- BY<br>23-INCH<br>MTG PLT<br>PER UNIT |
|----------------------------|-------------------|-------------------|--------------------------------------------------------------------------------------------|----------------------|-----------------------------|-----------------------------------------------------|
|                            | ED-26764-11       |                   | Back-To-Back Switchboard Line-Up and Lamp Standard — Assembly and Equipment                | ED-26764-11          | —                           | —                                                   |
| SD-25965-01<br>SD-25971-01 | J21350A           | AT&TCo<br>Std     | Crossbar Tandem Offices — Regular Switchboard Section Equipment — DC Local Operation       | J21350A-( )          | 2 Pos<br>per<br>Section     | —                                                   |
| SD-25965-01<br>SD-25995-01 | J21350B           | AT&TCo<br>Std     | Crossbar Tandem Offices — Position and Telephone Unit Frame Equipment — DC Local Operation | J21350B-( )          | 30 Pos<br>per Fr<br>Max     | —                                                   |
| SD-25965-01                | J21350C           | AT&TCo<br>Std     | Crossbar Tandem Offices — Position and Telephone Unit — DC Local Operation                 | J21350C-( )          | 1                           | 2                                                   |

**SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX (Cont)**

| CIRCUIT<br>DRAWING                        | EQUIPMENT<br>CODE                  | RATING<br>OF UNIT | TITLE                                                                                                                                                     | EQUIPMENT<br>DRAWING | CKT<br>PER UNIT<br>OR FRAME | SPACE OF<br>2- BY<br>23-INCH<br>MTG PLT<br>PER UNIT |
|-------------------------------------------|------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------|-----------------------------------------------------|
| SD-25965-01<br>SD-25971-01                | J21350H                            | AT&TCo<br>Std     | Crossbar Tandem Offices<br>— Switchboard Section<br>Equipment Arranged for<br>Key Monitoring — DC<br>Local Operation                                      | J21350H-( )          | 2 Pos<br>per<br>Section     | —                                                   |
| SD-25971-01<br>SD-25984-01<br>SD-95776-01 | ED-26764-10<br>Installer-<br>Wired |                   | Switchboard Line-Up<br>and Lamp Standard —<br>Assembly and Equip-<br>ment (crossbar tandem)                                                               | ED-26764-10          | —                           | —                                                   |
| SD-25971-01<br>SD-95775-01                | J21350L                            | AT&TCo<br>Std     | Regular CAMA Switch-<br>board Section Equip-<br>ment — MF Pulsing —<br>For Use in Local or<br>Remote Office                                               | J21350L-( )          | 2 Pos<br>per<br>Section     | —                                                   |
| SD-25971-01<br>SD-95775-01                | J21350M                            | AT&TCo<br>Std     | Combined Regular and<br>Key Monitoring CAMA<br>Switchboard Section<br>Equipment — MF Puls-<br>ing — For Use in Local<br>or Remote Office                  | J21350M-( )          | 2 Pos<br>per<br>Section     | —                                                   |
| SD-25971-01                               | J21350AG                           | AT&TCo<br>Std     | Common Systems —<br>Interrupter Control Unit<br>— Equipment — For Use<br>With Supervisor-Call<br>Circuit in Crossbar<br>Tandem or No. 4A or 4M<br>Offices | J21350AG-( )         | 5                           | 1 or 2                                              |
| SD-25984-01<br>SD-27018-01<br>SD-95776-01 | ED-26766-11<br>Installer-<br>Wired |                   | Cable Turning Section<br>and End Panels — As-<br>sembly and Equipment<br>(crossbar tandem)                                                                | ED-26766-11          | —                           | —                                                   |
| SD-25984-01                               | J21350F                            | AT&TCo<br>Std     | No. 4A or 4M and<br>Crossbar Tandem Offices<br>— Calls-Waiting Signal<br>Unit Equipment—Local<br>Operation                                                | J21350F-( )          | 1                           | 12                                                  |
| SD-25984-01                               | J21350R                            | AT&TCo<br>Std     | No. 4A or 4M and<br>Crossbar Tandem Offices<br>— Calls-Waiting Signal<br>Unit Equipment — For<br>Use With Remote<br>CAMA Switchboard                      | J21350R-( )          | 1                           | 14                                                  |

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**SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX (Cont)**

| CIRCUIT<br>DRAWING | EQUIPMENT<br>CODE | RATING<br>OF UNIT | TITLE                                                                                                                                                                                 | EQUIPMENT<br>DRAWING | CKT<br>PER UNIT<br>OR FRAME  | SPACE OF<br>2- BY<br>23-INCH<br>MTG PLT<br>PER UNIT |
|--------------------|-------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------|-----------------------------------------------------|
| SD-27002-01        | J21350G           | AT&TCo<br>Std     | Crossbar Tandem Offices<br>— CAMA Position Unit<br>Equipment With or<br>Without Automatic<br>Number Identification<br>for Use With DSA or<br>Toll Switchboard in the<br>Same Building | J21350G-( )          | 1                            | 2                                                   |
| SD-27013-01        | J21350J           | AT&TCo<br>Std     | Crossbar Tandem Offices<br>— Position-Selecting<br>Unit Equipment — DC<br>Local Operation                                                                                             | J21350J-( )          | 50 or 100<br>Pos, as<br>reqd | 3                                                   |
| SD-27013-01        | J21350T           | AT&TCo<br>Std     | Position-Selecting Unit<br>Equipment Arranged<br>For MF Keying — For<br>Use With Local (No. 4A<br>or 4M and No. 5 cross-<br>bar only) or Remote<br>CAMA Switchboard                   | J21350T-( )          | 50 or 100<br>Pos, as<br>reqd | 4                                                   |
| SD-27018-01        | J21350AE          | AT&TCo<br>Std     | Crossbar Tandem —<br>CAMA Suspension Unit<br>Equipment — For Use<br>With or Without Auto-<br>matic Number Identifi-<br>cation                                                         | J21350AE-( )         | 4 to 8                       | 3                                                   |
| SD-27026-01        | J21350S           | AT&TCo<br>Spl     | Crossbar Tandem Offices<br>— Outgoing Trunk to<br>CAMA Position Unit<br>Equipment                                                                                                     | J21350S-( )          | 1                            | 5                                                   |
| SD-95774-01        | J21350N           | AT&TCo<br>Spl     | Crossbar Tandem Offices<br>— Incoming Trunk to<br>CAMA Position Unit<br>Equipment                                                                                                     | J21350N-( )          | 1                            | 4                                                   |
| SD-95776-01        | J21350P           | AT&TCo<br>Std     | No. 4A or 4M and Cross-<br>bar Tandem Offices —<br>CAMA 2-Way Signal<br>Unit Equipment<br>(switchboard end)                                                                           | J21350P-( )          | 1                            | 3                                                   |
| SD-95853-01        | J21350AD          | AT&TCo<br>Std     | MF CAMA Position<br>Unit — For Use in<br>Crossbar Tandem or<br>No. 4A or 4M Toll<br>Switching Systems In<br>Same Building                                                             | J21350AD-( )         | 1                            | 3                                                   |

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**SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX (Cont)**

| CIRCUIT<br>DRAWING | EQUIPMENT<br>CODE | RATING<br>OF UNIT | TITLE                                                                                                                                                                                                    | EQUIPMENT<br>DRAWING | CKT<br>PER UNIT<br>OR FRAME | SPACE OF<br>2- BY<br>23-INCH<br>MTG PLT<br>PER UNIT |
|--------------------|-------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------|-----------------------------------------------------|
| SD-95868-01        | J21350AB          | AT&TCo<br>Std     | Calls-Waiting Signal<br>Unit for CAMA Op-<br>erators Located in a<br>Distant Building From<br>the No. 5 Crossbar<br>CAMA Office Equipment                                                                | J21350AB-( )         | 1                           | 1                                                   |
| SD-95868-01        | J21350AH          | AT&TCo<br>Std     | Calls-Waiting Signal<br>Unit for CAMA Op-<br>erators Located in a<br>Distant Building From<br>the No. 5 Crossbar Office<br>Using E&M Lead<br>Signaling                                                   | J21350AH-( )         | 1                           | 1                                                   |
| SD-95872-01        | J21350AC          | AT&TCo<br>Std     | Common Systems —<br>Control and Alarm Unit<br>— For Use With No. 5<br>Crossbar or No. 4A<br>CAMA Suspension Unit                                                                                         | J21350AC-( )         | 1                           | 1 or 2                                              |
| SD-95872-01        | J21350AF          | AT&TCo<br>Std     | Common Systems —<br>Control and Alarm<br>Unit — For Use With —<br>CAMA Suspension in —<br>No. 5 Crossbar or No. 4A<br>or 4M Toll — Abandon<br>Switchboard Key — Not<br>in Remote Switchboard<br>Location | J21350AF-( )         | 1                           | 1                                                   |
| SD-96481-01        | J21350AA          | AT&TCo<br>Std     | No. 4A or 4M and<br>Crossbar Tandem Offices<br>— Outgoing Trunk Unit<br>Equipment to CAMA<br>Position for Use With<br>Loop or E&M Lead Sig-<br>naling Supervision                                        | J21350AA-( )         | 1                           | 2                                                   |
| SD-96482-01        | J21350U           | AT&TCo<br>Std     | Incoming Trunk Unit<br>Equipment to CAMA<br>Position for Use With<br>Loop Signaling Super-<br>vision                                                                                                     | J21350U-( )          | 1                           | 2                                                   |

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**SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX (Cont)**

| CIRCUIT<br>DRAWING | EQUIPMENT<br>CODE | RATING<br>OF UNIT | TITLE                                                                                                                                                     | EQUIPMENT<br>DRAWING | CKT<br>PER UNIT<br>OR FRAME | SPACE OF<br>2- BY<br>23-INCH<br>MTG PLT<br>PER UNIT |
|--------------------|-------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------|-----------------------------------------------------|
| SD-96482-01        | J21350W           | AT&TCO<br>Std     | No. 4A or 4M and Cross-<br>bar Tandem Offices —<br>Incoming Trunk Unit<br>Equipment to CAMA<br>Position for Use With<br>E&M Lead Signaling<br>Supervision | J21350W-( )          | 2                           | 3                                                   |
| SD-96482-01        | J21350Y           | AT&TCO<br>Std     | Transfer Unit Equip-<br>ment for Use With In-<br>coming Trunk to CAMA<br>Position — Loop or<br>E&M Lead Signaling<br>Supervision                          | J21350Y-( )          | 1                           | 1                                                   |

**2. SUPPLEMENTARY INFORMATION**

814-000-000 — Step-by-Step Systems Index  
817-000-000 — Tandem Crossbar System Index  
818-000-000 — No. 4 Type Toll Switching Sys-  
tems Index  
819-000-000 — No. 5 Crossbar System Index  
AA128.006 — List of General Equipment Re-  
quirements Sections  
AA614.005 — Auxiliary Framing  
J25551 (817-060-150, 818-080-150) — End  
Guards, Aisle Pilot Lamp and DPTS  
Supports, Fuse Record Book and Holder,  
and Spare Fuse Mountings  
J29253 (817-010-100) — Tandem Office Equip-  
ment — General  
J61579 (AA261.046) — Miscellaneous Relay  
Rack Units  
J95501 (AA388.025) — Frame Lighting and Ap-  
pliance Outlets  
Floor Plan Data — Section 9.1, Sheets 55, 56,  
and 57

**3. DRAWINGS**

For additional drawings forming a part of this  
specification, see listings under Subdivisions of  
Equipment and Detailed Index.

ED-26765-10 — Switchboard Cabling Plans  
and Details for Tandem Office  
Switchboard  
ED-26857-10 — Switchboard Cabling Plans and  
Details for Position and Tele-  
phone Unit Frame  
ED-92224-01 — Cabling Drawing (Typical Bay)  
ED-92925-01 — Fuse Panel Design Requirements  
ED-96188-30 — Testing and Maintenance  
Audible and Visual Alarm Sig-  
nal Mountings  
SD-25435-01 — Keysheet — Tandem Crossbar  
Office

**4. EQUIPMENT**

**ED-26764-10 — Switchboard Line-Up and Lamp  
Standard—Assembly and Equip-  
ment (crossbar tandem)**

**Group 1** — One signal lamp standard. (See  
note A.)

**Group 2** — Equipment required where growth of  
the switchboard line-up necessitates  
the moving of the lamp standard  
when a division of less than ten posi-  
tions is increased.

**Note**

A. This equipment includes leads which are  
connected to the switchboard position ter-  
minal strip by the installer. These connec-  
tions shall be made as follows.

Switchboard at crossbar tandem or No. 4A  
or 4M location.

SD-25971-01, Fig. 2  
SD-25984-01, Fig. 4

Switchboard at location remote to crossbar  
tandem or No. 4A and 4M.

SD-25971-01, Fig. 2  
SD-95776-01, Fig. 3

Switchboard location either at or remote  
to No. 5 crossbar office.

SD-26046-01, Fig. 2  
SD-95868-01, Fig. 2

Switchboard at location of step-by-step office.

SD-25971-01, Fig. 2  
SD-32254-01, Fig. 2

***ED-26764-11 — Back-To-Back Switchboard Line-Up and Lamp Standard — Assembly and Equipment***

**Group 1** — Transparent baffle, baffle dividers, and bushings for one pair of sections located back to back. (See note A.)

**Group 2** — Filler strips for one combined back-to-back line-up. (See note A.)

**Note**

A. When back-to-back line-up is used, rear covers of sections and cable turning sections are not provided.

***ED-26766-11 — Cable Turning Section and End Panels — Assembly and Equipment (crossbar tandem)***

**Group 1** — Framework, assembly, end panels, and equipment for one CAMA switchboard cable turning section, cabling from below. (See note A or B.)

**Group 2** — Framework, assembly, end panels, and equipment for one CAMA switchboard cable turning section, cabling from above left-to-right growth. (See note A or B.)

**Group 3** — Framework, assembly, end panels, and equipment for one CAMA switchboard cable turning section, cabling from above right-to-left growth. (See note A or B.)

**Notes**

A. This assembly includes apparatus mounted on the keyshelf which, when specified, is installer-wired and is required as follows.

|                                                    |                                                                                                                                                                      |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tandem Crossbar<br>(regular switchboard operation) | Two keys per calls-waiting signal circuit, SD-25984-01, Fig. 2 and one key and lamp per CAMA suspension circuit, SD-27018-01, Fig. 7 and 8 or lamp alone per Fig. 8. |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Tandem Crossbar  
(remote switchboard operation)

No. 5 Crossbar  
(regular and remote switchboard operation)

No. 4A or 4M Toll  
(regular switchboard operation)

No. 4A Toll  
(remote switchboard operation)

Step-by-Step  
CAMA

Two keys per 2-way signaling circuit, SD-95776-01, Fig. 2 and one lamp per CAMA suspension circuit, SD-27018-01, Fig. 5.

One lamp and key per control and alarm circuit, SD-95872-01, Fig. 1 and 3 or lamp alone per Fig. 1, which is part of CAMA suspension feature.

Two keys per calls — waiting signal circuit, SD-25984-01, Fig. 2 and one key and lamp per miscellaneous circuit for sender make-busy frame, SD-68386-01, Fig. 31 and 32 or lamp alone per Fig. 32 covering part of CAMA suspension for No. 4A toll or one key and lamp per miscellaneous circuit for sender make-busy frame, SD-68144-01, Fig. 29 and 30 or lamp alone per Fig. 30 covering CAMA suspension for No. 4M toll.

Two keys per 2-way signaling circuit, SD-95776-01, Fig. 2 and one lamp and key per control and alarm circuit, SD-95872-01, Fig. 1 and 3 or lamp alone per Fig. 1, which is part of CAMA suspension feature.

One lamp per SD-32273-01, Fig. 1 "W" option, and one key per Fig. 1 "Y" option or the lamp alone covering CAMA suspension.

B. When a back-to-back line-up is specified, two cable turning sections are required. However, if line-up is in one operating unit, duplicate keyshelf apparatus is not required.

***J21350A (AT&T Co Std) — Crossbar Tandem Offices — Regular Switchboard Section Equipment — DC Local Operation***

Equipment — J21350A-( )

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**SECTION 814-118-150, 817-101-150, 818-102-150, 819-101-150**

**List 1** — Framework, assembly, wiring, and equipment for one 2-position switch-board section.

|                                             | WIRE | EQUIP | SEE NOTES |
|---------------------------------------------|------|-------|-----------|
| Bulletin Holder                             | 0    | 2     | B         |
| Sig Lp Std, ED-26764-10, G1                 | 0    | 0     | A         |
| Pos & Tel Ckt, SD-25965-01,<br>Fig. 2 & 3   | 2    | 2     |           |
| Supervisor Call Ckt,<br>SD-25971-01, Fig. 1 | 2    | 2     |           |

**Notes**

- A. One signal lamp standard is provided per supervisor division of ten positions maximum.
- B. Two bulletin holders, 3-1/4 by 3-3/4 inches and 11 by 13-1/2 inches are available. The smaller bulletin holder is normally provided, unless otherwise specified by the telephone company.

**J21350B (AT&TCo Std)—Crossbar Tandem Offices — Position and Telephone Unit Frame Equipment — DC Local Operation**

Equipment — J21350B-( )

**List 1** — Framework, assembly, wiring and common equipment for one position and telephone unit frame.

|                                           | WIRE | EQUIP | SEE NOTES |
|-------------------------------------------|------|-------|-----------|
| Pos & Tel Ckt, SD-25965-01,<br>Fig. 1 & 4 | 30   | 0     | C         |
| Misc Fr Ckt, SD-25995-01:<br>Fig. 2 & 3   | 1    | 0     | B         |
| Fig. 6                                    | 1    | 1     |           |

**List 2** — Miscellaneous equipment required in addition to list 1 per SD-25995-01, Fig. 4 and 5. (See note A.)

**Notes**

- A. This miscellaneous equipment is provided in every other position and telephone unit frame. This equipment is installer-wired.
- B. This miscellaneous equipment is provided in every other position and telephone unit frame.
- C. This wiring contains only battery and ground leads to the fuse panel.

**J21350C (AT&TCo Std)—Crossbar Tandem Offices — Position and Telephone Unit — DC Local Operation**

Equipment — J21350C-( )

**List 1** — Framework, assembly, wiring, and equipment and a unit of one regular position and telephone circuit per SD-25965-01, Fig. 1, 4, and 7 not arranged for ANI. (See note A.)

**List 2** — Framework, assembly, wiring, and equipment for a unit of one position and telephone circuit arranged for key monitoring per SD-25965-01, Fig. 1 and 7 not arranged for ANI. (See note A.)

**List 3 (A&M Only)** — Framework, assembly, wiring, and equipment for a unit of one position and telephone circuit, SD-25965-01, Fig. 1 and 4 only, required when tandem office is arranged for ANI. (See note B.)

**List 4 (A&M Only)** — Framework, assembly, wiring, and equipment per SD-25965-01, Fig. 8 only, to provide a position and telephone applique unit required in addition to list 3 or when modification of existing position and telephone units to ANI is specified. (See note C.)

**Notes**

- A. When position and telephone units are modified for ANI, list 4 must be specified. This list replaces Fig. 7 of SD-25965-01.
- B. List 3 is specified only for additions in offices previously modified for ANI. List 4 is required for each list 3.
- C. Unit per list 4 is mounted on miscellaneous relay rack.
- D. Position and telephone unit per list 1 or 2 can be mounted on either the J21350B frame or on miscellaneous relay rack, if required.

**J21350F (AT&TCo Std) — No. 4A or 4M and Crossbar Tandem Offices — Calls-Waiting Signal Unit Equipment—Local Operation**

Equipment — J21350F-( )

**List 1** — Framework, assembly, wiring, and equipment for a unit of one calls-waiting signal circuit per SD-25984-01, Fig. 1, 5, 7, F, and G, "X" option wiring. (See notes A and B.)

**Notes**

A. The following material is required with each unit, but shall be furnished only when specified by the customer.

Three — 209FD relays

B. The unit shall be located at a convenient height from the floor to facilitate testing and reading the voltmeter.

**J21350G (AT&T Co Std)—Crossbar Tandem Offices — CAMA Position Unit Equipment With or Without Automatic Number Identification for Use With DSA or Toll Switchboard in the Same Building**

Equipment — J21350G-( )

**List 1** — Framework, assembly, wiring, and equipment for a unit of one position circuit per SD-27002-01, Fig. 1 and 2 not arranged for ANI. (See note A.)

**List 2 (A&M Only)** — Framework, assembly, wiring, and equipment for a unit of one position circuit per SD-27002-01, Fig. 1 only required when tandem office is arranged for ANI. (See note B.)

**List 3 (A&M Only)** — Framework, assembly, wiring, and equipment per SD-27002-01, Fig. 3 only to provide a position applique unit required in addition to list 2 or when modification of existing position units to ANI is specified. (See note C.)

**Notes**

A. When position units are modified for ANI, list 3 must be specified. This replaces Fig. 2 of SD-27002-01.

B. List 2 is specified only for additions in offices previously modified for ANI. List 3 is required for each list 2.

C. Unit per list 3 is mounted on miscellaneous relay rack.

**J21350H (AT&T Co Std)—Crossbar Tandem Offices — Switchboard Section Equipment Arranged for Key Monitoring — DC Local Operation**

Equipment — J21350H-( )

**List 1** — Framework, assembly, wiring, and equipment for one 2-position switchboard section arranged for left-to-right growth with the combined regular and key monitoring position at the left end.

|                                          | WIRE | EQUIP | SEE NOTES |
|------------------------------------------|------|-------|-----------|
| Bulletin Holder                          | 0    | 2     | B         |
| Sig Lp Std, ED-26764-10, G1              | 0    | 0     | A         |
| Pos & Tel Ckt, SD-25965-01:              |      |       |           |
| Fig. 2 & 3                               | 2    | 2     |           |
| Fig. 5                                   | 8    | 8     |           |
| Fig. 6                                   | 1    | 1     |           |
| Supervisor Call Ckt, SD-25971-01, Fig. 1 | 2    | 2     |           |

**List 2** — Framework, assembly, wiring, and equipment for one 2-position switchboard section arranged for right-to-left growth with the combined regular and key monitoring position at the right end.

|                                         | WIRE | EQUIP | SEE NOTES |
|-----------------------------------------|------|-------|-----------|
| Bulletin Holder                         | 0    | 2     | B         |
| Sig Lp Std, ED-26764-10, G1             | 0    | 0     | A         |
| Pos & Tel Ckt, SD-25965-01:             |      |       |           |
| Fig. 2 & 3                              | 2    | 2     |           |
| Fig. 5                                  | 8    | 8     |           |
| Fig. 6                                  | 1    | 1     |           |
| Supervisor Call Ckt SD-25971-01, Fig. 1 | 2    | 2     |           |

**Notes**

A. One signal lamp standard is provided per supervisor division of ten positions maximum.

B. Two bulletin holders, 3-1/4 by 3-3/4 inches and 11 by 13-1/2 inches are available. The smaller bulletin holder is normally provided, unless otherwise specified by the telephone company. The larger bulletin holder is not adaptable to the key monitoring position, in which case the smaller bulletin holder is always provided.

**J21350J (AT&TCo Std)—Crossbar Tandem Offices — Position-Selecting Unit Equipment — DC Local Operation**

Equipment — J21350J-( )

**List 1** — Framework, assembly, wiring, and equipment for one position-selecting unit required when a key monitoring position is specified (ultimate total of 50 switchboard positions).

|                                    | WIRE | EQUIP | SEE NOTES |
|------------------------------------|------|-------|-----------|
| Pos-Selecting Ckt,<br>SD-27013-01: |      |       |           |
| Cont Ckt, Fig. 1                   | 1    | 1     |           |
| Tens Reg Ckt, Fig. 2               | 5    | 5     | A         |

**List 2** — Framework, assembly, wiring, and equipment for one position-selecting unit required when a key monitoring position is specified (ultimate total of 100 switchboard positions).

|                                    | WIRE | EQUIP | SEE NOTES |
|------------------------------------|------|-------|-----------|
| Pos-Selecting Ckt,<br>SD-27013-01: |      |       |           |
| Cont Ckt, Fig. 1                   | 1    | 1     |           |
| Tens Reg Ckt, Fig. 2               | 10   | 10    | A         |

**Note**

A. Terminal strip E of J21350J-( ) required only with list 2.

**J21350L (AT&TCo Std) — Regular CAMA Switchboard Section Equipment — MF Pulsing — For Use in Local or Remote Office**

Equipment — J21350L-( )

**List 1** — Framework, assembly, wiring, and equipment for one 2-position switchboard section.

|                                                             | WIRE | EQUIP | SEE NOTES |
|-------------------------------------------------------------|------|-------|-----------|
| Bulletin Holder                                             | 0    | 2     | B         |
| Sig Lp Std, ED-26764-10, G1                                 | 0    | 0     | A         |
| CAMA Pos & MF Keyset<br>Ckt, SD-95775-01:                   |      |       |           |
| Pos Key & Lp Ckt,<br>Fig. 1, Less All<br>Options Except "W" |      |       |           |
| Option                                                      | 2    | 2     | C,D       |
| Tel Jk Ckt,<br>Fig. 2                                       | 2    | 2     |           |

WIRE EQUIP SEE  
NOTES

Supervisor Call Ckt,  
SD-25971-01, Fig. 1

2 2

**List 2** — Wiring and equipment in accordance with SD-95775-01, Fig. 1, "V" and "R" options and Fig. 5 with "R" option wiring, required in addition to list 1 when MF receiver is associated with sender.

**List 3** — Wiring and equipment per SD-95775-01, Fig. 1, "Q" option only, required in addition to list 1 when used in a tandem or a No. 4A or 4M office. (See note E.)

**Notes**

- A. One signal lamp standard is provided per supervisor division of ten positions maximum.
- B. Two bulletin holders, 3-1/4 by 3-3/4 inches and 11 by 13-1/2 inches are available. The small bulletin holder is normally provided, unless otherwise specified by the telephone company.
- C. Provide "T" option (special) wiring in accordance with SD-95775-01, Fig. 1 when MF receiver is associated with trunk.
- D. Provide "N" option strapping at unit terminal strip as required. Installer shall provide "M" option wiring at unit terminal strip as required.
- E. Provide "K" option wiring when used in other than crossbar tandem or No. 4A or 4M office.

**J21350M (AT&TCo Std) — Combined Regular and Key Monitoring CAMA Switchboard Section Equipment — MF Pulsing — For Use in Local or Remote Office**

Equipment — J21350M-( )

**List 1** — Framework, assembly, wiring, and equipment for one 2-position MF pulsing CAMA switchboard section arranged for left-to-right growth with the combined regular and key monitoring position at the left end.

|                                                                                      | WIRE | EQUIP | SEE<br>NOTES |
|--------------------------------------------------------------------------------------|------|-------|--------------|
| Bulletin Holder                                                                      | 0    | 2     | B            |
| Sig Lp Std, ED-26764-10, G1                                                          | 0    | 0     | A            |
| CAMA Pos & MF Keyset Ckt,<br>SD-95775-01:                                            |      |       |              |
| Pos Key & Lp Ckt, Fig. 1                                                             |      |       |              |
| Less All Options Except<br>"W" Option                                                | 2    | 2     | C,D          |
| Tel Jk Ckt, Fig. 2                                                                   | 2    | 2     |              |
| Num Display Lp Ckt,<br>Fig. 4                                                        | 8    | 8     |              |
| Progress Lp & Mon<br>Trans Key Ckt, Fig. 3,<br>Less All Options<br>Except "W" Option | 1    | 1     | C            |
| Supervisor Call Ckt,<br>SD-25971-01, Fig. 1                                          | 2    | 2     |              |

**List 2** — Framework, assembly, wiring, and equipment for one 2-position MF pulsing CAMA switchboard section arranged for right-to-left growth with the combined regular and key monitoring position at the right end.

|                                                                                      | WIRE | EQUIP | SEE<br>NOTES |
|--------------------------------------------------------------------------------------|------|-------|--------------|
| Bulletin Holder                                                                      | 0    | 2     | B            |
| Sig Lp Std, ED-26764-10, G1                                                          | 0    | 0     | A            |
| CAMA Pos & MF Keyset Ckt,<br>SD-95775-01:                                            |      |       |              |
| Pos Key & Lp Ckt, Fig. 1                                                             |      |       |              |
| Less All Options Except<br>"W" Option                                                | 2    | 2     | C,D          |
| Tel Jk Ckt, Fig. 2                                                                   | 2    | 2     |              |
| Num Display Lp Ckt,<br>Fig. 4                                                        | 8    | 8     |              |
| Progress Lp & Mon<br>Trans Key Ckt, Fig. 3,<br>Less All Options<br>Except "W" Option | 1    | 1     | C,D          |
| Supervisor Call Ckt,<br>SD-25971-01, Fig. 1                                          | 2    | 2     |              |

**List 3** — Wiring and equipment in accordance with SD-95775-01, Fig. 1, "V" and "S" options and Fig. 5 with "S" option wiring, required in addition to list 1 or 2 when MF receiver is associated with sender.

**List 4** — Wiring and equipment per SD-95775-01, Fig. 1, "Q" option only, required in addition to list 1 when used in a tandem or No. 4A or 4M office.

### Notes

- A. One signal lamp standard is provided per supervisor division of ten positions maximum.
- B. Two bulletin holders, 3-1/4 by 3-3/4 inches and 11 by 13-1/2 inches are available. The smaller bulletin holder is normally provided, unless otherwise specified by the telephone company. The larger bulletin holder is not adaptable to the key monitoring position, in which case the smaller bulletin holder is always provided.
- C. Provide "T" option (SPL) wiring in accordance with SD-95775-01, Fig. 1 and 5 when MF receiver is associated with trunk.
- D. Provide "N" option strapping at unit terminal strip as required. Installer shall provide "M" option wiring at unit terminal strip as required.
- E. Provide "K" option wiring when used in other than crossbar tandem, No. 4A, or 4M offices.

### J21350N (AT&T Co Special) — Crossbar Tandem Offices — Incoming Trunk to CAMA Position Unit Equipment

Equipment — J21350N-( )

**List 1** — Framework, assembly, surface wiring, and equipment for one incoming trunk to a regular CAMA position.

|                                             | WIRE | EQUIP | SEE<br>NOTES |
|---------------------------------------------|------|-------|--------------|
| Inc Trk to CAMA Pos<br>Ckt, SD-95774-01:    |      |       |              |
| Cont Ckt, Fig. 1                            | 1    | 1     | A            |
| Pos Rel, Fig. 2, "Y" Option<br>Wiring & App | 1    | 1     |              |

**List 2** — Framework, assembly, surface wiring, and equipment for one incoming trunk to a CAMA position arranged for key monitoring.

|                                          | WIRE | EQUIP | SEE<br>NOTES |
|------------------------------------------|------|-------|--------------|
| Inc Trk to CAMA Pos<br>Ckt, SD-95774-01: |      |       |              |
| Cont Ckt, Fig. 1                         | 1    | 1     | A            |
| Pos Rel, Fig. 2, "Z"<br>Option Wiring    | 1    | 1     |              |

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**SECTION 814-118-150, 817-101-150, 818-102-150, 819-101-150**

**List 3** — Surface wiring and equipment required per SD-95774-01, Fig. 3 in addition to list 1 or 2 to provide transfer features to a cord switchboard.

**Note**

A. Where traffic register circuit is not available, provide peg count register circuit per SD-95774-01, Fig. 4 mounted on a miscellaneous basis.

**J21350P (AT&TCo Std) — No. 4A or 4M and Crossbar Tandem Offices — CAMA 2-Way Signal Unit Equipment (switchboard end)**

Equipment — J21350P-( )

**List 1** — Framework, assembly, surface wiring, and equipment for one CAMA 2-way signal unit.

|                                          | WIRE | EQUIP | SEE NOTES |
|------------------------------------------|------|-------|-----------|
| Sig Rcvg Ckt,<br>SD-95776-01, Fig. 1 & B | 1    | 1     | A,B       |

**Notes**

- A. Provide "Y" option wiring when calls-waiting signal to a cord switchboard is required.
- B. Provide "Z" option wiring when calls-waiting signal to a cord switchboard is not required.

**J21350R (AT&T Std) — No. 4A or 4M and Crossbar Tandem Offices — Calls-Waiting Signal Unit Equipment — For Use With Remote CAMA Switchboard**

Equipment — J21350R-( )

**List 1** — Framework, assembly, surface wiring, and equipment for a unit of one calls-waiting signal circuit for use when the CAMA switchboards are not in the same building as the calls-waiting signal circuit.

|                                                                                                      | WIRE | EQUIP | SEE NOTES |
|------------------------------------------------------------------------------------------------------|------|-------|-----------|
| Calls-Waiting Sig Ckt,<br>SD-25984-01, Fig. 1, With "W"<br>Option Wiring and Fig. 6,<br>7, D, F, & H | 1    | 1     | A,B,C     |

**Notes**

A. The following material is required with each unit, but shall be furnished only when specified by the customer.

Three — 209FD relays

- B. Provide "V" option wiring when night operation is provided.
- C. Provide "M" option wiring when alarm transfer circuit is provided, or "N" option wiring when alarm transfer circuit is not provided.

**J21350S (AT&TCo Special) — Crossbar Tandem Offices — Outgoing Trunk to CAMA Position Unit Equipment**

Equipment — J21350S-( )

**List 1** — Framework, assembly, surface wiring, and equipment for one outgoing trunk unit to CAMA position.

|                                          | WIRE | EQUIP | SEE NOTES |
|------------------------------------------|------|-------|-----------|
| Out. Trk Ckt, SD-27026-01,<br>Fig. 1 & B | 1    | 1     | A         |

**Note**

A. Installer shall provide "Z" and "Y" option wiring at unit terminal strip as required.

**J21350T (AT&TCo Std) — Position-Selecting Unit Equipment Arranged for MF Keying — For Use With Local (No. 4A or 4M and No. 5 crossbar only) or Remote CAMA Switchboard**

Equipment — J21350T-( )

**List 1** — Framework, assembly, wiring, and equipment for one position-selecting unit required when a key monitoring position is specified (ultimate total of 50 switchboard positions).

|                                 | WIRE | EQUIP | SEE NOTES |
|---------------------------------|------|-------|-----------|
| Pos-Selecting Ckt, SD-27013-01: |      |       |           |
| Cont Ckt, Fig. 1                | 1    | 1     |           |
| Tens Reg Ckt, Fig. 2            | 5    | 5     | A         |
| Trans Ckt, Fig. 3               | 1    | 1     |           |
| Reset Trans Ckt, Fig. 4         | 1    | 1     |           |

**List 2** — Framework, assembly, wiring, and equipment for one position-selecting unit required when a key monitoring position is specified (ultimate total of 100 switchboard positions).

|                                 | WIRE | EQUIP | SEE<br>NOTES |
|---------------------------------|------|-------|--------------|
| Pos-Selecting Ckt, SD-27013-01: |      |       |              |
| Cont Ckt, Fig. 1                | 1    | 1     |              |
| Tens Reg Ckt, Fig. 2            | 10   | 10    | A            |
| Trans Ckt, Fig. 3               | 1    | 1     |              |
| Reset Trans Ckt, Fig. 4         | 1    | 1     |              |

**Note**

- A. Terminal strip E per J21350T-( ) required only with list 2.

**J21350U (AT&TCo Std) — Incoming Trunk Unit Equipment to CAMA Position for Use With Loop Signaling Supervision**

Equipment — J21350U-( )

**List 1** — Framework, assembly, wiring, and equipment for one incoming trunk (arranged for loop signaling supervision) to a regular or combined monitoring and operating CAMA position in accordance with SD-96482-01, Fig. 1 and 4, less all options. (See notes A, B, and D.)

**List 2** — Wiring and equipment in accordance with SD-96482-01, Fig. 1, "W" and "X" options, required in addition to list 1 when associated position is not arranged as a combined monitoring and operating position. (See note C.)

**List 3** — Wiring and equipment in accordance with SD-96482-01, Fig. 6 and "T" option wiring required in addition to list 1 when loop signaling supervision is provided with 14 or more miles of cable.

**List 4** — Wiring and equipment in accordance with SD-96482-01, Fig. 8 and "Q" option wiring required in addition to list 3 when transfer to cord switchboard is required.

**Notes**

- A. Provide "V" option wiring when loop signaling supervision is provided with less than

14 miles of cable and in addition provide "R" option wiring when transfer to cord switchboard is required.

- B. Installer shall provide "2" option wiring at unit terminal strip when transfer to cord switchboard is required and "Z" option wiring when associated position is a combined monitoring and operating position.
- C. Installer shall provide "W" or "X" option wiring at unit terminal strip as required.
- D. Where standard traffic register arrangements are not available, provide peg count register and position disconnect register in accordance with SD-96482-01, Fig. 3 (one per trunk) and Fig. 9 (one per office), mounted on miscellaneous basis.

**J21350W (AT&TCo Std) — No. 4A or 4M and Crossbar Tandem Offices — Incoming Trunk Unit Equipment to CAMA Position for Use With E&M Lead Signaling Supervision**

Equipment — J21350W-( )

**List 1** — Framework, assembly, wiring, and equipment for two incoming trunk circuits (arranged for E&M lead signaling supervision) to a regular or combined monitoring and operating position in accordance with SD-96482-01, Fig. 1 and 5, less all options except "V" option wiring. (See notes A, B, and D.)

**List 2** — Wiring and equipment in accordance with SD-96482-01, Fig. 1, "W" and "X" options, required in addition to list 1 when associated position is not arranged as a combined monitoring and operating position. (See note C.)

**Notes**

- A. Provide "R" option wiring when transfer to cord switchboard is required.
- B. Installer shall provide "2" option wiring at unit terminal strip when transfer to cord switchboard is required and "Z" option wiring when associated position is a combined monitoring and operating position.
- C. Installer shall provide "W" or "X" option wiring at unit terminal strip as required.

- D. Where standard traffic register arrangements are not available, provide peg count register and network, and position disconnect register in accordance with SD-96482-01, Fig. 3 (one per trunk) and Fig. 9 (one per office), both mounted on a miscellaneous basis.

**J21350Y (AT&TCo Std) — Transfer Unit  
Equipment for Use With Incoming  
Trunk to CAMA Position — Loop  
or E&M Lead Signaling Supervision**

Equipment — J21350Y-( )

- List 1** — Assembly, wiring, and equipment in accordance with SD-96482-01, Fig. 2 to provide the transfer of a CAMA incoming trunk circuit (arranged either for loop or E&M lead signaling supervision) to a cord switchboard. (See note A.)

- List 2** — Wiring and equipment in accordance with SD-96482-01, Fig. 7 required in addition to list 1 when the CAMA incoming trunk is arranged for loop signaling supervision.

**Note**

- A. Installer shall provide "4" option wiring at unit terminal strip when the trunk is arranged for loop signaling supervision. Installer shall provide "Z" option wiring at unit terminal strip when associated switchboard position is arranged as a combined monitoring and operating position or "W" and "X" option wiring when associated position is not arranged as a combined monitoring and operating position.

**J21350AA (AT&TCo) — No. 4A or 4M and  
Crossbar Tandem Offices —  
Outgoing Trunk Unit Equipment  
to CAMA Position for Use With  
Loop or E&M Lead Signaling  
Supervision**

Equipment — J21350AA-( )

- List 1** — Framework, assembly, wiring, and equipment for one outgoing trunk (arranged for either loop or E&M lead supervision) to CAMA switchboard position in accordance with SD-96481-01, Fig. 1. (See note A.)

- List 2** — Wiring and equipment in accordance with SD-96481-01, Fig. 2 required in addition to list 1 when outgoing trunk to CAMA position is arranged for loop signaling supervision.

- List 3** — Wiring and equipment in accordance with SD-96481-01, Fig. 3 required in addition to list 1 when outgoing trunk to CAMA position is arranged for E&M lead signaling supervision.

- List 4** — Wiring and equipment per SD-96481-01, Fig. 4 required in addition to list 1 when office is arranged for ANI.

**Notes**

- A. Installer shall provide "Y" and "Z" option wiring at unit terminal strip as required.  
B. Provide "V" wiring when tandem office is arranged for ANI.  
C. Provide "W" wiring for No. 4 office.  
D. Provide "X" wiring when tandem office is not arranged for ANI.

**J21350AB (AT&TCo Std) — Calls-Waiting  
Signal Unit for CAMA Operators  
Located in a Distant Building  
From the No. 5 Crossbar CAMA  
Office Equipment**

Equipment — J21350AB-( )

- List 1** — Assembly, equipment, and wiring for one calls-waiting signal unit arranged for loop signaling in accordance with SD-95868-01, Fig. 1.

**J21350AC (AT&TCo Std) — Common  
Systems — Control and Alarm  
Unit — For Use With No. 5  
Crossbar or No. 4A CAMA  
Suspension Unit**

Equipment — J21350AC-( )

- List 1** — Assembly, wiring, and equipment for one remote switchboard control relay circuit and power supply per SD-95872-01, Fig. 4 and 5 with "Y" wiring required when office is arranged for CAMA suspension and the abandon switchboard key is located in the remote switchboard. (See note B.)

**Notes**

- A. Reserved.
- B. An associated GA tone bar, AS lamp, and AS key per SD-95872-01, Fig. 1, 2, and 3 are required in addition to list 1. The lamp and key are located in the switchboard turning section per ED-26766-10. The tone bar shall be located as specified by the telephone company.

**J21350AD (AT&TCo Std) — MF CAMA Position Unit — For Use in Crossbar Tandem or No. 4A or 4M Toll Switching Systems in Same Building**

Equipment — J21350AD-( )

- List 1** — Framework, assembly, wiring, and equipment per SD-95853-01, Fig. 1, less "T", "R", "W", and "Y" apparatus, to provide one MF pulsing position unit. (See notes A and B.)
- List 2** — Wiring and equipment per SD-95853-01, "T" option only, required in addition to list 1 when associated toll or DSA position is arranged for CAMA traffic.
- List 3** — Wiring and equipment per SD-95853-01, Fig. 1, "R" option only, required in addition to list 1 when specified for use in a No. 4A or 4M toll office.
- List 4** — Wiring and equipment per SD-95853-01, Fig. 1, "W" option only, required in addition to list 1 when associated crossbar tandem office is arranged for ANI.
- List 5** — Wiring and equipment per SD-95853-01, Fig. 1, "X" and "Y" options only, when position unit is associated with a non-monitor position.

**Notes**

- A. Provides "S" wiring when unit is associated with first position in position group. "V" wiring is required in crossbar tandem offices arranged for operator identified traffic. "Z" wiring is required on combined monitor and regular CAMA position.

- B. This unit shall be mounted on miscellaneous relay rack.
- C. The numbering of this unit shall agree with the numbering of its associated switchboard.

**J21350AE (AT&TCo Std) — Crossbar Tandem — CAMA Suspension Unit Equipment — For Use With or Without Automatic Number Identification**

Equipment — J21350AE-( )

- List 1** — Framework, assembly, surface wiring, and common equipment for one CAMA suspension unit arranged for offices with or without automatic number identification. (See notes A and B.)

|                                   | WIRE | EQUIP |
|-----------------------------------|------|-------|
| CAMA Suspension Ckt, SD-27018-01: |      |       |
| Test and Alm Ckt, Fig. 3          | 1    | 1     |
| Trans Ckt, Fig. 4 & 9             | 4    | 4     |
| Contact Prot, Fig. 10             | 1    | 1     |

- List 2** — Wiring and equipment per SD-27018-01, Fig. 4 required in addition to list 1 for each group of five CAMA sender sub-groups over four (maximum 4).
- List 3** — Wiring and equipment per SD-27018-01, Fig. 9 required in addition to each list 2 when office is arranged for automatic number identification.
- List 4** — Wiring and equipment per SD-27018-01, Fig. 3, "X" option only, required in addition to list 1 when remote operation is specified. (See note C.)

**Notes**

- A. This unit shall be surface wired and the switchboard cabling terminated directly on the apparatus.
- B. One tone for signal alarm per SD-27018-01, Fig. 2 is required when CAMA supervision is specified and shall be located in the operating room, as specified by the telephone company.
- C. Wiring and equipment per SD-27018-01, Fig. 6 is required in addition to list 4 and shall be mounted in the remote office on a miscellaneous basis.

**J21350AF (AT&TCo Std) — Common Systems  
— Control and Alarm Unit — For  
Use With — CAMA Suspension in —  
No. 5 Crossbar or No. 4A or 4M Toll  
— Abandon Switchboard Key — Not  
in Remote Switchboard Location**

Supv Call Ckt,  
SD-25971-01:  
Interrupter Cont  
Relays, Fig. 4  
Swbd Supv Lp  
Res, Fig. 6

|                                    | WIRE | EQUIP | SEE<br>NOTES |
|------------------------------------|------|-------|--------------|
| Interrupter Cont<br>Relays, Fig. 4 | 5    | 5     |              |
| Swbd Supv Lp<br>Res, Fig. 6        | 2    | 2     | B            |

Equipment — J21350AF-( )

**List 1** — Assembly, wiring, and equipment for one remote switchboard control relay circuit per SD-95872-01, Fig. 4 and "Y" wiring required when office is arranged for CAMA suspension and abandon switchboard key is not located in the remote switchboard. (See notes A and B.)

**Notes**

- A. An associated OA tone bar and AS lamp per SD-95872-01 are required in addition to list 1. The lamp is located in the switchboard cable turning section per ED-26766-11. The tone bar shall be located as specified by the telephone company.
- B. In No. 5 crossbar the abandon switchboard key is provided per the master test frame jack, lamp, and key circuit. In a No. 4A or 4M office the key is provided per the miscellaneous circuit for the sender make-busy frame.

**J21350AG (AT&TCo Std) — Common  
Systems — Interrupter Control  
Unit — Equipment — For Use  
With Supervisor-Call Circuit  
In Crossbar Tandem or No. 4A  
or 4M Offices**

Equipment — J21350AG-( )

**List 1** — Framework, assembly, wiring, and equipment for one interrupter control unit equipped for 50 CAMA positions arranged for a maximum of two operating units required for requesting supervisor assistance at a switchboard location other than CAMA. (See note A.)

**Notes**

- A. For CAMA switchboard installations over 50 positions, a second J21350AG unit is required.
- B. A switchboard supervisory lamp per SD-25971-01, Fig. 5 is required and cabled to its associated resistor for each operating unit and is mounted as specified by the telephone company using an amber beehive-type lamp cap. If all CAMA positions are arranged as one operating unit, only the first Fig. 6 of the first equipment unit need be cabled to its associated lamp.

**J21350AH (AT&TCo Std) — Calls-Waiting  
Signal Unit For CAMA Operators  
Located In a Distant Building From  
the No. 5 Crossbar Office Using  
E&M Lead Signaling**

Equipment — J21350AH-( )

**List 1** — Assembly, equipment, and wiring per SD-95868-01, Fig. 3 for one calls-waiting signal unit for CAMA operators located in a distant building from the No. 5 crossbar office using E&M lead signaling.

**Miscellaneous Equipment**

**4.01 Auxiliary Sender Test Set (AT&TCo Special) — Crossbar Tandem — For Testing OG Trunks per SD-27026-01 (Special) to CAMA Positions — SD-27029-01, Fig. 1 (J24757):** This is a portable test set which is used at the sender test frame, outgoing trunk relay rack, or MF receiver frame in the tandem office for testing the circuits associated with the remote switchboard operation.

**5. GENERAL NOTES**

**5.01** When two line-ups of switchboards are to be mounted back to back, baffles and filler strips per ED-26764-11 are provided.

**List of "A&M Only" and "Mfr Disc." Equipment**

The following equipment has been replaced as indicated. Where "A&M Only" items appear, the issue numbers shown are those of the issue in which the rating was first applied.

| EQUIPMENT           | RATING    | DETAILS<br>LAST<br>SHOWN<br>IN ISSUE | REPLACING<br>EQUIPMENT |
|---------------------|-----------|--------------------------------------|------------------------|
| J21350C,<br>L3 & L4 | A&M Only  | 4                                    | —                      |
| J21350D             | Mfr Disc. | 1                                    | —                      |
| J21350E             | Mfr Disc. | 1                                    | —                      |
| J21350G,<br>L2 & L3 | A&M Only  | 4                                    | —                      |
| J21350K             | Mfr Disc. | 3                                    | J21350AE               |
| J21350AC,<br>L2     | Mfr Disc. | 3                                    | J21350AC,<br>L1        |

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