METALLIC TERMINAL SYSTEM
EQUIPMENT DESIGN REQUIREMENTS
COMMON SYSTEMS

1. GENERAL

SCOPE

1.01 This specification, together with the supplementary information listed herein, describes the equipment design requirements for the frames, panels, plug-in units, and circuits to be used in the manufacture and installation of metallic terminal equipment for use in common systems.

1.02 This specification is reissued to:

(a) Add common language equipment codes.

(b) Add additional BSP references.

(c) Delete J1C015E, List 2 that was listed in error.

CAPACITY

1.03 Each frame has a capacity of 72 metallic terminal units in any combination.

1.04 The frames are of the unequal flange, cable duct type. They are 7 feet high and come equipped with a 12-inch guardrail.

DESCRIPTION

1.05 The metallic terminal system is designed to provide the interface between the No. 4 Electronic Switching System (ESS) toll office and the various metallic facilities (as opposed to carrier facilities). The No. 4 ESS presents a 4-wire, 600-ohm voice-frequency transmission path and a 4-wire (two pairs) signaling path. The system could be used with other switching systems that use standard 4-wire transmission E and M signaling interfaces.

1.06 A number of metallic terminal units have been coded as plug-in units that mount interchangeably in any of 72 positions in the bay with no change in bay wiring. Each acts as the interface between No. 4 ESS and a specific metallic facility.

1.07 Each metallic terminal unit (MTU) contains both signaling and transmission functions, including a signal converter and a voice-frequency repeater. The repeaters are either 2-to-4 wire or 4-to-4 wire type. The 2-to-4 wire repeater provides 2-to-4 wire conversion, high echo return loss, equalization, and extraction of dc signaling information. It also provides both gain and line build-out adjustments. The 4-to-4 wire repeater provides gain, equalization, and extraction of dc signaling information.

1.08 All equipment in this specification meets the requirements of Section 800-610-157.

1.09 Feeders for −48 volts dc and ground to each frame shall be at least 12 gauge. Anticipated current drain at −48 volts is as indicated on the circuit drawings. Frame wiring is 24-gauge type BU unless otherwise specified.

1.10 Power is distributed through 70-type fuses mounted on a fuse and alarm unit within each bay.

1.11 Frames shall not be located against a wall or placed back-to-back. Rows may grow in either direction. However, for compatability with the 120-circuit modularity of the connecting voiceband interface and signal processor frames, and with the 120-pair connectorized switchboard cable and the No. 4 ESS floor plan frame lineup standard, it is recommended that metallic terminal frames be installed in 10 or 20 frame lineups located on either side of a central core of frames that are in

3 lineups consisting of 5 voiceband interface frames and a signal processor.

1.12 Series of J codes have been reserved for various categories of equipment. Single-letter codes (J1C015A, etc) are reserved for frames and panels. Double-letter codes (J1C015AA, BA, etc) are reserved as follows:

SERIES	RESERVED FOR
C	Loop originating MTUs
D	Loop terminating MTUs
G	Duplex (DX) MTUs
K	CAMA MTU
L	Special purpose MTUs

1.13 A shorthand code has been provided for ready identification of MTUs. It consists of the letters MTU plus the letters of the J code, plus a number for manufactured vintage, plus a letter to identify changes introduced in the field (eg, MTU-CA-1A). Units per initial production bear the number 1 that is changed, in consecutive order, whenever any change is made in manufacturing procedure. All units, as manufactured, bear the letter A and each time a unit is changed in the field the letter is changed to a letter assigned to the specified field modification. All units bearing the same J-code letters (eg, -CA-) are completely interchangeable with each other.

1.14 The J1C015A metallic terminal frame (MTF) is a 7-foot high connectorized bay that provides fusing, alarming, and mounting arrangements for a maximum of 72 metallic terminal units of any code. It also provides the necessary Switched Maintenance Access System (SMAS) maintenance connectors and manual access panel for both local and remote access to all the various positions in the frame for maintenance purposes.

1.15 The J1C015B zip tone amplifier is a plug-in unit, required for use with list 2 of the J1C015A frame. This unit provides zip tone for all the MTUs in the frame in which it is mounted.

1.16 The J1C015C MTF is a 7-foot high connectorized bay similiar to J1C015A except J1C015C is wired to accommodate plug-in maintenance units on an optional basis. This permits the use of less expensive local access maintenance units until the office is equipped with SMAS No. 3 at which time SMAS No. 3 units can be used to replace the local access maintenance units.

1.17 The J1C015D is a miscellaneous MTF shelf assembly and is not intended to be mounted in a MTF bay. The shelf assembly provides hardware for mounting in any 23-inch or 26-inch bay and requires 14 inches of vertical bay space. The list 1 shelf assembly is equipped with a fuse and alarm panel per ED-7C023-( ), Group 1 connectors, and wiring to provide for up to a maximum of 12 MTU plug-in units per J1C015HM only. The list 2 shelf assembly is equipped with fuse and alarm panel per ED-7C023-( ), Group 2 connectors, and wiring to provide for a maximum of 12 MTU plug-in units per J1C015HM or J1C014KM in any combination. The ED-7C023-( ) fuse and alarm panel is fused to power up to seven additional J1C015E shelves. The ED-7C023-( ), Group 2 provides a zip tone amplifier that is required for operation of the J1C015KM plug-in.

1.18 The J1C015E is a miscellaneous MTF shelf assembly that is not intended to be mounted in an MTF bay. The shelf provides mounting hardware for mounting in any available 23-inch or 26-inch bay and requires 8 inches of vertical space. The shelf is intended for use with a J1C015D shelf when additional MTU plug-in units are required. The J1C015E, List 1 will accept up to a maximum of 12 MTU plug-in units per J1C015HM. The J1C015E, List 2 will accept up to 12 of MTU plug-in units per J1C015HM or J1C015KM in any combination.

1.19 The J1C015CA MTU is a plug-in unit for use at the originating end of 2-wire, 1-way trunks requiring loop reverse battery.

1.20 The J1C015CB MTU is a plug-in unit for use at the originating end of 2-wire, 1-way trunks requiring loop reverse battery supervision and battery-ground dial pulsing.

1.21 The J1C015CM MTU is a plug-in unit for use at the originating end of 4-wire, 1-way trunks requiring loop reverse battery on simplex (SX) leads with +130 volt SX ring-forward feature.

1.22 The J1C015DA MTU is a plug-in unit for use at the terminating end of 2-wire, 1-way trunks requiring loop reverse battery.

1.23 The J1C015DB MTU is a plug-in unit for use at the terminating end of 2-wire, 1-way trunks requiring loop reverse battery with +130 volt SX ring-forward feature.

1.24 The J1C015DM MTU is a plug-in unit for use at the terminating end of 4-wire, 1-way trunks requiring loop reverse battery on SX leads with +130 volt SX ring-forward feature.

1.25 The J1C015DN MTU is a plug-in unit for use at the terminating end of 4-wire, 1-way trunks requiring loop reverse battery on SX leads with +130 volt SX ring-forward feature but without gain.

1.26 The J1C015GA MTU is a plug-in unit for use at either end of 2-wire, 2-way trunks using DX signaling.

1.27 The J1C015GM MTU is a plug-in unit for use at either end of 4-wire, 2-way trunks using DX signaling.

1.28 The J1C015HM is a plug-in unit providing 4-wire auxiliary outgoing trunk circuit for use with 4-wire switches requiring looped signaling interfaces. This unit is designed to plug into a J1C015D or J1C015E shelf only.

1.29 The J1C015KA MTU is a plug-in unit for use at the CAMA office end of CAMA operator keying trunks requiring loop reverse battery.

1.30 The J1C015KB MTU is a plug-in unit for use at the CAMA office end of CAMA operator talking trunks requiring loop reverse battery.

1.31 The J1C015KM is a plug-in unit providing 4-wire CAMA operator circuits for use with 4-wire switches requiring looped signaling interfaces. This unit is designed to plug into a J1C015D or J1C015E shelf only.

1.32 The J1C015LA MTU is a plug-in unit for use at the terminating end of 2-wire access circuits for remote office test lines.

1.33 The J1C015TA is a test extender to be used in testing the 12 codes of the MTUs that are available for use in the J1C015-( ) MTF.

1.34 The ED-7C023-( ), Group ( ) fuse and alarm panel provides fusing for one J1C015D shelf and up to seven J1C015E shelves and can be optionally equipped with a zip tone amplifier.

1.35 The ED-7C024-( ) is a zip tone amplifier used in an ED-7C023-( ), Group 2 to provide zip tone.

2. SUPPLEMENTARY INFORMATION

801-000-000—Numerical Index—Common Systems
800-600-000—Checking List—General Equipment Requirements
800-610-157—AA610.010—Hardening of Central Office and Main Station Communication Equipment Installed in 50-PSI Buildings
234-111-020—Metallic Terminal Frame, Test Extender, and Auxiliary Metallic Trunk Circuits—Description—No. 4 Electronic Switching Systems
234-111-021—Metallic Terminal Frame, Test Extender, and Auxiliary Metallic Trunk Circuits—Theory—No. 4 Electronic Switching Systems
Current Drain Data—SD-1C453-01— Common Systems—Metallic Terminal Circuit

3. DRAWINGS

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

ED-2C276-30—Fuse and Alarm Panel
J98622AP-( )—SMAS Maintenance Connector
J98622AS-( )—SMAS Manual Access Panel

4. EQUIPMENT

ED-7C023-( )—AT&TCo Std—Fuse and Alarm Panel

Group 1—Assembly, wiring, and equipment for one fuse and alarm panel.

Group 2—Assembly, wiring, and equipment required in addition to group 1 to provide one zip tone amplifier, ED-7C024-( ) per Fig. 4 of SD-7C005-01.

ED-7C024-( )—AT&TCo Std—Zip Tone Amplifier

Group 1—Assembly, wiring, and equipment required for one zip tone amplifier.

J1C015A—AT&TCo Std—Metallic Terminal Frame (MUB0)

List 1—Framework, apparatus, assembly, and wiring for one metallic terminal frame for use with No. 4 ESS offices. Provides one Fig. 1, 12 Fig. 2, 3 Fig. 3, and 72 928A connectors, all per SD-1C453-01; 3 Fig. 1 of SD-1C454-01; and one each of Fig. 1 and 2 of SD-96612-01. (See Note A.)

List 2—Framework, apparatus, assembly, and wiring required in addition to list 1 for one zip tone and 130V supply panel for use when CAMA and ring-forward features are required. Provides one each of Fig. 15 and 16 of SD-1C453-01. Provides one 73F inverter, one 74F rectifier, and one J1C015B, List 1, zip tone amplifier. (See Note A.)

Note

A. List 1 will mount a maximum of 72 metallic terminal units per codes in this specification. All of these plug-in units must be ordered separately as required.

J1C015B—AT&TCo Std—Zip Tone Amplifier (MUM0)

List 1—Framework, apparatus, assembly, and wiring for one zip tone amplifier for use in metallic terminal frame. Provides one Fig. 4 of SD-1C453-01.

J1C015C—AT&TCo Std—Metallic Terminal Frame (MUB0)

List 1—Framework, apparatus, assembly, and wiring for one metallic terminal frame for use with No. 4 ESS offices. Provides one Fig. 1, 12 Fig. 2, 3 Fig. 3, and 72 92B connectors, all per SD-1C453-01. Also provides for either a NON-SMAS application featuring three type 2 BX manual access panels per Fig. 2 of SD-1C454-01 and one type 2 BX manual access panel per Fig. 1 and 2 of SD-96620-01 "or" a SMAS application featuring three type 2B MTCE connectors per Fig. 1 of SD-1C454-01 and one type 2B manual access panel per Fig. 1 and 2 of SD-96612-01 equipped with ED-2C007-( ), Group 9 or Group 2, cable MTG assembly. (See Notes A and B.)

List 2—Assembly, wiring, and equipment required in addition to list 1 for one zip tone and 130V supply panel for use when CAMA and ring-forward features are required. Provides one each of Fig. 15 and 16 of SD-1C453-01, one 73F inverter, one 74F rectifier, and one J1C015B, List 1 zip tone amplifier.

Notes

A. A list 1 bay will accommodate a maximum of 72 metallic terminal units per codes in J1C015 and either the associated NON-SMAS or SMAS plug-in. The NON-SMAS plug-in units consist of one J98622BN, L1A manual access panel and three J98622BK, L1 MTCE connectors. The SMAS plug-in units consist of one J98622BP, L1B manual access panel equipped with cable MTG assembly ED-2C007-( ), Group 9 or Group 2 and three J98622BM, L1 MTCE connectors. All the plug-in units must be ordered separately as required.

B. The type 2B manual access panel has the capacity to interconnect up to seven MTCE connectors. Therefore, when a pair of J1C015C bays is ordered, only one manual access panel is required. This panel can be shared between the bays by ordering out the cable MTG assembly, ED-2C007-( ), Group 2 and making the appropriate connections between bays. If only one bay is needed, the cable MTG assembly ED-2C007-( ), Group 9 is required.

J1C015D—AT&TCo Std—Metallic Terminal Frame Shelf Assembly (MUMA)

List 1—Assembly, wiring, and equipment for one metallic terminal frame shelf assembly for use with the common system. Provides one Fig. 1, 16 Fig. 2, and 12 Fig. 5 all per SD-7C005-01. (See Notes A, C, E, and F.)

List 2—Apparatus and wiring required in addition to list 1 to provide one Fig. 3, one Fig. 4, and 12 Fig. 5 or 6, in any combination, all per SD-7C005-01. (See Notes B, D, E, and F.)

Notes

A. List 1 will mount a maximum of 12 plug-in units per Fig. 5. These units must be ordered separately and as required.

B. List 2 will mount a maximum of 12 plug-in units per Fig. 5 or 6 in any combination. These units must be ordered separately and as required.

C. List 1 is fused to power up to seven additional J1C015E shelves.

D. List 2 is equipped with a zip tone amplifier.

E. For use in No. 4 ESS office size bays, use mounting bars per 841595309.

F. For use in standard 2- by 3-inch framework, use mounting bars per 841595291.

J1C015E—AT&TCo Std—Metallic Terminal Frame Shelf Assembly (MUMA)

List 1—Assembly, wiring, and equipment for one metallic terminal frame shelf for use with the MTF shelf assembly J1C015D, List 1. Provides 12 Fig. 5 per SD-7C005-01. (See Notes A, B, C, D, and E.)

Notes

A. List 1 will mount a maximum of 12 plug-in units per Fig. 5. These units must be ordered separately and as required.

B. This shelf must be mounted under a J1C015D shelf assembly or another J1C015E shelf.

C. Wiring option WA provides additional wiring where the zip tone amplifier circuit is required. It shall be used with a fuse and alarm panel having a zip tone amplifier (ED-7C023-30, Group 2). Option WA provides for mounting a maximum of 12 plug-in units per Fig. 5 of Fig. 6 of SD-7C005-01 in any combination. These units must be ordered separately and as required.

D. For use in No. 4 ESS office size bays, use mounting bars 841595283.

E. For use in standard 2- by 23-inch framework, use mounting bars per 840537989.

J1C015CA—AT&TCo Std—MTU-CA Metallic Terminal Unit (MU02)

List 1—Framework, apparatus, assembly, and wiring for one MTU-CA metallic terminal unit for use at originating end of 2-wire, 1-way trunks requiring loop reverse battery. Provides one Fig. 8 of SD-1C453-01.

J1C015CB—AT&TCo Std—MTU-CB Metallic Terminal Unit (MU02)

List 1—Framework, apparatus, assembly, and wiring for one MTU-CB metallic terminal unit for use at the originating end of 2-wire, 1-way trunks requiring loop reverse battery supervision and battery-ground dial pulsing. Provides one Fig. 10 of SD-1C453-01.

J1C015CM—AT&TCo Std—MTU-CM Metallic Terminal Unit (MU04)

List 1—Framework, apparatus, assembly, and wiring for one MTU-CM metallic terminal unit for use at the originating end of 4-wire, 1-way trunks requiring loop reverse battery on SX ring-forward feature. Provides one Fig. 9 of SD-1C453-01.

J1C015DA—AT&TCo Std—MTU-DA Metallic Terminal Unit (MUT2)

List 1—Framework, apparatus, assembly, and wiring for one MTU-DA metallic terminal unit for use at the terminating end of 2-wire, 1-way trunks requiring loop reverse battery. Provides one Fig. 5 of SD-1C453-01.

J1C015DB—AT&TCo Std—MTU-DB Metallic Terminal Unit (MUT2)

List 1—Framework, apparatus, assembly, and wiring for one MTU-DB metallic terminal unit for use at the terminating end of 2-wire, 1-way trunks requiring loop reverse battery with the +130 volt SX ring-forward feature. Provides one Fig. 6 of SD-1C453-01.

J1C015DM—AT&TCo Std—MTU-DM Metallic Terminal Unit (MUT4)

List 1—Framework, apparatus, assembly, and wiring for one MTU-DM metallic terminal unit for use at the terminating end of 4-wire, 1-way trunks requiring loop reverse battery on SX leads with the +130 volt SX ring-forward feature. Provides one Fig. 7 of SD-1C453-01.

J1C015DN—AT&TCo Std—MTU-DN Metallic Terminal Unit (MUT4)

List 1—Framework, apparatus, assembly, and wiring for one MTU-DN metallic terminal unit for use at the terminating end of 4-wire, 1-way trunks requiring loop reverse battery on SX leads with the +130 volt SX ring-forward feature but without gain. Provides one Fig. 18 of SD-1C453-01.

J1C015GA—AT&TCo Std—MTU-GA Metallic Terminal Unit (MUDX)

List 1—Framework, apparatus, assembly, and wiring for one MTU-GA metallic terminal unit for use at either end of 2-wire, 2-way trunks using DX signaling. Provides one Fig. 13 of SD-1C453-01.

J1C015GM—AT&TCo Std—MTU-GM Metallic Terminal Unit (MUDX)

List 1—Framework, apparatus, assembly, and wiring for one MTU-GM metallic terminal unit for use at either end of 4-wire, 2-way trunks using DX signaling. Provides one Fig. 14 of SD-1C453-01.

J1C015HM—AT&TCo Std—MTU-HM Metallic Terminal Unit (MUA4)

List 1—Framework, apparatus, assembly, and wiring for one MTU-HM, 4-wire auxiliary outgoing trunk circuit for use with 4-wire switches requiring looped signaling interfaces. Provides one Fig. 5 of SD-7C005-01.

J1C015KA—AT&TCo Std—MTU-KA Metallic Terminal Unit (MUC2)

List 1—Framework, apparatus, assembly, and wiring for one MTU-KA metallic terminal unit for use at the CAMA office end of CAMA operator keying trunks requiring loop reverse battery. Provides one Fig. 12 of SD-1C453-01.

J1C015KB—AT&TCo Std—MTU-KB Metallic Terminal Unit (MUC2)

List 1—Framework, apparatus, assembly, and wiring for one MTU-KB metallic terminal unit for use at the CAMA office end of CAMA operator talking trunks requiring loop reverse battery. Provides one Fig. 11 of SD-1C453-01.

J1C015KM—AT&TCo Std—MTU-KM Metallic Terminal Unit (MUC4)

List 1—Framework, apparatus, assembly, and wiring for one MTU-KM, 4-wire CAMA operator circuit for use with 4-wire switches requiring looped signaling interfaces. Provides one Fig. 6 of SD-7C005-01.

J1C015LA—AT&TCo Std—MTU-LA Metallic Terminal Unit (MUTT)

List 1—Framework, apparatus, assembly, and wiring for one MTU-LA metallic terminal unit for use at the terminating end of 2-wire access circuits for remote office test lines. Provides one Fig. 17 of SD-1C453-01.

J1C015TA—AT&TCo Std—Test Extender (MUTE)

List 1—Assembly, wiring, and equipment required for one test extender to be used in the testing of the metallic terminal units

Miscellaneous Equipment

ED-2C007-( ), G2 and 9—Cable Mounting Assembly

J99622BK,L1—MAC Jack Access Unit

J99622BM,L1—MAC Jack Access Unit

J99622BN,L1A—Manual Access Panel

J99622BP,L1B—Manual Access Panel

5. GENERAL NOTES AND INDEXES

5.01 Codes J1C015F through BY, CC through CL, CN through CY, DC through DL, DP through FY, GB through GL, GN through HL, HN through JY, KC through KL, KN through KY, and LB through SY are unassigned.

SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX

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

EQUIPMENT CODE	AT&T RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING
ED-7C023-( )	Std	Fuse and Alarm Panel	ED-7C023-( )	SD-7C005-01
ED-7C024-( )	Std	Zip Tone Amplifier	ED-7C024-( )	SD-7C005-01
J1C015A (MUB0)	Std	Metallic Terminal Frame	J1C015A-( )	SD-1C453-01 SD-1C454-01 SD-96612-01
J1C015B (MUM0)	Std	Zip Tone Amplifier	J1C015B-( )	SD-1C453-01
J1C015C	Std	Metallic Terminal Frame	J1C015C-( )	SD-1C453-01 SD-1C454-01 SD-96612-01 SD-96620-01
J1C015D (MUMA)	Std	Metallic Terminal Frame Shelf	J1C015D-( )	SD-7C005-01
J1C015E (MUMA)	Std	Metallic Terminal Frame Shelf Assembly	J1C015E-( )	SD-7C005-01
J1C015CA (MU02)	Std	MTU-CA Metallic Terminal Unit	J1C015CA-( )	SD-1C453-01
J1C015CB (MU02)	Std	MTU-CB Metallic Terminal Unit	J1C015CB-( )	SD-1C453-01
J1C015CM (MU04)	Std	MTU-CM Metallic Terminal Unit	J1C015CM-( )	SD-1C453-01
J1C015DA (MUT2)	Std	MTU-DA Metallic Terminal Unit	J1C015DA-( )	SD-1C453-01
J1C015DB (MUT2)	Std	MTU-DB Metallic Terminal Unit	J1C015DB-( )	SD-1C453-01
J1C015DM (MUT4)	Std	MTU-DM Metallic Terminal Unit	J1C015DM-( )	SD-1C453-01
J1C015DN (MUT4)	Std	MTU-DN Metallic Terminal Unit	J1C015DN-( )	SD-1C453-01

EQUIPMENT CODE	AT&T RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING
J1C015GA (MUDX)	Std	MTU-GA Metallic Terminal Unit	J1C015GA-( )	SD-1C453-01
J1C015GM (MUDX)	Std	MTU-GM Metallic Terminal Unit	J1C015GM-( )	SD-1C453-01
J1C015HM (MUA4)	Std	MTU-HM Metallic Terminal Unit	J1C015HM-( )	SD-7C005-01
J1C015KA (MUC2)	Std	MTU-KA Metallic Terminal Unit	J1C015KA-( )	SD-1C453-01
J1C015KB (MUC2)	Std	MTU-KB Metallic Terminal Unit	J1C015KB-( )	SD-1C453-01
J1C015KM (MUC4)	Std	MTU-KM Metallic Terminal Unit	J1C015KM-( )	SD-7C005-01
J1C015LA (MUTT)	Std	MTU-LA Metallic Terminal Unit	J1C015LA-( )	SD-1C453-01
J1C015TA (MUTE)	Std	Test Extender	J1C015TA-( )	SD-7C003-01

Circuit Schematic Index

CIRCUIT DRAWING	J1C015 EQPT CODE
SD-1C453-01	A, B, C, CA, CB, CM, DA, DB DM, DN, GA, GM, KA, KB, LA
SD-1C454-01	A, C
SD-7C005-01	ED-7C023-( ), ED-7C024-( ), D, E, HM, KM
SD-7C003-01	TA
SD-96612-01	A, C
SD-96620-01	C

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