

**FACILITIES SERVING POWER INDUSTRY
TERMINATING UNIT
CENTRAL OFFICE AND POWER STATIONS
EQUIPMENT DESIGN REQUIREMENTS
COMMON SYSTEMS**

1. GENERAL

SCOPE

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the cabinet, framework, equipment, and circuits to be used in the engineering, manufacturing, and installation of the terminating units in central offices and power stations. These units are part of a system designed to protect facilities serving the power industry. (See Fig. 1 and 2.)

1.02 This specification is reissued to:

- (a) Provide for use of a dedicated tip cable from the Cable Entrance Facility to the Central Office Terminating Unit (COTU) by replacing the 127A2A-14 protector in list 1 with R713-2U connectors
- (b) Bring service-type definitions into conformity with those currently being used in system documents.

1.03 The terminating units located in central offices and power stations are similar physically and electrically. The J99354A central office unit should be located near the main distributing frame and connected to it. For critical distances of this connection, refer to schematic drawing SD-1C481-01 and its notes. The J99354B power station unit forms the interface between the customer equipment and the cable to the J99356A high-voltage interface unit.

DESCRIPTION

1.04 The 4-foot 0-inch high by 3-foot 0-inch wide by 10-inch deep cabinets have a 525A light gray baked enamel finish. They can be mounted on the

wall or floor. The cabinets are designed for single-side access, and in order to reduce the required aisle space, they are equipped with two doors.

1.05 A steel framework inside the cabinet is used for mounting the various plastic channels, their covers, and other supporting equipment. Without optional equipment such as transformers, the weight of the cabinets, as shipped to the field, is about 200 pounds.

1.06 There are four basic types of services to be protected by this system. Brief descriptions and examples of these services follow.

- (a) Type 1 — Services requiring either dc transmission or ac and dc transmission used for:
 - (1) Type 1A — basic exchange telephone service and/or private line voice telephone service, etc
 - (2) Type 1B — teletypewriter, telemetering, or supervisory control, etc
- (b) Type 2 — Private line services, requiring ac and/or dc transmission, which are used for pilot wire protective relaying or dc tripping
- (c) Type 3 — Private line services, requiring ac transmission only, which are used for telemetering, supervisory control, data, etc
- (d) Type 4 — Private line services, requiring ac transmission only, which are used for audio tone protective relaying.

1.07 Table A indicates the types of protection provided for the various services listed.

NOTICE

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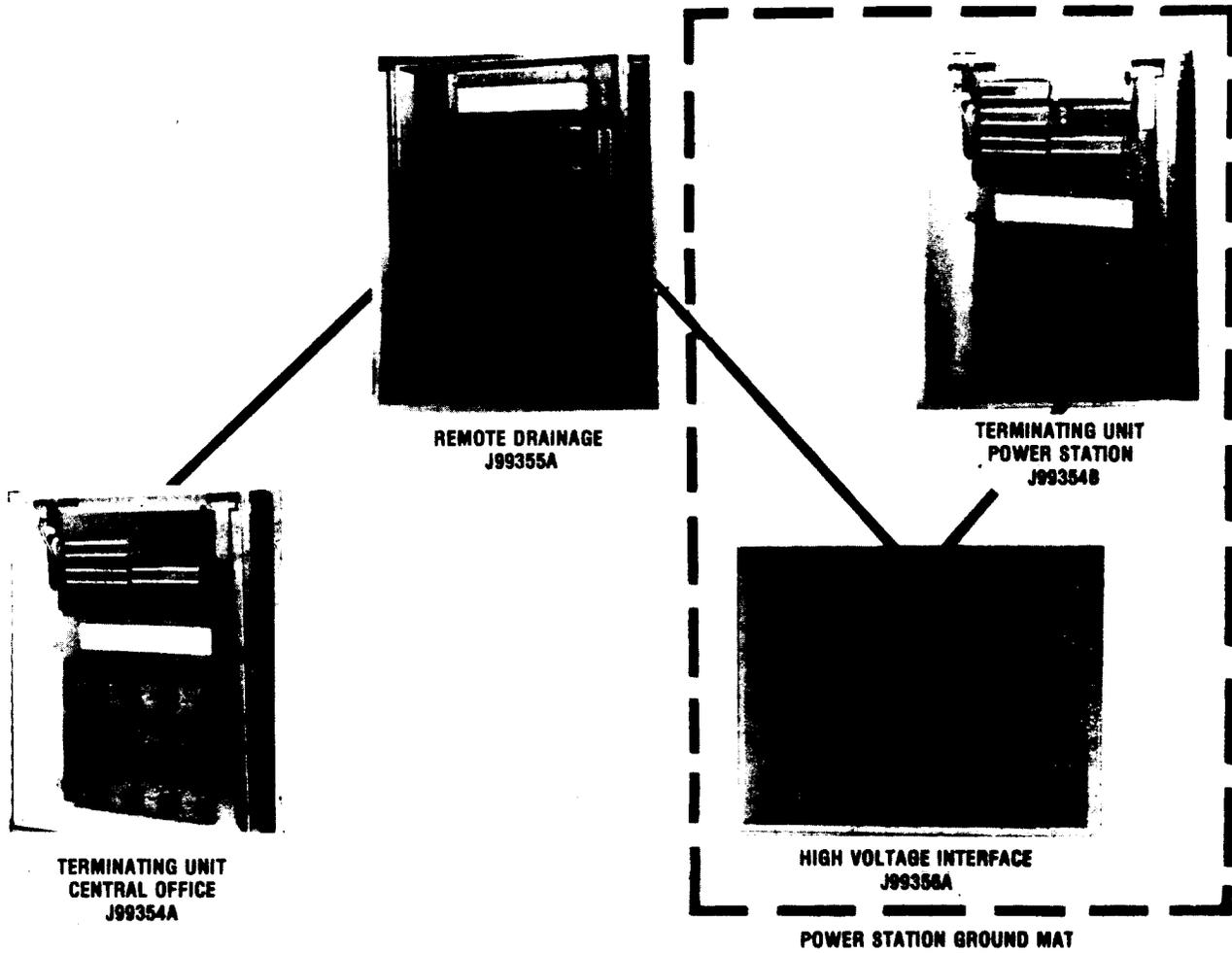


Fig. 1—Protection System for Power Station Communication Services

TABLE A
RECOMMENDED PROTECTION FOR VARIOUS SERVICES

TYPE	TRANSMISSION REQUIREMENTS	EXAMPLES	PRIMARY TYPES OF PROTECTION RECOMMENDED
1A	AC & DC	POTS Service	Telephone Repeater for HV Environment
1B	AC & DC	Teletype & DC Telemetry	Neutralizing Transformer & Carbon Blocks
2	AC & DC	Pilot Wire Relay	Neutralizing Transformer & Drainage Reactor
3	AC	AC Telemetry or Supervisory Control	Isolation Transformer
4	AC	Audio Tone Relay	Isolation Transformer

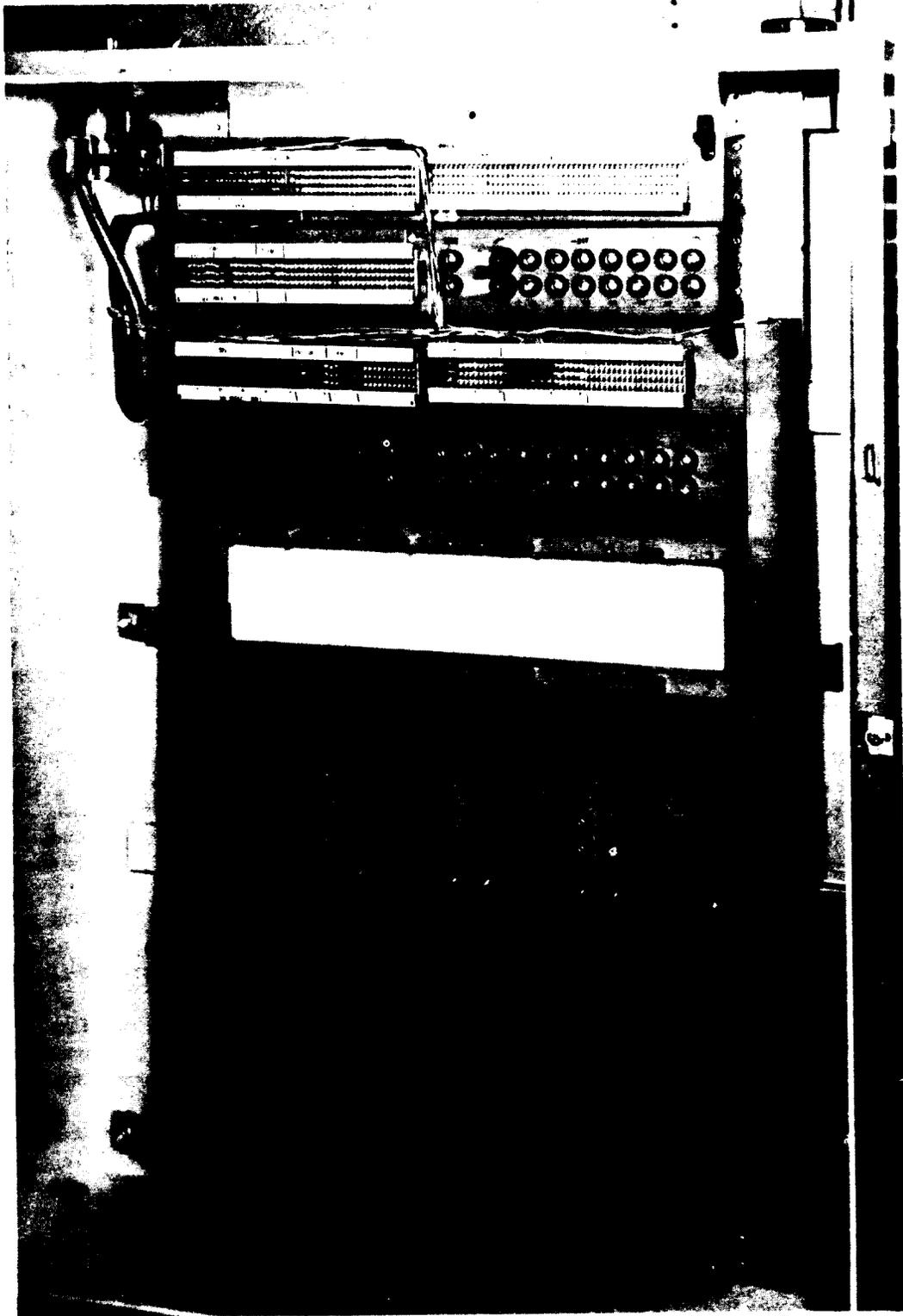


Fig. 2—J99354B Power Station Terminating Unit

CAPACITY

1.08 The terminating units are equipped to accommodate protectors, terminal strips, and up to sixteen 2251D transformers. The units, without the transformers, are shipped completely assembled and wired. Components that are shipped loose are to be mounted and connected in the field in accordance with job requirements.

1.09 The 24-volt dc power for the 215A telephone repeaters, housed in the J99356A high-voltage interface unit, is obtained from a small battery reserve power plant (BC-31 NIFE) located near the J99354B power station terminating unit. The power is transmitted through the terminating unit and the

interconnecting cable to the high-voltage interface unit. In order to meet the 5-ohm dc loop requirement, cable pairs between the power plant and the high-voltage interface unit may be multiplied. The battery reserve power plant (BC-31 NIFE) should be located very close to the power station terminating unit. For further information regarding the requirements of the 24-Vdc power plant, see Note M in J99356 (801-009-154).

1.10 In the power station, only the J99354B initial terminating unit is connected to the ground mat. To ensure proper ground connections, the supplementary units as well as the customer-service units should be located as close as possible to the initial terminating unit.

1.11 Critical wiring lengths are specified in schematic drawing SD-1C481-01 for all J99354A terminating units connected through the central office main distributing frame. These distances apply to both initial and supplementary units. They limit the placement of the units to the immediate vicinity of the main distributing frame. J99354A terminating units, which are connected by dedicated tip cable directly to the cable entrance facility, have no such placement restrictions.

1.12 Internal connections to be made in the field, such as between transformers and the terminal blocks, are all quick-connect type and do not require stripping wires. Interconnection from the terminating units to other equipment is made through grommeted holes at the top of the cabinet.

1.13 The terminating units are designed to operate within the temperature range of -40°C (-40°F) to $+65^{\circ}\text{C}$ (150°F).

2. SUPPLEMENTARY INFORMATION

- 801-000-000—Numerical Index—Common Systems
- 800-020-001—Cross-Reference List—J, NJ, IS, and X Specifications to BSP Numbers—Divisions 800 to 839
- 800-020-020—Cross-Reference List—AA Series to Nine-Digit BSP Numbers
- 800-600-000—Checking List—General Equipment Requirements
- 167-742-301—Automatic Power Supply Manufactured by NIFE Incorporated (BC-31)
- 201-220-101—Central Office Terminating Unit for Integrated Protection System — Description, Installation, and Maintenance
- 332-140-100—215A Repeater—Description
- 332-140-200—215A Repeater — Installation and Maintenance
- 638-600-100—Integrated Protection System for Power Station Communications — Description and Placing
- 638-600-101—Integrated Protection System for Power Station Communications — Installation
- 638-600-102—Integrated Protection System for Power Station Communications—High Potential and Resistance Unbalance Testing
- 638-600-103—Integrated Protection System for Power Station Communications — Assignment Charts and Circuit Establishment
- 638-600-104—Integrated Protection System for Power Station Communications — Installation Inspections, Tests, and Maintenance
- 876-310-100—Electrical Protection of Wire Plant Communication Facilities Serving Power Stations
- J99355—801-009-153—Remote Drainage Unit
- J99356—801-009-154—High-Voltage Interface Unit
- X-78662—Manufacturing Testing Requirements for J99354 Terminating Unit—Central Office and Power Station
- KS-16169—Protector
- KS-16170—Protector Mounting
- Floor Plan Data Book

3. DRAWINGS

To order WE J drawings, refer to the prefix and base number and request the current dash (-) number.

- J99354A-()—Central Office Terminating Unit
- J99354B-()—Power Station Terminating Unit
- ED-97747-50—Cabinet and Frame Assembly
- SD-1C481-01—Facilities Serving Power Industry—
Power Station and Central Office—Terminating Circuit

4. EQUIPMENT

J99354A—AT&T Co Std—Central Office Terminating Unit

List 1—Cabinet, framework, assembly, wiring, and common equipment for central office unit. (See Note E.)

	WIRE	EQUIP	NOTES
Cabinet and Frame Assembly ED-97747-50,GR5		1	A
R713-2U Connector per SD-1C481-01: Fig. 4	5	5	D

List 2—Equipment required in addition to list 1 for service types 2 and 3.

	WIRE	EQUIP	NOTES
Transformer 2251D Equipped With Two Protector Units 2B2A Per SD-1C481-01: Fig. 3 and 6	As Reqd	As Reqd	B,C

List 3—Equipment required in addition to list 1 for service type 4.

	WIRE	EQUIP	NOTES
Transformer 2251D Equipped With Two Protector Units P-18374 Per SD-1C481-01: Fig. 3 and 5	As Reqd	As Reqd	B,C,D

Notes

- A. ED-97747-50,GR5 is furnished for wall mounting. If a floor-mounted version is desired, substitute GR6 for GR5 of ED-97747-50.

B. Transformers and associated protector units depend on the particular application and protection service required. Lists 2 and 3 should be ordered separately as required for initial installation and future growth. The maximum capacity for protective service in this cabinet is 16 list 2 and/or list 3 transformers.

C. Surface wiring from TS5.1 and TS5.2 to list 2 and list 3 transformers is to be provided by the installer.

D. Additional protector units can be obtained from the Reliable Electric Company, Franklin Park, Illinois.

E. For critical distances between the central office terminating unit and the main distributing frame, see SD-1C481-01.

J99354B—AT&T Co Std—Power Station Terminating Unit

List 1—Cabinet, framework, assembly, wiring, and common equipment for power station initial unit.

	WIRE	EQUIP	NOTES
Cabinet and Frame Assembly ED-97747-50,GR5		1	A
127A2A-14 Protector per SD-1C481-01: Fig. 1	2	2	
SD-1C481-01: Fig. 2	2	2	
SD-1C481-01: Fig. 3 (TS5.1 and TS5.2 only)	1	1	

List 2—Cabinet, framework, assembly, wiring, and common equipment for power station supplementary unit.

	WIRE	EQUIP	NOTES
Cabinet and Frame Assembly ED-97747-50,GR5		1	A
127A2A-14 Protector per SD-1C481-01: Fig. 1	2	2	

List 3—Equipment required in addition to list 1 or list 2 for service type 2.

	WIRE	EQUIP	NOTES	Notes
Transformer 2251D Equipped With Two Protector Units 2B2A Per SD-1C481-01: Fig. 3 and 6	As Reqd	As Reqd	B,C	A. ED-97747-50,GR5 is furnished for wall mounting. If a floor-mounted version is desired, substitute GR6 for GR5 of ED-97747-50. B. Transformers and associated protector units depend on the particular application and protec- tion service required. List 3 should be ordered separately as required for initial installation and future growth. The maximum capacity for pro- tective service in this cabinet is 16 list 3 transformers.
List 4 —Equipment required in addition to list 1 or list 2 for service types 3 or 4 when 44V4- type equipment is required for isolation and/or cable equalization.				
	WIRE	EQUIP	NOTES	
ED-97777-(), Bracket Assembly	1	1	D	C. Surface wiring from TS5.1 and TS5.2 to list 3 transformers is to be provided by the installer.
J98615AD,L1H Mounting Shelf		1	D	D. All equipment in list 4 shall be factory assembled and factory wired as per CAD10 of SD-1C481-01, Issue 2.
J98615AR,L1, Mounting Shelf		1	D	
TS6.1 and TS6.2 (66 S1-15)		1	D	5. GENERAL NOTES AND INDEXES None.

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