FACILITIES SERVING POWER INDUSTRY
REMOTE DRAINAGE UNIT
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, manufacture, and installation of the remote drainage unit. This unit is part of a system designed to protect facilities serving the power industry. (See Fig. 1.)

1.02 This specification is reissued to delete and/or add reference to Bell System Practices to 2. SUPPLEMENTARY INFORMATION.

1.03 The J99355A remote drainage unit is located at a point some distance from the power station, normally less than a mile, and connected to the J99356A high voltage interface unit at the power station via a dedicated PIC cable which has been tested to ensure a high dielectric. (See Fig. 2.)

DESCRIPTION

1.04 The remote drainage unit is of the dead-front design. It is equipped with two doors and designed for single-side access. The 4-foot 6-inch high by 3-foot 6-inch wide by 1-foot 0-inch deep steel weathertight cabinet has a 525A light gray baked enamel finish and is suitable for outdoor use.

1.05 A steel framework inside the cabinet is used for mounting of the various plastic channels, their covers, transformers, and other equipment. The weight of the cabinet, as shipped to the field, without optional equipment, such as transformers, is about 250 pounds.

1.06 There are four basic types of services to be protected by this system. A brief description and examples of these services are as follows:

(a) ***Type 1***—Services requiring both ac and dc transmission which can tolerate momentary interruptions during a power fault. Momentary operation of protector blocks is permitted providing the duty is not sufficient to cause permanent grounding. Terminal equipment must be capable of withstanding 500-volt transients, tip to ring, due to unsymmetrical operation of protector blocks. Type 1 is divided into two subgroups to differentiate between facilities providing telephone service only, and other services requiring dc continuity. Typical examples of Type 1 service are:

(1) ***Type 1A***—Telephone loop services only, including both regular business telephone and private lines such as voice communications from a dispatch center.

(2) ***Type 1B***—DC telemetry and teletype. DC continuity is provided from power station terminal to the central office.

(b) ***Type 2***—Services requiring both ac and dc transmission and which cannot tolerate interruptions. An example of Type 2 service is ac pilot wire relaying with dc supervision or dc transfer trip relaying.

(c) ***Type 3***—Services which employ ac transmission only and are only moderately noise sensitive.

Typical services in this category are telemetry and supervisory control circuits.

(d) *Type 4*—Services which employ ac transmission only, cannot tolerate even momentary service interruptions and may be very noise sensitive. Audio tone protective relaying is the type of service placed in this category.

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

CAPACITY

1.08 The remote drainage unit is equipped to accommodate protectors, jacks, terminal blocks, and up to sixteen 2251D transformers. The unit will be shipped completely assembled and wired, less transformers. The transformers, shipped loose, are to be mounted and connected in the field in accordance with job requirements. The weight of a 2251D transformer is 4.75 pounds.

1.09 A low impedance local ground and a remote ground are required for the remote drainage unit. For more information, refer to schematic drawing SD-1C482-01.

1.10 The remote drainage unit is connected to the central office terminating unit and the high voltage interface unit located at the power station. The connection to the high voltage interface unit via a dedicated PIC cable will usually consist of a 50- or 100-pair cable. A maximum of 100 pairs can be terminated in the initial remote drainage unit. However, only 25 pairs can be protected with the various protective devices housed in any one cabinet. Cable pairs numbered 26 through 50 can be internally connected to the first supplementary cabinet, 51 through 75 to the second, and 76 through 100 to the third supplementary cabinet by means of 25-pair interunit cables run through nonmetallic conduit connecting the cabinets. Until the particular supplementary cabinet is installed, the appropriate group of 25 unassigned pairs is to be temporarily connected to ground within the cabinet, with the help of a specially designed cable harness. For further information, refer to schematic drawing SD-1C482-01.

1.11 The remote drainage unit is to be mounted on a reinforced concrete pad. Space should be provided on that pad for supplementary cabinets which may be required at time of construction or in the future.

1.12 The remote drainage unit is designed to operate within the temperature range of −40°C (−40°F) to +65°C (+150°F).

TABLE A

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

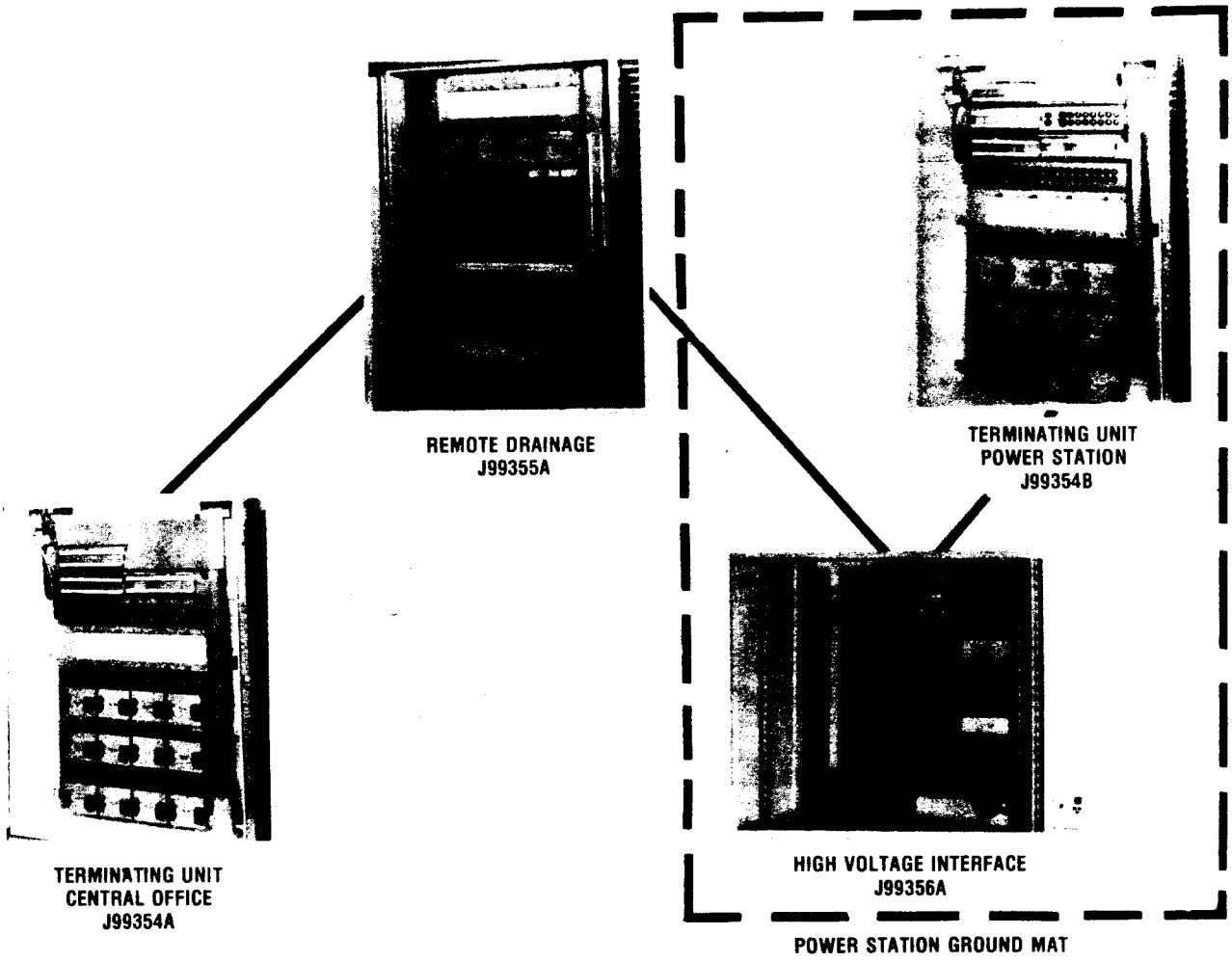

Fig. 1—Protection System for Power Station Communication Services

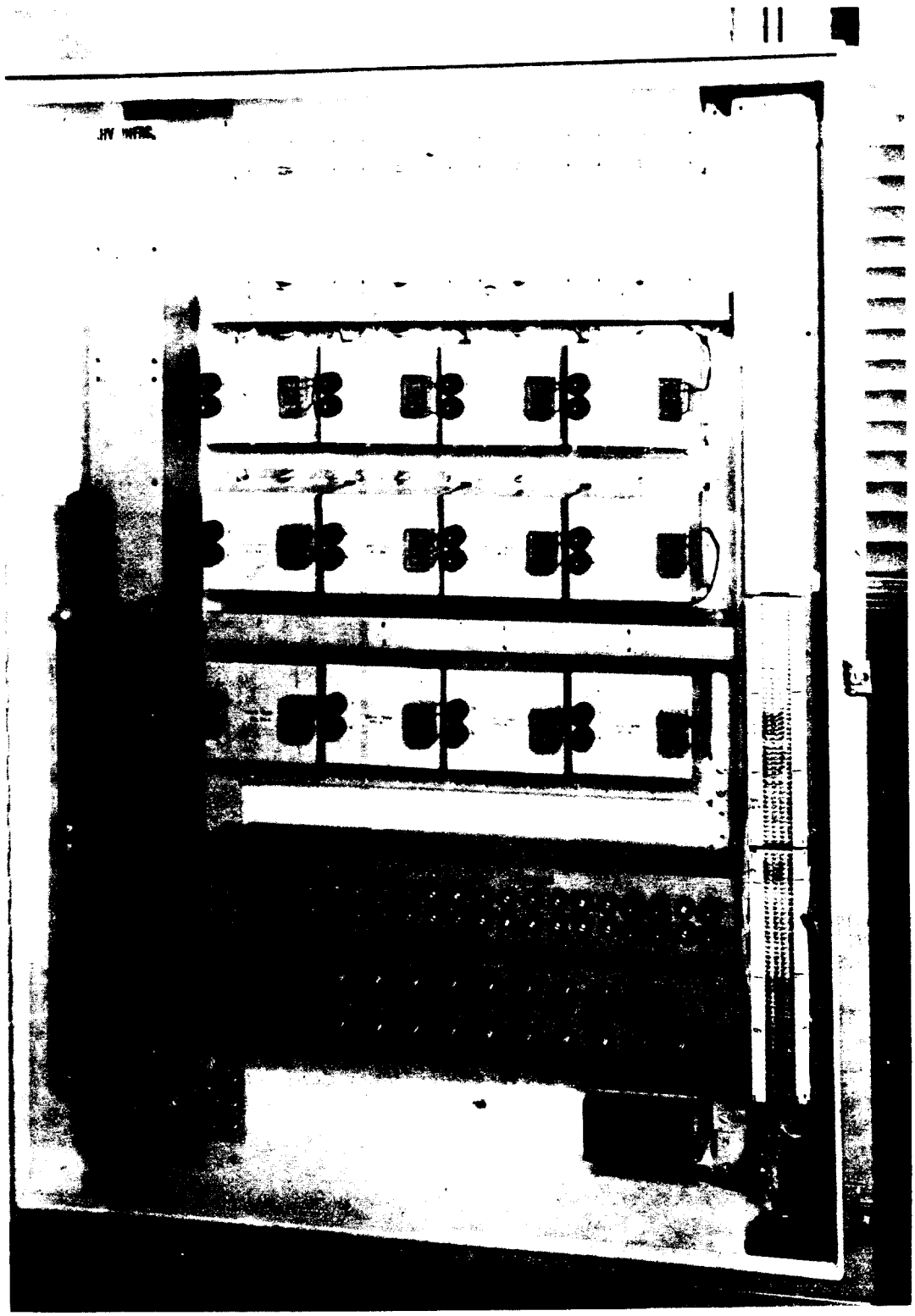

Fig. 2—J99355A Remote Drainage Unit

2. SUPPLEMENTARY INFORMATION

801-000-000—Numerical Index
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
634-020-504—High Potential DC Testing of Wire Communication Facilities Serving Power Stations
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
J99354—801-009-152—Terminating Unit—Central Office and Power Station
J99356—801-009-154—High Voltage Interface Unit
X-78663—Manufacturing Testing Requirements for J99355 Remote Drainage Unit
KS-16169—Protector
KS-16170—Protector Mounting
Floor Plan Data Book

3. DRAWINGS

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

J99355A-( )—Remote Drainage Unit
ED-97747-50—Cabinet and Frame Assembly
ED-97748-( )—Spark Gap Mounting Assembly
SD-1C482-01—Facilities Serving Power Industry—Remote Drainage Circuit

4. EQUIPMENT

J99355A—AT&TCo Std—Remote Drainage Unit

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

	WIRE	EQUIP	NOTES
Cabinet and Frame Assembly, ED-97747-50, GR7		1	A
127A2A-14 Protector per SD-1C482-01, Fig. 1	2	2	B
859816-1 Feedthrough Plug per SD-1C482-01, Fig. 1		25	C
860753-1 HP Test Plug per SD-1C482-01, Fig. 1		25	C
860666 Cable Assembly per SD-1C482-01, Fig. 1	25	25	C
UGT-5.0 Spark Gap per SD-1C482-01, Fig. 3, Mounted in ED-97748-( )	1	1	D
Remote Drainage Circuit, SD-1C482-01, Fig. 2 (TS5.1 and TS5.2 only)	1	1	

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

	WIRE	EQUIP	NOTES
Cabinet and Frame Assembly, ED-97747-50, GR8		1	E
127A2A-14 Protector per SD-1C482-01: Fig. 1	2	2	B
859816-1 Feedthrough Plug per SD-1C482-01: Fig. 1		25	C
860753-1 HP Test Plug per SD-1C482-01, Fig. 1		25	C
860666 Cable Assembly per SD-1C482-01, Fig. 1		25	C
Remote Drainage Circuit, SD-1C482-01, Fig. 2 (TS5.1 and TS5.2 only)	1	1	

List 3—Equipment required in addition to list 1 or list 2 to provide Type 2 or 3 service.

	WIRE	EQUIP	NOTES
Transformer, 2251D Equipped With Two 2B2A Protector Units per SD-1C482-01: Fig. 2 and 4	As Reqd	As Reqd	F,G

List 4—Equipment required in addition to list 1 or list 2 to provide Type 4 service.

	WIRE	EQUIP	NOTES
Transformer, 2251D Equipped With Two P-18374 Protector Units per SD-1C482-01: Fig. 2 and 5	As Reqd	As Reqd	F,G,H

Notes

A. ED-97747-50, GR7 is furnished for floor mounting. If legs are not desired, GR9 version of ED-97747-50 should be called for instead of GR7.

B. The 2B2A protectors furnished with the 127A2A-14 unit shall be removed from the mountings designated "PRI P1T-P6T" and "PRI P1R-P6R". They should be replaced with P-18374 units available from the Reliable Electric Company, Franklin Park, Illinois.

C. The code numbers used for these units refer to AMP Inc. and can be obtained from AMP Inc., Capitron Division in Elizabethtown, Pennsylvania 17022.

D. The UGT-5.0 spark gap is available from Signalite, Inc.

E. ED-97747-50, GR8 is intended for floor mounting. If legs are not desired, GR10 version of ED-97747-50 should be called for instead of GR8.

F. Surface wiring from TS5.1 and TS5.2 to list 3 and list 4 transformers are to be provided by installer.

G. Transformers and associated protector units depend on the particular application and protection service required. Lists 3 and 4 are intended to be shipped separately for application on job site as required during initial installation and future growth. The maximum capacity for protective service in a single cabinet is for 16 lists 3 or lists 4 transformers.

H. Additional P-18374 protector units can be obtained from Reliable Electric Company, Franklin Park, Illinois.

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