

LIST OF POWER PLANTS AND MISCELLANEOUS POWER EQUIPMENTS EQUIPMENT DESIGN REQUIREMENTS POWER SYSTEMS

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serve all types of telephone equipment required in the Bell System. The specification covers the salient features and lists the equipment design specifications covering these power plants.

1.02 The lists give the capacity and voltage of the plants, and the type of equipment for which these plants were primarily designed. For further information on voltages, capacities, equipments, etc. refer to the appropriate J specification.

1.03 This specification is reissued to remove plants and equipments which are no longer AT&TCo Standard and to include new plants and equipment. Figures 1 through 10 show some of the newer plants.

1. GENERAL

1.01 This specification lists the various standard power plants developed to

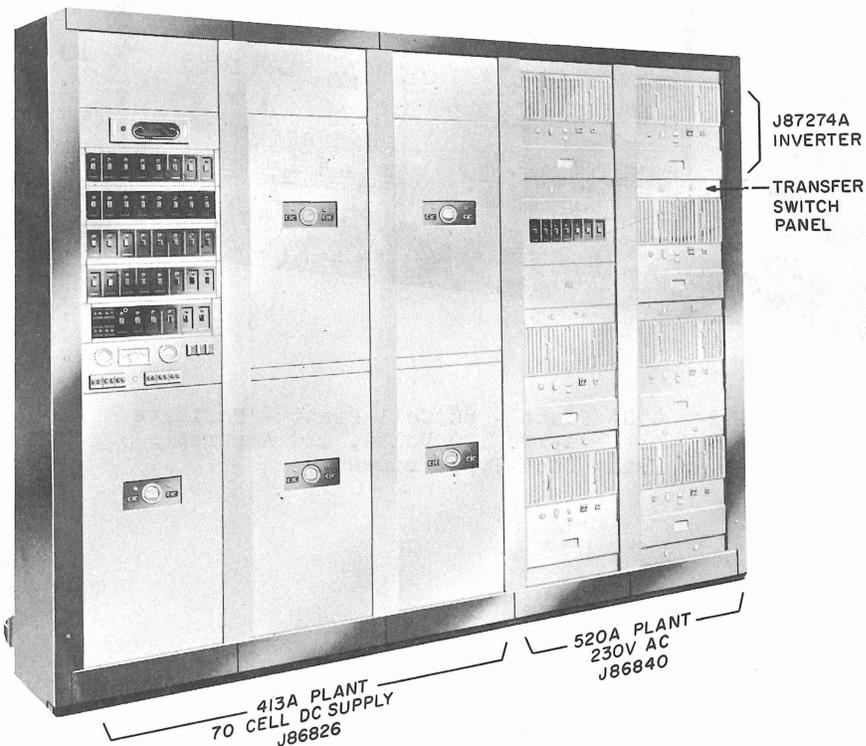


Fig. 1 - 413A Plant and Associated 520A Inverter Plant
Using Duct-Type Relay Rack Frames

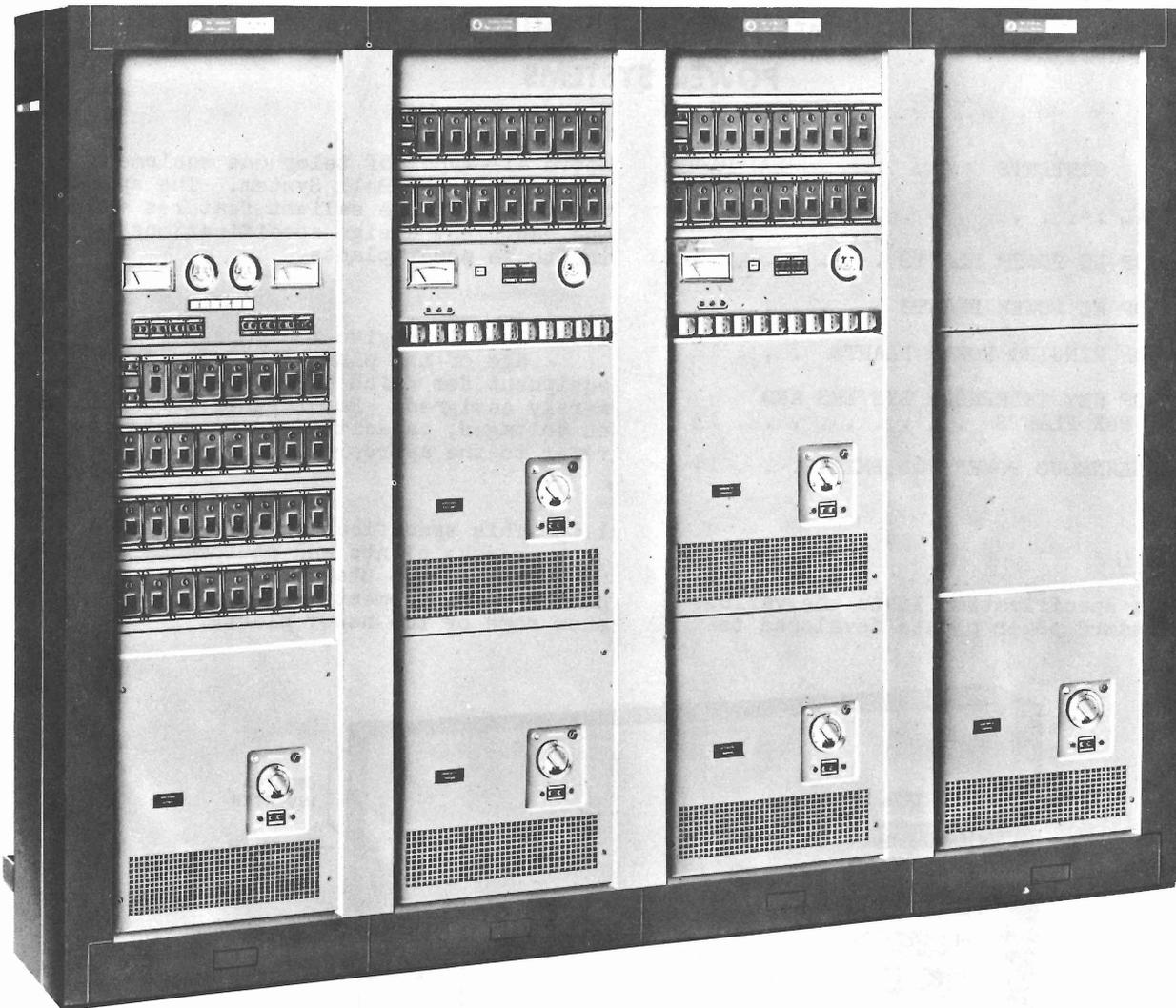


Fig. 2 - 412A Plant - 66 Cell Plant - Positive
or Negative 130 Volts, 120 Amperes
Using Duct-Type Framework

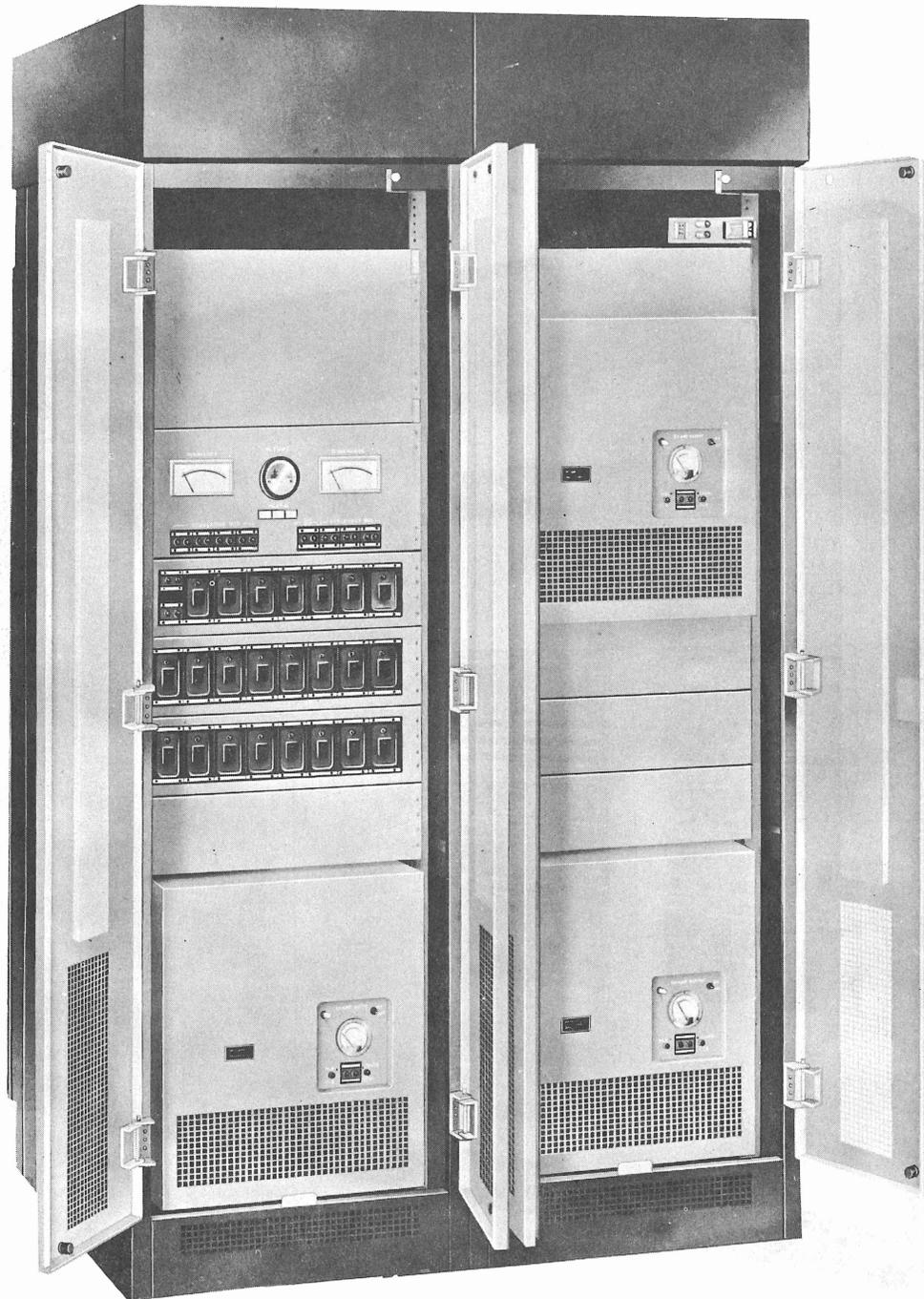


Fig. 3 - 411B Plant - 63 Cell Plant - Positive or Negative 130 Volts, 120 Amperes Using Cabinet Type Framework

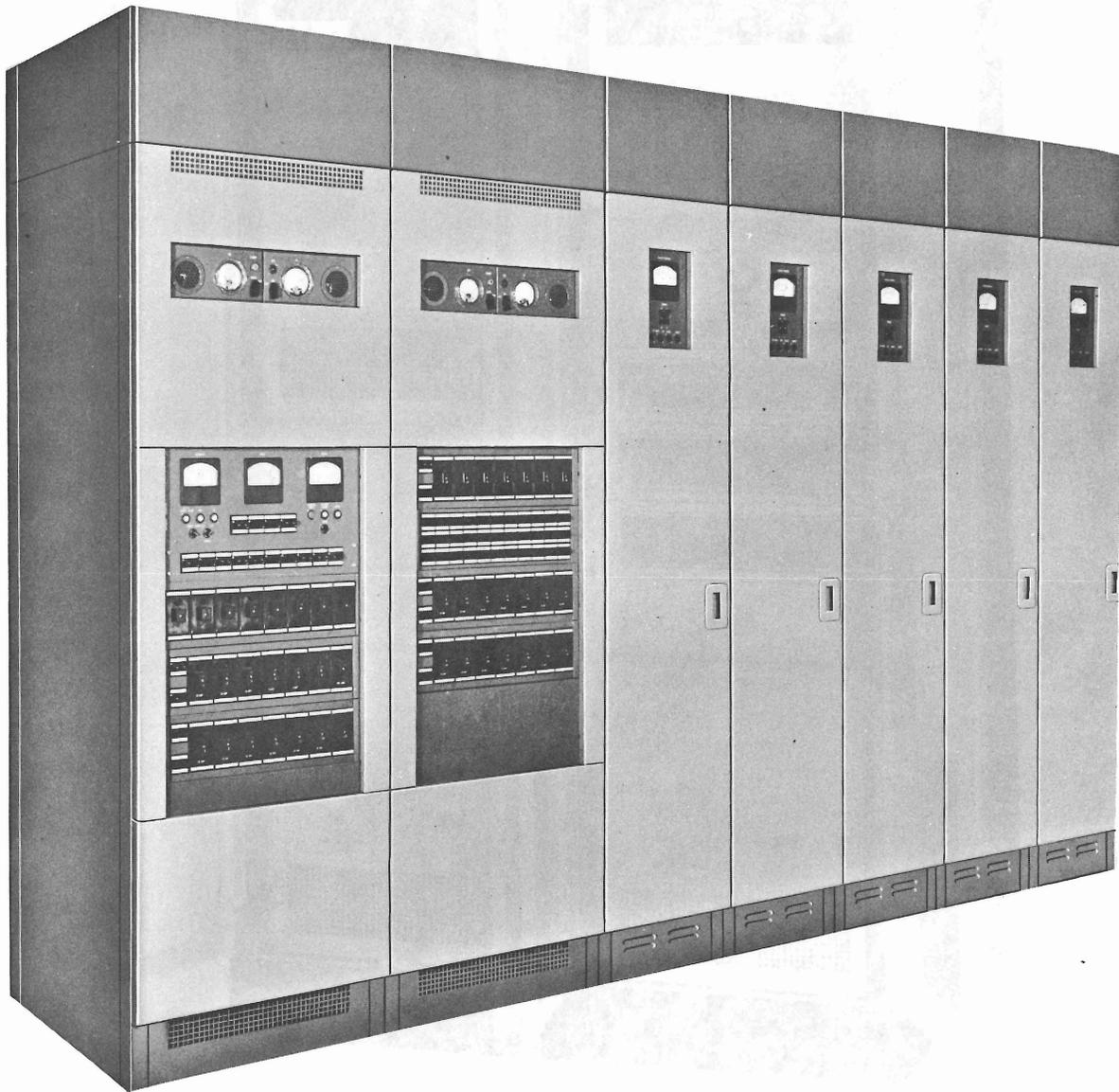


Fig. 4 - 410B Plant - 66 Cell Plant
With 80-Ampere Capacity

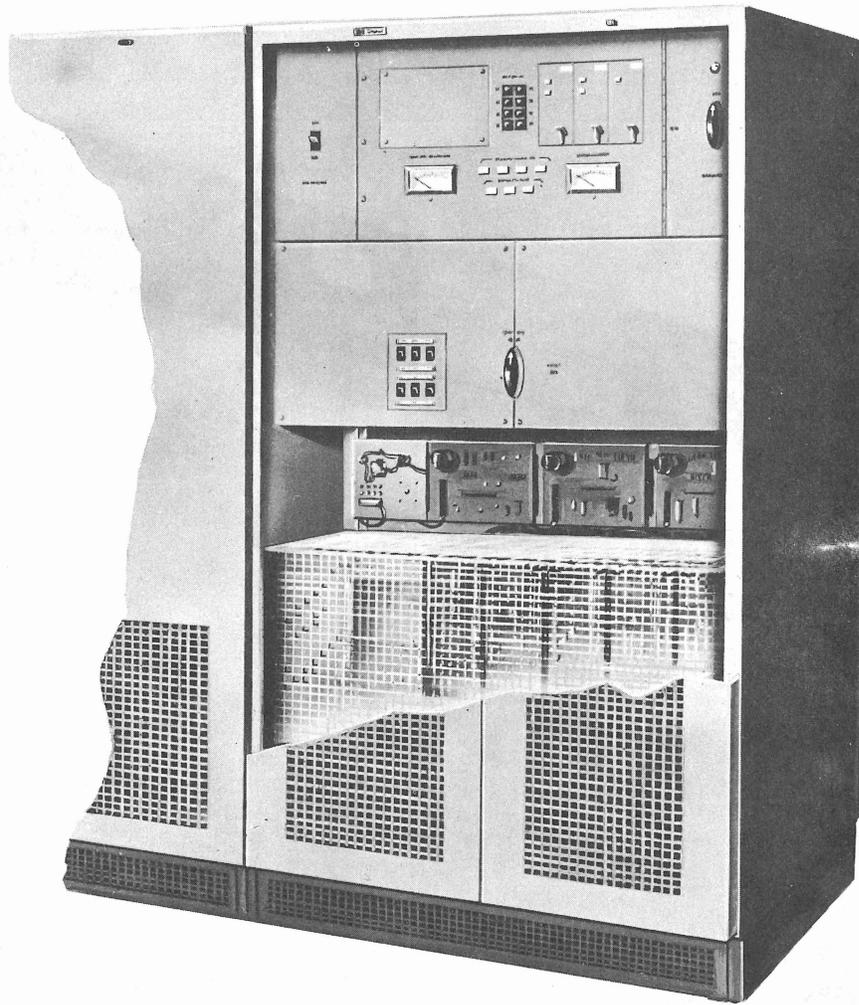


Fig. 5 - 521A Plant with Front Door Cutaway

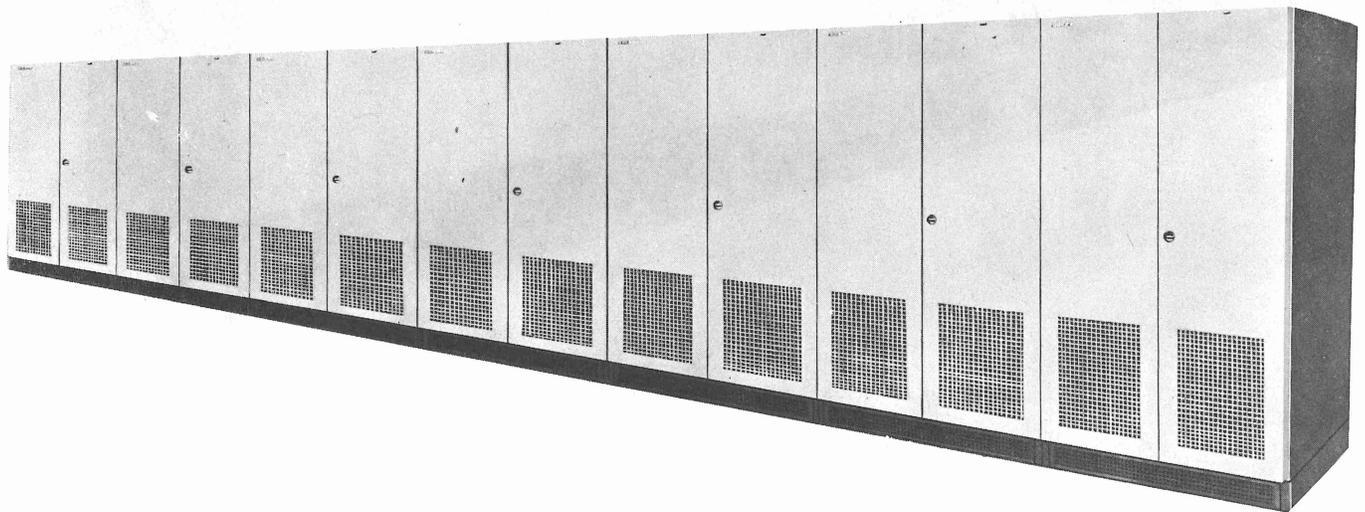


Fig. 6 - Typical Lineup of 521A Plants - 230 Volts AC

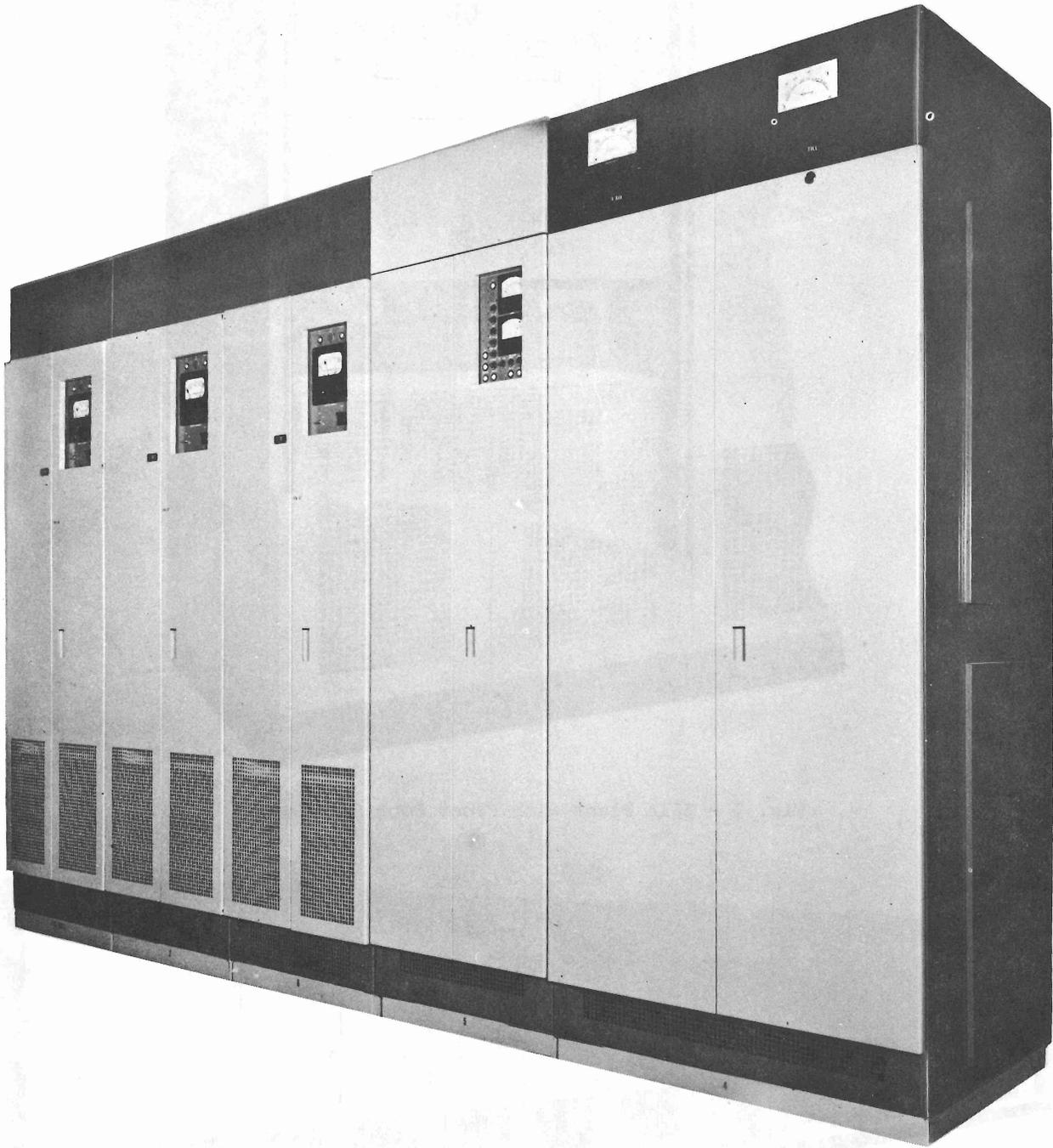


Fig. 7 - 303A Plant - Front Overall View -
Main Control and Rectifiers

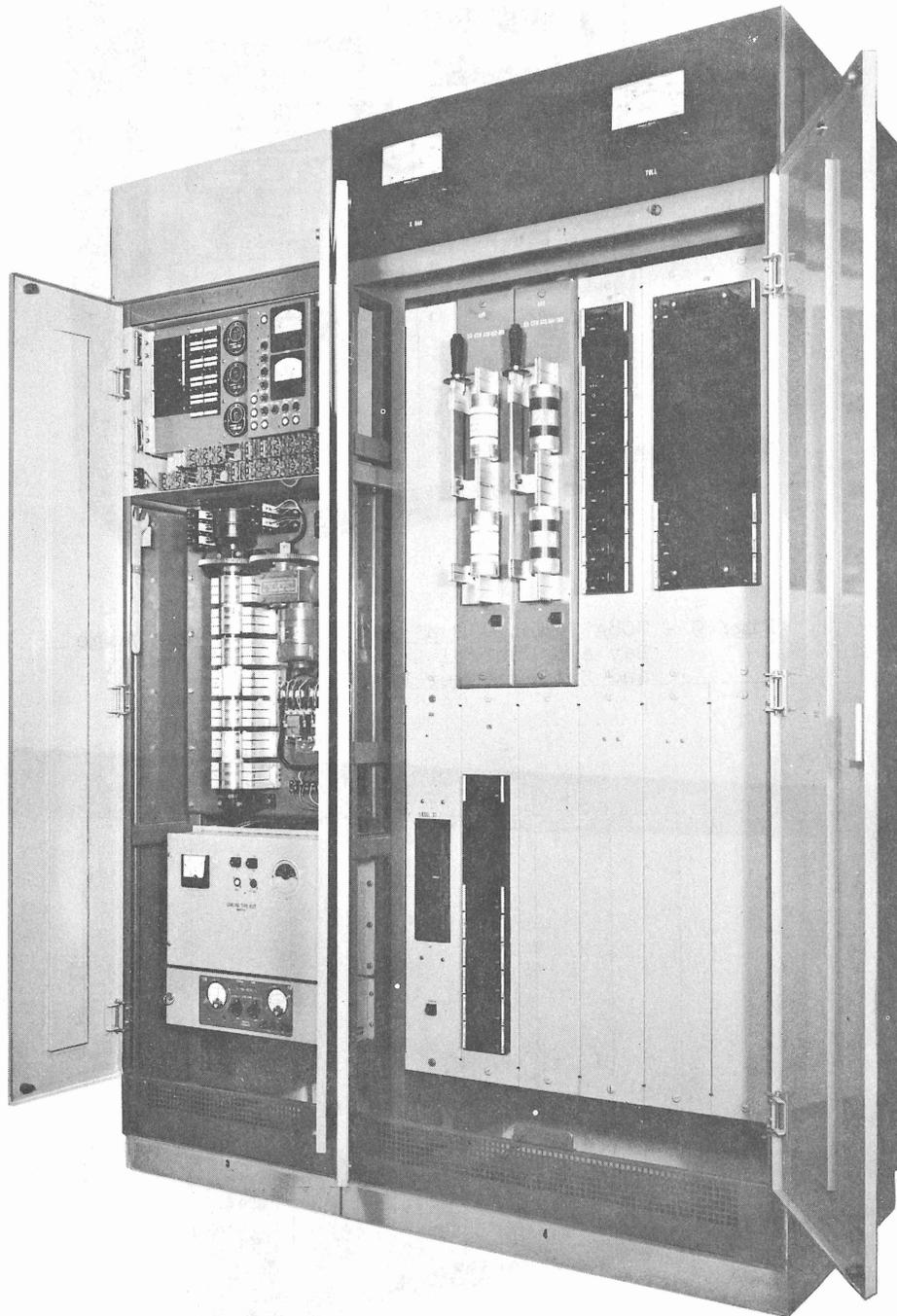


Fig. 8 - 303A Plant - Front Overall View -
Main Control and Rectifiers

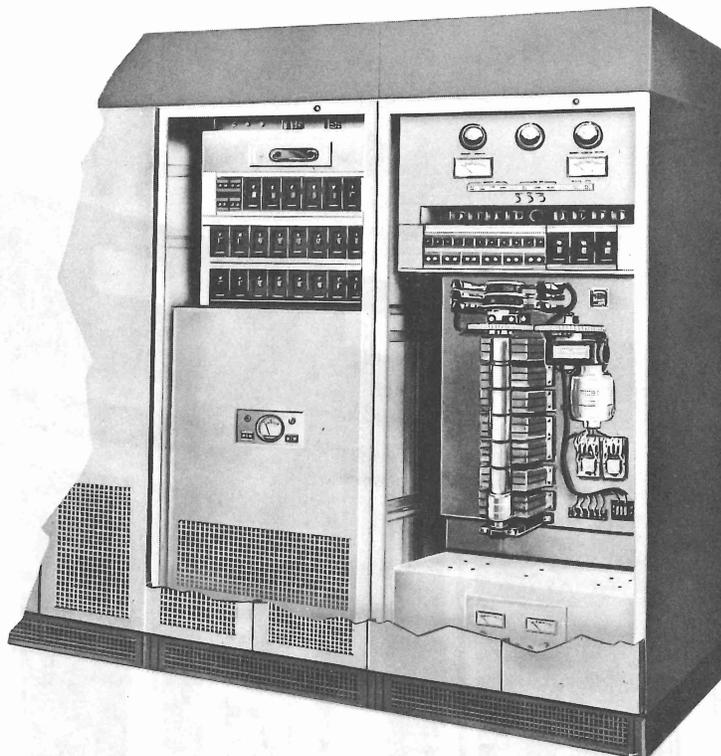


Fig. 9 - 708A Plant - Typical Charge and Discharge Bay and Control Bay (With Doors Cutaway and Switch Cover Removed)

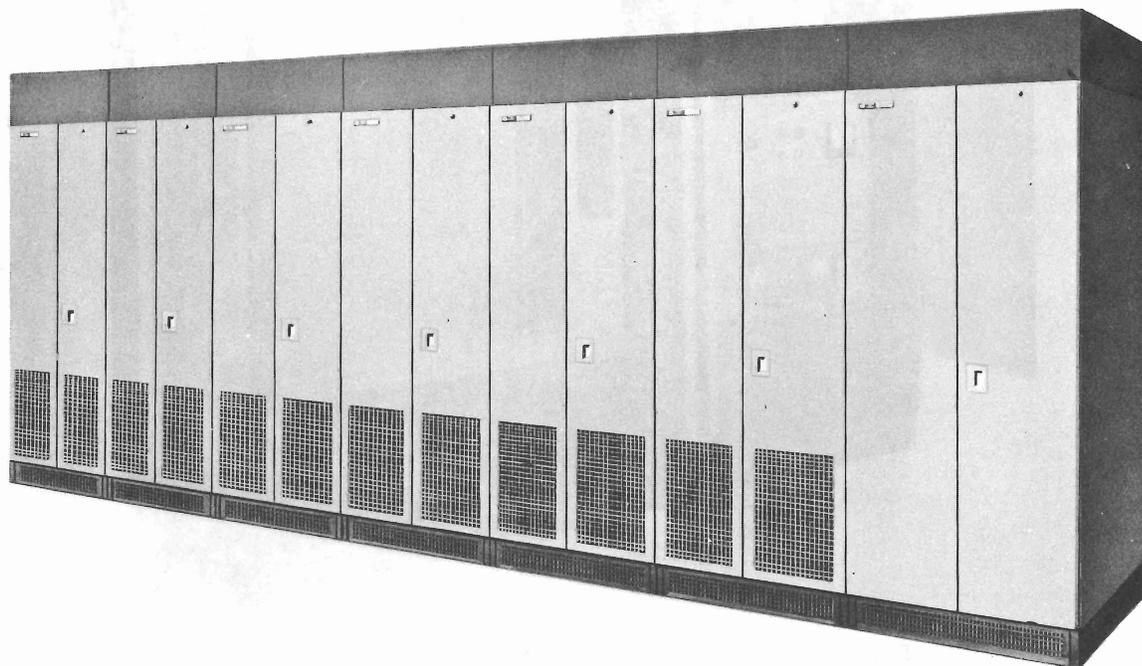


Fig. 10 - 708A Plant - Charge and Discharge Bays With Control Bay - Positive and Negative 130 Volts - 1000 Amperes

2. LIST OF DC POWER PLANTS

VOLTAGE	MAX AMPERE CAP.	PLANT CODE	SPEC NO.	APPLICATION	CHARGING EQPT
12	22	425B*	J86450 J86452	Secondary Route TD-2 Radio Systems	22-Amp Rectifiers
	800	425A*	J86435 J86439	TD-2 Radio Systems	200-Amp Rectifiers
24	5	610C*	J86803	To Provide -24V, 5-Amp DC Power in Locations Where no 24V Battery is Available Such as for use with V4 Telephone Repeaters or in No. 5 Crossbar Offices.	DC to DC Converter
	30	105E†	J86814	General Purpose Application Including PBX	11-Amp Rectifiers
	120	110A*	J86572	General use	30-Amp Rectifiers
	40	111A†	J86470	General use	11-Amp Rectifiers
	120				30-Amp Rectifiers
	800				100-Amp Rectifiers
	1000	303A*	J86327	Medium Dial and Toll Offices	100-Amp Rectifiers
	2000	302B*	J86636	Large Dial and Toll Offices	100-, 800-, and 1600-Amp Rectifiers
	4000				
	6000				
	10000				
48	0.6	103B#	J86423	Tripping Battery Supply	0.6-Amp Rectifiers
	1.5	610D#	J86807	Superimposing Battery Supply	DC to DC Converter
	2.5	704B†	J86583	Metallic Telegraph and Telegraph Service Board No. 1	3-Amp Rectifiers
	8				8- or 10-Amp Rectifiers
	8	704C†	J86590	Large No. 1 Telegraph Switchboard	8-Amp Rectifiers
	120				30-Amp Rectifiers
	30	105D*	J86446	48V Application Such as 355 and 356 Dial Offices; 701, 711, 740, and 605 PBXs; No. 12 Switchboards	8-Amp Rectifiers
	32				10-Amp Rectifiers
	30	105E†	J86814	General Purpose Application Including PBX	11-Amp Rectifiers
	120	110A†	J86572	General Use	30- and 100-Amp Rectifiers
	400				
	120				30-Amp Rectifiers
	400	111A†	J86470	General Use	100-, 200-, and 400-Amp Rectifiers
	600				
	800				
	1000	303A*	J86327	Medium Dial and Toll Offices	100-Amp Rectifiers
	2000				
	4000	302B*	J86636	Large Dial and Toll Offices	100-, 800-, and 1600-Amp Rectifiers
	6000				
10000					
75	0.6	103B*	J86423	Tripping Battery Supply	0.6-Amp Rectifiers

*Negative Plant

#Positive Plant

†Positive or Negative Plant

DC POWER PLANTS Cont'd

VOLTAGE	MAX AMPERE CAP.	PLANT CODE	SPEC NO.	APPLICATION	CHARGING EQPT
120	0.75	610B†	J86801	Coin Control Supply in Central Offices and Electronic Switching System	DC to DC Converter
130	0.1	403B†	J86592	Stabilized Plate Supply	0.1-Amp Rectifiers
	0.180	403C#	J86436	V3 Repeater Plate Supply	0.25-Amp Rectifiers
	0.6	403A#	J86577	Radio Telephone and Type O Carrier Terminal Equipment	0.2-Amp Rectifiers
	0.65	425B#	J86450 J86452	Secondary Route TD-2 Radio Systems	0.65-Amp Rectifiers
	0.75	610B†	J86801	Coin Control Supply in Central Offices and Electronic Switching System	DC to DC Converters
	1.5	610A†	J86497	N and O Carrier Equipment	
		405A†	J86585	Plate and Telegraph Supply	0.2-Amp Rectifiers
	2	651A†	J86809	Small Central Offices	DC to DC Converters
	20	425A#	J86435 J86437	TD-2 Radio Systems	8-Amp Rectifiers
	25	410A†	J86584	Plate and Telegraph Supply	
	40	426A†	J86442	Type N Carrier	
	80	410B†	J86465	Plate and Telegraph Supply	8-, and 24-Amp Rectifiers
	120	411A†	J86862	Plate and Telegraph Supply	10- and 30-Amp Rectifiers
		411B†	J86863		
		412A†	J86864		
412B†		J86865			
1000	702C†	J86475	Toll Systems	100-Amp Rectifiers	
	708A†	J86827	General Use		
152	30	420A#	J86578	J and K Carrier Telephone Equipment in Auxiliary Stations Having AC	8-Amp Rectifiers
	400	413A*	J86826	L Carrier and TH Radio System	100-Amp Rectifiers
250	0.35	425B#	J86450 J86452	Secondary Route RD-2 Radio System	0.35-Amp Rectifiers
	220	425A#	J86435 J86837	TD-2 Radio Systems	5-Amp DC to DC Converters

* Negative Plant

Positive Plant

† Positive or Negative Plant

3. LIST OF AC POWER PLANTS

VOLTAGE	MAX CAP.	PLANT CODE	SPEC NO.	APPLICATION	TYPE OF EQUIPMENT & INPUT REQUIREMENTS
5 to 11.5	11.7A	501A	J86527	Busy Signal and Idle Trunk Indicating Lamps	Transformer Units Operated on 115 or 230 Volts AC
	59A				
	174A				
	236A				
12	100VA	506A	J86724	Condenser Test in Crossbar Offices	Transformer Units Operated on 120 or 220 Volts AC
22	50VA	507A	J86732	Power Supply for Clocks and Calculagraphs	Normal Operation from Transformer Operated on 105 to 125, 180 to 220, or 208 to 250 Volts, 60 Cycles Emergency Operation from 24-, 36-, or 48-Volt Battery
	50VA	506A	J86724	Calculagraphs, Switchboard Clocks, Timers and Other Applications Employing Small Synchronous Motors	Transformer Units Operated on 120 or 220 Volts AC
	250VA				
	500VA				
	750VA				
1500VA					
110	110VA	504A	J86611	Emergency AC Supply to Motor Driven Calculagraphs and Switchboard Clocks, etc.	Converters Operated from 24-, 48-, or 150-Volt Battery
115	120VA				
	312VA				
	750VA				
230	1000VA				
115	120VA	504B	J86617	No. 5 Crossbar Offices; Mobile Radio Land Transmitters; AMA Equipment; ESS Offices	Normal Operation from Motor-Alternator. Emergency Operation from 48-Volt Battery Driven Inverter
	500VA				
	1.5KW				
208/120	5KW				
230	5KW	508A	J86476	TH Radio and Terminal Equipment	Two Motor-Alternators Operated on Commercial Power
	26.5A See Note				
	5.65A See Note				
	16KVA				
230	521A	520A	J86840	TH Radio Equipment	Solid State Inverters Operated from 152-Volt DC Power Obtained from the 413A Plant
	16KVA	521A	J86854	L3 Carrier System	
	10KVA 16KVA	505D	J86448	L3 Carrier System	
500 to 2500	0.5A	505C	J86426	L1 Carrier Telephone Systems - 410B Power Plant	Continuously Operated Alternators Driven Normally by AC Motors and During Power Failures by DC Motors from 130-Volt Station Batteries
0 to 4400	1.5A	505D	J86447	L3 Carrier System	

Note: Output capacity of each inverter or motor-alternator

4. LIST OF RINGING POWER PLANTS

VOLTAGE	MAX AMP CAP.	PLANT CODE	SPEC NO.	APPLICATION	METHOD OF OPERATION
101 to 110 Normal 100 to 120 Emergency	0.5	801E	J86458	20-Cycle Ringing Supply for Toll Switchboards or as a PBX Feeder Supply	Continuously Operated Subcycle with Machine Reserve Supply. Automatic Transfer to Reserve Supply
84 to 88	6	803C	J86555	20-Cycle Ringing Supply for Panel; No. 1 XBar; Larger SXS and No. 5 XBar, No. 11 or No. 4 and 4A Toll Switching Systems	Continuously Operated with Automatic Transfer to Reserve Supply
115 to 120	0.5				
84 to 88	1	804C	J86451	20-Cycle Machine Ringing and Signaling Supply for No. 1 and No. 5 XBar Systems, and No. 1 and 350 SXS Systems	Battery Operated Machine without Reserve Supply
	1	804D	J86477	Portable 20-Cycle Machine Ringing and Signaling Supply for Emergency Use in No. 1 and No. 5 Crossbar Systems, No. 1 and 350 Step-by-Step Systems, Panel Systems, and No. 11 Manual Systems	
72 to 88	0.25	806D	J86596	20-Cycle Machine Ringing and Signaling Supply for No. 11 Manual, No. 1 Step-by-Step, 350A, 355A and 35E97 Dial Offices and in Large 701B and 711B PBXs	Continuous or Start-Stop Operation with Key or Dial Transfer of Machines and Automatic Transfer to Reserve Supply
75 to 110 65 to 90 90 to 130 110 to 130	0.5				
84 to 88 Normal 75 to 90 Emergency 94 to 101 Auxiliary	0.25	806E	J86445	20-Cycle Ringing Supply for Step-by-Step Systems No. 355A and 356A Offices	Continuous or Start-Stop Operation. Subcycle with Single or Duplicate Motor-driven Interrupters. Automatic Transfer to Inverter on Power Failure. Automatic Transfer of Interrupters.
		806F	J86456	20-Cycle Ringing Supply for 355A Step-by-Step Systems and No. 5 Crossbar Offices	Same as 806E Plant except has Duplicate Generators with Automatic Transfer and Optional Dial Transfer
65 to 90	0.25	806G	J86472	20-Cycle Ringing Supply for 701B, 711B, and 740E PBXs and may be used in 701A and 711A PBXs on a "A&M Only" Basis	Start-Stop Operation; Single or Duplicate Ringing Machines. Automatic Transfer to Reserve Machine Where Duplicate Machine is Provided

RINGING POWER PLANTS Cont'd

VOLTAGE	MAX AMP CAP.	PLANT CODE	SPEC NO.	APPLICATION	METHOD OF OPERATION
84 to 88	0.5	806H	J86815	20-Cycle Ringing and Precise Tone for No. 1 ESS Offices	Continuous Operation Under No. 1 ESS System Control; Duplicate Ringing Generators; Interrupters, and Precise Tone Generators; Manual Control Supersedes System Control
	6	808A	J86834		
-	-	807B	J86816	Wide Area Dialing Systems	Call Progress Tone Equipment
-	-	807D	J86829	Crossbar and Step-by-Step Offices	TOUCH-TONE® Dial-Tone Plants

5. LIST OF KEY TELEPHONE SYSTEMS AND SMALL PBX PLANTS

VOLTAGE*	MAX** CAP.	PLANT CODE	SPEC NO.	APPLICATION	METHOD OF OPERATION
15 to 19	10 to 15 Amp Hr	101A	J59010	Battery Supply Units for Nonmultiple PBXs of the 550,551,555,557A or 557B Type; Small Cord or Cordless PBXs	Cable pair or semiconductor type rectifier charge
17 to 21	10 Amp Hr				
19 to 24					
21 to 26					
20 to 24	15 to 30 Amp Hr	101E	J86566	102A and 111A Equipment	
14 to 20	50 to 200 Amp Hr	101F	J86567	Centralized Battery Supply for Multiple and Nonmultiple PBXs, and Individual 554 and 605 PBXs	
18 to 26	15 to 200 Amp Hr				
32 to 42	50 to 100 Amp Hr				
32 to 46	15 to 100 Amp Hr				
18 to 28	0.6	101G	J86731	No. 1A, 1A1, and 6A Key Telephone Systems; 101 Key Equipment	
14 to 28	0.9				
16to20AC	1.4				
9 to 11AC					
8.75 to 11AC	2.8				
10to11AC	17				
75 to 110 20 Cycles	0.05				
14 to 26	0.15	101H	J86736	Small Key Telephone Systems	Semiconductor Type Rectifier
8.75 to 11AC	0.09				
16to21AC					

* DC unless otherwise indicated

** Amperes unless otherwise indicated

KEY TELEPHONE SYSTEMS AND SMALL PBX PLANTS Cont'd

VOLTAGE*	MAX** CAP.	PLANT CODE	SPEC NO.	APPLICATION	METHOD OF OPERATION
10AC	5	101J	J86471	6A Key Telephone System	Semiconductor Type Regulated Rectifier
18AC	1.6				
18 or 24	4				
24	9	12F	J86466	Traffic Usage Recorder Equipment in No. 4 Cross- bar Toll Offices and Small PBX Application	Float with Regulated Semiconductor Type Rectifier
48	0.15 to 7.5			Small 740E PBXs	
24	6	102G	J86802	Small PBXs	Float with Regulated Semiconductor Type Rectifier
	12				
	24				
48	6				
	12				
	24				
	25				

* DC unless otherwise indicated

** Amperes unless otherwise indicated

Spec
No.General Use6. MISCELLANEOUS POWER EQUIPMENT

6.01 In addition to the aforementioned plants which are in general use, there are a number of small equipments to which no codes have been assigned.

J86737

60-Volt, 60-Cycle, 600-Volt-Ampere Power Supply with Standby Vibrator Operation from 130- or 152-Volt Battery

J87259

AC Power Supplies for TJ Micro-wave System

Spec
No.General UseSmall Ringing EquipmentsSmall 24-Volt Supplies

J86212

Small 20-Cycle Ringing or Signaling Equipments for No. 12 Switchboard, 360, 35E97, and 355A Dial Offices, and Toll

J86440 Small 24-Volt Supply with Semiconductor Type Rectifier

J86589 Small Miscellaneous 24-Volt DC Applications (tube rectifier)

J86294

Ringing Demand Meter for Use on 1/4-, 1/2-, 1-, and 2-Ampere, 20-Cycle Ringing Plants

Miscellaneous AC Supplies

J86460 230-Volt Power Supplies for Terminal and Submarine Cable Plants

J86726

Small Signaling Equipments

J86521 Power Plants for AC Operated C1 Carrier Telephone Repeaters and C5 Carrier Telephone Terminals

J86727

Miscellaneous Ringing Equipment

J86733

Filter Units-VHF Interference Suppression

Miscellaneous Supplies

J86565 Regular and Reserve AC Supply for 3A Announcement System (weather bureau)

J58819

Power Supply for 755A PBX

J86453

Power Supply for 81D1 Teletypewriter Switching System

<u>Spec No.</u>	<u>General Use</u>	<u>Spec No.</u>	<u>General Use</u>
J86454	Power Supplies for Type O Carrier Terminals and Repeaters	J86811	Power Plant for Traffic Data Summarizer
J86463	Power Supply for Type P Carrier	J86812	Power Plant for No. 400 Switching System
J86464	Power Plant for 756A PBX Systems	J86818	Power Plant for 2A Automatic Call Distribution PBX System - Batteryless Operation
J86473	Power Supply for TJ Radio		
J86474	DC Power Supply for TH Radio Traveling-Wave Tubes	J86822	Power Supply, 24 Volts, 48 Amperes - TL-2/TM-1 Radio Systems
J86483	DC Power Plants for TH Radio Systems	J86828	Power Plant for 2A Automatic Call Distributing PBX System - Battery Reserve Operation
J86486	TH Radio - Tube Cooling System	J86830	Power Supplies for 3A Automatic Call Distributing System Arranged for Battery Reserve
J86487	Power Supply for TH Radio		
J86488	Power Supply for TH Radio	J86831	Power Plant for Small PBX Systems
J86489	Power Supply - ±15 Volts, 0.5 Amp DC - Semiconductor Type Unregulated; 20 Volts, 1.0 Amp AC; 48 Volts, 0.2 Amp AC - Telegraph Selective Calling Systems	J86833	Power Supply for 1A Telephone Answering Systems
		J86845	Signaling Circuit - Busy Tone Generator - Semiconductor Type - Precise Tone at 120 IPM for Four Wire Voice/Record Network
J86494	Batteryless Power Plants - Negative 24 Volts, 30, 60, or 90 Amperes - Negative 48 Volts 30, 60, or 90 Amperes - Positive or Negative 130 Volts, 5 Amperes - Rectifiers in Duplicate with Failure Protection - General or Hardened Sites	J87203	Power Supply - Semiconductor Type - Manual Regulation, -11 Volts, 2 Amperes; 135 Volts, 0.125 Ampere - TH Radio System
J86495	Power Plants for 608A PBX	J87213	Power Supply - Semiconductor Type - Manual Regulation, 11 Volts, 6 Amperes, 135 Volts, 0.375 Ampere - TH Radio System
J86496	Positive or Negative 24-Volt, 0-to-30 Ampere Supply for TH Radio Protection Switching System	J87216	Power Supply - Semiconductor Type - Automatic Regulation, -21 Volts, 2.0 Amperes - N2 Carrier System
J86498	DC Power Supply for Use in TL Carrier System and Traffic Service Position System No. 1	J87220	Power Supply - Semiconductor Type - Ferroresonant Regulation, 16.8 Volts, 65 Amperes DC - No. 1A Traffic Data Processor
J86499	Power Supply for TL Radio		
J86594	6-Volt, 10-Amp Supply for 606B PBX	J87245	Power Supply - Semiconductor Type - Automatic Regulation, -21 Volts, 4.0 Amperes; -24 Volts, 3.5 Amperes - N3 Carrier and 2A Echo Suppressor
J86599	8-Amp Positive, 3-Amp Negative 130-Volt Supply without Battery Reserve for 69B1 Teletypewriter		
J86738	Packaged Power Supply without Battery Reserve for Miniaturized 551A Key Service Unit	J87254	Power Supply - Semiconductor Type - Ferroresonant Regulation, -24 Volts, 48 Amperes Output; 117 Volts 60 Cycles Input - TL-2/TM-1 Radio Systems
J86808	Power Plant for 757A PBX - Batteryless Operation	J87255	Power Supply - Semiconductor Type - Ferroresonant Regulation, -24 Volts, 16 Amperes Output; 117 Volts 60 Cycles Input - TL-2/TM-1 Radio Systems
J86810	Power Plant for 757A PBX - Battery Reserve Operation		

<u>Spec No.</u>	<u>General Use</u>	<u>Spec No.</u>	<u>General Use</u>
J87256	Power Supply for TL-2 and TM-1 Radio	J86421	Types J and K Carrier Telephone Modification of Main Repeater and Terminal Stations
J87276	Power Supply - Semiconductor Type - Ferroresonant Regulation, +24 Volts, 12 Amperes DC; +24 Volts, 6 Amperes DC; +6.6 Volts, 38 Amperes DC; -24 Volts, 2 Amperes DC - 101 ESS - EPBX Phase II Switching Unit.	J86718	Circuit Voltage Limits
		J86725	AC No-Voltage and Low-Voltage Alarm and Transfer Control and Automatic Engine Alarms
		J86728	Ventilation Equipment for Engine Rooms Having Engine-Driven Generators
<u>Miscellaneous Specifications</u>			
J85505	Central Office Lighting - Fluorescent Type	J86734	Ringling Generator Calculations
J85506	Appliance Outlets - Trolley Type	J86735	Power Service Equipments
J85507	Frame and Aisle Lighting, Fluorescent Type	J86836	Exhaust Line Size Requirements for Stationary Diesel Engine- Alternator Plants
J85508	Power and Engine Room Lighting - Fluorescent Type	J87109	Small Battery Equipments
J85509	Air Navigation Obstruction Lighting - Control and Alarm Cabinets	J87116	Single-Cell Discharger, Carbon- pile Rheostat Type, 0 to 550 Amperes, 1.75 Volts
J85510	No. 1 Electronic Switching System Lighting - Fluorescent Type - KS-15857 Fixture	J87122	Small Battery Equipments
J85511	Air Navigational Obstruction Lighting - Control and Alarm Cabinets	J87253	Power Supply Transfer and Alarm Unit - Semiconductor Type, -24 Volt Input
J86324	Battery Distributing Fuseboards	E-7953	Checking List KS Specifications
J86413	Miscellaneous Power Equipment		<u>Rectifiers, Regulators, Inverters Converters</u>
			Refer to J86200

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