

101 (CONT.)

FEATURE OR OPTION				PROVIDE	
				FIGS.	QUANTITY
P.BX. MODIFIED FOR TIE TRK. OPERATION	WHEN INCOMING RING IS THRU OR FROM	LOOP	MINIMUM RINGING VOLTAGE AT DISTANT P.BX. 60V. 75V. 95V.		
	BLOCKING CAPACITORS	LESS THAN	1200Ω 1700Ω 1950Ω	S	
	BY-PASSED CAPACITORS OR INDUCTOR OR RELAYED OR DIRECT	GREATER THAN	1190Ω 1690Ω 1940Ω	T	
	MAGNETO LINE 3 BAR GEN.	GREATER THAN	2000Ω 3000Ω 4000Ω	S	
	MAGNETO LINE 5 BAR GEN.	GREATER THAN	3000Ω	S	
	MAGNETO LINE 5 BAR GEN.	GREATER THAN	3600Ω	S	

102. FIG. 11 MAY BE USED UNDER ANY OF THE FOLLOWING CONDITIONS:

TYPE OF SERVICE	CONNECTS TO
A RINGDOWN TIE TRK. USING DIRECT CONDUCTORS	ALL TYPES OF P.BX. RINGDOWN TIE TRK. CKTS.
B RINGDOWN TIE TRK. USING TOLL FACILITIES	TOLL SYSTEMS SIGNALING INTERMEDIATE RINGERS
C RAILROAD MESSAGE & PHANTOM CKTS. DERIVED FROM LINES EQUIPPED WITH TRAIN DISPATCHING SIG. APP.	FIG. 13 & AUX. LINE CKTS. ARR. FOR USE WITH LINES EQUIPPED WITH TRAIN DISPATCHING SIG. APP.
D FULL PERIOD TALKING SERVICE	TOLL SYSTEMS SIGNALING CKT. FOR FULL PERIOD TALKING SERVICE
E TOLL OR LOCAL SUBSCRIBER ON A 2 WAY RINGDOWN BASIS	TOLL OR LOCAL SYSTEMS RURAL SUBSCRIBERS CKT.
F TRK. TO A MAGNETO CENT. OFF. WHEN NIGHT CONN. IS NOT REQ.	MAGNETO CENT. OFF. SUBSCRIBERS LINE CKT.
G INDIVIDUAL OR PARTY MAGNETO STATION LINE CKT.	MAGNETO SUBSCRIBER LINE WITH 3 OR 5 BAR HAND GENS.
H AS A STATION ON A MAGNETO PARTY LINE	MAGNETO SUBSCRIBERS LINE WITH 3 OR 5 BAR HAND GENS.

(MFR 103. WHEN ATTENDANT'S TELEPHONE SET IS OF THE 302 TYPE, MODIFY TEL. SET BY ADDING 378 VAR. AS SHOWN IN FIG. 8. WHEN TEL. SET RINGER IS TO BE USED AS AC AUX. AUD. SIG., THE "Y" 302E-3F OR "Z" 302E-3F TEL. SET SHALL BE MODIFIED BY REPLACING THE 03AL CORD WITH A 04AH CORD CONNECTED AS SHOWN, AND SPREADING THE GONGS APART SO THAT THE CLAPPER DOES NOT STRIKE THEM WHEN RING CURRENT IS APPLIED. WHEN THE DC BUZZER IS SPECIFIED, THE 03AL CORD SHALL BE MODIFIED BY TAPING THE ENDS OF THE YELLOW CONDUCTOR. THE RED LEAD WILL BE CONNECTED FROM "R" OF THE P.BX. TO "L2" OF THE TEL. SET, AND THE GREEN LEAD FROM "T" OF THE P.BX. TO "L2" OF THE TEL. SET.

CIRCUIT NOTES CONT. ON SH-0106.

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104.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN.	SEE NOTE	USE IN CIRCUIT		
				STD	RAM	MD
4D	H	NONE		H		
5D				FIGS. 16, 17 & 18		FIGS. 1, 2 & 3
5D				FIG. 19		FIG. 12
6D	J OR K	K		J		K
6D				FIG. 2C		
7B	F OR R	R		F		R
9B				R		F
9B	E	NONE		E		
10D				FIG. 21		FIG. 7
10D				FIG. 22		FIG. 6
10D				K		J
10D	ZA, ZD OR ZC	ZA OR ZC		ZD		ZA, ZC
10D	ZD OR ZE	ZD		ZE		ZD
12D	TEL SETS			ZF		G
12D				ZG		H
12D						FIG. 8
13D	COROS			D48K-3		D48S-3
13D	DTODES			400J		400B
13D	FOOT SWITCHES			K5-1602L2		4C
13D	KEY TEL UNITS			8C		8B

105. WHEN ATTENDANT'S TEL SET IS OF THE 500 TYPE AND THE TEL SET RINGER IS USED AS AC AUX AUD SIG ADJUST RINGER VOLUME TO SUIT ATTENDANT. WHEN THE DC BUZZER IS SPECIFIED, THE YELLOW AND BLACK CONDUCTORS OF THE D48S-3 OR D48K-3 CORD ARE NOT USED, AND BOTH ENDS OF THESE CONDUCTORS SHOULD BE DISCONNECTED FROM THEIR TERMINALS AND TAPED.

106. IN THE 500L-3 OR 500LR-3 ATTENDANT'S MANUAL TEST SET, AN APPARATUS BLANK IS USED IN PLACE OF THE DIAL, AND THE G LEAD IS CONNECTED TO THE "RAM" TERMINAL, INSTEAD OF TO THE "F" TERMINAL, AS IN DIAL SETS.

INFORMATION NOTES:

301. WHEN THE 1A KEY TEL SYSTEM IS TO BE USED FOR THE ATTENDANT OF THIS PDX, CONNECTIONS SHALL BE MADE AS FOLLOWS:

(MFR DISC)

TEL SET TO BE USED	SEE FIG.
TEL SET WITH 5 PICK-UP KEYS & ONE HOLD KEY FOR USE WHEN TRK LOOP EXCEEDS CAPABILITY OF PDX	FIVE TRKS OF PDX TO BE USED 102
TEL SET WITH 6 PICK-UP KEYS USED WITH 5070 PDX TO ENABLE THE ATTENDANT TO ANSWER A TRK WHEN ALL THE CONNECTING CKTS ARE BUSY	LESS THAN FIVE TRKS OF PDX TO BE USED 103
	101

(MFR DISC)

EXISTING WIRE IS SHOWN DOTTED.
ADDED WIRE IS SHOWN SOLID.

303. WHEN THE DC OPERATED BUZZER IS USED THE RINGER IN THE 1A KEY TEL SYSTEM IS NOT USED. WHEN THE 1A KEY TEL SYSTEM RINGER IS TO BE USED AS THE AC AUX AUD SIGN., TEL SET SHALL BE MODIFIED FOR COMMON RINGER OPERATION.

304. THESE SETS SHALL BE EQUIPPED WITH A VARISTOR, AND THE GONGS SHALL BE SPREAD APART SO THAT THE CLAPPER DOES NOT STRIKE THEM WHEN RINGING CURRENT IS APPLIED.

16-52V.

WORKING LIMITS

TRUNK AND STATION
MAX. CONDUCTOR LOOP RES. TRK. SIGNALING 20~
1200Ω CENT. OFF. TRK. SUPERVISION *

MAX. EXT. CKT. LOOP		MIN. VOLTAGE AT PBX							
LOCAL CONNECTIONS		16V	18V	20V	22V	24V	26V	28V	30V
STATION SIGNALING	FIG. A	150Ω	240Ω	330Ω	420Ω	510Ω	600Ω	690Ω	780Ω
	FIG. B OR C	675Ω	850Ω	1000Ω	1150Ω	1300Ω	1450Ω	1600Ω	1750Ω
STATION SUPERVISION		900Ω	1065Ω	1230Ω	1400Ω	1565Ω	1730Ω	1900Ω	2065Ω
STATION TRANSMISSION WITHOUT LONG LINE CKT.		220Ω	260Ω	300Ω	355Ω	375Ω	415Ω	450Ω	490Ω

MIN. INSULATION RES.
CENT. OFF. TRK. OR INDIVIDUAL STATION
MANUAL PANEL OR CROSSBAR AREA 20,000Ω
STEP BY STEP AREA 30,000Ω
ALL STATIONS COMBINED 26V 52V (MAX. PBX VOLTAGE)
4350Ω 8700Ω

* THE TRK. CONDUCTOR LOOP RES. PLUS THE MAX. STATION LOOP RES. SHALL NOT EXCEED THE CENTRAL OFFICE SUB. COND. LOOP RES. LESS 22 OHMS.

TIE TRK. CONNECTIONS		MAX. COND. LOOP WITH MIN. RINGING VOLTAGE		
TYPE OF RINGING		OPTION	60V	75V
1. THRU BLOCKING CAPACITORS		S	1200Ω	1700Ω
		T	7000Ω	10,000Ω
2. BY-PASSED CAPACITOR OR RER COIL OR RELAYED OR DIRECT		-	2000Ω	3000Ω
		S	4500Ω	7500Ω
3. MAGNETO LINE 3 BAR GEN.		-	3000Ω	
		S	7000Ω	
4. MAGNETO LINE 5 BAR GEN.		-		3600Ω
		S		8250Ω
MIN. INS. RES.			10,000Ω	

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HOLDING RANGES FOR VARISTOR HOLD CIRCUIT					
TYPE OF CENTRAL OFFICE		MAX CENT. OFF. SUB. COND LOOP LIMIT	CENT. OFF MIN VOLTS	MAX TRK COND LOOP	
				OPT ZA, ZC	OPT ZB
MANUAL	NOS. 1, 1C, 1D 10 AND 11	635	20	200	450
		675	21	240	490
		785	20	305	600
		835	21	365	650
	WACH RING. NO. 11	1200	24	745	1050
PANEL	NO. 9C AND 12			*	*
		635	21	220	450
		785	24.5	355	600
		885, 1000, OR 1200	45	*	*
CROSSBAR	NO. 1 NO. 5	1200	45	1045	*
SXS		635, 735 OR 885	45	730	*
		735 OR 885	46	830	*
		1200	45	1000	*
		1300	46	1100	*

*NOT LIMITING.

BATTERY SUPPLY FEEDER CONDUCTOR RESISTANCE

MINIMUM VOLTAGE CENTRAL OFFICE OR BUILDING BATTERY	MINIMUM PBX VOLTAGE - FOUR OR MORE STATIONS									
	16	18	20	22	24	26	28	30	32	34
18	13	—	—	—	—	—	—	—	—	—
20	26	12	—	—	—	—	—	—	—	—
21	34	18	5	—	—	—	—	—	—	—
22	40	24	10	—	—	—	—	—	—	—
23	47	30	16	5	—	—	—	—	—	—
24.5	57	39	24	12	2	—	—	—	—	—
31	100	77	59	44	31	20	11	3	—	—
32	108	84	65	49	36	25	15	7	—	—
40	162	131	106	86	72	56	46	36	27	19
44	190	155	130	108	90	74	61	50	40	31
45	196	161	135	113	94	79	65	54	44	35
47.5	213	176	148	125	106	89	75	63	52	43

BATTERY SUPPLY FEEDER CONDUCTOR RESISTANCE

MINIMUM VOLTAGE CENTRAL OFFICE OR BUILDING BATTERY	MINIMUM PBX VOLTAGE - THREE OR LESS STATIONS									
	16	18	20	22	24	26	28	30	32	34
18	26	—	—	—	—	—	—	—	—	—
20	52	23	—	—	—	—	—	—	—	—
21	66	35	10	—	—	—	—	—	—	—
22	79	47	21	—	—	—	—	—	—	—
23	92	59	31	9	—	—	—	—	—	—
24.5	112	76	47	24	4	—	—	—	—	—
31	197	151	115	85	61	40	22	7	—	—
32	210	162	126	96	70	48	30	14	—	—
40	315	259	210	171	140	113	90	70	52	37
44	368	304	252	209	175	145	120	97	78	62
45	382	316	263	219	184	153	128	105	85	68
47.5	414	345	290	243	205	173	146	122	101	83

WHEN THE BATTERY SUPPLY FOR THIS CIRCUIT IS OBTAINED FROM THE BUILDING BATTERY SUPPLY THE FOLLOWING APPLIES:

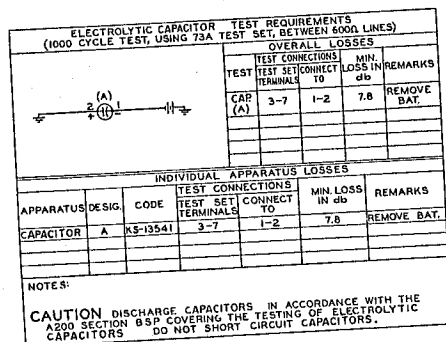
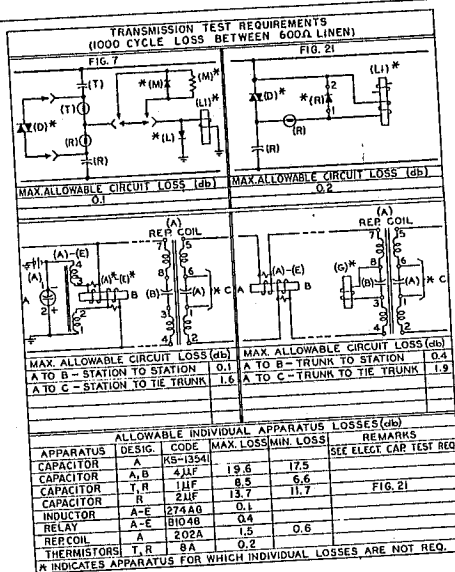
CURRENT DRAIN IN AMPERE HOURS PER BUSY HOUR *

	BAT.	GRD.
DRAINS LIST 1 (FOR POWER PLANT)	.0035	.0035
DRAINS LIST 2 (FOR DISTRIBUTING EQPT.)	.035	.035

* THESE DRAINS ARE PER STATION OR TIE LINE, AND ARE BASED ON A TRAFFIC ACTIVITY OF 200 CALL SECONDS PER STATION PER BUSY HOUR. FOR OTHER TRAFFIC ACTIVITY THE DRAINS WILL BE DIRECTLY PROPORTIONAL. THESE DRAINS ARE FOR A VOLTAGE AT THE PBX OF 20 VOLTS. FOR OTHER VOLTAGES THE DRAINS ARE DIRECTLY PROPORTIONAL.

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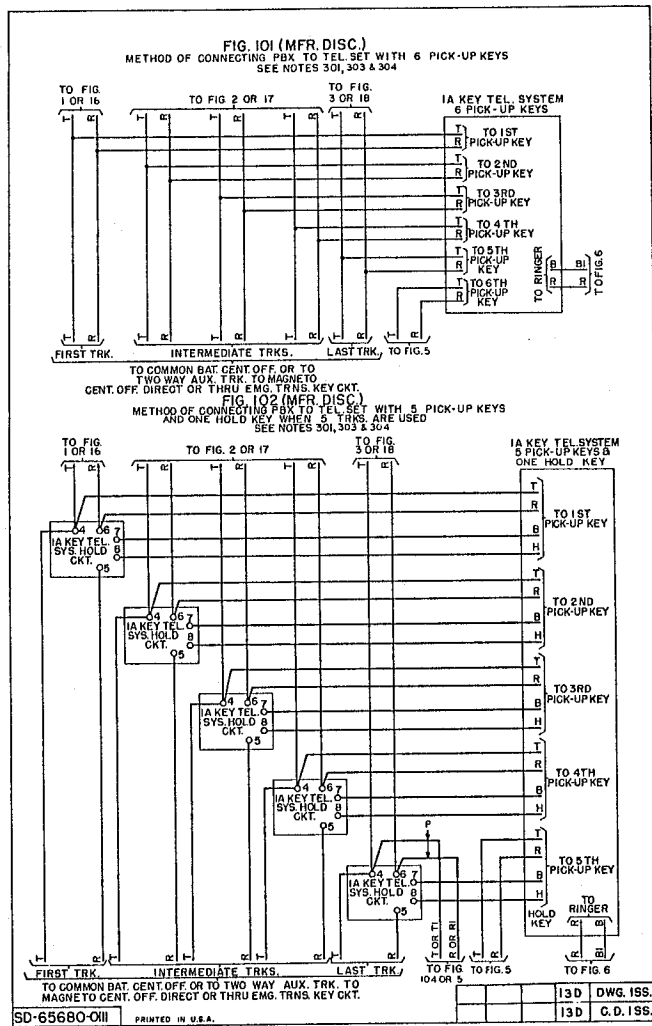


FIG. 103 (MFR. DISC.)
METHOD OF CONNECTING PBX TO TEL. SET WITH 5 PICK-UP KEYS
AND ONE HOLD KEY WHEN 4 OR LESS TRKS. ARE USED
SEE NOTES 301, 303 & 304

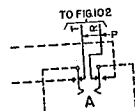
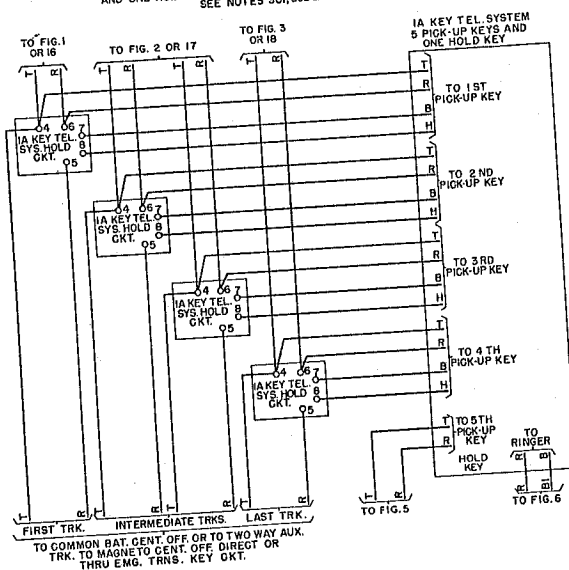


FIG. 104
(MFR. DISC.)
MODIFICATION OF
ATTENDANTS KEY CKT.
(FIG. 5)
SEE NOTES 301 & 302

CIRCUIT REQUIREMENTS
 PRY NO 507A OR 507B

[illegible]

FIG. 1 IS SPECIFIED
PROVIDE ONLY WHEN
(A) KEY

