

SHEET INDEX (INITIATED ON ISSUE 20B)

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	EQUIPMENT NOTES																																																																										

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWINGS	J33017BY ED-30655-01 ED-31775-01 ED-31252-01 ED-31779-02
KEYSHEET DRAWINGS	SXS - NO. 360A DIAL OFF SXS - NO. 1 SXS - NO. 350A & BR OFF SXS - NO. 355A SXS - NO. 35E97
MAINTENANCE BSP'S	SD-31250-01 SD-31359-01 SD-31364-01 SD-31780-01 SD-32325-01

DWG ISS	CD	DWG ISS	CD	DWG ISS	CD
1	2A	2A	2A	3D	2A
4B	APP 2B	5B	APP 3B	6D	APP 4D
7D	APP 5D	8D	APP 6D	9D	APP 7D
10D	APP 8D	11B	APP 9D	12D	APP 10D
13B	APP 11B	14D	APP 12D	15D	APP 13D
16AR	APP 14B	17D	APP 15D	18D	APP 16D
19D	APP 17B				

- SHEET INDEX NOTES
- WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
 - THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
 - THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
 - SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
 - THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.

REPLACING SD-31693-01 EXCEPT FOR ADDITIONS WHERE ALL TRUNKS BUSY REGISTRATION IS REQ. REPLACING SD-30214-01 EXCEPT FOR ADDITIONS FOR CALL INDICATOR OPERATION WITH PLUNG ER TYPE OUT TRUNK SW OR ALL TRUNKS BUSY REGISTRATION.

ISSUE 28B

1D99

STEP BY STEP SYSTEMS
NO. 1, 350A, 355A, 360A OR 35-E-97
OUTGOING REPEATER CIRCUIT
BATTERY AND GROUND OR LOOP PULSING LOOP SUPERVISION
ARRANGED FOR 2 REPEATERS PER BASE AND FOR TEMPORARY USE TO CALL INDICATOR OFFICE

AT&TCO STANDARD
A & M ONLY FOR 350A, 360A & 35-E-97

SD-31779-01-A
5 SHEETS

NOTICE
NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT

BELL TELEPHONE LABORATORIES
INCORPORATED

A-10-8771E-02

CIRCUIT REQUIREMENTS

APPARATUS		MECH REQ			CIRCUIT PREPARATION				DIRECT CURRENT FLOW REQ				TIME REQ		REMARKS				
DESIG	CODE	OPT	FIG.	RESID.	BSP FIG.	CONT PRES	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST SET PREP	SEE TEST NOTE	TEST WDG	TEST FOR		AFTER SOAK MA	TEST MA	READJ MA	TEST SEC
									CONN BAT.	CONN GRD									
RELAYS																			
A	221FAC		1,3	4-8	366		8	(D) NO	TST-JK-2	TST-JK-1	M	1,4,5	P/S	O	FS	14.1	13.4		
								(D) NO	TST-JK-2	TST-JK-1	M	5	P/S	NO	FS	11.7	12.4		
								(D) NO	TST-JK-2	TST-JK-1	M	1,4,6,8	P/S	O	FS	16			
								(D) NO	TST-JK-2	TST-JK-1	M	6,8	P/S	NO	FS	11.5			
B	248F	ZG, ZM	1,3	15-4	516		27												
								3(A)	GRD	9			O	FS	10.5	10			
								3(A)	GRD	9			NO	FS	8.5	9			
									TST-JK-2	TST-JK-1	V-BR	3,7	H						.333
									TST-JK-2	TST-JK-1	V-BR	3	R						.750
								3(A)	GRD	3			NO	FS	8.5	9			
B	248J	S	1	15-4	522		28												
								3(A)	GRD	9			O	FS	10.5	10			
								3(A)	GRD	9			NO	FS	8.5	9			
									TST-JK-2	TST-JK-1	V-BR	3,7	H						.333
									TST-JK-2	TST-JK-1	V-BR	3	R						.750
								3(A)	GRD	3			NO	FS	8.5	9			
B	248D	R,ZN	1	15-4	504		28												
								3(A)	GRD	9			O	FS	10.5	10			
								3(A)	GRD	9			NO	FS	8.5	9			
									TST-JK-2	TST-JK-1	V-BR	3,7	H						.333
									TST-JK-2	TST-JK-1	V-BR	3	R						.750
								3(A)	GRD	3			NO	FS	8.5	9			
C	247H	B	1	15-4	519		48												
								8(D)	GRD	9,16			O	FS	26	24.5			
								8(D)	GRD	9,16			NO	FS	16	17			
									TST-JK-2	TST-JK-1	V-M	3,17	H						.125
									TST-JK-2	TST-JK-1	V-M	3	R						.275
								8(D)	GRD	3,16			NO	FS	16	17			
C	247J	A	1,3	15-4	521		49												
								8(D)	GRD	9,10			O	FS	21	20			
								8(D)	GRD	9,10			NO	FS	13.3	14			
									TST-JK-2	TST-JK-1	V-M	3,17	H						.125
									TST-JK-2	TST-JK-1	V-M	3	R						.275
								8(D)	GRD	3,10			NO	FS	13.3	14			
D	252A		3		367		18	2(C),5(C),1(A), (A)NO,(B)O	5(C)	2(C)	B/G	11,13,15	F	O		14	13.3		
									5(C)	2(C)	B/G	11,15	F	H		-9.5	-10		
									5(C)	2(C)	B/G	11,15	F	R		-14	-13.3		
									5(C)	2(C)	B/G	11,15	F	NO		9.7	10.3		
									5(C)	2(C)	B/G	11,15,18	F	NO		-64	-67.5		
D	252A		1		367		18	5(C) WITH (A) OPTION OR 7(C) WITH (B) OPTION	2(C) WITH (A) OPTION OR 4(C) WITH (B) OPTION	B/G	11,13,15, 19	F	O		14	13.3			
										B/G	11,14, 15,19	F	H		-9.5	-10			
										B/G	11,15,19	F	R		-14	-13.3			
										B/G	11,15,19	F	NO		9.7	10.3			
										B/G	11,15, 18,19	F	NO		-64	-67.5			

TEST NOTES:

- ARM NEED NOT TOUCH CORE ON OPERATE.
- JKS 9 & 11 AND 13 & 15 SHALL MAKE WHEN REP IS REMOVED.
- FOR USE WHEN TIMING REQUIREMENTS ARE APPLIED.
- TEST CONT SEPARATION MIN 3 CONT FOLLOW 2-3, 4-5 & 6-7 MIN & TEST AND READJ CONTS 2-3 AND 4-5 SHALL MAKE BEFORE CONT 6-7.
- FOR USE IN OFFICES WHERE PULSE REP REQUIREMENTS ARE NOT APPLIED.
- FOR USE IN OFFICES WHERE PULSE REP REQUIREMENTS ARE APPLIED, DO NOT APPLY PULSE REP REQUIREMENTS WHEN THIS CKT PULSES ON A LOOP BASIS INTO A CBR NO 1 OR 5 OFFICE OR A CBR TDM OFFICE.
- TST HOLD-USE 1400Ω LOOP IN PULSE TST SET.
- APPLY PULSE REQ (A) 48-78% BK FOR BAT GRD PULSING OR 46-78% BK FOR LOOP PULSING CONNECT TST SET TO (T) JK SPRINGS 1,2 & 3 FOR INPUT AND 5-6 FOR OUTPUT.
- FOR USE WHERE TIMING REQUIREMENTS ARE NOT APPLIED.
- TEST-CONTACTS 2-3 SHALL BREAK BEFORE CONT 4-6 OR 7-8 MAKE. CONT PRES SPRINGS 2-3 & 5-6 MIN 15 GRAMS.
- APPLY CURRENT WITH THE BAT AT 48.5-50V.
- CONTACTS 1-3 & 4-6 MAY MAKE BEFORE CONTACT 7-8 BREAKS.
- CONT PRES TEST-SPRINGS 2-3 & 5-6 MIN 35 GRAMS. SPRINGS 7-8 MIN 15 GRAMS. READJ SPRINGS 7-8 MIN 20 GRAMS.
- PRIOR TO ISSUE 4-B, THE HOLD VALUE WAS NOT SHOWN.
- APPLY CURRENT FLOW REQUIREMENTS IN ORDER SHOWN. RLS KEY OF TEST SET SHALL NOT BE CLOSED WHEN APPLYING HOLD OPR & NON-OPR CURRENT.
- TEST-CONTACTS 4-5 SHALL BREAK BEFORE 6-8 & 9-10 MAKE, CONT PRES SPRINGS 4-5 & 7-8, MIN 15 GRAMS.
- TST HOLD-USE LEAK (A) IN PULSE TST SET.
- IF SUFFICIENT CURRENT CANNOT BE OBTAINED, SHORT CIRCUIT RESISTANCE (C).
- BLOCK (A) NO & (B) O; INSULATE 1(A), 2(C) & 5(C) WITH (A) OPTION OR 1(A), 4(C) & 7(C) WITH (B) OPTION.

FIG 69

(FOR 4 FIG 2)

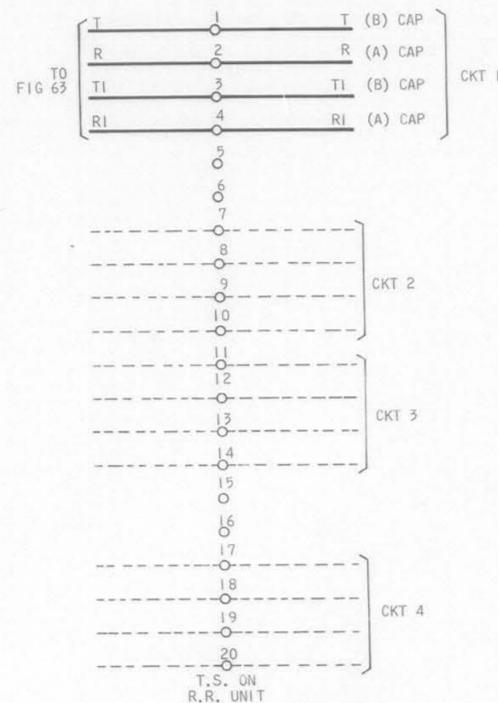
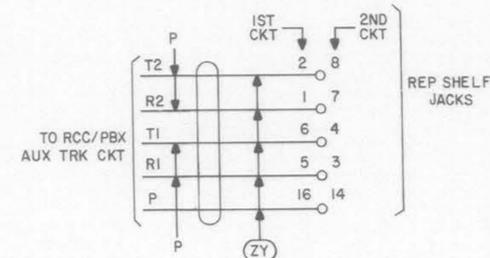


FIG 70

(FOR FIG 3)
FOR REPEATERS REQUIRING CONNECTION TO RCC/PBX AUX TRK CKT



DRAWING

ISSUE
28B

OUTGOING REPEATER CIRCUIT SD-31779-013

BELL TELEPHONE LABORATORIES INCORPORATED 6S PRINTED IN U.S.A.

FIG. K
(MFR. DISC.)
FOR OFFICES USING T.D.F. OR I.D.F.

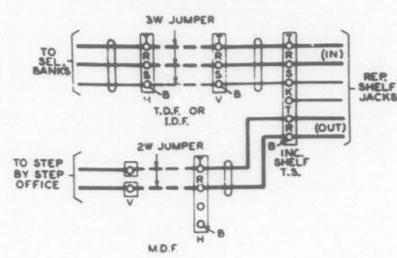


FIG. R
(MFR. DISC.)
FOR 350 A DIAL OFFICES

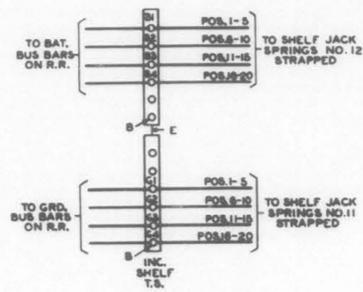


FIG. 51
FOR OFFICES USING T.D.F. OR I.D.F.

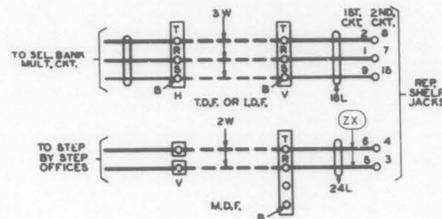


FIG. 52
FOR OFFICES USING T.D.F. OR I.D.F.
AND ROT. OUT. TRK. SWITCHES

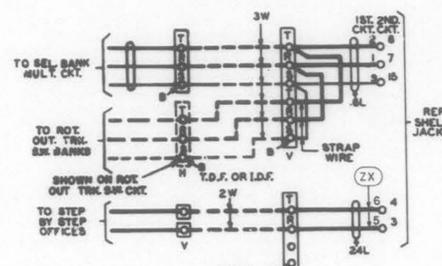


FIG. 53
FOR OFFICES
USING C.D.F. FOR INCOMING AND OUTGOING CABLES

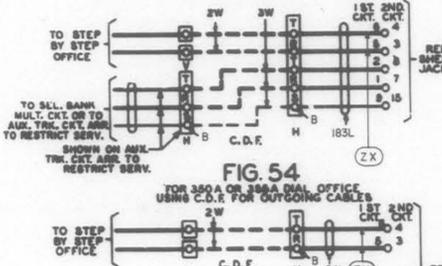


FIG. 55
(A&M ONLY)
FOR 350 A DIAL OFFICE

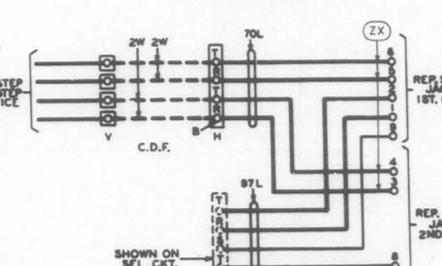


FIG. 56
FOR UNITS MOUNTED ON R.R.
2 REPEATERS PER PLATE
CENTRAL OFFICES

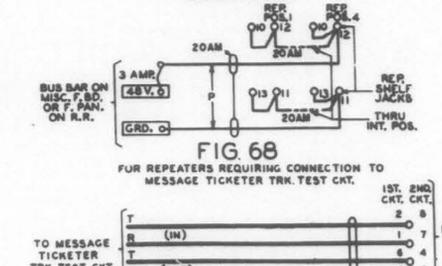


FIG. 68
FOR REPEATERS REQUIRING CONNECTION TO
MESSAGE TICKETER TRK. TEST CNT.



FIG. 57
FOR UNITS MOUNTED ON SW. FR.
FOR CENTRAL OFFICES
2 REPEATERS PER PLATE

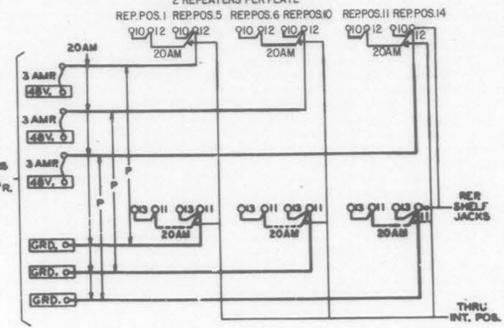


FIG. 58
FOR UNITS MOUNTED ON R.R.
2 REPEATERS PER PLATE
350 A, 355 A AND 358 A OFFICES

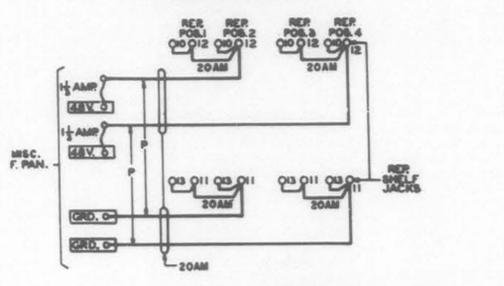


FIG. 59
FOR UNITS MOUNTED ON SW. FR. 350 A OR 358 A OFFICE
2 REPEATERS PER PLATE
SEE NOTE 201

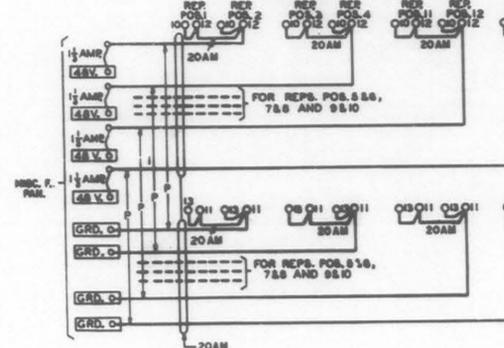


FIG. 60
FOR C.I. OFFICES USING T.D.F. OR I.D.F.

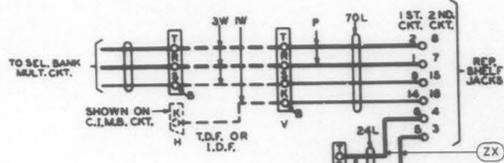


FIG. 66
FOR REPEATER CKTS. REQUIRING CONNECTION
OF SUCC. SELECTORS, ROT. OUT. TRK. SW. OR
MAKE BUSY CNT. IN SAME OFFICE

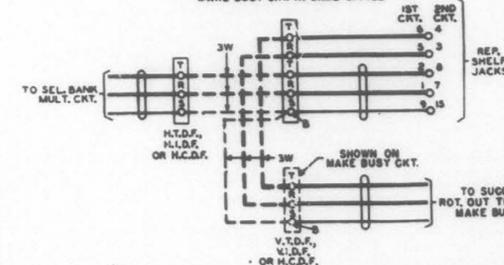


FIG. 61
FOR C.I. OFFICES USING T.D.F. OR I.D.F.
AND ROT. OUT. TRK. SW.

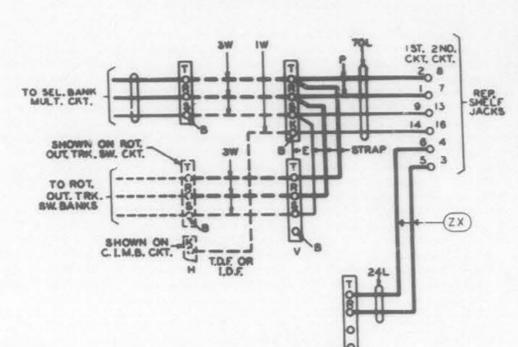


FIG. 62
FOR C.I. OFFICES
CONDUCTOR LOOP OVER 600'

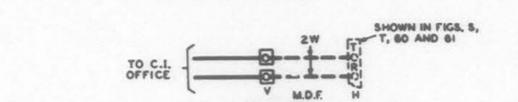


FIG. 63
FOR C.I. OFFICES
CONDUCTOR LOOP UNDER 600'

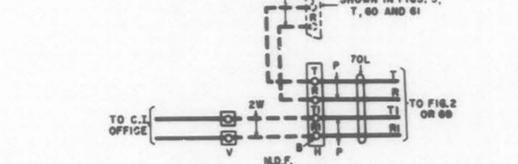


FIG. 67
FOR OFFICES USING C.D.F.
AND ROT. OUT. TRK. SWITCHES

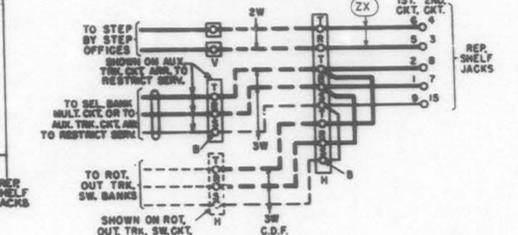


FIG. 64
(A&M ONLY)
FOR UNITS MOUNTED ON REP. FR.
20 REP. POS. PER SHELF
FOR CENTRAL OFFICES
2 REPS. PER PLATE

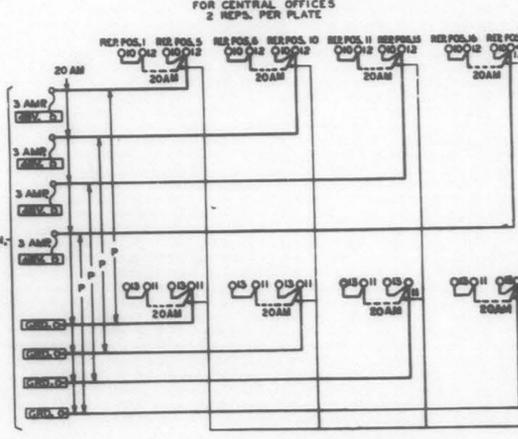


FIG. 65
(A&M ONLY)
FOR UNITS MOUNTED ON REP. FR.
20 REP. POS. PER SHELF
350 A OR 355 A OFFICE
2 REPS. PER PLATE
SEE NOTE 201

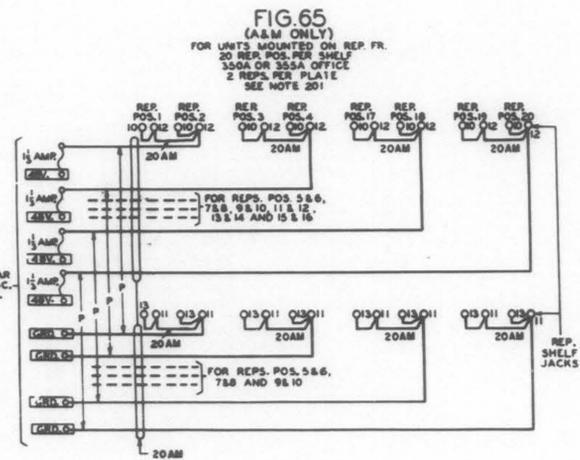


FIG. 62
FOR C.I. OFFICES
CONDUCTOR LOOP OVER 600'

FIG. 63
FOR C.I. OFFICES
CONDUCTOR LOOP UNDER 600'

FIG. 64
(A&M ONLY)
FOR UNITS MOUNTED ON REP. FR.
20 REP. POS. PER SHELF
FOR CENTRAL OFFICES
2 REPS. PER PLATE

FIG. 65
(A&M ONLY)
FOR UNITS MOUNTED ON REP. FR.
20 REP. POS. PER SHELF
350 A OR 355 A OFFICE
2 REPS. PER PLATE
SEE NOTE 201

FIG. 66
FOR REPEATER CKTS. REQUIRING CONNECTION
OF SUCC. SELECTORS, ROT. OUT. TRK. SW. OR
MAKE BUSY CNT. IN SAME OFFICE

EQUIPMENT NOTES (CONT.)
204. PRIOR TO ISSUE 9-D, THE BAT. AND GRD. LOOP LEADS IN FIGS. 57, 58, 59, 64, 65 AND 66 BETWEEN REP. POSITIONS ON THE SAME SHELF WERE TAKEN FROM TERMS. 12 AND 11 RESPECTIVELY OF THE PRECEDING POSITION TO TERMS. 10 AND 13 RESPECTIVELY OF THE SUCCEEDING POSITION. THE ARRANGEMENT NOW SHOWN PERMITS UNIVERSAL WIRING FOR 2 REPS. PER SHELF OR 1 REPS. PER SHELF. IN FIG. 53 THE SEL. BANKS WERE TERMINATED ON THE V.D.F. IN ERROR, AND FIG. 67 WAS NOT SHOWN. THE 'T' AND 'R' LEADS IN FIG. 63 WERE REVERSED. CONNECTION TO ROT. OUT. TRK. SW. WAS NOT SHOWN IN FIG. 66 AND THIS FIG. WAS RATED 'SPECIAL'.
205. REPEATERS (OTHER THAN CALL INDICATOR) MANUFACTURED PER ISSUE 170 OF THIS DRAWING SHALL BE EQUIPPED WITH '2B', '2C' AND '2D' APPARATUS OPTIONS IN ALL CASES AND WIRING SO THAT ANY ONE OF 'A', 'M', 'Q' OR '2A' WIRING OPTIONS MAY BE OBTAINED BY WIRING CHANGES AT THE (A), (B), (C) AND (D) RESISTANCES AND (F) CONDENSER.

EQUIPMENT NOTES:
201. INTERMEDIATE POS. 3-15 WIRING SAME AS SHOWN FOR ADJACENT POS.
202. THE LEFT HAND NUMBER AT EACH PLUG TERMINAL IS FOR CKT. 1, AND THE RIGHT HAND NUMBER IS FOR CKT. 2
203. ON ISSUE 9-D, FIGS. 64 AND 65 WERE ADDED. POS. 15 TO 20 ARE RATED 'A&M ONLY'.

