



HM-7 ALL MASTER HOME
INTERCOM SYSTEM

SERVICE MANUAL

**MODELS: HM-7
: CH-B**

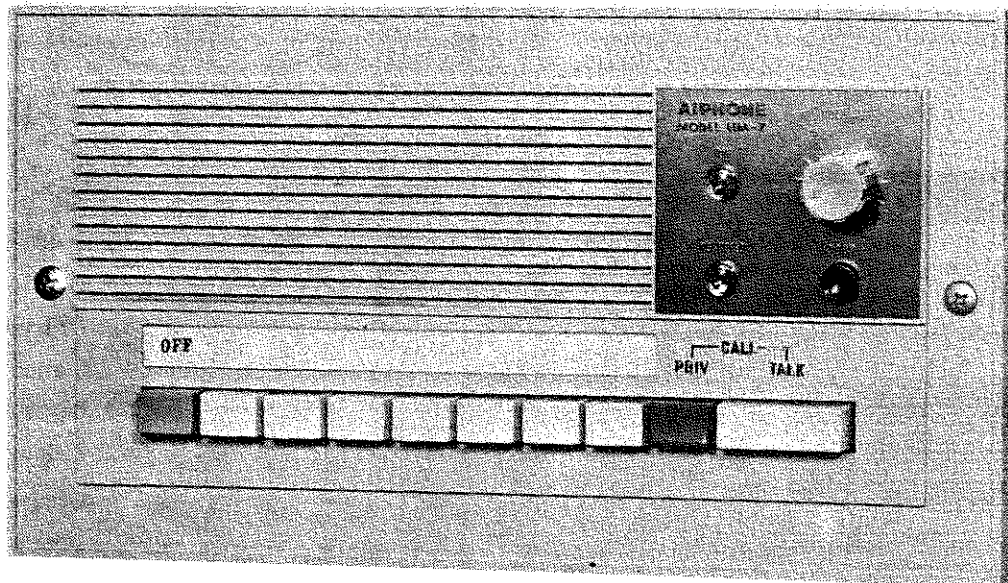
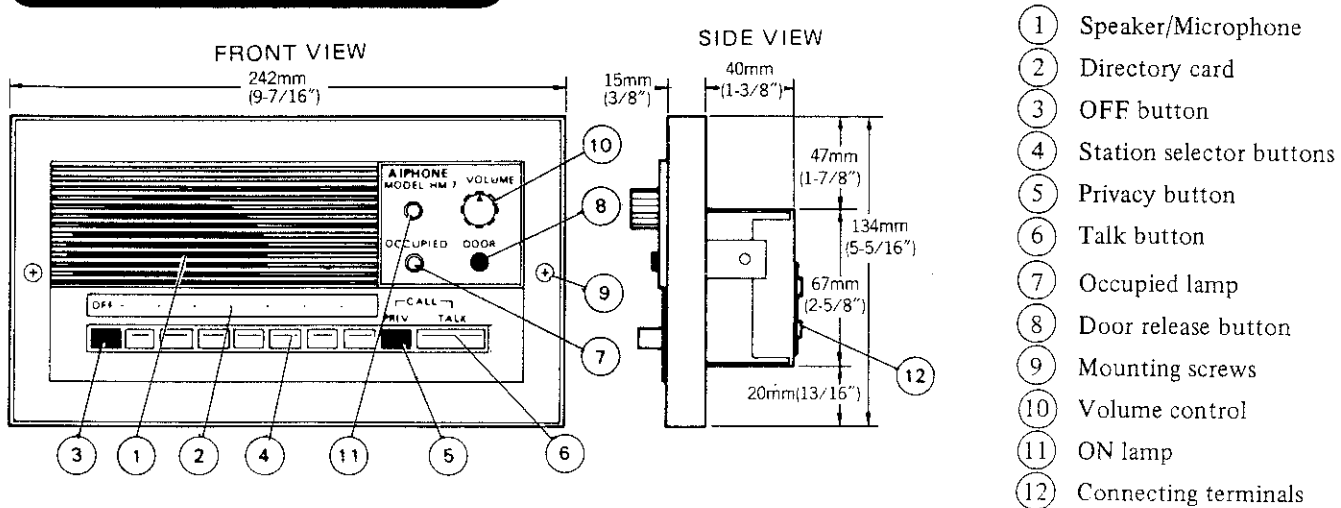


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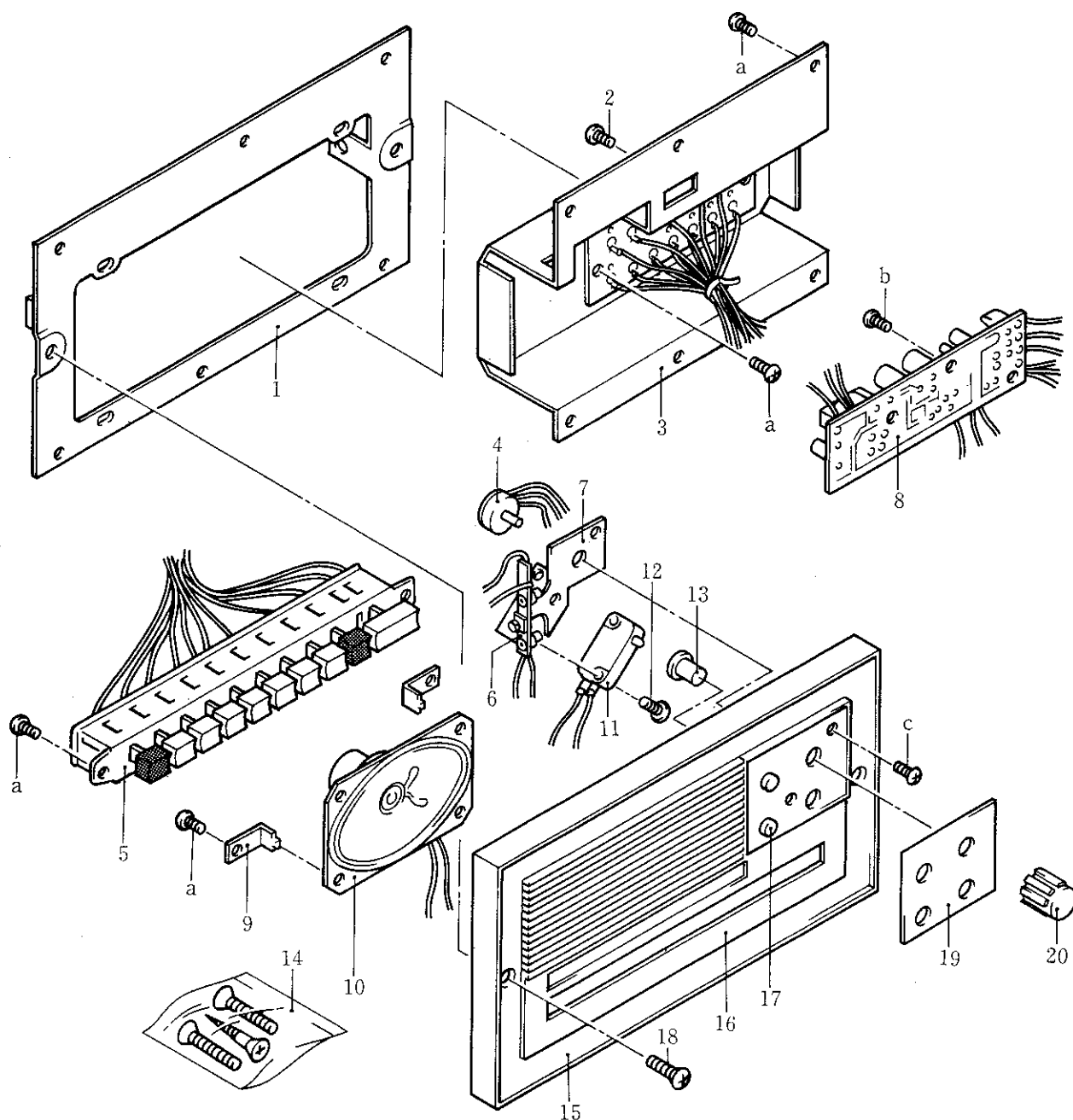
NAMES & FUNCTIONS



SPECIFICATIONS

Power source	DC 12 volt. Use PS-12S AC adaptor (PS-12C in North America).			
Current consumption	500 mA maximum.			
Station selection	Push button station selection from each HM-7 master station.			
Wiring	Up to 14 conductors may be required.			
Weight	1.2 kg (2.6 LBS)			
Diameter of wire	0.5 mm (24 AWG)	0.65 mm (22 AWG)	0.8 mm (20 AWG)	1.0 mm (18 AWG)
Distance	120 m (400')	200 m (650')	300 m (1000')	400m (1650')

ASSEMBLY LAYOUT & PARTS LIST



PARTS LIST

NO.	PARTS NAME	PARTS CODE
1	HM-7 mounting ring	1 3 6 2 9 1
2	FE 3×6±BI ZN	1 0 0 5 9 3
3	HM cover	1 3 6 3 0 5
4	171-NA 10K volume	0 1 3 0 4 6
5	L·10B-41/A SW complete	1 6 0 3 6 0
6	EP099(HM) complete	9 1 1 1 3 9
7	HM VR holder	1 4 4 0 2 7
8	PC028B complete	9 1 0 5 0 7
9	HM SP clamp	1 4 4 0 1 4
10	96D1 speaker	0 0 0 1 0 1
11	VV-5-3A SW	0 1 0 5 4 0
12	FE 3×12+BA ZN	1 0 0 6 2 3

NO.	PARTS NAME	PARTS CODE
13	HM8φ button	2 3 1 4 0 2
14	HM mounting screws	1 9 0 1 2 5
15	HM panel	2 2 1 7 4 4
16	LH card cramp	2 1 0 2 8 1
17	8φ bracket	2 3 2 7 0 2
18	FE 4×15+MAS(W)	1 0 1 1 1 2
19	HM-7 name plate	1 1 3 3 6 6
20	HM-VR knob	2 3 1 4 1 5
a	FE 3×8 SE screw	F 3 0 8 1 1
b	FE 3×10 SE screw	F 3 1 0 1 1
c	FE 3×6 TT ZN screw	F 3 0 6 2 1

When you order parts for servicing, please specify part names (or description) with their code number.

PC-028B

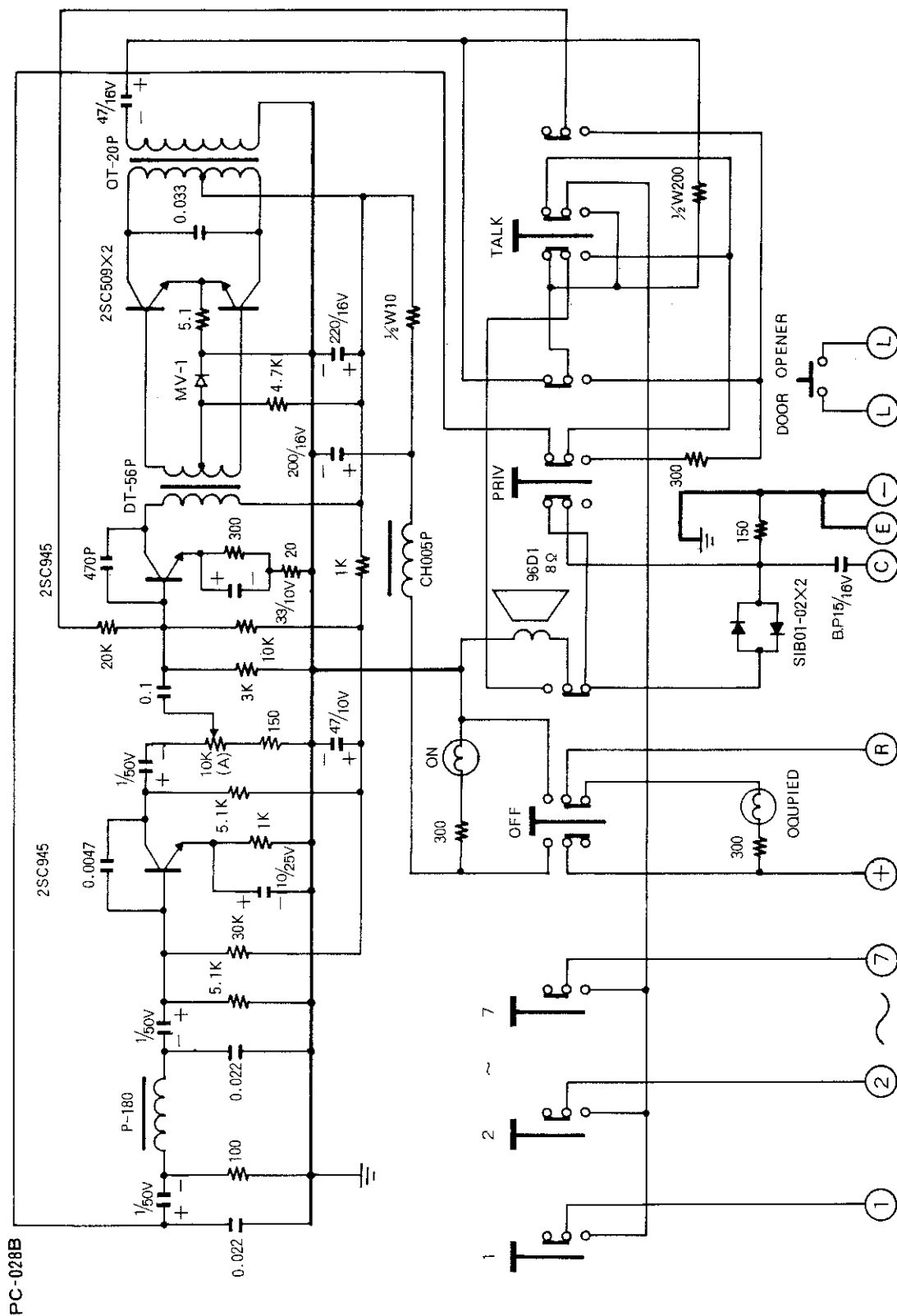
PC-028B



HM-7 PREFERENCE VOLTAGES

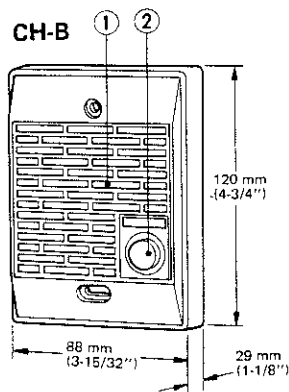
MODE	1	2	3	4	5	6	7	8	9	10	11
WAIT	0	0	0	0	0	0	0	0	0	0	0
CALL	1.4	0.8	5.6	2.0	10.9	1.3	-0.7	0.3	-0.7	11.2	11.3
TRANSMISSION	1.5	0.8	5.7	2.3	11.3	1.6	0.6	0	0.6	11.9	11.9
RECEPTION	1.5	0.8	5.7	2.3	11.3	1.6	0.6	0	0.6	11.9	11.9

CIRCUIT DIAGRAM



DOOR STATION: CH-B

NAMES & FUNCTIONS



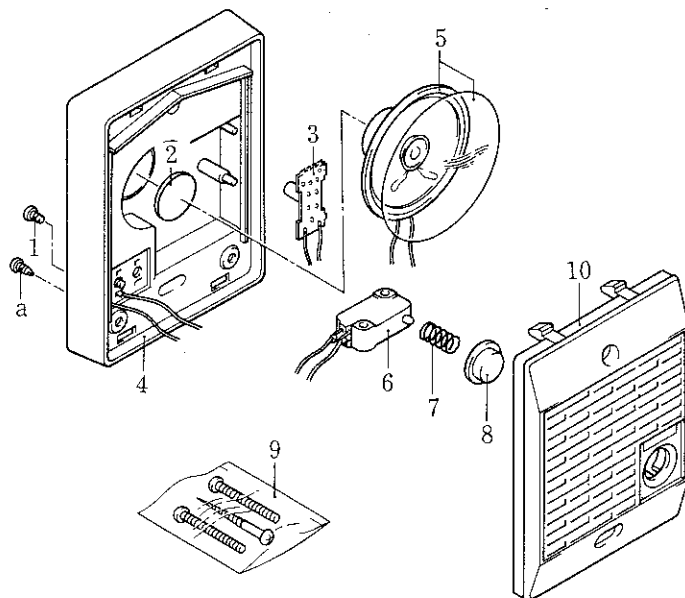
- ① Speaker/Microphone
- ② Call button

SPECIFICATIONS

Wiring	4 conductors required. 2 conductors for each door station connect to HM-7 master station system and 2 conductors connect to existing doorbell.
Weight	220g (0.48 LBS)

Wiring distance	Diameter of wire	0.5 mm (24 AWG)	0.65 mm (22 AWG)	0.8 mm (20 AWG)
	Distance	120 m (400')	200 m (650')	300 m (1000')

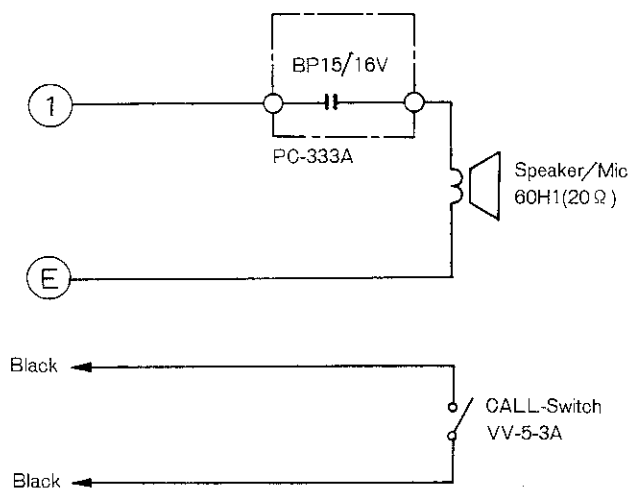
ASSEMBLY LAYOUT & PARTS LIST



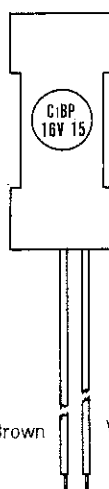
PARTS LIST

NO.	PARTS NAME	PARTS CODE
1	SN 3x6±B NI	1 0 0 6 1 0
2	DB SP packing	2 0 0 2 0 4
3	PC333A complete	9 1 3 4 5 2
4	L-C-D case (lower)	2 2 0 0 2 4
5	L-60H-1 speaker	0 0 0 3 3 2
	DB mic poly-sheet	2 0 1 2 1 4
6	V.V-5-3A SW	0 1 0 5 4 0
7	DX spring	1 4 1 2 9 9
8	IA-DA button	2 3 1 2 5 5
9	C-D mounting screws	1 9 0 1 1 2
10	L-C-D case (upper)	2 2 0 0 1 1
a	FE 3x8 SE screw	F 3 0 8 1 1

CIRCUIT DIAGRAM



PRINTED CIRCUIT BOARD ASSEMBLY



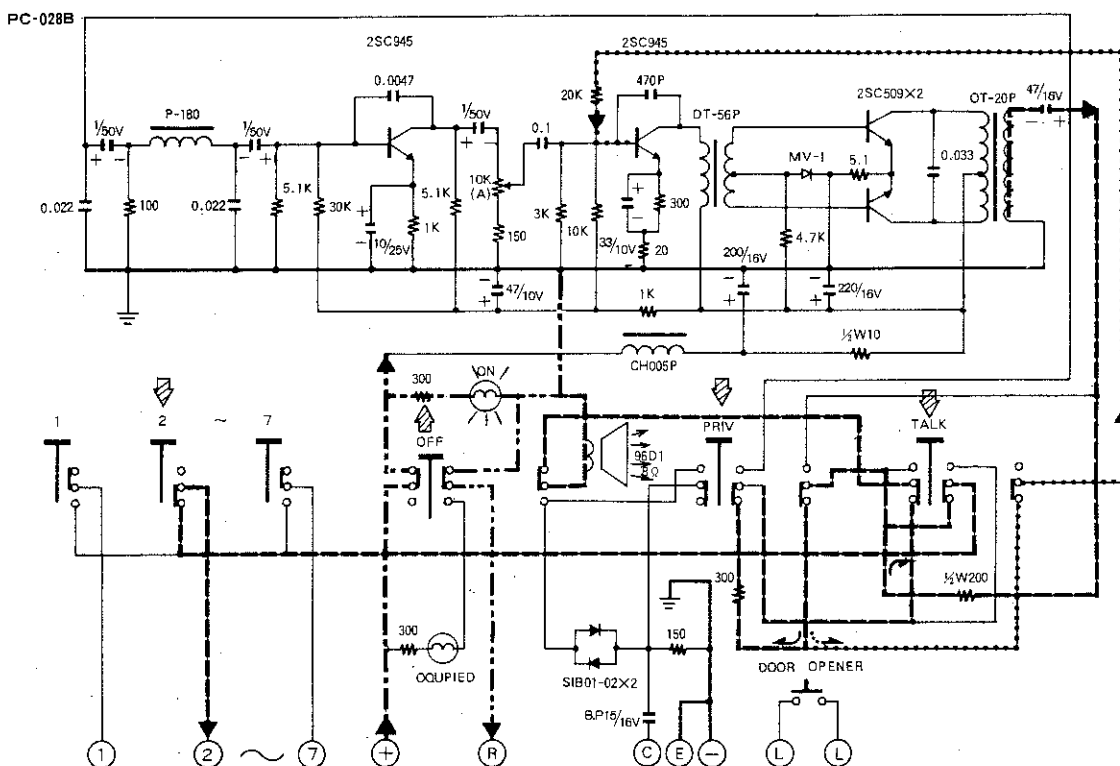
PARTS NAME	PARTS CODE
PC-333A Complete	9 1 3 4 5 2
PC-333A	2 4 2 1 9 6
16V 15μ (B.P)	0 2 1 7 2 6

When you order parts for servicing, please specify part names (or description) with their code number.

BASIC OPERATION

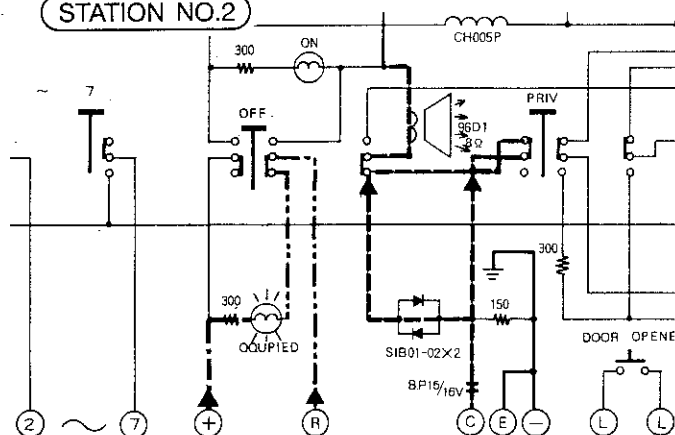
1. CALLING : (Station No.1 Calling Station No.2)

STATION NO.1



1. When STATION SELECTOR BUTTON 2 is depressed and then PRIV SW and TALK SW are depressed simultaneously, an output signal from OT-20P goes thru TALK SW and PRIV SW, and positively feedbacked to the base of the driver stage-transistor and becomes a calling signal.
2. The calling signal goes to terminal ② (which is connected to terminal ③ of station NO.2) thru OT-20P, TALK SW and STATION SELECTOR SW 2.
It also goes to the speaker of original (station NO.1) thru PRIV SW and TALK SW, and is heard as a call acknowledge tone. (-----)

STATION NO.2



3. The output signal from station NO.1 goes thru PRIV SW and is heard from the speaker as a calling tone. (-----)
(When PRIV SW is set at station NO.2, the signal flows from terminal ③ to SIB01-02.)

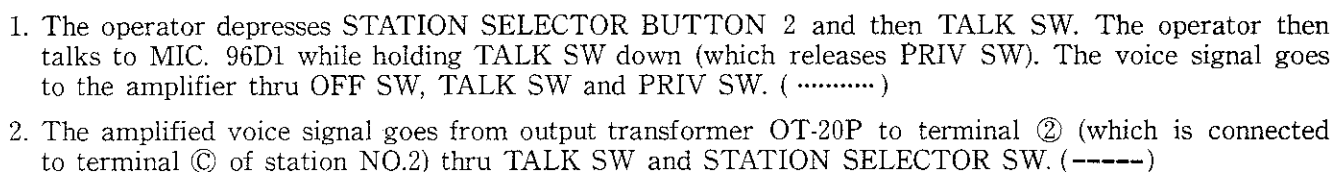
* INDICATOR LAMP

Depressing STATION SELECTOR BUTTON 2 unlocks OFF SW.

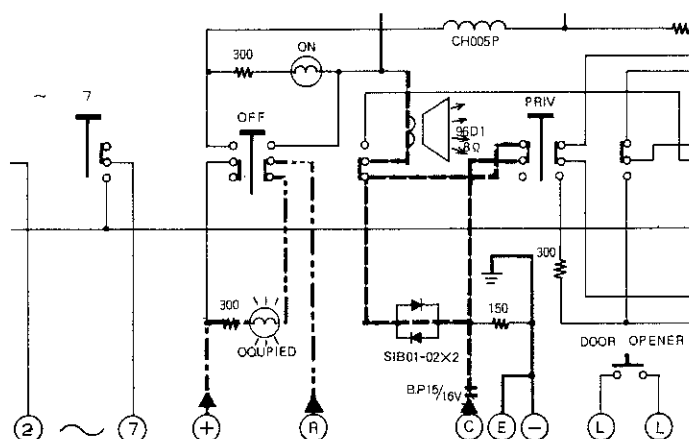
This causes positive voltage to be applied from terminal ⊕ and illuminates ON LAMP.

At the same time, since it also sends negative voltage to terminal ③ of station NO.2, OCCUPIED LAMP of station NO.2 lights up and warns that the line is being used. Since negative voltage is sent to terminal ③ of all other stations, OCCUPIED LAMP lights up on each station.

STATION NO.1



STATION NO.2



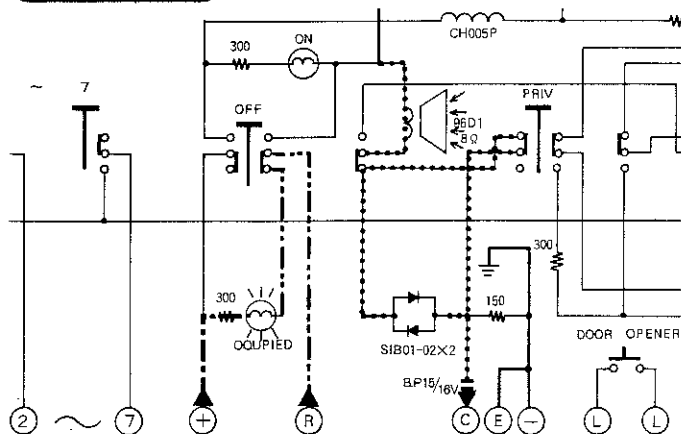
3. The voice signal being supplied to terminal © of station NO.2 goes thru PRIV SW and is heard from speaker 96D1 as voice sounds.
(-----)

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3. RECEPTION (monitoring station NO.2 from station NO.1)

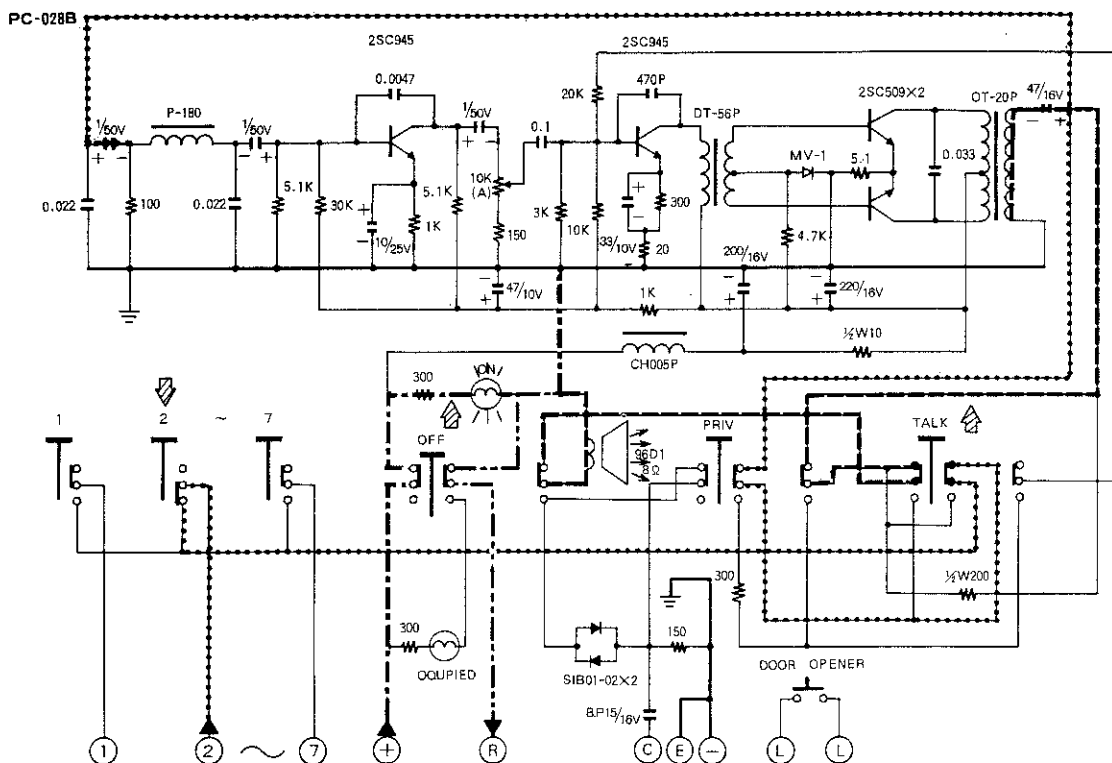
When the operator releases TALK SW which has been kept depressed, the operator can listen to the voice (or sounds) from station NO.2.

STATION NO.2

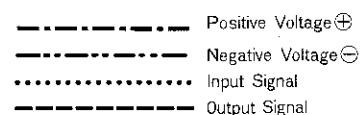


1. When the person called at station NO.2 replies to the speaker (96D1), the input voice (sounds) signal goes to the terminal ③ (which is connected to terminal ② of station NO.1) thru OFF SW and PRIV SW. (.....) if PRIV SW is ON at this time, the voice (sounds) signal is blocked by diode SIB01-02 and does not reach terminal ③ (and the sounds can not be monitored).

STATION NO.1



2. The voice (sounds) signal which is supplied to terminal ② of station NO.1 goes to the amplifier thru STATION SELECTOR SW, TALK SW and PRIV SW.
3. The voice (sounds) signal which is transmitted from transformer OT-20P goes to the speaker (96D1) thru TALK SW and PRIV SW, and is heard as a reception voice (or monitored sounds). (-----)



TROUBLE SHOOTING

○:Operative ×:Non-Operative

CALLING		COMMUNICATION		INDICATION		TROUBLE AFFECTS	PARTICULARS	LOOK FOR
Receive a Call	Make a Call	Trans-mission	Reception	Occupied	Power-on			
×	×	×	×	×	×	All Stations	The system is dead	• Power supply not plugged. • Connector leads to power supply disconnected. • Defective power supply. • L-10B-41/A SW is defective.(※)
						Particular Station		• Wiring is disconnected.
×	○	×	×	○	○	All Stations	No Call acknowledgement tone	• Speaker (96D1) is defective.
○	×	×	×	○	○	All Stations		• Power amplifier circuit is defective 2SC 945, 2SC 509, DT-56, OT-20P etc.
○	○	×	×	○	○	All Stations		• Pre amplifier circuit is defective. 2SC 945, VR1 etc.
○	○	○	○	×	○	Particular Station	Receiving a Call	• Occupied lamp is defective.
○	○	○	○	○	×		Making a Call	• Power on lamp is defective.

※Replacement of L-10B-41/A SW ASSY → $\frac{1}{2}W \cdot 200 \Omega$ (parts code:030588) and $\frac{1}{4}W \cdot 300 \Omega$ resistors have to be attached to Newly replaced L-10B-41/A SW ASSY.

MEMO