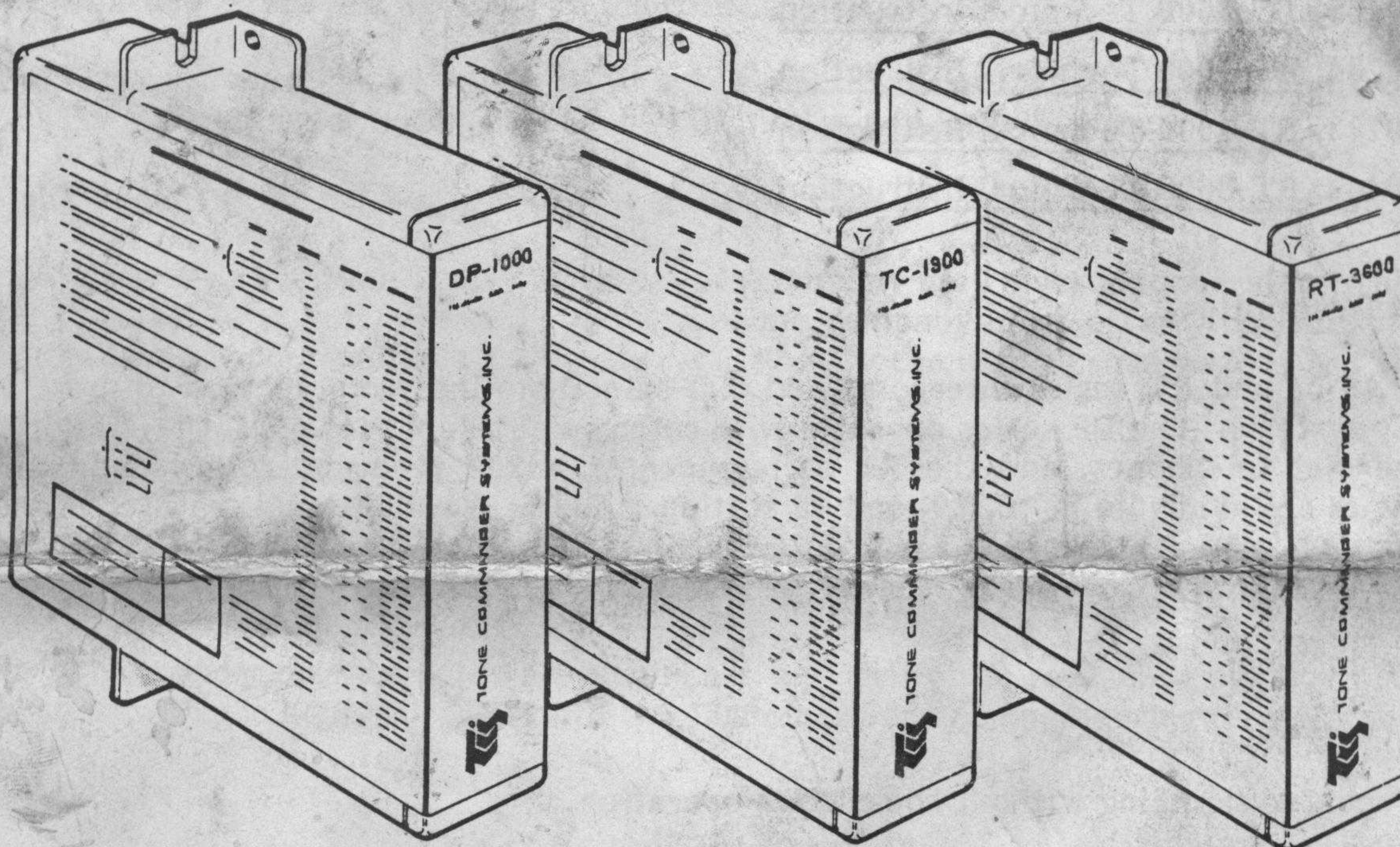# TONE COMMANDER

Box 97039 ● 4320 150th Avenue NE
Redmond, WA 98073-9739 USA
Phone: (206) 883-3600 Telex: 15-2246

DP, TC and RT SERIES
COMMON TALK PATH INTERCOMS
INSTALLATION INSTRUCTIONS
June 1986

Doc. #13-102105 Rev. A

DP-1000	TC-1000	RT-1000
DP-1900	TC-1900	RT-1900
DP-3600	TC-3600	RT-3600

Contents

1. GENERAL

Manual Changes

This installation manual replaces the following documents:

#13-100764, <u>DP-1000 Technical Instruction</u>
#13-100380, <u>DP-1900 Technical Instruction</u>
#13-100381, <u>DP-3600 Technical Instruction</u>
#13-100448, <u>TC-1000 Technical Instruction</u>
#13-100449, <u>TC-1900 Technical Instruction</u>
#13-100465, <u>TC-3600 Technical Instruction</u>
#13-100734, <u>RT-1000 Technical Instruction</u>
#13-100733, <u>RT-1900 Technical Instruction</u>
#13-100444, <u>RT-3600 Technical Instruction</u>

Product Description

The DP, TC and RT series intercoms add dial-selectable intercom service to most 1A2-type key systems. The DP series operates with rotary dial telephones only, the TC series is for tone dial telephones, and the RT series accepts mixed tone and rotary dialing. All three types are available in 10, 19, and 36 station models. No additional transfer circuitry is required.

Features include:

- Digital tone decoding
- Repeated signaling without hookswitch operation
- Conference calling
- Timed one second ringing output
- Buzzer or bell signaling
- Transfer reset after signaling
- Separate contacts for lamps and paging latch
- A25B connectorized
- Mounts in standard KTU rack or on wall
- No field adjustments required

Additional Material Required

One 66-type terminal block

One 25 pair cable with female ribbon connector (A25B)

One key system power supply

1. GENERAL (cont'd.)

Federal Communications Commission (FCC) Regulations

To comply with FCC regulations, the following requirements must be met:

- The FCC registration number (**AHI9V9-67221-KX-N**) must be reported to the telephone company. Ringer equivalence is not applicable to this unit.

- This equipment complies with the requirements in Part 15 of FCC Rules for a "Class A" computing device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception, requiring the operator to take whatever steps are necessary to correct the interference.

- This unit must be installed by telephone company personnel or agents authorized by Tone Commander under Part 68 of FCC Rules and Regulations.

- This unit must not be installed on coin-operated or multi-party telephone lines.

- If this unit malfunctions, the telephone company may disconnect service temporarily. If disconnection is necessary, the telephone company must attempt to notify the user in advance, if possible. If not, they must notify the user as soon as they are able.

- Repair work on this unit must be done by Tone Commander.

Consumer Comment

Tone Commander is interested in comments and criticism regarding our equipment and literature. Please address remarks to the **Customer Service Engineering Department.**

2. SPECIFICATIONS

Physical

Dimensions: 7" x 1-1/16" x 6-5/8" (17.8cm x 2.7cm x 16.8cm)

Weight: 1 lb. (.45kg)

Station Capacity

DP-1000, TC-1000, RT-1000: 10 stations

DP-1900, TC-1900, RT-1900: 19 stations

DP-3600, TC-3600, RT-3600: 36 stations

Talk Path Loop

Maximum loop: 600 ohms

2. SPECIFICATIONS (cont'd.)

Rotary Dialing (DP and RT series only)

Pulse Speed: 8-11 pulses per second

Percent Break: 52 to 64%

Minimum Interdigital Time: 200mS

Tone Dialing (TC and RT series only)

Signal Level Input: -10 to +6dBm

Bandwidth: $\pm$1.75% @ 0dBm

Twist: $\pm$6dB

Minimum Interdigital Time: 40mS

Signaling Output

Contact Rating: 50VA

Signaling Time: 1 second

Lamp and Paging Contacts: closed when any station is off-hook

Power Supply Requirements

A Battery (talk path supply):
  -20 to -28VDC, 200mA, filtered

B Battery (powers relays and decoding circuitry):
  -20 to -28VDC, 200mA, may be unfiltered
  (idle current   55mA @ -24VDC)

Lamp Battery: depends upon lamps in telephones
  typically 10VAC, 40mA per station

Ringing Supply: depends upon signaling devices in telephones
  typically 105VAC, 30Hz for bells, 10-18VAC for buzzers

Environmental

Operating Temperature: 32° to 122°F (0° to 50°C)

Storage Temperature: -4° to 140°F (-20° to 60°C)

Humidity: 0 to 95%, noncondensing

FCC

Registration Number: AHI9V9-67221-KX-N

Ringer Equivalence: not applicable

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3. INSTALLATION

Refer to Figure 1 and Table 1.

Mounting

The intercom may be wall mounted or installed in an equipment rack. Mount a 66-type block in a convenient location near the intercom and label it as shown in Table 1.

Power and Cabling

Punch down one 25 pair female-ended cable (or use connectorized block). Do not plug this cable into the intercom until installation is complete.

Connect the following to the power supply:

- **AUD SUP** and **AUD GRD** to the ringing source.
  (Connect ringing supply ground externally to bells when installing DP-3600, TC-3600, or RT-3600 units.)

- **'A' BAT** and **'A' GRD** to the talk (filtered) DC outputs

- **'B' BAT** and **'B' GRD** to the signal (unfiltered) DC outputs

- **LB** to lamp battery.

- Lamp grounds from all stations to lamp ground on the power supply.

- **COMMON ALL GROUNDS AT THE POWER SUPPLY.**

Cross Connections

Connect **TIP** and **RING** to all telephone intercom lines and paging circuits. Do not bridge the intercom to any line supplying a foreign source of power (C.O., F.X., etc.).

Connect **R** (ringing output) and **B** (ringing ground) to the bell or buzzer of each telephone. Bell or buzzer grounds from each telephone must be connected externally to ground when installing DP-3600, TC-3600, or RT-3600 units.

Connect **L** (lamp output) to the intercom lamp leads of each telphone.

If paging is used, connect **PC** (paging control) to the paging adaptor's latch lead, and **LG** (latch ground) to ground.

NOTE: **LG** and **PC** contacts close when the intercom is seized and can be used to operate or latch an auxiliary circuit. (See Figure 2.)

Figure 1 - - Typical Installation
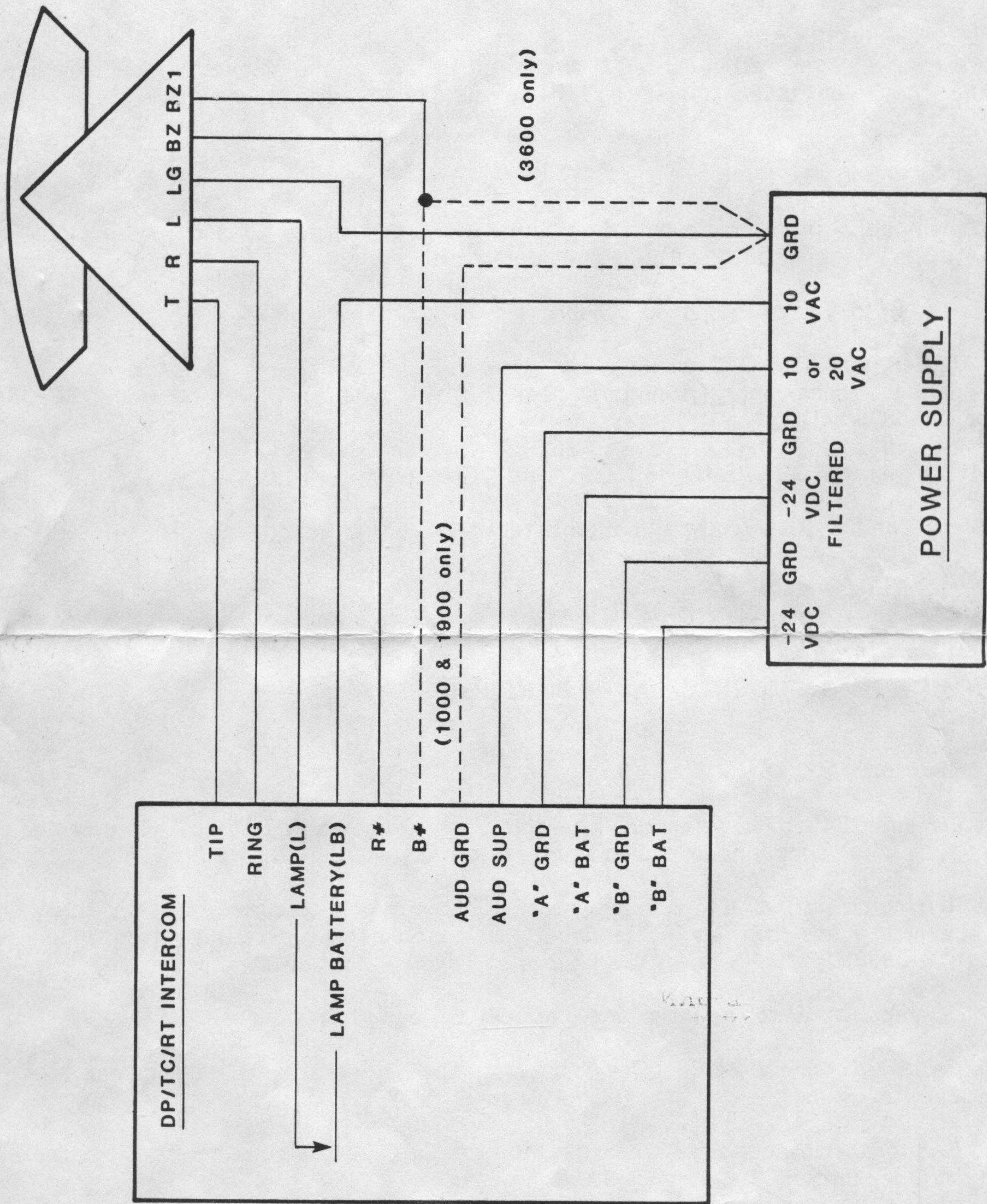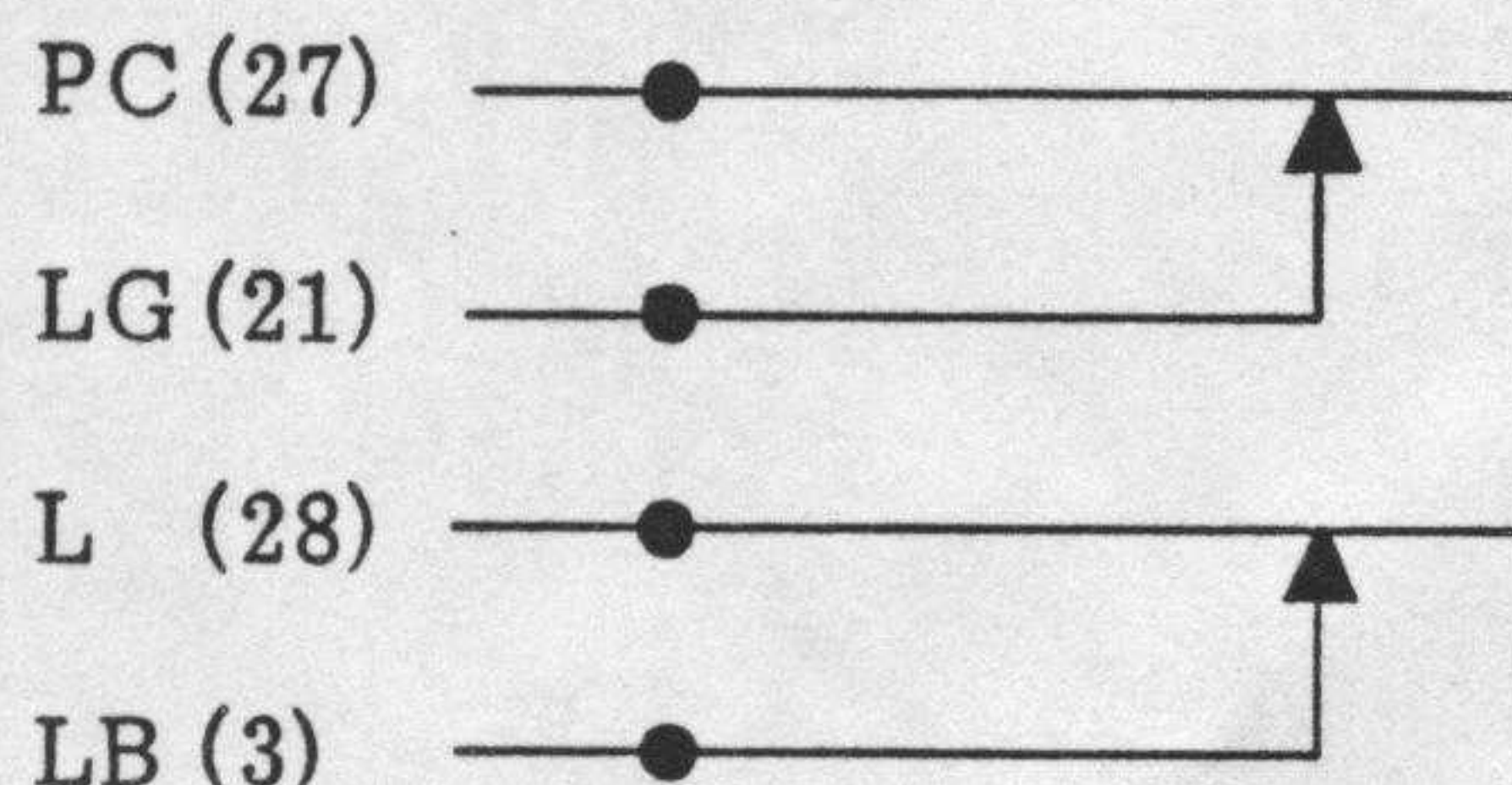
POWER SUPPLY

DP/TC/RT INTERCOM

T R L LG BZ RZ1

(3600 only)

(1000 & 1900 only)

TIP
RING
LAMP(L)
LAMP BATTERY(LB)
R+
B+
AUD GRD
AUD SUP
"A" GRD
"A" BAT
"B" GRD
"B" BAT

GRD
10 VAC
10 GRD or 20 VAC
-24 GRD VDC FILTERED
-24 GRD VDC
-24 VDC

TABLE 1
DP/TC/RT INTERCOM PIN-OUT

PIN #	WIRE COLOR	DP/TC/RT-1000 DESIGNATION	DP/TC/RT-1900 DESIGNATION	DP/TC/RT-3600 DESIGNATION
26	WHT-BLU	TIP	TIP	TIP
1	BLU-WHT	RING	RING	RING
27	WHT-ORN	PC	PC	PC
2	ORN-WHT	LG	LG	LG
28	WHT-GRN	L	L	L
3	GRN-WHT	LB	LB	LB
29	WHT-BRN	-	B0	R20
4	BRN-WHT	-	R0	R0
30	WHT-SLT	-	B1	R21
5	SLT-WHT	-	R1	-
31	RED-BLU	-	B3	R22
6	BLU-RED	-	R3	R23
32	RED-ORN	-	B4	R24
7	ORN-RED	-	R4	-
33	RED-GRN	-	B5	R25
8	GRN-RED	-	R5	R5
34	RED-BRN	-	B6	R26
9	BRN-RED	-	R6	R6
35	RED-SLT	-	B7	R27
10	SLT-RED	-	R7	R7
36	BLK-BLU	-	B8	R28
11	BLU-BLK	-	R8	R8
37	BLK-ORN	-	B9	R29
12	ORN-BLK	-	R9	R9
38	BLK-GRN	B0	B20	R40
13	GRN-BLK	R0	R20	R30
39	BLK-BRN	B1	B21	R41
14	BRN-BLK	R1	R21	R31
40	BLK-SLT	B2	B22	R42
15	SLT-BLK	R2	R22	R32
41	YEL-BLU	B3	B23	R43
16	BLU-YEL	R3	R23	R33
42	YEL-ORN	B4	B24	R44
17	ORN-YEL	R4	R24	R34
43	YEL-GRN	B5	B25	R45
18	GRN-YEL	R5	R25	R35
44	YEL-BRN	B6	B26	R46
19	BRN-YEL	R6	R26	R36
45	YEL-SLT	B7	B27	R47
20	SLT-YEL	R7	R27	R37
46	VIO-BLU	B8	B28	R48
21	BLU-VIO	R8	R28	R38
47	VIO-ORN	B9	B29	R49
22	ORN-VIO	R9	R29	R39
48	VIO-GRN	AUD GRD	AUD GRD	-
23	GRN-VIO	AUD SUP	AUD SUP	AUD SUP
49	VIO-BRN	'A' GRD	'A' GRD	'A' GRD
24	BRN-VIO	'A' BAT	'A' BAT	'A' BAT
50	VIO-SLT	'B' GRD	'B' GRD	'B' GRD
25	SLT-VIO	'B' BAT	'B' BAT	'B' BAT

3. INSTALLATION (cont'd.)

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PC (27) ●————————————┐
                     ↑
LG (21) ●————————————┘

L  (28) ●————————————┐
                     ↑
LB (3)  ●————————————┘
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Contacts close in off-hook condition.

Contact rating: 2 amps.

Figure 2 - - Lamp and Paging Control

4. OPERATION

Placing a Call

NOTE: Before attempting to place a call, verify that the intercom light on the key set is OFF. If it is ON, the intercom talk path is accessed and no new calls can be initiated.

- Go off-hook with the station's receiver.

- Depress the intercom key. Verify that it lights.

- Dial the code of the station to be called. The station will ring or buzz for one second.

Repeat Signaling

If your party does not answer immediately after you place the call, you can signal again WITHOUT putting the telephone on-hook. Redial the station number with the telephone off-hook.

Receiving a Call

When you receive a call through intercom, pick up your handset, depress the intercom key, and begin the conversation.

Conferencing Calling

To place a conference call (on tone-dial telephones only), establish a call to one party. Either party already on line can dial the station code of the third party.

To establish a conference call that includes telephones with rotary dial, place a call to one party. Alert that party to a conference call. One station must then go on-hook. The remaining party calls the next party to be conferenced. After allowing time to establish the second call, the waiting party can simply go off-hook and join the call.

5. WARRANTY AND SERVICE INFORMATION

Maintenance and repair on the DP, TC and RT series intercoms must be done by Tone Commander. If the unit is defective, please contact:

TONE COMMANDER
CUSTOMER SERVICE ENGINEERING DEPT.
Box 97039 ● 4320 150th Avenue NE
Redmond WA 98073-9739 USA
Phone: (206) 883-3600 Telex: 15-2246

TONE COMMANDER PRODUCT WARRANTY

For a period of one year from date of manufacture, Tone Commander Systems, Inc. (Tone Commander) warrants its products to be free from defects in material and workmanship under conditions of normal use and service. Tone Commander shall, at its option, repair or replace any defective product which in its opinion has not been misused, damaged, or improperly installed.

Repair or replacement under this warranty will be performed at Tone Commander's factory. Authorization for return (with freight prepaid) must be obtained from Tone Commander prior to returning a product.

Products beyond the warranty period may be repaired at the factory for a reasonable charge. Repaired out-of-warranty units are warranted as above for 90 days from the date of repair.

A handling charge will be assessed on all units, in or out of warranty, that are returned and found to be free of defects.

The repair or replacement of a product under this warranty represents the entire obligation of Tone Commander; and Tone Commander shall not be liable for any special or consequential damages resulting from or caused by any defect, failure, incapacity or malfunction of any of its products.

The foregoing express warranty is in lieu of all other warranties, express or implied, including but not limited to, any implied warranty of merchantability, fitness or adequacy for any purpose or use, quality, productiveness or capacity; and Tone Commander, to the extent permitted by law, hereby disclaims all such other warranties.

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