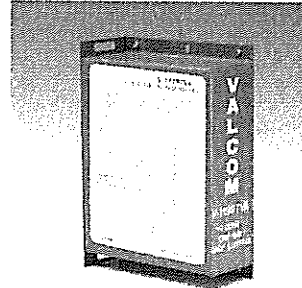


## V-9921HF HANDSFREE TALKBACK UNIT

### INTRODUCTION

The V-9921HF handsfree talkback unit is a self-contained talkback amplifier and VOX circuit for use in single zone two-way page applications.

The V-9921HF handsfree talkback unit has received an FCC type KX registration; designed to be used with FCC registered Key Telephone Systems. In accordance with FCC rules with applicable tariffs, this paging unit may only be installed with the authorization of the host system. Installations may be made by Valcom, Inc., an authorized agent of the same, equipment manufacturers, telephone companies, registered telephone refurbishers, and those qualified for installation of FCC registered systems under FCC Rules Section 68.215. The FCC Registration Number, BAFUSA-69358-KX-N, will be listed in the affidavits filed with the telephone company and also be recorded in the system log kept by installation and maintenance personnel. The local telephone company is to be notified when this paging unit is installed.



### SPECIFICATIONS

#### Features

- Volume control for phone to speaker audio path
- Volume control for speaker to phone audio path
- Speaker cancel circuit (1A2 applications)
- ICM, battery or ground start inputs (latched)
- Alert tone generator
- Battery feed circuit for trunk level access
- Switched lamp and PC lead output when internal battery feed is used
- 15 second repeated alert tone

#### Applications

- 1A2 key system line key positions
- Bell/buzzer intercoms
- Loop start PABX trunk positions
- Bi-directional page ports with page enable contact closure
- Horizon\* Systems

#### Dimensions/Weight

- 7.13"H x 5.75"W x 2.13"D  
(18.11cm H x 14.61cm W x 5.41cm D)
- 2.5 lbs. (1.14 kg)

#### Capacity

- Use one V-9921HF for each zone
- The V-9921HF will drive up to two 45 ohm two-way speakers (talkback page) and 40 one-way amplified speakers (one-way page only)
- The V-9921HF may also be connected to the input of a 70 volt line high power amplifier (one-way page only)
- A V-1094A may be used to increase the number of one-way amplified speakers

#### Nominal Specifications

Output impedance	45 Ohms
Output power	1 watt
ICM start	18VAC or 105 VAC momentary, -24VDC momentary or cont.
Battery start	-24VDC momentary
Ground start	10 ms. min.
Switching sensitivity	-26dB

#### Power Requirements

Voltage	-21.5 to -26VDC	
Current at 24VDC		
Idle	"A" battery	0 mA
	"B" battery	5mA
Operating	"A" battery	60mA
	"B" battery	300mA

\*Trademark of ATT

### **Environmental**

Temperature range 0 to 55°C  
Humidity 0 to 85% non-precipitating

## **INSTALLATION**

### **Precautions**

All precautions have been taken at the factory to insure that the equipment functions properly. Please observe the following precautions or the equipment may be damaged and the warranty voided.

(a) Unplug the power supply before connecting any wires or cables to the control unit connecting block. With power on, accidental bridging of two terminals with a wiring tool may damage electronic circuits.

(b) Do not locate the control unit closer than 18 inches or more than five feet from the power supply.

(c) Do not use a lamp tester to check signals. Use a voltmeter. A lamp tester, when first applied, is a short circuit to electronic circuits.

(d) Do not apply power to the control unit until all connections have been double-checked.

### **Connections**

Mount the V-9921HF in a 7" KTU mounting, relay rack, or on the wall.

Refer to Figure 1 for connecting arrangement and connecting block layout.

(a) Connect a female amphenol ended 25 pair cable to the unit and terminate all leads on a 66 block.

(b) Refer to Figure 2 for connections to a key telephone line button.

(c) Refer to Figure 3 for connections to a PABX loop start trunk position.

(d) Refer to Figure 4 for connections to a key system bell/buzzer type intercom.

**Note: ICM PC Lead must be used. This Lead must supply a ground any time the ICM is in use.**

(e) To connect the inhibit option (1A2 Key Systems) connect each ICM A Lead to its own 10K resistor. Common the other side of all resistors together and connect to INH (GN/V)

(f) Connect A ground and A battery (-24VDC) to V/BN and BN/V respectively.

(g) Connect B ground and B battery (-24VDC) to V/SL and SL/V respectively.

(h) When using a Horizon\*, connect the -24VDC switched page output lead to Y/BN. Holding ground, battery start and ground start are not used. While -24VDC is applied, the V-9921HF will operate, the -24v must be removed on completion of the page for the unit to release.

(i) **Be sure A ground, B ground and signal ground are common at the power supply and are connected to the system cold water pipe ground.**

### **Adjustments**

There are two volume controls on the back of the unit. The bottom control adjusts the phone to speaker level. The top control adjusts the speaker to phone level. Turning the controls clockwise increases the volume.

(a) Phone to speaker: adjust this control for a normal listening level at the speakers.

(b) Speaker to phone: Adjust this control so the reply at the phone is clear. **Important: This is the most critical adjustment. Set the volume at the lowest practical level.**

## **OPERATION**

### **General**

This unit provides provisions for key button, loop trunk, or dial intercom access. Battery feed, ground start and battery start options are provided. After access, an internal amplifier or VOX circuit is turned on. A warning tone is available at access but must be strapped to operate. When the internal battery feed is used as in key access applications, lamp and PC outputs are provided. There are two form C relay contacts available for miscellaneous use. These contacts operate when the unit is accessed. The inhibit option, when wired, will mute the speakers, but normal phone to phone operation is not affected.

### **Detailed Method of Operation**

(a) When the V-9921HF is connected for line key or loop start trunk access, operation is as follows:

When the telephone goes off hook and the line key is pressed, relay A will operate. Ground is connected

from contacts in the A relay through MDF crossconnects to holding ground to activate T relay, turn on the VOX circuit and send the alert tone. Talkpath is now complete and outgoing page may be made. The VOX circuit controls the direction of the talkpath. The calling party has priority control of the VOX and may take control of the conversation at any time by speaking into the mouthpiece. One-half second after the calling party stops talking, the VOX will switch the talkpath so that the calling party is listening. With the inhibit option connected, the circuit will mute the speakers any time two stations are off hook at the same time. Once inhibited, all stations must hang up before the speakers can be accessed again. The inhibit circuit will have no effect on the phone to phone talk path. The V-9921HF will reset to idle condition when all phones go on hook.

- (b) When the V-9921HF is connected to a bell/buzzer intercom, operation is as follows:

When the ICM is accessed, ground is connected from the ICM PC lead to the V-9921HF holding ground. When the correct ICM number is dialed, a burst of buzz voltage is applied to the ICM start lead, operating the T relay, turning on the amplifier, sending the alert tone. Amplifier and

inhibit functions then operate as previously described. When the ICM is released, ground is removed from the holding ground and the V-9921HF will release.

### TECHNICAL ASSISTANCE

When trouble is reported, verify that power is being supplied to the unit and there are no broken connections. Check for proper polarity and voltages on V/BN and V/SL pairs.

Assistance in troubleshooting is available from the factory. When calling, you should have a VOM available and be calling from the job site. Call (540) 427-3900 and ask for Technical Support, or (540) 427-6000 for Valcom 24-hour Automated Support or visit our website at <http://www.valcom.com>.

VALCOM equipment is not field repairable. VALCOM maintains service facilities in Roanoke, VA. Should repairs be necessary, attach a tag to the unit clearly stating your company name, address, phone number, contact person, and the nature of the problem. Send the unit to:

**Valcom, Inc.**  
**Repair and Return Dept.**  
**5614 Hollins Road**  
**Roanoke, VA 24019-5056**

**TABLE 1 - TROUBLESHOOTING CHART**

PROBLEM	PROBABLE CAUSES AND CORRECTIONS
No volume to speaker	<ol style="list-style-type: none"> <li>1. Check phone to speaker volume control.</li> <li>2. Check for audio present at tip and ring input (BL/WH, WH/BL)*.</li> <li>3. Check for audio to signaled speaker pair at 66B block.*</li> <li>4. Check for audio at input of speaker.*</li> <li>5. Remove all connections to inhibit pin and verify problem.</li> </ol>
No volume to phone	<ol style="list-style-type: none"> <li>1. Check speaker to phone volume control.</li> <li>2. Check wiring to talkback speaker.</li> <li>3. Remove all connections to inhibit pin and verify problem.</li> </ol>
No speaker cancel	<ol style="list-style-type: none"> <li>1. Verify ground present at phone side of at least (2) 10K ohm resistors. NOTE: Do not apply ground directly to inhibit input.</li> </ol>
RF Interference	<ol style="list-style-type: none"> <li>1. Strap from A Gnd to B Gnd on Valcom punchdown block and continue strap to cold water pipe ground.</li> <li>2. Install .05MFD 50VDC Ceramic Disc capacitors on the following terminals:               <ol style="list-style-type: none"> <li>(a) Talk battery to talk ground</li> <li>(b) Signal battery to signal ground</li> <li>(c) Tip to ring</li> <li>(d) Across speaker pair</li> <li>(e) From inhibit lead (if used) to ground</li> </ol> </li> </ol>

\* Use telephone test set.

66B350  
SPLIT BLOCK

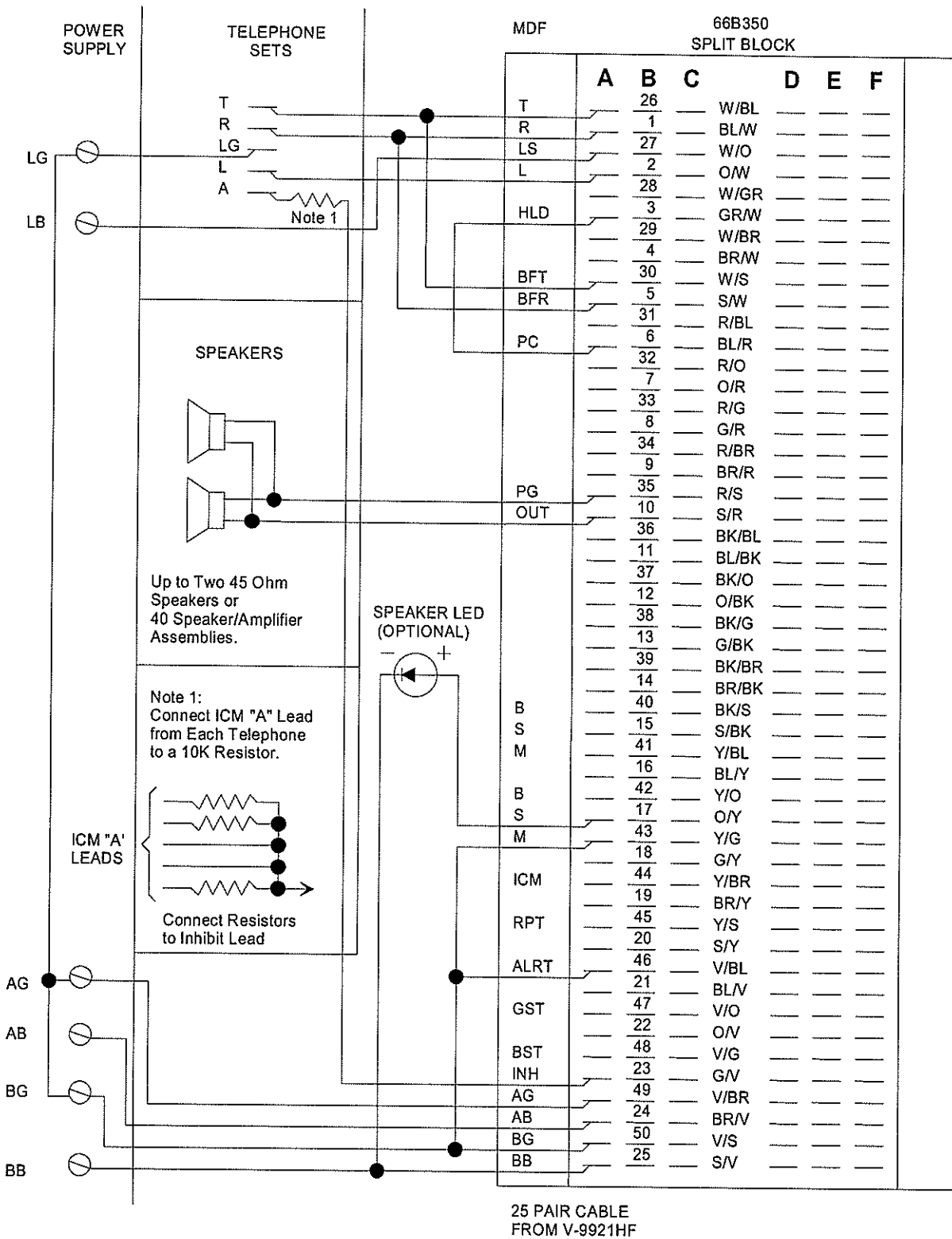
NOTES:

- 1) INHIBIT OPTION - TO CANCEL SPEAKERS, A 10K 1/4W 5% RESISTOR MUST BE IN SERIES WITH EACH ICM BUTTON "A" LEAD AND THE INHIBIT LEAD.
- 2) POWER SUPPLY: A BATTERY -24VDC FILTERED TALK BATTERY. B BATTERY -24VDC UNFILTERED RELAY BATTERY
- 3) LAMP GROUND, A GROUND, B GROUND AND SIGNAL GROUND MUST BE COMMON AT POWER SUPPLY.
- 4) FOR BEST RESULTS USE 45 OHM SPEAKERS OR ONE-WAY AMPLIFIED SPEAKER ASSEMBLIES.
- 5) GROUND ALERT ENABLE LEAD TO SEND ALERT TONE TO SPEAKERS ON ACCESS (FOR LINE KEY OR LOOP TRUNK ACCESS).
- 6) GROUND RPT TO DISABLE 15 SECOND REPEAT ALERT TONE

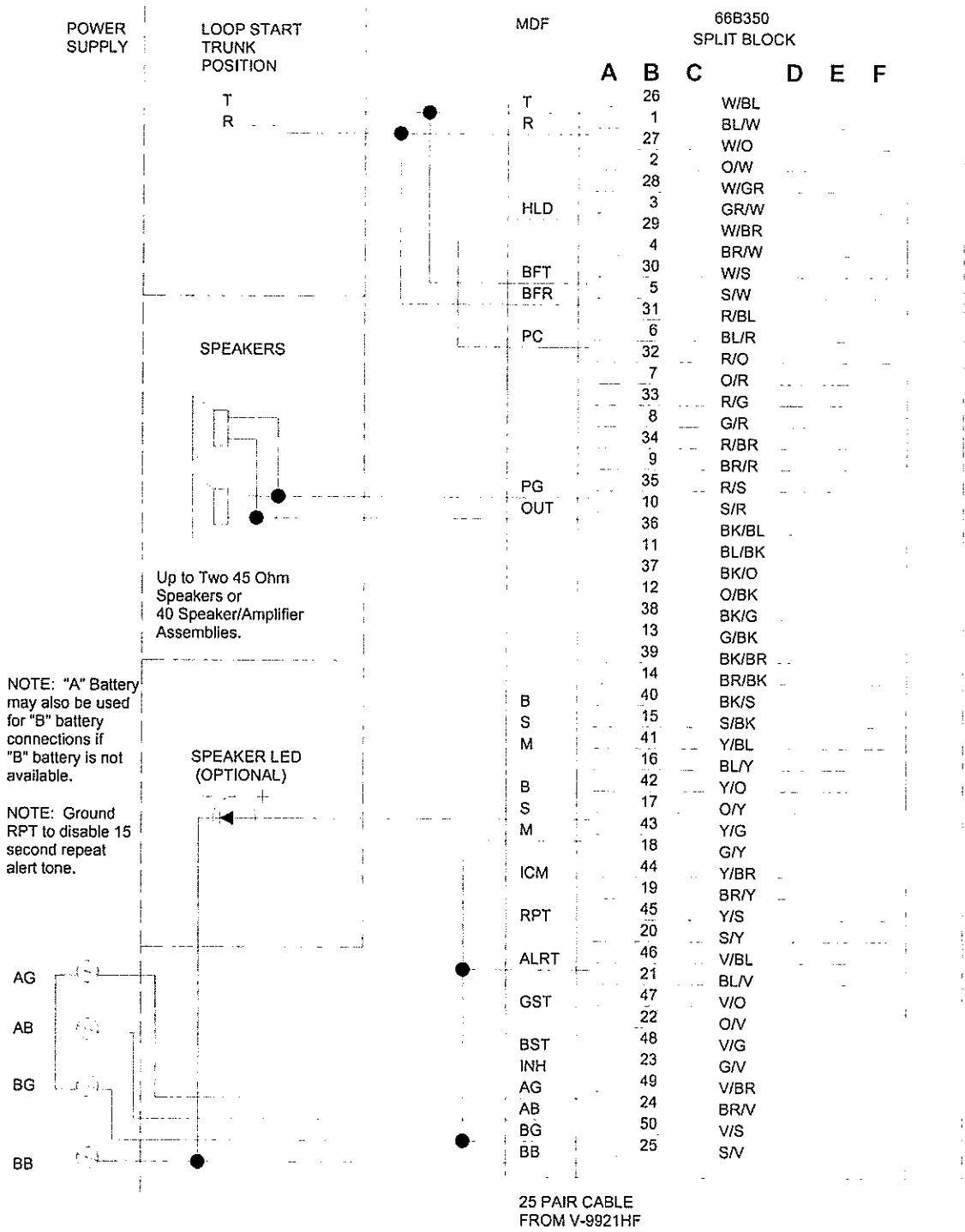
		A	B	C	D	E	F
LINE KEY, LOOP TRUNK OR ICM T AND R	T	---	26	---	W/BL	---	---
	R	---	1	---	BL/W	---	---
POWER SUPPLY LINE KEY	LS	---	27	---	W/O	---	---
	L	---	2	---	O/W	---	---
HOLDING GROUND	HLD	---	28	---	W/GR	---	---
		---	3	---	GR/W	---	---
		---	29	---	W/BR	---	---
LINE KEY OR LOOP TRUNK TIP AND RING	BFT	---	4	---	BR/W	---	---
		BFR	---	30	---	W/S	---
PAGE CONTROL	PC	---	5	---	S/W	---	---
		---	31	---	R/BL	---	---
		---	6	---	BL/R	---	---
		---	32	---	R/O	---	---
		---	7	---	O/R	---	---
		---	33	---	R/G	---	---
UP TO TWO 45 OHM SPEAKERS AND 40 SPEAKER/AMPLIFIER ASSEMBLIES	PG OUT	---	8	---	G/R	---	---
		---	34	---	R/BR	---	---
		---	9	---	BR/R	---	---
		---	35	---	R/S	---	---
		---	10	---	S/R	---	---
		---	36	---	BK/BL	---	---
		---	11	---	BL/BK	---	---
		---	37	---	BK/O	---	---
		---	12	---	O/BK	---	---
		---	38	---	BK/G	---	---
AUXILIARY RELAY CONTACTS	B S M	---	13	---	G/BK	---	---
		---	39	---	BK/BR	---	---
		---	14	---	BR/BK	---	---
		---	40	---	BK/S	---	---
		---	15	---	S/BK	---	---
		---	41	---	Y/BL	---	---
		---	16	---	BL/Y	---	---
		---	42	---	Y/O	---	---
ICM START	ICM	---	17	---	O/Y	---	---
		---	43	---	Y/G	---	---
		---	18	---	G/Y	---	---
		---	44	---	Y/BR	---	---
		---	19	---	BR/Y	---	---
		---	45	---	Y/S	---	---
GROUND TO DISABLE	RPT	---	20	---	S/Y	---	---
		---	46	---	V/BL	---	---
GROUND TO ENABLE	ALRT	---	21	---	BL/V	---	---
		---	47	---	V/O	---	---
GROUND START	GST	---	22	---	O/V	---	---
		---	48	---	V/G	---	---
BATTERY START ICM KEYS (Note 1)	BST	---	23	---	G/V	---	---
		---	49	---	V/BR	---	---
POWER SUPPLY	AG	---	24	---	BR/V	---	---
		---	50	---	V/S	---	---
		---	25	---	S/V	---	---

CABLE FROM CONTROL UNIT

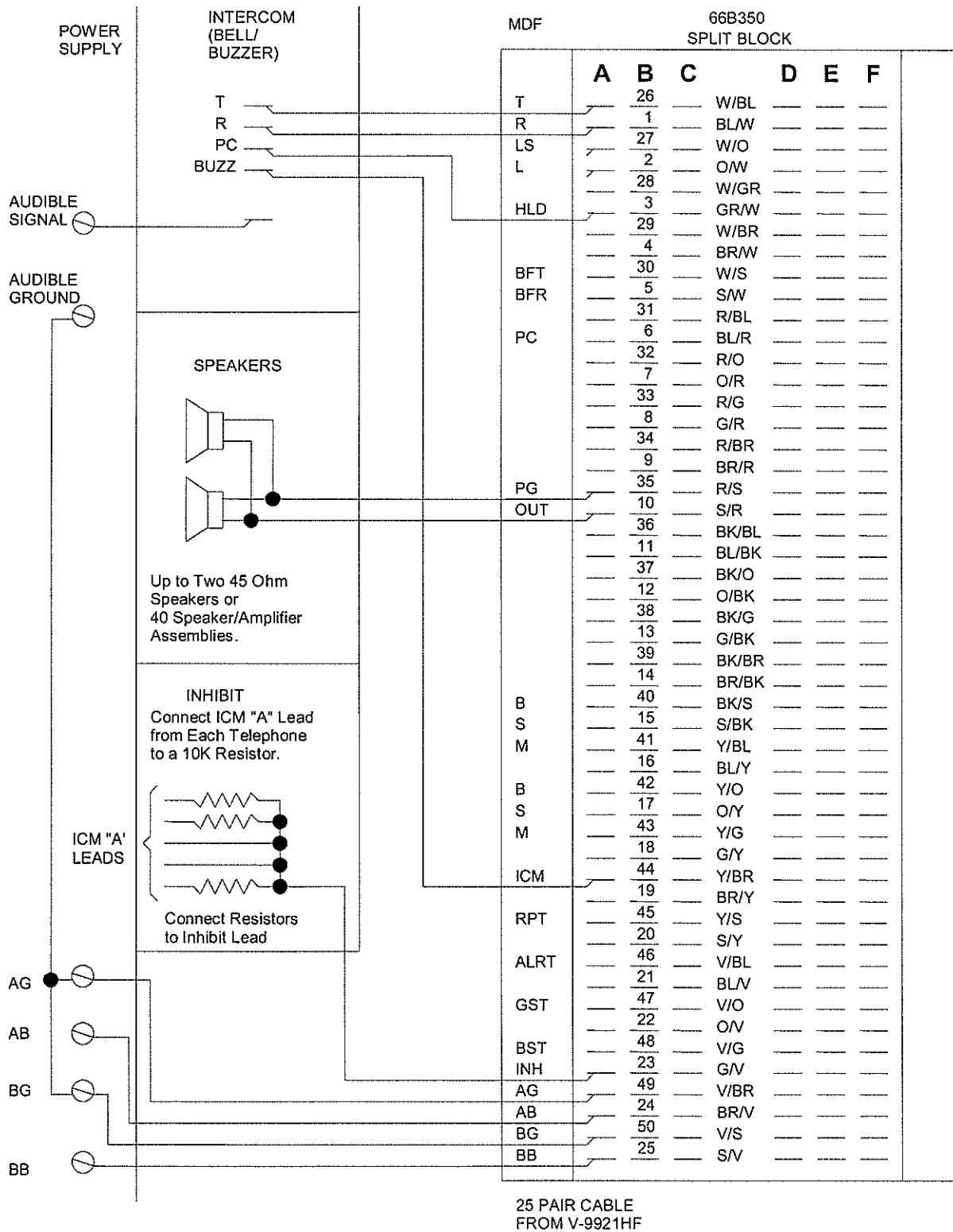
FIGURE 1: CONNECTING BLOCK ARRANGEMENT V-9921HF



**FIGURE 2**  
**CONNECTIONS FOR SINGLE ZONE OF TALKBACK PAGE, KEY TELEPHONE ACCESS**



**FIGURE 3**  
**CONNECTIONS FOR SINGLE ZONE OF TALKBACK PAGE FROM A LOOP START TRUNK POSITION**



**FIGURE 4**  
**CONNECTIONS FOR SINGLE ZONE OF TALKBACK PAGE, ICM ACCESS**

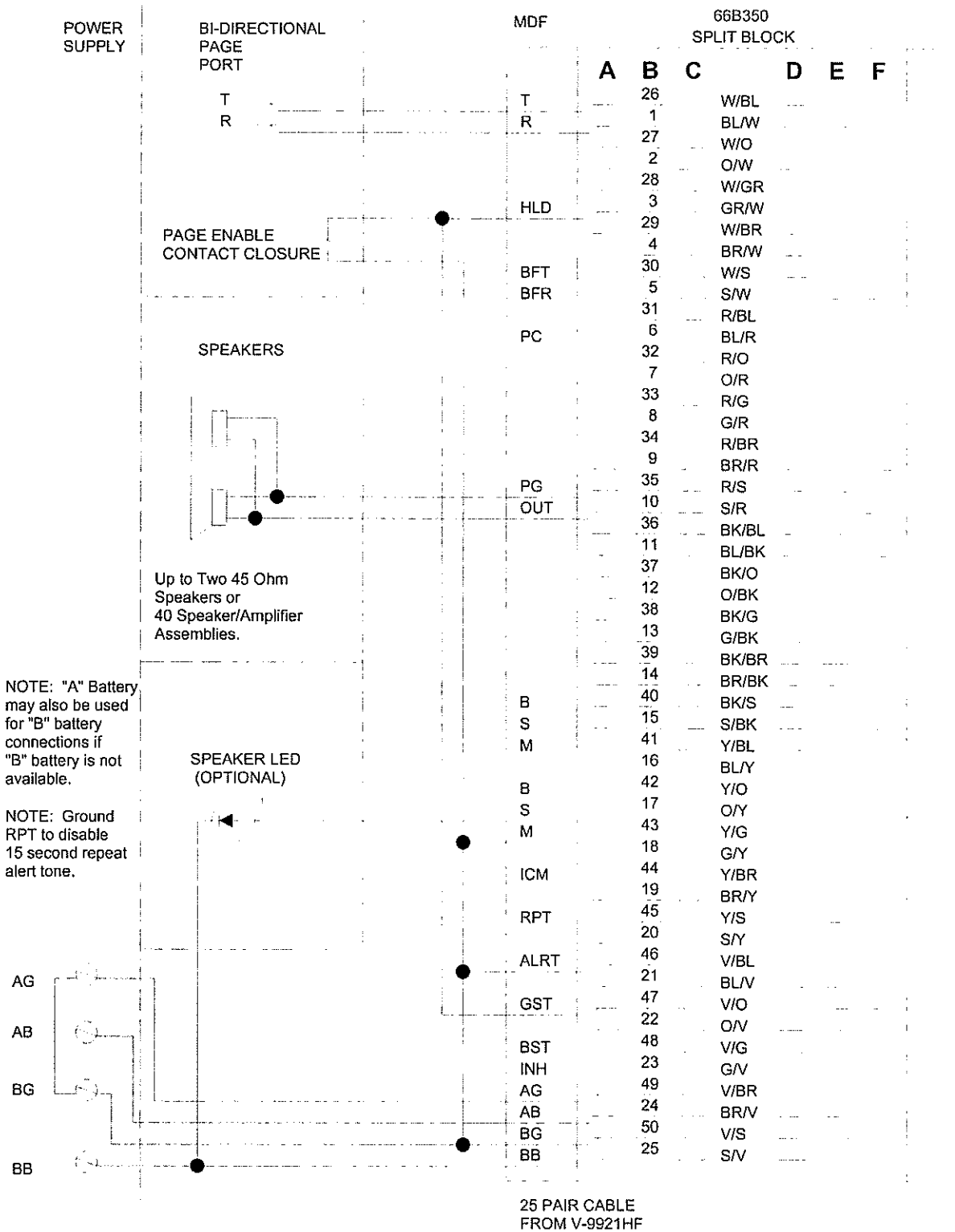
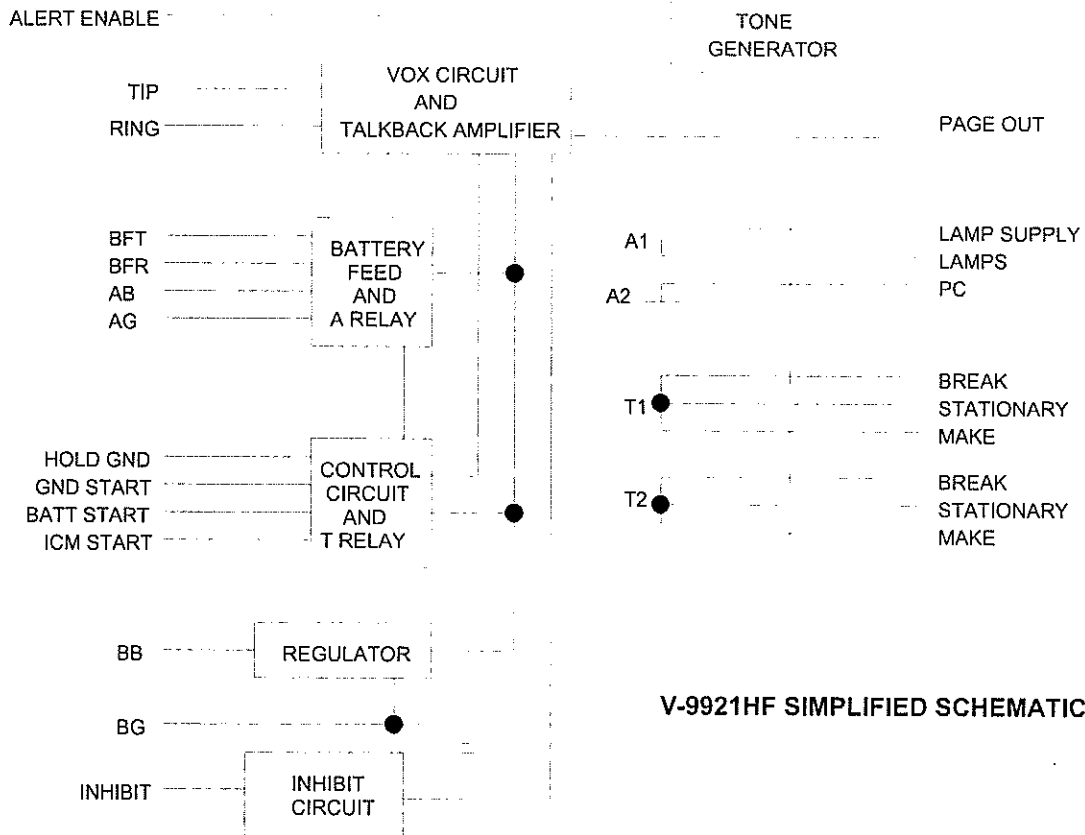


FIGURE 5  
 CONNECTIONS FOR SINGLE ZONE OF TALKBACK PAGE FROM A BI-DIRECTIONAL PAGE PORT  
 WITH PAGE ENABLE CONTACT CLOSURE





### VALCOM LIMITED WARRANTY

Valcom, Inc. warrants its products to be free from defects in materials and workmanship under conditions of normal use and service for a period of one year from the date of shipment. The obligation under this warranty shall be limited to the replacement, repair or refund of any such defective device within the warranty period, provided that:

1. inspection by Valcom, Inc. indicates the validity of the claim,
2. the defect is not the result of damage, misuse, or negligence after the original shipment.
3. the product has not been altered in any way or repaired by others and that factory sealed units are unopened (A service charge plus parts and labor will be applied to units defaced or physically damaged),
4. freight charges for the return of products to Valcom are prepaid,
5. all units 'out of warranty' are subject to a service charge. The service charge will cover minor repairs (Major repairs will be subject to additional charges for parts and labor).

**This warranty is in lieu of and excludes all other warranties, expressed or implied, and in no event shall Valcom, Inc. be liable for any anticipated profits, consequential damages, loss of time or other losses incurred by the buyer in connection with the purchase, operation, or use of the product.**

This warranty specifically excludes damage incurred in shipment. In the event a product is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved in accordance with the F.O.B. point.

Headquarters:  
Valcom, Inc.  
1111 Industry Avenue  
Roanoke, VA 24013  
Phone: (540) 427-3900  
FAX: (540) 427-3517

In Canada  
CMX Corporation  
35 Van Kirk Drive #11 and 12  
Brampton, Ontario L7A1A5  
Phone: (905) 456-1072  
FAX: (905) 456-2269

**V-9921HF  
HANDSFREE TALKBACK UNIT****CONTENTS**

1. GENERAL
2. IDENTIFICATION
3. INSTALLATION
4. OPERATION
5. MAINTENANCE
6. SCHEMATIC

**1. GENERAL**

**1.01** This instruction covers the installation and maintenance of the V-9921HF handsfree talkback unit.

**1.02** This paragraph is reserved for changes and revisions of future issues of this manual. Any changes after Issue 2 will be noted in this paragraph.

**1.03** This paging unit has received an FCC type KX registration; it is designed to be used with FCC-registered Key Telephone Systems, such as those marketed by: Western Electric, GTE Automatic Electric, Stromberg-Carlson, ITT, Northern Telecom, etc. Such installations may be made by Valcom, Inc. equipment manufacturers, telephone companies, registered telephone refurbishers, and those qualified for installation of FCC-registered systems under Rules Section 68-215.

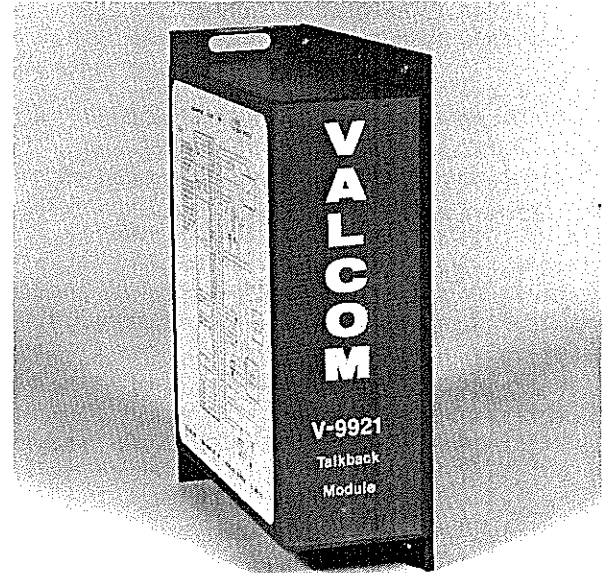
**1.04** In accordance with FCC rules with applicable tariffs, this paging unit may only be installed with the authorization of the owner of the host system.

**1.05** The FCC Registration Number, BAF9I7-69358-KX-N, will be listed in the affidavits filed with the telephone company; it will also be recorded in the system log kept by installation and maintenance personnel. The local telephone company is to be notified of the FCC Registration Number when this paging unit is installed.

**2. IDENTIFICATION****2.01 Purpose**

- The V-9921HF handsfree talkback unit is a self-contained talkback amplifier and VOX circuit for use in single zone two-way page applications.

\*Trademark of ATT

**2.02 Applications**

- 1A2 key system line key positions
- Bell/Buzzer intercoms
- Loop start PABX trunk positions
- Horizon\* Systems

**2.03 Features**

- Volume control for phone to speaker audio path
- Volume control for speaker to phone audio path
- Speaker cancel circuit (1A2 applications)
- ICM, Battery or ground start inputs (latched)
- Alert tone generator
- Battery feed circuit for trunk level access
- Switched lamp and PC lead output when internal battery feed is used
- 15 second repeated alert tone

**2.04 Capacity**

- Use one V-9921 for each zone.
- The V-9921HF will drive up to two 45 ohm two-way speakers (Talkback page) and 40 one-way amplified speakers (one-way page only).
  - The V-9921 may also be connected to the input of a 70 volt line high power amplifier (one-way page only).
  - A V-1094 may be used to increase the number of one-way amplified speakers.

**2.05 Nominal Specifications**

The V-9921HF nominal specifications are listed in Table 2-1.

**Table 2-1 Electrical Characteristics**

Output impedance	45 ohms				
Output power	1 watt				
ICM start	18 VAC or 105 VAC momentary, -24 VDC momentary or cont.				
Battery start	-24 VDC momentary				
Ground start	10 ms. min.				
Switching sensitivity	-26 db				
<u>Power requirements</u>					
Voltage	-21.5 to -26 vdc				
Current at 24 vdc					
Idle	<table border="0"> <tr> <td>"A" battery</td> <td>0ma</td> </tr> <tr> <td>"B" battery</td> <td>5ma</td> </tr> </table>	"A" battery	0ma	"B" battery	5ma
"A" battery	0ma				
"B" battery	5ma				
Operating	<table border="0"> <tr> <td>"A" battery</td> <td>60ma</td> </tr> <tr> <td>"B" battery</td> <td>300ma</td> </tr> </table>	"A" battery	60ma	"B" battery	300ma
"A" battery	60ma				
"B" battery	300ma				
<u>Environmental</u>					
Temperature range	0 to 55° C				
Humidity	0 to 85% non-precipitating				

**2.06 Ordering Guide**

- To order the handsfree talkback unit, specify (quantity) V-9921HF.
- For additional information contact:  
 Valcom, Inc.  
 1845 Product St., S.E.  
 Roanoke, VA 24013  
 Telephone (703) 982-3900

**3. INSTALLATION**

**3.01** These instructions cover only the installation procedure for the Valcom V-9921HF. Please consult applicable practices if any other equipment is used.

**3.02 Precautions**

All precautions have been taken at the factory to insure that the equipment functions properly. Please observe the following precautions or the equipment may be damaged and the warranty voided.

- (a) Unplug the power supply before con-

necting any wires or cables to the control unit connecting block. With power on, accidental bridging of two terminals with a wiring tool may damage electronic circuits.

- (b) Do not locate the control unit closer than 18 inches or more than five feet from the power supply.

- (c) Do not use a lamp tester to check signals. Use a voltmeter. A lamp tester, when first applied, is a short circuit to electronic circuits.

- (d) Do not apply power to the control unit until all connections have been double-checked.

**3.03 Mounting**

Mount the V-9921 in a 7" KTU mounting, relay rack, or on the wall.

**3.04 Connections**

Refer to Figure 3-1 for connecting arrangement and connecting block layout.

- (a) Connect a female amphenol ended 25 pair cable to the unit and terminate all leads on a 66 block.

(b) Refer to Figure 3-2 for connections to a key telephone line button.

(c) Refer to Figure 3-3 for connections to a PABX loop start trunk position.

(d) Refer to Figure 3-4 for connections to a key system bell/buzzer type intercom.

**Note: ICM PC Lead must be used. This Lead must supply a ground any time the ICM is in use.**

(e) To connect the inhibit option (1A2 Key Systems) connect each ICM A Lead to its own 10K resistor. Common the other side of all resistors together and connect to INH (Gn/V).

(f) Connect A ground and A battery (-24vdc) to V/Bn and Bn/V respectively.

(g) Connect B ground and B battery (-24vdc) to V/SL and SL/V respectively.

(h) When using a Horizon\* connect the -24VDC switched page output lead to Y/Bn. Holding ground, battery start and ground start are not used. While -24vdc is applied the V-9921 will operate, the -24v must be removed on completion of the page for the unit to release.

(i) **Be sure A ground, B ground and signal ground are common at the power supply and are connected to the system cold water pipe ground.**

### 3.05 Adjustments

There are two volume controls on the back of the unit. The bottom control adjusts the phone to speaker level. The top control adjusts the speaker to phone level. Turning the controls clockwise increases the volume.

(a) Phone to speaker: adjust this control for a normal listening level at the speakers.

(b) Speaker to phone: adjust this control so the reply at the phone is clear. **Important: This is the most critical adjustment. Set the volume at the lowest practical level.**

## 4. OPERATION

### 4.01 User's Guide

In order to achieve maximum performance from this system, the users should receive the following operating instructions:

- The calling party must speak directly into the telephone mouth piece and avoid speaking too softly.
- The called party must wait approximately 1/2 second before responding to the calling party.

### 4.02 General Method of Operation

This unit provides provisions for key button, loop trunk, or dial intercom access. Battery feed, ground start and battery start options are provided. After access, an internal amplifier or VOX circuit is turned on. A warning tone is available at access but must be strapped to operate. When the internal battery feed is used as in key access applications,

lamp and PC outputs are provided. There are two form C relay contacts available for miscellaneous use. These contacts operate when the unit is accessed. The inhibit option, when wired, will mute the speakers, but normal phone to phone operation is not affected.

### 4.03 Detailed Description

(a) When the V-9921 is connected for line key or loop start trunk access, operation is as follows:

When telephone goes off hook and line key is depressed, relay A will operate. Ground is connected from contacts in the A relay through MDF crossconnects to holding ground to activate T relay, turn on the VOX circuit and send the alert tone. Talkpath is now complete and outgoing page may be made. The vox circuit controls the direction of the talkpath. The calling party has priority control of the VOX and may take control of the conversation at any time by speaking into the mouthpiece. One-half second after the calling party stops talking, the VOX will switch the talkpath so that the calling party is listening. With the inhibit option connected, the circuit will mute the speakers any time two stations are off hook at the same time. Once inhibited, all stations must hang up before the speakers can be accessed again. The inhibit circuit will have no effect on the phone to phone talk path. The V-9921 will reset to idle condition when all phones go on hook.

(b) When the V-9921 is connected to a bell/buzzer intercom operation is as follows:

When the ICM is accessed, ground is connected from the ICM PC lead to the V-9921 holding ground. When the correct ICM number is dialed a burst of buzz voltage is applied to the icm start lead, operating the T relay, turning on the amplifier, sending the alert tone. Amplifier and inhibit functions then operate as previously described. When the ICM is released, ground is removed from the holding ground and the V-9921 will release.

## 5. MAINTENANCE

### 5.01 General

When trouble is reported, verify that power is being supplied to the unit and there are no broken connections. Check for proper polarity and voltages on V/Bn and V/SL pairs.

### 5.02 Test Apparatus Required

A test telephone and a VOM may be necessary to effectively troubleshoot this unit.

### 5.03 Troubleshooting Chart

Table 5-1 identifies some symptoms and possible problems with solutions.

\*Trademark of ATT

**5.04 Unit Substitution**

If a spare unit is available, continue to troubleshoot by substituting the spare unit for the suspected unit.

**5.05 Factory Assistance**

Assistance in troubleshooting the V-9921 is available from the factory. When calling you should have the required test apparatus available and be calling from the job site. For assistance, call (703) 982-3900 and ask for an applications engineer.

**Table 5-1**

**TROUBLESHOOTING CHART**

PROBLEM	PROBABLE CAUSES AND CORRECTIONS
No volume to speaker	<ol style="list-style-type: none"><li>1. Check phone to speaker volume control.</li><li>2. Check for audio present at tip and ring input (BL/WH, W/BL)*.</li><li>3. Check for audio to signaled speaker pair at 66B block*.</li><li>4. Check for audio at input of speaker*.</li><li>5. Remove all connections to inhibit pin and verify problem.</li></ol>
No volume to phone	<ol style="list-style-type: none"><li>1. Check speaker to phone volume control.</li><li>2. Check wiring to talkback speaker.</li><li>3. Removal all connections to inhibit pin and verify problem.</li></ol>
No speaker cancel	<ol style="list-style-type: none"><li>1. Verify ground present at phone side of at least (2) 10K ohm resistors. NOTE: Do not apply ground directly to inhibit input.</li></ol>
RF Interference	<ol style="list-style-type: none"><li>1. Strap from A gnd to B gnd on Valcom punch down block and continue strap to cold water pipe ground.</li><li>2. Install .05 MFD 50 VDC Ceramic Disc capacitors on the following terminals:<ol style="list-style-type: none"><li>(a) Talk battery to talk ground</li><li>(b) Signal battery to signal ground</li><li>(c) Tip to ring</li><li>(d) Across speaker pair</li><li>(e) From inhibit lead (if used) to ground</li></ol></li></ol>

\*Use lineman's test set (butt set)

66B350  
SPLIT BLOCK

NOTES:

1) INHIBIT OPTION:  
TO CANCEL SPEAKERS  
A 10K 1/4W 5%  
RESISTOR MUST BE  
CONNECTED IN SERIES  
WITH EACH ICM  
BUTTON "A" LEAD AND  
THE INHIBIT LEAD.

2) POWER SUPPLY:  
A BATTERY -24VDC  
FILTERED TALK  
BATTERY  
B BATTERY -24VDC  
UNFILTERED RELAY  
BATTERY.

3) LAMP GROUND, A  
GROUND, B GROUND  
AND SIGNAL GROUND  
MUST BE COMMON AT  
POWER SUPPLY.

4) FOR BEST RESULTS  
USE 45ohm SPEAKERS  
OR ONE-WAY AMPLIFIED  
SPEAKER ASSEMBLIES.

5) GROUND ALERT ENABLE  
LEAD TO SEND ALERT  
TONE TO SPEAKERS ON  
ACCESS (FOR LINE KEY  
OR LOOP TRUNK  
ACCESS).

6) GROUND RPT TO  
DISABLE 15 SECOND  
REPEAT ALERT TONE.

		A	B	C	D	E	F
LINE KEY, LOOP TRUNK OR ICM T AND R	T	26			W-BL		
	R	1			BL-W		
POWER SUPPLY	LS	27			W-O		
LINE KEY	L	2			O-W		
		28			W-GR		
HOLDING GROUND	HLD	3			GR-W		
		29			W-BR		
LINE KEY OR LOOP TRUNK TIP AND RING	BFT	4			BR-W		
	BFR	30			W-S		
		5			S-W		
PAGE CONTROL	PC	31			R-BL		
		6			BL-R		
		32			R-O		
		7			O-R		
		33			R-G		
		8			G-R		
		34			R-BR		
		9			BR-R		
UP to TWO 45 ohm SPEAKERS and 40 SPEAKER/AMPLIFIER ASSEMBLIES	PG OUT	35			R-S		
		10			S-R		
		36			BK-BL		
		11			BL-BK		
		37			BK-O		
		12			O-BK		
		38			BK-G		
		13			G-BK		
		39			BK-BR		
		14			BR-BK		
	B	40			BK-S		
	S	15			S-BK		
AUXILLARY RELAY CONTACTS	M	41			Y-BL		
		16			BL-Y		
	B	42			Y-O		
	S	17			O-Y		
	M	43			Y-G		
		18			G-Y		
ICM START	ICM	44			Y-BR		
		19			BR-Y		
GROUND to DISABLE	RPT	45			Y-S		
		20			S-Y		
GROUND to ENABLE	ALRT	46			V-BL		
		21			BL-V		
GROUND START	GST	47			V-O		
		22			O-V		
BATTERY START ICM KEYS (NOTE 1)	BST	48			V-G		
	INH	23			G-V		
	AG	49			V-BR		
	AB	24			BR-V		
POWER SUPPLY	BG	50			V-S		
	BB	25			S-V		

CABLE FROM CONTROL UNIT

Figure 3-1: Connecting Arrangement Valcom V-9921HF.

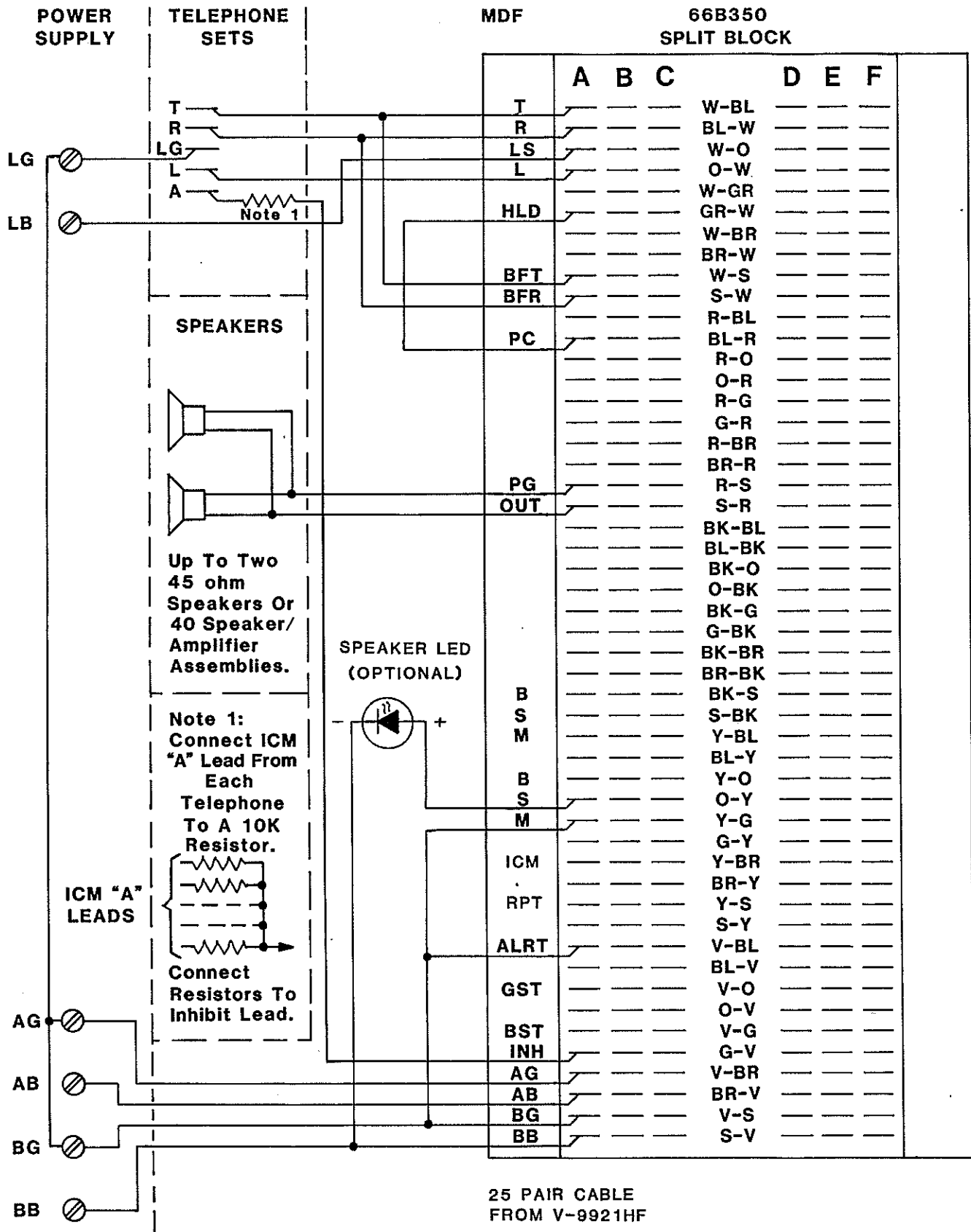


Figure 3-2: Connections For Single Zone of Talk-back Page, Key Telephone Access.

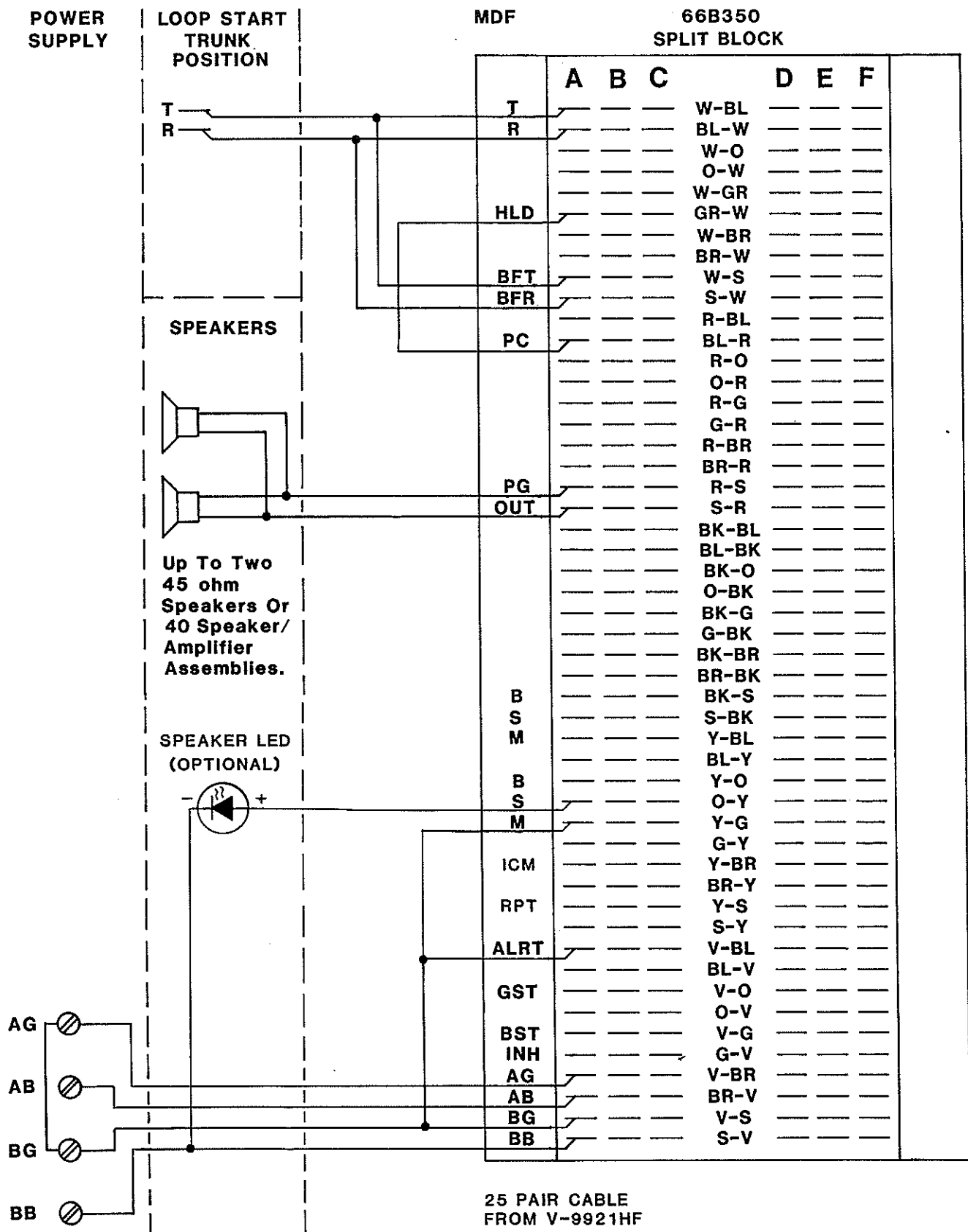


Figure 3-3: Connections For Single Zone of Talk-back Page from a Loop Start Trunk Position.



# GROUND START DIAGRAM FOR V-9921 HF

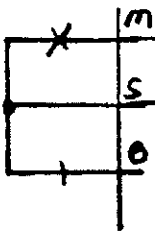
V-9921 HF

66B350  
SPLIT BLOCK

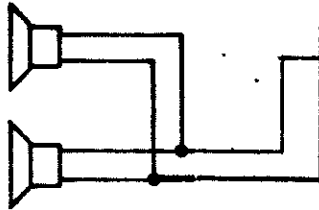
TWO-WAY  
PAGE PORT  
W/CONTACT  
CLOSURE



DRY  
CONTACT  
CLOSURE



SPEAKERS



Up To Two  
45 ohm  
Speakers Or  
40 Speaker/  
Amplifier  
Assemblies.

COMDIAL  
EXECUTEC

KSU	STATION PORT #	CONTACT CLOSURE TERMINAL #
308	STA 15 STA 17	1+2 3+4
616	STA 23 STA 25	1+2 3+4
824	STA 31 STA 33	1+2 3+4
16	STA 22 STA 25	1+2 3+4

	A	B	C	D	E	F
T	26			W-BL		
R	1			BL-W		
LS	27			W-O		
L	2			O-W		
	28			W-GR		
HLD	3			GR-W		
	29			W-BR		
	4			BR-W		
BFT	30			W-S		
BFR	5			S-W		
PC	31			R-BL		
	6			BL-R		
	32			R-O		
	7			O-R		
	33			R-G		
	8			G-R		
	34			R-BR		
	9			BR-R		
PG	35			R-S		
OUT	10			S-R		
	36			BK-BL		
	11			BL-BK		
	37			BK-O		
	12			O-BK		
	38			BK-G		
	13			G-BK		
	39			BK-BR		
	14			BR-BK		
B	40			BK-S		
S	15			S-BK		
M	41			Y-BL		
	16			BL-Y		
B	42			Y-O		
S	17			O-Y		
M	43			Y-G		
	18			G-Y		
ICM	44			Y-BR		
	19			BR-Y		
RPT	45			Y-S		
	20			S-Y		
ALRT	46			V-BL		
	21			BL-V		
OST	47			V-O		
	22			O-V		
BST	48			V-G		
RM	23			G-V		
AG	49			V-BR		
AR	24			BR-V		
BR	50			V-S		
BS	25			S-V		



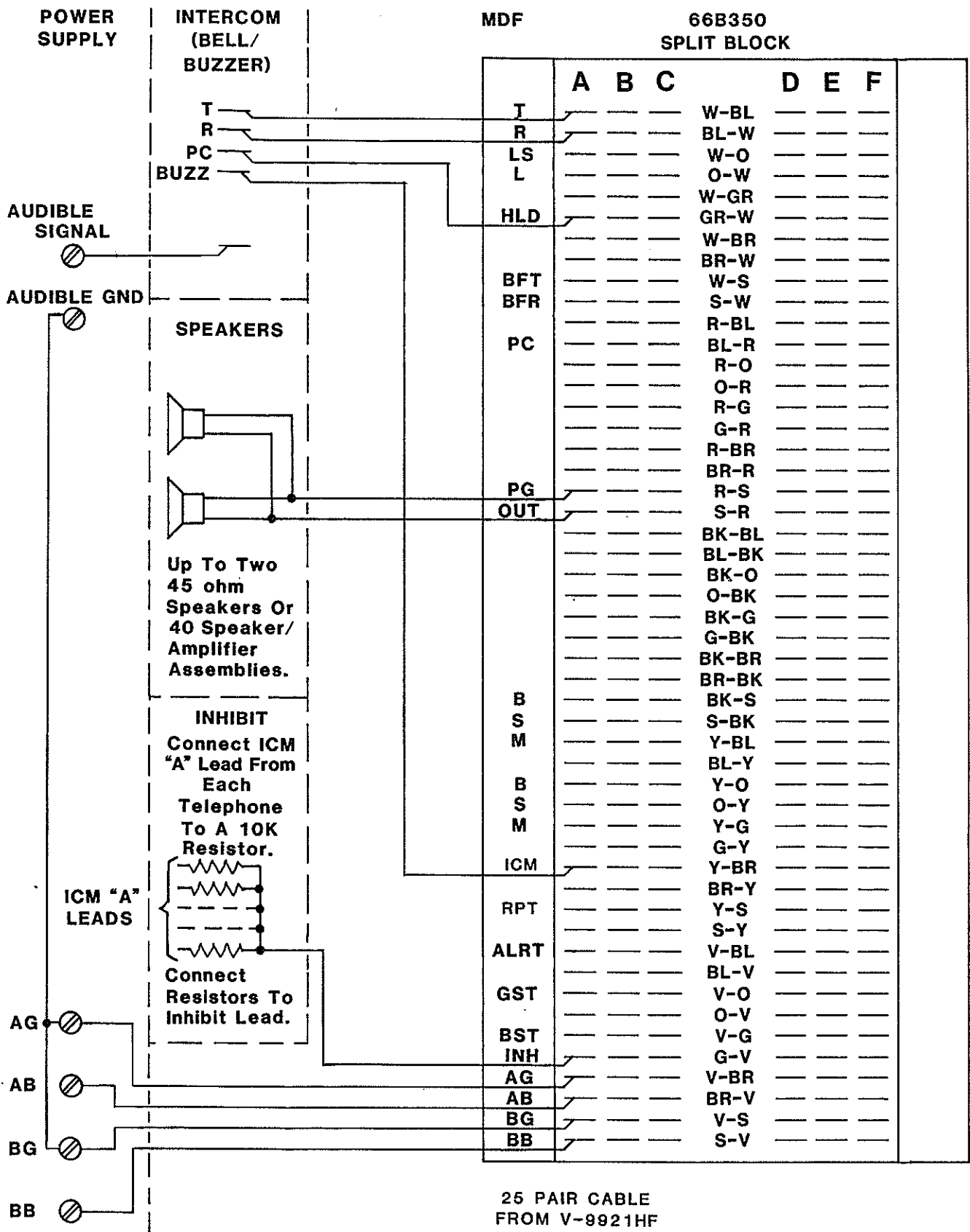
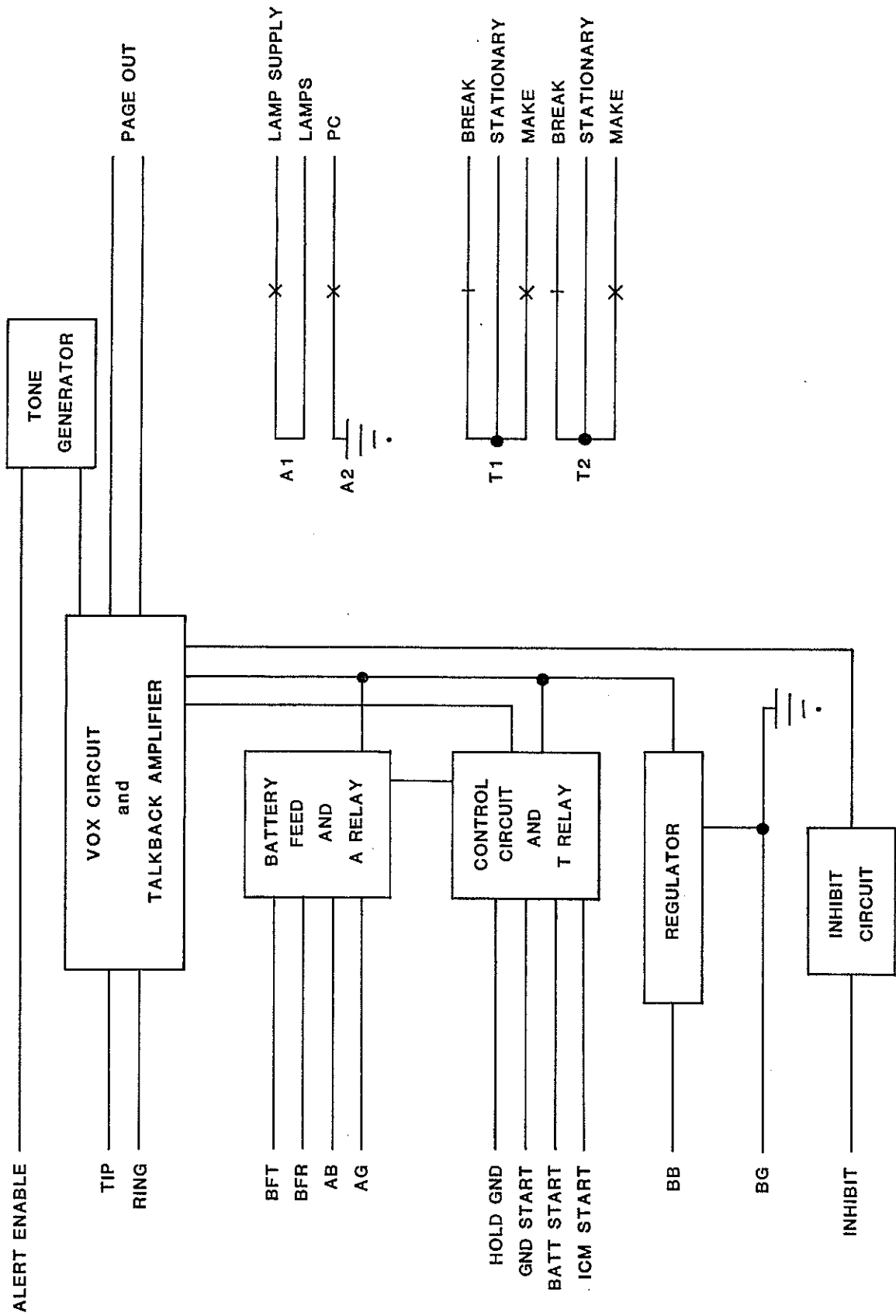


Figure 3-4: Connections for Single Zone of Talk-back Page, ICM Access.



6. V-9921HF Simplified Schematic