

## Installation Instructions

### Wireless Infrared Remote Control (Kit #21957502)

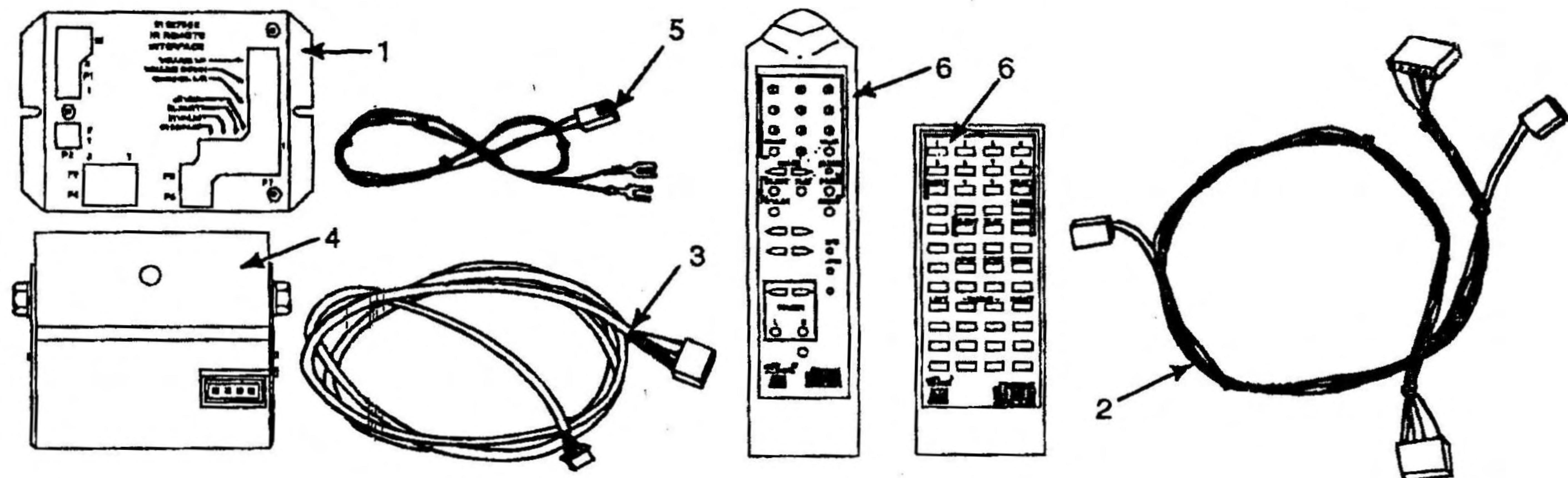
These instructions provide step-by-step procedures to guide you through the process of installing, programming, and using the wireless infrared remote control.

Since this instruction sheet contains programming and user instructions, as well as installation instructions, please read through the entire document before you begin.



#### **NOTE:**

Two AAA alkaline batteries are required for the remote control unit. These batteries must be purchased separately. Install the batteries as indicated by the diagram in the battery compartment before you begin this installation.



**Figure 1. Kit Parts**

#### **Required Parts List**

Ref	Description	Part No.	Qty.	Ref	Description	Part No.	Qty.	
	These Instructions				6	Modified IR Transmitter Assembly #8 X 5/8 Hex. WRHS (Type 17)	21958303	1
1	IR Remote Interface Assembly	21958401	1		Cable Clamp (3/16 inch)	86663610	12	
2	Segue-To-CCC Harness Assembly	61027602	1		Cable Clamp (17/32 inch)	70093102	4	
3	IR Receiver-To-Interface Harness	45077001	1		Catch Hook	70093401	1	
4	Infrared Receiver Assembly	21958601	1		Screw Eye	21888001	2	
5	IR Interface-To-Amp Harness	40846301	1			21958901	1	
		21958501	1					

**TOOLS REQUIRED:** A 1/4-inch Hex. driver is required.

**TIME REQUIRED:** 25 minutes or less

## STEP-BY-STEP INSTRUCTIONS

1. Open the phonograph top door.
2. Place the infrared interface assembly (*figure 1, ref. 1*) approximately 2 inches to the right of the central control computer. Slide the infrared interface up or down slightly so that the lower edge of the infrared interface is at approximately the same height as the lower edge of the Central Control Computer (CCC). Once the infrared interface assembly is in position, fasten it to the phonograph wall with two #8 X 5/8 screws.
3. Connect the Segue-To-CCC harness (*figure 1, reference 2*) between the IR Interface assembly (*figure 1, ref. 3*) as follows:
  - A. Plug the 6-pin connector into P4 on the CCC and plug the 3-pin connector into P12 of the CCC.
  - B. Plug the 6-pin connector on the other end into P4 on the interface and plug the remaining 3-pin connector into interface P6.
4. Plug the small connector on the IR Receiver harness (*figure 1, ref. 3*) into the IR receiver assembly (*figure 1, ref. 4*).

## 5. IR Receiver Installation

The infrared<sup>1</sup> light beams transmitted from the front of the IR Remote Transmitter will reflect off of walls and ceilings. These light beams tend to scatter, so that you do not need to aim the transmitter or the receiver precisely. If you install the IR receiver using the "bounce" method, you may need to experiment to find the proper receiver position.

Follow *Step A, Bounce Technique*, OR *Step B, Direct Technique* to install the IR receiver.



### NOTE:

1. The IR sensor must be pointed in the general direction that you expect the light from the IR remote to come from.
2. If you use the "bounce" technique, the maximum 75 foot working distance is reduced to 50 feet.

### A. Bounce Technique

The IR receiver is mounted on the back of the phonograph, so it is not visible to patrons. This installation should be used whenever the IR receiver cannot be placed on the wall or ceiling. This installation may also be used if the wall or ceiling mount is not convenient or attractive.

- 1) Roll the phonograph away from the wall and attach the IR receiver to the back of the phonograph near the access cover with one #8 X 5/8 screw (so that the IR receiver harness will have a short distance to travel across the back of the phonograph).

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Infrared light is not visible to the naked eye. When you press a button on a working IR remote, you will not be able to see the two LED's on the front of the IR remote light. See *Troubleshooting The IR System* for details on how to determine whether the IR remote is functioning properly.

- 2) Using your "best guess", point the IR receiver upward and toward the wall as shown in figure 2. Route the harness between the IR receiver and the bracket as shown in figure 2, detail A.
- 3) Feed the IR receiver harness through the access hole and plug the free end of the harness into P1 on the IR interface board.
- 4) Coil up any excess harness and then fasten the coil to the inside of the phonograph with a cable clamp and #8 X 5/8 screw.
- 5) Roll the phonograph back into its normal position.
- 6) If the wall behind the phonograph is not a very light color, place a white sheet of paper (or a small mirror) on the wall to serve as a reflector for the light from the LED on the IR receiver. Place this paper in position so that the flashing LED light will show on the paper. This will allow you to see that signals from the IR remote are being received by the IR receiver.
- 7) Turn the phonograph power on.
- 8) Point the IR remote at the IR receiver and press the PLAY key. As you press the key, you should see the LED on the IR receiver flash ON and OFF.  
If the LED does not flash ON and OFF, go to *Troubleshooting The IR System* at the end of these instructions.
- 9) Move around the room and make sure that the LED flashes whenever you press the PLAY key. If you cannot make the LED flash from a location which you wish to be able to transmit from, reposition the IR sensor and test that location again.
- 10) When you are satisfied with the IR sensor position tighten the screws on the side of the IR receiver bracket.

## B. Direct Technique

Mount the IR receiver with this technique to ensure maximum working distance between the IR remote and the phonograph.

- 1) Attach the IR receiver to the ceiling or wall with a temporary adhesive, such as double-back tape as shown in figure 2. Route the harness between the IR receiver and the bracket as shown in figure 2, detail A. Feed the IR receiver through the access hole and plug the harness into P1 of the IR remote interface.
- 2) Turn the phonograph power on.
- 3) Point the IR remote at the IR receiver and press the PLAY key. As you press the key, you should see the LED on the IR receiver flash ON and OFF.  
If the LED does not flash ON and OFF, go to *Troubleshooting The IR System* at the end of these instructions.
- 4) Move around the room and make sure that the LED flashes whenever you press the play key. If you cannot make the LED flash from a location which you wish to be able to transmit from, reposition the IR sensor and test that location again.
- 5) When you are satisfied with the IR sensor position, mark the position of the IR sensor base on the wall (or ceiling), remove the temporary adhesive, and secure the IR receiver with the appropriate screw type and length to ensure that the IR receiver will remain in position. Position the IR receiver over the marks and tighten the screw; then, tighten the two screws on the side of the IR receiver bracket.

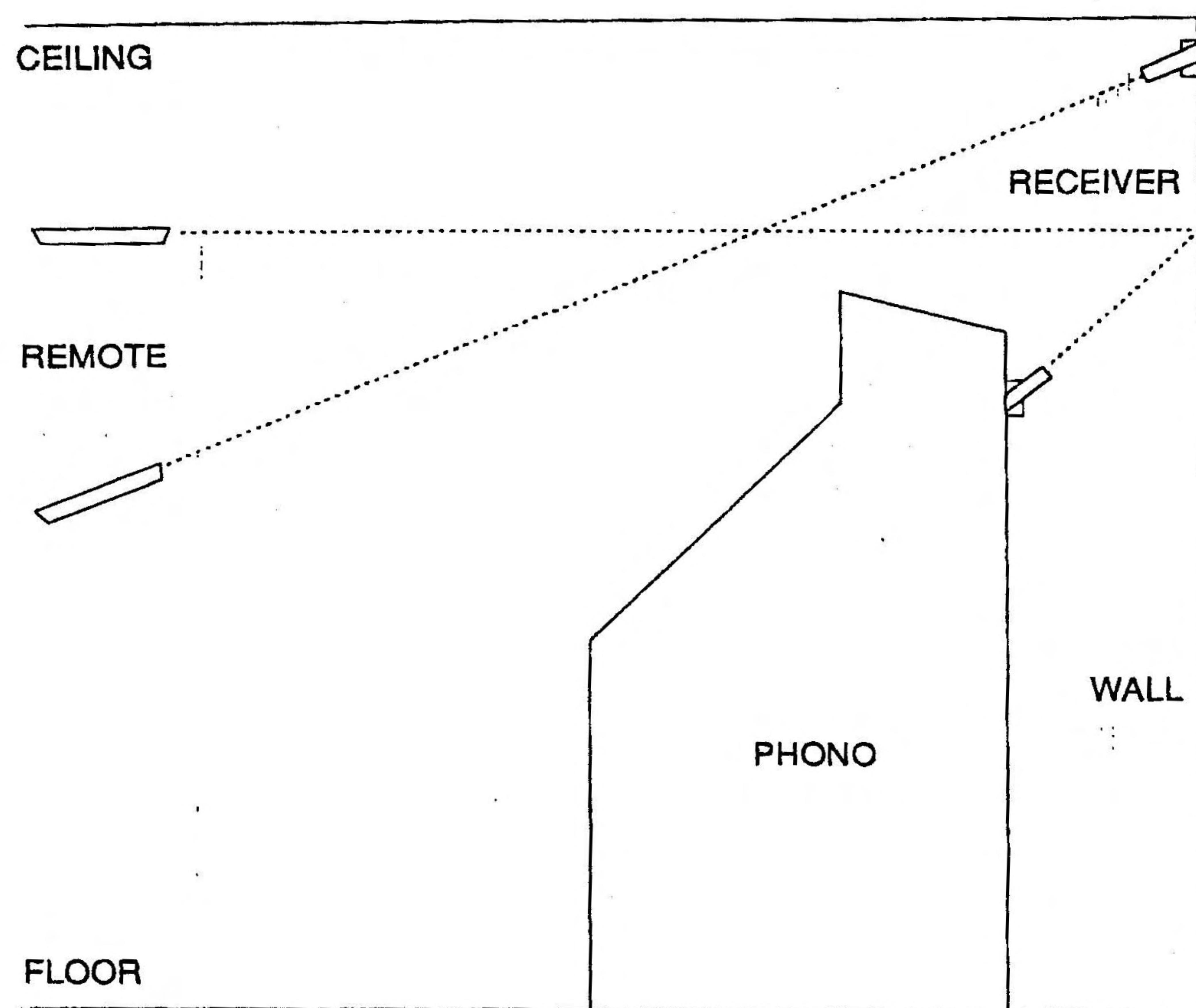
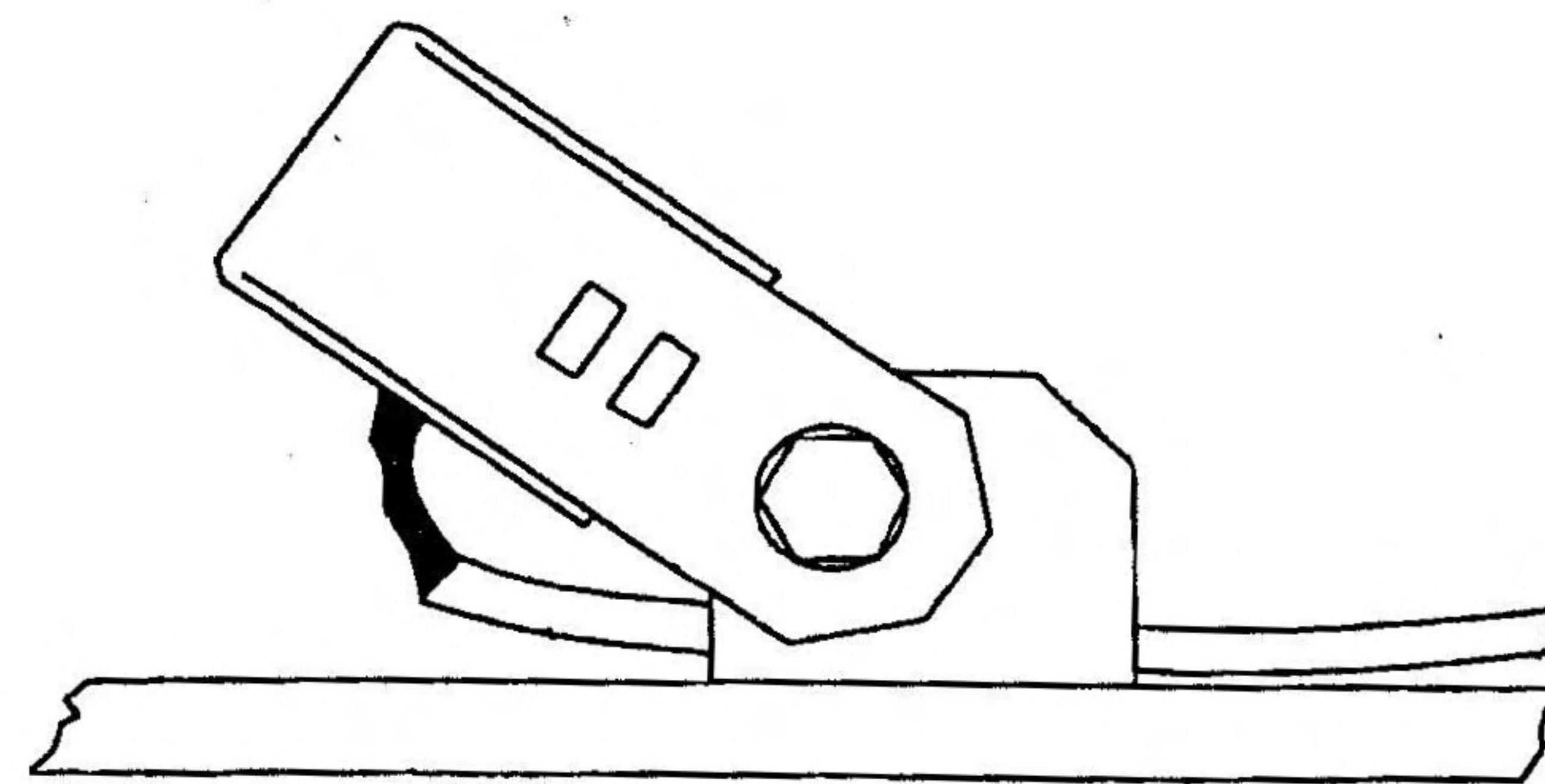


Figure 2



Detail A

## 6. Volume Control Connections

Plug the 2-pin connector of the IR interface-to-AMP harness (figure 1, ref. 5) into P2 of the interface, then do Part A, B, C, or D; whichever applies to your installation

### A. Phonographs Using A Single Channel Volume Control:

- 1) Remove the Red volume control wire from Terminal 4 on the Volume Control/Cancel Terminal Block and tape the end of the loose wire.
  - 2) Move the jumper from Terminals 4 and 5 to Terminals 5 and 6.
  - 3) Connect the Green wire from the interface harness to Terminal 5 and tighten the screw.
  - 4) Connect the Red wire to Terminal 4 and tighten the screw.
  - 5) Set S1, Switch #4, on the IR remote interface to the OFF position. Go to *Step 7, Setup And Programming, on the next page.*
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### B. Phonographs Using Dual Channel Volume Control

- 1) Remove the Red volume control wire from Terminal 4 on the Volume Control/Cancel Terminal Block and tape the end of the loose wire.
  - 2) If a Green wire is on terminal T-5 on the Volume Control/Cancel Terminal Block, remove it and tape the end of the loose wire.
  - 3) If the jumper has not already been moved from terminals 4 and 5 to Terminals 5 and 6, move it now.
  - 4) Connect the Green wire from the interface harness to Terminal 5 and tighten the screw.
  - 5) Connect the Red wire to Terminal 4 and tighten the screw.
  - 6) Set S1, Switch #4, on the IR remote interface to the ON position. Go to *Step 7, Setup And Programming, on the next page.*
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### C. Phonographs with Background Music Kit and Single Volume Control

- 1) Connect the Red wire from the IR remote interface in place of the Red wire that goes to the volume control on the Background Music installation.
  - 2) Tape-up the Green wire from the IR remote interface, it is not used.
  - 3) Set S1, Switch #4, on the IR remote interface to the OFF position. Go to *Step 7, Setup And Programming, on the next page.*
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### D. Phonographs With Background Music Kit and Dual Volume Control

- 1) Connect the Red wire from the IR remote interface in place of the Red wire that goes to the volume control on the Background Music installation.
  - 2) Connect the Green wire from the IR remote interface in place of the Green wire that goes to the volume control on the Background Music installation.
  - 3) Set S1, Switch #4, on the IR remote interface to the ON position. Go to *Step 7, Setup And Programming, on the next page.*
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## 7. Setup And Programming

- A. Check SWITCH 1 and make sure that it is set as follows:

Table 1. S1 Settings

Number	Setting
1	ON (Remote Model) *.
2	OFF (On if using the Remote Autoplay Override function).
3	OFF (On if using the Clear Selection Memory function).
4	As required by volume control selection in Step 6.

\* 21958303 has 2 batteries, and 21958301 has 3 batteries. Set to OFF if using remote model 21958301. The 21958301 is an earlier model that uses 3 batteries.

- B. The following programming changes apply to CCC's with Program Version 2.0 and higher:
- 1) Put the phonograph into SERVICE mode.
  - 2) Enter the SECURITY CODE, if needed, then return to the SERVICE MODE menu.
  - 3) Review *table 2* and make any changes that may be required (if you are not familiar with how to enter commands, refer to Section 2 of the appropriate service manual)(table 2 shows what is available in the CCC V2.5 and 3.X eprom. If you have V2.0 - 2.4, all options may not be available).
  8. Installation is complete. Close the phonograph top door and make a selection using the IR remote (see *Making Selections* in the following paragraph). If the phonograph does not work properly, go to *Troubleshooting The IR Remote System* at the end of these instructions.

### IR REMOTE MOUNTING AND SECURITY OPTIONS

#### Mounting Options

The IR remote can be mounted on most any surface if you use one or both of the Velcro mounting hook pads supplied in this kit.

**Procedure** — Peel the sticky backing off of the Velcro hook pads and apply them to a clean surface. If you use both pads, be sure that the distance between the pads matches the Velcro on the back of the IR remote before you stick down the pads.

## Security Option

The IR remote can be attached to a small cable so that the remote will not "wander" too far away from its desired location. To install the cable:

1. Remove the screw on the back of the IR remote with a Torx screw driver or a 0.05-inch Allen wrench.
2. Screw the screw eye into the empty hole, fasten a small diameter cable (available from most hardware stores) to the screw eye, and fasten the other end of the cable to a non-movable object.

**Table 2. Program Settings**

Command	Description	Factory Setting	Recommended Setting
91	<b>Remote Selections</b> - Displays and sets remote selections to ON, OFF, ICD, or XCD. If this command is set to ON, you can always use the IR remote control to make a selection or give a credit. If this command is set to OFF, remote control selections and credits are not allowed at all. If this command is set to ICD, remote control selections and credits are allowed as long as REMOTE CREDIT (92) exceeds zero. If set to XCD, remote control selections are allowed when remote credit (92) or external credit (selections remaining on digital display) exceeds zero, and remote control credits are allowed when remote credit (see 92) exceeds zero. Hold RESET, push 9 to select ON, OFF, ICD or XCD. Press POPULAR to save.	OFF	ON/OFF/ICD/XCD
92	<b>Remote Credit</b> - Displays and changes the number of internal remote credits. If RMT SELECT (91) is set to ICD or XCD, remote credits are decremented each time you use the IR remote control to make a selection or give a credit. Type the number of credits, then press POPULAR.	0	0-999
93	<b>Remote Pause</b> - Allows the remote to pause the phonograph if this feature is set to ON. Hold RESET and press 9 to toggle this command ON and OFF. Press POPULAR to save your choice.	OFF	ON
94	<b>Remote Pause Time</b> - Displays and sets the number of minutes the phonograph can be paused. Type the new number, then press POPULAR to save your choice.	90 Minutes	1 minute

**Table 2. Program Settings**

<b>Command</b>	<b>Description</b>	<b>Factory Setting</b>	<b>Recommended Setting</b>
95	<b>Remote Autoplay Override</b> - Allows the remote to turn Autoplay either ON or OFF if this feature is ON. Hold RESET and press 9 to toggle ON and OFF. Press POPULAR to save your choice.	SEE NOTE <sup>1</sup>	OFF (To avoid accidental turn off by operator). On if using Remote Autoplay Override.
96	<b>Remote Reload</b> - Once a week (on Monday) the value in this location is added to the REMOTE CREDIT (MENU COMMAND 92). Type the number of credits you want to give each week. Press POPULAR to save your choice.	0	0-999
99	<b>Remote Plays</b> - Displays the number of selections made from the remote.	---	---
65	<b>Album Select</b> - Displays and toggles the ALBUM BUY options ON, OFF, or JUK so that entire albums can be selected. Albums can be selected from the phonograph Wallbox and IR remote control if set to ON. They can be selected from the phonograph and Wallbox if set to JUK. Hold RESET and press 9 to toggle ON, OFF, or JUK. Press POPULAR to save the change.	ON	ON/OFF/JUK
6992	<b>Free album</b> - Allows entire albums to be selected if FREE PLAY (55) and ALBUM BUY (65) are ON. Hold RESET and press 9 to toggle this command ON and OFF. Press POPULAR to save your choice.	OFF	ON/OFF

**MAKING SELECTIONS AND GIVING CREDIT**

Selections are made by pressing SELECT or PRIORITY and then entering the four digit selection number.

When the SELECT or PRIORITY button is pressed, the LED on the IR receiver will flash. The LED on the IR receiver will flash as each digit of the selection is entered. After the fourth digit is pressed, the LED will stay ON steady for two seconds, then it will go OFF. If the LED does not stay ON when the fourth digit is pressed, press SELECT or PRIORITY and re-enter the four-digit selection number.

If you want to cancel a selection number that has been partially entered, press SELECT or PRIORITY. This will allow you to re-enter the selection number.

**NOTE 1: Factory Load Settings Are As Follows**

Version 2.2 and earlier: ON. Version 2.3 and later: OFF.

Table 3 describes the functions that are possible with the IR remote. The PROGRAM setting in Table 2 must be set to enable some of these functions.

**Table 3. IR Remote Functions**

Button Name	Function	Notes
Select	Allows a four digit selection number to be entered.	Press SELECT, then enter the four-digit selection number.
Priority	Used instead of SELECT, to put the selection number at the top of the play list.	Press PRIORITY, then enter the four digit selection number.
Album	Allows all selections (album buy) to be made from a disc.	Press album, then press the 2 digit disc number.
Credit	Adds 1 credit to the phonograph.	Press CREDIT.
Pause	Stops the current selection from playing. The selection will resume at the same place it was "paused" when the PLAY button, or any button (but PAUSE) is pressed.	Press Pause. Pause time is set at the jukebox program location 94.
Play	"UN-Pauses" a selection which is paused.	Press Play.
Reject	Cancels the selection that is currently being played.	Press Reject.
Clear All Selections	Clears all selections waiting to be played.	Press REJECT for at least 4 seconds.
Volume + - Left Right	These buttons allow you to raise and lower the phonograph volume.	<b>Single Channel mode</b> — Press the + to raise the volume and press - to lower the volume. <b>Dual Channel mode</b> — Press either LEFT or RIGHT, then press + or - to raise or lower the volume on that channel (each channel must be selected separately).
AP OF (OFF)	Turns the AUTOPLAY feature OFF (Location 47 in the Jukebox Program).	Press AP OF to turn OFF Autoplay.
AP ON	Turns the AUTOPLAY feature ON (Location 47 in the Jukebox Program).	Press AP ON to turn ON Autoplay.

## TROUBLESHOOTING THE IR REMOTE SYSTEM

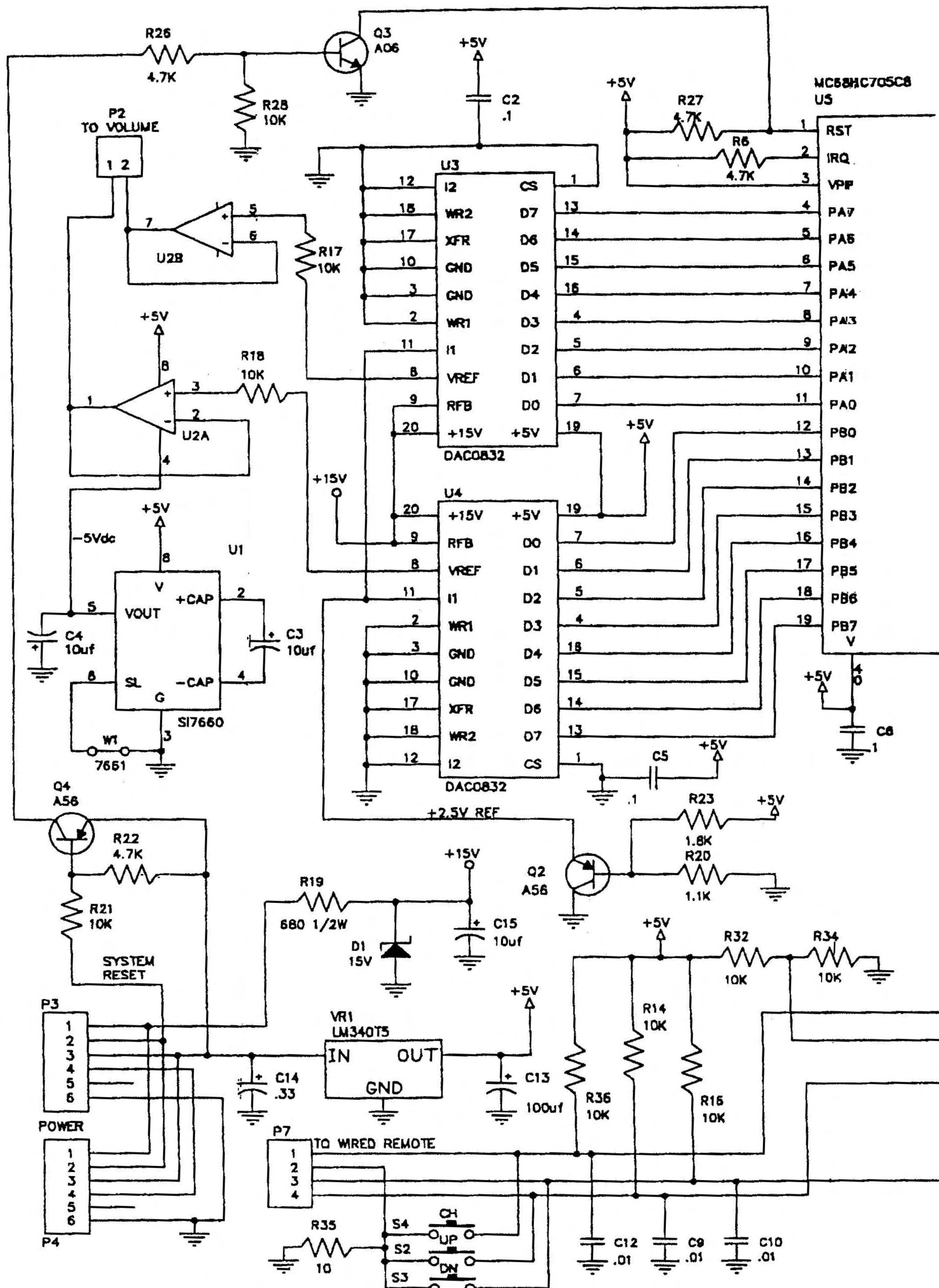
The following chart lists several situations that may occur after this kit has been installed. The situations described in the "Trouble" column apply only to problems that may be caused by the installation of this kit. If a problem appears that is not on this list, refer to the phonograph field service manual for additional procedures. Before using this chart, make sure switch S1 is set correctly per table 1.

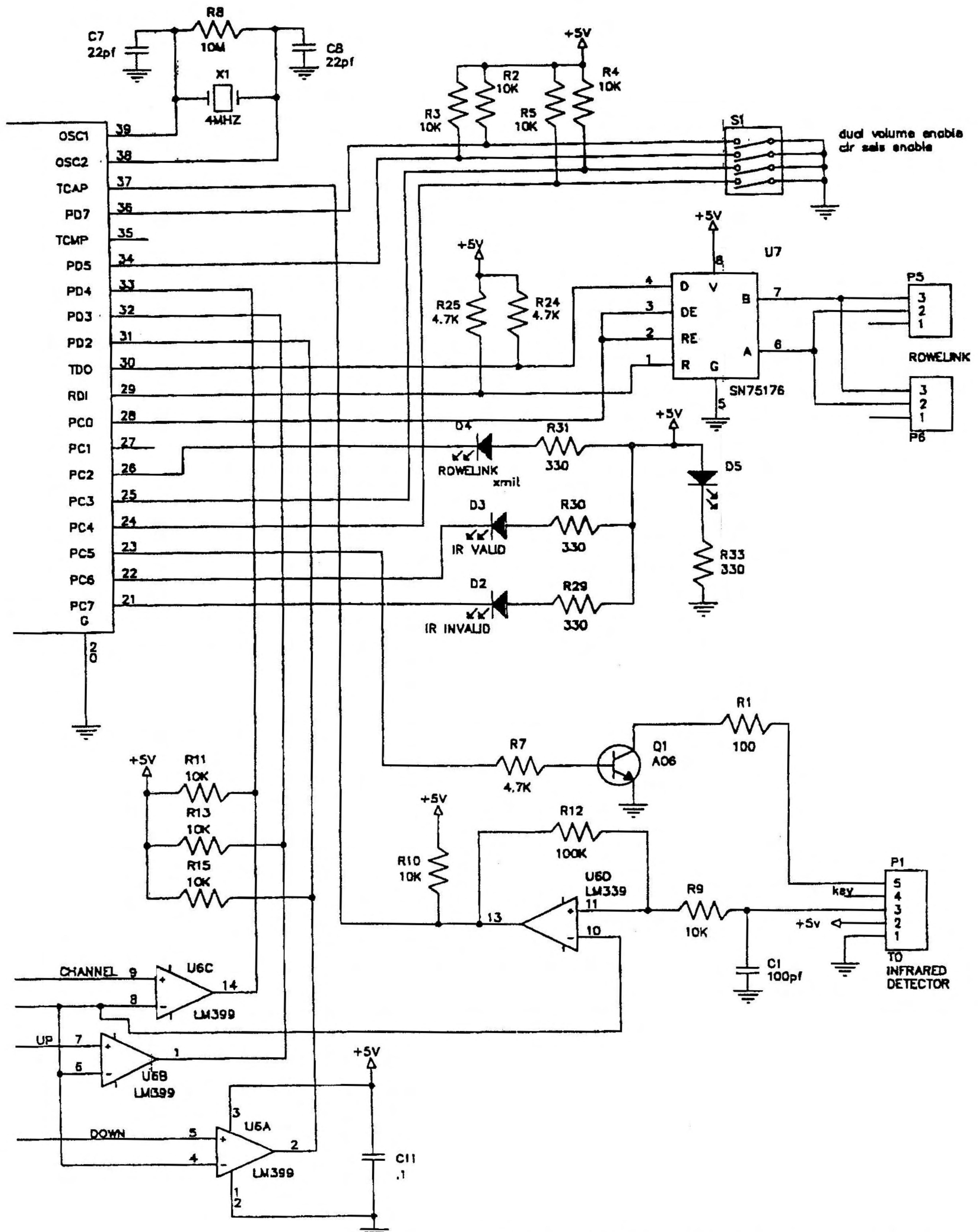
**Troubleshooting Chart**

Trouble	Symptom	Probable Cause
Phonograph does not respond to any command sent from the IR remote control, but otherwise operates normally.	+5 VDC LED on the IR remote interface fails to light.	<ol style="list-style-type: none"> <li>1. Harness between CCC P4 and the IR interface P4 is not plugged-in properly.</li> <li>2. Defective harness between the CCC and the IR interface.</li> <li>3. Defective IR interface board.</li> </ol>
	RL XMIT LED on the IR remote interface fails to light.	<ol style="list-style-type: none"> <li>1. Rowelink harness between the CCC P12 and the IR interface P6 is not plugged-in properly.</li> <li>2. Defective harness between the CCC and the IR interface.</li> <li>3. Defective interface board.</li> </ol>
	The IR VALID LED on the IR interface fails to light when IR remote buttons are pressed (any buttons, except 0-9).	<ol style="list-style-type: none"> <li>1. No batteries or weak batteries in the IR remote transmitter.</li> <li>2. The IR remote transmitter's batteries have been inserted improperly.</li> <li>3. Harness between the IR interface P1 and the IR receiver is not plugged-in properly.</li> <li>4. Defective harness between the IR interface and the IR receiver.</li> <li>5. Defective IR receiver.</li> <li>6. Defective IR interface.</li> <li>7. Defective IR remote transmitter.</li> </ol>

**Troubleshooting Chart**

<b>Trouble</b>	<b>Symptom</b>	<b>Probable Cause</b>
Cannot make selections with the IR remote transmitter.	The LED on the IR receiver fails to light when digits 0-9 are pressed.	Need to Press SELECT or PRIORITY before entering the 4-digit selection number.
	The LED on the IR receiver flashes when digits are pressed and it stays lit for two seconds after the fourth digit is pressed (this is the normal sequence).	<ol style="list-style-type: none"> <li>1. Menu Item 91 in the CCC is set to OFF.</li> <li>2. Menu Item 91 is set to ICD or XCD and item 92 is set to zero.</li> <li>3. The selection made from the IR remote transmitter is an invalid number.</li> </ol>
Cannot put the phonograph into the PAUSE mode.	The LED on the IR receiver flashes when PAUSE is pressed (this is the normal sequence).	Menu Item 93 in the CCC is set to OFF.
Volume + and - on the IR remote transmitter have no effect on phonograph volume.	The volume is adjustable through the volume control at the back of the phonograph.	Harnessing from the IR interface to the amplifier transformer assembly is not installed properly.
	No sound or full volume.	<ol style="list-style-type: none"> <li>1. Harnessing from the IR interface to the amplifier transformer assembly is not installed properly.</li> <li>2. Harnessing from the IR interface to the amplifier transformer assembly is defective.</li> <li>3. Defective IR interface circuit board.</li> </ol>





For Equivalent Engineering Drawing See 61027402 -Q2 B  
**Figure 3. IR Remote Interface Schematic**

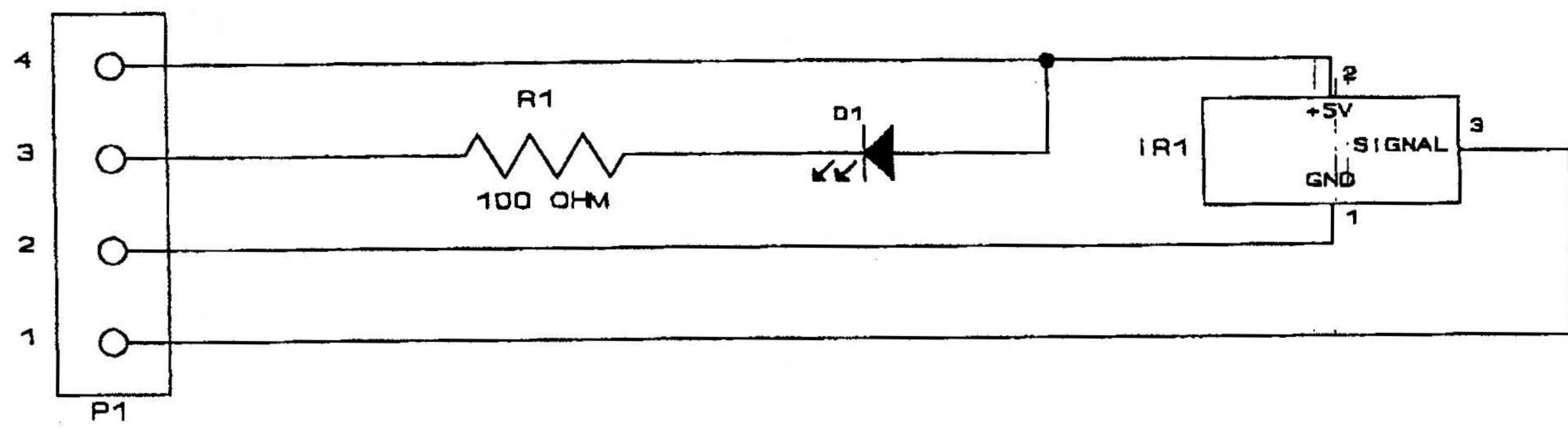
**Components List For  
IR Remote Interface Circuit Board 61027402**

C1	Capacitor - Monolithic Ceramic	100 PF	70028601
C2	Capacitor - Monolithic Ceramic	.1 UF	70028511
C3	Capacitor - Electrolytic	10 PF	70023808
C4	Capacitor - Electrolytic	10 UF	70023808
C5	Capacitor - Monolithic Ceramic	.1 UF	70028511
C6	Capacitor - Monolithic Ceramic	.1 UF	70028511
C7	Capacitor - Monolithic Ceramic	22 PF	70028705
C8	Capacitor - Monolithic Ceramic	22 PF	70028705
C9	Capacitor - Monolithic Ceramic	.01 UF	70028502
C10	Capacitor - Monolithic Ceramic	.01 UF	70028502
C11	Capacitor - Monolithic Ceramic	.1 UF	70028511
C12	Capacitor - Monolithic Ceramic	.01 UF	70028502
C13	Capacitor - Electrolytic	100 UF	70023814
C14	Capacitor - Tantalum	.33 UF	70025119
C15	Capacitor - Electrolytic	10 UF	70023808
D1	Diode - Zener	15 V	70035522
D2	Diode - Light Emitting		70035305
D3	Diode - Light Emitting		70035305
D4	Diode - Light Emitting		70035305
D5	Diode - Light Emitting		70035305
P1	Wafer - Polarizing	5 CKT	70075005
P2	Wafer - Polarizing	2 CKT	70075002
P3	Wafer - Polarizing	6 CKT	70075006
P4	Wafer - Polarizing	6 CKT	70075006
P5	Wafer - Polarizing	3 CKT	70075003
P6	Wafer - Polarizing	3 CKT	70075003
P7	Wafer - Polarizing	4 CKT	70075004
Q1	Transistor - Silicon (MPSA06) (NPN)		70030008
Q2	Transistor - Silicon (MPSA56) (PNP)		70030104
Q3	Transistor - Silicon (MPSA06) (NPN)		70030008
Q4	Transistor - Silicon (MPSA56) (PNP)		70030104

**Note:** All resistors are 1/4 watt 5%, unless otherwise noted.

R1	Resistor - Carbon	100 Ω	79901101
R2	Resistor - Carbon	10 K Ω	79901103
R3	Resistor - Carbon	10 K Ω	79901103
R4	Resistor - Carbon	10 K Ω	79901103
R5	Resistor - Carbon	10 K Ω	79901103
R6	Resistor - Carbon	4.7 K Ω	79901472
R7	Resistor - Carbon	4.7 K Ω	79901472
R8	Resistor - Carbon	10 M Ω	79901106
R9	Resistor - Carbon	10 K Ω	79901103
R10	Resistor - Carbon	10 K Ω	79901103

R11	Resistor - Carbon	10 KΩ	79901103
R12	Resistor - Carbon	100 KΩ	79901104
R13	Resistor - Carbon	10 KΩ	79901103
R14	Resistor - Carbon	10 KΩ	79901103
R15	Resistor - Carbon	10 KΩ	79901103
R16	Resistor - Carbon	10 KΩ	79901103
R17	Resistor - Carbon	10 KΩ	79901103
R18	Resistor - Carbon	10 KΩ	79901103
R19	Resistor - Carbon (1/2W,5%)	680 Ω	79904681
R20	Resistor - Carbon	1.1 KΩ	79901112
R21	Resistor - Carbon	10 KΩ	79901103
R22	Resistor - Carbon	4.7 KΩ	79901472
R23	Resistor - Carbon	1.8 KΩ	79901182
R24	Resistor - Carbon	4.7 KΩ	79901472
R25	Resistor - Carbon	4.7 KΩ	79901472
R26	Resistor - Carbon	4.7 KΩ	79901472
R27	Resistor - Carbon	4.7 KΩ	79901472
R28	Resistor - Carbon	10 KΩ	79901103
R29	Resistor - Carbon	330 Ω	79901331
R30	Resistor - Carbon	330 Ω	79901331
R31	Resistor - Carbon	330 Ω	79901331
R32	Resistor - Carbon	10 KΩ	79901103
R33	Resistor - Carbon	330 Ω	79901331
R34	Resistor - Carbon	10 KΩ	79901103
R35	Resistor - Carbon	10 Ω	79901100
R36	Resistor - Carbon	10 KΩ	79901103
S1	DIP Switch (4 Position)		70043002
S2	Pushbutton Switch		21773303
S3	Pushbutton Switch		21773303
S4	Pushbutton Switch		21773303
U1	I.C. - Voltage Invertor	SI7660	70036513
U2	I.C. - Dual OP Amp	LM358	30800214
U3	I.C. - Digital To Analog Converter	DAC0832	30800234
U4	I.C. - Digital To Analog Converter	DAC0832	30800234
U5	I.C. - Microcomputer	MC68HC705	70039404
U6	I.C. - Quad Comparator	LM339	70036801
U7	I.C. - Transceiver	75176	70037801
VR1	Regulator - Voltage (+5V)	LM340-5	70036505
X1	Crystal - Quartz (4.00 MHZ)		25167306



For Equivalent Engineering Drawing See 40846201 A  
**Figure 4. Infrared Receiver Schematic**

**Components List For  
 Infrared Receiver Circuit Board 40846201**

D1	Diode - Light Emitting	70035316
IR1	Infrared Detector Circuit	30800252
P1	Wafer - Polarizing (90°)	70074404
R1	Resistor - Carbon      100 Ω	79901101