

# Nutone

## TRUBLE-SHOOTING GUIDE

### RADIO-INTERCOM

#### Model IM-806

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# PROCEDURES FOR TROUBLE-SHOOTING IM-806 RADIO-INTERCOM

## STEP 1. Check Operation (Pages 3 — 4)

Check the system's operation. Follow the step-by-step procedures outlined in "INITIAL SETUP" and "INTERCOM OPERATION". Make note of any operation which is not normal.

## STEP 3. Isolate Problem To Master Or Remotes and/or Wiring (Page 5)

At this step, it must be determined whether the problem is in the Master Unit or in the Remotes and Wiring. To isolate the problem, use the "TROUBLE-SHOOTING PROCEDURE FOR ISOLATING PROBLEM".

## STEP 2. Check Voltage Measurements (Pages 4 — 5)

Supply and Control voltages are critical to normal operation. Thoroughly check all voltages as outlined in "CHECKING SUPPLY VOLTAGES" and "CHECKING CONTROL VOLTAGES". Any deviation of plus or minus .5 volts should be considered abnormal.

## STEP 4. Determine Nature of Problem (Pages 5 — 14)

After the problem is isolated, it must be determined exactly what kind of problem exists.

To determine the nature of a problem in the SYSTEM, use the "SYSTEM AND INSTALLATION TROUBLE-SHOOTING GUIDE".

To determine the nature of a problem in the MASTER UNIT, use the "MASTER UNIT TROUBLE-SHOOTING CHART".

# OPERATIONAL CHECKOUT

## INITIAL SETUP

1. Press **END CALL** button. (Initially, the system will come on in the muted mode.)
2. Adjust all system **PROGRAM VOLUME** and **INTERCOM VOLUME** controls to one-third (1/3) of maximum.
3. Place all **PRIVATE/MONITOR** switches in **NORMAL** position.
4. Set **TONE** control on Master Station to mid-range.
5. Set **PATIO ON/OFF** button to **OUT** position.
6. Push **ON/OFF** button to **IN** position. (**NOTE:** The Intercom is always on.)
7. Press **PROGRAM SELECT** button to select either **AM** or **FM** radio. Selection is shown by LED indicator lights.
8. Adjust **TUNING WHEEL** to select a local radio station which can be heard strongly and clearly.
9. Readjust all **PROGRAM VOLUME** controls to suit volume level requirements to each station.

## INTERCOM OPERATION

STEP	STATION	CONTROL	OPERATION	SYSTEM RESPONSE
1.	Master	Press <b>Inside/Patio Talk</b> .	Make a call to remote speakers.	Call from Master heard at all remotes.
2.	Master	Release <b>Inside/Patio Talk</b> .	Listen to reply.	Reply from remotes heard at Master.
3.	At Remotes	"HANDS FREE"	Listen to and reply to call made from Master Station. No controls at remote used.	Audio from remotes heard at master station.
4.	Master	Press <b>End Call</b> .	End intercom call.	All stations immediately return to original state — programming or OFF
5.	Master	Press and release <b>Inside/Patio Talk</b> .	Begin timeout cycle.  <b>NOTE: The "Timeout" period is reset each time any TALK button in the system is pressed. The "Timeout" is factory set for approximately 3 minutes.</b>	Program audio will return approximately 3 minutes after the <b>Inside/Patio Talk</b> button is released.
6.	Master	Press <b>Door Talk</b> .	Make a call to the Door Speaker(s).	Call from Master heard at Door Speaker and at other remotes.
7.	Master	Release <b>Door Talk</b> .	Listen to reply from door.	Reply from Door Speaker heard at Master Station and all remotes.
8.	Master	Press <b>End Call</b> .	End intercom talk with Door Speaker.  <b>NOTE: The "Timeout" period functions the same as when using Inside/Patio Talk.</b>	All stations return to original state — program source or OFF.
9.	All Remotes	Using the same procedure outlined above for the Master Station, check the intercom function at each remote. Make calls from remotes to Master, from remotes to other remotes, and from remotes to door speakers. The unit making the call uses controls; the unit receiving calls is used "hands free."		
10.	Master or remotes.	Press <b>Phone Talk</b> .	Respond to ring signal and answer phone.	All stations hear ring signal. Person calling on phone will hear answer. Answer will be heard at all stations.
11.	Master or remotes.	Release <b>Phone Talk</b> .	Listen to phone caller's reply.	Phone caller's reply heard at all stations.

# INTERCOM OPERATION —Continued—

STEP	STATION	CONTROL	OPERATION	SYSTEM RESPONSE
12.	Master or remotes.	Press End Call.	End phone conversation.	Hangs up phone. System returns to original state — program source or OFF.
13.	Master or remotes.	To answer the phone from the Intercom System but continue the phone conversation privately, follow this procedure: Press Phone Talk.	Respond to ring signal; answer phone. Listen to phone caller's reply.	Caller will hear answer. All stations will receive audio. Caller's reply heard at all stations.
14.	Master or remotes.	Release Phone Talk.	Pick up Telephone receiver.	Phone conversation is taken off intercom system. System will time out and return to original state — program source or OFF.
15.	Telephone	.....		

**NOTE:** Pressing End Call BEFORE picking up phone receiver will result in "hanging-up" on phone caller.

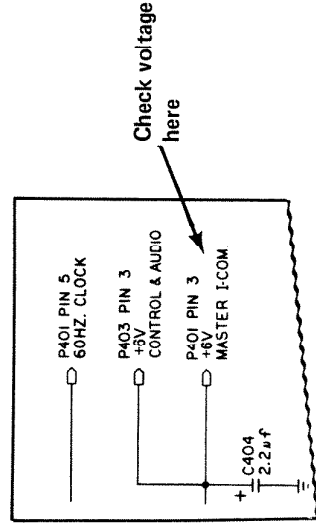
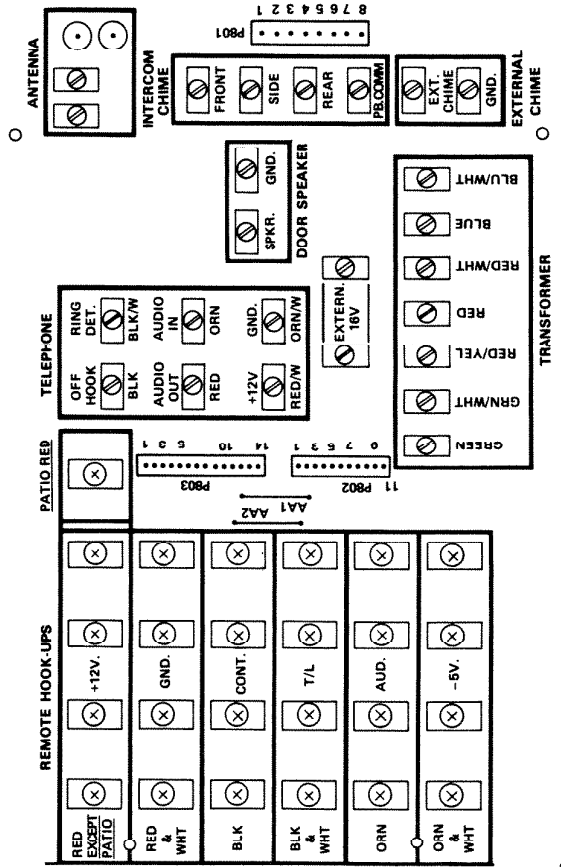
## CHECKING SUPPLY VOLTAGES

The first step in trouble-shooting any IM-806 Master Unit is to check the Supply Voltages. NuTone recommends using a digital voltmeter to make all voltage checks. All voltages are measured with respect to the Ground (RED/WHT) wire on the Terminal Board.

**Cable Check.** Where ribbon cables are soldered to the Printed Circuit Boards, check for broken wires, bad solders, etc.

LOCATION OF MEASUREMENT	VOLTAGE	CABLE TO BE CHECKED	REMEDY FOR INCORRECT VOLTAGE MEASUREMENT
RED on Terminal Board.	+12v ± .5vDC	Cable between P802 (Terminal Board) and X401 (Power Supply Board).	Failure to measure one or more of the correct voltages indicates that power supply should be replaced. May also indicate a short in remote loop or a defective remote unit.
ORN/WHT on Terminal Board.	-5v ± .5vDC		
P403, pin 3 on Power Supply Board.	+6v ± .5vDC		

## WIRING CONNECTIONS The IM-806 Terminal Board



## POWER SUPPLY BOARD (Section)

# CHECKING CONTROL VOLTAGES

Before trying to isolate any Intercom Control problems, check all Control Voltages. NuTone recommends using a digital voltmeter to make all voltage checks. All voltages are measured with respect to the Ground (RED/WHIT) wire on the Terminal Board.

**Cable Check.** Where ribbon cables are soldered to the Printed Circuit boards, check for broken wire, bad solders, etc.

BUTTON DEPRESSED	LOCATION OF MEASUREMENT	VOLTAGE	P.C. BOARD TO BE CHECKED OR REPLACED
-----	BLK on Terminal Board	11.8V ± .5vDC	Switch Board, Control and Audio. Check cabling.
Inside/Patio	BLK on Terminal Board	7.3V ± .5vDC	Switch Board, Control and Audio. Check cabling.
Door Talk	BLK on Terminal Board	3.8V ± .5vDC	Switch Board, Control and Audio. Check cabling.
Phone Talk	BLK on Terminal Board	.20V ± .5vDC	Switch Board, Control and Audio. Check cabling.
End Call	BLK on Terminal Board	-3.5V ± .5vDC	Switch Board, Control and Audio. Check cabling.

# TROUBLE-SHOOTING PROCEDURE FOR ISOLATING PROBLEMS

- One at a time, disconnect each wiring loop or run from the terminal board.
- With one loop or run disconnected, check operation or voltages. Repeat procedure until you find the loop or run which causes improper operation or voltage deviations. See pages 3 — 5.
- When loop or run that causes improper operation is located, disconnect that loop at mid-point. Then, check operation or voltages again.
- If improper operation or voltage deviation continues, disconnect the remainder of the loop and check operation or voltages.
- Continue this process until defective remote or faulty wiring is located.
- If an intercom call cannot be properly made under any circumstances, the problem is in the Master Unit. See pages 9 — 15.

# SYSTEM AND INSTALLATION TROUBLE-SHOOTING GUIDE

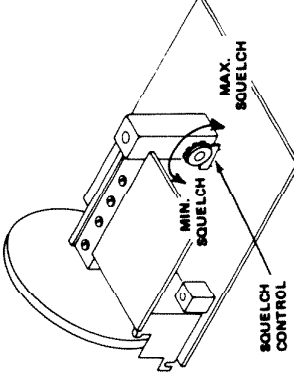
TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
1. No radio; no intercom. Radio display is off.	1. No electrical power.	1. Be sure there is 120vAC, 60Hz power to transformer primary. Next, check AC to intercom Master from transformer secondary (blue pair) for 16 volts. Check wiring from transformer to terminal board.
2. System goes on and off.	2. Overheating of transformer.	2. Check transformer secondary wiring. If transformer is defective, replace transformer.
3. No radio but intercom working (radio display on).	3. Installation problem.	3. Check terminal board for shorted terminals or miswired cables. Remove one 6-wire cable at a time to locate faulty line. When radio comes on, check speaker connections and run continuity check of speaker wiring.
4. No radio but intercom working (radio display on).	4a. Antenna problem.	4a. Check for shorted antenna connection. Remove Master's antenna leads from antenna harness and hold each lead individually — if radio plays, antenna is not efficient; be sure it is installed properly. In weak signal areas, an outside antenna may be necessary.
5. Select switch will not work.	4b. Faulty Master unit.	4b. See pages 9 — 15.
	5. Faulty Master unit.	5. See pages 9 — 15.

(Continued)

# SYSTEM AND INSTALLATION TROUBLE-SHOOTING GUIDE — Continued —

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
6. Low or no volume from remote speaker which is set to MONITOR.	6a. Improper or broken wiring.	6a. Repair or replace wiring.
	6b. Defective remote unit.	6b. Replace remote unit.
7. Pressing Inside/Patio Talk button does not initiate a call from Master.	7. Bad remote unit.	7. Follow "Trouble-Shooting Procedure For Isolating Problems" (page 5), until bad unit is located.
8. Pressing Inside/Patio Talk button does initiate a call but no reply can be heard.	8. Bad remote unit.	8. Same as 7 above.
9. System squeals when intercom is used.	9a. Remote speaker's I-COM VOLUME set too high.	9a. Reduce I-COM VOLUME at offending speaker.
	9b. Shorted wire on Master or remote terminal board.	9b. Check for short between terminals or loose wires.
	9c. Speakers in adjacent rooms mounted on common wall or mounted back to back.	9c. If speakers are mounted directly back to back, one speaker will have to be relocated. If speakers are in a common wall, try placing fiberglass insulation behind each speaker, or isolate the speakers from the wall by placing rubber washers or weather stripping between speaker and wall.
	9d. Improper wire used in installation.	9d. NuTone Model IW-6 3-twisted pair cable must be used.
10. Hum in speakers.	10a. Intercom wiring run too close to household AC power wiring.	10a. Keep intercom wiring as far as practical from household AC power wiring. Do not run intercom wiring parallel to AC power wiring.
	10b. Shorted intercom power wiring or power wiring shorted to ground.	10b. Check power connections to Master terminal board and connections to transformer.
	10c. Interference from household electrical fixtures.	10c. A dimmer switch may cause interference — NuTone Models DC-15 and DC-35 Dimmer Switches are designed to help minimize such interference. For fluorescent lighting interference, use filters (G.E. 89G635 or equivalent, purchased locally).
11. Static.	11a. Loose ground connection.	11a. Check ground connection to Master and connection to earth ground source.
	11b. Interference from household electrical fixtures.	11b. A dimmer switch may cause interference — NuTone Models DC-15 and DC-35 Dimmer Switches are designed to help minimize such interference. For fluorescent lighting interference, use filters (G.E. 89G635 or equivalent, purchased locally).
	11c. Interference from household electrical appliances.	11c. Correct interference at the source: fish tank, heater, hand tool, coffee pot, fluorescent lights, etc.
12. Remote Station not working.	12. Wire installation.	12. Check terminal board for broken wire or loose connection. Check continuity of wire.
13. No door communication.	13a. Wire installation.	13a. Check continuity or wiring. Check connections at speaker and Master
	13b. Speaker.	13b. Check with a speaker known to be in working order.

# SYSTEM AND INSTALLATION TROUBLE-SHOOTING GUIDE — Continued —

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
14. Optional electronic chime does not work through intercom, or low volume.	14a. Wire installation. 14b. Improper operation. 14c. Chime.	14a. Be sure chime is wired to proper terminals on Master terminal board and proper connections are made at the chime. 14b. Be sure chime is electronic model. Be sure radio-intercom system is on. Check <b>PROGRAM VOLUME</b> control settings on all stations. Chime will be heard only through speakers set to <b>NORMAL</b> or <b>PRIVATE</b> . 14c. Increase volume control on chime. Check electronic pickups and continuity of chime input wiring.
15. Cannot receive radio station which is received by another radio in home.	15a. Faulty antenna connection. 15b. FM Squelch control not properly adjusted.	15a. Antenna should be located in attic and connected to terminal strip in Master's rough-in frame. Check antenna leads from master to be sure they are connected to terminal strip in rough-in frame. 15b. Adjust squelch control for sensitivity — clockwise to increase sensitivity, counter-clockwise to decrease.
 <p>The diagram shows a top-down view of a potentiometer knob labeled 'SQUELCH CONTROL'. Two curved arrows indicate the range of motion: one pointing counter-clockwise to 'MIN. SQUELCH' and one pointing clockwise to 'MAX. SQUELCH'.</p>		
16. Volume at door speaker too high or too low.	16. Improper level setting.	16. Adjust thumbwheel pot R156 — see <b>VOLUME AND TIMEOUT ADJUSTMENT</b> (page 8).
17. Door speaker audio to system too high or too low.	17. Improper level setting.	17. Adjust thumbwheel pot R153 — see <b>VOLUME AND TIMEOUT ADJUSTMENT</b> (page 8).
18. No dial tone when <b>PHONE TALK</b> is pressed and released and loud squeal is heard.	18a. Input and Output connections reversed in Telephone Coupler. 18b. Defective Coupler.	18a. Reverse <b>TIP IN</b> and <b>OUT</b> lines. 18b. Replace Coupler.
19. No dial tone is heard when <b>PHONE TALK</b> is pressed and released.	19a. Improper level setting. 19b. Bad coupler.	19a. Adjust thumbwheel pot R155. See <b>VOLUME AND TIMEOUT ADJUSTMENT</b> (page 8). 19b. Replace coupler when no dial tone is achieved through adjustment.
20. Low audio coming from phone line.	20. Improper level setting.	20. Increase Intercom Volume Control on all units or adjust thumbwheel pot R155 — see <b>VOLUME AND TIMEOUT ADJUSTMENT</b> (page 8).
21. Low audio going to phone line.	21. Improper level setting.	21. Adjust thumbwheel R151 — see <b>VOLUME AND TIMEOUT ADJUSTMENT</b> (page 8).

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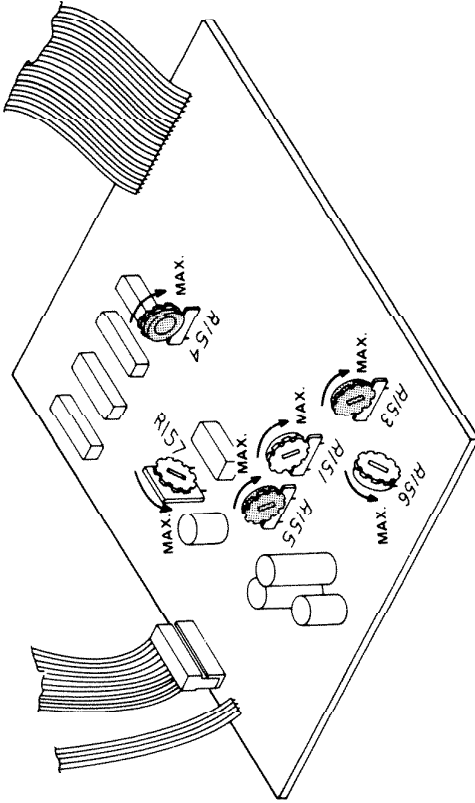
TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
22. No ring signal is heard in system.	22a. PROGRAM VOLUME controls set too low.	22a. Adjust PROGRAM VOLUME controls — see “Initial Setup” (page 3).
	22b. Ring level adjustment too low.	22b. Adjust thumbwheel pot R154 — see VOLUME AND TIMEOUT ADJUSTMENT (page 8).
	22c. Defective Coupler.	22c. Replace Coupler.
23. Phone conversation is not taken off intercom system when handset is lifted.	23. Phone Coupler is improperly wired to telephone line.	23. Connect Phone Coupler to phone line according to IT-10 Installation Instructions.

## VOLUME AND TIMEOUT ADJUSTMENTS

Six thumbwheel pots on the Audio/Control printed circuit board are factory set at normal levels. Although these pots may not require new settings, they are adjustable. Five pots control volume levels to and from the telephone and door speaker; the sixth pot controls the length of the “End Call” timeout.

See illustration for location of each thumbwheel pot. If necessary, adjust each pot as desired: arrows show the direction thumbwheel should be turned to increase volume or time.

The numbers and functions of each pot are listed below. Make adjustments in the order given.



POT NUMBER	FUNCTION
* R156	Audio to door speaker (and phone).
* R151	Audio to phone lines.
R155	Audio from phone lines.
R154	System phone ring signal.
R153	Audio from door speaker.
R157	“End Call” timeout.

\* Because audio to phone and door is controlled by the same amplifier, adjusting R 156 will also affect audio to phone. R156 should always be adjusted BEFORE R151.



# HOW TO USE THE MASTER UNIT TROUBLE-SHOOTING CHART

**STEP 1. You Have Found That The Problem Is In The Master Unit.**

**STEP 3. Then, Refer To The Columns Under "Area Of Operation Where Problem Occurs."**

**STEP 2. Now, Find The Area Of Operation Where The Problem Occurs.**

**STEP 4. Match Your Problem(s) With The Problem Area Or Combination Of Problem Areas. An Asterisk (\*) Means A Problem; A Blank Box Means No Problem.**

## DEFINITION KEY

The following are brief descriptions of the column headings under "AREA OF OPERATION WHERE PROBLEM OCCURS" in the Master Unit Trouble Shooting Chart.

**Intercom Control** — any logic circuitry related to the four Intercom buttons' operation.

**Intercom Audio** — audio circuitry used during Intercom operation.

**Select** — circuitry used to select mode of operation (AM, FM, PHONO, TAPE).

**FM Display** — circuitry related to display when unit is in FM mode.

**AM Display** — circuitry related to display when unit is in AM mode.

**FM Audio** — circuitry related to FM audio when unit is in FM mode.

**AM Audio** — circuitry related to AM audio when unit is in AM mode.

**STEP 6. Refer To The "Corrective Action" Columns.**

(A) Where a number appears in the "CABLE TO BE CHECKED" column, check for broken wire where cable is soldered to P.C. board.

(B) Check and replace indicated P.C. board. See pages 14 and 15 for location of P.C. boards.

## USING THE CHART: AN EXAMPLE

The Radio-Intercom you are trouble-shooting shows the following symptoms: (a) the FM LED is always lit no matter what mode you select; (b) the AM radio is distorted.

This means that the problem is in two areas: **SELECT** and **AM AUDIO**.

First, check all supply voltages. If they are normal, you should then go to the **AREA OF OPERATION WHERE PROBLEM OCCURS** and locate the line where **only the SELECT** and **AM AUDIO** columns contain asterisks.

The "TYPICAL PROBLEMS" column contains a description which may match your problem. You then follow the chart across to the "PC BOARDS TO BE CHECKED OR REPLACED" column, where you find that the Display board is most likely the problem.

INTERCOM CONTROL	FM AUDIO	SELECT	FM DISPLAY	AM DISPLAY	FM AUDIO	AM AUDIO	TYPICAL PROBLEMS	CABLE	PC BOARDS
		*				*	Select indicator lights do not work properly. No or distorted AM audio.		Display

The "TYPICAL PROBLEMS" column attempts to present general descriptions of likely failure modes. If you cannot find an exact description of your problem, you can still isolate the PC board by finding the right combination of problems in the "AREA OF OPERATION WHERE PROBLEM OCCURS" column of the chart.

# MASTER UNIT TROUBLE-SHOOTING CHART

AREA OF OPERATION WHERE PROBLEM OCCURS							CORRECTIVE ACTION		
INTERCOM CONTROL	INTERCOM AUDIO	SELECT	FM DISPLAY	AM DISPLAY	FM AUDIO	AM AUDIO	TYPICAL PROBLEMS	CABLE TO BE CHECKED	PC BOARDS TO BE CHECKED OR REPLACED
						*	No AM audio.	P903	Tuner Master Intercom
						*	Distorted AM audio.		Tuner
						*	Weak AM reception.		Tuner
					*		No FM audio.	P903	Tuner Master Intercom
					*		Distorted FM audio.		Tuner
					*	*	No AM and FM audio.	P901 P903	Master Intercom Control and Audio
					*	*	Intercom Volume Control controls Program volume levels.		Master Intercom
					*	*	Distorted AM and FM audio.		Control and Audio
*					*	*	Loud hum or buzz.		Power Supply
				*			Missing segments, dim display, no display, etc.	P601	Display Prescaler
				*		*	Missing segments, dim display, etc. combined with AM audio problem.	P901 P902	Display Tuner
			*				Missing segments, dim display, no display, etc.	P601	Display Prescaler
			*				Missing segments, dim display, no display, etc. combined with FM audio problems.	P601 P901 P902	Display Tuner

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MASTER UNIT TROUBLE-SHOOTING CHART — Continued —

AREA OF OPERATION WHERE PROBLEM OCCURS						TYPICAL PROBLEMS	CABLE TO BE CHECKED	CORRECTIVE ACTION	
INTERCOM CONTROL	INTERCOM AUDIO	SELECT	FM DISPLAY	AM DISPLAY	FM AUDIO			AM AUDIO	FC BOARDS TO BE CHECKED OR REPLACED
			*	*	*	Missing segments, dim display, no display, etc. in both FM and AM modes.	X501 X502	Display Power Supply	
		*				Select indicator lights do not illuminate properly or do not light in proper sequence (AM, FM, phono, tape).		Display	
		*			*	Select indicator lights do not work properly; no AM audio.		Display	
		*			*	Select indicator lights do not work properly; no FM audio.		Display	
		*			*	Select indicator lights do not work properly; missing segments in display, dim display, no display, etc.		Display	
		*	*		*	Select indicator lights do not work properly; missing segments in display, dim display, no display, etc.		Display	
		*	*	*	*	Select indicator lights stuck in Phono or Tape. No display. No audio.		Display	
		*	*	*	*	Select stuck in FM. No AM audio or AM display.		Display	
		*	*	*	*	Select stuck in AM. No FM audio or FM display.		Display	
	*					Oscillation, squealing.	X102	Control and Audio	
	*					Low volume received at remotes.		Master Intercom	

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## MASTER UNIT TROUBLE-SHOOTING CHART — Continued —

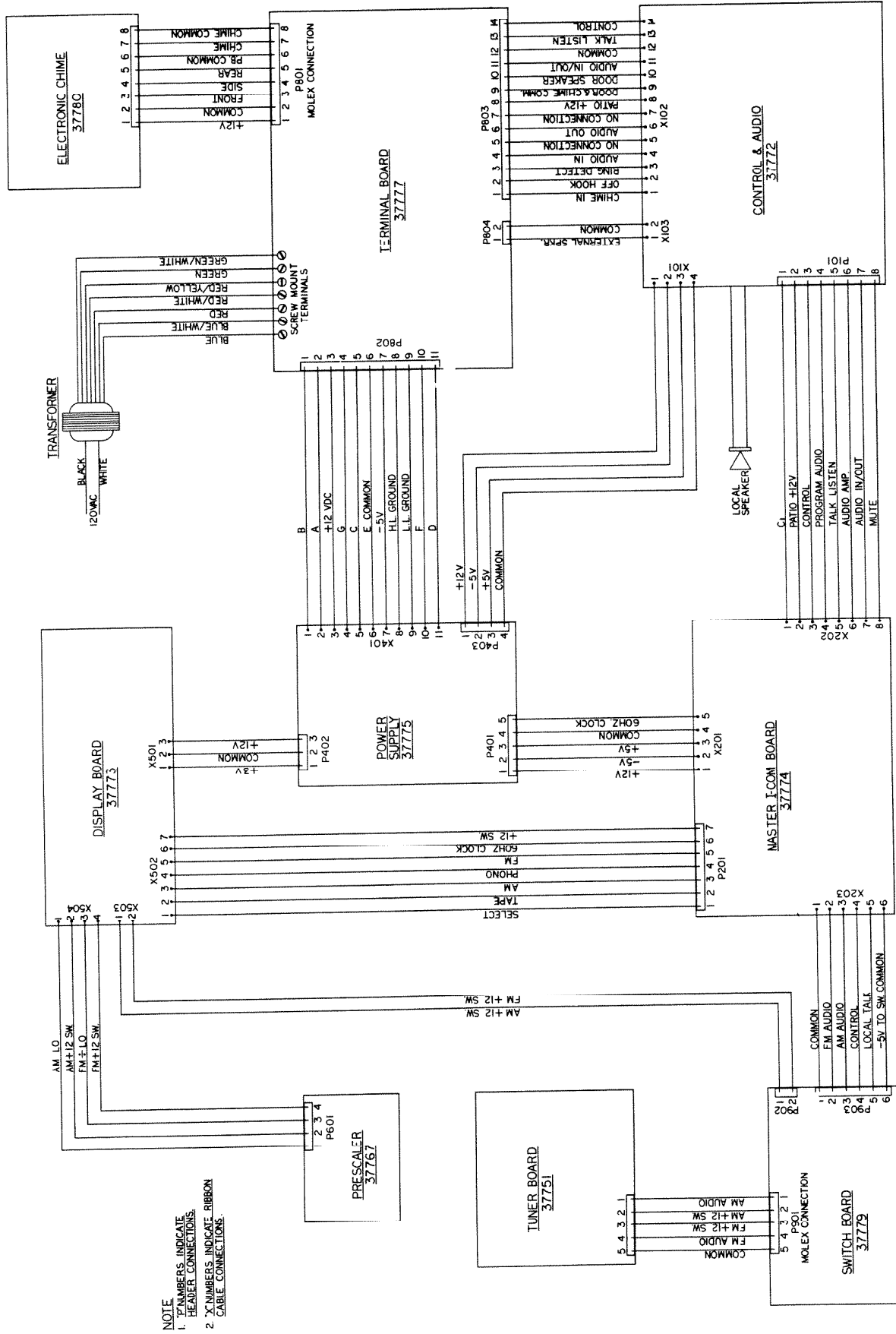
AREA OF OPERATION WHERE PROBLEM OCCURS							CORRECTIVE ACTION		
INTERCOM CONTROL	INTERCOM AUDIO	SELECT	FM DISPLAY	AM DISPLAY	FM AUDIO	AM AUDIO	TYPICAL PROBLEMS	CABLE TO BE CHECKED	PC BOARDS TO BE CHECKED OR REPLACED
	*						Low volume received at Master Unit.		Master Intercom Control and Audio
	*						Distorted Intercom audio.		Master Intercom
	*						No Intercom audio.		Master Intercom
	*						Intercom audio problems related to controls.		Master Intercom
	*						No Intercom audio is heard at door speaker.	P803	Control and Audio
	*						No Intercom audio is received from door speaker.	P803	Control and Audio
	*						No Intercom audio heard on telephone line.	P803	Control and Audio
	*						No Intercom audio is received from telephone line.	P803	Control and Audio
	*						Absent or continuous ring signal.		Control and Audio
	*				*	*	AM or FM radio does not mute during Intercom operation.	P101	Master Intercom Control and Audio
	*				*	*	No Program and Intercom audio.		Control and Audio
	*				*	*	AM radio does not mute during Intercom operation.		Master Intercom
	*				*	*	FM radio does not mute during Intercom operation.		Master Intercom

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**MASTER UNIT TROUBLE-SHOOTING CHART — Continued —**

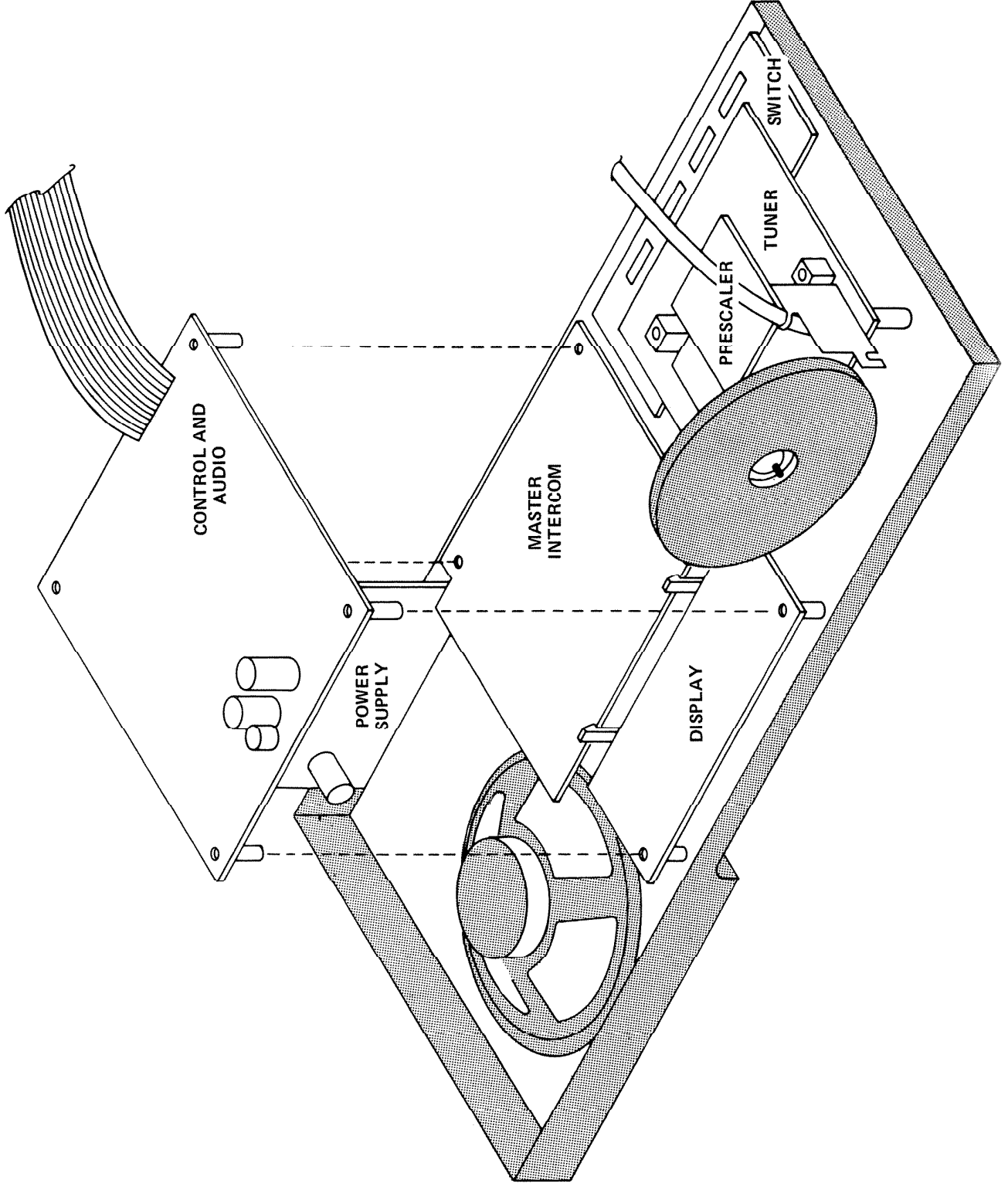
AREA OF OPERATION WHERE PROBLEM OCCURS							CORRECTIVE ACTION		
INTERCOM CONTROL	INTERCOM AUDIO	SELECT	FM DISPLAY	FM DISPLAY	FM Audio	AM Audio	TYPICAL PROBLEMS	CABLE TO BE CHECKED	PC BOARDS TO BE CHECKED OR REPLACED
*							Operating any Intercom button or slide control does not cause desired function (i.e., pressing INSIDE PATIO TALK answers the phone, etc.).	Control and Audio	
*							Improper muting time.	Control and Audio	
*							Operation of PRIVATE/MONITOR switch does not produce desired function.	Master Intercom	
*					*		AM radio does not mute during Intercom operation.	Master Intercom	
*					*		FM radio does not mute during Intercom operation.	Master Intercom	
*					*	*	AM and FM radio does not mute during Intercom operation.	Control and Audio Master Intercom	Check voltage at P101, pin 8: When any TALK button is depressed, measure -5vDC. Failure to measure correct voltage indicates problem is on Control and Audio board. If correct voltage (-5vDC) is measured at P101, pin 8, problem is on Master Intercom board.
*							Normal muting of Program material occurs, but Intercom audio is not sent, or received, or both.	Master Intercom	

# IM-806 INTERCONNECT DIAGRAM — Master Unit



NOTE  
 1. T-NUMBERS INDICATE HEAVIER CONNECTIONS.  
 2. X-NUMBERS INDICATE RIBBON CABLE CONNECTIONS.

# LOCATION OF PRINTED CIRCUIT BOARDS



# NuTone

## IM-806 TROUBLE-SHOOTING GUIDE ADDENDUM #1

A review of all IM-806 Service Reports points out a few common problems currently encountered in the field. Find below a description of the problems and their solutions.

### PROBLEMS:

- A. Hum/Hiss with all speaker volume controls to the "off" position.
- B. Radio bleedthrough with speaker volume controls to the "off" position.
- C. Accoustical feedback in remote speakers. Feed back occurs between microphone and speaker itself.  
Note: This occurs during door talk operation.
- D. RFI

### SOLUTION:

Jumper resistor R33 on the following models:  
IS-85, IS-89, IC-81, IC-81W and IS-85.

- A. Remove printed circuit board from unit.
- B. Locate R33 on component side of board.
- C. Install jumper to resistor solder points on foil side of board.

When soldering the IS-89 or IC-81W boards, be careful not to damage the humi-seal. Reseal both joints and wire, using Humi-Seal (type 1B31), Duco cement, or nail polish.

### PROBLEM:

Digital Display does not work properly.

- A. If digital display does not have full display and will not count, the problem is in the Display Board.
- B. If digital display is full and numerals switch from AM to FM but display will not count, problem is in the Prescaler Board.

### SOLUTION:

Replace indicated printed circuit boards.

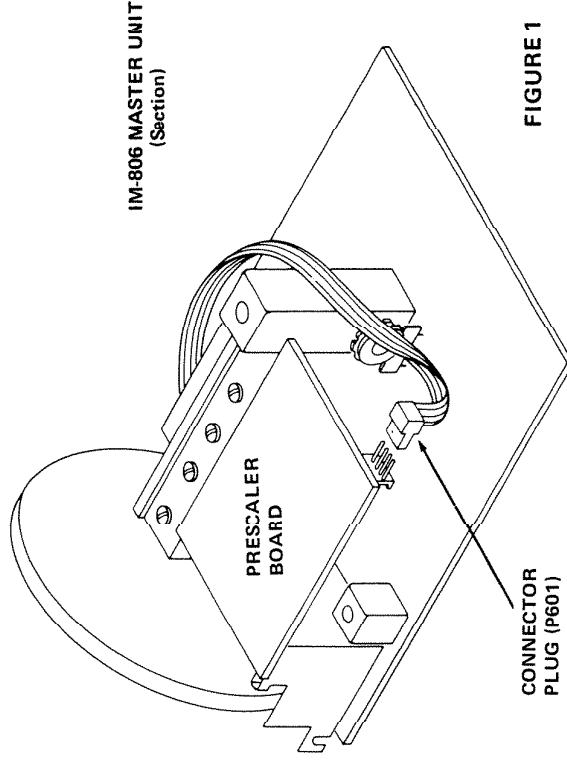


FIGURE 1

### PROBLEM:

Digital Display is full, but it will not count and numerals do not change from AM to FM.

### SOLUTION:

Connector plug (P601) on ribbon cable from Display board to Prescaler board is plugged in backwards. Insert plug onto connector on Prescaler board as shown in Figure 1.

# NuTone

Madison and Red Bank Rds., Cincinnati, Ohio 45227  
Printed in U.S.A. 8/82, Form No. FS-1270



**PROBLEM:**

RFI (Radio Frequency Interference).

**SOLUTION:**

- A. Jumper resistor R33 in the following models:  
IS-85, IS-89, IC-81, IC-81W, IS-88.
- B. If RFI persists, the addition of five (5) capacitors to the Audio and Control Board will be required.  
See Figure 4.

**PROBLEM:**

- A. Phone Talk will not latch unless it is held for  
3 – 5 seconds.
- B. When Phone Talk button is depressed, a loud,  
raspy buzzing sound is heard.

**SOLUTION:**

Install a .05 mfd capacitor in parallel with R17 in  
T-10 Telephone Coupler.

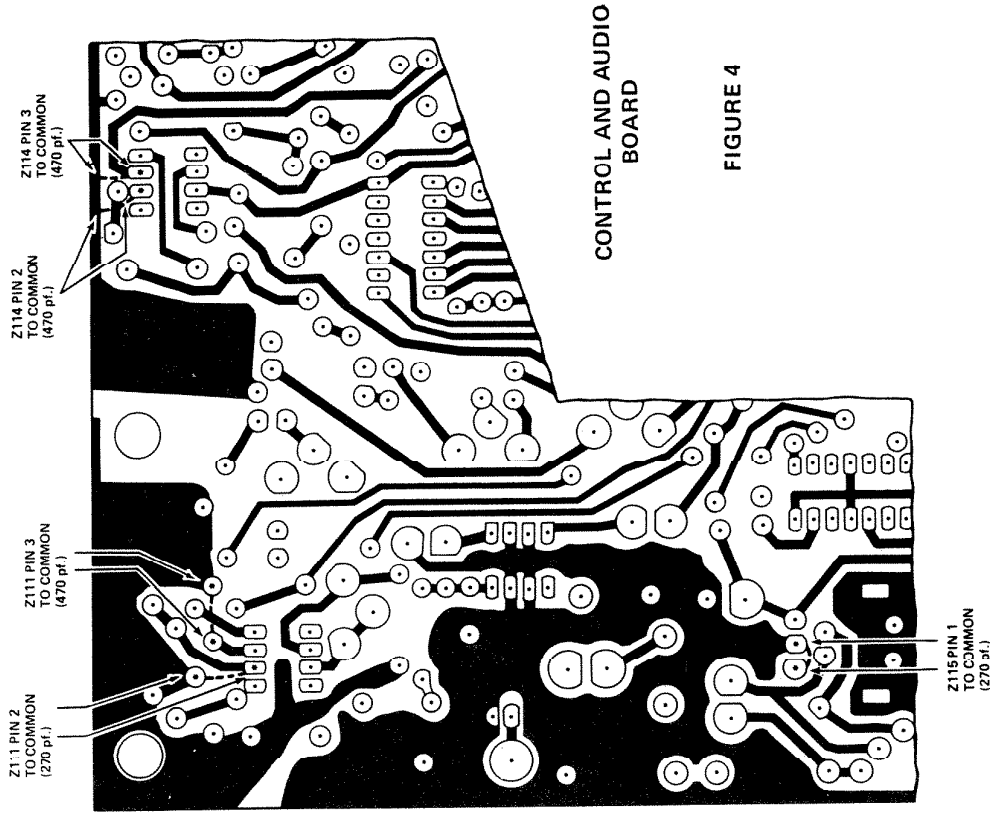


FIGURE 4

Product specifications subject to change without notice.

# NuTone

## IM-806 TROUBLE-SHOOTING GUIDE ADDENDUM #2

A review of all IM-806 Service Reports points out a few common problems currently encountered in the field. Find below a description of the problems and their solutions.

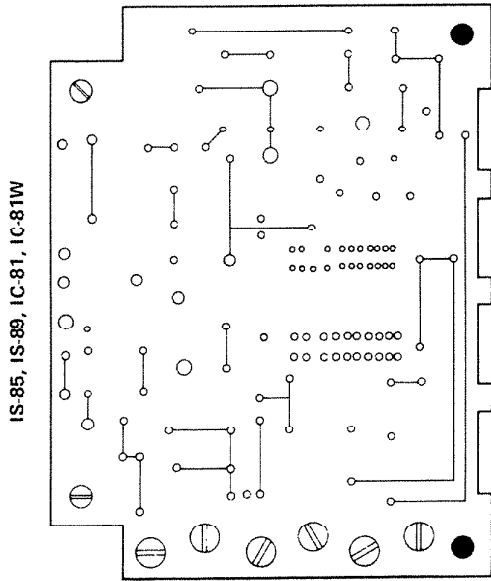


FIGURE 1

### PROBLEM:

Reed Switch Hang-Up (Stricking)

**EXPLANATION:** All speakers and master intercom functions are controlled by a new reed activated switch. This switching is called closed proximity switching. This new concept in switching is immune to static discharge, lightning, contamination, as well as impervious to environmental conditions.

Proper operation can be determined by an activation of individual push button and, upon its release, a **metallic clicking will be heard.**

### SYMPTOMS:

- One-way intercom communication.
- System permanently muted.
- Intercom totally inoperative.
- Telephone system totally inoperative.

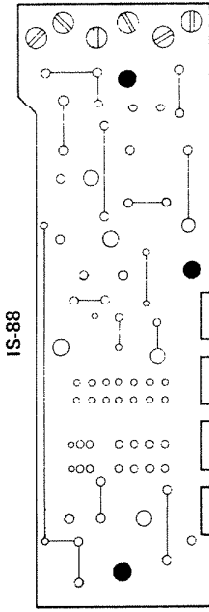


FIGURE 2

SHIM WITH WASHERS WHERE MARKED WITH BLACK DOT.

### CAUSES:

- A. Switch sticks so that magnet is not released enough to sufficiently reduce magnetic field.
- B. Speaker's rough-in frame comes in contact with switch magnet.
- C. Master panel is bowed.

### SOLUTIONS:

- A. Use washers to shim switch board away from magnetic switch assembly. See Figures 1, 2 and 3.
- B (1). Check for bowing of rough-in frame.
- B (2). Position speaker assembly away from bottom of rough-in frame.
- C (1). Bowing of Master panel is generally caused by poor wire dress. Excess wiring should be eliminated and re-positioned so that it does not contact electronic PC boards.
- C (2). If panel is permanently bowed, replace panel.

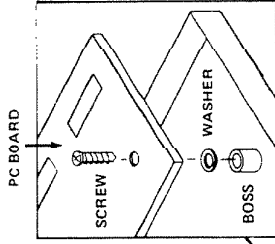


FIGURE 3

### PROBLEM:

Feedback occurs during door intercom operation.

### SOLUTION:

- A. Adjust (lower) audio to door speaker by turning thumbwheel pot R156 on Control and Audio board. See "Volume and Timeout Adjustments" on page 8 of **IM-806 Trouble-Shooting Guide.**
- B. If volume cannot be satisfactorily adjusted, it may be necessary to jumper R33 in affected speakers.