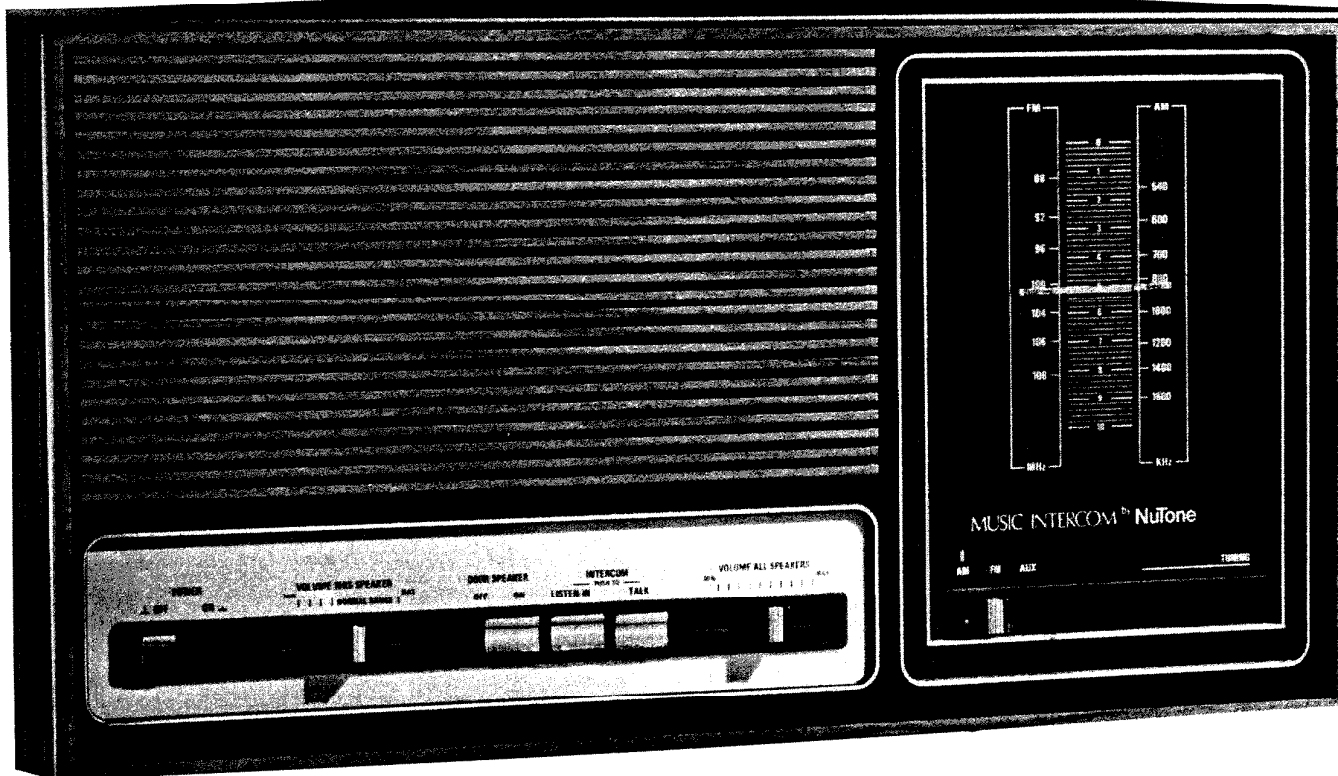


SERVICE MANUAL

MODEL IM-2003 SERIES RADIO-INTERCOM SYSTEM



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NuTone

WIRING INSTALLATION GUIDELINES

Wiring Specifications

- NuTone IW-2: 22 GA. Twisted Pair.
- NuTone IWA-3: Flat Ribbon Type 3-wire (22 GA.) Cable.
- NuTone S-143: 18 GA. 2-Conductor Insulated.
- No. 14/2: 120V. 60Hz Power Cable. Class 1, U.L. Listed.
(Not supplied by NuTone)
- 14 GA.: Ground Wire (Not supplied by NuTone)

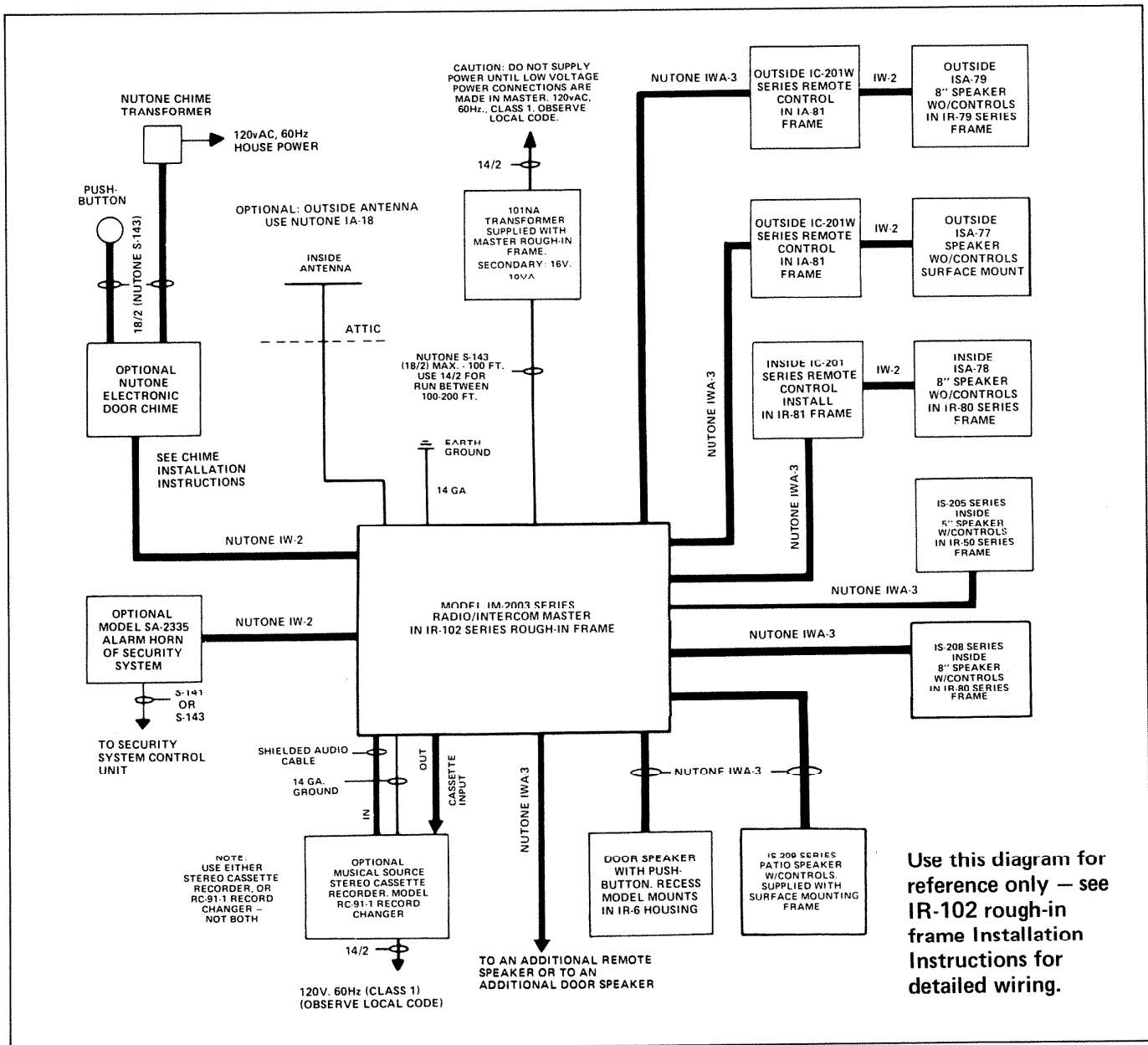
Speaker Wiring

*An individual 3-wire cable IWA-3 must be connected from each remote speaker station to the terminal board in the master unit. Maximum 300 feet. Maximum total of IWA-3 per system is 600 feet.

MAXIMUM NUMBER OF SPEAKERS – Nine remotes and two door speakers.

IMPORTANT: NUTONE CANNOT BE RESPONSIBLE FOR IMPROPER RADIO-INTERCOM OPERATION THAT RESULTS FROM INTERFERENCE GENERATED BY LIGHT DIMMERS, FLUORESCENT LIGHTING FIXTURES, AND SIMILIAR ELECTRICAL PRODUCTS. SUCH INTERFERENCE MUST BE CORRECTED AT THE SOURCE. AS AN AID TO HELP REDUCE THIS INTERFERENCE, ALL REMOTE SPEAKER WIRES AND CABLES MUST BE PLACED AT LEAST 12 INCHES FROM ANY A.C. POWER WIRING.

IM-2003 Series Representative Wiring Illustration



ASSEMBLING THE MOUNTING HINGES

1. Assemble hinge and bracket as shown in Figure 1.
2. Use two No. 6 x 9/16" screws (provided) to secure each hinge and bracket assembly to the mounting bosses on the master panel. See Figure 2.

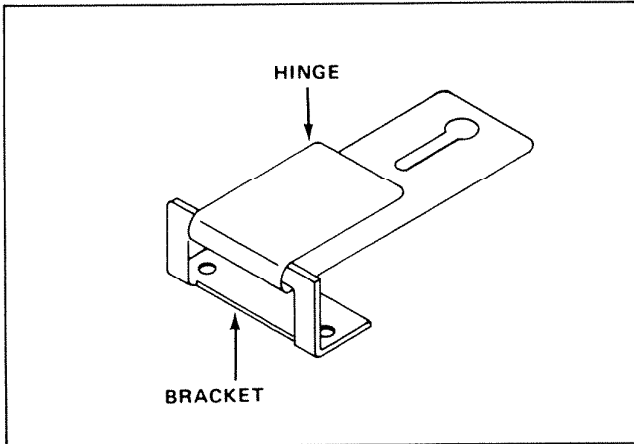


FIGURE 1

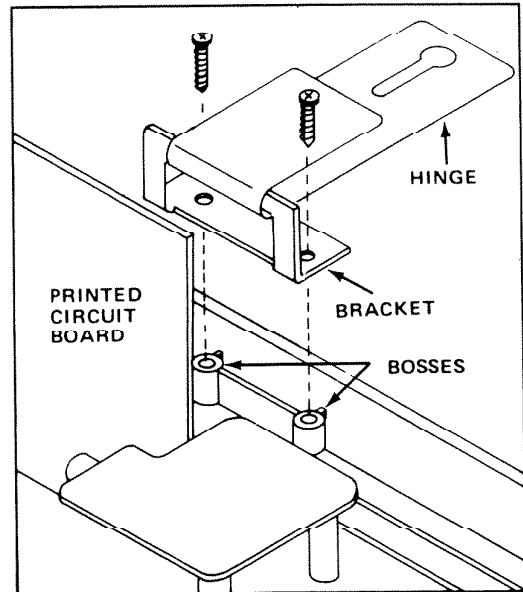


FIGURE 2

MOUNTING THE MASTER PANEL

1. For rough-in frames which are recessed into the wall opening. Insert two No. 6 x 3/8" screws (provided) into the front two holes in the rough-in frame. Do not completely tighten screws. See Figure 3.
2. For rough-in frames which are mounted flush with the wall. Insert two No. 6 x 3/8" screws (provided) into the back two holes in the rough-in frame. Do not completely tighten screws. See Figure 3.
3. Align master panel with rough-in frame.
4. Attach master panel to rough-in frame by placing keyhole slots in both mounting hinges over screw heads in rough-in frame. See Figure 4.
5. Slide one hinge toward inside of rough-in frame as far as possible and securely tighten the screw. Position and secure the second hinge. See Figure 5.

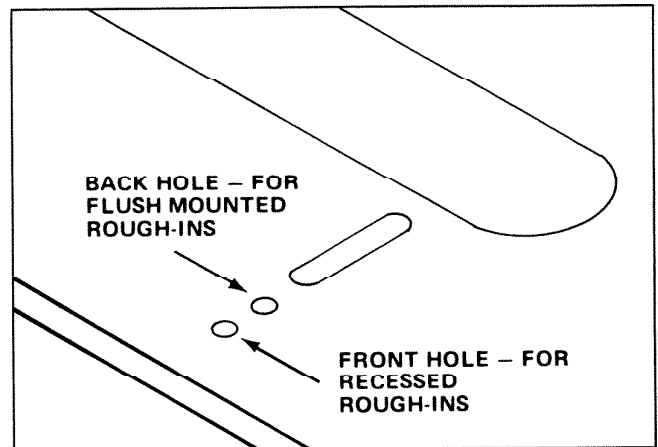


FIGURE 3

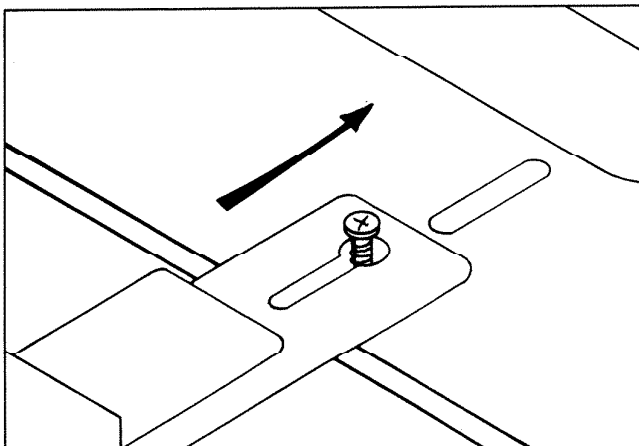


FIGURE 4

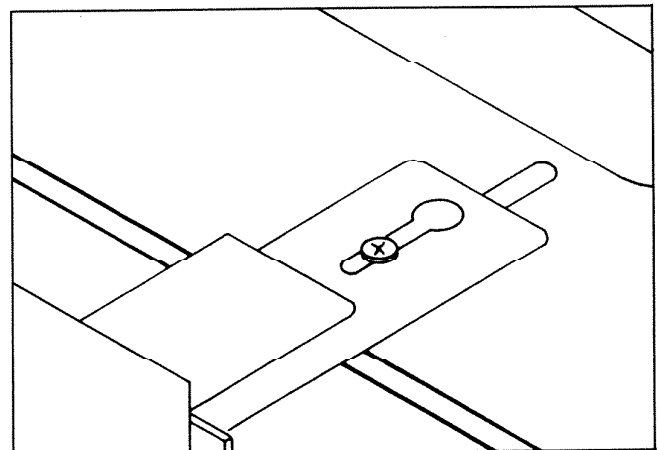


FIGURE 5

6. Attach support strap to rough-in by placing hook into hole in rear flange of rough-in frame. See Figure 6.
7. Use two No. 6 x 3/8" screws to attach mounting brackets to rough-in frame. Secure ground wire lug under one screw in the right side bracket. **Make sure brackets flush to wall or rough-in.** See Figure 6.
8. Place antenna plug onto two pins on tuner board. See Figure 6.

HARDWARE PACKAGE CONTENTS	
Part Description	Included
Hinge Assembly	2
Mounting Bracket	2
No. 6 x 9/16" screws	4
No. 6 x 3/8" screws	6
No. 6 x 3/4" screws	2

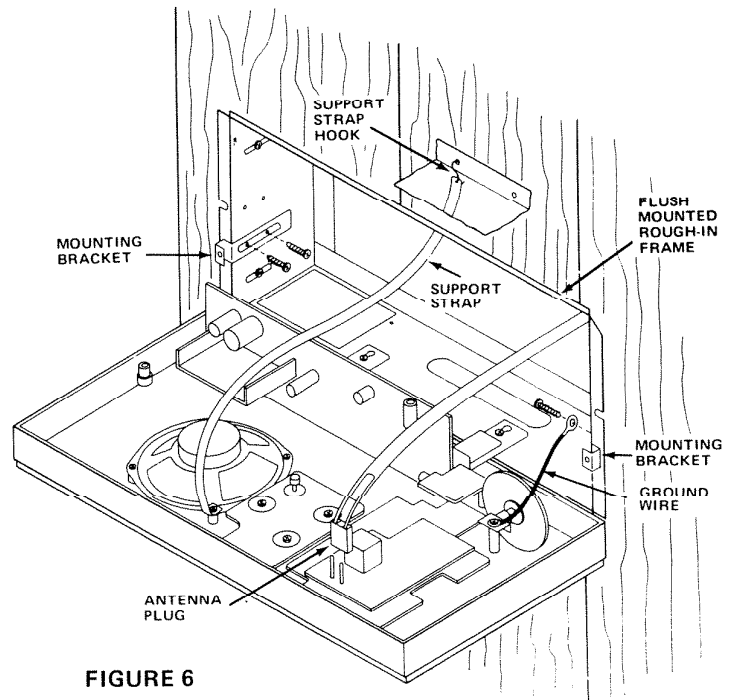


FIGURE 6

WIRING CONNECTIONS

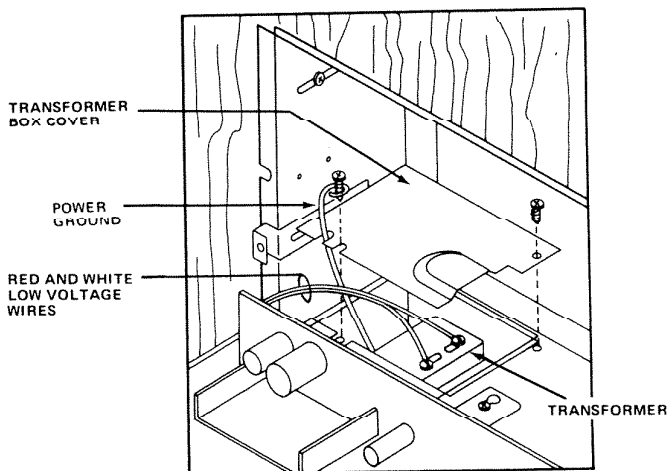


FIGURE 7

Connecting the Transformer

Before connecting any wiring to the terminal board, turn off power to the transformer.

1. The transformer's primary leads should already be connected to the 120vAC house supply wiring.
2. Connect two low voltage wires (red and white) to the transformer's terminal screws. See Figure 7.
3. Dress wires through raised section of transformer box cover and secure box cover with two screws. See Figure 7.
4. Make sure power ground is secured under one screw. See Figure 7.

Wire Matching Chart

NuTone has adopted the use of a new 3-wire color-coded cable. If you are replacing an older model Radio-Intercom, use this chart to match the "copper/center/silver" designations of older wiring with the blue/grey/red-stripe color-coded wire.

OLD CABLE	NEW CABLE	
	Insulation	Wire
Copper	Blue	Copper
Center	Grey	Center
Silver	Red Stripe	Silver

Connecting the Remote Speaker Wiring

NOTE: All speaker and door wiring must return directly to master unit. Do not connect wiring from speaker to speaker.

1. Dress all speaker wiring through the oblong wiring holes in the rough-in frame. All wiring connections are made to the master unit's terminal board.
2. Connect all **GREY** wires to binding post marked **GREY/CENTER**. See Figures 8 and 9. Tighten binding post securely with pliers.
IMPORTANT: All grey wires must connect directly to binding post. Do not connect grey wires to common jumper wire.
3. Twist all **RED STRIPE** wires together and connect to a common jumper wire using a wire nut. See Figure 10.
4. Connect common jumper wire from **RED STRIPE** wires to terminal screw marked **RED STRIPE/SILVER**. See Figure 11. Securely tighten terminal screws.
5. Twist all **BLUE** wires together and connect to a common jumper wire using a wire nut. See Figure 10.
6. Connect common jumper wire from **BLUE** wires to terminal screw marked **BLUE/COPPER**. See Figure 11. Securely tighten terminal screw.
7. Completed wiring will look as shown in Figure 12. Of course, more speakers will require more wires. Figure 12 shows wiring for two speakers and a door speaker.

NOTE: Connecting all RED STRIPE and BLUE wires to a common jumper wire may not be necessary unless more than three speakers are being connected. Whichever method is used, the installer must insure a good connection to the terminal screws.

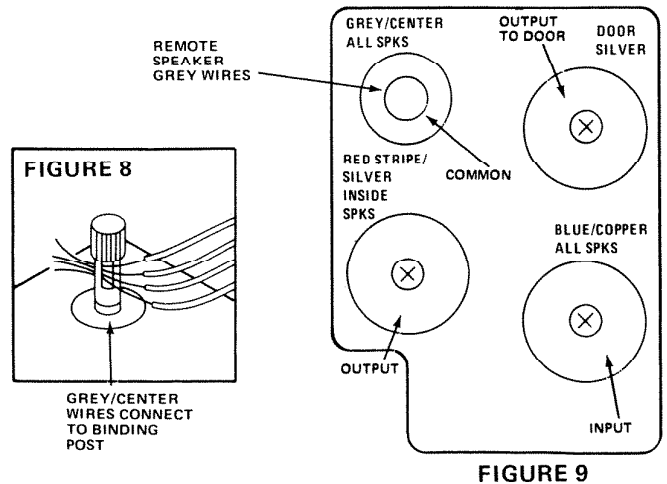
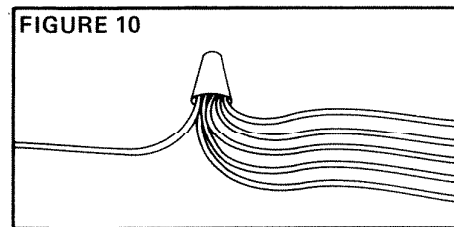


FIGURE 9



CONNECTING WIRES TO COMMON JUMPER WIRE

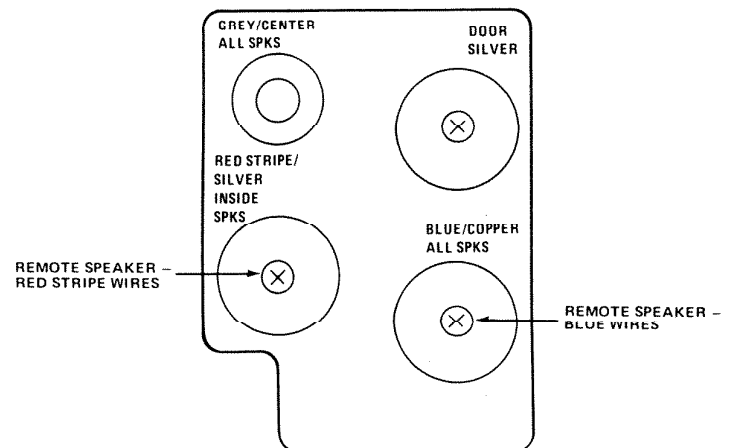


FIGURE 11

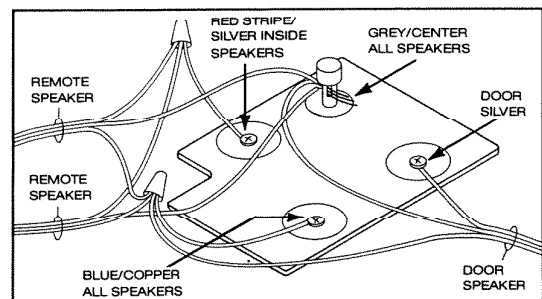


FIGURE 12

Connecting the Door Speaker Wiring

1. Connect **RED STRIPE** wire from door speaker to terminal screw marked **DOOR SILVER** on the master unit's terminal board. See Figure 13:
2. Connect **GREY** wire from door speaker to binding post marked **GREY/CENTER** on master unit's terminal board. See Figure 13.
3. Connect **BLUE** wire from door speaker to terminal screw marked **BLUE/COPPER** on master unit's terminal board. See Figure 13.

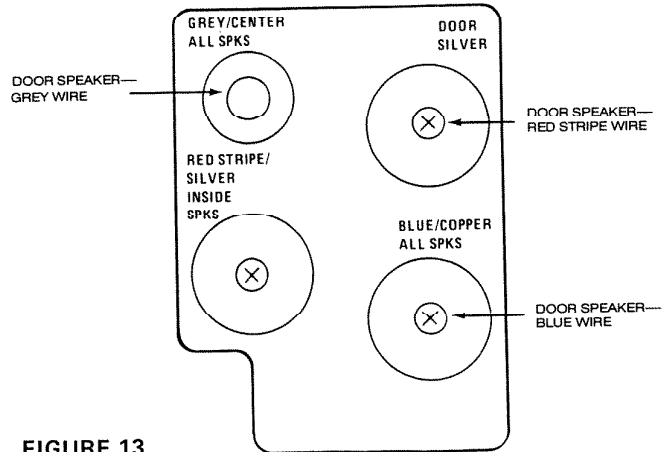


FIGURE 13

Connecting Optional Electronic Chime and Security Alarm

1. Connect IW-2 (22/2, twisted pair) from electronic chime to binding post marked **GREY/CENTER** and to terminal screw marked **BLUE/COPPER**. See Figure 14.
2. Connect IW-2 (22/2, twisted pair) from Intruder/Fire Alarm Control Unit and/or electronic alarm horn to binding post marked **GREY/CENTER** and to terminal screw marked **BLUE/COPPER**. See Figure 14.

NOTE: DO NOT CONNECT CHIME OR ALARM WIRES TO DOOR SPEAKER TERMINALS. (See Electronic Chime and Security System Installation Instructions for complete wiring details.)

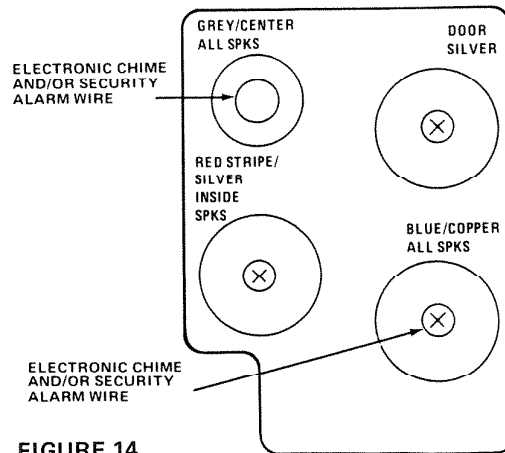


FIGURE 14

CONNECTING OPTIONAL ACCESSORIES

1. To connect an optional NuTone Record Changer (Model RC-91-2) or Stereo Cassette Player/Recorder (Model CP-R2) locate the **AUXILIARY INPUT** and **RECORD OUTPUT** jacks on the master panel. See Figure 15.
2. To play the phonograph or tape player over the intercom system, insert the accessory's output plug into the master panel's **AUXILIARY INPUT** jack. See Figure 15.
3. To use the radio as a program source for recording on the Cassette Recorder/Player, insert the tape player's input plug into the master panel's **RECORD OUTPUT** jack. See Figure 15.
4. Connect ground wire between accessory's rough-in and intercom master's rough-in.

Refer to installation instructions supplied with the accessory for information about adapters necessary for connection to IM-2003 Series Master Station.

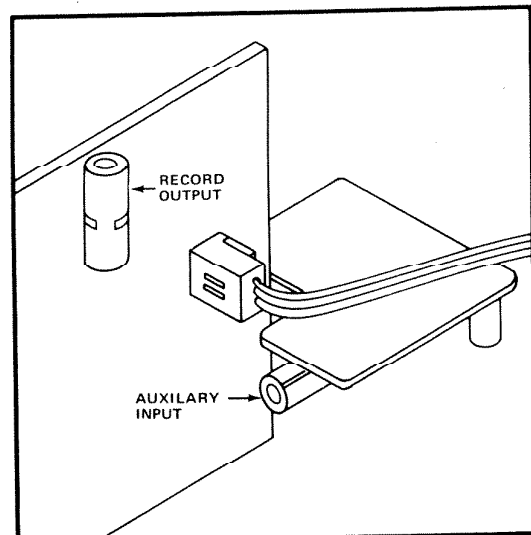


FIGURE 15

OPERATIONAL CHECKOUT

Radio and Program Controls

Power On/Off Pushbutton — Press the POWER button to the ON (\uparrow) position to turn on the program source (radio, phono, tape). The red POWER INDICATOR LIGHT will illuminate.

Press and release the button to the OFF (\downarrow) position to turn off the program source.

The POWER button must be in the ON position to operate the intercom system and to play a program source.

Program Select Switch — Slide the switch to select the program source: AM, FM, AUX (Phono or Tape). The orange indicator will appear above the selected program source.

Tuning Wheel — Turn the TUNING wheel to tune the radio.

Radio Frequency Dial — The orange pointer shows you the AM and FM frequencies to which you've tuned the radio.

Master Panel Volume Control — Slide the control marked VOLUME THIS SPEAKER from left to right to increase the Master Panel's speaker volume.

Volume All Speakers — Slide the control marked VOLUME ALL SPEAKERS from left to right to increase volume at all speaker stations (including the Master Panel). This control sets the volume level for the entire system.

Intercom Controls

Master Panel Volume Controls — Slide the control marked VOLUME THIS SPEAKER from left to right to increase the intercom volume level at the Master Panel.

Volume All Speakers — Slide the control marked VOLUME ALL SPEAKERS from left to right to set intercom volume levels at all speaker stations (including the Master Panel). This control sets the intercom volume level for the entire system.

Intercom Talk — Depress button marked TALK to make a call to other speaker stations. Keep the button depressed while you are talking.

Intercom Listen — Depress the button marked LISTEN to hear a reply from another station. Pressing the LISTEN button at the Master Panel allows the person at the remote speaker to reply "hands free" — that is, without pressing the remote speaker's TALK button.

If the person at the remote speaker presses that speaker's TALK button, it is not necessary to press the Master Panel's LISTEN button to hear the reply from the remote speaker station.

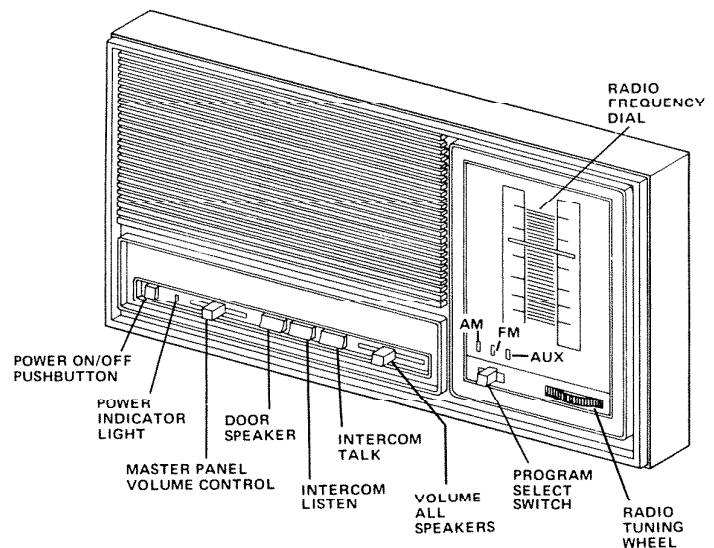
Door Speaker — Press the button marked DOOR SPEAKER to the ON (\uparrow) position to use the door speaker. The button will latch in the ON position.

When the DOOR SPEAKER button is latched in the ON position, all program material (radio, phono, tape) will be played over the door speaker.

To make a call to the door, latch the DOOR SPEAKER button in the ON position and use the INTERCOM TALK and LISTEN buttons as you would for any remote station.

When you have finished your call to the door speaker, release the DOOR SPEAKER button to the OFF (\downarrow) position.

At any time, a person may initiate a call from the door speaker by depressing the door speaker's TALK button. The call will be heard at all stations whether the Master Panel's DOOR SPEAKER button is depressed or not.



Setting Volume

1. Turn all remote stations' volume controls to maximum volume.
2. Slide the master station's VOLUME ALL SPEAKERS control to approximately 1/3 volume.
3. Depress master station's POWER button. Indicator light should come on.
4. Slide master station's VOLUME THIS SPEAKER control to maximum volume.
5. Set PROGRAM SELECT SWITCH to AM or FM and use tuning wheel to tune in a radio station of reasonable strength and quality.
6. Adjust the VOLUME ALL SPEAKERS control so there is sufficient volume at the remote station that requires the highest volume (such as a large living room or family room). Generally, the VOLUME ALL SPEAKERS does not have to be set to more than 1/3 volume.
7. Adjust all remote stations' volume controls as necessary.

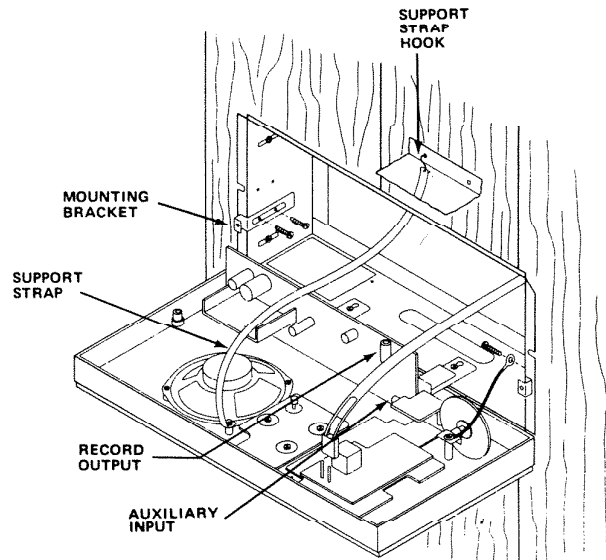
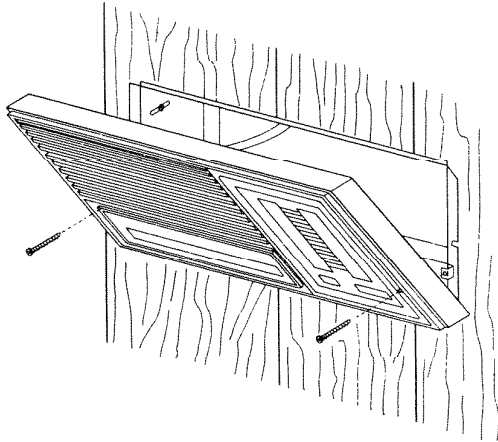
NOTE: See "Addendum," page 23, for detailed volume setting procedure.

Intercom Operation

1. Make intercom calls from the master and all remote stations. See "Operating Controls," above.
2. Test intercom operation to the door speaker(s).
NOTE: Only the master station is equipped with a LISTEN button. This button allows all intercom control at the master and "hands free" operation at the remote and door speakers.
3. Depress the MONITOR switch at all remote stations. With the radio playing, have someone speak or make a noise near the remote speaker (**not directly into the speaker**). The voice or noise should be heard over the radio at the master station. Test each speaker for this function.
See the Model IM-2003 Series Operator's Manual for a more detailed explanation of the Radio Intercom system's operation.

PLACING THE MASTER STATION IN SERVICE POSITION

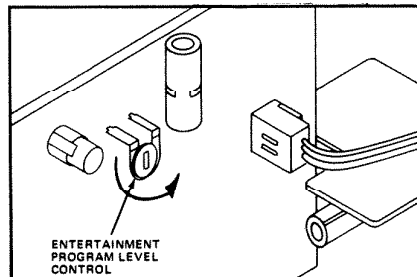
1. Remove the two screws which secure the master station to the rough-in frame.
2. The master station can now be opened on its hinges. Make sure the support strap is secure so that it holds the master panel at approximately a 90° angle to the wall.



INSTALLER'S TROUBLE-SHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
1. No radio, no intercom, (radio dial lights off).	1. No electrical power.	1. Be sure there is 120vAC, 60Hz power to transformer primary. Next, check 16vAC to intercom Master from transformer secondary. Check continuity of wiring from transformer.
2. No radio, no intercom. (radio dial lights off).	2. Defective transformer.	2. Replace transformer.
3. No radio, intercom working (power light on).	3a. Faulty Master Station.	3a. Isolate Master Station from installation by removing all wires from terminal board. Refer to Figure 12. With power on, radio should be playing at Master. If no radio, Master is probably faulty. If radio plays, reconnect wires to terminal board.
	3b. Installation problem.	3b. Check terminal board for shorted terminals or miswired cables. Remove one 3-wire cable at a time to locate faulty line. When radio comes on, check speaker connections and run continuity check of speaker wiring. Also check for water-damaged patio remote control.
	3c. Antenna problem.	3c. Check for shorted antenna connection. Remove antenna connection from tuner board and touch each pin with metallic object — if radio plays, antenna is not functioning; be sure it is installed properly. In weak signal areas, an outside antenna may be necessary.
4. Low or distorted radio volume.	4. Incorrect volume setting.	4. Follow "Setting Volume" instructions under OPERATIONAL CHECKOUT. See Operator's Manual.
5. Low or no intercom volume from remote speaker in MONITOR mode.	5a. Improper operation.	5a. Be sure remote speaker set for MONITOR has volume control set in NORMAL RANGE and receiving speaker has volume controls set in NORMAL RANGE. Follow "SETTING VOLUME" instructions in Operational Checkout.
	5b. Volume All Speakers adjustment.	5b. Follow these instructions whenever the radio tends to overpower transmissions from a remote speaker in the MONITOR mode. These instructions will help you get the proper balance between the radio and the monitored speaker. <ol style="list-style-type: none"> 1. Set VOLUME ALL SPEAKERS control to midpoint. 2. Set master to tape or phono position. 3. Set volume control for each remote speaker and speaker in master station to the middle of the normal range. 4. Set master to AM or FM and tune to a strong AM or FM station. 5. Adjust VOLUME ALL SPEAKERS control for a desired listening level.

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
6. System squeals when using intercom.	6a. Shorted wire on master or remote terminal board.	6a. Check for short between terminals or loose wire.
	6b. Two or more Remote Stations on same wire run to Master.	6b. Make separate cable (IWA-3) runs from each Remote Station to the Master.
	6c. Speakers in adjacent rooms mounted on common wall, or mounted back to back.	6c. 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.
	6d. Improper wire used in installation.	6d. NUTONE MODEL IWA-3 3-CONDUCTOR, FLAT-RIBBON CABLE MUST BE USED.
7. Hum in speakers.	7a. Intercom wiring runs too close to household AC power wiring.	7a. Keep intercom wiring as far as practical from household AC power wiring. Do not run intercom wiring parallel to AC power wiring.
	7b. Shorted intercom power wiring or power wiring shorted to ground.	7b. Check power connections to Master and connections to transformer.
	7c. Interference from household electrical fixtures.	7c. A dimmer may cause interference. For dimmer and fluorescent lighting interference, use filters (G.E. 89G635 or equivalent, purchase locally).
8. Static.	8a. Loose ground connection.	8a. Check ground connection to Master and connection to earth ground source.
	8b. Interference from household electrical fixtures.	8b. A dimmer switch may cause interference. For dimmer and fluorescent lighting interference, use filters (G.E. 89G635 or equivalent, purchase locally).
	8c. Interference from household electrical appliances.	8c. Correct interference at the source; fish tank, heater, hand tool, coffee pot, etc.
9. Remote Station not working.	9a. Wire installation.	9a. Check terminal board for broken wire or loose connection. Check continuity of wire.
	9b. Speaker.	9b. Check continuity of speaker. Clean speaker and switch controls. Check with speaker known to be in working order.
10. No door communication.	10a. Wire installation.	10a. Check continuity or wiring. Check connections at speaker and Master.
	10b. Speaker.	10b. Check with a speaker known to be in working order.
11. Optional electronic chime does not work through intercom, or low volume.	11a. Wire installation.	11a. Be sure chime is wired to proper terminals on Master board and connections are good.
	11b. Improper operation.	11b. Be sure chime is electronic model. Be sure radio-intercom system is on. Check control settings and system volume control on Master station.
	11c. Chime.	11c. Increase volume control on chime. Check electronic pickups and continuity of chime input wiring.
12. Cannot receive radio station which is received by another radio in home.	12. Faulty antenna connection.	12. Antenna should be located in attic and connected to tuner in Master. Check antenna connector to be sure it is firmly connected to pins on tuner board.
13. When a call is made from a remote speaker, the voice cannot be clearly heard over the program source.	13. Factory-set Entertainment Program level control improperly adjusted.	13. Set Master Station VOLUME ALL SPEAKERS between 1/2 and 2/3 full volume. Use a small screwdriver. Carefully make a slight COUNTERCLOCKWISE adjustment of the Level Control. This will decrease the radio level relative to intercom level. Check override improvement; make further adjustment if necessary.



REMOVING THE MASTER STATION FROM MODEL IR-102 ROUGH-IN FRAME

1. Remove two (2) No. 6 x 3/4 screws from front of master panel. (See Figure 1.)
2. Remove two screws and ground wire from transformer box cover. Remove cover and disconnect the white and red/white low voltage wires from the transformer. (See Figure 2.)
3. Disconnect the ground wire from the rough-in frame. (See Figure 4.)
4. Remove the antenna connection from the tuner board. (See Figure 4.)
5. Remove the inside/patio speaker(s) and door speaker(s) flat (1WA-3) 3-wire cable from the master station's terminal board. Also remove, when used, the electronic chime and security alarm 2-conductor (1W-2) signal wires from the master station's terminal board. Label the door speaker(s) cables. (See Fig. 5)
6. Remove screws that secure the hinges to the rough-in frame. (See Figure 3.)
7. While supporting the master station, unhook the support strap from the rough-in frame. (See Figure 4.)

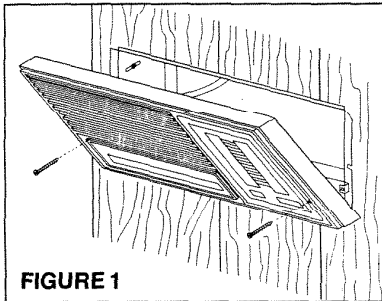


FIGURE 1

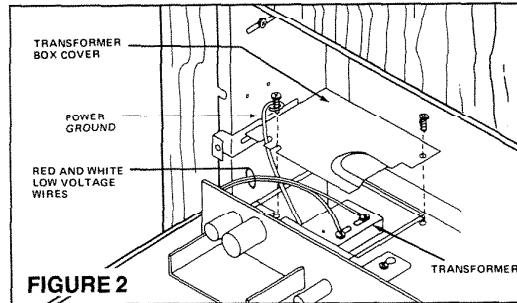


FIGURE 2

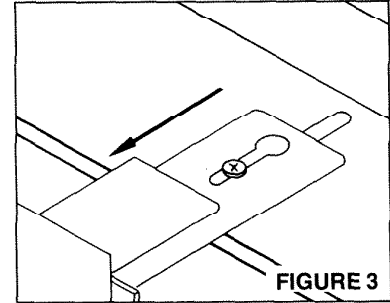


FIGURE 3

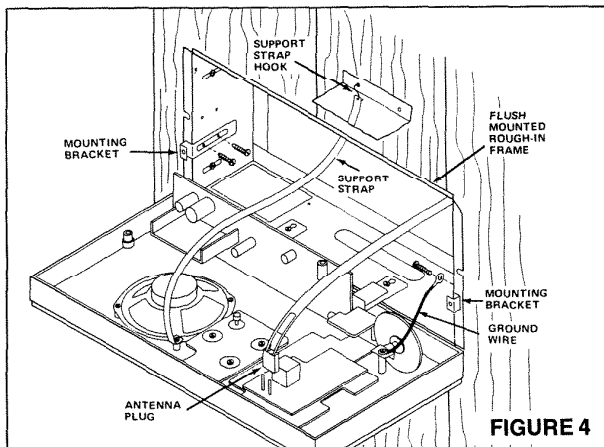


FIGURE 4

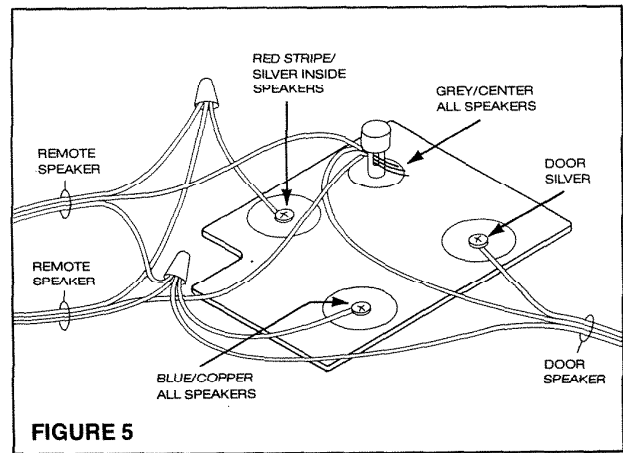


FIGURE 5

SERVICING THE MASTER STATION

1. A standard 20,000 ohm/volt multi-meter will suffice for most voltage and resistance measurements in this system. It is suggested that when a VTVM (or other high-impedance input meter) is available, it be used.
 2. A VTVM with a DC scale of 0 to 1.5 volts will be especially useful when measuring base and emitter voltages.
 3. The voltages included with the schematic diagram are for reference. Actual voltages may vary $\pm 10\%$ to 20% . THE RELATIONSHIP BETWEEN THE VOLTAGES ON THE DIFFERENT ELEMENTS SHOULD REMAIN FAIRLY CONSTANT TO ACHIEVE DESIGN PERFORMANCE.
 4. To prevent leakage paths when measuring resistance of some components, it may be necessary to disconnect one side of the component under measurement.
 5. OBSERVE POLARITY WHEN MAKING RESISTANCE MEASUREMENTS IN TRANSISTOR CIRCUITS. IMPROPER POLARITY MAY RESULT IN FALSE READINGS AND IN SOME CASES REVERSE POLARITY MAY EXCEED THE REVERSE BREAKDOWN RATINGS OF THE DEVICE.
 6. Make certain that power is OFF when making resistance measurements and when replacing components.
 7. Treat all printed circuit boards with care. Do not burn nor mutilate when making or breaking solder connections. Be careful of the foil paths.
- NOTE: Hum and/or squeal may result if circuit grounds or commons are tied together. Be cautious not to produce this condition when connecting grounds of test instruments to master station.**

SERVICE TROUBLE-SHOOTING GUIDE

(1) Entire System Dead.

Check:

- 16 vac from secondary of 101NA transformer.
- Wiring between transformer and master station.
- 120 vac supply to 101NA transformer.
- Power switch S5.
- DC supply at emitter of Q105.
- Program selector switch.
- Speaker.

(2) Power Indicator Light Emitting Diode Off—All Other Operations Normal.

Check:

- 12.3 vdc at emitter of Q105. If voltage is O.K., then R122 or D108 is defective.

(3) No Radio—Intercom Operation Normal.

Check:

- Selector switch S1.
- Audio continuity between Aux jack J1 and speaker with S1 in Aux position. If audio signal is present, the problem is probably in the AM/FM tuner.
- The voltage of S1-2 common terminal, which should be 10v in the AM position, 8.8v in the FM position.
- Setting of intercom override control VR2.
- INTERCOM TALK switch S3 and LISTEN IN switch S2 must not be stuck in TALK or LISTEN IN position, otherwise radio signals will be muted.
- Antenna is securely connected to terminals.

(4) No FM Radio—Other Operations Normal.

Check:

- Antenna. Antenna must be installed and connected to tuner and not shorted at printed circuit board.
- Program selector switch S1. FM connections between S1-1 and tuner module. + 8.7 vdc at terminal of S1-2 FM position.
- Q1, Q2, Q3 and 1C1 operating voltages.
- FM alignment.

(5) No AM Radio—Other Operations Normal.

Check:

- Antenna. Antenna must be installed and connected to tuner and not shorted at printed circuit board.
- Program selector switch S1-1. AM connections between S1-2 and tuner module. + 10 vdc at terminal of S1-2 AM position.
- Q4 and IC1 operating voltages.
- AM alignment.

(6) No Intercom—Other Operations Normal.

Check:

- Intercom input transformer T201 and wiring between T201 and amplifier PC board.

(7) High Pitch Squeal.

Check:

- For shorts between silver and copper wires in the inside/patio speaker cables.
- At speaker and at terminal board.

(8) An Inside/Patio Speaker Receives Program and Intercom Material—Can't Send Intercom Messages.

Check:

- Copper wire, speaker controls, volume control, Intercom TALK switch S3 and LISTEN IN switch S2.

(9) Low Level Feedback Between Speakers During Intercom Operation.

Check:

- Speakers must not be installed back to back on a common wall. Reduce volume of speakers to determine acoustic feedback to specific speakers.

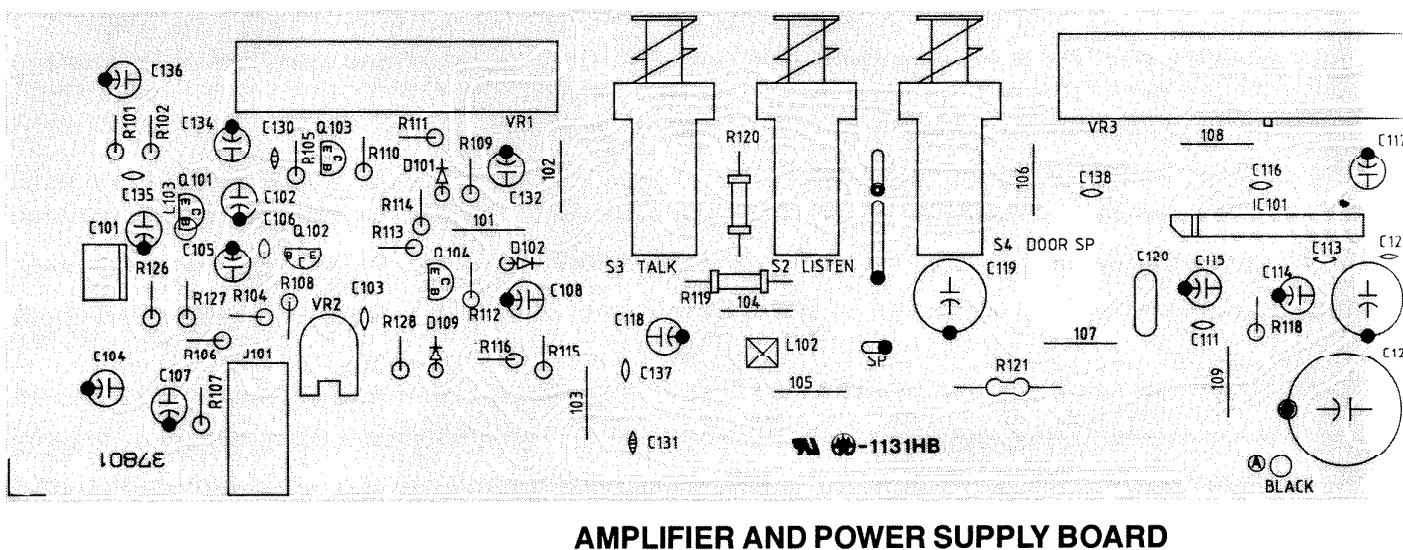
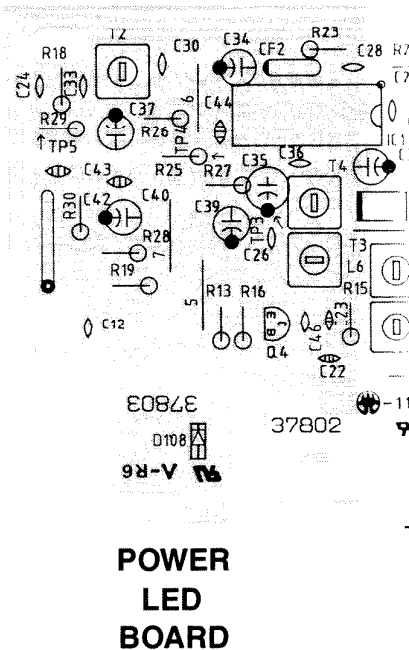
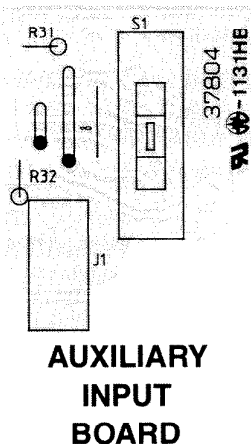
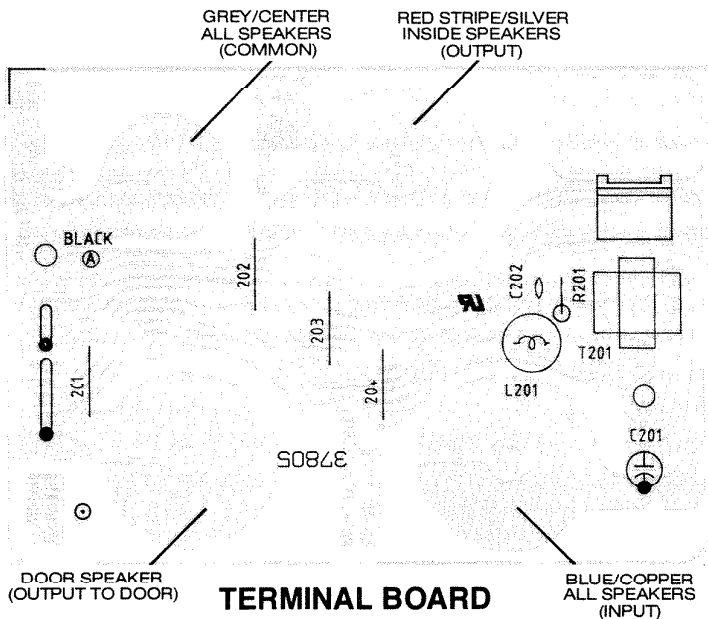
(10) For steps (1) to (9) Above and Conditions Not Specifically Covered.

Check:

- All voltages. See IC/Transistor Voltage Chart, page 14.

P.C. BOARD LAYOUTS

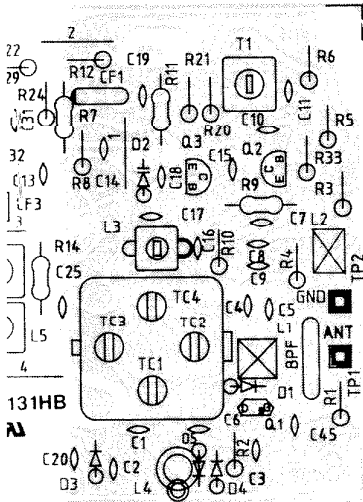
Master Unit



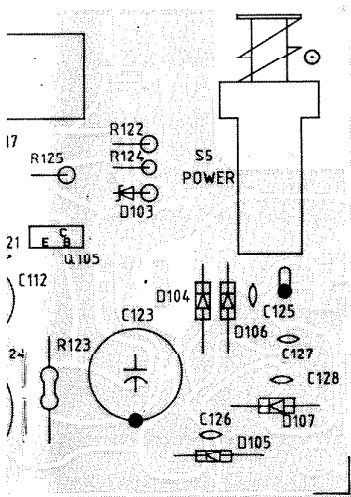
NOTE: The Master Unit's schematic diagram (FS-1315) is printed on a separate sheet and inserted in back of this service manual. Additional copies of the Mast schematic are available from National Field Service Engineering.

Remote Speakers and Controls

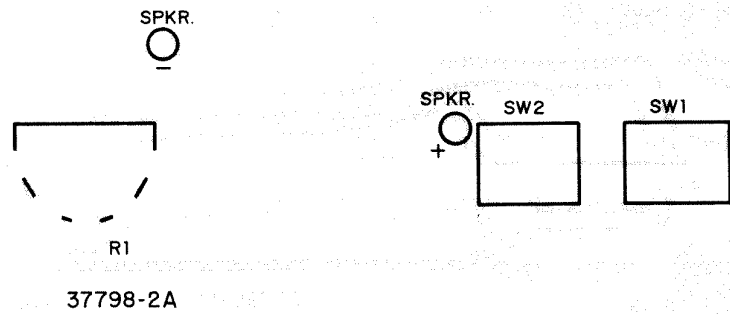
IS-205, IS-208, IS-209, IC-201, IC-201W



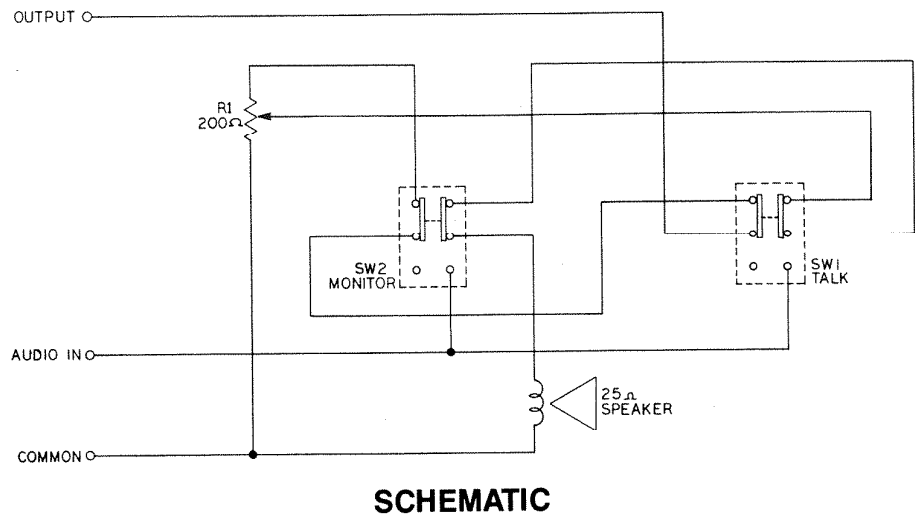
TUNER BOARD



**fold-out
Speaker Unit**



P.C. BOARD



SCHEMATIC

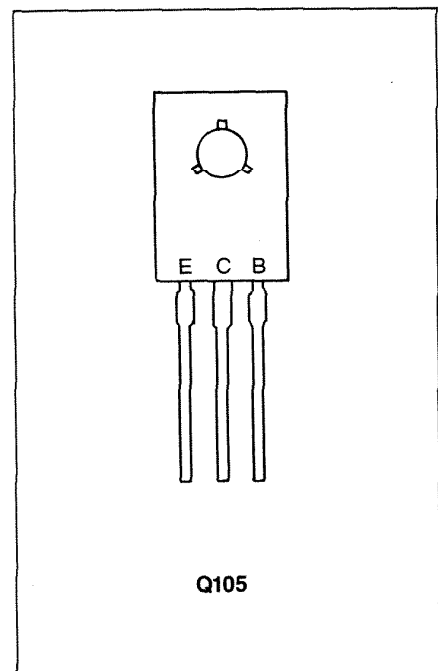
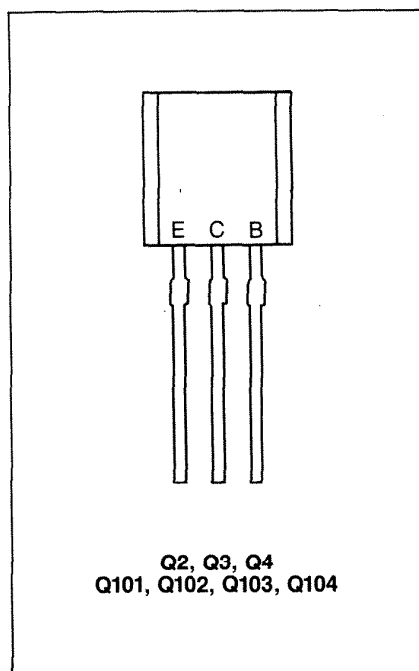
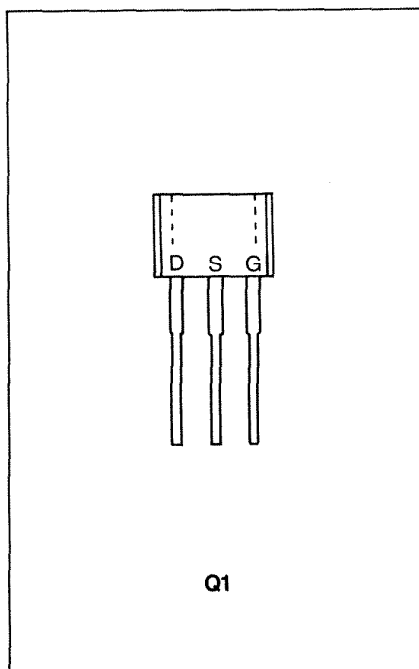
IC AND TRANSISTOR VOLTAGE CHARTS

IC PIN	IC1 IF AMP		IC101 POWER AMP
1	1.3	1.8	6.2
2	1.3	1.8	1.2
3	0	8.3	1.3
4	2.0	1.9	3.2
5	0	0	3.0
6	1.3	1.3	3.1
7	2.1	2.1	1.4
8	2.1	2.0	7.2
9	2.4	2.2	10.9
10	2.5	2.2	12.3
11	9.0	7.8	
12	0.5	0.4	
13	0	0	
14	2.1	2.0	
15	0.2	0.2	
16	0.9	0.9	
	AM	FM	

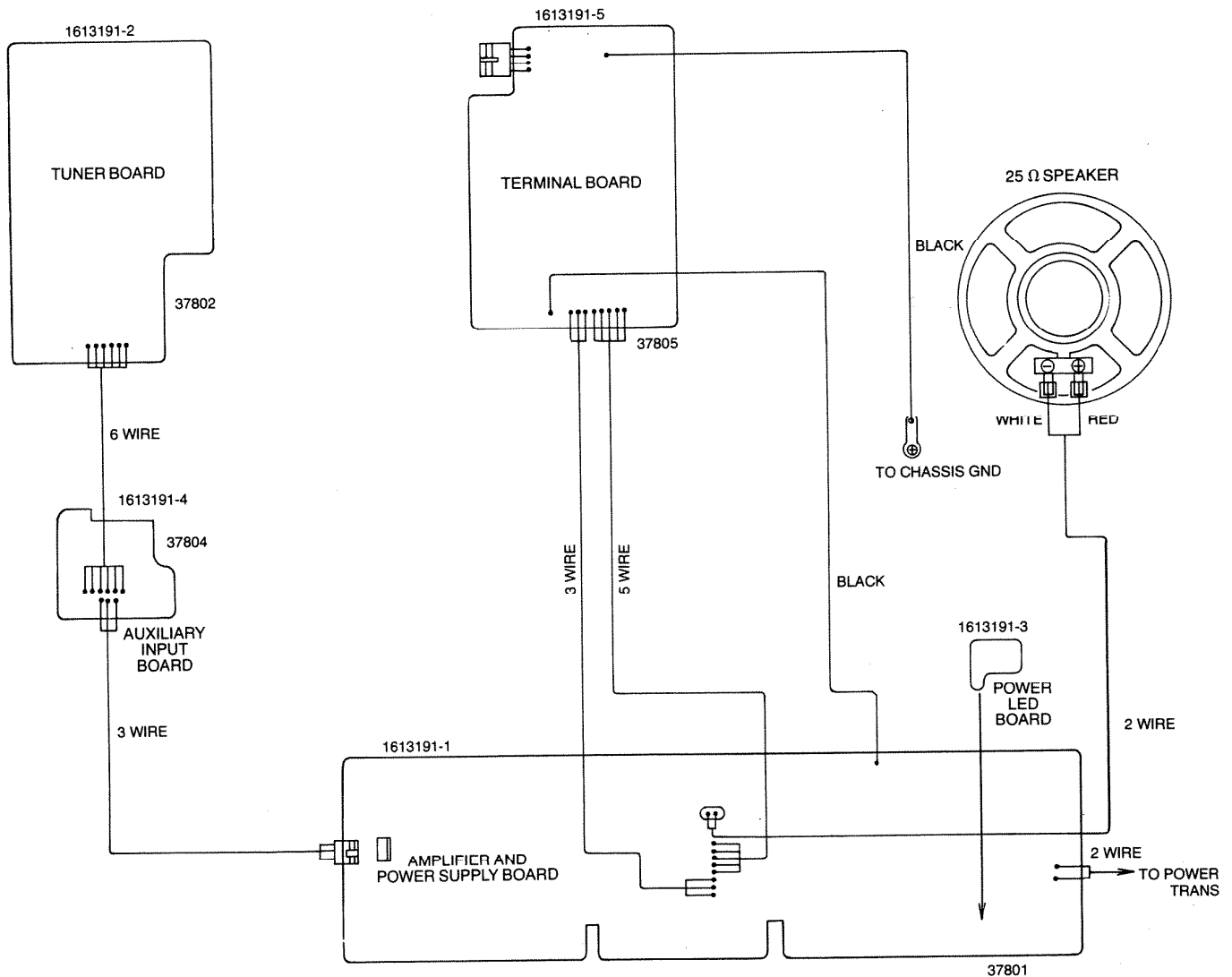
TR (FET)	E (S)	C (D)	B (G)
Q1	0	7.6	0
Q2	1.3	8.6	2.0
Q3	1.1	7.9	1.8
Q4	1.2	9.9	1.8
Q101	6.0	8.2	6.5
Q102	0.1	3.8	0.7
Q103	0	0	0(0.6)
Q104	0	0(4.8)	0.7(0.3)
Q105	12.3	20	12.9

NOTE: All voltage readings are DC volts.

TRANSISTOR LEAD IDENTIFICATION



INTERCONNECT DIAGRAM



TUNER ALIGNMENT AND SETUP DIAGRAMS

Equipment Needed

1. AM Signal Generator
2. FM Signal Generator
3. IF Sweep Generator with marker capabilities
4. Oscilloscope
5. VTVM
6. Nonmetallic alignment tool
7. AF Oscillator
8. Frequency counter

Important Reminders

1. Check line voltage.
2. Set function switch to band being aligned.
3. Remove the antenna from the terminal.
4. Connect low side of signal source and output indicator to chassis ground (unless otherwise specified). Ground connection should be kept close to high side connection.
5. Signal input should be kept as low as possible to avoid AVC and AFC action. (Set output indicator to high sensibility).
6. Standard modulation is 1000Hz 30% amplitude for AM. (1000Hz 22.5KHz deviation for FM).

AM Alignment

Circuit Alignment Equipment Connection				
IF	AM Signal Generator with dummy antenna VTVM across 8ohm (See Fig. 1)			
	Step	Gen. Freq.	Dialsetting	
	1	455KHz (1000Hz Mod)	Tuning gang Fully closed	T3.4 (AM IFT) Adjust for Maximum Output
2			Repeat until no further improvement can be made.	
BAND	AM Signal Generator with dummy antenna VTVM across 8ohm load. (See Fig. 2)			
	Step	Gen. Freq.	Dialsetting	
	3	505KHz (1000Hz Mod)	Tuning gang Fully closed	L6 (AM OSC. Coil) Adjust for Maximum Output
	4	1680KHz (1000Hz Mod)	Tuning gang Fully open	TC4 (AM OSC. trimmer) Adjust for Maximum Output
5			Repeat steps 3 and 4	
Tracking	AM signal Generator with dummy antenna VTVM across 8ohm load. (See Fig. 2)			
	Step	Gen. Freq.	Dialsetting	
	6	600KHz (1000Hz Mod)	Tune to Signal	L5 (AM Ant. Coil) Adjust Coil for Maximum Output
	7	1400KHz (1000Hz Mod)	Tune to Signal	TC3 (AM Trimmer) Adjust for Maximum Output
8			Repeat steps 6 and 7 Several times.	

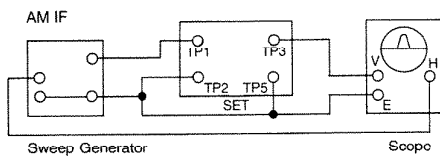


FIGURE 1

FM Alignment

Circuit Alignment Equipment Connection				
IF	FM Signal Generator with dummy antenna VTVM across 8ohm (See Fig. 3)			
	Step	Gen. Freq.	Dialsetting	
	1	10.7MHz (1000Hz Mod)	Tuning gang Fully closed	T1.2 (FM IFT) Adjust for Maximum Output
2			Repeat until no further improvement can be made.	
BAND	FM Signal Generator with dummy antenna VTVM across 8ohm load. (See Fig. 4)			
	Step	Gen. Freq.	Dialsetting	
	3	87MHz (1000Hz Mod)	Tuning gang Fully closed	L3 (FM OSC. Coil) Adjust for Maximum Output
	4	109MHz (1000Hz Mod)	Tuning gang Fully open	TC2 (FM OSC. trimmer) Adjust for Maximum Output
	5			Repeat steps 3 and 4
Tracking	FM signal Generator with dummy antenna VTVM across 8ohm load. (See Fig. 4)			
	Step	Gen. Freq.	Dialsetting	
	6	90MHz (1000Hz Mod)	Tune to Signal	L1 (FM Ant. Coil) Adjust Coil for Maximum Output
	7	106MHz (1000Hz Mod)	Tune to Signal	TC1 (FM Trimmer) Adjust for Maximum Output
8			Repeat steps 6 and 7 Several times.	

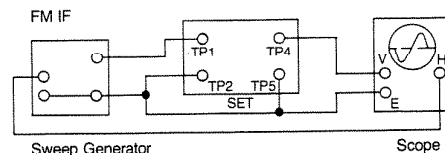


FIGURE 3

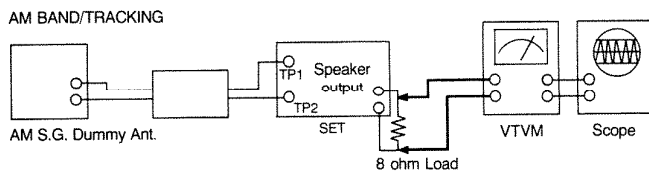


FIGURE 2

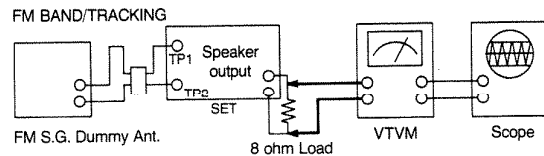


FIGURE 4

Audio Alignment

Set VR1, VR2 and VR3 to maximum position. Input 1KHz signal from AUX and adjust oscillator to 0.632V output on V.T.V. (across 8 ohm), then adjust VR2 until output voltage becomes -5dB from 0.632V. (See Figure 5.)

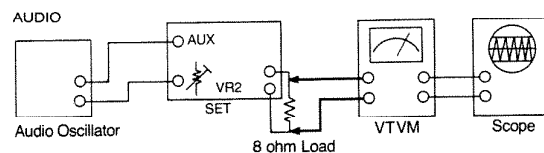
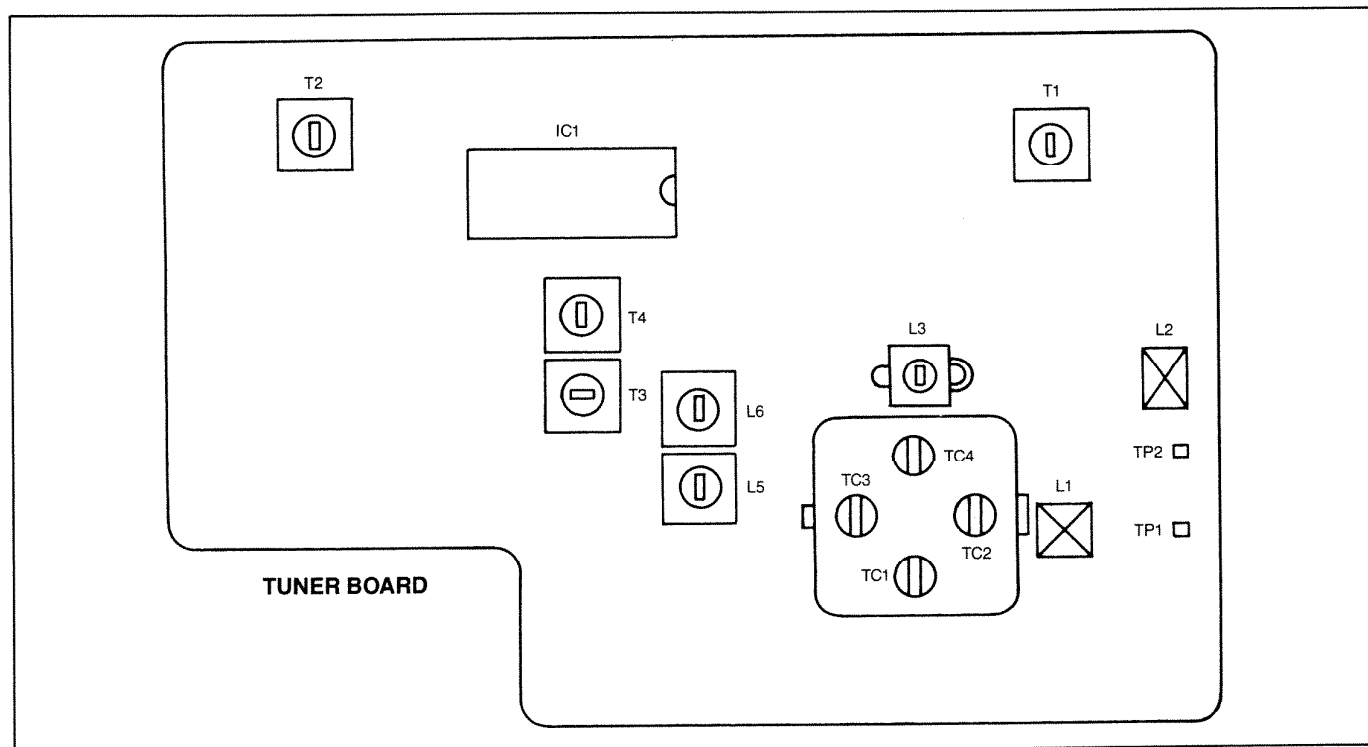
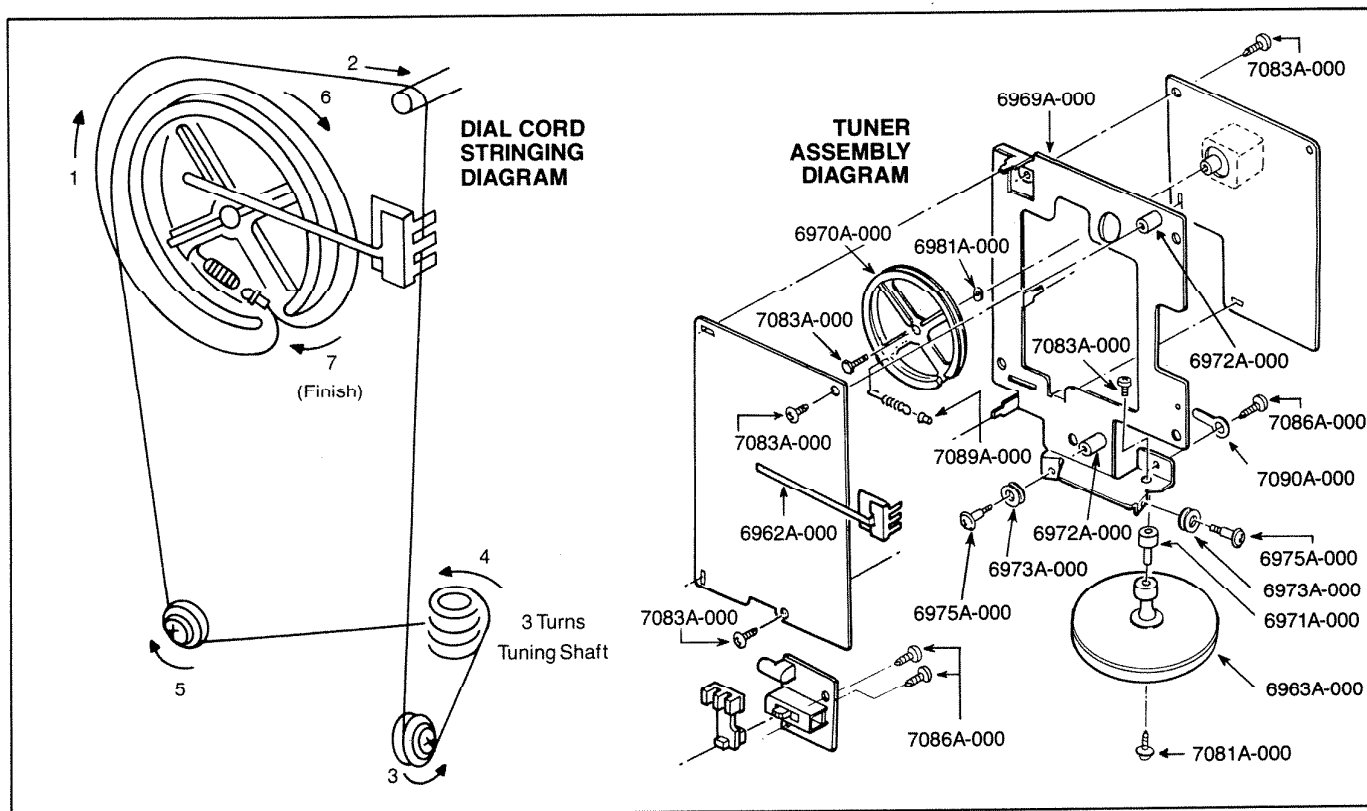


FIGURE 5

Alignment Adjustment Points



DIAL CORD STRINGING AND TUNER ASSEMBLY DIAGRAMS



REPLACEMENT PARTS

Capacitors: Value In Micro (10⁻⁶) Farads. Other Specifications As Noted
 Resistors: Value In Ohms $\pm 5\%$, $\frac{1}{4}$ Watt
 K=Kilo=1,000 M=Mega=1,000,000

Model IM-2003 Radio-Intercom Master Unit

Schematic Symbol	NuTone Part No.	Description
AMPLIFIER & POWER SUPPLY BOARD		
	6996A-000	Amplifier & Power Supply Board Assembly Complete
Diodes		
D101	7038A-000	Muting —IN4148, 1SS133, BA317, 1S2473
D102	7038A-000	Muting —IN4148, 1SS133, BA317, 1S2473
D109	7038A-000	Muting —IN4148, 1SS133, BA317 or 1S2473
D103	7233A-000	Voltage Regulator —UZ13BL or RD13EB2
D104	7044A-000	Rectifier —ISR35 100, SRIK-2 or GP15B
D105	7044A-000	Rectifier —ISR35-100, SRIK-2 or GP15B
D106	7044A-000	Rectifier —ISR35 100, SRIK-2 or GP15B
D107	7044A-000	Rectifier —ISR35-100, SRIK-2 or GP15B
Resistors		
R101	7225A-000	Carbon Film 1/4W. 680K
R102	7219A-000	Carbon Film 5.6K
R104	7185A-000	Carbon Film 1M
R105	7208A-000	Carbon Film 4.7K
R106	7183A-000	Carbon Film 10K
R116	7183A-000	Carbon Film 10K
R107	7182A-000	Carbon Film 1K
R111	7182A-000	Carbon Film 1K
R122	7182A-000	Carbon Film 1K
R108	7226A-000	Carbon Film 150
R109	7213A-000	Carbon Film 6.8K
R110	7184A-000	Carbon Film 100K
R128	7184A-000	Carbon Film 100K
R112	7227A-000	Carbon Film 10K
R113	7195A-000	Carbon Film 220
R114	7196A-000	Carbon Film 2.2K
R115	7200A-000	Carbon Film 330
R127	7200A-000	Carbon Film 330
R118	7232A-000	Carbon Film 33
R124	7228A-000	Carbon Film 560
R125	7181A-000	Carbon Film 100
R126	7181A-000	Carbon Film 100
R121	7230A-000	Carbon Film 1/2W. 68
R119	7229A-000	Metal 1W. 3.3
R120	7229A-000	Metal 1W. 3.3
R123	7231A-000	Metal 4.7

Schematic Symbol	NuTone Part No.	Description
AMPLIFIER & POWER SUPPLY BOARD		
Capacitors		
C103	7167A-000	Ceramic YB 560pf
C106	7119A-000	Ceramic 470pf
C111	7169A-000	Ceramic 0.001uf
C113	7166A-000	Ceramic 100pf
C135	7176A-000	Ceramic YR 0.0022uf
C137	7176A-000	Ceramic YB 0.0022uf
C116	7108A-000	Ceramic Z 0.022uf
C121	7108A-000	Ceramic Z 0.022uf
C125	7108A-000	Ceramic Z 0.022uf
C126	7108A-000	Ceramic Z 0.022uf
C127	7108A-000	Ceramic Z 0.022uf
C128	7108A-000	Ceramic Z 0.022uf
C138	7161A-000	Ceramic SL 330pf
C101	7124A-000	Electrolytic 0.1uf/50V.
C105	7124A-000	Electrolytic 0.1uf/50V.
C107	7124A-000	Electrolytic 0.1uf/50V.
C102	7153A-000	Electrolytic 0.47uf/50V.
C104	7138A-000	Electrolytic 47uf/16V.
C118	7138A-000	Electrolytic 47uf/16V.
C136	7138A-000	Electrolytic 47uf/16V.
C108	7168A-000	Electrolytic 2.2uf/25V.
C112	7145A-000	Electrolytic 220uf/16V.
C114	7170A-000	Electrolytic 47uf/6.3V.
C115	7126A-000	Electrolytic 100uf/10V.
C117	7171A-000	Electrolytic 100uf/16V.
C119	7151A-000	Electrolytic 470uf/16V.
C123	7143A-000	Electrolytic 1000uf/16V.
C124	7173A-000	Electrolytic 1000uf/35V.
C132	7175A-000	Electrolytic 10uf/16V.
C134	7175A-000	Electrolytic 10uf/16V.
C120	7172A-000	Mylar 0.15uf/50V.
C130	7174A-000	Ceramic (Stabil) 0.0018uf
C131	7165A-000	Ceramic (Stabil) 0.0022uf
Transistors		
Q101	7234A-000	Audio Emitter —2SC1844(E), (F) or 2SC2634 (S); (T)
Q102	7030A-000	Auxiliary Amplifier —2SC945(Q) or 2SC828(Q)
Q103	7037A-000	Muting —2SC945(P) or 2SC828(R)
Q104	7037A-000	Muting Driver 2SC945(P) or 2SC828(R)
Q105	7031A-000	Voltage Stabilizer —2SD882(Q), (P) or 2SC2209(Q), (R)
Integrated Circuits		
IC101	7015A-000	Power Amp —BA532

Schematic Symbol	NuTone Part No.	Description
AMPLIFIER & POWER SUPPLY BOARD		
Slide Potentiometers		
VR1	7050A-000	Slide Potentiometer 50K
VR3	7093A-000	Slide Potentiometer 200
VR2	7092A-000	Potentiometer 100K
Coils		
L102	7065A-000	Audio Output Choke
L103	7072A-000	Bead Core
Switches		
	7095A-000	Switch & Bracket Assembly—includes: Bracket Switch—Listen In Switch—Talk Switch—Door Speaker—ON/OFF
S2		
S3		
S4		
S5	7055A-000	Switch—Power—ON/OFF
Miscellaneous		
	7099A-000	3P Base Post
J101	7076A-000	Jack—Auxiliary Out
	6978A-000	Heat Sink
TUNER BOARD		
	6997A-000	Tuner Board Assembly—Complete
Diodes		
D1	7038A-000	FM Overload —IN4148, 1SS133, BA317 or 1S2473
D2	7039A-000	FM AFC—SD116
D3	7038A-000	AM AGC —IN4148, 1SS133, BA317 or 1S2473
D4	7038A-000	Protector Antenna —IN4148, 1SS133, BA317 or 1S2473
D5	7038A-000	Protector Antenna —IN4148, 1SS133, BA317 or 1S2473
Resistors		
R1	7185A-000	Carbon Film 1M
R12	7185A-000	Carbon Film 1M
R2	7210A-000	Carbon Film 56
R3	7200A-000	Carbon Film 330
R6	7200A-000	Carbon Film 330
R21	7200A-000	Carbon Film 330
R22	7200A-000	Carbon Film 330
R4	7205A-000	Carbon Film 3.9K
R5	7213A-000	Carbon Film 6.8K
R7	7214A-000	Carbon Film 1K
R8	7191A-000	Carbon Film 1.5K
R16	7191A-000	Carbon Film 1.5K
R9	7215A-000	Carbon Film 18K
R10	7196A-000	Carbon Film 2.2K
R30	7196A-000	Carbon Film 2.2K

Schematic Symbol	NuTone Part No.	Description
Resistors		
R11	7217A-000	Carbon Film 330K
R13	7199A-000	Carbon Film 27K
R29	7199A-000	Carbon Film 27K
R14	7216A-000	Carbon Film 22K
R15	7194A-000	Carbon Film 22
R18	7201A-000	Carbon Film 3.3K
R19	7186A-000	Carbon Film 120
R20	7186A-000	Carbon Film 120
R24	7186A-000	Carbon Film 120
R28	7186A-000	Carbon Film 120
R23	7183A-000	Carbon Film 10K
R27	7183A-000	Carbon Film 10K
R25	7222A-000	Carbon Film 82K
R26	7213A-000	Carbon Film 6.8K
R33	7181A-000	Carbon Film 100
Capacitors		
C1	7106A-000	Ceramic SL 10pf
C9	7106A-000	Ceramic SL 10pf
C4	7109A-000	Ceramic SL 5pf
C7	7109A-000	Ceramic SL 5pf
C6	7160A-000	Ceramic SL 18pf
C12	7161A-000	Ceramic SL 330pf
C25	7121A-000	Ceramic SL 3pf
C2	7166A-000	Ceramic YB 100pf
C46	7166A-000	Ceramic YB 100pf
C8	7112A-000	Ceramic YB 470pf
C45	7112A-000	Ceramic YB 470pf
C3	7113A-000	Ceramic M 0.0047uf
C10	7113A-000	Ceramic M 0.0047uf
C22	7120A-000	Ceramic (Stabil) 0.022uf
C23	7120A-000	Ceramic (Stabil) 0.022uf
C40	7120A-000	Ceramic (Stabil) 0.022uf
C43	7131A-000	Ceramic (Stabil) 0.015uf
C44	7165A-000	Ceramic (Stabil) 0.0039uf
C5	7108A-000	Ceramic Z 0.022uf
C11	7108A-000	Ceramic Z 0.022uf
C13	7108A-000	Ceramic Z 0.022uf
C24	7108A-000	Ceramic Z 0.022uf
C28	7108A-000	Ceramic Z 0.022uf
C29	7108A-000	Ceramic Z 0.022uf
C31	7108A-000	Ceramic Z 0.022uf
C36	7108A-000	Ceramic Z 0.022uf
C19	7119A-000	Ceramic Z 0.047uf
C20	7119A-000	Ceramic Z 0.047uf
C26	7119A-000	Ceramic Z 0.047uf
C30	7119A-000	Ceramic Z 0.047uf
C33	7119A-000	Ceramic Z 0.047uf
C14	7115A-000	Ceramic NPO 10pf
C15	7115A-000	Ceramic NPO 10pf
C16	7162A-000	Ceramic NPO 22pf
C18	7118A-000	Ceramic NPO 7pf
C17	7117A-000	Ceramic N330 16pf
C32	7163A-000	Electrolytic 22uf/6.3V.
C34	7164A-000	Electrolytic 100uf/6.3V.
C39	7126A-000	Electrolytic 100uf/10V.
C35	7124A-000	Electrolytic 0.1uf/50V.
C42	7124A-000	Electrolytic 0.1uf/50V.
C37	7125A-000	Electrolytic 1uf/50V.
VC1	7048A-000	Variable

Schematic Symbol	NuTone Part No.	Description
AMPLIFIER & POWER SUPPLY BOARD		
Transistors		
Q1	7025A-000	FM RF Amp. —2SK212(E)
Q2	7026A-000	FM Mixer —2SC1674(L) or 2SC1359(C)
Q3	7026A-000	FM Local Osc. —2SC1674(L) or 2SC1359(B)
Q4	7026A-000	AM Converter —2SC1674(L) or 2SC1359(C)
Integrated Circuits		
IC1	7014A-000	Integrated Circuit — AM/FM IF Amp. HA12415-03
Transformers and Coils		
T1	7059A-000	FM IF 10.7 MHz.
T2	7060A-000	FM Detector
T3	7061A-000	FIRST AM IF 455KHz
T4	7062A-000	SECOND AM IF 455KHz
L1	7064A-000	FM RF
L2	7065A-000	IF Trap
L3	7066A-000	FM Oscillator
L4	7067A-000	RF Trap
L5	7068A-000	AM Antenna
L6	7069A-000	AM Oscillator
Filters		
CF1	7073A-000	FM IF (Ceramic) 10.7 Mhz
CF2	7073A-000	FM IF (Ceramic) 10.7 Mhz
CF3	7074A-000	AM IF (Ceramic) 44.5 Khz
B.F.P.	7075A-000	FM RF (Print) 88-108 Mhz
Pins		
TP1	7104A-000	Antenna Wrapping
TP2	7104A-000	Antenna Wrapping
TERMINAL BOARD		
R201	7000A-000	Terminal Board Assembly — Complete
C202	7219A-000	Resistor — Carbon Film J. 5.6K
C201	7177A-000	Capacitor — Ceramic YB 0.0018uf
T201	7123A-000	Capacitor — Electrolytic 100uf/10V.
L201	7097A-000	Transformer — Intercom Input
	7100A-000	Coil — Series Trap Intercom Input 4P Base Post

Schematic Symbol	NuTone Part No.	Description
AUXILIARY INPUT BOARD		
	6999A-000	Auxiliary Input Board Assembly Complete
R31	7224A-000	Resistor — Carbon Film J. 150K
R32	7223A-000	Resistor — Carbon Film J. 820K
S1	7094A-000	Switch — Program Selector
J1	7076A-000	Jack — Auxiliary Input
	7102A-000	Connector Assembly 3-Cond. Ribbon Cable
	7101A-000	Contact (For 3P Housing)
	7098A-000	3P Housing
POWER LED BOARD		
	6998A-000	Power LED Board Assembly Complete
	6979A-000	LED Spacer
D108	7048A-000	Diode — Power Indicator (LED) LN242RPH
MISCELLANEOUS		
	36090-000	Speaker, 5", 25 Voice Coil
	7103A-000	Cable Tie
	35425-000	Front Cabinet
	35430-000	Dial Scale
	6961A-000	Back Screen
	6962A-000	Pointer
	35426-000	Inlay
	6363A-000	Tuning Knob
	6964A-000	Volume Knob
	6965A-000	Slide Knob
	6966A-000	Pushbutton
	6967A-000	Pushbutton
	6968A-000	Indicator
	6969A-000	Chassis
	6970A-000	Dial Drum
	6971A-000	Tuning Shaft
	6972A-000	Pulley Stay
	6973A-000	Pulley
	6974A-000	Drum Spring
	6975A-000	Tapping Screw (Pulley)
	6976A-000	Volume Knob Guide (A)
	6977A-000	Volume Knob Guide (B)
	7290A-000	Binding Post
	6980A-000	Band
	6981A-000	Drum Spacer
	7081A-000	PAN. I.D. Tap Tite Screw M 2.6 x 5
	7082A-000	HEX HD. Screw M 2.6 x 14
	7083A-000	PAN. HD. Tap Tite Screw M 3 x 5
	7083A-000	PAN. HD. Tap Tite Screw M 3 x 5
	7083A-000	PAN. HD. Tap Tite Screw M 3 x 5
	7084A-000	PAN. HD. Tap Tite Screw M 3 x 8
	7085A-000	PAN. HD. With Washer Screw M3 x 8
	7086A-000	PAN. HD. Tap Tite Screw M 3 x 8
	7086A-000	PAN. HD. Tap Tite Screw M 3 x 8
	7086A-000	PAN. HD. Tap Tite Screw M 3 x 8
	7087A-000	RD. HD. Tapping Screw M 4 x 10
	7088A-000	RD. HD. Tapping Screw M 4 x 16
	7089A-000	Eyelet, Ø 2.5 x 3L
	7090A-000	Earth Lug, M3
	7091A-000	PAN. HD. Tapping Screw M 3.5 x 4
	31986-000	Hanger Strap, Master Unit Supt.
	31987-000	"S" — Hook, Hanger Strap

Schematic Symbol	NuTone Part No.	Description
MISCELLANEOUS		
	35425-000	Front Panel
	35426-000	Inlay
	35429-000	Knob
	35428-000	Knob
	35427-000	Knob
	35430-000	Lens
	49135-000	Instruction Sheet
	49134-000	Homeowner's Manual
	7304A-000	Hardware Bag Assembly Complete
	7305A-000	Hinge
	7306A-000	Hinge Bracket
	7307A-000	Side Bracket
	7308A-000	Tapping Screw M4 x 14
	7309A-000	Screw M3 5 x 20
	7310A-000	Tapping Screw M3 5 x 10
	7311A-000	Tapping Screw M3 5 x 10

Model IR-102 Rough-In Frame

Schematic Symbol	NuTone Part No.	Description
	42967-005	Frame Assembly
	35313-000	Housing — Transformer
	08502-900	Transformer (Reference: Model 101NA)
	43012-000	F.M. Antenna Assembly — Complete
	49313-000	Antenna Instruction Sheet
	43044-000	Cover Assembly — Transformer
	52789-015	Screw #8 x 3/8 COMB. PH/SLT. OVAL "25"
	48627-000	Instruction Sheet

Model IC-201 Indoor Remote Control

Schematic Symbol	NuTone Part No.	Description
R1	35480-000	Remote Control Panel
SW2	42928-000	P.C. Board Assembly Complete
SW1	37798-000	P.C. Board
	34059-000	Potentiometer — Volume Control
	34697-000	Switch — Latching
	34698-000	Switch — Momentary
	32558-W46	Wire Assembly — Blue
	39872-000	Terminal
	39403-000	Terminal
	L2607-015	Screw #8 x 3/8 PH. PAN. HD. "25" (terminal board mounting)
	35474-000	Knob — Switch
	35478-000	Knob — Volume Control
	42899-000	Bag Assembly
	95686-000	Polyethylene 10/5
	52872-000	Screw #8 x 2" PH. FILL. HD. "A" (mounting screws)
	49269-039	Instruction Sheet

Model IC-201W Outdoor Remote Control

Schematic Symbol	NuTone Part No.	Description
R1	35480-000	Remote Control Panel
SW2	35497-000	Rain Shield
SW1	31967-000	Cable Clamp
	42928-000	P.C. Board Assembly Complete
	37798-000	P.C. Board
	34059-000	Potentiometer — Volume Control
	34697-000	Switch — Latching
	34698-000	Switch — Momentary
	32558-W46	Wire Assembly — Blue
	39872-000	Terminal
	39403-000	Terminal
	L2607-015	Screw #8 x 3/8 PH. PAN. HD. "25" (terminal board mounting)
	35474-000	Knob — Switch
	35478-000	Knob — Volume Control
	42966-000	Envelope Assembly
		Envelope
	66731-039	Screw #8 x 3/4 PH. FILL. HD. "25" (mounting screws)
	35351-000	Gasket
	39890-000	Surface Mount Bezel
	49306-000	Instruction Sheet

Model IS-205 5" Inside Speaker

Schematic Symbol	NuTone Part No.	Description
R1	35465-000	Remote Speaker Panel
SW2	35492-000	Remote Speaker Panel
SW1	36090-000	Speaker — 5"
	L2607-015	Screw #8 x 3/8 PH. PAN. HD. "25" (speaker mounting)
	42928-000	P.C. Board Assembly Complete
	37798-000	P.C. Board
	34059-000	Potentiometer — Volume Control
	34697-000	Switch — Latching
	34698-000	Switch — Momentary
	32558-W46	Wire Assembly — Blue
	39872-000	Terminal
	39403-000	Terminal
	L2607-015	Screw #8 x 3/8 PH. PAN. HD. "25" (terminal board mounting)
	35473-000	Knob — Switch
	35474-000	Knob — Switch
	35475-000	Knob — Volume Control
	35478-000	Knob — Volume Control
	42930-000	Envelope Assembly (dark finish)
	42931-000	Envelope Assembly (light finish)
	95686-000	Polyethylene 10/5
	52872-068	Screw #8 x 2" PH. FILL. HD. "A" (mounting screws — dark finish)
	52872-068	Screw #8 x 2" PH. FILL. HD. "A" (mounting screws — light finish)
	49249-000	Instruction Sheet

Model IS-208 8" Inside Speaker

Schematic Symbol	NuTone Part No.	Description
R1 SW2 SW1	35469-000	Remote Speaker Panel
	35470-000	Remote Speaker Panel
	36089-000	Speaker—8"
	L2607-015	Screw #8 x 3/8 PH. PAN. IID. "25"
	42928-000	P.C. Board Assembly
	37798-000	P.C. Board
	34059-000	Potentiometer—Volume Control
	34697-000	Switch—Latching
	34698-000	Switch—Momentary
	32558-W46	Wire Assembly—Blue
	39872-000	Terminal
	39403-000	Terminal
	L2607-015	Screw #8 x 3/8 PH. PAN. HD. "25" (terminal board mounting)
	35473-000	Knob—Switch
	35474-000	Knob—Switch
	35475-000	Knob—Volume Control
	35478-000	Knob—Volume Control
	42932-000	Envelope Assembly (dark finish)
	42933-000	Envelope Assembly (light finish)
	95686-000	Polyethylene 10/5
	39941-068	Screw #8 x 2-1/2 PH. FILL. HD "A" (mounting screws—dark finish)
	39941-039	Screw #8 x 2-1/2 PH. FILL. HD "A" (mounting screws—light finish)
	49251-000	Instruction Sheet

Model IS-209 5" Patio Speaker with Controls

Schematic Symbol	NuTone Part No.	Description
R1 SW2 SW1	35493-000	Remote Speaker Panel
	36108-000	Speaker 5" (Weatherproof)
	L2607-015	Screw #8 x 3/8 PH. PAN. HD. "25" (speaker mounting)
	35497-000	Rain Shield
	31967-000	Cable Clamp
	42928-000	P.C. Board Assembly Complete
	37798-000	P.C. Board
	34059-000	Potentiometer—Volume Control
	34697-000	Switch—Latching
	34698-000	Switch—Momentary
	32558-W46	Wire Assembly—Blue
	39872-000	Terminal
	39403-000	Terminal
	L2607-015	Screw #8 x 3/8 PH. PAN. HD. "25" (terminal board mounting)
	35474-000	Knob—Switch
	35478-000	Knob—Volume Control
	35496-000	Surface Mount Frame
	42961-039	Envelope Assembly
		Envelope
	52872-015	Screw #8 x 2" PH. FILL. HD. "25" (mounting screws)
	52807-000	Screw #6 - 32 x 1-1/4 PH. OV. HD. (surface frame mounting)
	35491-000	Gasket
	49276-000	Instruction Sheet

ADDENDUM

Procedure For Setting System Volume Levels

At The Model 2003 Master Control Unit

1. Set PROGRAM SELECT SWITCH in AUX position.
2. Set VOLUME ALL SPEAKERS CONTROL to approximately one-third ($\frac{1}{3}$) range.
3. Set DOOR SPEAKER SWITCH to ON (push-in).
4. Set VOLUME THIS SPEAKER CONTROL to MAXIMUM (all the way to the right) position.
5. Set POWER SWITCH to ON (push-in).

At Every Remote Inside/Patio Speaker

1. Turn PROGRAM VOLUME CONTROL to MAXIMUM (full clockwise) position.

Intercom Volume Level Set

1. At any remote I/P SPEAKER press-in and hold the TALK SWITCH. From a normal distance, speak into the speaker in a normal voice. The message should be heard at every other speaker, including DOOR and MASTER UNIT in the system.
2. While message is being transmitted, another person, at the MASTER UNIT should set the VOLUME ALL SPEAKERS CONTROL to the desired level.
3. Check the audio level at every other speaker in the system. Make certain that the level is sufficient at the speaker requiring the greatest volume. If there is insufficient volume at any

station, raise the VOLUME ALL SPEAKER CONTROL SETTING at the MASTER UNIT. Reduce volume setting at the remote speakers as required.

Program Volume Level Set

1. At the MASTER UNIT, set PROGRAM SELECT SWITCH in AM or FM (depending on most used mode).
2. Using the RADIO TUNING WHEEL, tune to a familiar station.
3. Check entertainment program volume at all stations:
If the program is too loud, reduce entertainment program by adjusting ENTERTAINMENT PROGRAM LEVEL SET VR2 on the Master Unit's Amplifier/Power Supply Printed Circuit Board.
If program level is too low, increase entertainment program by adjusting VR2.
4. Refinement of the level setting at the various stations may be made by repeating the steps above.

NOTE: TO PREVENT OVER DRIVING THE AUDIO AMPLIFIER INTEGRATED CIRCUIT AND FOR MAXIMUM QUALITY OF THE AUDIO AT EVERY STATION, THE PROGRAM VOLUME CONTROL AT EACH REMOTE I/P SPEAKER AND THE VOLUME THIS SPEAKER CONTROL AT THE MASTER UNIT SHOULD BE OPERATED AT MAXIMUM SETTING, CONSISTENT WITH THE DESIRED VOLUME.