

# Robotronics®

*The Leader In Safety Education Products*

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## Buzz E. Smoke Alarm & Safety House™ Operating Manual

Version 2.3

# Buzz E. Smoke Alarm and his House of Hazards<sup>TM</sup> Operating Manual

**Congratulations** on your purchase of a ROBOTRONICS, Inc. Smoke Alarm with House of Hazards. Your house and robot have been carefully constructed of the highest quality components. Its design is the result of years of experience building safety education products. You will find it an extremely effective educational tool for your organization. It is built for ease of operation, maintenance and repair. It is built so that you can easily expand its functions making its usefulness grow as your needs grow.

Please read this manual carefully. It will help you make the most of your Smoke Alarm and House. Attention to maintenance will greatly prolong the life of this product. Most problems you encounter will be minor and the manual will provide an answer. Please feel free to contact us if you have unanswered questions relating to operation, maintenance, and repair. Also, if you have technical questions relating to expanding the functions of the House or Smoke Alarm, we would be very happy to help.

Sincerely,

**ROBOTRONICS, Inc.**



**ROBOTRONICS INC.**  
Springville, Utah 84663  
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\* These sections can be used to place additional notes that you would like to record, during your use of the House or additional information sent from Robotronics.

## LIMITED WARRANTY

All Robotronics products have a limited one year warranty which covers all parts and labor. This period covers the normal burn-in for electronic components. Experience has shown that this warranty period catches most component defects and other possible flaws.

If you have a problem, we are anxious to help. Our desire is to be certain you receive a quality product and excellent service.

Warranty work is specifically limited to correction of defects by repair or replacement of faulty equipment or parts. The product shall be repaired or replaced at Robotronics' option. Equipment returned to the factory for repair must be sent freight pre-paid, and will be returned freight pre-paid by UPS ground or common carrier.

For international shipments, you will be responsible for paying customs duties, taxes and other fees. The shipment must be labeled on the paperwork and on the outside of the container that it is "**For Educational Purposes**". If it is a "**warranty replacement**" or a "**repair return**" this also must be indicated both ways on the customs documentation. Contact your customs agency on how to document the shipment correctly to avoid unnecessary customs charges. If you need parts sent by air shipment you will be responsible to pay the additional shipping charges.

The buyer is further responsible to ensure that proper and complete training be given to those operating the robot system as all aspects of such operation cannot be covered in a brief manual such as this.

In no event shall ROBOTRONICS, Inc. be liable for any incidental or consequential damages in connection with or arising from the use of this product or arising from the use of this manual or any procedures contained herein.

### If You Have A Problem

1. Call our service department and explain the problem. The phone number is (801) 489-4466. Most difficulties are minor and can be solved easily over the phone. If possible, have the robot near the phone when you call.

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**Important:** Have the robot serial number and model number ready. This will help our technician identify the model of robot you have. The serial and model number sticker is located on the back of the house and base unit.

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2. If you must return a portion or all of the House of Hazards for repair, pack it carefully and send it prepaid.
3. Parts of the robot are best sent by a carrier such as UPS, or U.S. mail. Be sure to insure the shipment for the correct value.
- 4.
5. For international shipments, you will be responsible for paying customs duties, taxes and other fees. The shipment must be labeled on the paperwork and on the outside of the container that it is "**For Educational Purposes**". If it is a "**warranty replacement**" or a "**repair return**" this also must be indicated both ways on the customs documentation.

Contact your customs agency on how to document the shipment correctly to avoid unnecessary customs charges.

## **After The Warranty Repair and Help**

Our technical staff is always available to help with your questions. Again, most problems are easily solved. If you do need replacement parts, we can usually ship them the following day you call. Please call our service department before sending a part or your robot in for repair or modifications.

Because of parts availability, robots may vary slightly from unit to unit. If you have any questions, please contact our service department. The service department phone number is: (801) 489-4466.

# Part 1 General Operating Instructions

## CHAPTER 1 Getting Started

### DESCRIPTION OF FEATURES AND OPERATING HINTS

Robotronics' new animated Buzz E. Smoke Alarm & House of Safety are unique and exciting tools for teaching fire prevention and life-safety education. In the hands of a skilled and trained operator, Buzz can be very effective in getting your safety messages across to children and adults.

There are more than one version of the system. All versions have the animated Smoke Alarm character with moving eyes, eyelids, eyebrows, and arms. All versions also have the **Automatic Music Control System**. The system with control box enables the operator to manually initiate all of the functions of both the smoke alarm and the house. A headset microphone with a two-way voice system allows you to communicate through the smoke alarm. A voice modifier is also available which allows you to disguise the sound of your voice. This manual covers all of the system versions. The control box and the Safety House are not included in all systems but can be purchased at any time.

In automatic mode, the Smoke Alarm has a personality of his own. In manual mode you can add a personal touch to the character as you interact with your audience. Much of the excitement of the Smoke Alarm is provided by the operator. Even an operator with a shy personality can be effective with the smoke alarm as they get into the character and interact with the children.

It's best to have a firefighter facilitator interact with Buzz and get children involved in the program. Bringing children up out of the audience to talk to Buzz and go over safety principles helps re-enforce the learning process. Be prepared with the highlights of the safety rules and concepts that you want the children to learn. It is best to mix some music with a lot of interaction between Buzz, the instructor and the audience. Children seem to have more fun and learn more when there is a lot of interaction in the form of audience participation and questions.

The most important ingredient to the use and effective operation of the Smoke Alarm system is common sense. The following instructions will help you get set up and start using it in a very short time.

## SETUP AND HOW TO OPERATE

### Step # 1 Read the manual

**For connecting the wiring, follow the letters and description labels on the wiring and components of the system.**

### Step # 2 Attach the Smoke Alarm on the base unit

The Smoke Alarm usually comes attached to the base unit already. If you need to connect it, this is how.

1. Connect the Smoke Alarm control wires to the base unit. These are two wires coming up through the hole on the base. Match these wires with the same colors coming out of the Smoke Alarm. One is Blue/Orange/Yellow and the other is Green/White.
2. Set the Smoke Alarm in position over the holes in the base.
3. With the Smoke Alarm in position on top of the base unit, Screw the two screw knobs into the bottom of the Alarm to secure it.

Note: If you have the **Smoke Alarm Standard Model**, you can go to step 4 *powering up* and step 5 *running Buzz on automatic mode*.

### Step # 3 Fold out the House of Hazards

1. Open the two side latches and open the House on a table.
2. Remove the front panels by lifting up to clear the bottom metal catches and then pull the bottom out. To install the panels put the top up and in first and then lower the bottom metal catches in at the bottom. You can see the slots in the plastic at the bottom of the opening.
3. Install the chimney on the top of the House.

### Connecting the extension wires (depends on the package that you have)

1. Smoke Alarm only- no extension cables are needed.
2. Smoke Alarm and controls only- One extension cable from the control box to base unit.
3. Smoke Alarm and House- Connect the extension cable from the base unit to the House in the back.
4. Smoke Alarm, House and Controls- Two extension cables are used; base to House and control box to base unit.

### Step # 4 Powering Up

1. Connect the power supply Red/Black wire to the Red/Black connector on the back of the base unit.
2. Connect the power supply AC cord to a 110 Volt AC outlet.
3. Turn the power supply on.
4. When you are ready to turn it on, turn on the switch at the back of the Smoke Alarm base unit. This powers up the entire system.

### Step # 5 Running the Smoke Alarm and House on Automatic Mode:

1. Connect the MP3 player audio cable.  
Models with a control box: Connect to the audio jack of the control box (Velcro on box).  
Models w/out a control box: Connect to the audio jack on the base unit (Velcro on base).
2. Insert the programmed CD into the CD player or turn on the MP3 player.
3. To run the House on automatic mode, press play on the CD/MP3 player.
4. The House and Smoke Alarm will go through a program of songs. You can run it from one track to the next continuously or you can select tracks.



5. **Set the volume levels.** There is a volume on the back of the Smoke Alarm base unit and volume controls on the operator control box for the music/Smoke Alarm voice and headset hearing levels. If you have a MP3 player, set the volume at the maximum level, then you can adjust the master volumes where you want them.

#### **Step # 6 Running the Smoke Alarm and House with a separate control box and extension wire (optional feature):**

1. Attach the extension wire to the back of the operator control box. There is a round connector on the back of the Smoke Alarm base unit to connect to. Put the two connectors together, rotate the connector until it sits into the mating connector and then twist the ring until it stops.
2. With the control box option you can operate the house **automatic or manually**. For automatic operation, just press play on the MP3 Player that has the programmed music on it. If you buy additional modules later, you will need to load the music on your MP3 player from a CD. For manual operation use the switches of the control box to operate the Smoke Alarm and lights of the House. The headset microphone will allow you to be the voice of the Smoke Alarm and also hear children talking to you.
3. Video Monitor Option: There is a video cable and power wire that comes with the monitor. The power wire plugs in to the back of the control box and then to the **DC in jack** on the monitor. The video plug is yellow and it runs from the control box to the **video in** of the monitor.
4. **Set the volume levels.** There is volume level for the music and the Smoke Alarm's voice on the operator control box. There is also a volume on this same box for the volume of your hearing in the headset.

#### **Step # 7 Test all the functions**

Test all of the functions of the House and Smoke Alarm: For the Smoke Alarm, test the eyelids, eyes left and right, eyebrows, arms, and mouth movement. For the House, check the room lights, Smoke Alarm LEDs, and danger LEDs. You are now ready to operate the House and Smoke Alarm.

**On a new system, the house will have a plastic protective covering over the color panels. You may remove this now.**

**Step # 8 Powering Down:** Turn off the main power switch, power supply and the MP3 player

## **TRANSPORTING**

- Remove the chimney from the top of the house. It is held on by velcro.
- You can leave the Smoke Alarm on the base unit if you want. If you have removed the cover, attach this to better protect the Smoke Alarm.
- Make sure the latches on the side of the House are secure before transporting.
- Disconnect the extension wire from the back of the house.
- Put the front house panels back on.
- Put the House in the canvas carrier to protect it from scratching or damage.
- Put all other accessories in the canvas carry bags.
- Do not allow anything sharp or hard to push against the room panels.
- Protect the plastic cover from getting scratched.

## Part 2 Subsystems of the House of Hazards

Functionally, the House of Hazards with Smoke Alarm is made up of the following basic subsystems and features:

1. Automatic Music Control System
2. Smoke Alarm Character with Moving Mouth, Eyes, Eyelids, Eyebrows, and Arms.
3. The House of Hazards: Room lights, Smoke Alarm LEDs and hazard LEDs
4. MP3 or CD Player
5. Power Supply

### Optional Features

6. Control Box
7. Voice System – Headset Microphone
8. Video Camera and Monitor
9. Voice Modifier

The systems block diagram found in the Appendix, shows how the various subsystems and their components are interrelated. Following are explanations of each subsystem, some operating instructions, and trouble shooting hints where appropriate.

## Chapter 2 Automatic Music Control System

Automatic Music Control is the automatic operation of the House and Smoke Alarm from the MP3 player. One of the tracks on the player is coded with commands that are synchronized with the music. When the music is played, the main control board in the Smoke Alarm Base Unit decodes commands on the tracks. These command signals are sent to the Smoke Alarm and the lights in the House to create a synchronized performance with music and animation.

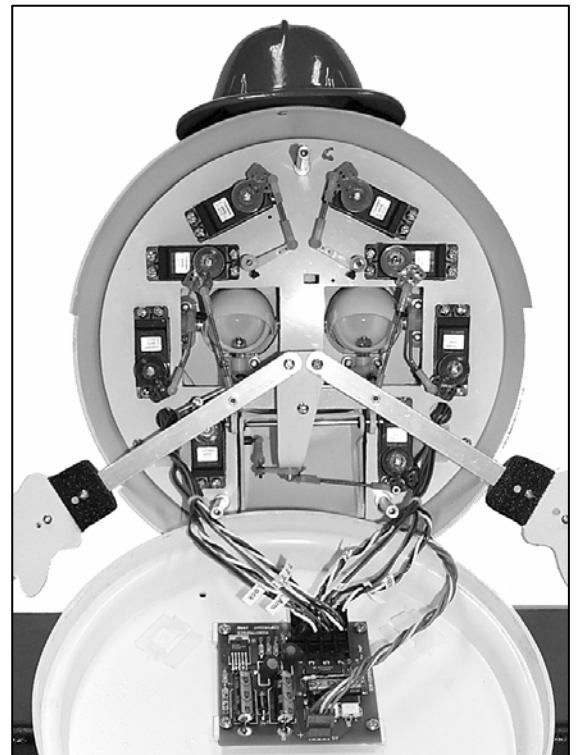
## Chapter 3 Buzz E. Smoke Alarm

The Smoke Alarm has moving eyes, eyelids, arms, eyebrows, and a moving mouth. These functions are operated by individual servo motors in the Smoke Alarm itself. The signal comes from the main control board to operate these functions. The signal wire that comes from the main control board goes to a servo board inside the Smoke Alarm. The servo board decodes the pulse train signal into individual signals for each servo motor. The mouth servo is located in the Smoke Alarm with a rod going up to the mouth itself. The mouth motor moves in sync to the music or in sync to your talking if you are using the headset microphone.

When you put the Smoke Alarm on top of the base unit you have to screw in the round knobs to his feet. Always make sure these are snug before operating. The two wires coming from Buzz connect to two wires in the base unit. The wires are color coded to make it easy to match them up. Be careful with these wires and connectors when removing or installing the Smoke Alarm. Be especially careful with the arms when transporting Buzz.

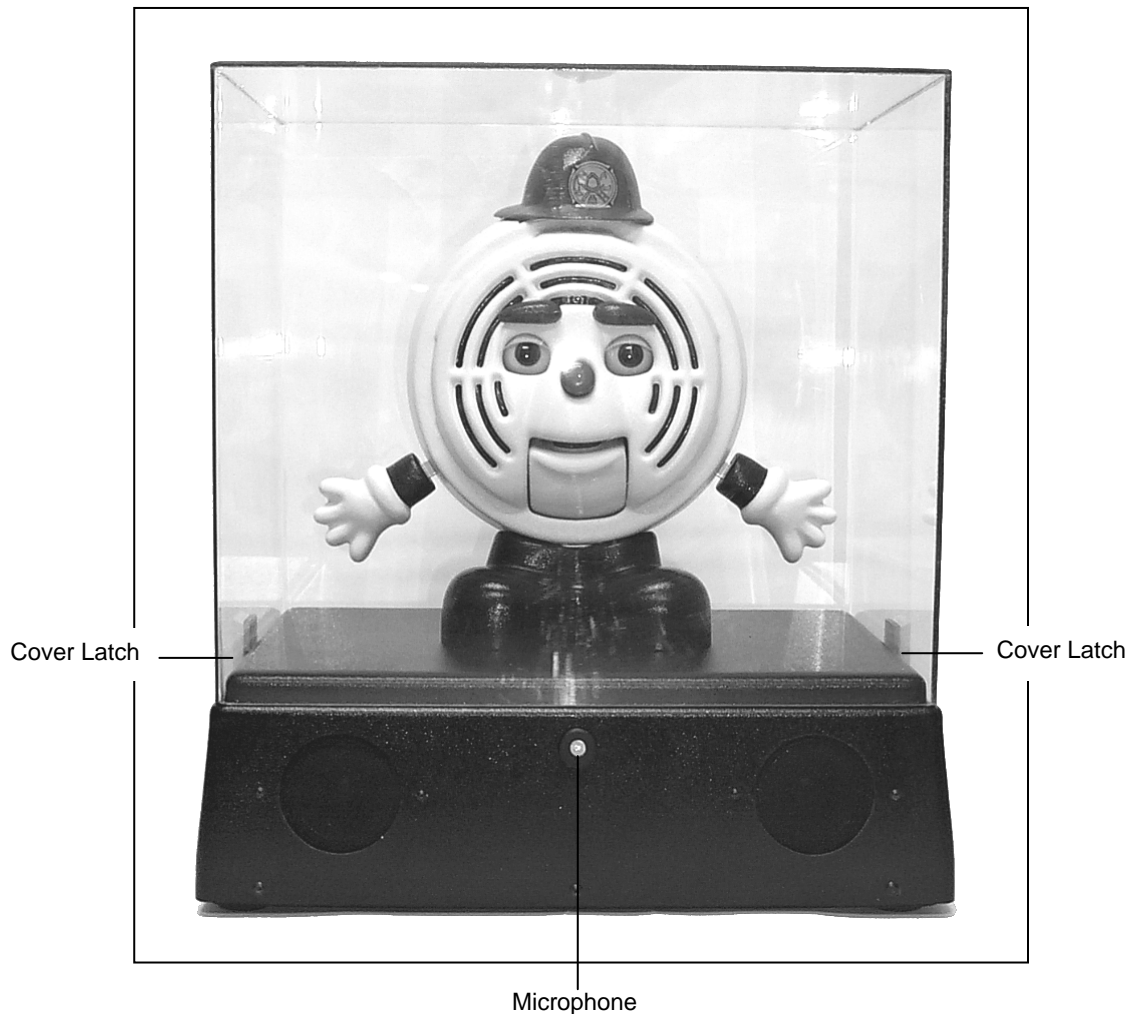


Smoke Alarm Connector  
and Wire



## Care of the Plastic Cover for the Smoke Alarm

- The cover is made of ABS plastic and needs to be cleaned with mild soap and water with a soft cloth.
- Windex or water and a soft cloth can be used.
- Do not use solvents or abrasive cleaners.
- When transporting the Smoke Alarm on the base, keep it secure so that it does not bounce around.
- Put a cover or a blanket over it to protect it.
- Do not put it in the back of an open truck or trailer.



**Note: The Actual Cover Is Solid Black ABS Plastic**

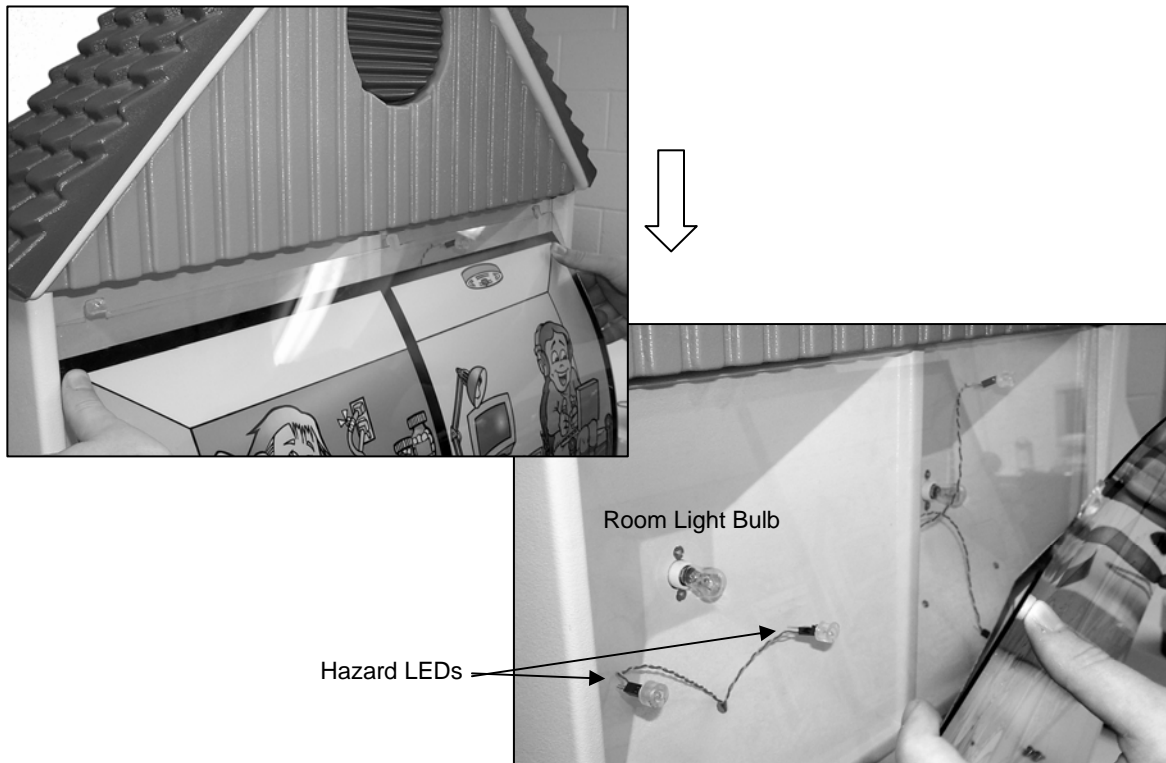
## Chapter 4 The House with Lights

The House lighting system is made up of two main light types; the room panel lights and the LED lights. The LED lights are used for the smoke alarms in each room and to indicate the hazards. The room lights have a switch and the LEDs in a room has a switch.

When you hit a switch on the control panel, this input is picked up by the control panel main board and sent along the wire to the main board in the House. This signals the correct switching output to turn on the room light or hazard LED. There are connectors going from each light to the switching outputs.

### How to remove the front panel in order to change a **color panel, room bulb, or hazard LED:**

1. To do this, find the dowel velcroed on the back of the house. Insert the dowel into the hole in the back cover of the house. Push on the dowel and this will flex out on the front panel(s) so that you can get your hand behind it. Next, slide the top of the panel down to release it from the top slots.
2. The other way is to remove the back cover of the house, push down the tabs of the front panel, and flex out the panel. Look up in the back of the house and you will see these tabs. Push down on them and the panel will flex on the front. While you are pushing down, have someone in the front pull out the flexed panel at the top.



### Changing to a different color panel:

After releasing the top of the clear panel, open it enough to get the color panel out and slide the

## Chapter 4 The House with Lights

new color panel in. Flex the clear panel enough to pop the tabs back up into the slots.

Changing a room light bulb:

1. Remove the front panels enough to get to the bulb.
2. Replace the bulb in the socket and make sure the new bulb is screwed in tight.
3. To put the panel back in, flex it and pop it in to the slots.

How to change a LED hazard light:

The Super Bright light emitting diodes should last for a very long time. But if necessary to change the **red LED lights** it is best to go in through the front panel because these lights are glued on a clear sheet of plastic behind the room graphic color panel. There are three sheets of plastic on the front of the house; the **clear front panel**, the **color panel**, and the **LED panel**. The LED panel has clear tubes that hold the LEDs.

1. Remove the front panel as instructed above. Now you will have access to the LED panel and you can remove the LED that is burnt out. **Important: Only pull the LED panel out enough to get to the LED that you need to replace because if you pull it too far then many of the wires going to the LEDs will pop off and you will have to put them back on.**
2. Pull the brown connection off of the LED. Note that the LED has a long lead and short because it is polarized.

---

**Note: The connector has yellow on the long lead of the LED, and blue on the short.**

---

3. Pull the LED out of the clear tube carefully to avoid popping the tube off the panel.
4. Replace the LED and put a little hot glue on it to hold it in. Connect the brown connector:  
LED Long Lead - Yellow wire  
LED Short Lead - Blue wire
5. You can give the leads a little bend to keep the connector from slipping off.
6. Pop the front panel tabs back in and screw the back cover on.

You can get replacement bulbs and LEDs from Robotronics. You can get the LEDs with or without the yellow/blue wire going back to the circuit board.

## Chapter 5 CD or MP3 Player Operation and Maintenance

### CD player

Pushing the CD Play/Pause button on the CD player activates the Compact Disc player.

#### **How to Play A CD**

1. Make sure that your power and audio wires are plugged into the CD player.
2. Slide the OPEN button to open the cover.
3. Insert the CD.
4. Press the play/pause button to play.
5. Selecting tracks- Use the double arrow right or left to search for tracks or go to the next track.
6. If you are connected to the line out, the volume of the music is adjusted on the main volume rather than on the CD player. If you are connected to the headphones adjust the CD player volume.

#### ***Using Other Functions***

#### **ESP**

The ESP (Electronic Shock Protection) function minimize skipping by using a buffer memory that stores music data and plays it back in the event of a shock. When this is on ESP shows up on the display. If it does not show up in the display, push the ESP button. If you are in ESP when you turn off the CD player, it will remain on ESP when you turn it back on.

#### **Hold Feature**

To activate, push the HOLD slide button. This locks the player against accidental pushing of the buttons on the front of the player. The pushbutton palm control will still be active. The word HOLD will appear in the display. To unlock, slide HOLD back.

#### **Maintenance and Care**

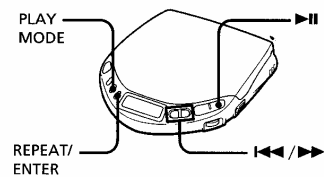
- Clean the lens with a lens cleaning kit such as KK-DM1.
- To clean the casing use a soft cloth slightly moistened in water or a mild detergent solution. Do not use alcohol, benzene or thinner.
- Keep the lens on the player clean and do not touch it. If you do so, the lens may be damaged and the player will not operate properly.
- Do not put any heavy object on top of the player or the player and the CD may be damaged.
- Do not leave the player in a location near heat sources, or in a place subject to direct sunlight, excessive dust or sand, moisture, rain, mechanical shock, unlevelled surface, or in a car with its windows closed.

To	Press
Pause (main unit only)	▶
Resume play after pause (main unit only)	▶
Find the beginning of the current track (AMS*)	◀◀ (◀◀ side of ▶▶ on the headphone remote commander) once**
Find the beginning of previous tracks (AMS)	◀◀ (◀◀ side of ▶▶) repeatedly**
Find the beginning of the next track (AMS)	▶▶ (▶▶ side of ▶▶) once**
Find the beginning of succeeding tracks (AMS)	▶▶ (▶▶ side of ▶▶) repeatedly**
Go forward quickly	Hold down ▶▶ (▶▶ side of ▶▶) **
Go backwards quickly	Hold down ◀◀ (◀◀ side of ▶▶) **

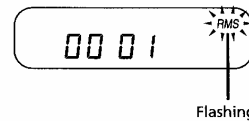
\*AMS = Automatic Music Sensor  
 \*\*These operations are possible during both play and pause.

### Playing tracks in the order you want (RMS play)

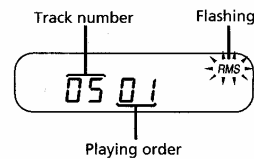
You can program up to 22 tracks to play in any order you choose.



- 1 During play, press PLAY MODE repeatedly until "RMS" flashes.



- 2 Press ◀◀ or ▶▶ to choose a track. The track number and the playing order appear.



- 3 Press REPEAT/ENTER to program the track.
- 4 Repeat steps 2 and 3 to program the remaining tracks.
- 5 Press ▶||. "RMS" stops flashing and the tracks you have chosen play in the order you specified.

To cancel RMS play, press PLAY MODE until "RMS" disappears.

#### To check the program

During programming:

Press REPEAT/ENTER before step 5.

During RMS play:

Press PLAY MODE repeatedly until "RMS" flashes, then press REPEAT/ENTER.

Each time you press REPEAT/ENTER, the track number and the playing order appear in the order you specified.

#### Note

- If you program another track after the 22nd track, the first track programmed is cleared and the new track is programmed instead.



## MP3 Player (See the MP3 operating manual)

1. Install a fresh battery in the MP3 player.
2. Make sure that the volume is turned up to maximum on the MP3 player for the movements of Buzz to work with the music. You can adjust the master volume on the control box or base unit to your desired volume coming out the speakers.
3. The Buzz songs are already installed on the MP3 player, but if you want to add additional songs you will need to load them on the MP3 player through a computer. There is a copy of the MP3 files on a CD in case you need to load them again in the future.
4. Install the software from the CD on your computer if you want to download additional songs to the player.
5. Make sure the lock switch is off which locks the controls.
6. Press and hold the play button. Select the music menu and select a track.
7. Start the track with the play button. You can pause with this same button.
8. Use the stop (box symbol) button for stop. Press and hold for shut down of the player.

### Auto Shutoff Feature

The auto shutoff feature shuts off the MP3 player if not in use for a designated amount of time. You can change this from 1 minute to 60 minutes. Just go in to the settings menu, auto shutdown. We recommend a setting of at least 25 minutes so that it does not shut off while you are doing a program.

## Chapter 6 Power Supply

The power for the system is supplied by a power supply or a battery. The House comes with a power supply that is rated at 13.8 Volts 10 Amps. There is an optional battery and battery charger you can obtain if you think you will be in locations that will not have 110 Volt outlets available. The battery is a 12 Volt 33AH Gel type battery. Either the power supply or battery connect into the same connection on the back of the house. This is the black/red connection. Line up the red to red and black to black. This is a polarized connection and can only be connected one way. **The polarity of the wires on the front of the supply must not be disturbed. They must always be red wire to positive and black wire to negative post.**

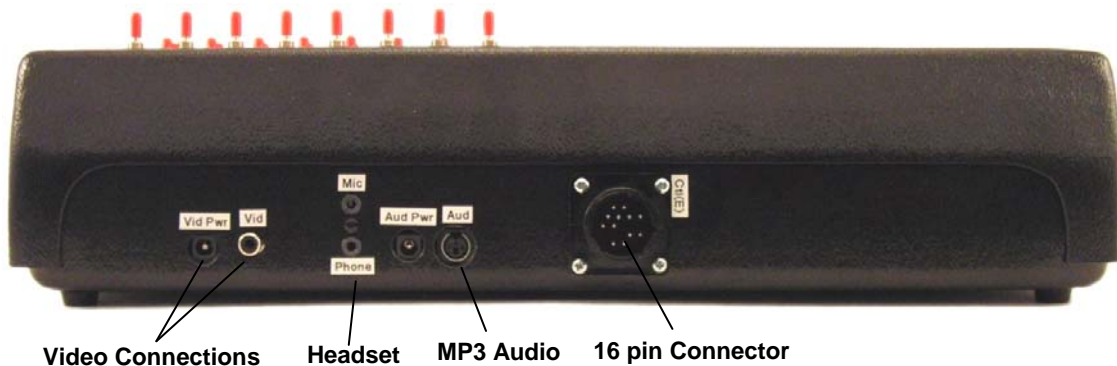
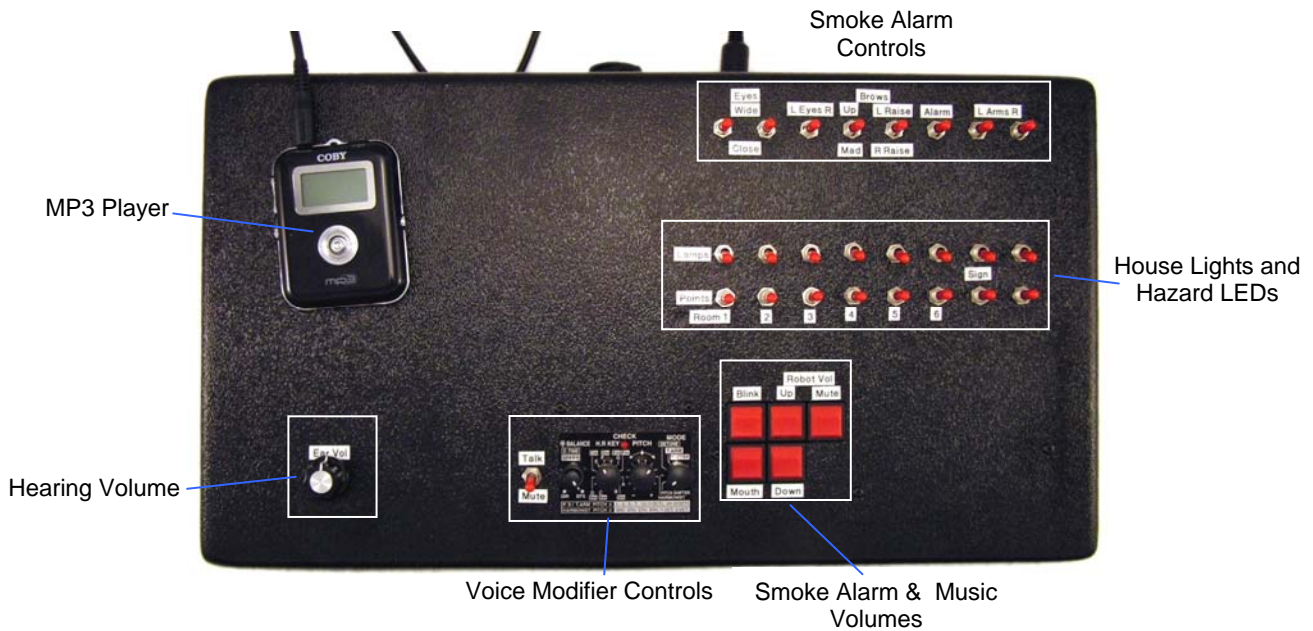


# Part 3 Optional Features

## Chapter 7 Control Box

The control box allows the operator to use the House and Smoke Alarm in manual mode. The operator can turn on the room lights, smoke alarm lights or hazard lights individually to emphasize the dangers in certain rooms and do a walk through of the entire house, room by room. The operator can also operate all of the functionality of the Smoke Alarm and interact with the audience. With the headset-microphone you can be the voice of the Smoke Alarm and hear what the kids are saying.

After a switch is hit on the control box this input goes to the control board in the control box. This board communicates with the control board in the House, which operates the specific function that you have selected.



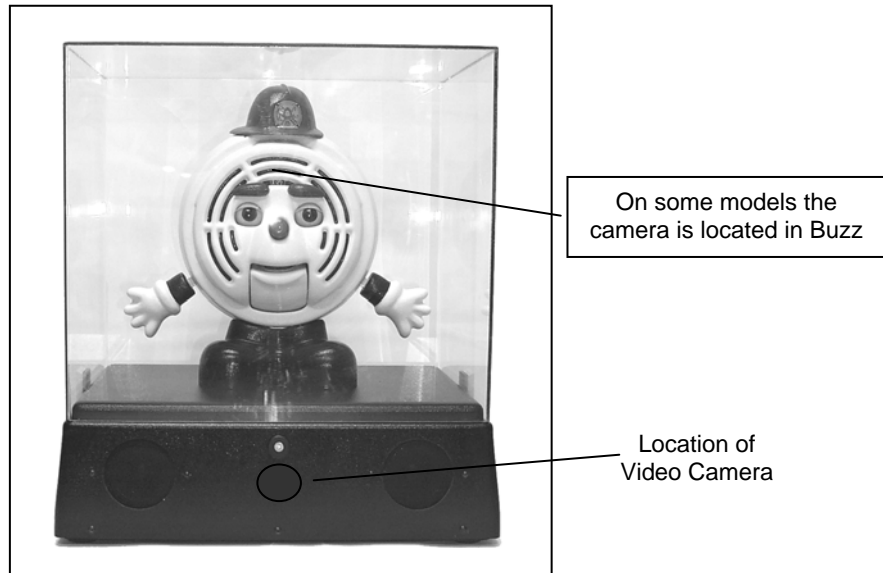
## Chapter 8 Voice System

The Voice System allows you to be the voice and hearing of the Smoke Alarm. It includes a headset microphone, audio board in the control box, and the audio board in the base unit. When you talk into the microphone the signal goes first to the audio board in the control box where it is mixed with the audio from the MP3 player and then sent to the audio board in the House. The House audio board amplifies the signal to be put on the speakers. The master volume controls this volume level along with the music. The hearing involves a microphone on the Smoke Alarm, which picks up the kids voices and sends it from the House audio board to the control box audio board and on to the headset speaker.

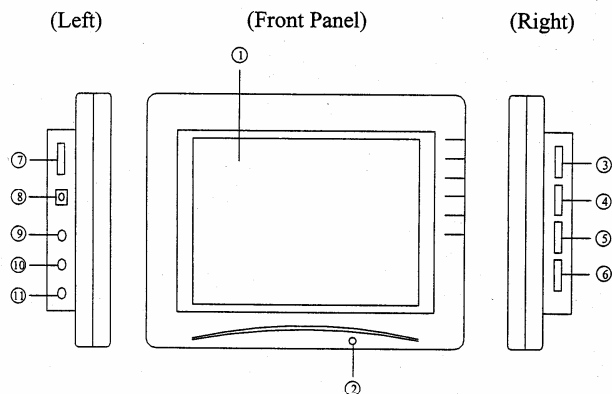


## Chapter 9 Video Camera and Monitor Option

The video camera is typically located in the base unit of the Smoke Alarm. The video signal runs through the wire extension from the base unit to the control box. There are two wires that go from the control box to the monitor. One has a black barrel plug. This is the power wire. The other has a yellow plug. This is the video signal. After the plugs are connected, turn on the video monitor and adjust the brightness, contrast and color. The camera has a broad viewing field to be able to see people in front of the House and all around the Smoke Alarm.



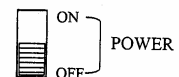
Camera Circuit Board in Base Unit



- ① 5.6" TFT Color Screen Display
- ② Power LED (Green)
- ③ Brightness Adjustment
- ④ Contrast Adjustment
- ⑤ Color Adjustment
- ⑥ Audio Volume Adjustment
- ⑦ Power ON/OFF
- ⑧ DC 12V Power Input
- ⑨ Video Input
- ⑩ Earphone Audio Output
- ⑪ Audio Input

1. Power:

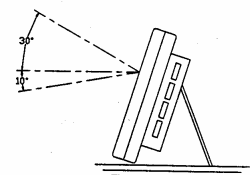
- a. Power source: DC 12V
- b. AC adapter: DC 12V, 1000mA
- c. Battery: DC 12V



2. Viewing Angle:

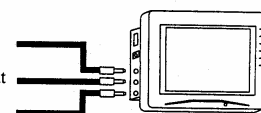
The ideal viewing angle is within the following range:

- a. Upper angle: 30°
- b. Lower angle: 10°
- c. Left angle: 45°
- d. Right angle: 45°



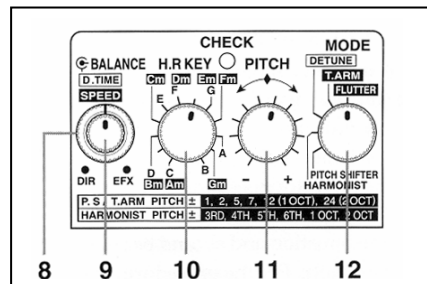
3. Connection:

- a. Video input
- b. Earphone audio output
- c. Audio input



## Chapter 10 Voice Modifier

The pitch shifter (voice modifier) can change the operators voice to disguise it and create the Smoke Alarm character voice. The operators voice signal is sent to the audio board in the control box. The audio board sends your voice to the **Input** of the pitch shifter. It is modified and sent from the shifter **Output** back to the audio board again and then it mixes with the other audio going to the Speakers.

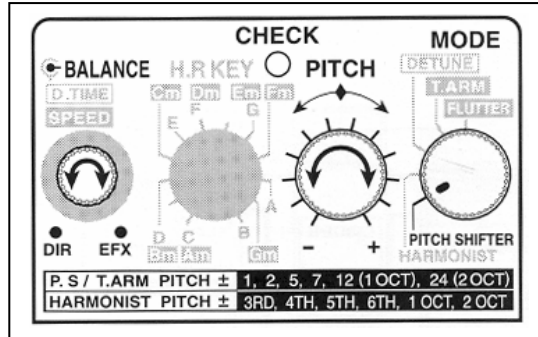


8. D.Time Speed Knob – Delay time. Not used in pitch shifter or harmonist mode.
9. Balance knob – This adjust the output balance between the direct sound and the effect sound. Typically set this on EFX for the full effect.
10. H.R. Key switch. Not used.
11. Pitch Switch. Adjusts the amount of pitch shift.
12. Mode Switch. Selects the mode. Typically use the pitch shifter mode.

The pitch shifter has two basic effects; a digital pitch shifter and a delay. There are many variations of these two effects. When used as a pitch shifter, you can vary the shift within +/- 2 octaves. Set the mode knob to Pitch shifter and then vary the pitch knob until you get the sound of voice that you want. You can get a similar effect with the harmonist position but the pitch shifter gives you the best sound. These are the most common modes used because these modes give you the ability to adjust the shift of your voice to exactly what you want whether up or down. About 2:00 on the pitch knob gives you a good voice.

Below is a typical setting for the Buzz Smoke Alarm voice.

Balance-clockwise  
Pitch-About 2:00  
Mode-pitch shifter



## CHAPTER 11 Battery System

The battery available for the Buzz system is a rechargeable sealed lead-acid Gel type battery **12 Volt 31AH**. This type of battery is very dependable and safe. It can be repeatedly charged and discharged. This is an optional item needed only if you are at a location that does not have electrical outlets.

### Connecting

The battery connects to the same connection as the power supply, to the red and black connector on the back of the House.

### How to Recharge

Connect the alligator clips of the charger to the battery posts. Plug the charger into an 110 V outlet and the charger needle will go up to some level. The charger is an automatic battery charger. This will recharge the battery in 10 to 14 hours. This type of charger will not overcharge the battery if left "ON" indefinitely. Avoid leaving it charging for more than 5 days. Generally remove the battery from the charger when the charger indicates a full charge.



### Cautions

Batteries are provided with a polarized connector to avoid connecting the battery backwards and damaging the circuitry. If these connections are disturbed, please be careful to observe proper polarity when reconnecting the battery. Use a digital voltmeter, if necessary to verify polarity of the battery and at the end of the connector of the battery.

It is best not to allow the battery to go completely dead as this shortens the life of the battery and makes recharging more difficult. **Fully charge the battery after each use.**

**Important: Charge the battery to a full charge right after using the robot. Gel type batteries will be damaged if not kept fully charge at all times.**



## ROBOT BATTERY CHARGER

The charger is an optional item only needed if you purchase the robot battery in place of the power supply. The charger is designed to both recharge your battery, and extend your battery's life. It produces 12 Volts DC at a full 6 Amps. It will charge the battery in about 8 hours depending on how long you have used the robot. After the battery is charged, the green LED will come on and the battery is ready to use. At this point the charger is charging at a FLOAT or maintenance rate. At this rate you can leave the charger connected for extended periods of time.

### Charge Pro Model 2606A 6 Amp Battery Charger

#### Status Indicating Lights

**Red on**-The battery is discharged and is being recharged at the maximum 6 Amp rate of the charger (stage 1).

**Red and green both on**-The battery is charging at the stage 2 rate of 1.5 to 5 Amps.

**Green on**-Your battery is charged and ready to use. It is now on float charge (stage 3).



### Personal Safety Precautions

### Warnings

#### HAZARD OF EXPLOSIVE GAS MIXTURE

When charging, a lead acid battery gives off hydrogen gas. The Gel type battery is a lead acid battery with pressure relief type vents. Although it only gives off a small percentage of the gas that a wet lead acid battery does, the following precautions should be observed:

1. Charge the battery in a dry, well ventilated area. This is why it is important that you leave the trunk or door open. You can also remove the battery from the robot.
2. Do not position your face over the battery, at any time while making connections.
3. Do not smoke, strike a match, or cause a spark in the vicinity of the battery during charging.
4. Always unplug the AC supply cord before connecting or disconnecting the charger leads from the battery.
5. Do not drop a metal tool onto the battery.
6. Do not expose the charger to rain.
7. Replace defective cords and wires immediately.
8. Do not operate this charger with a two bladed adapter plug or extension cord. Doing so can result in serious personal injury.
9. To reduce the risk of shock, connect only to a properly grounded outlet.

## **If the Battery is not taking a Charge**

Make sure that the charger is working by connecting it to a battery that is known to be good.

Leave the charger on for a few days and see if the battery starts taking a charge. Turn the robot on and try to operate it. Connect to the charger again. If it still will not take a charge, it's time to replace the battery.

## PART 4

### CHAPTER 12 Maintenance

#### Regular Maintenance Checklist

Periodically the robot should receive a thorough inspection.

1. Examine the exterior of the House and Smoke Alarm and make repairs as necessary. See the body repair instructions if needed.
2. Remove the House back panel and the Smoke Alarm back cover. Check all bolts and nuts for tightness.
3. Examine electrical wiring and connectors for looseness and wear.
4. Clean and lubricate mechanical parts of the Smoke Alarm as needed.
5. Clean the CD player system according to instructions in the CD player care and maintenance pages.
6. Wash the plastic body with mild soap and water and a soft cloth. Rubbing alcohol may be used on stains that won't come off with soap. Do NOT use alcohol on the color room panels.
7. Check the Control box and voice equipment for broken wires, loose fasteners etc.
8. If you have the battery option, fully charge the battery. This must be done on a daily basis when the robot is in constant use. Remember, a Gel type battery should be brought to a full charge after each use of the robot so that it always has a full charge on it.

To prolong the life of the system, always store in a safe place away from **light, dust, moisture**, and excessive heat. **To keep dust and light away from it, a cover should be used.**

For a list of recommended tools for a tool kit, see the next page.

## Recommended Tool Kit

Fuses- 3 and 5 Amp (ATO Type)  
4" cable ties  
Precision regular Phillips screw drivers  
Screwdrivers (flat head and Phillips)  
Socket and ratchet set  
Needle nose pliers  
Crimper/Wire strippers  
Wire cutters (diagonal cutters)  
7/16" & 3/8" wrenches  
Set of Allen wrenches (Especially 3/32" and 1/8" sizes)  
Extra 9 Volt alkaline batteries  
Small soldering iron and solder  
Small can all purpose lubricant  
Digital Multimeter (Volts/Ohms)

## PAINTING OF THE ABS PLASTIC

Typical paint and colors being used on the House:

**Brand: SEM Color Coat Aerosols**

**Roof: Camel 15173**

**Below Roof: Light Buckskin 15093**

Contact a professional painter for assistance.

### Preparing the surface:

The robot and house body is an **ABS plastic** and should be cleaned before painting to remove oils and dirt. Clean the area with isopropyl alcohol to prepare it. It helps to smooth the rough edges of the scrapes or scratches before painting with 600 grit sandpaper. This improves the adhesion of the paint also. You can lightly sand the area to paint with the 600 grit sandpaper or a Scotch-Brite 7448 pad.

### Painting the surface:

#### Method 1

Enamel spray paints such as SEM Interior/Exterior enamel could be used. This can be touched up easy if the paint ever got a scuff or scrape but is typically just for painting trim, bumpers, gauge plates etc. Carefully cover parts that are not to be painted with masking tape and paper, to protect against over spray.

#### Method 2

Note: If you use method 2, you should contact a professional painter that has had experience painting on various types of surfaces. These are automotive type paints and typically include a primer and base coat. For a glossy look you can use a glossy base coat or a clear coat.

#### ***Brand- Dupont***

Primer: Acrylic Urethane Flexible Primer Surfacer. Primer is optional.

Paint: Acrylic Enamel. Dupont ChromaBase Basecoat.

The information listed includes suggestions and general information. This material is designed for application only by trained professional painters using proper equipment.

If you have any questions, call our service department at 801-489-4466.

**REPAIR OF THE HOUSE OR SMOKE ALARM PLASTIC****Materials**

Super glue

ABS or PVC clear medium bodied glue

Fiberglass mesh

rubber gloves

1. Hold the crack together tightly so that the glue you put on the inside of the body does not run through the crack on to the outside of the body. This would etch into the plastic.
2. If there are pieces of plastic reinforcement across the seam or crack that are unglued, PVC or ABS glue can be used between the reinforcement piece and the body. A clamp could be used to hold the plastic tightly together while drying.
3. Cut a piece of fiberglass mesh to cover the crack.
4. Position the body, so that the seam or crack is horizontal to the table. This will keep the glue from running. Apply some of the PVC or ABS glue along the seam, only on the inside of the body. Check to make sure that the glue is not running through the crack on to the outside of the body. Note: Avoid getting the glue on your hands.
5. Immediately put the fiberglass mesh on the glue and pat it down to saturate into the glue.
6. Apply some more PVC or ABS glue over the fiberglass mesh to saturate it some more.
7. It will dry to the touch in about 30 minutes. Allow 24 hours for complete drying.
8. For cracks that need more strength, glue a piece of ABS plastic across the crack with PVC glue.

**General Precautions:**

Do this in a well ventilated area.


Use gloves to avoid getting glue on your hands.

Avoid getting the fiberglass on your skin or clothing. The fiberglass will not hurt you, but could cause skin irritation.

For further precautions, read the super glue, PVC, and ABS container labels.

## STORAGE

If you put the system in storage for a period of time, you should do the following:

1. **Clean the Plastic.** Clean the plastic as described in the maintenance section (If robot is stored with a dirty body it may be harder to clean at a later date, as stains may become permanent).
2. **Always store it with a cover.** Storing the system with a dust cover on it will keep it clean and protect the Smoke Alarm and House from scratches. It will also keep ultra-violet light from effecting the ABS plastic body.
3. **Store indoors in a temperature controlled environment.** Do not store it in a location that will get extremely hot. Extreme heat will damage the color panels and could warp the plastic. Storing it in a room temperature location is the best way to protect it and prevent damage.
4.  Charge the battery fully as per instructions in battery section if you have this option. **(Storing the battery for any length of time without being fully charged will permanently damage the battery.)** The battery should be stored in a dry place between 55-75 degrees F.
5. **Test in Advance of Programs.** After storing the House of Hazards always test the robot well in advance of any scheduled activity as it is impossible to anticipate problems. This will ensure time to correct the problem.

# **APPENDIX A**

## **Program Modules Songs and Dialog**



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## Safety at Home General Hazards Module

**Presenter:** Hello! I'm \_\_\_\_\_. I am here to tell you how to make your home fire safe. Fire safety starts with you. The way to help is to learn about fire safety and then apply what you have learned. I brought a friend with me today and he is going to teach you what to look for to make your home a safer place. His name is Buzz and he is going to sing you a song about danger.

**Song:** Danger!

My name is Buzz, I'm a smoke alarm.  
I'm here to keep you safe from harm.  
I always bring my hazard house  
So come on in and have a browse.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Come along and learn with me.

There are many hazards here  
Might hurt the family you hold dear.  
Power cords are old and frayed.  
Appliances near water lay.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Check your home most carefully.

Hazards we have seen, my friends.  
Prevention upon you depends.  
Don't you fret and don't you frown.  
Find those hazards; take them down!

Danger is no stranger.  
We will beat it you will see.  
Danger is no stranger.  
What you know can be the key.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Learn this and be hazard free.

**Smoke Alarm:** Hi everybody. I want to talk to you about protecting your home and family from fire. Fire is a very sneaky and dangerous thing. Fires usually happen at night, so I hope you all have smoke alarms to wake you up if there is a fire in your home. Escape plans and practicing them are a very important part of fire safety as well. Today we are going to talk about how to make your home safer so fire doesn't have the chance to attack you. There are fire hazards in most homes but once people know what to look for the problems can be resolved and a fire may be prevented. Here's a song that might help you remember some of the hazards to look for.

**Song:** Safety Rules

I don't wish to cause you alarm  
Safety rules keep you safe from harm.  
Just plug in the wall the things you use.  
If you only need one then don't use two.

If you come to my house, you will see  
Safety rules save you and me, yeah.  
Oh yeah,  
Safety rules!

Wipe up spills so someone won't slip.  
Keep poisons up high out of reach is my tip.  
Put matches out of reach from every child  
Keep us all happy and make me smile.

If you come to my house, you will see  
Safety rules save you and me, yeah.  
Oh yeah,  
Safety rules!

Yeah! Haven't you heard that safety rules.  
At work! At home! At play! At school!  
Yeah! Haven't you heard that safety rules.  
At work! At home! At play! At school!  
Don't leave cords lying around.  
Someone might trip or fall down.  
Close paint and gasoline to avoid the fumes.  
It's time to be smart in every room.

If you come to my house you will see.  
Safety rules save you and me, yeah.  
Safety rules!

Yeah! Haven't you heard that safety rules.  
At work! At home! At play! At school!

Haven't you heard that safety rules.  
At work! At home! At play! At school!  
Haven't you heard that safety rules.  
At work! At home! At play! At school!

**Smoke Alarm:** Hazards can be very dangerous. Let's review a few things we should look for: Don't overload electrical outlets. Wipe up spills. Keep poison up high and matches out of children's reach. Electrical cords should be kept in good condition and out of the way. There are other dangers found in many houses. In the kitchen make sure pot handles are turned in when cooking and don't leave knives and other sharp objects lying around. In other rooms: Use a protective screen in front of a fireplace and avoid fire triangles. Fire triangles occur when fuel (wood or cloth), heating sources (matches or candles), and air are found close to each other. These are some of the things to avoid in your home. If you and your family make it a goal to find and remove fire hazards from your house you will all be a lot safer. Practicing safety at home will decrease the chances of a fire and protect all the people you love.

**Song:** Safety is Cool!

When you wake up in the morning  
And you get out of bed  
Won't you listen to these safety tips?  
Just dancin' through your head.

Remember to think safety,  
Safety now is cool!  
Yes, it's cool.  
When you're in your room or bathroom  
Or just walkin' down the hall  
Pick up your clothes and toys  
Don't drive your parents up the wall.

Pickin' up is part of safety,  
'Cause safety now is cool!  
Oh yes it is!

Now lots of things can catch on fire  
So keep them far away  
From any source of heat or flame  
Let's play it safe today.

Respect that heat and fire,  
'Cause safety now is cool!  
Yeah! Yeah!

Be careful in the kitchen,  
Yeah and when you use that stove

And keep those handles turned away  
And burners turned down low.  
Be careful now with fire,  
'Cause safety now is cool!  
Oh yes it's cool.

Now when you're home or at your friend's  
Or even at your school  
Remember to think safety, yeah!  
Make it your golden rule.

Any room can be safe, if you know just what to do,  
So be cool,  
Yeah be cool!

Electricity and water  
Should never mix at all  
And never plug too many cords  
At once into the wall.

Respect electric power,  
'Cause safety now is cool!  
Yes it is.

Now when you're home or at your friend's  
Or even at your school  
Remember to think safety, yeah!  
Make it your golden rule.

Any room can be safe, if you know just what to do,  
So be cool,  
Yeah be cool!

When you wake up in the morning  
And you get out of bed  
Won't you listen to these safety tips?  
Just dancin' through your head.

Remember to think safety,  
Safety now is cool!  
Yes it's cool!

Remember to think safety,  
'Cause safety now is cool.  
So you be cool!

**Presenter:** Thank you for spending this time with my friend and me.  
Remember: You are the key to fire safety. Thanks for listening.

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## Escape Plan Module

**Presenter:** Hi, I'm \_\_\_\_\_. I am here to talk to you about how important it is for your family to have a fire escape plan. Fire strikes quickly and without warning, but if you have a plan, you and your family will be prepared to survive a house fire. I brought my friend, Buzz E. Smoke Alarm, along to help me. Listen to what he has to say; then we will talk some more.

**Song:** Danger!

My name is Buzz, I'm a smoke alarm.  
I'm here to keep you safe from harm.  
I always bring my hazard house  
So come on in and have a browse.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Come along and learn with me.

There are many hazards here  
Might hurt the family you hold dear.  
Power cords are old and frayed.  
Appliances near water lay.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
What you know can be the key.

Matches left in baby's reach  
Bad idea, my lessons teach.  
Never leave a heating source,  
With cloth or paper in it's course.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Check your home most carefully.

Hazards we have seen, my friends.  
Prevention upon you depends.  
Don't you fret and don't you frown.  
Find those hazards; take them down!

Danger is no stranger.  
We will beat it you will see.  
Danger is no stranger.  
Learn these and be hazard free.

**Smoke Alarm:** Hi, I'm Buzz E. Smoke Alarm, here to teach you about why you should have a fire escape plan.

An important part of an escape plan is a smoke alarm, because a smoke alarm can warn you when there is a fire in your home. I hope all of you have smoke alarms in your homes.

I'm going to sing a song that will tell you some other things you can do to be prepared to escape if there is a fire in your home.

**Song:** "In the Safety Zone"

Look for two ways out of every room  
A window or a door  
Choose a place to meet your family  
Down a ladder from the second floor

Feel closed doors for heat  
If it's hot you better turn back  
Crawl down low in the safety zone  
Cause smoke rises when it attacks

**Chorus:**

Stay out of the heat. Keep the beat  
Crawl your way to your escape  
You're not alone in the safety zone  
Smoke rises when it attacks

No need to fear if twice a year  
You practice your escape plan  
Avoid the pain. Beat the flame  
Get out as fast as you can.

**Chorus:**

Stay out of the heat. Keep the beat  
Crawl your way to your escape  
You're not alone in the safety zone  
Cause smoke rises when it attacks

**Smoke Alarm:** An escape plan includes making a map that shows all the ways out of every room in your home, at least two ways out, perhaps through a door or a window.

Your family should agree on a place to meet if there is a fire, so you will know if everyone got out of the house safely. A meeting place could be the mail box, a tree or bush not too close to the house, or even a neighbor's house.

To be prepared to escape a fire, these are some things to practice, and remember.

If you are in a room with the door closed and you smell smoke, don't open the door. A fire's heat and smoke rise, so place the back of your hand as high up on the door as you can. Don't touch the metal doorknob. Metal conducts heat, and the knob could burn your hand. If you feel no heat on the door, it's okay to open it, but if the door feels warm, there is fire on the other side; look for another way out of the room.

If you need to escape through a ground level window, open it carefully and climb out. If the window is on the second floor or higher, and you don't have a fire escape or rope ladder, go to your window and open it, then push the screen out. Hang a bed sheet out the window to signal firefighters, and yell for help.

If you are awakened by your smoke alarm and your bedroom is full of smoke, get down on the floor and crawl to the nearest exit.

Smoke rises, so you have one to two feet of breathing room close to the floor, a space called the safety zone. Practice crawling on the floor in the safety zone with your family.

It is not safe to phone from a burning building; you might be overcome by fire or smoke from the fire, the phone may not even be working. Get out of the house! Go to your family's meeting place; then go to a neighbor's home and call 911. If you have a portable phone you can use that to call too.

Never use an elevator during a fire emergency. Use the stairs or a fire escape. If you are trapped in a burning building, go to a window and wave a white cloth or flashlight, so the firemen can see you.

Remember to review these safety tips and practice your escape plan with your family at least twice a year. Be safe. Safety **is** cool!

**Song:** I'm A Cool Kid!

Alright  
Do you want to be cool?  
I'll tell you how  
Right now.

What do you do  
With a friend like me?  
Put one in every room—  
You may need  
Two or three.



One time a month  
Test my battery.  
Change them twice a year,  
Save my energy.

**Chorus:**

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm.  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.  
Keep cool kid!

**Verse 2:**

When I smell smoke  
I will alarm you.  
Nothing hot will harm you  
If you clean me frequently.

Don't use my battery  
In your favorite toy.  
I need my batteries  
To warn every girl and boy.

**Chorus:**

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.  
Keep cool kid!

**Repeat Chorus**

**Presenter:** I hope you remember the things Buzz taught you today. Let's review some of the things he said. (Review the important points of the lesson and ask children to respond.)

Thanks for listening. Remember what you know is the key to being safe at home.

## Smoke Alarm Maintenance Module

**Presenter:** Hi! My name is \_\_\_\_\_. I am here to talk to you about smoke alarms, and I have brought along a friend to help me. He talks to kids and adults, about safety and teaches them how to protect their homes and families from fire. Let me introduce him to you. He is a talking smoke alarm.

**Smoke Alarm:** Hi, my name is Buzz E. Smoke Alarm. I am here to tell you how important it is to take care of the smoke alarms in your home. Let me start by singing you a song about danger.

Chapter Two **Song:** Danger!

My name is Buzz, I'm a smoke alarm.  
I'm here to keep you safe from harm.  
I always bring my hazard house,  
So come on in and have a browse.

Danger is no stranger  
We can beat it you will see.  
Danger is no stranger  
Come along and learn with me.

There are many hazards here.  
Might hurt the family you hold dear.  
Power cords are old and frayed.  
Appliances near water lay.

Danger is no stranger  
We can beat it you will see.  
Danger is no stranger  
Check your home most carefully.

Hazards we have seen my friends.  
Prevention upon you depends.  
Don't you fret and don't you frown.  
Find those hazards. Take them down!

Danger is no stranger  
We will beat it you will see.  
Danger is no stranger  
What you know can be the key.

Danger is no stranger  
We can beat it you will see.

Danger is no stranger  
Learn this and be hazard free!

**Smoke Alarm:** Did you know that most house fires happen at night? You may think a fire will wake you up, but the poisonous fumes from smoke and fire will cause you to sleep more deeply. That's why you need me! Smoke alarms help wake you up if there is a fire, keeping you safe from injury or worse.

Smoke alarms save lives, but only if they are properly installed and you take care of them. Let me teach you some ways to take care of the smoke alarms in your house.

**Song:** I'm a Cool Kid!

Alright!  
Do you want to be cool?  
I'll tell you how,  
Right now.

What do you do with a friend like me?  
Put one in every room  
You may need two or three.

One time a month test my battery.  
Change them twice a year.  
Save my energy.

I'm a cool kid  
Hear the beep from my alarm.  
Wake from sleep. Keep safe from harm.  
Stay cool kid!

I'm a cool kid  
Hear the beep from my alarm.  
Wake from sleep. Keep safe from harm.  
Stay cool kid!  
Keep cool kid!

When I smell smoke  
I will alarm you.  
Nothing hot will harm you  
If you clean me frequently.

Don't use my battery  
In your favorite toy.  
I need my batteries  
To warn every girl and boy.

I'm a cool kid  
Hear the beep from my alarm.  
Wake from sleep. Keep safe from harm.  
Stay cool kid!

I'm a cool kid  
Hear the beep from my alarm.  
Wake from sleep. Keep safe from harm.  
Stay cool kid!  
Keep cool kid!

I'm a cool kid  
Hear the beep from my alarm.  
Wake from sleep. Keep safe from harm.  
Stay cool kid!

I'm a cool kid  
Hear the beep from my alarm.  
Wake from sleep. Keep safe from harm.  
Stay cool kid!  
Keep cool kid!

**Smoke Alarm:** Hey, are you a cool kid? It is very important to have smoke alarms. Do you have smoke alarms in your home? If you don't you should get some right away. Smoke rises, so when you install a smoke alarm it should be up high, on the ceiling or wall. Be sure to read and follow the manufacturers instructions for installing your smoke alarm.

Once you have your smoke alarm in place, keep it clean. Dust can build up and clog the openings on the smoke alarm; increasing the time it takes for it to smell smoke. That would give you less time to recognize the fire and get out! So, clean the smoke alarm each month, when you check the battery. Paint is like dust, it will also clog your smoke alarm. If someone paints your home, remind them not to paint the smoke alarm. Smoke alarms run on batteries, and batteries don't last forever! Be sure to test your smoke alarm once a month, and replace the batteries twice a year, or every six months. Without a battery a smoke alarm is useless. Never 'borrow' the battery from your smoke alarm to use it in a toy or other device. People think they will remember to replace a 'borrowed' battery, but they usually don't.

It is important to have a smoke alarm on every level of your home; upstairs, on the main floor, and in the basement. Also, do not put smoke alarms where they will sound when there is no fire danger, like in the furnace room, bathroom, kitchen, or garage. Steam, fumes, or automobile exhaust can cause smoke alarms to go off even when there is no fire danger. Place smoke alarms near these rooms, instead of in them.

If you follow these simple rules to maintain your smoke alarm, it might just save the life of someone you love.

**Song:** Safety is Cool!

When you wake up in the morning  
And you get out of bed  
Won't you listen to these safety tips?  
Just dancin' through your head.

Remember to think safety,  
Safety now is cool!  
Yes, it's cool.

When you're in your room or bathroom  
Or just walkin' down the hall  
Pick up your clothes and toys  
Don't drive your parents up the wall.

Pickin' up is part of safety,  
'Cause safety now is cool!  
Oh yes it is!

Now lots of things can catch on fire  
So keep them far away  
From any source of heat or flame  
Let's play it safe today.

Respect that heat and fire,  
'Cause safety now is cool!  
Yeah! Yeah!

Be careful in the kitchen,  
Yeah and when you use that stove  
And keep those handles turned away  
And burners turned down low.

Be careful now with fire,  
'Cause safety now is cool!  
Oh yes it's cool.

Now when you're home or at your friend's  
Or even at your school  
Remember to think safety, yeah!  
Make it your golden rule.

Any room can be safe, if you know just what to do,  
So be cool,  
Yeah be cool!

Electricity and water  
Should never mix at all

And never plug too many cords  
At once into the wall.

Respect electric power,  
Cause safety now is cool!  
Yes it is.

Now when you wake up in the morning  
And you get out of bed  
Won't you listen to these safety tips?  
Just dancin' through your head.

Remember to think safety,  
Safety now is cool!  
Yeah it's cool!

Remember to think safety,  
Cause safety now is cool.  
So you be cool!

**Smoke Alarm:** Thanks for listening to my important safety message. Remember, be cool and be safe! Bye for now.

**Presenter:** My friend Buzz E. Smoke Alarm has given you some very important fire safety tips. Don't forget to share his advice with your family and friends. Remember: you are the key to fire safety.

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## Don't Play with Matches and Lighters Module

**Presenter:** My name is \_\_\_\_\_. Today we are going to talk about matches and lighters. Matches are used for many important things like lighting the candles on a birthday cake or starting a fire in the fireplace to keep you warm. They can also be used to light the coals in a barbecue grill. The most important thing to remember about matches and lighters is that adults and not children should use them. I have brought a friend along with me today to teach us about this important subject. He is going to start by singing us a song.

**Song:** Danger!

My name is Buzz, I'm a smoke alarm.  
I'm here to keep you safe from harm.  
I always bring my hazard house  
So come on in and have a browse.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Come along and learn with me.

There are many hazards here  
Might hurt the family you hold dear.  
Power cords are old and frayed.  
Appliances near water lay.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
What you know can be the key.

Matches left in baby's reach  
Bad idea, my lessons teach.  
Never leave a heating source,  
With cloth or paper in it's course.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Check your home most carefully.

Hazards we have seen, my friends.  
Prevention upon you depends.  
Don't you fret and don't you frown.



Find those hazards; take them down!

Danger is no stranger.  
We will beat it you will see.  
Danger is no stranger.  
Learn these and be hazard free.

**Smoke Alarm:** Hi! It's me, your friend Buzz E. Smoke Alarm! I'm here to teach you the dangers of matches and lighters. When matches or lighters are used improperly, they can start a house fire or a forest fire and that's not good. A fire can put a lot of lives in danger. If there is a house fire, people and pets could get hurt or even die. Then the fire department would have to be called out. Firemen put their lives in danger every time they have to put out a fire. If someone gets hurt because of a fire, the ambulance will be called and then the police have to be called also, it's a crime to burn a house. All these people could come into harms way just because someone played with matches. Listen boys and girls as I sing you a song about the safety rules for matches and lighters.

**Song:** Matches are Tools

**Verse:**

If no one played with matches or lighters  
We may not need as many fire fighters

**Chorus:**

Matches are tools not toys  
Danger for girls and boys

**Verse:**

If someone is playing with Matches or lighters  
You can be a fire fighter

**Chorus:**

Say matches are tools, not toys  
Danger for girls and boys

Sing matches are tools, not toys  
Danger for girls and boys

**Bridge:**

Say matches are tools not toys  
Danger for girls and boys

**Verse:**

If you're tempted to play with Matches and lighters  
Stop! And be a fire fighter

**Chorus:**

Matches are tools not toys  
Danger for girls and boys

Sing matches are tools not toys  
Danger for girls and boys

Yeah matches are tools not toys  
Danger for girls and boys  
Yeah!

**Smoke Alarm:** Ok, did you hear the part of the song that said, “Matches and lighters are tools not toys!” We need to remind adults and teenagers not to play with matches or lighters **as if they were toys**, especially in front of children. If children see this bad behavior, they may want to copy it and that’s not good either. Adults and teenagers need to set an example on the proper use of matches and lighters. Now repeat after me, **“Matches and lighters are tools not toys!”** One more time **“Matches and lighters are tools not toys!”**

Great! Now children if you happen to find some matches or a lighter, **don’t touch!** Tell an adult immediately. Leave them where you found them and find a responsible person quickly. Tell them where you saw them.

Adults should make sure matches and lighters are kept out of the reach of children. This is the first step in preventing a disaster. The best place to place them is up high in the cupboards or in a locked drawer.

Some smokers will have their matches or lighters near by, even while taking a nap in an easy chair, on the couch, or in bed. They need to put them away or buy a child proof lighter. Another thing, kids if you see an adult smoking and they are starting to fall asleep, remind them that a lot of house fires are started by smokers falling asleep with a lighted cigarette.

It takes only three things to start a fire, number one **Heat**- from a lit cigarette or a burning match; number two, **Fuel**- anything that will burn; number three, **Oxygen**-the air we breathe. All three of these, heat, fuel, and oxygen are known as the fire triangle. In a fire triangle these three things must be present together for a fire to start.

Now boys and girls tomorrow when you wake up in the morning, remember “Matches and lighters are tools not toys.” Be safe, be cool!

**Song:** I’m A Cool Kid!

Alright  
Do you want to be cool?  
I’ll tell you how  
Right now.

What do you do  
With a friend like me?  
Put one in every room—

You may need  
Two or three.

One time a month  
Test my battery.  
Change them twice a year,  
Save my energy.

**Chorus:**

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm.  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.  
Keep cool kid!

**Verse 2:**

When I smell smoke  
I will alarm you.  
Nothing hot will harm you  
If you clean me frequently.

Don't use my battery  
In your favorite toy.  
I need my batteries  
To warn every girl and boy.

**Chorus:**

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

Keep cool kid!

***Repeat Chorus***

**Presenter:** The things you have been told today are crucial. Remember these lessons. Do your part for fire safety. Parents, talk to your children about how dangerous fire can be and how they can help prevent fires. The only way to protect our families is by learning the rules and applying them in our lives. Thanks for listening. Remember: What **you** know is the key to being safe at home.

## Call 911 Module

**Presenter:** I'm \_\_\_\_\_. We're going to talk about using your telephone to call for help when there is an emergency. I'm going to count to three and any of you who know what number to call when there is an emergency can say it all together. One, two, three. That's right 911. I brought my friend, Buzz E. Smoke Alarm, along to help me teach you some important rules to follow when you call 911. Let's listen to him.

### **Song:** Danger!

My name is Buzz, I'm a smoke alarm.  
I'm here to keep you safe from harm.  
I always bring my hazard house  
So come on in and have a browse.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Come along and learn with me.

There are many hazards here  
Might hurt the family you hold dear.  
Power cords are old and frayed.  
Appliances near water lay.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
What you know can be the key.

Matches left in baby's reach  
Bad idea, my lessons teach.  
Never leave a heating source,  
With cloth or paper in it's course.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Check your home most carefully.

Hazards we have seen, my friends.  
Prevention upon you depends.  
Don't you fret and don't you frown.  
Find those hazards; take them down!

Danger is no stranger.

We will beat it you will see.  
Danger is no stranger.  
Learn these and be hazard free.

**Smoke Alarm:** Hi! I'm Buzz E. Smoke Alarm and I'm going help you learn how to use 911 when there is an emergency. An emergency happens any time a person's life is in danger and they might die if they don't receive help quickly.

Let me give you some examples of what an emergency is.

- If you see someone breaking into a house, to steal something, dial 911
- If you see someone getting an electrical shock while trying to untangle a kite from electrical wires, dial 911.
- If you see a house on fire or a serious car accident, call 911.
- If someone has a heart attack or other serious illness that might cause them to die, dial 911.

Many accidents or illnesses are not emergencies. A bump, a bruise, or a small cut is not life threatening. If you're not sure, you should call 911. Children can ask a responsible adult for help.

Here's a song that will help you understand when and how you should dial 911.

**Song:** Call 911

**Verse:**

If you are in trouble. Get help on the double!  
In the car, at home, at work  
Pick up the telephone.

**Bridge:**

Even though you're little, you can help out too  
Speak clearly on the telephone. They'll tell you what to do.

**Chorus:**

Call 911, Call 911  
Tell them your name. Tell them where you live.  
Stay on the line. Take the time  
Call 911, Call 911

**Verse:**

If you sense there's danger, if you're all alone  
If there's someone in need of help  
Pick up the telephone

**Bridge:**

Even though you're little, you can help out too.  
Speak clearly on the telephone. They'll tell you what to do

**Chorus:**

Call 911, Call 911

Tell them your name. Tell them where you live.

Stay on the line. Take the time

Call 911, Call 911

**Chorus fades**

**Smoke Alarm:** When you call 911 a person called an operator will answer. They will ask you to tell them some important information. Stay on the phone until the operator tells you it is okay to hang up.

If you call about a fire, the operator will call the fire department. If you report a crime being committed, the operator will call the police. If you tell them about someone who has been hurt in an accident or who is having a heart attack, an ambulance will be called.

When you phone 911 remember to stay calm and follow these simple rules, so help can arrive quickly.

- Memorize your address and phone number (including the area code), before there is an emergency. Be sure you know your first and last name.
- Speak loudly and clearly so you can be understood by the operator.
- Tell the operator you have an emergency and what kind of emergency it is.
- Stay calm and answer all the questions the operator asks you.
- Don't hang up until the operator says it's okay. If the emergency allows, the operator will keep you on the phone until help arrives.
- If you have to hang up, and the emergency is taken care of before help arrives, call 911 again and tell the operator help is no longer needed.

I'm going to demonstrate what happens when you call 911 in an emergency, so you'll know just what to do. Never call 911 unless it is a real emergency.

(Dial tone, sound of number being dialed.)

**Operator:** 911, where is your emergency?

**Buzz:** 250 Hazard Lane, Fire Safety City.

**Operator:** What's the problem?

**Buzz:** My house is on fire!

**Operator:** What is your name?

**Buzz:** My name is Buzz E. Smoke Alarm.

**Operator:** What is your phone number?

**Buzz:** 555-123-3473.

**Operator:** Stay on the line while I contact the fire department. (Pause)

Can you tell me how the fire started?

**Buzz:** It started on the stove while I was cooking dinner. (Pause)

Thank-you, Buzz. Help is on the way.

Tell me when you see the fire truck.

**Buzz:** (Pause) I see the fire truck now.

**Operator:** Thanks Buzz. It's okay to hang up now.

**Song:** I'm A Cool Kid!

Alright  
Do you want to be cool?  
I'll tell you how  
Right now.

What do you do  
With a friend like me?  
Put one in every room—  
You may need  
Two or three.

One time a month  
Test my battery.  
Change them twice a year,  
Save my energy.

**Chorus:**

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm.  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.  
Keep cool kid!

**Verse 2:**

When I smell smoke  
I will alarm you.  
Nothing hot will harm you  
If you clean me frequently.

Don't use my battery  
In your favorite toy.  
I need my batteries  
To warn every girl and boy.

**Chorus:**



I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.  
Keep cool kid!

### **Repeat Chorus**

**Presenter:** Buzz reviewed some important rules with you today. Share them with a friend. Go home and tell your parents what you learned. Remember: What you know is the key to being safe.

## Holiday Hazards Module

**Presenter:** Hello, I'm \_\_\_\_\_. I'd like to talk to you about some safety tips that can help you prevent accidents during holidays and other special celebrations. If you follow these guidelines, you're more likely to have fun, because you'll be safe. I brought my friend, Buzz E. Smoke Alarm, to help me. Let's hear what he has to say.

**Song:** Danger!

My name is Buzz, I'm a smoke alarm.  
I'm here to keep you safe from harm.  
I always bring my hazard house  
So come on in and have a browse.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Come along and learn with me.

There are many hazards here  
Might hurt the family you hold dear.  
Power cords are old and frayed.  
Appliances near water lay.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
What you know can be the key.

Matches left in baby's reach  
Bad idea, my lessons teach.  
Never leave a heating source,  
With cloth or paper in it's course.

Danger is no stranger.  
We can beat it you will see.  
Danger is no stranger.  
Check your home most carefully.

Hazards we have seen, my friends.  
Prevention upon you depends.  
Don't you fret and don't you frown.  
Find those hazards; take them down!

Danger is no stranger.  
We will beat it you will see.  
Danger is no stranger.  
Learn these and be hazard free.

**Smoke Alarm:** Hi, my name is Buzz E. Smoke Alarm and I'm here to talk to you about safety during holidays and special celebrations. Holidays and special occasions are times we like to get together with family and friends in our homes, churches and other special places. Here are some tips to help you enjoy your time together more.

Did you know there is a law that limits how many people can gather in public places like libraries, restaurants and theaters? If there is an emergency and too many people are in a room, they could be hurt or trampled to death if they all try to get out of the room or building at the same time. That's why there are signs in public gathering places stating how many people can be there.

You should always look for the exit signs in a public room or building so you'll know how to leave quickly in an emergency. Exits should not be blocked or locked. If you notice an exit that is, let an adult know

When you celebrate at home, having a fire extinguisher and knowing where it is located is also very important.

Now let's talk about candles. Candles are beautiful symbols and decorations used for many holidays and special celebrations—like Chinese New Year, Hanukkah, Christmas, weddings, and birthday parties. If you'll follow these tips, it's less likely they will start a fire. The flame and the melted wax from burning candles are hot, and can burn you. So don't touch them. Never leave a burning candle unattended. Don't leave cloth or paper decorations near a burning flame. When you have an outdoor celebration, be sure the wind cannot blow the decorations into the flame. A candle flame should not touch any glass surface. The glass could get too hot and burn someone if they touched it. Candles in jack-o-lanterns can be fire hazards too. If someone's costume brushes the flame, or the jack-o-lantern is knocked over, a fire could start. Parents, remember that a flashlight or electric light is safer. Don't use a lit candle as a flash light; if you trip or drop it, you might start a fire.

Fireworks, electric decorations, and extension cords can also be fire hazards. Be careful with these.

I love to watch fireworks! But I want to know that the people who use them follow these sixteen rules—then everyone involved in the celebration will be safe.

**One:** always read and follow label directions on fireworks.

**Two:** Have an adult present.

**Three:** Buy from reliable sellers.

**Four:** Always have water handy; if a bottle rocket or a misguided firecracker starts a grass fire, be prepared to put it out with a garden hose or a bucket of water.

**Five:** Use fireworks outside only.

**Six:** Light only one firework at a time.

**Seven:** Never re-light fireworks.

**Eight:** Never give fireworks to small children.

**Nine:** Never experiment with or make your own fireworks. Many children and adults have lost eyes or fingers experimenting with fireworks.

**Rule number ten:** If you must store fireworks put them in a cool, dry place.

**Number eleven:** Dispose of fireworks properly by soaking them in water and then putting them in your trash can.

**Twelve:** Never throw or point fireworks at other people.

**Thirteen:** Dud fireworks could go off without warning, never pick them up. Use a shovel to put the fireworks in a bucket of water to dispose of them.

**Fourteen:** Never set off fireworks in metal or glass container.

**Number fifteen:** The shooter should always wear eye protection and never have any part of the body over the fireworks.

And finally,

**Rule number sixteen:** Stay away from illegal fireworks; there is a reason they are illegal--they are dangerous.

For many holidays or celebrations, we use lights-- on or around trees, roofs, doors or windows, and in our yards and driveways.

Because we use so many lights at one time, sometimes we overload the power outlets in our homes! That's a fire waiting to happen.

There are lights and cords made especially to be used outdoors. Use only approved outdoor lights and electrical cords outside. Make sure the electrical cords stay dry by keeping them away from snow or water puddles. Don't use indoor extension cords outdoors.

Remind small children to never touch electrical lights. The lights can be hot and may burn them. Parents, turn off decorative lights before going to bed.

If your family has a Christmas tree, keep it watered, because a dried tree is a fire waiting to happen.

Here's a song to help you remember some of these holiday safety tips.

**Song:** Holiday Safety Tips

**Chorus:**

All the seasons can be fun  
Holidays are number one  
So here is a list  
Check it twice  
Got to find out  
If we're doing what's right.

**Verse:**

Don't touch candles  
Or the lights  
Throwing snowballs is naughty,  
Not nice  
Pick up the gifts  
So no one trips  
These are just a few  
Safety tips!

Mistletoe doesn't go in your mouth  
Sledding in the road  
Has got to be out  
On Halloween,  
Make sure you're seen!  
Be nice not naughty!  
Be thoughtful not mean!

**Chorus:**

All the seasons can be fun  
Holidays are number one  
So here is a list  
Check it twice  
Got to find out  
If we're doing what's right!

**Optional verses:**

We all like to see outside lights  
If the weather is cold,  
There might be ice  
Make sure to use protected cords  
Be extra careful when  
Walking outdoors

Fireworks are nice to see  
But they can be a danger  
To you and me  
When grass is dry  
Keep them high  
Fireworks can burn  
Your hands or your eyes

**Chorus:**

All the seasons can be fun  
Holidays are number one  
So here is a list  
Check it twice  
Got to find out  
If we're doing what's right!

**Smoke Alarm:** That song is a fun way to remember some holiday safety tips. We've talked about a lot of things that can be safety hazards during holidays or special celebrations. There are three more kinds of holiday hazards I want to talk to you about.

Here are some tips especially for children:

You may not think a toy could be a safety hazard, but if you don't put them away in a safe place after you open them and play with them, they could be. If you leave them in a doorway, in the middle of a room, or in places where people walk a lot, someone might trip over toys and fall and hurt themselves. That person might even be you—and the toy would be ruined as well!

Costumes are another thing we don't usually think of as a hazard. People wear costumes for theatrical productions, and for all kinds of parties. Halloween, New Year's, Mardi Gras, and weddings, to name a few. When you go shopping for a costume shopping or have one made make sure the fabric is fire resistant. Fire resistant fabric has a chemical in it to help keep fire from burning as quickly.

Make sure your costume fits you; if it's too long, or loose, you might trip on it and fall. If you are wearing a mask, be sure it does not block your sight. You need to see where you are going!

If you'll be walking in the dark, your costume should also have some reflectors, so you can be seen by drivers. Carry a flashlight as well, so you can where you are going, and avoid accidents.

The last hazard I want to warn you of is candy. Yes, candy! When someone gives you a gift of candy, especially at Halloween time it's important to have your parents or guardians check it to make sure it's safe. We want you to be safe and we want you to be cool!

**Song:** I'm A Cool Kid!

Alright  
Do you want to be cool?  
I'll tell you how  
Right now.

What do you do  
With a friend like me?  
Put one in every room  
You may need  
Two or three.

One time a month  
Test my battery.  
Change them twice a year,  
Save my energy.

**Chorus:**

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm.  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.  
Keep cool kid!

**Verse 2:**

When I smell smoke  
I will alarm you.  
Nothing hot will harm you  
If you clean me frequently.

Don't use my battery  
In your favorite toy.  
I need my batteries  
To warn every girl and boy.

**Chorus:**

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.

I'm a cool kid  
Hear the beep  
From my alarm  
Wake from sleep  
Keep safe from harm.  
Stay cool kid.  
Keep cool kid!

**Repeat Chorus**

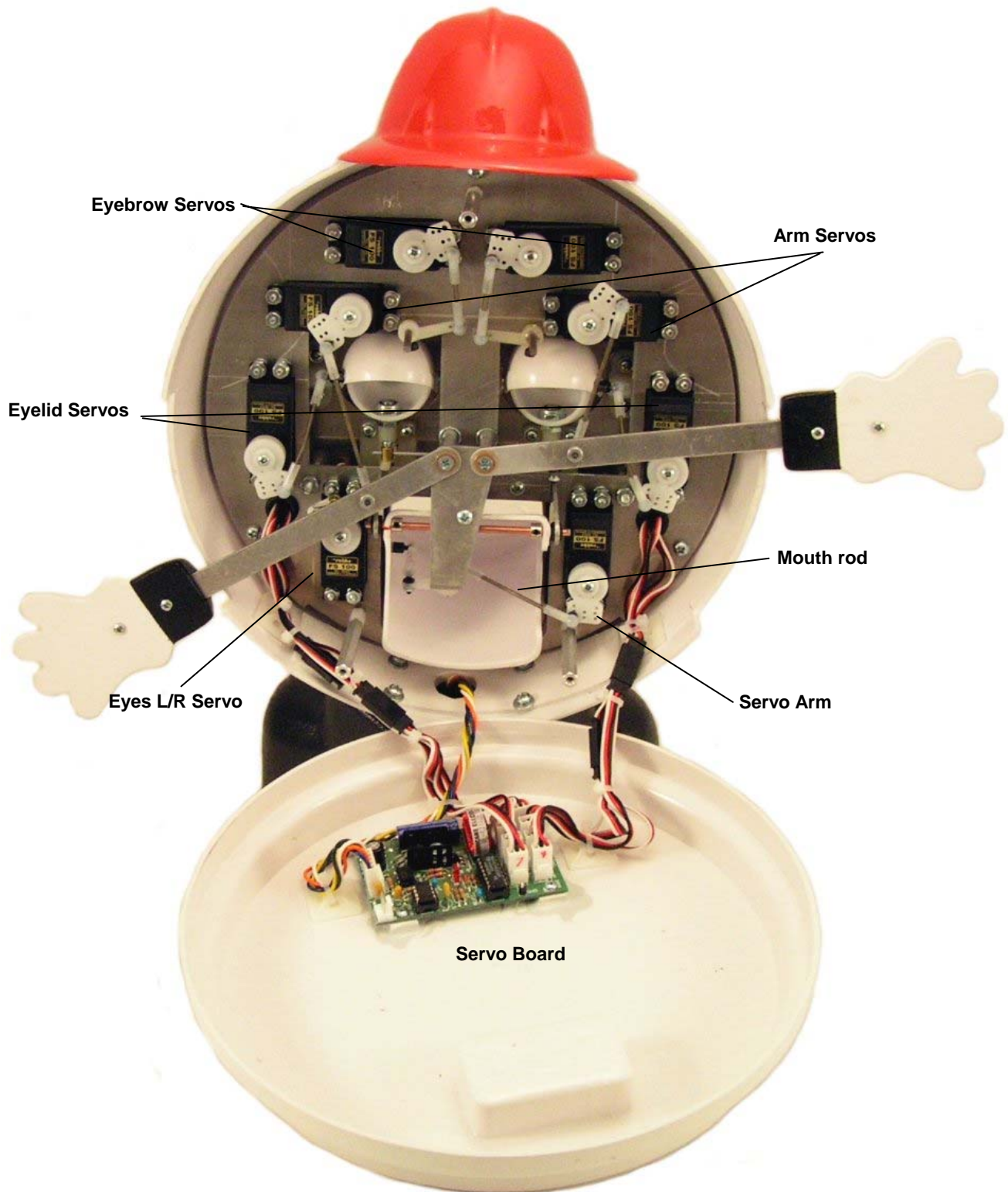
**Presenter:** I hope you enjoyed visiting with my friend, Buzz. He shared some real important points. Try to keep them in mind as you celebrate holidays and other special events. Remember: What you know is the key to being safe. Thanks for letting us visit with you today.

## **APPENDIX B**

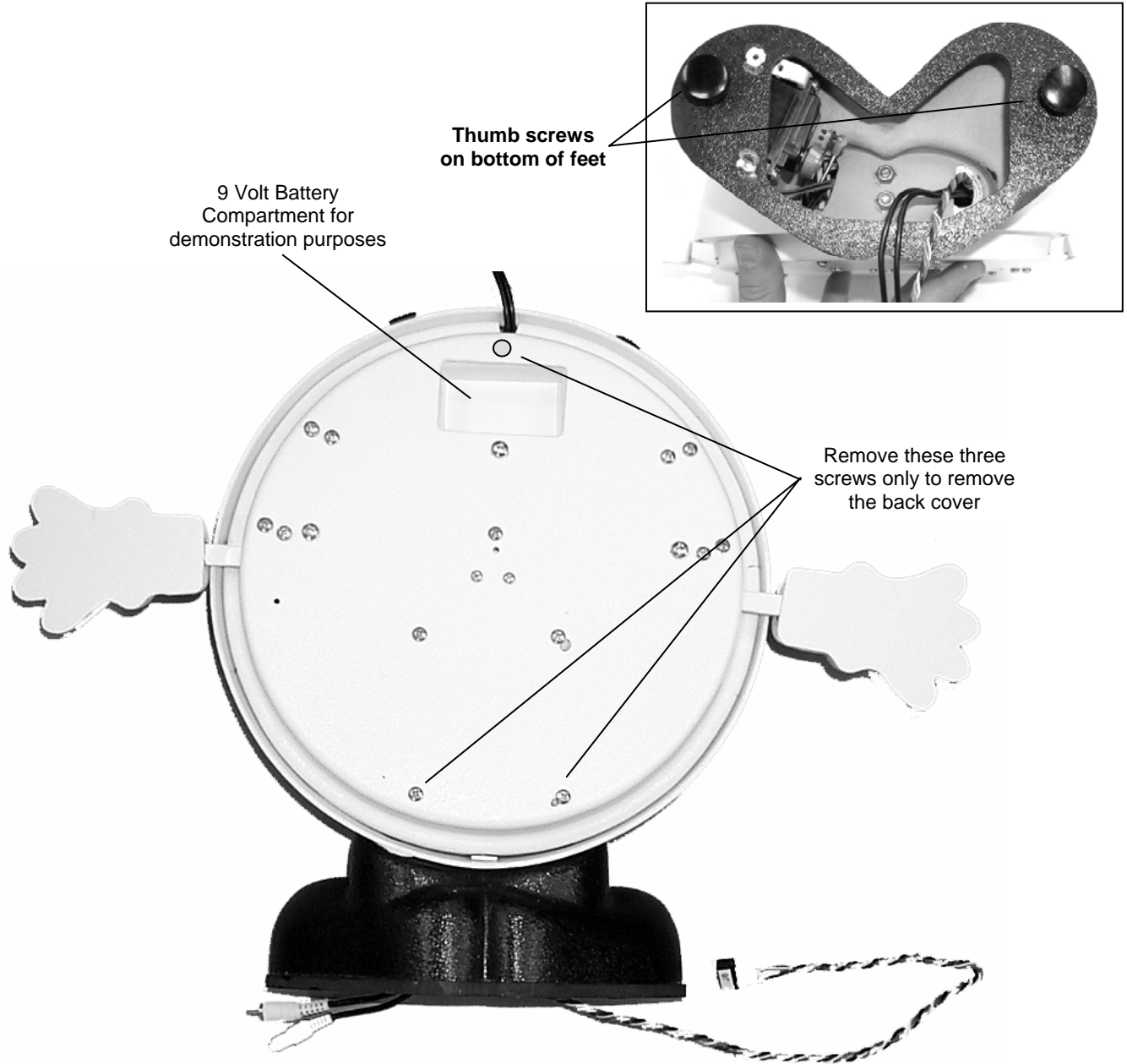
# **Robot Parts Identification**



# Smoke Alarm Inside View

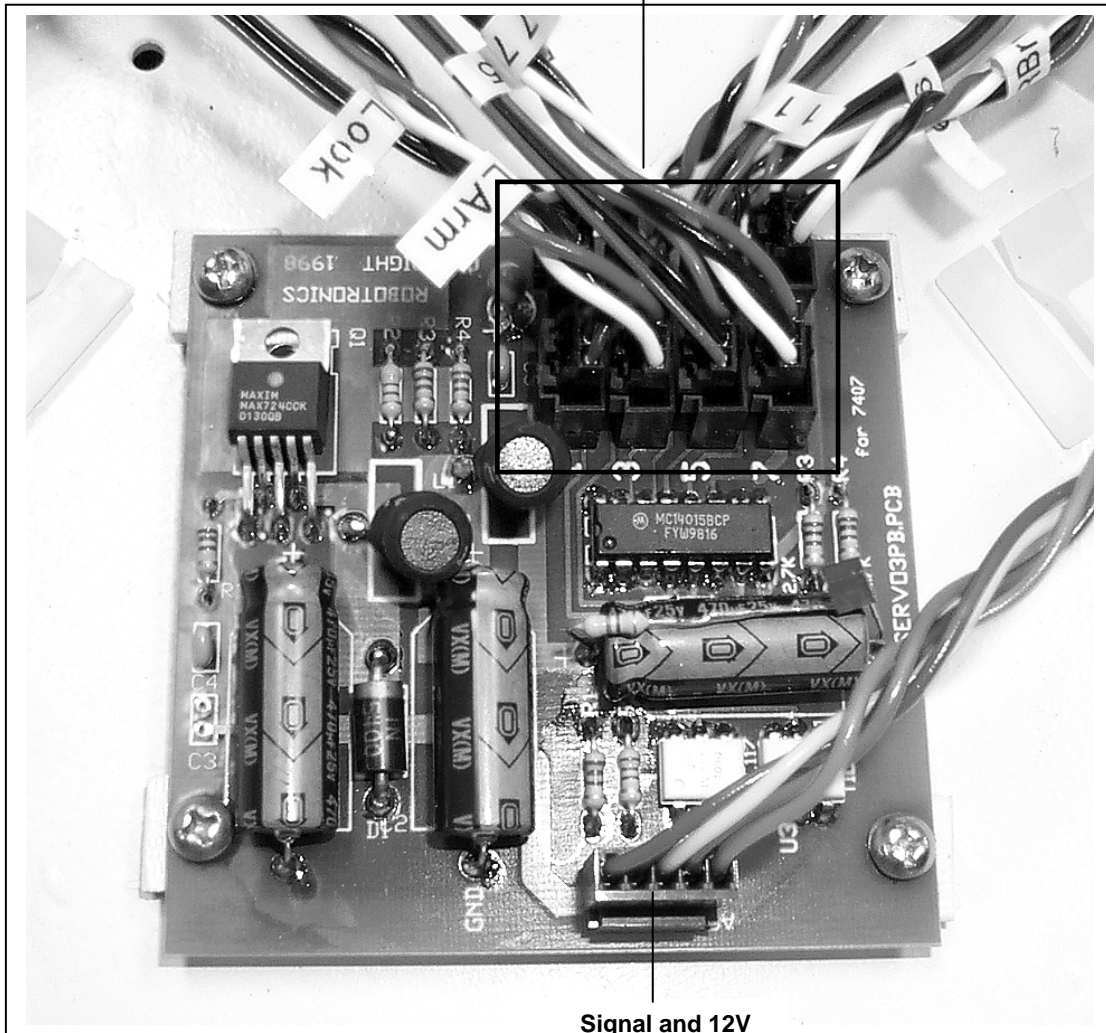


# Smoke Alarm Back View



# Smoke Alarm Servo Board

Servo Outputs to Servo  
Motors in the Smoke  
Alarm



Signal and 12V  
Power Input

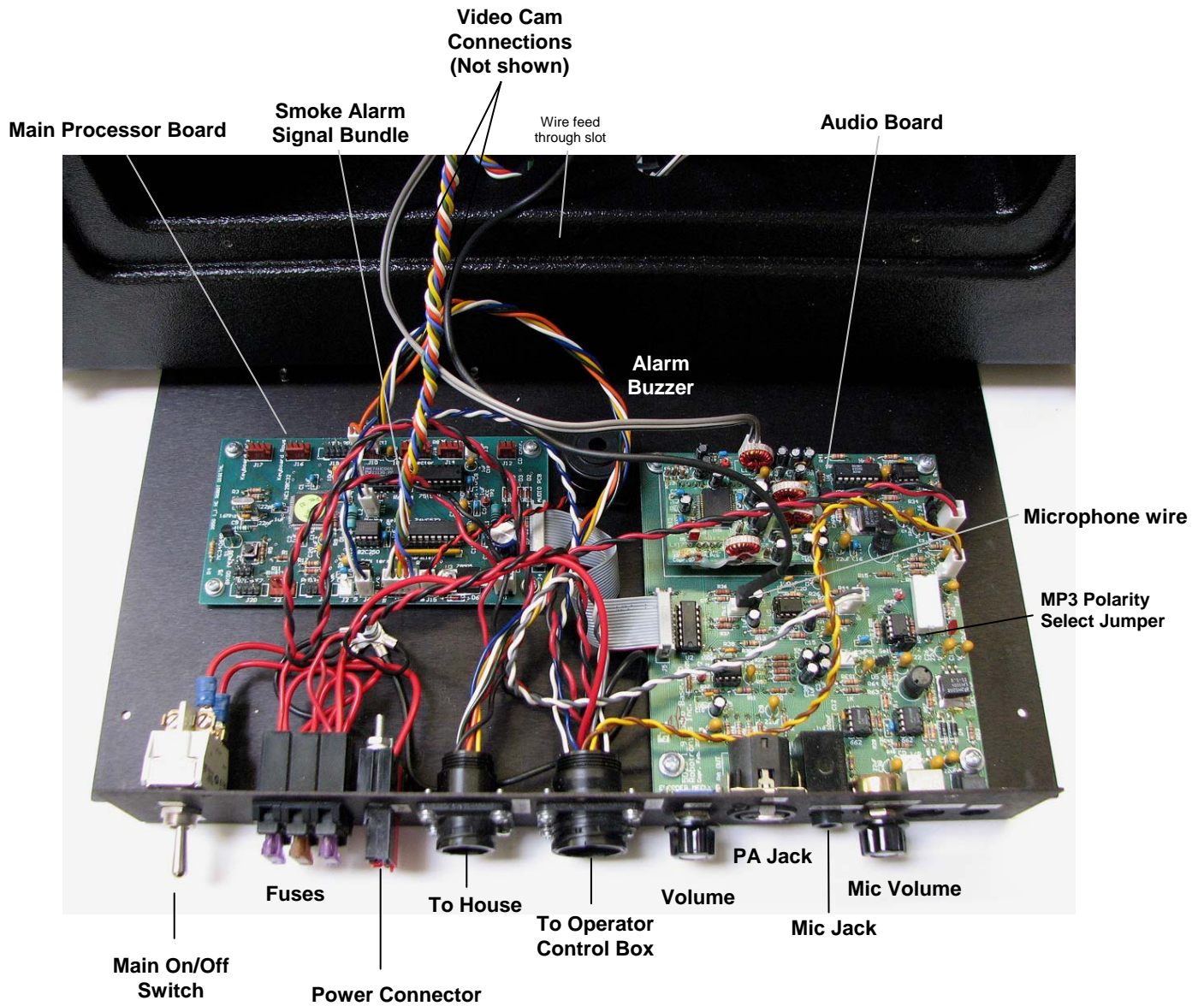
## Output Assignments to Servos

1. Mouth
2. Eyes Left/Right
3. Left Arm
4. Right Arm
5. Left Eyelid
6. Right Eyelid
7. Left Eyebrow
8. Right Eyebrow

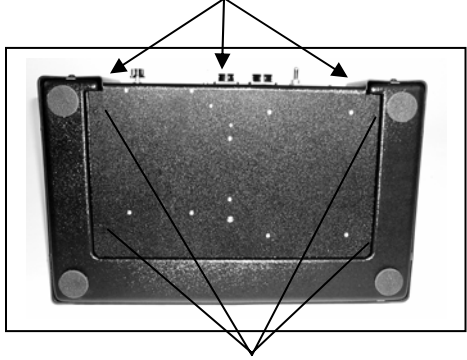


New servo  
board

# Base Unit Electronics

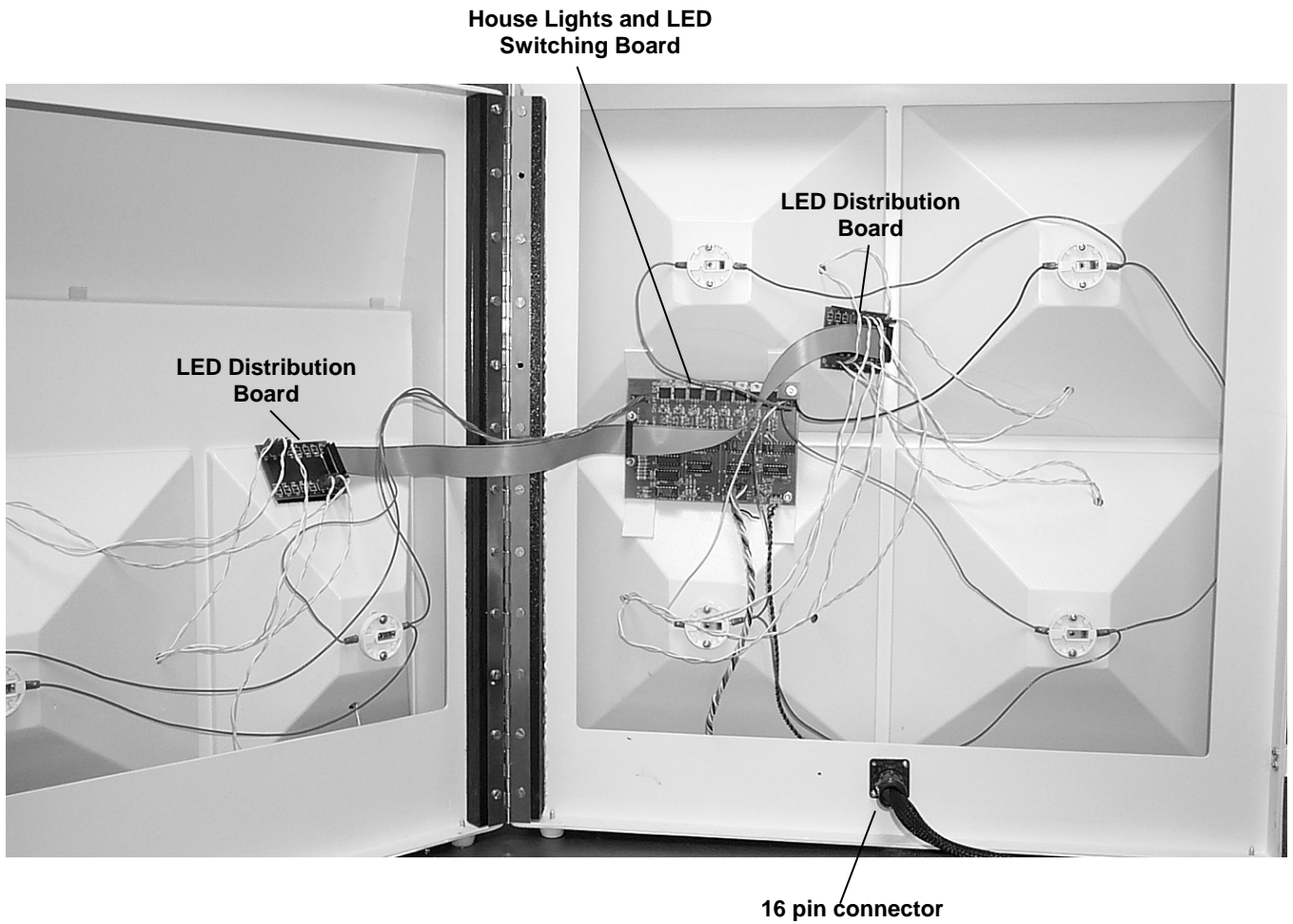


**MP3 Polarity Select Jumper**  
 This Jumper allows you to change the signal polarity if you need to change the brand of MP3 player you are using. Some MP3 players have a different signal polarity.

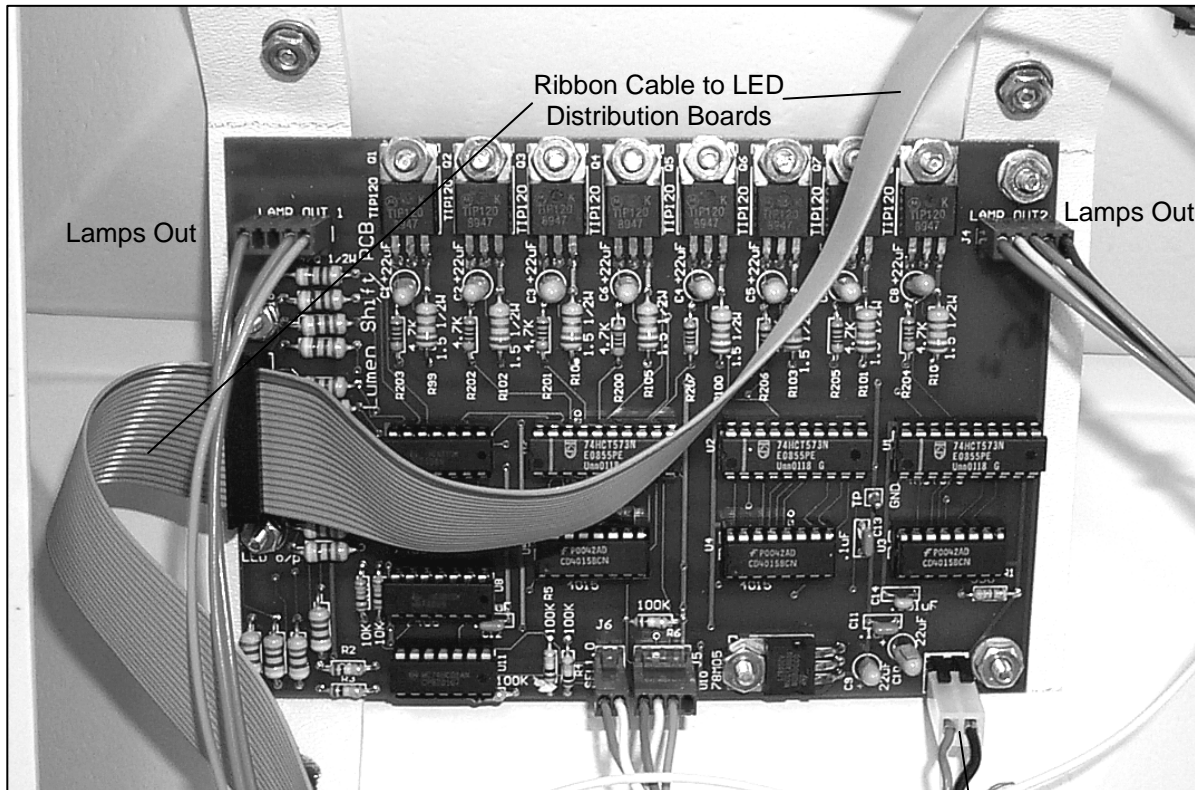


Bottom view with screw locations to remove L plate

# House Back Inside View



# House Lights Switching Board



Lamps Out

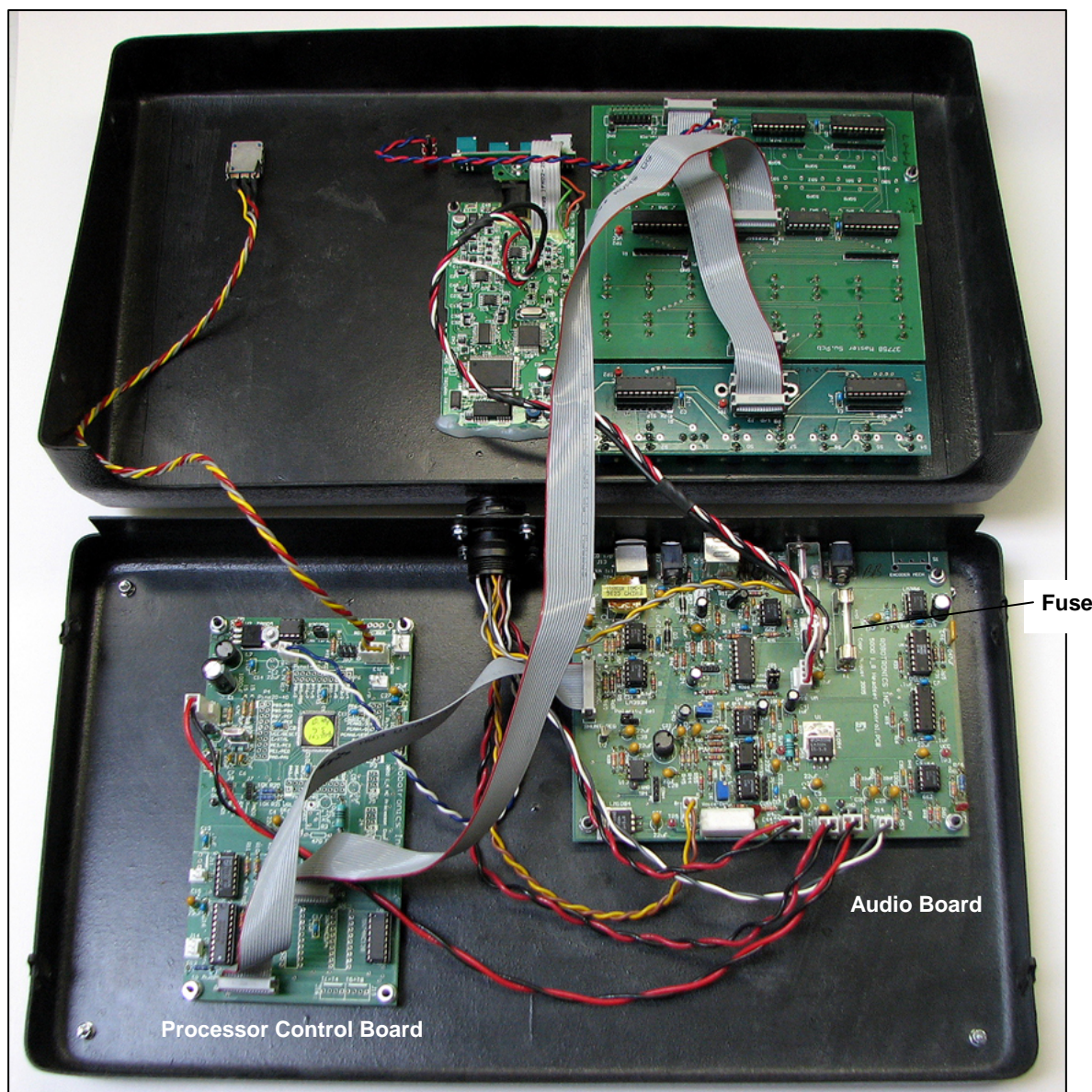
Ribbon Cable to LED  
Distribution Boards

Lamps Out

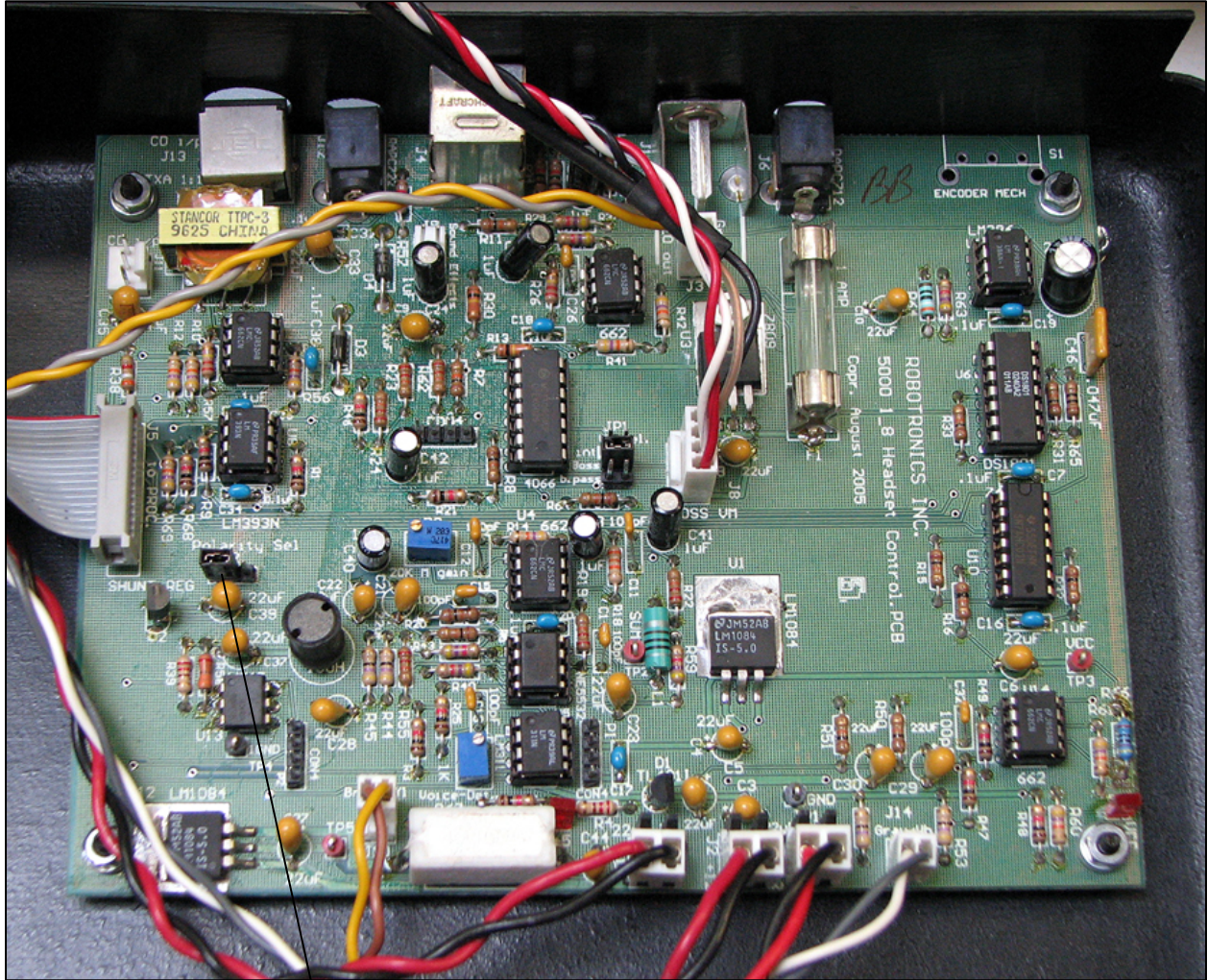
Signals In

12 Volt  
Power

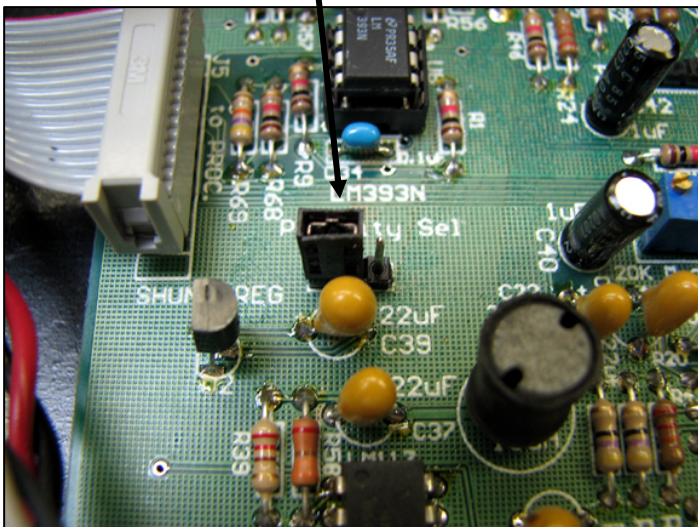
# Operator Control Box Inside View



# Control Box Audio Board



**MP3 Polarity Select Jumper**



## **MP3 Polarity Select Jumper**

This Jumper allows you to change the signal polarity if you need to change the brand of MP3 player you are using. Some MP3 players have a different signal polarity.



# Fuse Block Detail

## Base Unit Fuse Block (ATO Type Fuses)



Fuse Block

**The Power to the fuse block comes from the main switch.**

**Fuse 1 (3 Amp) Base Unit Power** – All base circuit boards and Buzz.

**Fuse 2 (5 Amp) House Power** – Lights and LED circuit boards.

**Fuse 3 (3 Amp) Control Box Power** – Audio and processor board in the control box.

# Notes

# Technical Tips