CONTENTS:

INSTALLATION & OPERATION MANUAL

MODEL 3951
MOTORCYCLE SIREN

Code 3, Inc., a subsidiary of
Public Safety Equipment, Inc.

CODE 3 INC.
PUBLIC SAFETY EQUIPMENT, INC.

MODEL 3951 SIREN

Contents:

IMPORTANT: *Read all instructions and warnings before installing and using.*
INSTALLER *This manual must be delivered to the end user of this equipment.*

Introduction

The Model 3951 siren has been designed to meet the special needs of motorcycle applications. This series of sirens incorporates a rugged steel enclosure along with microprocessor based circuitry and MOSFET technology. Advanced features such as **Instant "ON", Scroll,** and more, make the 3951 siren extremely versatile.

WARNING!

Sirens are an integral part of an effective audio/visual emergency warning system. However, sirens are only short range secondary warning devices. The use of a siren does not insure that all drivers can or will observe or react to an emergency warning signal, particularly at long distances or when either vehicle is traveling at a high rate of speed. Sirens should only be used in a combination with effective warning lights and never relied upon as a sole warning signal. Never take the right of way for granted. It is your responsibility to be sure you can proceed safely before entering an intersection, driving against traffic, or responding at a high rate of speed.

The effectiveness of this warning device is highly dependent upon correct mounting and wiring. Read and follow the manufacturer's instructions before installing or using this device. The vehicle operator should check the equipment daily to insure that all features of the device operate correctly.

To be effective, sirens must produce high sound levels that potentially can inflict hearing damage. Installers should be warned to wear hearing protection, clear bystanders from the area and not to operate the siren indoors during testing. Vehicle operators and occupants should assess their exposure to siren noise and determine what steps, such as consultation with professionals or use of hearing protection should be implemented to protect their hearing.

This equipment is intended for use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should check all applicable city, state and federal laws and regulations.

Public Safety Equipment, Inc., assumes no liability for any loss resulting from the use of this warning device.

Proper installation is vital to the performance of the siren and the safe operation of the emergency vehicle. It is important to recognize that the operator of the emergency vehicle is under psychological and physiological stress caused by the emergency situation. The siren system should be installed in such a manner as to: A) Not reduce the acoustical performance of the system, B) Limit as much as practical the noise level in the passenger compartment of the vehicle, C) Place the controls within convenient reach of the operator so that he can operate the system without losing eye contact with the roadway.

Emergency warning devices often require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.

PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.

Standard Features

The Model 3951 siren is a highly integrated siren amplifier designed to be operated via user supplied control switches and common microphone interface. The following features are standard on Model 3951 sirens:

Siren Tones - Industry standard Wail, Yelp, and HyperYelp tones.

AIR HORN Tone - Electronic AIR HORN sound.

Instant-On- There is no " ON/OFF " switch. Selecting any siren function, or pressing the Push To Talk (PTT) switch on the user supplied common microphone interface will activate the siren in the appropriate mode, assuming the siren is connected to a source of +12V and the vehicle's ignition switch is on.

Scroll - A momentary positive signal applied to this input from a user supplied switch will cause to siren to activate. The siren will scroll to the next tone each time the switch is tapped. Holding the scroll switch will cause to siren to switch to Standby mode.

Wail - A continuous positive signal applied to this input from a user supplied switch will cause to siren to activate in wail mode for as long as the switch remains in the on position.

Airhorn - A continuous positive signal applied to this input from a user supplied switch will cause to siren to generate the Airhorn signal for as long as the switch remains in the on position.

Instant Public Address - Public Address override of all siren functions when the motorcycle Push-to-Talk (PTT) key is pressed while the user supplied common microphone interface is set to PA mode.

Radio Rebroadcast - Broadcasts Two-way radio reception over siren speakers. These inputs are transformer coupled to prevent loading of the radio.

InterClear® - This unique feature can be used to activate additional warning lights for 7 seconds, each time the siren mode is changed using either the control switches or the vehicle horn ring, thus allowing an additional level of warning in situations such as intersections without the operator having to take his hands off the wheel or his eyes off the road.

Automatic Short Circuit Protection- The siren will sense a short circuit on the speaker terminals and automatically go to standby until the fault is removed. Once the fault is removed the siren will return to normal operation.

Unpacking & Pre-installation

After unpacking your 3951 series siren, carefully inspect the unit and associated parts for any damage that may have been caused in transit. Report any damage to the carrier immediately.

Installation & Mounting

The 3951 series siren is designed to be mounted in the 2-way radio case or other weather protected area. Ease of operation and convenience to the operator should be the prime consideration when mounting the siren and controls.

WARNING!

All devices should be mounted in accordance with the manufacturer's instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Ease of operation and convenience to the operator should be the prime consideration when mounting the siren and controls. Adjust the mounting angle to allow maximum operator visibility. Do not mount the Control Head Module in a location that will obstruct the drivers view. Mount the microphone clip in a convenient location to allow the operator easy access. Devices should be mounted only in locations that conform to their SAE identification code as described in SAE Standard J1849. For example, electronics designed for interior mounting should not be placed underhood, etc.

Controls should be placed within convenient reach* of the driver or if intended for two person operation the driver and/or passenger. In some vehicles, multiple control switches and/or using methods such as "horn ring transfer" which utilizes the vehicle horn switch to toggle between siren tones may be necessary for convenient operation from two positions.

**Convenient reach is defined as the ability of the operator of the siren systems to manipulate the controls from his normal driving/riding position without excessive movement away from the seat back of loss of eve contact with the roadway.*

NOTE: Set-ups and adjustments will be made in subsequent steps, this will require access to both the front and rear of the unit. Plan the installation and wiring accordingly.

Connections (see Figure 1), motorcycle wiring harness.

Speaker - Connect to 100W (11 ohm) speaker leads.

IGNITION - Connect (18 AWG wire) to the motorcycle's ignition switch so that +12VDC is applied to this wire only when the ignition switch is in the ON position.

+12V - Connect (14 AWG wire) to a positive +12 volt DC source. It is recommended that the user protect this wire with a 10 Amp fuse or circuit breaker located at the source.

WARNING!

Larger wires and tight connections will provide longer service life for components. For high current wires it is highly recommended that terminal blocks or soldered connections be used with shrink tubing to protect the connections. Do not use insulation displacement connectors (e.g. 3M®) Scotchlock type connectors). Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. High ambient temperatures (e.g. underhood) will significantly reduce the current carrying capacity of wires, fuses, and circuit breakers. Use "SXL" type wire in engine compartment. All wiring should conform to the minimum wire size and other recommendations of the manufacturer and be protected from moving parts and hot surfaces. Looms, grommets, cable ties, and similar installation hardware should be used to anchor and protect all wiring.

Fuses or circuit breakers should be located as close to the power takeoff points as possible and properly sized to protect the wiring and devices. Particular attention should be paid to the location and method of making electrical connections and splices to protect these points from corrosion and loss of conductivity. Ground (Earth) terminations should only be made to substantial chassis components, preferably directly to the vehicle battery.

The user should install a circuit breaker sized to approximately 125% of the maximum Amp capacity in the supply line to protect against short circuits. For example, a 30 Amp circuit breaker should carry a maximum of 24 Amps.

DO NOT USE 1/4" DIAMETER GLASS FUSES AS THEY ARE NOT SUITABLE FOR CONTINUOUS DUTY IN SIZES ABOVE 15 AMPS. Circuit breakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

WARNING!

CONNECTION OF A 58 WATT SPEAKER TO THE SPKR TERMINAL WILL CAUSE THE SPEAKER TO BURN OUT, AND WILL VOID THE SPEAKER WARRANTY!

The sound projecting opening should be pointed forward, parallel to the ground, and not obstructed or muffled by structural components of the vehicle. Concealed or under-hood mounting in some cases will result in a dramatic reduction in performance. To minimize this eduction, mount the speaker so the sound emitted is projected directly forward and obstruction by vehicle components such as hoses, brackets, grille, etc. is minimized.

Electromechanical sirens and electronic siren speakers should be mounted as far from the occupants as possible using acoustically insulated compartments and isolation mountings to minimize the transmission of sound into the vehicle. It may be helpful to mount the device on the front bumper, engine cowl or fender; heavily insulate the passenger compartment; and operate the siren only with the windows closed.

Each of these approaches may cause significant operational problems, including loss of siren performance from road slush, increased likelihood of damage to the siren in minor collisions, and the inability to hear the sirens on other emergency vehicles.

APPROPRIATE TRAINING OF VEHICLE OPERATORS IS RECOMMENDED TO ALERT THEM TO THESE PROBLEMS AND MINIMIZE THE EFFECT OF THESE PROBLEMS DURING OPERATIONS.

- NEG (Ground) - Connect (14 AWG wire) to the negative terminal of the battery. This supplies ground (earth) to the siren.

SCROLL- SCROLL switch input . Circuit is configured to accept positive signals only.

InterClear® - Connect to the device or circuit that is to be activated by the InterClear feature. The InterClear circuit is internally current limited at 1 Amp. Should your requirements require higher currents, use the InterClear Power Booster Kit (# INTBS), available from your Code 3® supplier.

AIRHORN - AIRHORN switch input . Circuit is configured to accept positive signals only.

RRB - RRB Audio Input. Connects to the two-way radio speaker.

WAIL - WAIL switch input . This switch should be a rocker type switch which maintains it's position until switched OFF by the user. This circuit is configured to accept positive signals only.

RRB ENABLE - switch input . This switch should be a rocker type switch which maintains is position until switched OFF by the user. Circuit is configured to accept positive signals only.

Microphone High - MIC HI signal from the user supplied, common microphone interface.

Microphone Low - MIC LO signal from the user supplied, common microphone interface.

PA PTT - PTT signal from the user supplied common microphone interface.

Set-Up and Adjustment

The only adjustments necessary for the 3951 series sirens are **Maximum P.A. Adjustment** (accessible from the front of the unit), and **Maximum RRB Adjustment** (accessible from the rear of the unit). Refer to Figure 2 for the location of these adjustments. Make these adjustments prior to securing the unit .

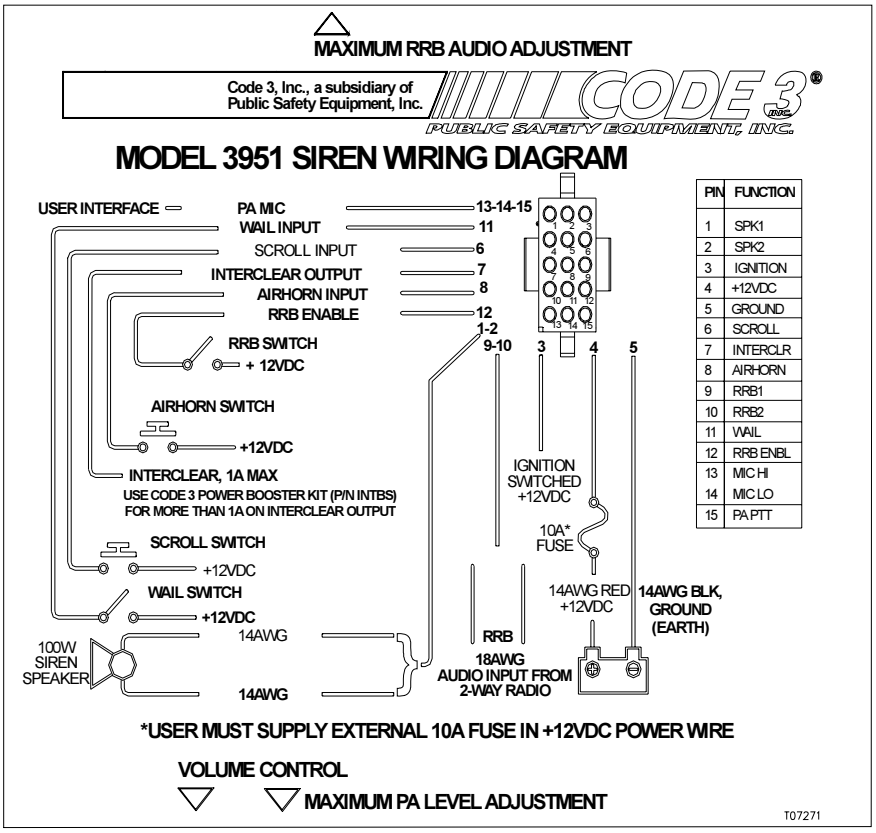

Figure 1

Audio Adjustments

Maximum Radio Rebroadcast (RRB) Adjustment - This trimmer (located on the rear of the siren) sets the maximum level that the 2-way radio will reach with the front panel VOLUME control in the fully clockwise position. To adjust properly, set the 2-way radio volume control to produce normal radio volume from the 2-way radio speaker or headset. Set the RRB switch to the on position to enable the RRB function. Next set the siren's front panel VOLUME control knob fully clockwise and adjust the rear panel RRB trimmer to produce the desired volume from the siren speaker.

WARNING!

Any electronic device may create or be affected by electromagnetic interference. After installation of any electronic device, operate all equipment simultaneously to insure that operation is free of interference.

Maximum P.A. Volume Adjustment - This trimmer (located on the front panel next to the volume control knob) sets the maximum level that the P.A. volume will reach with the front panel VOLUME control in the fully clockwise position. To adjust properly, set the front panel volume control fully clockwise. While keying the microphone hold the microphone close to your lips and speak directly into it in a normal voice and adjust the trimmer until the maximum volume out of the speaker is intelligible and produces no feedback. Set the front panel volume control for the desired PA volume and install all screws and fastners.

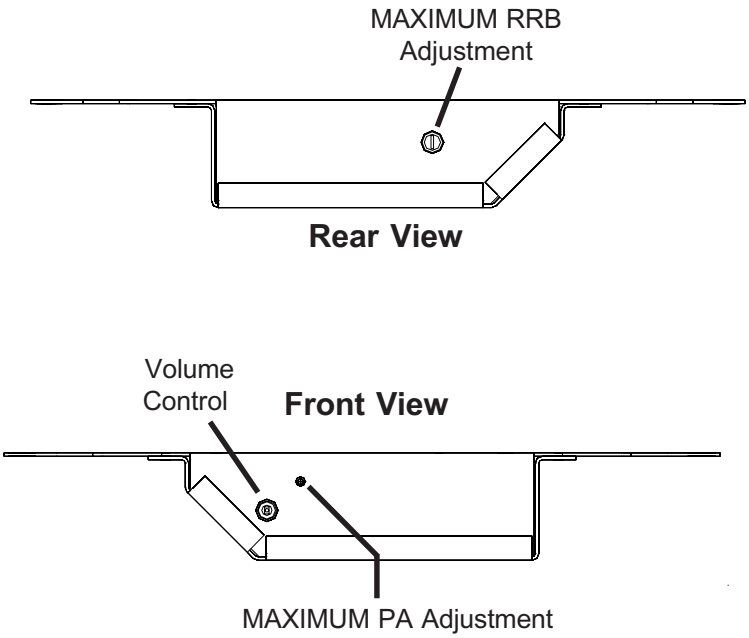

Figure 2 - Adjustments

Configuration Switches

HyperYelp Disable Switch - Switch DS1 is shown in Figure 3. When switch 2 on DS1 is switched to the ON position, the HyperYelp tone is disabled. Switch 1 is not used.

Operation

SCROLL, Momentary Push-button Switch - Each time the SCROLL button is pressed it causes the siren to scroll up one tone. Starting from the OFF mode, pressing the SCROLL button will cause the siren to start producing the WAIL tone. Pressing the button again will cause the siren to switch to YELP mode. Pressing the button again will cause the siren to switch to HyperYelp mode. Pressing the button a fourth time will cause the siren to switch back to WAIL mode. This process may be repeated as often as desired.

WAIL, Latching Switch - Produces the Wail tone continuously while this switch is in the ON position.

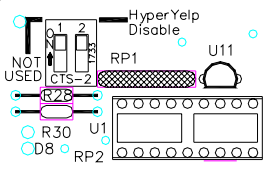

Figure 3 - Configuration Switches

AIR HORN, Momentary Push-button Switch - Produces the Air Horn tone. If the siren is active in any mode, it reverts to that previous mode when the AIR HORN button is released.

RRB Switch - The RRB switch, is used to enable or disable the Radio Rebroadcast (RRB) function. When RRB is enabled, all other siren functions except PA are disabled.

When the switch is on, the 2-way radio audio connected to the RRB input wires is routed through the siren amplifier to the siren speaker. The RRB volume from the siren speaker may be set by adjusting the 2-way radio's volume control. Also refer to Maximum Radio Rebroadcast (RRB) Adjustment under the SET-UP AND ADJUSTMENT section.

PUBLIC ADDRESS (PA) - The PA portion of the siren is activated each time the motorcycle Push-to-Talk (PTT) button is pressed while the user supplied common microphone interface is set to PA mode. While the PTT button is pressed, the PA function overrides any active siren tone and routes the PA audio through the siren speaker. When the PTT button is released, the siren will automatically switch back to the siren tone (if any) that was active when the button was pressed. Also refer to the Maximum P.A. Volume Adjustment procedure under the SET-UP AND ADJUSTMENT section.

INTERCLEAR - The InterClear output provides a timed output from the siren which can be used to activate a special warning light or function. Each time the siren mode is changed by any of the means previously described the InterClear output switches on (+12VDC, 1A Max) for approximately eight (8) seconds. Turning the siren off will also turn the InterClear output off. Use Code 3 power booster kit (p/n INTBS) for applications requiring more than 1A on the InterClear output.

IMPORTANT WARNINGS TO USERS OF SIRENS: "Wail" and "Yelp" tones are in some cases (such as in the state of California) the only recognized siren tones for calling for the right of way. Ancillary tones such as "Air Horn", "Hi-Lo", "Hyperyelp", and "Hyperlo" in some cases do not provide as high a sound pressure level. It is recommended that these tones be used in a secondary mode to alert motorists to the presence of multiple emergency vehicles or to momentarily shift from the primary tone as an indication of the imminent presence of an emergency vehicle.

Specifications

Siren Section

Input Voltage - 10 to 16 VDC, negative ground (earth).
(Note: Operation above 15 VDC for an extended period of time may result in speaker damage

Operating Current: 8A @ 13.6V with 11-ohm load (100W Spkr)

Standby Current: 12 mA

Cycle Rate: WAIL - 11 cycles/minute.
YELP - 200 cycles/minute.

Voltage Output (approx.) 65 V peak-to-peak

Audio Section

Audio Response: 3 dB down points - 500 to 3000 hz.
1000 hz. 0 dB Reference

Audio Distortion: 10% or less below clipping

Maintenance

Your Code 3® Model 3950 siren has been designed to provide trouble free service. In case of difficulty, consult the Troubleshooting Guide located on pages 10 and 11 of this manual. Also check for shorted or open wires. The primary cause of short circuits has been found to be wires passing through firewalls, roofs, etc. If further difficulty persists, contact the factory for troubleshooting advice or return instructions. Public Safety Equipment, Inc. maintains a complete parts inventory and service facility at the factory and will repair or replace (at the factory's option) any unit found to be defective under normal use and in warranty. Any attempt to service a unit in warranty, by anyone other than a factory authorized technician, without the express written consent of the factory, will void the warranty. Units out of warranty can be repaired at the factory for a nominal charge on either a flat rate or parts and labor basis. Contact the factory for details and return instructions. Public Safety Equipment, Inc. is not liable for any incidental charges related to the repair or replacement of a unit unless otherwise expressly agreed to in writing by the factory.

TROUBLESHOOTING GUIDE

(Refer to Figure 1 - Wiring Diagram)

PROBLEM	PROBABLE CAUSE	REMEDY
NO SIREN OUTPUT.	A. SHORTED SPEAKER OR SPEAKER WIRES. SIREN IN OVER CURRENT PROTECTION MODE.	A. CHECK CONNECTIONS
10A FUSE BLOWS.	A. AMPLIFIER POWER WIRES REVERSED POLARITY	A. CHECK POLARITY
NO OUTPUT FROM SPEAKER, TONES HEARD INSIDE AMP. MODULE.	A. SPEAKER NOT CONNECTED/ OPEN OR SHORTED SPEAKER WIRING B. DEFECTIVE SPEAKER (NOTE: SHORTED SPEAKER OR SPEAKER WIRING WILL CAUSE SIREN TO SHUT DOWN	A. CHECK SPEAKER WIRING B. DISCONNECT SPEAKER, LISTEN AT SIREN FOR TONES, REPLACE SPEAKER
SIREN TONES VOLUME TOO LOW/GARBLED.	A. LOW VOLTAGE TO SIREN AMPLIFIER B. HIGH RESISTANCE IN WIRING/ DEFECTIVE SPEAKER	A. CHECK WIRING FOR BAD CONNECTIONS/ CHECK VEHICLE CHARGING SYSTEM B. CHECK SPEAKER WIRING/REPLACE SPEAKER
HIGH RATE OF SPEAKER FAILURE.	A. HIGH VOLTAGE TO SIREN B. 58 WATT SPEAKER CONNECTED TO 100 WATT TAP. 58 WATT NOT ALLOWED.	A. CHECK VEHICLE CHARGING SYSTEM B. USE CORRECT SPEAKER
SIREN CONTINUES UNTIL TONE RAMPS DOWN AFTER MANUAL BUTTON IS RELEASED.	NORMAL OPERATION	
INTERCLEAR WILL NOT POWER AUXILIARY DEVICES.	A. THERE IS A SHORT IN THE WIRING, OR THE LOAD IS GREATER THAN 1 A.	A. CHECK FOR SHORTS. INSTALL INTERCLEAR BOOSTER KIT (PART #INTBS)
P.A. VOLUME LOW OR NO P.A. AT ALL. VOLUME CONTROL FULLY CLOCKWISE.	A. DEFECTIVE MICROPHONE B. MAXIMUM P.A. VOLUME TRIMMER MISADJUSTED. SEE SET-UP AND ADJUSTMENT SECTION.	A. REPLACE MICROPHONE B. REFER TO SET-UP AND ADJUSTMENT SECTION

TROUBLESHOOTING GUIDE

(Refer to Figure 1 - Wiring Diagram)

PROBLEM	PROBABLE CAUSE	REMEDY
RRB VOLUME LOW, OR NO RRB AT ALL. VOLUME CONTROL FULLY CLOCKWISE.	A. MAXIMUM RADIO REBROADCAST TRIMMER MIS-ADJUSTED B. RRB WIRES NOT CONNECTED TO TWO-WAY RADIO EXTERNAL SPEAKER	A. REFER TO SET-UP AND ADJUSTMENT SECTION B. CHECK RRB CONNECTIONS
SIREN SOUNDS BY ITSELF.	A. REMOTE SWITCH (HORN RING) WIRING TO REMOTE INPUT SHORTING TO POSITIVE OR TO GROUND (EARTH).	A. CHECK WIRING FOR ANY SHORTING.
PA OPERATES BUT SIREN WILL NOT RUN	A. VEHICLE IN PARK; THE PARK KILL FEATURE MUTES SIREN WHILE VEHICLE IS IN PARK OR NEUTRAL. B. RRB SWITCH IS ON.	A. PUT VEHICLE IN GEAR. B. TURN RRB SWITCH OFF (LEFT).
SIREN RUNS PROPERLY BUT SHUTS DOWN WHILE RUNNING, THEN STARTS RUNNING AGAIN AFTER A FEW MINUTES	A. VEHICLE CIRCUIT BREAKERS NOT RATED PROPERLY, AND ARE OVERHEATING, OR ARE NOT FUNCTIONING PROPERLY	A. REFER TO SPECIFICATIONS SECTION, PAGE 8. USE A BREAKER WITH 1.25x THE AMPERAGE RATING FOR THE WATTAGE BEING USED.

PARTS LIST (refer to Figure 4, Exploded View)

3951 Siren Parts List

Ref No.	*Description*	*Part No.*	*Qty.*
1	E-Tray	T07270	1
2	Insulator, Transistor	T06363	2
3	Amplifier Assembly	S71625	1
4	Screw 6-32 x .250	T01030	6
5	Bracket, Transformer	S71629	1
6	Cover	S71633	1
7	Nut 6-32 Locking Plated	T11007	2
8	Nut 4-40 Locking Plated	T03594	2
9	Label, Wiring	T11008	1
10	Wiring Harness Assembly	T11031	1
	Wire, 14AWG Strand. Black	T11025	1

NOTES

3951 MOTORCYCLE SIREN

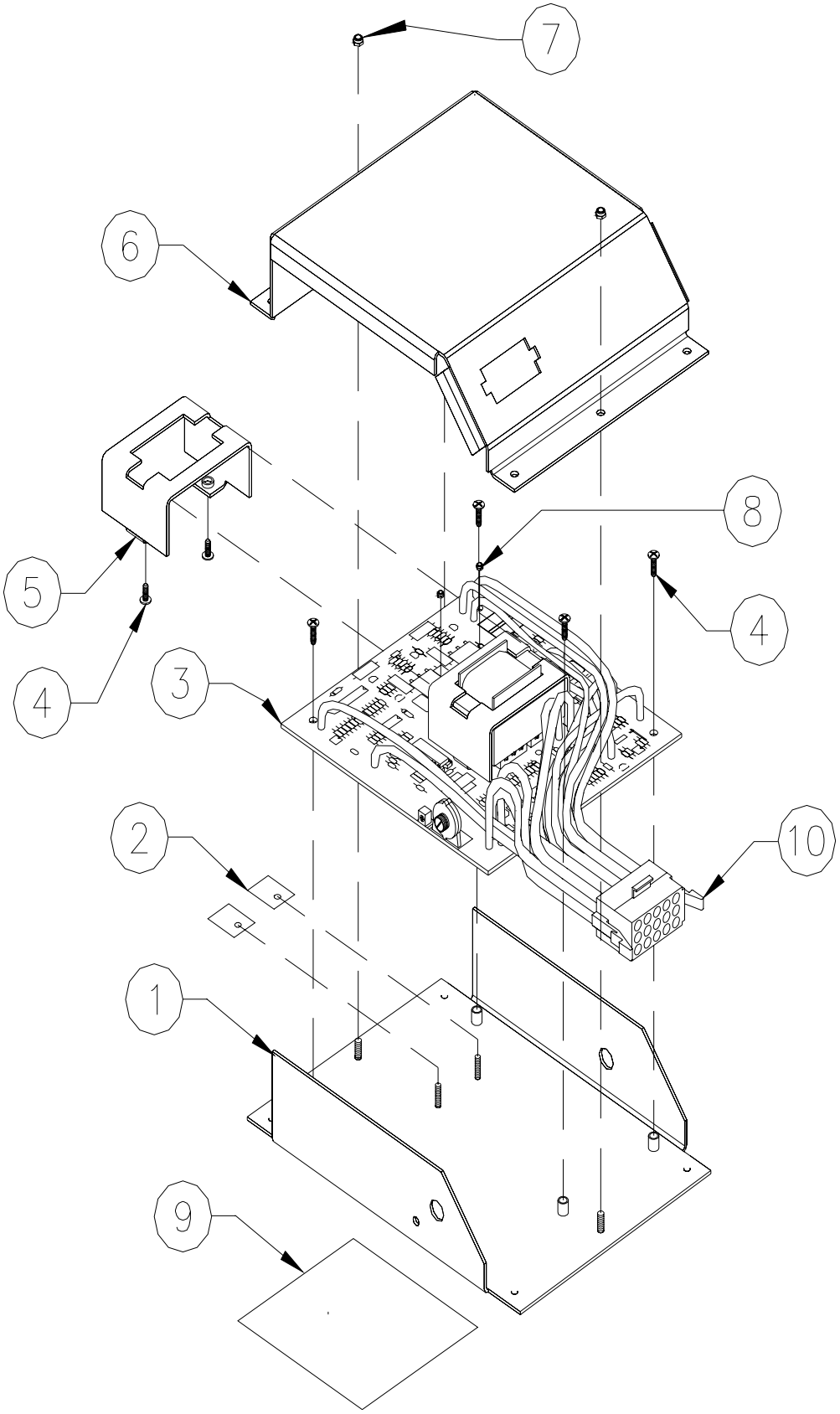

Figure 4, Exploded View

Notes

Notes

Notes

WARRANTY

Code 3, Inc.'s emergency devices are tested and found to be operational at the time of manufacture. Provided they are installed and operated in accordance with manufacturer's recommendations, Code 3, Inc. guarantees all parts and components except the lamps to a period of 1 year (unless otherwise expressed) from the date of purchase or delivery, whichever is later. Units demonstrated to be defective within the warranty period will be repaired or replaced at the factory service center at no cost.

Use of lamp or other electrical load of a wattage higher than installed or recommended by the factory, or use of inappropriate or inadequate wiring or circuit protection causes this warranty to become void. Failure or destruction of the product resulting from abuse or unusual use and/or accidents is not covered by this warranty. Code 3, Inc. shall in no way be liable for other damages including consequential, indirect or special damages whether loss is due to negligence or breach of warranty.

CODE 3, INC. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY INCLUDING, WITHOUT LIMITATION, WARRANTIES OF FITNESS OR MERCHANTABILITY, WITH RESPECT TO THIS PRODUCT.

PRODUCT RETURNS

If a product must be returned for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to Code 3, Inc. Write the RGA number clearly on the package near the mailing label. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

*Code 3, Inc. reserves the right to repair or replace at its discretion. Code 3, Inc. assumes no responsibility or liability for expenses incurred for the removal and /or reinstallation of products requiring service and/or repair.; nor for the packaging, handling, and shipping: nor for the handling of products return to sender after the service has been rendered.

NEED HELP? CALL OUR TECHNICAL ASSISTANCE HOTLINE - (314) 996-2800

Code 3,® Inc., a subsidiary of Public Safety Equipment, Inc.

CODE 3® PUBLIC SAFETY EQUIPMENT, INC.

CODE 3, INC.
10986 N. Warson Road
St. Louis, Missouri 63114-2029—USA
www.code3pse.com

Revision 1, 01/2006 - Instruction Book Part No. T07271

INSTALLATION & OPERATION MANUAL

MODEL 3955
MOTORCYCLE SIREN

Code 3, Inc., a subsidiary of
Public Safety Equipment, Inc.

CODE 3 PUBLIC SAFETY EQUIPMENT, INC.

MODEL 3955
HARLEY DAVIDSON SIREN

Contents:

IMPORTANT: *Read all instructions and warnings before installing and using.*
INSTALLER: *This manual must be delivered to the end user of this equipment.*

Introduction

The Model 3955 siren has been designed to meet the special needs of motorcycle applications. This siren incorporates a rugged waterproof enclosure along with microprocessor based circuitry and MOSFET technology.

WARNING!

Sirens are an integral part of an effective audio/visual emergency warning system. However, sirens are only short range secondary warning devices. The use of a siren does not insure that all drivers can or will observe or react to an emergency warning signal, particularly at long distances or when either vehicle is traveling at a high rate of speed. Sirens should only be used in a combination with effective warning lights and never relied upon as a sole warning signal. Never take the right of way for granted. It is your responsibility to be sure you can proceed safely before entering an intersection, driving against traffic, or responding at a high rate of speed.

The effectiveness of this warning device is highly dependent upon correct mounting and wiring. Read and follow the manufacturer's instructions before installing or using this device. The vehicle operator should check the equipment daily to insure that all features of the device operate correctly.

To be effective, sirens must produce high sound levels that potentially can inflict hearing damage. Installers should be warned to wear hearing protection, clear bystanders from the area and not to operate the siren indoors during testing. Vehicle operators and occupants should assess their exposure to siren noise and determine what steps, such as consultation with professionals or use of hearing protection should be implemented to protect their hearing.

This equipment is intended for use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should check all applicable city, state and federal laws and regulations.

Public Safety Equipment, Inc., assumes no liability for any loss resulting from the use of this warning device.

Proper installation is vital to the performance of the siren and the safe operation of the emergency vehicle. It is important to recognize that the operator of the emergency vehicle is under psychological and physiological stress caused by the emergency situation. The siren system should be installed in such a manner as to: A) Not reduce the acoustical performance of the system, B) Limit as much as practical the noise level in the passenger compartment of the vehicle, C) Place the controls within convenient reach of the operator so that he can operate the system without losing eye contact with the roadway.

Emergency warning devices often require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.

PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.

Standard Features

The Model 3955 siren is a highly integrated siren amplifier designed to be operated via user supplied control switches and common microphone interface. The following features are standard on Model 3959 sirens:

Siren Tones - Industry standard Wail and Yelp tones.

AIR HORN Tone - Electronic AIR HORN sound.

Instant-On- There is no " ON/OFF " switch. Selecting any siren function, or pressing the Push To Talk (PTT) switch on the user supplied common microphone interface will activate the siren in the appropriate mode, assuming the siren is connected to a source of +12V and the vehicle's ignition switch is on.

Wail - A continuous positive signal applied to this input from a user supplied switch will cause to siren to activate in wail mode for as long as the switch remains in the on position.

Airhorn - A continuous positive signal applied to this input from a user supplied switch will cause to siren to generate the Airhorn signal for as long as the switch remains in the on position.

Instant Public Address - Public Address override of all siren functions when the motorcycle Push-to-Talk (PTT) key is pressed while the user supplied common microphone interface is set to PA mode.

Automatic Short Circuit Protection- The siren will sense a short circuit on the speaker terminals and automatically go to standby until the fault is removed. Once the fault is removed the siren will return to normal operation.

Unpacking & Pre-installation

After unpacking your 3955 series siren, carefully inspect the unit and associated parts for any damage that may have been caused in transit. Report any damage to the carrier immediately.

Installation & Mounting

The 3955 series siren is designed to be mounted to the optional equipment Harley Amplifier Mount, which can be obtained from Harley Davidson. A weatherproof connector is provided for connection to the controller harness provided with the Harley Davidson motorcycle.

Connections (see Figure 1), motorcycle wiring harness.

Speaker - Connect to 100W (11 ohm) speaker leads.
+12V - Connect (14 AWG wire) to a positive +12 volt DC source. It is recommended that the user protect this wire with a 10 Amp fuse or circuit breaker located at the source.
- NEG (Ground) - Connect (14 AWG wire) to the negative terminal of the battery. This supplies ground (earth) to the siren.
AIRHORN - AIRHORN switch input . Circuit is configured to accept positive signals only.
WAIL - WAIL switch input . This switch should be a rocker type switch which maintains it's position until switched OFF by the user. This circuit is configured to accept positive signals only.
Microphone High - MIC HI signal from the user supplied, common microphone interface.
Microphone Low - MIC LO signal from the user supplied, common microphone interface.
PA PTT - PTT signal from the user supplied common microphone interface.

CONNECTION OF A 58 WATT SPEAKER TO THE SPKR TERMINAL WILL CAUSE THE SPEAKER TO BURN OUT, AND WILL VOID THE SPEAKER WARRANTY!

The sound projecting opening should be pointed forward, parallel to the ground, and not obstructed or muffled by structural components of the vehicle. Concealed or under-hood mounting in some cases will result in a dramatic reduction in performance. To minimize this reduction, mount the speaker so the sound emitted is projected directly forward and obstruction by vehicle components such as hoses, brackets, grille, etc. is minimized.

Electromechanical sirens and electronic siren speakers should be mounted as far from the occupants as possible using acoustically insulated compartments and isolation mountings to minimize the transmission of sound into the vehicle. It may be helpful to mount the device on the front bumper, engine cowl or fender; heavily insulate the passenger compartment; and operate the siren only with the windows closed.

Each of these approaches may cause significant operational problems, including loss of siren performance from road slush, increased likelihood of damage to the siren in minor collisions, and the inability to hear the sirens on other emergency vehicles.

APPROPRIATE TRAINING OF VEHICLE OPERATORS IS RECOMMENDED TO ALERT THEM TO THESE PROBLEMS AND MINIMIZE THE EFFECT OF THESE PROBLEMS DURING OPERATIONS.

WARNING!

All devices should be mounted in accordance with the manufacturer's instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Ease of operation and convenience to the operator should be the prime consideration when mounting the siren and controls. Adjust the mounting angle to allow maximum operator visibility. Mount the microphone clip in a convenient location to allow the operator easy access. Devices should be mounted only in locations that conform to their SAE identification code as described in SAE Standard J1849.

Controls should be placed within convenient reach* of the driver. In some vehicles, multiple control switches and/or using methods such as "horn ring transfer" which utilizes the vehicle horn switch to toggle between siren tones may be necessary for convenient operation from two positions.

**Convenient reach is defined as the ability of the operator of the siren systems to manipulate the controls from his normal driving/riding position without excessive movement away from the seat back of loss of eve contact with the roadway.*

Set-Up and Adjustment

The only adjustment necessary for the 3955 siren is the **P.A. Volume Adjustment** (accessible from the front of the unit) Make this adjustment prior to securing the unit .

P.A. Volume Adjustment - This control is accessible by lifting the water resistant cover (located on the end of the siren opposite the connector) and sets the maximum level of the P.A. volume. While keying the microphone hold the microphone close to your lips and speak directly into it in a normal voice and adjust the control until the P.A. volume out of the speaker is at the desired level and produces no feedback. Be certain that the spring loaded water resistant cover is fully closed after you have completed this adjustment.

Operation

WAIL, Switch - Produces the Wail tone continuously while this switch is in the ON position.
AIR HORN, Switch - Produces the Air Horn tone. If the siren is active in any mode, it reverts to that previous mode when the AIR HORN button is released.
PUBLIC ADDRESS (PA) - The PA portion of the siren is activated each time the motorcycle Push-to-Talk (PTT) button is pressed while the user supplied common microphone interface is set to PA mode. While the PTT button is pressed, the PA function overrides any active siren tone and routes the PA audio through the siren speaker. When the PTT button is released, the siren will automatically switch back to the siren tone (if any) that was active when the button was pressed. Also refer to the Maximum P.A. Volume Adjustment procedure under the SET-UP AND ADJUSTMENT section.

Any electronic device may create or be affected by electromagnetic interference. After installation of any electronic device, operate all equipment simultaneously to insure that operation is free of interference.

WARNING!

IMPORTANT WARNINGS TO USERS OF SIRENS: "Wail" and "Yelp" tones are in some cases (such as in the state of California) the only recognized siren tones for calling for the right of way. Ancillary tones such as "Air Horn", "Hi-Lo", "Hyperyelp", and "Hyperlo" in some cases do not provide as high a sound pressure level. It is recommended that these tones be used in a secondary mode to alert motorists to the presence of multiple emergency vehicles or to momentarily shift from the primary tone as an indication of the imminent presence of an emergency vehicle.

Specifications

Input Voltage - 10 to 16 VDC, negative ground (earth).
(Note: Operation above 15 VDC for an extended period of time may result in speaker damage
Operating Current: 8A @ 13.6V with 11-ohm load (100W Spkr)
Standby Current: Ignition Switch input ON - Approx. 200 mA
Ignition switch input OFF- no stanby current
Cycle Rate: WAIL - 11 cycles/minute.
YELP - 200 cycles/minute.
Voltage Output (approx.) 65 V peak-to-peak
Audio Response: 3 dB down points - 500 to 3000 hz.
1000 hz. 0 dB Reference
Audio Distortion: 10% or less below clipping

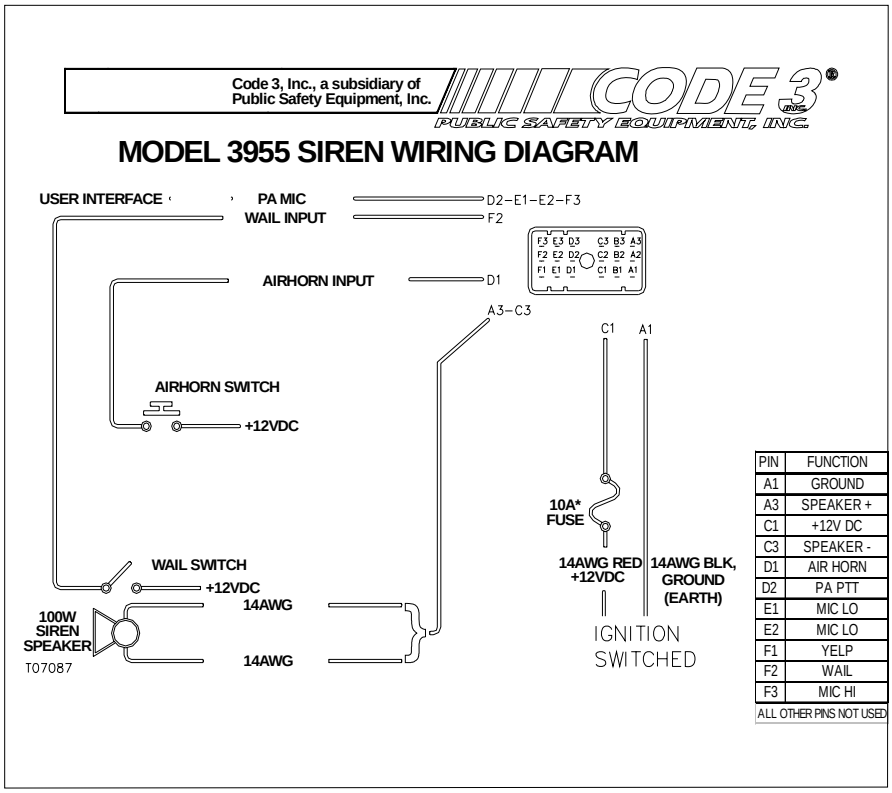

Figure 1

Maintenance

Code 3® Model 3955 siren has been designed to provide trouble free service. In case of difficulty, consult the Troubleshooting Guide located on pages 6 and 7 of this manual. Also check for shorted or open wires. The primary cause of short circuits has been found to be wires passing through firewalls, roofs, etc. If further difficulty persists, contact the factory for troubleshooting advice or return instructions. Public Safety Equipment, Inc. maintains a complete parts inventory and service facility at the factory and will repair or replace (at the factory's option) any unit found to be defective under normal use and in warranty.Any attempt to service a unit, by anyone other than a factory authorized technician, without the express written consent of the factory, will void the warranty. Units out of warranty can be repaired at the factory for a nominal charge on either a flat rate or parts and labor basis. Contact the factory for details and return instructions. Public Safety Equipment is not liable for any incidental charges related to the repair or replacement of a unit unless otherwise agreed to in writing by the factory.

TROUBLESHOOTING GUIDE

(Refer to Figure 1 - Wiring Diagram)

PROBLEM	PROBABLE CAUSE	REMEDY
NO SIREN OUTPUT.	A. SHORTED SPEAKER OR SPEAKER WIRES. SIREN IN OVER CURRENT PROTECTION MODE.	A. CHECK CONNECTIONS
10A FUSE BLOWS.	A. AMPLIFIER POWER WIRES REVERSED POLARITY	A. CHECK POLARITY
NO OUTPUT FROM SPEAKER, TONES HEARD INSIDE AMP. MODULE.	A. SPEAKER NOT CONNECTED/ OPEN OR SHORTED SPEAKER WIRING B. DEFECTIVE SPEAKER (NOTE: SHORTED SPEAKER OR SPEAKER WIRING WILL CAUSE SIREN TO SHUT DOWN	A. CHECK SPEAKER WIRING B. DISCONNECT SPEAKER, LISTEN AT SIREN FOR TONES, REPLACE SPEAKER
SIREN TONES VOLUME TOO LOW/GARBLED.	A. LOW VOLTAGE TO SIREN AMPLIFIER B. HIGH RESISTANCE IN WIRING/ DEFECTIVE SPEAKER	A. CHECK WIRING FOR BAD CONNECTIONS/ CHECK VEHICLE CHARGING SYSTEM B. CHECK SPEAKER WIRING/REPLACE SPEAKER
HIGH RATE OF SPEAKER FAILURE.	A. HIGH VOLTAGE TO SIREN B. 58 WATT SPEAKER CONNECTED TO 100 WATT TAP. 58 WATT NOT ALLOWED.	A. CHECK VEHICLE CHARGING SYSTEM B. USE CORRECT SPEAKER
SIREN CONTINUES UNTIL TONE RAMPS DOWN AFTER MANUAL BUTTON IS RELEASED.	NORMAL OPERATION	
P.A. VOLUME LOW OR NO P.A. AT ALL. VOLUME CONTROL FULLY CLOCKWISE.	A. DEFECTIVE MICROPHONE B. MAXIMUM P.A. VOLUME TRIMMER MISADJUSTED. SEE SET-UP AND ADJUSTMENT SECTION.	A. REPLACE MICROPHONE B. REFER TO SET-UP AND ADJUSTMENT SECTION

TROUBLESHOOTING GUIDE

(Refer to Figure 1 - Wiring Diagram)

PROBLEM	PROBABLE CAUSE	REMEDY
SIREN SOUNDS BY ITSELF.	A. REMOTE SWITCH (HORN RING) WIRING TO REMOTE INPUT SHORTING TO POSITIVE OR TO GROUND (EARTH).	A. CHECK WIRING FOR ANY SHORTING.
SIREN RUNS PROPERLY BUT SHUTS DOWN WHILE RUNNING, THEN STARTS RUNNING AGAIN AFTER A FEW MINUTES	A. VEHICLE CIRCUIT BREAKERS NOT RATED PROPERLY, AND ARE OVERHEATING, OR ARE NOT FUNCTIONING PROPERLY	A. REFER TO SPECIFICATIONS SECTION, PAGE 8. USE A BREAKER WITH 1.25x THE AMPERAGE RATING FOR THE WATTAGE BEING USED.

WARNING!

Larger wires and tight connections will provide longer service life for components. For high current wires it is highly recommended that terminal blocks or soldered connections be used with shrink tubing to protect the connections. Do not use insulation displacement connectors (e.g. 3M®) Scotchlock type connectors). Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. High ambient temperatures (e.g. underhood) will significantly reduce the current carrying capacity of wires, fuses, and circuit breakers. Use "SXL" type wire in engine compartment. All wiring should conform to the minimum wire size and other recommendations of the manufacturer and be protected from moving parts and hot surfaces. Looms, grommets, cable ties, and similar installation hardware should be used to anchor and protect all wiring.

Fuses or circuit breakers should be located as close to the power takeoff points as possible and properly sized to protect the wiring and devices. Particular attention should be paid to the location and method of making electrical connections and splices to protect these points from corrosion and loss of conductivity. Ground (Earth) terminations should only be made to substantial chassis components, preferably directly to the vehicle battery.

The user should install a circuit breaker sized to approximately 125% of the maximum Amp capacity in the supply line to protect against short circuits. For example, a 30 Amp circuit breaker should carry a maximum of 24 Amps.

DO NOT USE 1/4" DIAMETER GLASS FUSES AS THEY ARE NOT SUITABLE FOR CONTINUOUS DUTY IN SIZES ABOVE 15 AMPS. Circuit breakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

WARRANTY

Code 3, Inc.'s emergency devices are tested and found to be operational at the time of manufacture. Provided they are installed and operated in accordance with manufacturer's recommendations, Code 3, Inc. guarantees all parts and components except the lamps to a period of 1 year (unless otherwise expressed) from the date of purchase or delivery, whichever is later. Units demonstrated to be defective within the warranty period will be repaired or replaced at the factory service center at no cost.

Use of lamp or other electrical load of a wattage higher than installed or recommended by the factory, or use of inappropriate or inadequate wiring or circuit protection causes this warranty to become void. Failure or destruction of the product resulting from abuse or unusual use and/or accidents is not covered by this warranty. Code 3, Inc. shall in no way be liable for other damages including consequential, indirect or special damages whether loss is due to negligence or breach of warranty.

CODE 3, INC. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY INCLUDING, WITHOUT LIMITATION, WARRANTIES OF FITNESS OR MERCHANTABILITY, WITH RESPECT TO THIS PRODUCT.

PRODUCT RETURNS

If a product must be returned for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to Code 3, Inc. Write the RGA number clearly on the package near the mailing label. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

*Code 3, Inc. reserves the right to repair or replace at its discretion. Code 3, Inc. assumes no responsibility or liability for expenses incurred for the removal and /or reinstallation of products requiring service and/or repair.; nor for the packaging, handling, and shipping: nor for the handling of products return to sender after the service has been rendered.

NEED HELP? CALL OUR TECHNICAL ASSISTANCE HOTLINE (314) 996-2800

Code 3,® Inc., a subsidiary of Public Safety Equipment, Inc.

CODE 3® PUBLIC SAFETY EQUIPMENT, INC.

CODE 3, INC.
10986 N. Warson Road
St. Louis, Missouri 63114-2029—USA
www.code3pse.com

Revision 0, 02/2006 - Instruction Book Part No. T13727