WHELEN®

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Installation Guide:
Amplified Siren Speaker / PA

DANGER! Sirens produce extremely loud emergency warning tones! Exposure to these tones without proper and adequate hearing protection, could cause ear damage and/or hearing loss! The Occupational Safety & Health Administration (www.osha.gov) provides information necessary to determine safe exposure times in Occupational Noise Exposure Section 1910.95. Until you have determined the safe exposure times for your specific application, operators and anyone else in the immediate vicinity should be required to wear an approved hearing protection device. **FAILURE TO FOLLOW THIS RECOMMENDATION COULD CAUSE HEARING LOSS!**

Warnings to Installers

Whelen's emergency vehicle warning devices must be properly mounted and wired in order to be effective and safe. Read and follow all of Whelen's written instructions when installing or using this device. Emergency vehicles are often operated under high speed stressful conditions which must be accounted for when installing all emergency warning devices. Controls should be placed within convenient reach of the operator so that they can operate the system without taking their eyes off the roadway. Emergency warning devices can 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 vehicle damage, including fire. Many electronic devices used in emergency vehicles can create or be affected by electromagnetic interference. Therefore, after installation of any electronic device it is necessary to test all electronic equipment simultaneously to insure that they operate free of interference from other components within the vehicle. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment. 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. Driver and/or passenger air bags (SRS) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRS wiring or sensors. Mounting the unit inside the vehicle by a method other than permanent installation is not recommended as unit may become dislodged during swerving; sudden braking or collision. Failure to follow instructions can result in personal injury. Whelen assumes no liability for any loss resulting from the use of this warning device. 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.

Warnings to Users

Whelen's emergency vehicle warning devices are intended to alert other operators and pedestrians to the presence and operation of emergency vehicles and personnel. However, the use of this or any other Whelen emergency warning device does not guarantee that you will have the right-of-way or that other drivers and pedestrians will properly heed an emergency warning signal. Never assume you have the right-of-way. It is your responsibility to proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. Emergency vehicle warning devices should be tested on a daily basis to ensure that they operate properly. When in actual use, the operator must ensure that both visual and audible warnings are not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should be familiar with all applicable laws and regulations prior to the use of any emergency vehicle warning device. Whelen's audible warning devices are designed to project sound in a forward direction away from the vehicle occupants. However, because sustained periodic exposure to loud sounds can cause hearing loss, all audible warning devices should be installed and operated in accordance with the standards established by the National Fire Protection Association.
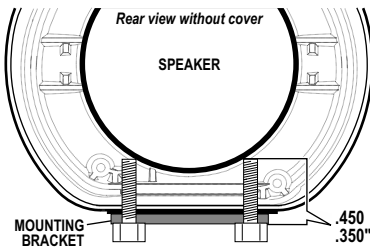
Safety First

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

• **Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.**

• **Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.**

• **Failure to use specified installation parts and/or hardware will void the product warranty.**

• **If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr the holes and remove any metal shards or remnants. Install grommets into all wire passage holes.**

• **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro®, clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**

• **Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.**

• **For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post (this does not include products that use cigar power cords).**

• **If this product uses a remote device for activation or control, make sure that this device is located in an area that allows both the vehicle and the device to be operated safely in any driving condition.**

• **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**

• **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**
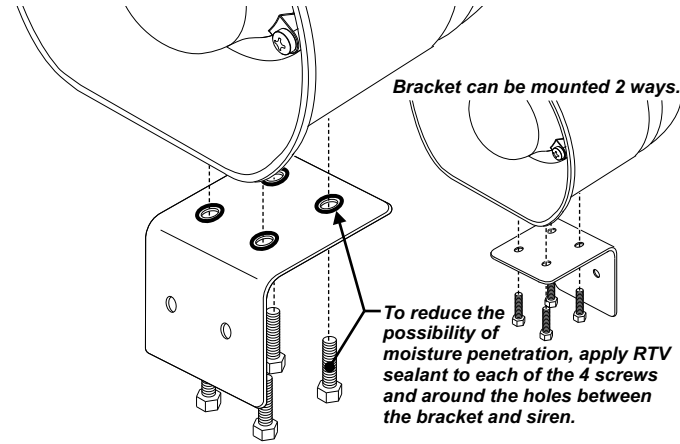
ACTIVATION OF THIS SIREN MAY DAMAGE UNPROTECTED EARS!

Wear Protection!

⚠CAUTION
Loud siren noise can cause hearing damage and/or loss. Refer to OSHA Section 1910.95 prior to putting ANY siren into service!

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Form No.14352D (080117)

For warranty information regarding this product, visit **www.whelen.com/warranty**

Rear view without cover

SPEAKER

MOUNTING BRACKET

.450 Maximum
.350" Minimum

IMPORTANT: Due to the proximity of the speaker and mounting screws, if you change mounting brackets or screws make sure the screws do not *extend more than .450" into the housing.* Also take into consideration the thickness of the bracket and washer. The screws should not *extend less than .350" into the housing* or the screw will not catch enough threads to secure the speaker.

The amplified siren speaker has two control inputs available. Depending on the "Mode of Operation" chosen by the user, either momentary or toggle switches will be required to control the operation of the siren. Install the two switches in an area that can be safely accessed by the operator. Both control inputs are activated by switching them to ground (negative battery terminal). See Operation section and wiring diagram for details.

Switch 1

1. Extend the WHITE/BROWN wire to Switch 1.
2. Connect the WHITE/BROWN wire to one side of this switch. The other side of this switch must be connected to the NEGATIVE battery terminal.

Switch 2

1. Extend the WHITE/RED wire to Switch 2.
2. Connect the WHITE/RED wire to one side of this switch. The other side of this switch must be connected to the NEGATIVE battery terminal.
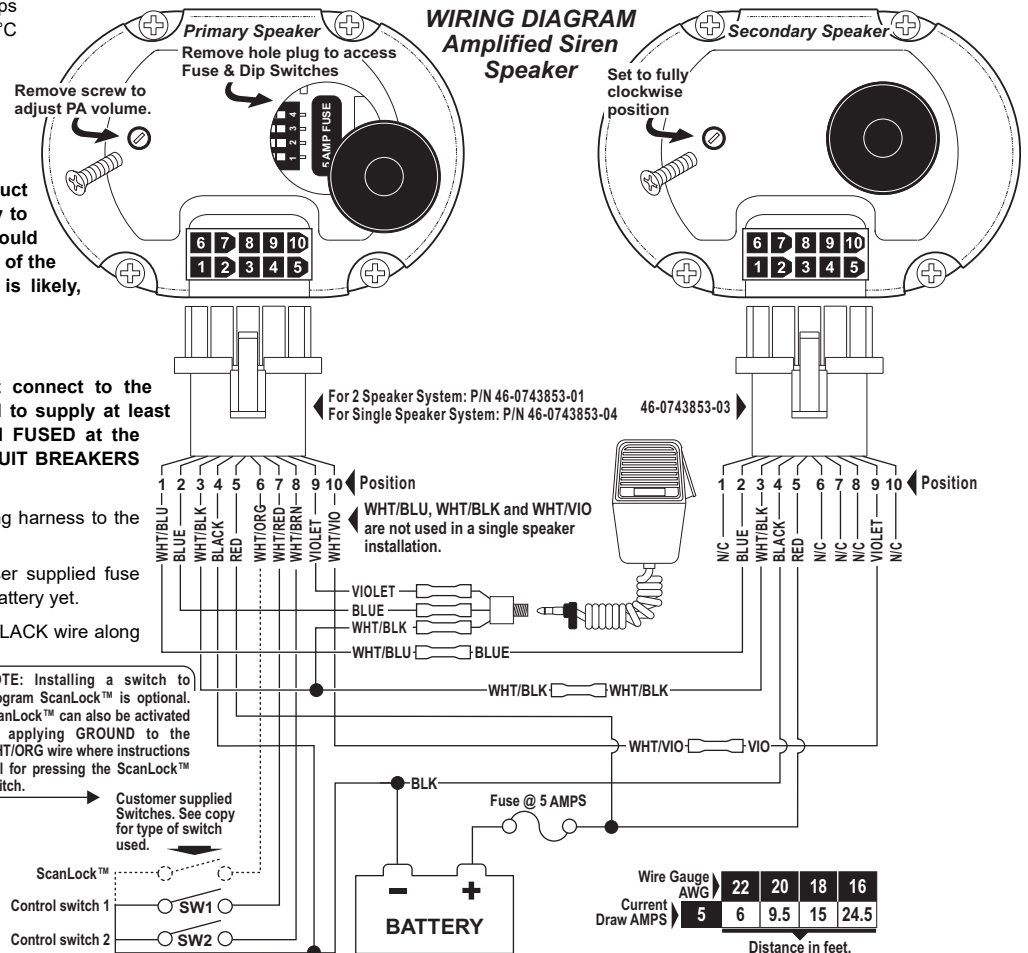
Two speaker Siren Systems

Multiple sirens can be can be used together by wiring them as follows:

1. Extend and connect the WHITE/VIOLET wire on the PRIMARY siren to VIOLET wire on the SECONDARY siren
2. Extend and connect the WHITE/BLUE wire on the PRIMARY siren to BLUE wire on the SECONDARY siren
3. Extend and connect the WHITE/BLACK wire on the PRIMARY siren to WHITE/BLACK wire on the SECONDARY siren

Fuse:

To access the fuse or dip switches, pry the hole plug on the back of the siren off with a screwdriver or similar tool. Use a fuse puller to remove or install the fuse. This unit uses a 5 amp fuse only. The dip switch functions are explained in this manual.

Bracket can be mounted 2 ways.

To reduce the possibility of moisture penetration, apply RTV sealant to each of the 4 screws and around the holes between the bracket and siren.

Specifications:

Input Voltage ....12.8 V DC +/- 20%
Input Current: ....@ 15V DC / 2 AMPS Max.
Input Fuse...5 amps
Operating Temperature .... -30°C. to +60°C
Storage Temperature-40° C to +70°C
Humidity99% Non condensing

Mounting:

Secure the mounting bracket to a suitable area.

WARNING: Permanent mounting of this product may require drilling. It is absolutely necessary to make sure that no other vehicle components could be damaged by this process. Check both sides of the mounting surface before starting. If damage is likely, select a different mounting location.

Wiring: Power:

WARNING! All customer supplied wires that connect to the positive terminal of the battery must be sized to supply at least 125% of the maximum operating current and FUSED at the battery to carry that load. DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!

1. Extend the RED wire along the factory wiring harness to the POSITIVE (+12VDC) battery terminal.
2. Connect the RED wire to one end of a user supplied fuse block. Do not connect the fuse block to the battery yet.
3. Using appropriately sized wire, extend the BLACK wire along the factory wiring harness to the NEGATIVE battery terminal.

Control Switches:
Adjusting Public Address Levels:

Before using the WSCS30, the Public Address volume must be adjusted to satisfactory operating levels. To adjust the level, the speaker and microphone need to be installed on the vehicle. To make the adjustment, use a flat-blade screwdriver.

NOTE: For 1 speaker, follow step 2 only.

STEP 1: *Locate the PA adjustment port on back of the secondary speaker.*

WIRING DIAGRAM Amplified Siren Speaker

Primary Speaker
Remove hole plug to access Fuse & Dip Switches

Remove screw to adjust PA volume.

5 AMP FUSE

Secondary Speaker

Set to fully clockwise position

For 2 Speaker System: P/N 46-0743853-01
For Single Speaker System: P/N 46-0743853-04

46-0743853-03

Position

WHT/BLU, WHT/BLK and WHT/VIO are not used in a single speaker installation.

WHT/BLU
BLUE
WHT/BLK
BLACK
RED
WHT/ORG
WHT/RED
WHT/BRN
VIOLET
WHT/VIO

VIOLET
BLUE
WHT/BLK
WHT/BLU — BLUE

WHT/BLK — WHT/BLK

WHT/VIO — VIO

NOTE: Installing a switch to program ScanLock™ is optional. ScanLock™ can also be activated by applying GROUND to the WHT/ORG wire where instructions call for pressing the ScanLock™ switch.

Customer supplied Switches. See copy for type of switch used.

BLK

Fuse @ 5 AMPS

ScanLock™
Control switch 1 SW1
Control switch 2 SW2

BATTERY

N/C
BLUE
WHT/BLK
BLACK
RED
N/C
N/C
N/C
VIOLET
N/C

Position

Wire Gauge AWG	22	20	18	16
Current Draw AMPS	5	6	9.5	15	24.5

Distance in feet.

Remove the 10-32 Phillips head machine screw which covers the potentiometer. Insert the screwdriver into the adjustment port and turn it to the fully clockwise position.

STEP 2: *Access the PA adjustment port on the primary speaker* and turn this adjustment counter clockwise until it stops. Place the siren into *Public Address Mode* by pressing the push-to-talk switch on the side of the microphone. Re-Insert the screwdriver into the primary speakers PA adjustment port and turn the adjustment clockwise to increase the sound to its maximum desired volume without causing audio feed back. If audio feedback occurs, turn the adjustment counter clockwise 1/8 of a turn. Re-install the Phillips head screws into both speakers.

Operation:

There are five modes of operation built into the siren amplifier. Mode 1 is the factory default mode. See the "Mode Programming" section to change the mode of operation if desired.

The following tables show the factory default tone settings. See the "Siren Tone Programming Procedures" section to make desired changes.

MODE 1

Requires momentary switches for both switch 1 and switch 2

CONTROL Input	Operation	Switch 2*
Switch 1	Instant HF 2-cycle (wail-yelp)**	Airhorn Override
Switch 2*	AIRHORN	AIRHORN

* Switch 2 produces AIRHORN as a main tone as well as an override tone.

** HF two-cycle: tones are activated by a single tap on the HF cycle switch. The first tap produces a WAIL tone (a steady rise and fall tone). A second tap produces a YELP tone (a fast rise and fall tone). The next tap returns the siren to a WAIL tone and the cycle repeats itself. Two quick successive taps will stop the siren.

MODE 2

Requires momentary switches for both switch 1 and switch 2

CONTROL input	Operation	Switch 2*
Switch 1	instant HF 3-cycle (wail-yelp-piercer)**	Airhorn Override
Switch 2*	AIRHORN	AIRHORN

* Switch 2 produces airhorn as a main tone as well as an override tone.

** HF three-cycle: tones are activated by a single tap on the HF cycle switch. The first tap produces a WAIL tone (a steady rise and fall tone). A second tap produces a YELP tone (a fast rise and fall tone). A third tap produces a PIERCER tone (a extremely fast rise and fall tone). The next tap returns the siren to a WAIL tone and the cycle repeats itself. Two quick successive taps will stop the siren.

MODE 3

Requires toggle switches for both switch 1 and switch 2

CONTROL Input	Operation
Switch 1*	Tone 1 (Wail)
Switch 2	Tone 3 (Yelp)

* Switch 1 will have priority over switch 2

MODE 4

Requires a toggle switches for switch 1 and a momentary switch for switch 2.

CONTROL Input	Operation	Switch 2
Switch 1	Tone 1 (Wail)	Airhorn Override
Switch 2*	AIRHORN	AIRHORN

* Switch 2 produces AIRHORN as a main tone as well as an override tone.

MODE 5

Requires a momentary switches for both switches 1 and 2.

CONTROL input	Operation	Switch 2*
Switch 1	10 sec. override cycle** (TONE 1 - TONE 2)	Airhorn Override
Switch 2*	AIRHORN	AIRHORN

* Switch 2 produces AIRHORN as a main tone as well as an override tone.
**10 Second override cycle: tones are activated by a single tap on switch 1. The first tap produces TONE 1. A second tap produces TONE 2. The next tap (or waiting 10 seconds) returns the siren to TONE 1 and the cycle repeats itself. Two quick taps, stops the siren.

Programming the Siren:

WARNING: Never try to program the siren while it is wired to the vehicle. The siren must be removed from the vehicle before programming.

The siren must be placed with the front opening face down on a flat smooth surface. Hearing protection must be warn.

There are two important operational characteristics of the siren that can be re configured; Mode of Operation and Tone Selection. The DIP switches are used to select the Mode of Operation and the Scan-Lock™ wire (WHT/ORG) is used to select tones.

Programming the Mode of Operation:

There are 5 modes of operation built into the siren, Mode 1 is the factory default. to change *Mode of Operation*: **1.** Remove all connections from the speaker. **2.** Remove the hole plug and locate the DIP switches. **3.** Set DIP switches to correspond to the desired mode.

DS1	DS2	DS3	Mode:
Off	Off	Off	Mode 1
On	Off	Off	Mode 2
Off	On	Off	Mode 3
On	On	Off	Mode 4
Off	Off	On	Mode 5

Tone Completion Operating mode:

The siren can be programmed so that all the siren tones will complete their full cycle when they are turned off.

DIP SW4	MODE
OFF	*Standard Operation (default)*
ON	*Tone Completion Operating Mode*

Programming the siren tone:

Scan-Lock™ is used to change the default siren tones. You can install a "temporary" momentary switch to control Scan-Lock™ (see wiring diagram) or apply "GROUND" to the WHT/ORG wire in place of pressing the ScanLock™ switch as described below.

To change a tone in the hands free cycle in MODES 1, 2 or 5:

With the siren in either Mode 1, 2 or 5 using switch 1, advance to the tone that you wish to change. Press and release the Scan-Lock™ switch. Each time the Scan-Lock™ switch is pressed and released, the next tone will be broadcast. When the desired tone is generated, it will automatically be saved for that position in the cycle.

To change a tone for switch 1 or switch 2 in MODE 3:

With the siren in Mode 3, activate the desired tone you wish change. Now, each time the Scan-Lock™ switch is pressed and released, the next available tone will be broadcast. When the desired tone is generated, it will automatically be saved for that switch position.

To change a tone for switch 1 in MODE 4:

With the siren in Mode 4, activate the desired tone that you wish change using switch 1. Press and release the Scan-Lock™ switch. Each time the Scan-Lock™ switch is pressed and released, the next available tone will be broadcast. When the desired tone is generated, it will automatically be saved for that switch position.

To change the AIRHORN tone for switch 2 in MODE 1, 2, 4 or 5:

With the siren in Mode 1, 2, 4 or 5 activate the AIRHORN tone using switch 2. Now, each time the Scan-Lock™ switch is pressed and released, the next tone will be broadcast. When the desired tone is generated, it will automatically be saved for that switch position.

Tone List for Hands Free and Switches 1 & 2
• WAIL
• YELP
• PIERCER
• HI/LO
• Y249
• WARBLE
• WOOP
• TRI TONE
• ALT. WAIL
• MARTIN TONE

AIRHORN tone list
• TONE OFF   • AIR HORN-HI   • AIR HORN-LO

To reset the siren tone to factory defaults:

1. Turn off all tones.
2. Hold the ScanLock™ switch in, then depress SW1.
3. Release switches