



A Division of Star Headlight & Lantern Co., Inc.

LCS770 SIREN AMPLIFIER



INSTALLATION AND OPERATING INSTRUCTIONS



PROUDLY MADE IN THE USA
An ISO 9001 Certified Company

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INSTALLATION INFORMATION

MODEL: **LCS770** SERIAL #: _____

PURCHASE DATE: _____ INSTALLER: _____

DEALER: _____ INSTALLATION DATE: _____

OPTION JUMPERS

- | | |
|------------------------------------|----------------------------|
| _____ Negative Auxiliary Switching | _____ Audible Beep disable |
| _____ Negative Park Kill Switching | _____ 8 sec. gun lock S4 |
| _____ Two-Tone Enabled | _____ Auxiliary Override |
| _____ Phaser Disabled | _____ Pursuit Disable |

Model and serial number located on bottom of unit

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NOTICE

Due to continuous product improvements, we must reserve the right to change any specifications and information, contained in this manual at any time without notice. Signal Vehicle Products makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Signal Vehicle Products shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

GENERAL DESCRIPTION

The LCS770 Siren Amplifier is a premium 200W unit designed for single or dual 100W speaker use and full lighting control.

The primary operating modes are Phaser, Yelp, Wail, Hands Free, Manual, Alert, and Radio. A Noise Canceling PA Override and push-button Horn Override are available in all modes. A manual push-button is provided for push-on/push-off tone toggle operation in the Phaser, Yelp, and Wail modes. It also allows manual siren control in the Manual or PA modes. The Phaser function can be optionally replaced by Two-Tone or disabled entirely with program jumpers. Another feature allows cycling through Wail, Yelp, Phaser, and Standby by providing a signal to the horn ring auxiliary wire when the function switch is in the Hands Free (HF) position. A Park Kill option is provided for connection to a door switch, etc. to disable the siren when exiting the vehicle. Radio and PA volume controls are provided on the front panel. Also located on the front panel are two LED's for speaker diagnostics.

This unit additionally contains several distinct controls for operation of vehicle devices. A slide switch allows quick pursuit mode operation. The far right slide position can be set up to activate maximum lights and siren for pursuit mode. There are four push buttons to control four different lighting or auxiliary functions.

The front panel is backlighted with LED's for night visibility. This compact unit utilizes short circuit, high voltage, low voltage, and reverse polarity protection systems for maximum service life.

INSTALLATION

Proper installation of the unit is essential for years of safe, reliable operation. Please read all instruction **before** installing the unit. Failure to follow these instructions can cause serious damage to the unit or vehicle and may void warranties.

Qualifications - The installer must have a firm knowledge of basic electricity, vehicle electrical systems and emergency equipment.

Keep These Instructions - Keep these instructions in the vehicle or other safe place for future reference. Advise the vehicle operator of the location.

Unpacking - Inspect contents for shipping damage. If found, alert carrier immediately. Contents should include unit with microphone, mounting bracket w/ 2 bolts, microphone bracket with 2 screws, siren and light wiring harnesses with connectors, and these instructions. Contact your supplier immediately if any components are missing.

Installer Selectable Options (Jumper Settings)

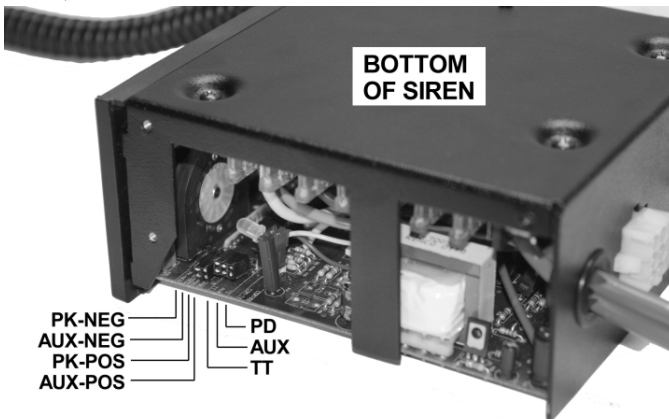
The LCS770 has several options that can be selected during installation. Jumpers on the printed circuit board, inside the case, allow the installer to select these various options. These options should be set before installation of the unit.

- Auxiliary input polarity
- Park Kill input polarity
- Two-tone replacement of Phaser tone
- Phaser Disable
- Slide Switch Pursuit Siren Disable
- Speaker (Audible Beep) Disable
- 8 second timed gun lock release (S4)



Cover Removal - Remove the three Philip head screws located on each side of the unit. **DO NOT REMOVE THE SCREWS ON THE BOTTOM OF THE UNIT!** Slide the top cover off of the unit. This cover can be removed completely from the siren unit. Carefully slide the cover off and set it aside.

After the cover has been removed, find the location of the option jumpers (see the diagram below).



Auxiliary Input Polarity - The auxiliary input (green wire) is normally activated by applying a positive voltage to the wire. To activate it by connecting it to ground (negative), move the jumper from the "AUX-POS" pins to the "AUX-NEG" pins.

Installer Selectable Options *(continued)*

Park Kill Input Polarity - The park kill (cutout) input turns off any siren tone output when activated (i.e. vehicle shifted into park, door opened, etc.), and remains off until a control on the siren is activated or changed. The wiring diagram on page 8 shows two connection examples.

The park kill input is normally activated by connecting the gray wire to positive voltage. To activate by connecting it to ground (negative) instead, move the jumper from the "PK-POS" pins to the "PK-NEG" pins.

Auxiliary Input Function - The auxiliary input (green wire) allows you to "mimic" either the Horn or the Manual button functions, through some other external switch such as the vehicle horn switch. The wiring diagram on page 8 shows two connection examples. NOTE: Permanent disconnection of the vehicle horn is NOT recommended.

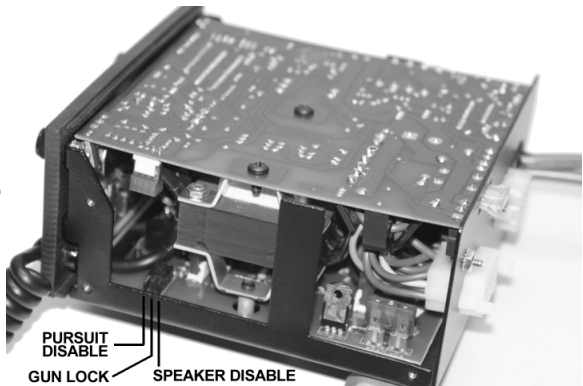
The siren is factory shipped with the auxiliary input option defaulted as the Horn function (on only one of the "AUX" pins). To utilize the auxiliary input as the Manual function instead of the Horn function, move the "AUX" jumper from one pin onto both of the pins.

Two-Tone – The Phaser sound can be replaced by a Two-Tone (HI-LO) sound by moving the "TT" jumper from one pin onto both of the "TT" pins.

Phaser Disable - The Phaser function can be completely disabled by moving the "TD" jumper from one pin to both pins. This will also disable the Two-Tone function used when the manual button is pressed while the mode switch is in the Phaser position.

Pursuit Disable - The farthest right slide switch position (L3) will normally activate the siren output in the wail mode, along with all three light functions. If you prefer to NOT have the siren automatically activated when the slide switch is moved to position three, move Pursuit Disable jumper onto only one pin.

8 second timed gun lock release (S4) - The amplifier is shipped with the fourth push button (S4) as a standard on/off button. It can be optionally selected to stay activated for only 8 seconds when pressed. To change button (S4) to a timed unlock remove the Gun Lock jumper and place it only on one pin.



Speaker Disable (Audible beep disable) - The audible beep heard when the light control buttons on the siren are pressed can be disabled. If you move the Speaker Disable jumper from both pins onto only one pin, the audible beep will cease.

MOUNTING

SAFETY PRECAUTIONS

For the safety of the installer, vehicle operator, passengers and the community please observe the following safety precautions. **Failure to follow all safety precautions and instructions may result in property damage, injury and/or death.**

!!! WARNING !!!

DO NOT mount in air bag deployment area.

Devices should be mounted only in locations listed in SAE standard J1849.

Controls should be placed within convenient reach of the driver.

Assure clearances before drilling in vehicle.

To prevent internal damage, the mounting bolts must not enter case more than 1/4".

Sound levels produced by attached speakers can cause permanent hearing loss.

Never operate this unit without adequate hearing protection for you and others in the area. (OSHA 1910.95)

The LCS770 siren may be mounted above the dash, below the dash, on a tunnel, or in a rack with the mounting u-bracket provided. Choose a mounting location convenient to the operator and away from any air bag deployment areas. Inspect behind mounting area for clearance. Assure adequate ventilation to prevent overheating. Consider wire routing and access to connections, as well as microphone bracket placement. Install mounting bracket to vehicle using 1/4" hardware (not supplied). Drill two 1/8" size holes, and install microphone clip using the two screws provided with the clip.

ELECTRICAL CONNECTIONS

Electrical connections to the unit are made using removable connectors located on the back. If the unit needs service the connectors can be easily unplugged from the unit without unwiring the connector.

The power supply of the siren must be capable of delivering peak currents up to 50 amps for adequate short circuit protection and reliable operation. The preferred source is directly at the vehicle battery. The unit is internally fused. A wiring diagram on page 8 shows detail of how to wire the siren to the vehicle.

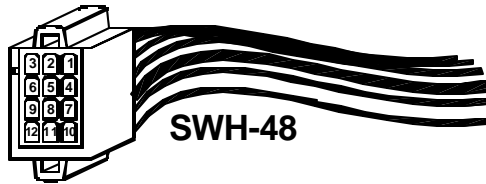
Wire Size and Termination - The wiring diagrams on pages 8 and 10 show the minimum wire size used for each connection, along with recommended lead color. If the wire is longer than 10 ft., then use the next larger wire size.

Please follow these guidelines when wiring the siren:

- Use only high quality crimp connectors.
- Make sure all connections are tight.
- Route wiring to prevent wear, overheating and interference with air bag deployment.
- Use grommets and sealant when passing through compartment walls.
- Minimize the number of splices to reduce voltage drop.
- Ground connections should only be made to substantial chassis components, preferably directly to the negative of the vehicle battery.
- Install and check all wiring before connection to vehicle battery.

Siren Wiring Connections:

Siren input and output connections are made on the back of the unit through a 12-pin connector and wiring harness (part # SWH-48).



Please review the Siren Wiring diagram on **page 8** and make your connections as follows:

- BLACK:** (Pins 2 & 5) **Ground** - Connect these leads to the negative of the battery, or to a good chassis ground. You **MUST** connect both leads if you are using two 100-watt speakers. Be sure to use minimum size #14 AWG wire.
- RED:** (Pins 1 & 4) **Power** - Connect both leads to the positive side of the battery, or to a high current power buss. You **MUST** connect both leads if you are using two 100-watt speakers. A power relay may also be used. Be sure to use minimum size #14 AWG wire.
- YELLOW:** (Pin 11) **Ignition Switched Power** - Connect to +12VDC through a switched power supply (possibly ignition). This will turn the siren and light controls on and off. Be sure to use minimum size #18 AWG wire. **NOTE:** *This wire performs the same function as the On/Off switch on the front of the unit.*
- ORANGE:** (Pin 9) **Backlight Power** - This lead supplies power for the backlighting of the faceplate. Connect it to +12VDC from the dash lights, parking lights or other switched source. Be sure to use minimum size #18 AWG wire. *Note: The unit will still function without power to this wire. There will not be any backlighting or visual feedback on the switches though.*
- BROWN:** (Pins 7 & 12) **Speaker Output** - Connect one lead to each terminal or lead of the speaker. Be sure to use minimum size #14 AWG wire. **If connecting a second speaker in parallel, you must observe the polarity of the speakers (phasing). Be sure that the positive terminals of both speakers are connected together to the same brown wire from the siren.** In which case, the negative terminals of both speakers would also be connected together to the other brown wire.

Siren Wiring Connections (CONTD):

Optional Connections:

BLUE: (*Pins 3 & 6*) **Input From Radio** - Used for radio repeat. Connect one blue lead to each terminal of the radio speaker or output connector of the radio. Most radio outputs are isolated, in which case polarity would not be important. Radios with polarity sensitive outputs should be connected w/ the blue wire from pin 6 to the positive radio output, and the blue wire from pin 3 to the negative radio output. Use #18 AWG wire.

GREEN: (*Pin 10*) **AUX or Horn Ring** - Used for remote Manual (or Air Horn) control. Connect to the horn ring circuit or some other remote switch. Circuit may be positive or negative with proper jumper selection. See INSTALLER-SELECTABLE OPTION section (page 3 and 4) for jumper details.

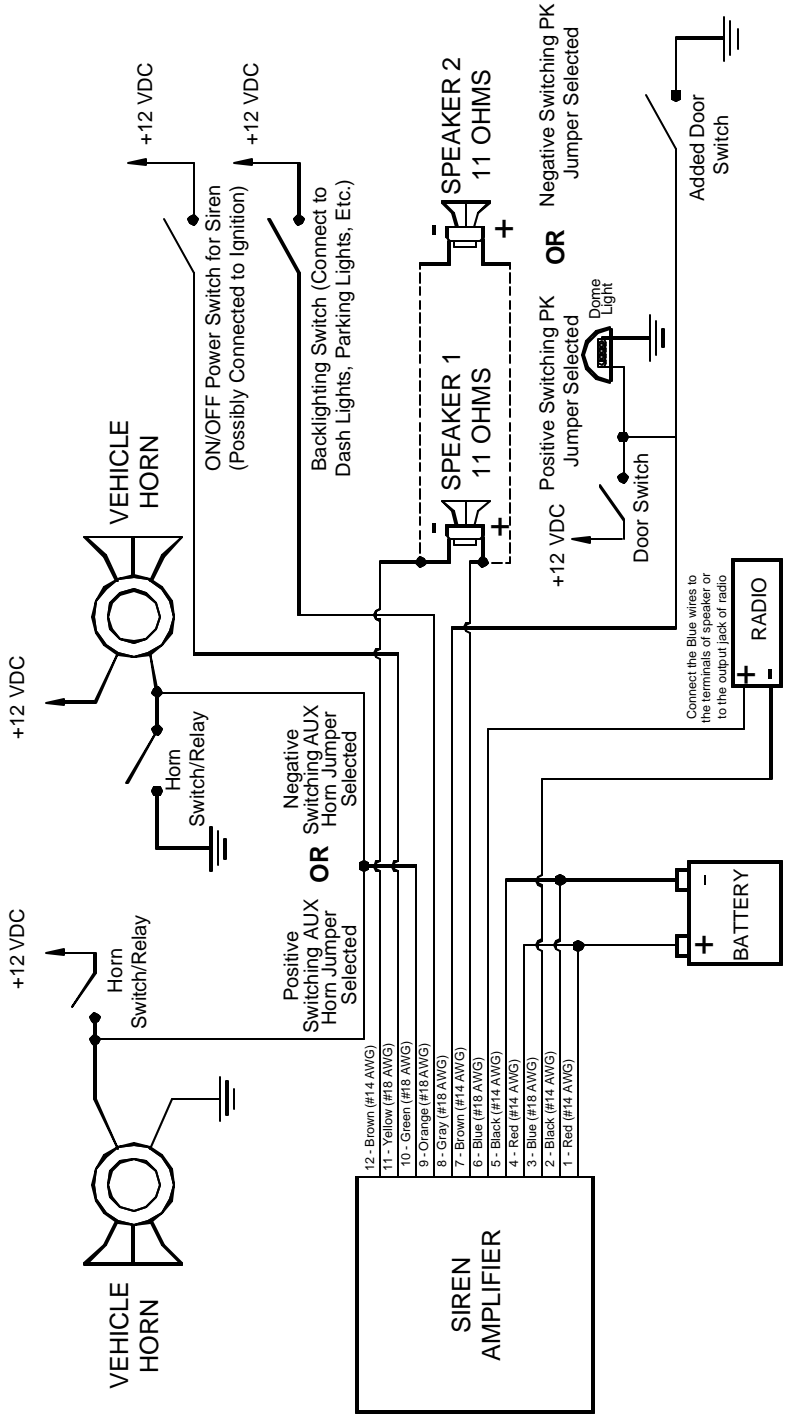
NOTE: Cut lead short if not used & insulate w/ electrical tape.

GRAY: (*Pin 8*) **Park Kill (Cut-off)** – This wire is used to de-activate the siren when the vehicle is exited. Connect to dome light or added door switch. Circuit may be positive or negative with proper jumper selection. See INSTALLER-SELECTABLE OPTION section (page 4) for jumper details.

NOTE: Be sure to cut lead short if not used and insulate with electrical tape.

Testing - Test all siren and light functions after installation to assure proper operation. Test vehicle operation to assure no damage to vehicle.

Siren Wiring Diagram



Light Wiring Connections:

Red: (8 AWG) +12VDC Power - The two large red wires exiting the back of the siren should be connected to +12VDC through a fuse rated for the TOTAL current draw of ALL of the lights controlled by this unit. They will supply the power to the lights hooked up to the 9-pin connector. **You must connect BOTH red wires.**

9-Pin Connector

(REFER TO THE LIGHT WIRE DIAGRAM ON THE NEXT PAGE FOR PROPER WIRE SIZES!)

The electrical connections for slide switch outputs, and for the push button light functions outputs are located on the square 9-pin connector (part #SWH-49) on the back of the siren.



Empty: (Pin 1)

Empty: (Pin 2)

Orange: (Pin 3) **L1 Output** – Output power to lights activated when the slide switch is in the 1st, 2nd, or 3rd position.

Yellow: (Pin 4) **S4 Output** - Output power to lights controlled by S4 button.

Green: (Pin 5) **S2 Output** - Output power to lights controlled by S2 button.

Blue: (Pin 6) **S3 Output** - Output power to lights controlled by S3 button.

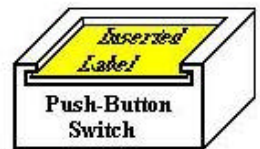
Violet: (Pin 7) **S1 Output** - Output power to lights controlled by S1 button.

Gray: (Pin 8) **L2 Output** – Output power to lights activated when the slide switch is in the 2nd or 3rd position.

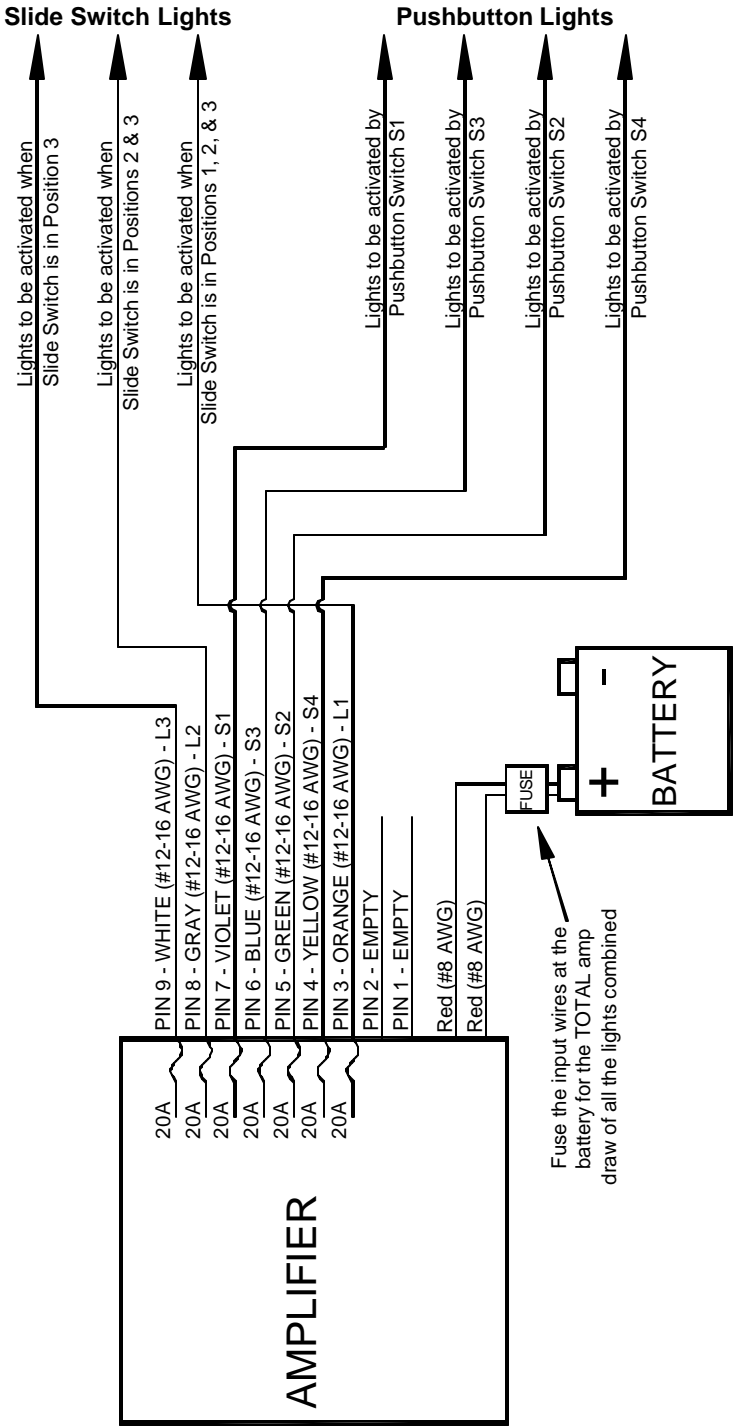
White: (Pin 9) **L3 Output** – Output power to lights activated when the slide switch is in the 3rd position.

Testing - Test all siren and light functions after installation to assure proper operation. Test vehicle operation to assure no damage to vehicle.

LABEL INSERTION: Once the wire connections have been made to S1 through S4, labels can be inserted into the switches. The product is shipped with 30 different labels for these push buttons. Select the desired label inserts (provided). Insert the label into each button and tuck it under the lip of the switch.



Lighting Connection Wiring Diagram



OPERATION



GENERAL

This unit is designed for easy operation under the stress associated with high-speed pursuit. Most siren functions are accessible with one simple motion without repetitive activation of switches or automatic timed switching that can interfere with desired operation.

ON/OFF

The *On/Off-PA volume control* (PA) will both turn the LCS770 unit on and off, as well as control the public address volume. It is located in the upper right hand corner of the front face. When the unit is not in use, you may elect to leave this switch in the OFF position. To turn the unit Off, rotate the switch counter clockwise until it clicks. This will power down the unit and will prevent accidental activation of any of the controls on the face of the unit. Rotating the knob clockwise will power up the LCS770. **THIS SWITCH MUST BE TURNED ON FOR ANY OF THE FUNCTIONS TO WORK.**



LIGHT SLIDE SWITCH

The slide switch is designed for quick pursuit mode operation. The far left position (OFF) will not activate any outputs. Position 1 will activate the first set of lights (connected to L1). Position 2 activates both the first and second set of lights (connected to L1 and L2). Position 3 activates all three sets of lights (connected to L1, L2 and L3), along with the siren. Each output is protected with a 20A fuse.

Pursuit Mode - Position 3 (farthest right) is generally used for the full pursuit mode. It allows for a quick procedure that will activate both the lights and the siren in one motion. When the slide switch is moved to Position 3, all three sets of lights will turn on and the siren will activate into the Wail mode. The siren may be disabled in the pursuit mode during installation if desired. (Refer to the section on page 4 under INSTALLER SELECTABLE OPTIONS).

LIGHT PUSH BUTTON SWITCHES

Four push button switches are provided to enable four separate functions. The far left push button (possibly L. Alley) will control the item(s) connected to S1. The second push button (possibly R. Alley) will control the item(s) connected to S2. The third push button (possibly Takedown) will control the item(s) connected to S3. The fourth push button will control the item(s) connected to S4 (possibly gun lock). Each of these four outputs is protected with a 20A fuse.



SELECTOR SWITCH

Whenever +12VDC is applied to the yellow wire, the siren will be "on" in the mode selected on this dial. The rotary selector switch controls the primary operating function of the siren.



PHSR (Phaser) - Ultra-fast changing tone used for maximum attention.

YELP - A rapidly changing tone used in congested areas.

WAIL - A slower changing tone used on highways.

HF (Hands Free) - Also known as Horn Ring Cyclers, allows the user to cycle through Wail, Yelp, Phaser and Manual by repeatedly pressing the horn or other switch connected to the AUX input. Operating any other switch resumes normal operation. Please note that this mode disables the Manual push-button selection when a Wail, Yelp, or Phaser tone is cycled to.

MAN (Manual) - A silent mode that allows push-button Manual, push-button Horn, and Public Address operation. The siren output *winds down* when the Manual button is released.

ALERT - A silent mode that allows push-button Manual, push-button Horn and Public Address operation. The siren output *terminates immediately* when the Manual button is released.

RADIO - Also known as Radio Repeat, this function amplifies a radio speaker input for re-broadcast outside the vehicle. The PA remains functional, but no siren tones are available in this position.

MANUAL and HORN BUTTONS

The front panel of the LCS770 contains two pushbuttons that operate the Manual function and the Air Horn.

Manual – When the selector switch is in the Wail, Yelp or Phaser positions, pressing the MAN button cycles through to a generally quicker changing tone. (See table on page 12). These quicker tones are used at intersections and very highly congested areas. Pressing the button once changes to the next faster tone and pressing again changes the tone back to original tone. With the selector switch in the Manual, Alert, or Hands Free position this switch provides a manually activated Wail siren tone while the button is being held. This is used to momentarily alert motorists or in low noise areas.



Optional operation includes replacement of the Phaser tone with Two-Tone (HI/LO) or disabling the Phaser tone entirely. These options are selected during installation and may be governed by State and/or Local laws.

<i>With Rotary Switch in this Position:</i>	<i>Pressing the MANUAL Push-Button Switch Does This:</i>
PHASER	Toggles the Output to TWO-TONE
YELP	Toggles the Output to PHASER
WAIL	Toggles the Output to YELP
HF (Hands Free)	Creates a manual WAIL tone while button is being held that sweeps down when the button is released.
MAN (Manual)	Creates a manual WAIL tone while button is being held that sweeps down when the button is released.
ALERT	Creates a manual WAIL tone while button is being held that stops immediately when the button is released.

(NOTE: PHASER and TWO-TONE may be optionally swapped or disabled via program jumpers. See the section on page 4 under INSTALLER-SELECTABLE OPTIONS.)

Air Horn – Pressing this button provides a simulated air-horn tone. This can be used to either replace, or to supplement the normal vehicle horn and is useful at intersections or in high noise areas. This tone will override all other siren tones.

VOLUME CONTROLS

The *radio repeat volume* (Radio) control is recessed in the upper left hand corner of the front face. This should be set when the vehicle is parked. First set the volume level of the vehicle's two-way radio to its normal operating volume. Adjust the siren's rotary selector switch into the RADIO position. Insert a small, flat blade screwdriver into the RADIO volume adjustment port. Turn clockwise direction to increase the sound level.



The *On/Off-PA volume control* (PA) will both turn the LCS770 unit on and off, as well as control the public address volume. It is located in the upper right hand corner of the front face. When the unit is not in use, you may elect to leave this switch in the OFF position. Turn the switch counter clockwise until it clicks. This will power down the unit and will prevent accidental activation of any of the controls on the face of the unit. Rotating it clockwise will power up the LCS770. As it is turned clockwise, the outside volume of the PA will increase.



MICROPHONE

The attached noise-canceling microphone is used for public address operation and overrides any siren tone when its push-to-talk (button on the side) is pressed.

AUXILIARY INPUT

During installation an auxiliary input may be connected to the vehicle horn ring or other switching device. It provides the same operation as pressing the Horn button or optionally (via internal jumpers) the Manual button.

PARK KILL (CUTOUT)

During installation, the Park Kill input may be connected to a door switch. It will automatically turn off any siren tone when the door is opened. The siren tone will continue to be cut off even when the door is closed. Changing any switch or input will restore normal function.

SPEAKER DIAGNOSTICS

There are two diagnostic LED's located beneath the MANUAL and HORN push buttons. These LED's will only turn on while a tone is trying to be generated. Status of the speakers are indicated as follows:

- Steady** - Speaker is connected and operating properly.
- Flashing** - There is an electrical short in the speaker or wires to the speaker.
- Off** - No speaker is connected, or
 - The siren is not activated to output a tone to the speaker, or
 - The speaker or wire connection is loose or is electrically open



SERVICE

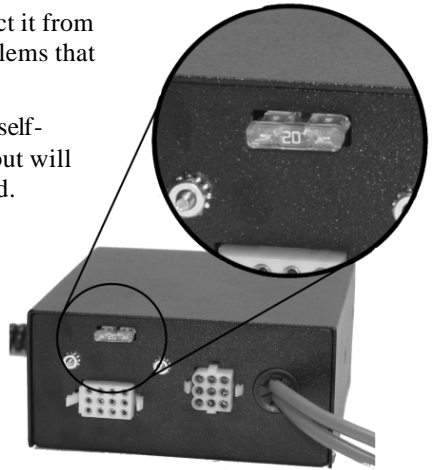
FUSES

There are several fuses in this unit that protect it from shorts, spikes, and other such electrical problems that may possibly damage the unit.

The HRT is protected internally by a 2 amp self-resetting fuse. This is not user serviceable, but will automatically reset once the short is removed.

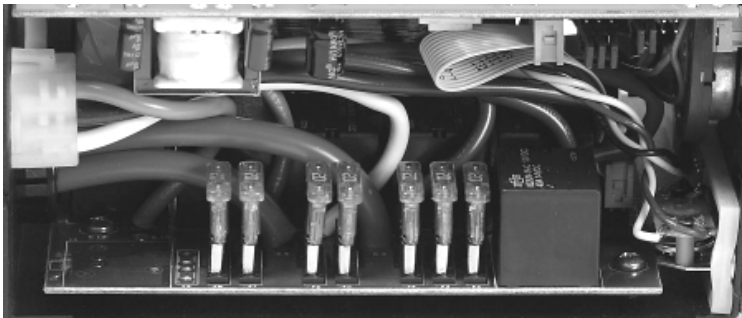
The entire unit is protected by a 20 amp automotive type fuse, located on the back of the unit. If your unit completely stops working, this fuse should be checked.

Seven additional fuses are located inside the control box. These fuses protect the seven high-current light outputs. If only one of your outputs is not working correctly, it may be that the corresponding fuse for that output has blown,



Cover Removal - Remove the three Philip head screws located on each side of the unit. **DO NOT REMOVE THE SCREWS ON THE BOTTOM OF THE UNIT!** Slide the top cover off of the unit. This cover can be removed completely from the siren unit. Carefully slide the cover off and set it aside.

After the cover has been removed, find the location of the fuses (see the diagram below). Each high current light output is protected with a separate 20A automotive blade fuse. Check each of these fuses to make sure they are all working properly, and none have blown.



TROUBLESHOOTING

This unit is designed to provide years of reliable service under even the worst conditions. Many times there may appear to be a problem with the unit when the true problem is in the speaker(s) or improper installation. The following chart shows typical symptoms and possible causes.

Symptom	Possible Cause	Check
No power	On/Off PA Vol. Not ON Yellow wire is not powered Connector loose Siren 20A fuse blown Loose connection at power source	Be sure the On/Off PA Vol. Knob is not in the OFF position Is yellow wire connected to switched +12VDC? Check connector Is power hooked up backwards? Positive ground vehicle? Is an external fuse or circuit breaker used? Are the negative leads connected to a good ground?
No siren tone - PA works No siren tone - No sound	High voltage protection Low voltage protection Microphone button stuck Park Kill polarity option set wrong Park Kill activated Bad speaker or speaker wiring	The input voltage must be less than 16 volts. The input must be greater than 10V with the siren turned on. Does microphone button release properly? Is the PK jumper option properly configured? Does the siren work when Park Kill input is disconnected? Check for a short. Check the PA Vol. In ON and turned up Check for an open.
No PA	PA volume not set properly	Have you tried turning the PA volume control?
Distorted siren sound	Speaker assembly loose Intermittent Aux. Input connection Low or high vehicle voltage	Is the speaker bell or tip loose? Is the Aux. Input used and wired properly? Input voltage must be between 10-16 volts while siren is on.
Intermittent siren tone	High voltage protection Low voltage protection Microphone button activation Circuit breaker in supply connection Shorted speaker or speaker wire	Is the vehicle voltage regulator working properly? Is the connector tight on the back of the unit? Is there a loose connection on a power lead? The input must be greater than 10V with the siren turned on. Is something lying on the microphone? Is a circuit breaker used with at least a 50A rating? Does the speaker have water damage, or is a wire pinched?
Horn function or Manual or Phaser stuck on	Manual or Horn button stuck Aux. Input improperly connected Aux. Input Polarity Option set wrong	Does the switch return fully when released? Is the Aux. Input used and wired properly? Is the AUX jumper option properly configured?
No Radio No or Low Radio	Unit not connected to radio Radio volume too low Radio outputs not isolated and polarity hooked up backwards	Is the radio connected properly to the unit? Can you hear the radio in the vehicle? Have you tried turning the Radio volume control? Are the radio wires connected to the correct polarity from the radio output?
Wrong siren tone	Two-Tone option jumper installed Aux. Input set to wrong function	Is the TT jumper option properly configured? Is the AUX jumper option configured properly?
Phaser not working	Phaser disabled	Is the PD jumper option configured properly?
One light output not working	Internal 20A fuse blown	Check the output fuses inside the unit.

PARTS

The following parts are available from Signal Vehicle Products:

Part	Description
S30235-13	Siren Top Cover
S30234-13	Siren Bottom Mounting Plate
SWH-49	9-Conductor Wiring Harness for Lighting Functions
SWH-48	12-Conductor Wiring Harness for Siren Connections
P30069-38	Microphone Bracket with Screws
P30056-16	1/4-20 x 3/8" Hex Locking Bolt
P30028-1	20 Amp Automotive Fuse
P30232-1	Noise Cancelling Microphone
P30208-10	Microphone Strain Relief
P30032-8	TIP36C Power Transistor
P30239-1	Rotary Selector Switch Knob
P30253-3	Keypad
P8070-254-1	Circuit board for Keypad
S30007-66-3	Slide Switch
P30007-66-1	Slide Switch Knob
P30230-19	PA Volume Knob
P30147-44	Mounting Bracket
P30050-28	Case Screws
P30147-117	Flush Mount Bracket

SPECIFICATIONS

Input Voltage	10 - 16 VDC (negative ground)
Input Current	8.0 Amps @ 13.6 VDC (single 100W speaker) 16.0 Amps @ 13.6 VDC (dual 100W speakers)
Standby Current	Less than 15 mA
Audio Frequency	200Hz - 10 kHz \pm 3db
Audio Output	40 watts @ 13.6 VDC
Speaker Output Power	105 WATTS RMS MAX. (15.0 VDC – single 100W speaker) 180 WATTS RMS MAX. (15.0 VDC – dual 100W speakers)
Siren Frequency	675Hz - 1633Hz
High Voltage Protection	16 - 18 VDC will cause siren output to cease, resumes at normal voltage
Speaker Short Circuit Protection Current	50 AMPS (battery must be capable of supplying this for unit to auto shut-down with a speaker short)
Operating Temperature	-15° F to +140°F
Siren Controls	7-position rotary switch (Radio, Alert, Manual, HF, Wail, Yelp, Phaser) Push-Button Manual and Horn switches Auxiliary input (jumper programmable) for positive or negative horn -Remote Manual or Hands Free operation Park Kill input (jumper programmable) for positive or negative activation Phaser (and Two-Tone) disable (jumper programmable) Two-Tone activation (swaps modes with Phaser) (jumper programmable)
Diagnostic Indicators	Two LED indicators provide diagnostic feedback, one for each speaker
Light Controls	4 push-on/push-off buttons (1 programmable 8 sec. time delay) 4-position slide switch (Off, L1, L1 & L2, L1 & L2 & L3 & Wail)
Light Output Ratings	20A fuse on each of the 7 light outputs. (4 push buttons, 3 slide positions)
Siren Connections (12-Pin Connector)	Detachable, 12-pin, positive locking connector with pigtail leads. (2) Positive, (2) Negative, (1) Activation (on/off), (1) Backlighting, (2) Speaker, (2) Radio, Auxiliary, Park Kill
Light Control Connections (9-Pin Connector)	+12 – two 8 AWG leads L1, L2, L3 (Slide Switch) and S1, S2, S3, S4 (Push buttons)
Size	6" Wide, 6-1/2" Deep, 3" High
Shipping Weight	6 lbs.

LIMITED WARRANTY

Signal Vehicle Products warrants this new product to be free from defects in material and workmanship, under normal use and service, for a period of one (1) year from the date of delivery to the first user-purchaser.

During this warranty period the obligation of Signal Vehicle Products is limited to repairing or replacing, as Signal Vehicle Products may elect, any part or parts of such product which after examination by Signal Vehicle Products is determined to be defective in material and/or workmanship.

This warranty does not cover labor charges for removal or re-installation of the product. Fuses and lamps are not covered under this warranty.

This warranty does not extend to any unit that has been subjected to abuse, misuse, improper installation or which has not been adequately maintained, nor to units which have problems related to service or modification at any facility other than the manufacturer.

THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SIGNAL VEHICLE PRODUCTS BE LIABLE FOR ANY LOSS OF PROFITS OR ANY INDIRECT OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY SUCH DEFECT IN MATERIALS OR WORKMANSHIP.



PROUDLY MADE IN THE USA
An ISO 9001 Certified Company

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