

INSTALLATION INSTRUCTIONS

FR100 SERIES SIREN W/ PA FUNCTION

200 WATT SINGLE TONE



SoundOff
Signal ®



DANGER!

- Sirens provide an essential function of an effective audio / visual warning system. However, sirens are only short range secondary devices. The use of a siren does not insure that all drivers can or will abide by or react to an emergency warning signal, especially at high rates of speeds or long distances. The operator of the vehicle must never take the right of way for granted and it is the operator's responsibility to proceed safely.
- The effectiveness of this siren system is highly dependant on the correct mounting and wiring. The installer must read and follow the manufacturer's installation instructions and warnings in the manual. The vehicle operator should verify the siren system is securely fastened to the vehicle and properly functioning.
- Effective sirens generate loud sound pressure levels that can potentially cause hearing damage. Installers and those around the vehicle need to be aware of the dangers and wear hearing protection whenever the siren system is operating. Vehicle operators and occupants should assess their exposure to siren noise and determine what steps need to be taken to prevent hearing damage.
- The siren system is intended for use by authorized personnel only. It is the user's responsibility to ensure they understand and operate the emergency warning devices in compliance with all applicable city, state, and federal laws and regulations. SoundOff Signal assumes no liability for any loss resulting from the use.


WARNING

- Sirens produce loud sounds that may damage hearing:
 - Roll up windows.
 - Wear hearing protection.
 - Use only for emergency response.
 - Avoid exposure to siren sound outside of vehicle.

**IMPORTANT NOTICE TO INSTALLER:**

- Make sure to read and understand all instructions and warnings before proceeding with the installation of this product. Ensure the manual and all warning cards are delivered to the end user of this equipment.
- HIGH CURRENT interconnects must be properly terminated. Poor crimp quality can cause heat build-up and fire. Follow crimp connector manufacturer instructions.
- DO NOT install this product or route any wires in the Air Bag Deployment Zone. Refer to vehicle Owner's Manual for deployment zones.
- DO NOT use system to disconnect headlights, brake lights or other safety equipment.
- Unit may become hot to touch during normal operation.
- Failure to properly install connectors, fuses or wiring may cause vehicle failure or fire.
- Installation must only be performed by trained technician. Installer must determine vehicle wiring configuration and proper integration of system.
- Use proper wire gauge. All power wires connecting to positive (+) or negative (-) battery terminal or local chassis ground (-) must be sized to supply at least 125% of max. current and properly fused at power source.
- Install protective grommets when routing wire through firewall or metal.


WARNING

- DO NOT install this product or route its wires in the air bag deployment area. Doing so may cause damage to or reduce effectiveness of the air bag, or create projectile that could cause serious injury or death. To determine air bag deployment area refer to vehicle manufacturer's manual.

NOTICE:

- Installers and users must comply with all applicable federal, state and local laws regarding use and installation of warning devices.
- Improper use or installation may void warranty coverage.
- To review our Limited Warranty Statement & Return Policy for this or any SoundOff Signal product, visit our website at www.soundoffsignal.com/tech-services/returns/.
- If you have questions regarding this product, contact Technical Services, Monday - Friday, 8 a.m. to 5 p.m. ET at 1.800.338.7337 (press #4).
- Questions or comments that do not require immediate attention may be emailed to techgroup@soundoffsignal.com.

Table of Contents

Introduction	4
Technical Specifications	4
Mounting	4
Siren Button / Layout Information.....	5
Siren Harness / Functions	6
Speaker Harness / Functions	7
Programming	7
Programming Continued.....	8
Wiring Diagram	9
Horn Ring Wiring Diagram	10
Tone Defaults	11
Tone List	12

CONTENTS	
QTY	COMPONENT
1	SIREN UNIT
1	DETACHABLE MIC
1	U-BRACKET
1	MIC MOUNTING CLIP
2	10 X 3/4" HEX-WASH HEAD SELF DRILL SCREW
2	1/4"x 1/2" HEX HEAD BOLT
2	STAR LOCK WASHER
3	3.8 X 10mm SELF TAPPING SCREW
1	4-PIN SPEAKER HARNESS (12")
1	12-PIN IP HARNESS (12")
1	SIREN WARNING CARD
1	PRODUCT WARNING CARD
1	USER WARNING STICKER
1	INSTALLATION INSTRUCTION SHEET

TECHNICAL SPECIFICATIONS	
Overall Dimensions:	Height: 54.3mm (2.14") (~2 9/64") Width: 152.6mm (6") Depth: 156mm (6.14") (~6 9/64")
Input Voltage:	10 - 30VDC (negative ground)
Operating Temperature:	-40°C to +50°C
Diagnostic LED:	Speaker Normal Operation, Output Speaker Wire Short Circuit, Speaker Open Circuit
Siren	
Input Current	9.5 Amps @ 13.6 VDC (100W Speaker) 19 Amps @ 13.6 VDC (2 x 100W speakers)
Standby Current Ignition OFF:	0.125mA
Output Power:	1x100W RMS Max (11 Ohm speaker) 2x100W RMS Max (11 Ohm speaker)
Audio Frequency:	300 - 10,000Hz
Siren Frequency:	500Hz - 2000Hz
High Voltage Protection:	Limits to <36V If siren tone is in progress, sound will continue during overvoltage. New siren tone will not activate if voltage is >36V
Low Voltage Shutdown::	Voltage <9.0V will cause siren output to cease and will resume when system voltage is >9.5V
	Tone disable for California Title 13 compliance
	Auxiliary Input connection for remote manual or Hands Free operation
Speaker Protection:	Shorted, Open: Stop output signal, preserve Amp

INTRODUCTION

Thank you for choosing to equip your vehicle with SoundOff Signal's First Responder Siren, the FR100. The FR100 is a compact siren to meet the basic functions required for fire and emergency vehicles.

The FR100 siren is ergonomically engineered to include large buttons, knobs and switches for easily accessing the desired function with gloves, physical tactile feedback from all buttons & switches and translucent red backlit silicon buttons with text for day or night application.

The FR100 sirens features include:

- Up to 24 selectable tones
- Horn & Manual button
- Dedicated Mechanical tone button
- Operates up to 2 x 100W speakers
- Hands free operating mode
- Horn ring transfer input

SoundOff Signal is excited to be your partner for safety and we offer industry-leading service and support to all our products. After fully reviewing these instructions, please contact us should you have questions or concerns about the installation or use of this product.

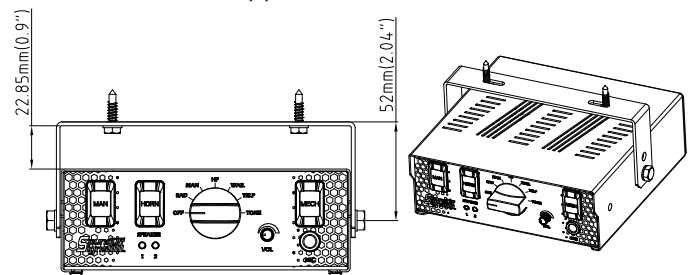
OPERATING MODES

The primary operating modes are User Selectable Tone, Yelp, Wail, Radio, PA, Horn Override, and a push-button Manual Override are available in all modes. All tones may be disabled by programming the siren except for Wail and Yelp which are required for California Title 13 compliance.

MOUNTING

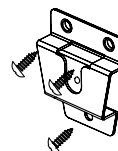
Siren Installation

1. Choose a sturdy location to mount the U-Bracket (Ensure the siren amplifier / relay unit is mounted in dry, protected environment).
2. Use U-Bracket as a template and mark the two holes to be drilled.
3. Use a 1/8" drill bit to drill the mounting holes.
4. Install the U-Bracket with the two 10 x 3/4" hex-wash head self drill screws provided for bracket.
5. Mount the siren to the U-Bracket by using the two 1/4-20" bolts supplied for the siren.



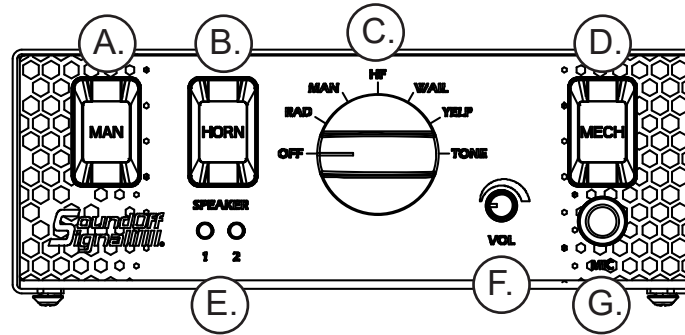
Microphone Bracket Installation

1. Choose a location convenient to the operator to mount the microphone metal clip and insure that it is away from any air bag deployment areas.
2. Using the mounting clip as a template, mark the two holes to be drilled.
3. Using a 1/8" drill bit, drill the two mounting holes.
4. Install the three 3.8 X 10mm hex-wash head self drill screws provided with the bracket.



SIREN FUNCTIONS

FRONT VIEW



A. MAN BUTTON: Pressing button will activate a Manual Wail tone (default) while pressed, when button is released Tone will STOP.

B. HORN BUTTON: Pressing button will activate 1 of 9 Horn tones (HORN4 default) while pressed, when button is released Horn will STOP.

C. ROTARY SWITCH: Turning switch will activate the function chosen.

- RAD - Radio Rebroadcast: Allows the Radio to broadcast over the siren speaker.
- MAN - Pressing the MAN button while selected will activate tone until button is released.
- HF - Hands Free: This allows to activate and change siren tones with the MAN button or Horn Ring (if connected).
- Horn Ring - Single press to activate. Press and hold for HORN tone. Double press to deactivate.
- WAIL - Activates Wail 1 Tone (default).
- YELP - Activates Yelp 1 Tone (default).
- TONE - Activates Piercer Tone (default).

D. MECH BUTTON: Pressing button will activate a Simulated Mechanical tone (default) while pressed, when button is released Tone will DECAY to OFF.

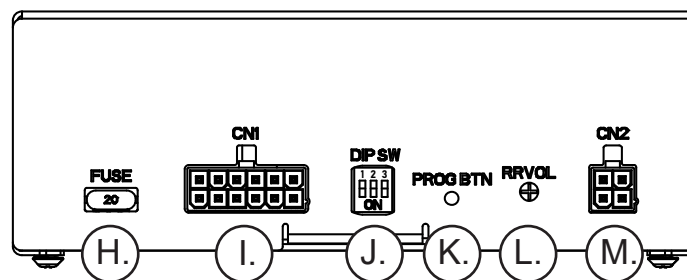
E. SPEAKER LEDs: LEDs will be on to notify you when speakers are Active.

F. VOLUME SWITCH: Turning switch will adjust the volume of the Public Address (PA).

G. PA MIC: Plug in the MIC for the Public Address function. (MIC Activation will OVERRIDE Tones)

NOTE: HORN RING or MANUAL BUTTON - Single Press will change to Override Tone. HORN RING Press and Hold will produce HORN Tone.

REAR VIEW



H. MAIN FUSE LOCATION: 20AMP

I. MAIN SIREN WIRE HARNESS (page 6. for more details)

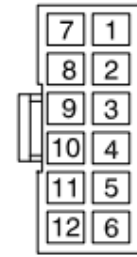
J. DIP SWITCHES: Allows to change Park Kill input polarity, Horn Ring input polarity and CA Title 13 Mode. (page 8. for more details)

K. PROGRAM BUTTON: Button to change settings (page 7. for details)

L. RADIO REBROADCAST VOLUME: Adjust the volume for radio rebroadcast.

M. SPEAKER WIRE HARNESS: Harness for the Siren Speakers. (page 7. for details)

SIREN HARNESS				
PIN	FUNCTION	WIRE COLOR	I/O	WIRE SIZE
1	RADIO REBROADCAST INPUT	BLUE	INPUT	18AWG
2	PARK KILL INPUT	YELLOW	INPUT	18AWG
3	RADIO REBROADCAST INPUT	BLUE	INPUT	18AWG
4	NOT USED			
5	GROUND	BLACK	POWER	16AWG
6	POWER	RED	POWER	16AWG
7	BACKLIGHT INPUT	GRAY	INPUT	18AWG
8	AUXILIARY INPUT	VIOLET	INPUT	18AWG
9	HORN RING IN	WHITE/BLACK	INPUT	18AWG
10	HORN RING OUT (W/7.5 A FUSE)	WHITE	OUTPUT	18AWG
11	GROUND	BLACK	POWER	16AWG
12	POWER	RED	POWER	16AWG



Rear View

Backlight Input: (Gray Wire)

The input will turn on the backlighting of the control panel whenever +V is applied to the backlight input wire. Route the siren amplifier backlight input wire to the vehicle's marker light wiring using a minimum of 22ga. wire to extend as needed. T-tap the backlight input wire into the vehicle's marker light +V wire.

Auxiliary Input: (Violet Wire)

The input is an optional input which will remotely activate the siren when the auxiliary input wire is connected to ground. If this feature is needed, connect the auxiliary input wire to a switch which provides a ground connection when activated.

*Park kill disables any active auxiliary tone. The auxiliary tone can be reactivated when Park Kill is activated by toggling the Auxiliary Input.

Radio Rebroadcast Input: (Blue Wires)

The 2 – 18ga blue wires on the 12 pin Molex connector are used to connect your two-way radio's external speaker through the siren amplifier and broadcast through the warning siren speaker (optional). Radio Rebroadcast will not work with remotely amplified speakers due to the signal amplitude being too low.

1. Locate the 2 wires that connect the external speaker to the two-way radio.
2. T-tap one blue wire into one of the external speaker wires. T-tap the other blue wire into the other external speaker wire (If the blue wires need to be extended, use a minimum of 20ga. wire).
3. The Radio Rebroadcast volume must be adjusted prior to placing vehicle into service. Set the volume of the two-way radio to the normal operating level.
4. Adjust ROTARY SWITCH to the RAD position. With a small screwdriver, adjust the radio rebroadcast volume potentiometer located on the back of the siren amplifier to obtain the proper volume out the speaker (Turn potentiometer clockwise to increase volume and counter-clockwise to decrease volume).

Horn Ring Input: (White/Black Wire)

The input will allow the operator to control the siren function by pressing the vehicle horn ring. Refer to wiring diagram (Pg. 9) for details on how to connect the horn ring input wires to the vehicle's horn ring wiring. If this feature is required, the installer needs to determine if the signal wire from the horn ring is switching the +V or ground side of the circuit. Refer to programming instructions on how to set the horn ring polarity on the siren. Extend the horn ring input wires from the siren amplifier to the horn ring switch using a minimum of 18ga wire. The horn ring circuit is capable of handling a maximum of 7.5 amps.

NOTE: While completing the installation process ensure the included 7.5Amp inline fuse holder is not removed.

Park Kill Input: (Yellow Wire)

The input will silence the siren tone when the input wire is activated. The input is typically connected to the transmission neutral safety switch. If this feature is required, the installer needs to determine if the signal wire from the neutral safety switch is switching the +V or ground side of the circuit. Refer to the programming instructions on how to set the park kill polarity on the siren. Extend the park kill input wire from the siren amplifier to the neutral safety switch using a minimum 22ga. Wire. Park kill Vin Low is < 5Vdc.

SPEAKER HARNESS				
PIN	FUNCTION	WIRE COLOR	I/O	WIRE SIZE
1	SPEAKER A (-)	ORANGE/ BLACK	OUTPUT	18AWG
2	SPEAKER A (+)	ORANGE	OUTPUT	18AWG
3	SPEAKER B (-)	GREEN/BLACK	OUTPUT	18AWG
4	SPEAKER B (+)	GREEN	OUTPUT	18AWG



Rear View

Siren Speaker Output: (Orange + Orange/Black Wires), (Green + Green/Black Wires) Use a minimum of 18ga. wire to extend the wires as needed. Connect the Orange wire to the primary Speaker High wire. Connect the Orange/Black wire to the primary Speaker Low wire. Connect the Green wire to the secondary Speaker High Wire. Connect the Green/Black wire to the secondary Speaker Low Wire.

Wire capacity requirements for siren amplifier (incoming power)-each supply and ground wire.

0-10 Feet:	16 AWG
10-20 Feet:	14 AWG
20-30 Feet:	12 AWG
30+ Feet:	Consult Factory to determine requirements

PROGRAMMING

Change Tones for Rotary Switch Positions (Wail, Yelp, Tone)

1. Adjust ROTARY SWITCH to the position you want to change.
2. Press and release the PROGRAMMING BUTTON on the rear of the siren and the next tone on the list will play (Ref. Pg. 12).
3. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the programming button is released.

Change Override Tone for Rotary Switch Positions Wail, Yelp, Tone

1. Adjust ROTARY SWITCH to the position you want to change.
2. Press and hold the MAN button on the front panel of the siren.
3. Press and release the PROGRAMMING BUTTON on the rear of the siren and the next tone on the list will play (Ref. Pg.12).
4. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change Tone for Rotary Switch Position Hands Free (HF)

1. Adjust ROTARY SWITCH to the HF position. There are 3 HF cycle positions to program.
2. Press and release the MAN BUTTON on the front panel of the siren and Hands Free cycle position 1 will play.
3. Press and release the PROGRAMMING BUTTON on the rear of the siren and the next tone on the list will play (Ref. Pg. 12).
4. Press and release the PROGRAMMING BUTTON until the desired tone is playing.
5. Press and release MAN BUTTON again to advance to HF cycle position 2, and then press and release the PROGRAMMING BUTTON until the desired tone is playing.
6. Press and release the MAN BUTTON to advance to HF position 3 and then press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change Tone for MAN Button

1. Adjust ROTARY SWITCH to the MAN position.
2. Press and hold the MAN BUTTON on the front panel of the siren and then press and release the PROGRAMMING BUTTON on the rear of the siren and the next tone on the list will play (Ref. Pg. 12)
3. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change Tone for HORN Button

1. Adjust ROTARY SWITCH to the MAN position.
2. Press and hold the HORN BUTTON on the front panel of the siren and then press and release the PROGRAMMING BUTTON on the rear of the siren, the next tone on the list will play (Ref. Pg. 12).
3. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change Tone for MECH Button

1. Adjust ROTARY SWITCH to the MAN position.
2. Press and hold the MECH BUTTON on the front panel of the siren and then press and release the PROGRAMMING BUTTON on the rear of the siren and the next tone on the list will play (Ref. Pg. 12).
3. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change MAN Override Tone for Rotary Switch Position RAD

1. Adjust ROTARY SWITCH to the RAD position.
2. Press and hold the MAN button on the front panel of the siren and then press and release the PROGRAMMING BUTTON on the rear of the siren to get the next tone on the list to play (Ref. Pg. 12).
3. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

PROGRAMMING CONTINUED

Change MECH Override Tone for Rotary Switch Position RAD

1. Adjust ROTARY SWITCH to the RAD position.
2. Press and hold the MECH BUTTON on the front panel of the siren and then press and release the PROGRAMMING BUTTON on the rear of the siren, the next tone on the list will play (Ref. Pg. 12)
3. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change Primary Tone for AUX Input

1. Adjust ROTARY SWITCH to MAN position and activate AUX Input to ground to produce primary tone.
2. Press and release the PROGRAMMING BUTTON on the rear of the siren, the next tone on the list will play (Ref. Pg. 12).
3. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change Override Tone for AUX Input:

1. Adjust ROTARY SWITCH to MAN position and activate AUX Input to ground to produce primary tone.
2. Press MAN BUTTON to advance to the Override tone.
3. Press and release the PROGRAMMING BUTTON on the rear of the siren, the next tone on the list (Override ToneList for Rotary Switch Positions Wail, Yelp, Tone, AUX) will play. Press and release the PROGRAMMING BUTTON until the desired tone is playing. The tone is saved as soon as the PROGRAMMING BUTTON is released.

Change Park Kill Mode Configuration

1. Adjust ROTARY SWITCH to the MAN position.
2. Apply proper polarity to the Park Kill wire (set by DIP Switch SW1)
3. Press and release the PROGRAMMING BUTTON on the rear of the siren and observe the Speaker Diagnostic LEDs on the front panel:
 - SPKR 1 LED flashes 3 times indicates its in Cancel Mode
 - SPKR 2 LED flashes 3 times indicates its in Pause Mode

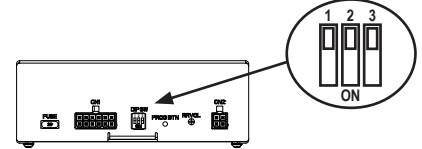
Resetting the Siren to Factory Defaults

1. Adjust the ROTARY SWITCH position to MAN.
2. Press and HOLD the PROGRAMMING BUTTON on the rear of the siren for 5 seconds. (When the defaults are reset, the Speaker Diagnostic LEDs will flash 1 sec ON, 1 sec OFF until the PROGRAMMING BUTTON is released. The Siren is now restored to factory default settings.

Change Backlight Intensity levels

1. Adjust ROTARY SWITCH to the OFF position.
2. Apply power to Backlight wire.
3. Press and release the PROGRAMMING BUTTON on the rear of the siren and the next backlight level will be saved (The level is saved as soon as the programming button is released. There are 4 settings; High (default), Med, Low, OFF).

DIP Switch Settings



SW 1

Park Kill Input Polarity

- UP (OFF) Default: Park Kill Input Activation by Applying Ground (-)



- DOWN (ON): Park Kill Input Activation by Applying Power (+)



SW 2

Horn Ring Input Polarity

- UP (OFF) Default: Horn Ring Input Activation by Applying Ground (-)



- DOWN (ON): Horn Ring Input Activation by Applying Power (+)



SW 3

To Enable/Disable CA Title 13 Mode

- UP (OFF) Default: CA Title 13 Mode Disabled

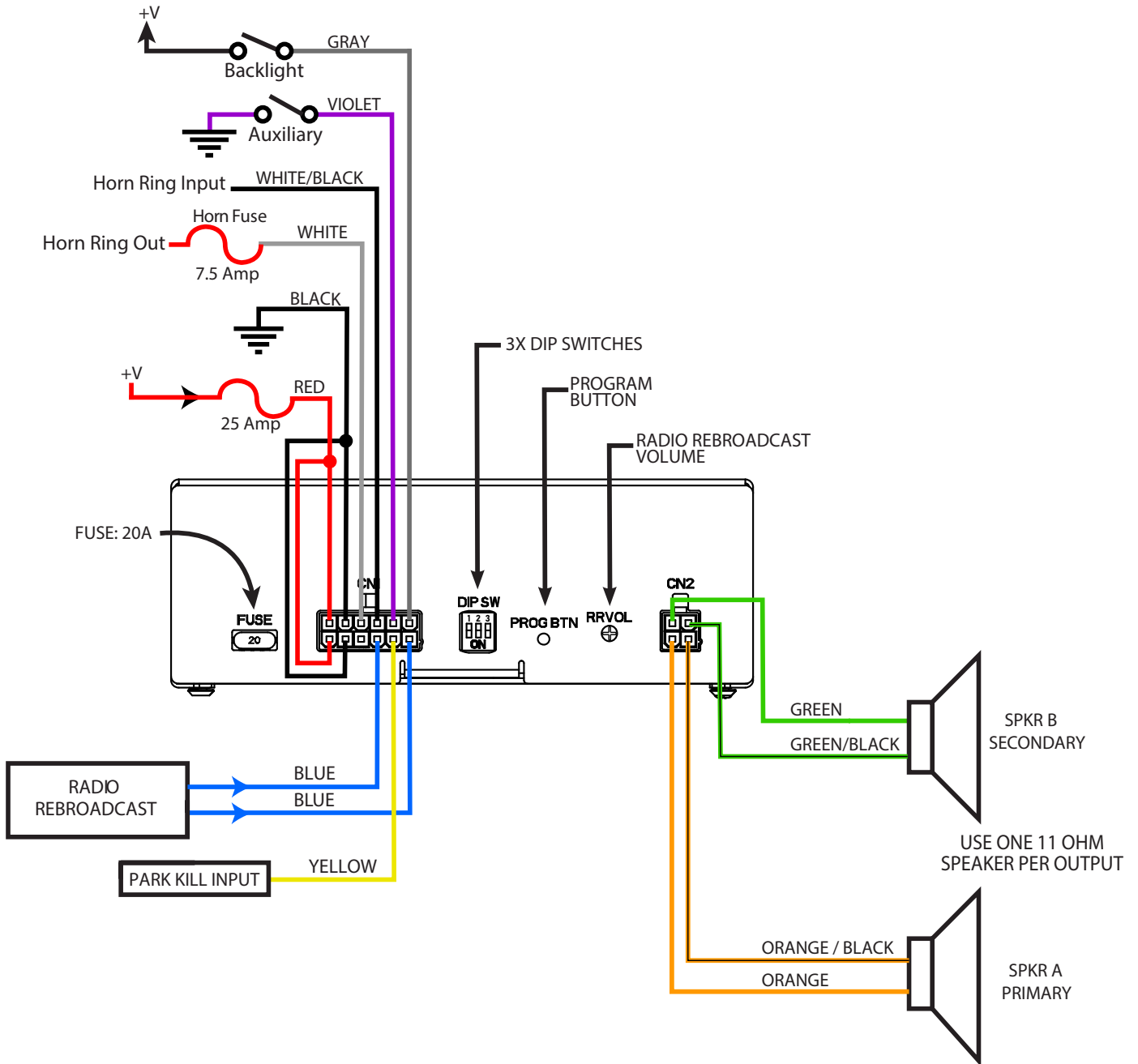


- DOWN (ON): CA Title 13 Mode Enabled



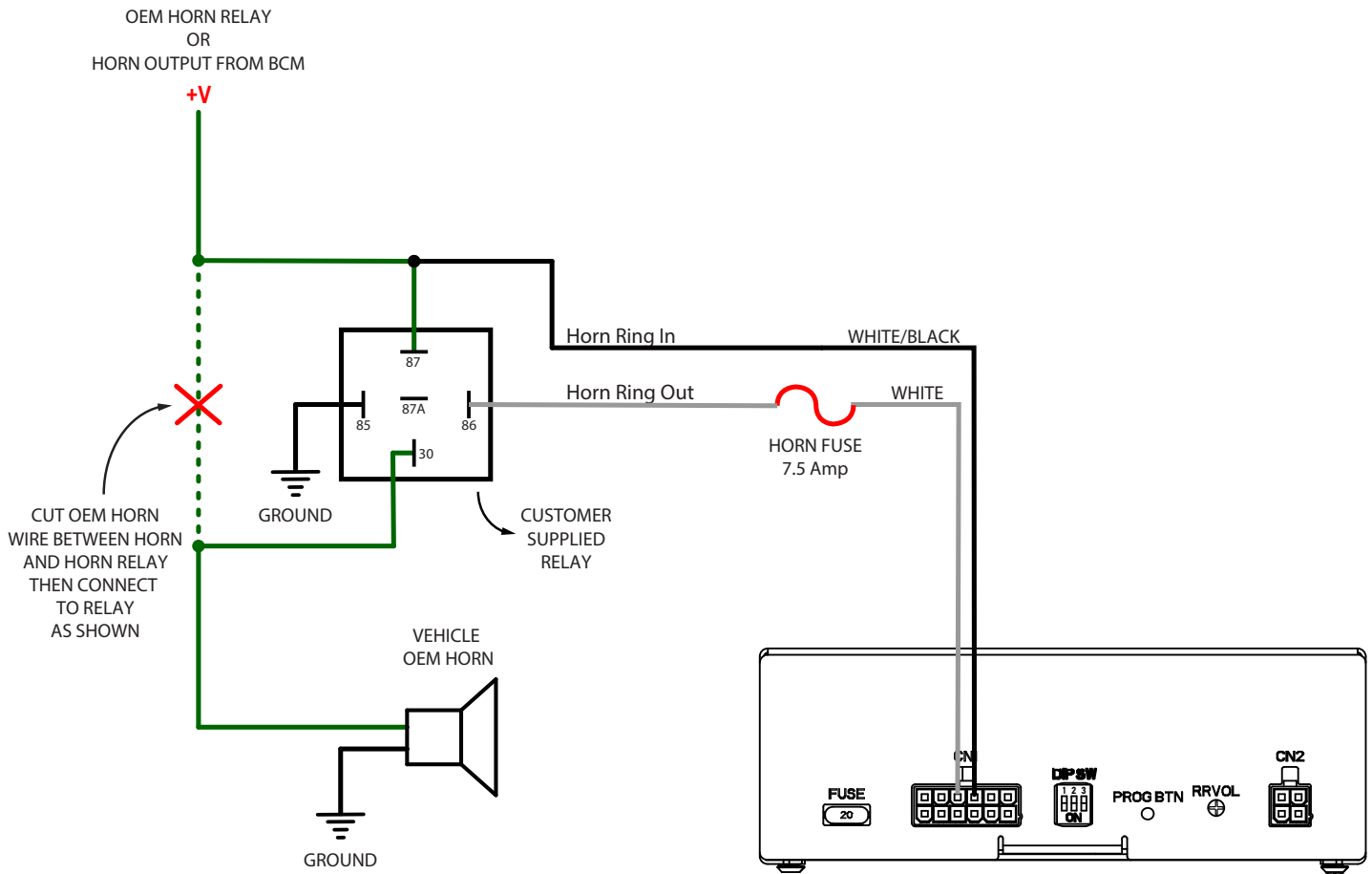
To Enable CA Title 13 Mode, move the switch DOWN to the (ON) position. This will activate CA Title 13 Mode which affects Default tones as shown on CA Title 13 Mode Default Tones list, and Applies the following rule to HORN; HORN is NOT allowed to override primary warning tones.

WIRING DIAGRAM



HORN RING WIRING DIAGRAM

*Only necessary when the horn is a **POSITIVE** input and requires more than 7.5 amps.



TONE DEFAULTS

PROGRAMMABLE TONES	CA TITLE 13 OFF	*CA TITLE 13 ON
RR MAN OVERRIDE	Manual Wail, Immediate OFF when Released	OFF
RR MECH OVERRIDE	Simulated Mechanical, Immediate OFF when Released	OFF
HORN BUTTON	HORN4	HORN4
MAN BUTTON	Manual Wail, Immediate OFF when Released	Manual Wail, Immediate OFF when Released
MECH BUTTON	Simulated Mechanical, Frequency Decay when Released	Simulated Mechanical, Frequency Decay when Released
HANDSFREE 1	Wail1	Wail1
HANDSFREE 2	Yelp1	Yelp1
HANDSFREE 3	Piercer	Yelp2
WAIL POSITION	Wail1	Wail1
WAIL POSITION OVERRIDE	Yelp1	Yelp1
YELP POSITION	Yelp1	Yelp1
YELP POSITION OVERRIDE	Piercer	Yelp2
TONE POSITION	Piercer	Yelp2
TONE POSITION OVERRIDE	HORN4	Yelp2
AUX INPUT	Wail1	Wail1
AUX INPUT OVERRIDE	Yelp1	Yelp1

NOTES:

TONES

	Tone List for Rotary Switch Positions Wail, Yelp, Tone & AUX Input	Override Tone List for Rotary Switch Positions Wail, Yelp, Tone & AUX Input	Tone List for Hands Free	Tone List for HORN Button	Tone List for MAN Button	Tone List for MECH Button	MAN Override Tone List for Rotary Switch Position RAD	MECH Override Tone List for Rotary Switch Position RAD
Tone OFF	X	X		X	X	X	X	X
*Wail 1	X	X	X				X	
*Yelp 1	X	X	X					
*Yelp 2	X	X	X					
Piercer	X	X	X					
ALERT A	X	X	X					
HI/LO	X	X	X					
Super HI/LO	X	X	X					
nFORCECALL	X	X	X					
Whoop	X	X	X					
Warble	X	X	X					
Mechanical Wail	X	X	X					
Horn1		X		X			X	
Horn2		X		X			X	
Horn3		X		X			X	
Horn4		X		X			X	
Horn5		X		X			X	
Horn6		X		X			X	
Horn7		X		X			X	
Horn8		X		X			X	
Horn9		X		X			X	
Simulated Mechanical, Immediate OFF when Released					X	X		X
Simulated Mechanical, Frequency Decay when Released					X	X		X
Manual Wail, Immediate OFF when Released					X	X	X	
Manual Wail, Frequency Decay when Released					X	X	X	