MANUAL RDS17S
LIGHT AND SIREN CONTROL SYSTEM

Model: RDS17S

Contents

Installation

Safety

Installer Qualifications

For proper installation of this product: you must have a good understanding of automotive electr[...]
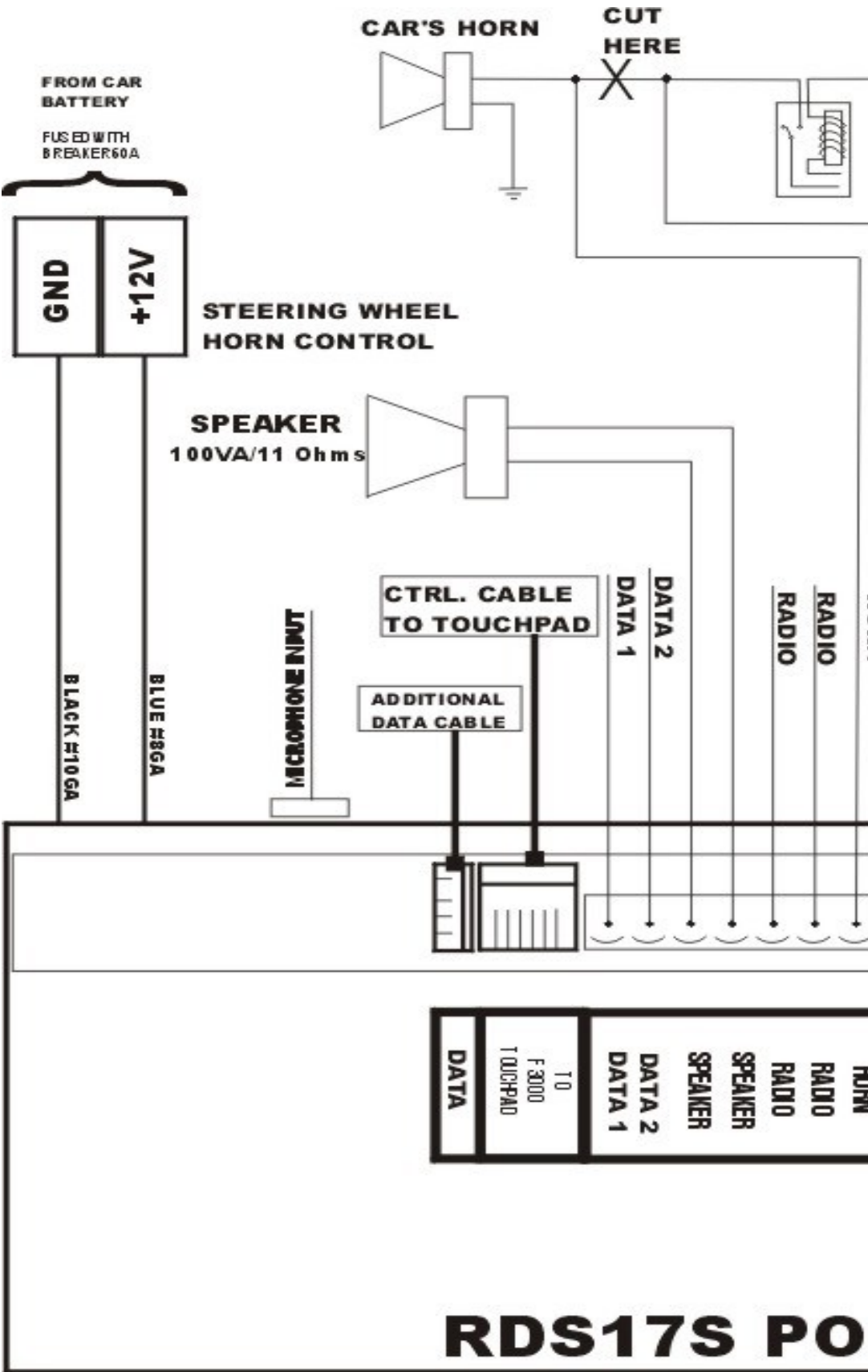vehicle sound, lighting and warning equipment.

CAR'S HORN   CUT HERE

FROM CAR BATTERY

FUSED WITH BREAKER 60A

GND

+12V

STEERING WHEEL HORN CONTROL

SPEAKER
100VA/11 Ohms

CTRL. CABLE TO TOUCHPAD

DATA 1

DATA 2

RADIO

RADIO

MICROPHONE INPUT

ADDITIONAL DATA CABLE

BLACK #10GA

BLUE #8GA

DATA

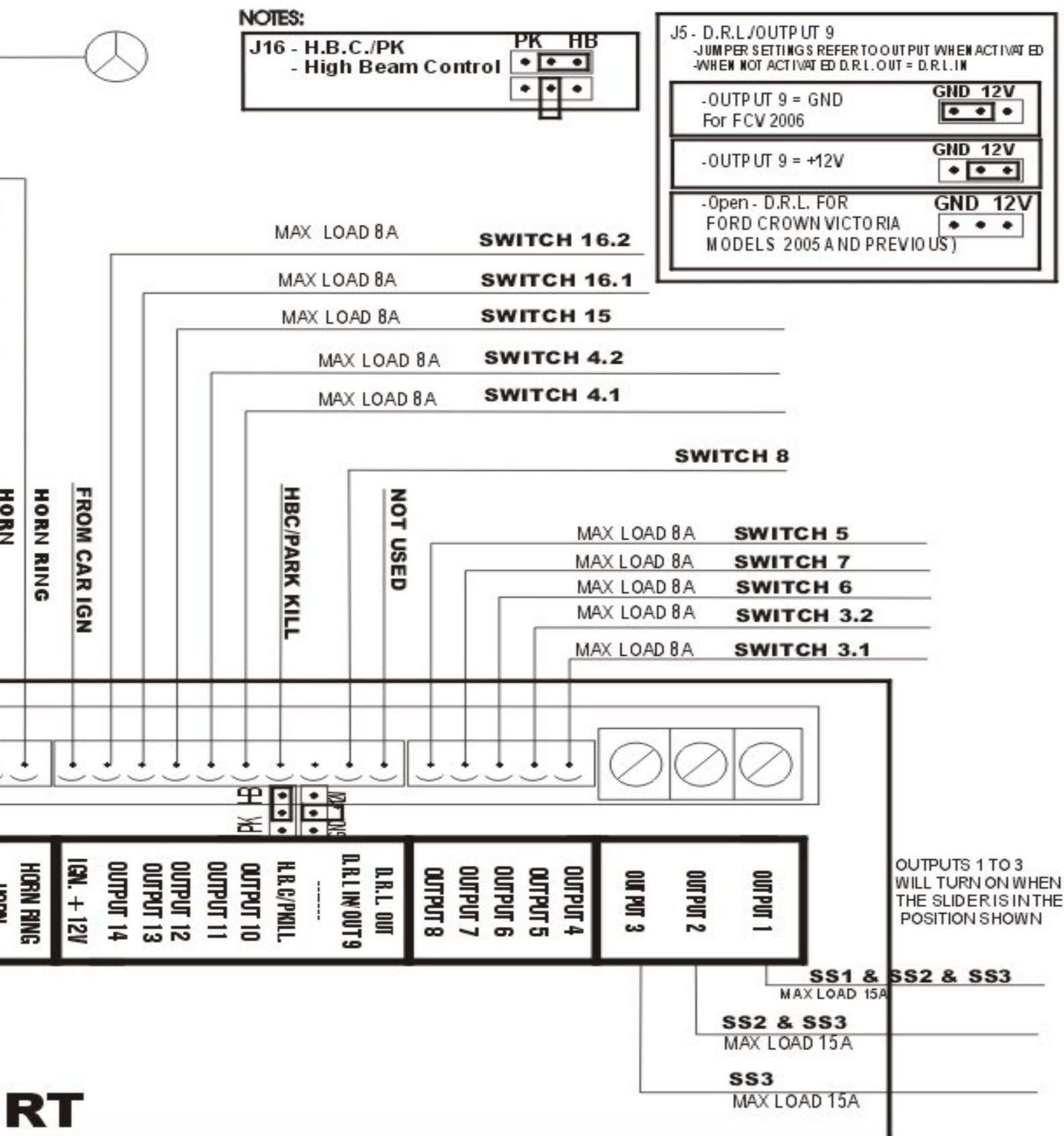TO F-3000 TOUCHPAD

DATA 2

DATA 1

SPEAKER

SPEAKER

RADIO

RADIO

Figure 1 - RDS 17S Wiring Diagram

RDS17S PO

ical systems and procedures, as well as proficiency in installation and servicing of emergency

NOTES:

J16 - H.B.C./PK
- High Beam Control

| PK | HB |

J5 - D.R.L./OUTPUT 9
-JUMPER SETTINGS REFER TO OUTPUT WHEN ACTIVATED
-WHEN NOT ACTIVATED D.R.L. OUT = D.R.L. IN

-OUTPUT 9 = GND
For FCV 2006
| GND | 12V |

-OUTPUT 9 = +12V
| GND | 12V |

-Open - D.R.L. FOR
FORD CROWN VICTORIA
MODELS 2005 AND PREVIOUS)
| GND | 12V |

MAX LOAD 8A **SWITCH 16.2**

MAX LOAD 8A **SWITCH 16.1**

MAX LOAD 8A **SWITCH 15**

MAX LOAD 8A **SWITCH 4.2**

MAX LOAD 8A **SWITCH 4.1**

SWITCH 8

MAX LOAD 8A **SWITCH 5**

MAX LOAD 8A **SWITCH 7**

MAX LOAD 8A **SWITCH 6**

MAX LOAD 8A **SWITCH 3.2**

MAX LOAD 8A **SWITCH 3.1**

HORN

HORN RING

FROM CAR IGN

HBC/PARK KILL

NOT USED

HORN RING

IGN. + 12V

OUTPUT 14

OUTPUT 13

OUTPUT 12

OUTPUT 11

OUTPUT 10

H.B.C/PKILL.

D.R.L IN/OUT 9

D.R.L. OUT

OUTPUT 8

OUTPUT 7

OUTPUT 6

OUTPUT 5

OUTPUT 4

OUTPUT 3

OUTPUT 2

OUTPUT 1

OUTPUTS 1 TO 3
WILL TURN ON WHEN
THE SLIDER IS IN THE
POSITION SHOWN

SS1 & SS2 & SS3
MAX LOAD 15A

SS2 & SS3
MAX LOAD 15A

SS3
MAX LOAD 15A

RT

RDS17S - Siren Rear Panel wiring connection points

GND – The ground terminal should be connected to the negative terminal of the battery or vehicle chassis using a black 8 gauge wire. When connecting the ground wire, ensure that it is physically secured to the chassis or battery terminal. Ensure the electrical connection is not obstructed by paint on the chassis. Never run two ground cables for one ground connection, thus creating a ground loop.

12V – This is the main power connection and should be connected to the positive terminal of the battery using an 8 gauge wire. A fuse or circuit breaker should be installed on this wire in a location as close to the battery as possible.

Outputs 1 to 3 (+12V outputs) – These 3 outputs can be used to control light modules or other devices. These outputs are controlled by the SS1, SS 2, and SS 3. High power loads can be connected to these outputs as they have a higher output current rating than the remaining outputs (see specifications).

Outputs 4 to 8 (+12V outputs) – These outputs are used for triggering and for loads that draw less than 8A. These outputs are controlled by SW3, SW6, SW7 and SW8.

Output 9 (Relay Contact output)

Output 9 can be set to provide either +12VDC or GND depending on the jumper setting of J5. The maximum current load for this pin is 5A and it is controlled by SW8.

Output 9 can also be configured to behave as path interrupt in this mode input 9 and Out 9 are normally connected through. When the relay is activated (called by the touch pad), then the path between the input and output will be interrupted.
NOTE: in this mode the jumper on J5 must be removed.

P. KILL – Park Kill input is +12VDC or GROUND activated, and used to immediately disable all siren tones when a vehicle is shifted into park. Connect the P. KILL pin to the vehicle transmission neutral safety switch signal wire. This wire should output a signal when the vehicle is shifted into park.

Output 10 & 11 (HLF +12V outputs) – the outputs from these terminals can be used to alternate flash the headlights on a vehicle. The maximum load for these outputs is 8A each. The output is programmed according to table 1-11 and controlled by SW4.

Output 13 & 14 (+12V outputs) – Activated by SW16, when the arrowstick is enabled in "911 mode" are used to activate the "LEFT ARROW", "RIGHT ARROW" and "CENTER OUT" functions.

IGN – Ignition input should be connected to the vehicle ignition signal that outputs 12V only when the ignition is "ON".

HORN RING – This is an input, it uses the horn activation signal to trigger the siren while the unit is in standby.

HORN – This is an output used to activate the regular vehicle horn during normal vehicle operation (no siren or air horn).

MICR –Microphone input., for the P.A.

1.

RADIO – Connect the two (2) RADIO pins to either side of the two-way radio speaker in the vehicle. This is for the **Radio Rebroadcast** feature, any incoming radio signal is sent to the PA system, by pressing SW10., this must be programmed see figure 6 interclear/Radio programming.

SPEAKER – Speaker output pins to be connected to a DRSC100 or compatible speaker.

Touch pad

The RDS17S is a remote keypad model, this allows for the installation of the siren "main box" in an remote location. This is useful when the space in a vehicle's console does not permit the mounting of the whole siren and touch pad combination. The keypad layout is configured when the order is placed by the customer.

Volume Set Controls

On the backside of the siren unit there are two (2) variable resistors labeled: MICR and RADIO. These are used to adjust the volume of the microphone and the radio respectively. To adjust the volume, use a precision screw driver to rotate the plastic screw-head for the appropriate variable resistor. Clock-wise will increase volume and counter-clock-wise will decrease volume.

Operating Instructions

Standard Features:

The following are standard for the RDS17S, along with the features covered in the previous section of this manual.

Adjustable Touch Pad Backlighting – Activated by the ignition, the touchpad buttons have LED's to light every button. The backlight brightness is adjusted by holding SW9 (STBY/PA).

Beep Alert – Alerts the user that a system function is active. When functions are left "ON" for several minutes, touchpad will beep to remind user that functions are activated.

Master Slide Switch: This is a 3 position switch that can be programmed to provide one-touch activation of essential emergency lights and other functions. The switch positions are factory set to a default which can be changed to meet a clients requirement. The slider positions can also be field programmed to activate other output and feature combinations (see page 8 for programming these).

Outputs: Up to 14 outputs are available. These are controlled by push-button switches on the controller panel. Some of the outputs are controlled in pairs. Two (2) outputs are capable of being made to flash. One output can be made to function as momentary, 9 SEC timer or 30 SEC timer button if necessary.

Siren Tones: Three siren tones are standard: – WAIL (SW11), YELP (SW12), and STINGER (SW13) siren tones are activated by pressing the appropriate touch button on the touchpad.

Air Horn/MANUAL: (SW14) The electronic air horn can be sounded by pressing this button. This function overrides other siren tones and this is the factory default for this switch. When programmed to the manual mode see table 2-9 sounds a wail tone which will override all siren tones instead of the air horn.

STBY/PA– (SW9) when pressed, all siren tones are forced off and standby mode is activated. When in standby mode, pressing the vehicle horn will sound a momentary AIR HORN. This switch can be programmed to give a WAIL tone instead (SEE Table 1 - 14).

Programming

Check all program functions and features and select correct program mode to set the outputs and functions for the installation.

In program mode 1 and 2, the bottom row of switches on the touch pad are used as an index to the functions that are outlined in both Table 1 and 2. By setting the switches or ON/OFF while in the programming mode the function or output will follow what is shown in the tables.

For example if the equipment configuration requires a momentary output

1) Look at table 1, is there a function for momentary output? NO then look at table 2. Yes, from this table SW8 can be set to momentary.
2) Go back to table 1, confirm that SW8 can be set to output, YES (this is the factory default) and this switch controls output 9 on the RDS16AS main relay box.
3) Enter program mode 1 confirm that SW13 is ON, if YES save the configuration, if NO set it to ON and save the configuration.

4) Enter program mode 2, check SW13 set it to ON, save the configuration.

In this example SW8 which controls Output 9 is now set to act as a push button momentary switch.

SPECIAL NOTE:

Output 9 is a relay contact that can be used for different control functions, Check J5 on the RDS17S Main Relay Box, and set the jumper to provide the correct output polarity or function when SW8 is pressed. Use the wiring diagram on page 4&5 to help set this up.

Program MODE 1 - Using Table 1

1) Enter setup mode by holding SW6+SW8 (see Figure 2) and wait for the 2 beeps.
2) Select the program feature you wish to change or set from **Table 1**.
3) Change the status (OFF/ON) of SW9 to SW16 to activate the desired function from **Table 1**.
4) To save the configuration; press and hold SW9 (STBY/PA) until the long beep, this confirms the program is saved.

Figure 2 - Program Mode 1
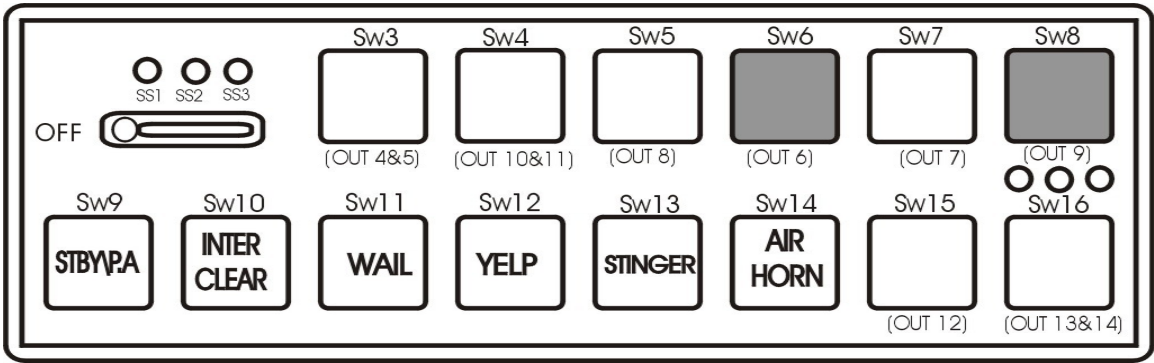
BOTTOM ROW SW9 TO SW16 are FUNCTION set switches, these are used after entering "PROGRAM MODE"

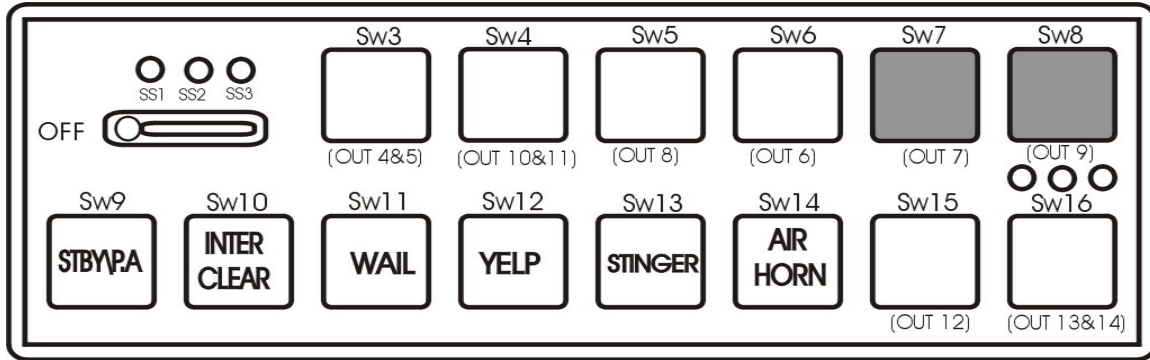### Table 1 - Program Mode 1 - Function setting by SW9 to SW16

SW	OFF	ON
9	SINGLE FLASH RATE **(sets the rate of any flashing output)** *	DOUBLE FLASH RATE
10	FLASH WITH MASTER (Output 6-7)	SOLID WITH MASTER (Output 6-7) *
11	FLASH WHEN ACTIVE (Output 10-11)	SOLID WHEN ACTIVE (Output 10-11) *
12	SW4 (Output 10-11) WITH DRL	SW4 (Output 10-11) W/O DRL *
13	SW8 DRL FUNCTION	SW8 SET TO OUTPUT (Output 9) *
14	AIR HORN ON STANDBY *	WAIL on STANDBY
15	BEEP ALERT ON *	BEEP ALERT OFF
16	PARK KILL DISABLED	PARK KILL ENABLED *

* Factory Default

Program MODE 2 - Using Table 2

1) Enter setup mode Enter by holding SW7+SW8 (see Figure 3) and wait for the 2 beeps
2) Select the program feature you wish to change or set from table 2
3) Change the status (OFF/ON) of SW9 to SW16 to activate the desired function in Table 2.
4) To save the configuration; press and hold SW9 (STBY/PA) until the long beep, this confirms the program is saved.

Figure 3 - Program Mode 2

BOTTOM ROW SW9 TO SW16 are FUNCTION set switches, these are used after entering "PROGRAM MODE"

Table 2 - Program Mode 2 - Function setting by SW9 to SW16

| SW	OFF	ON
9	SW14 AIR HORN *	SW14 MANUAL
10	DO NOT CHANGE *	
11	ARROWSTICK ENABLED and controlled by SW16	ARROWSTICK DISABLED *
12	STANDARD ARROW CTRL (CODE 3) *	911 ARROW CONTROL
13	SW8 SOLID *	SW8 MOMENTARY
14	SW15 (Output 12) ACTIVE W/O IGNITION *	SW15 (Output 12) ACTIVE W/I INGITION
15	SEE TABLE 3 *	
16	SEE TABLE 3 *	

*Factory Default

Table 3 - Timer Output for SW15 output 12

SETTING	SW15	SW16	OUTPUT 4 TIMER FUNCTION
1	OFF	OFF	OUTPUT 12 SOLID
2	OFF	ON	OUTPUT 12 TIMER (30 SEC)
3	ON	OFF	OUTPUT 12 MOMENTARY
4	ON	ON	OUTPUT 12 TIMER (9 SEC)

Programming Master Switch
SLIDE 1

1) Enter setup mode Enter by holding SW3+SW8 and wait for the 2 beeps

Figure 4.1 - Program
Master Switch 1
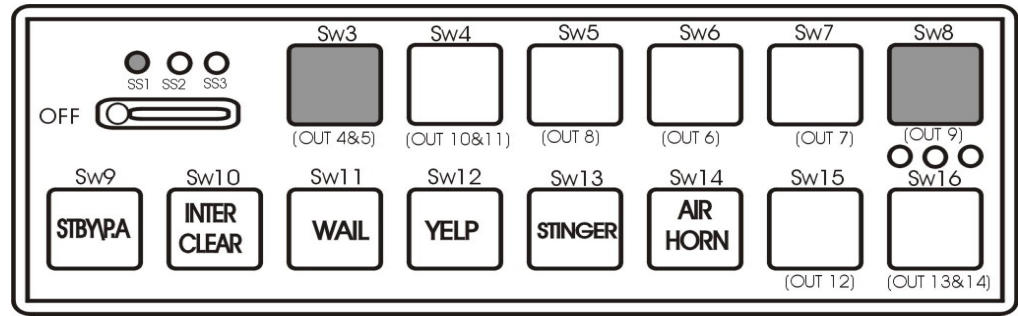
2) Select which switches will be ON with Master.
3) Save the configuration; press and hold SW9 (STBY/PA) until the long beep, this confirms the program is saved.

SLIDE 2

1) Enter setup mode Enter by holding SW4+SW8 and wait for the 2 beeps

Figure 4.2 - Program
Master Switch 2
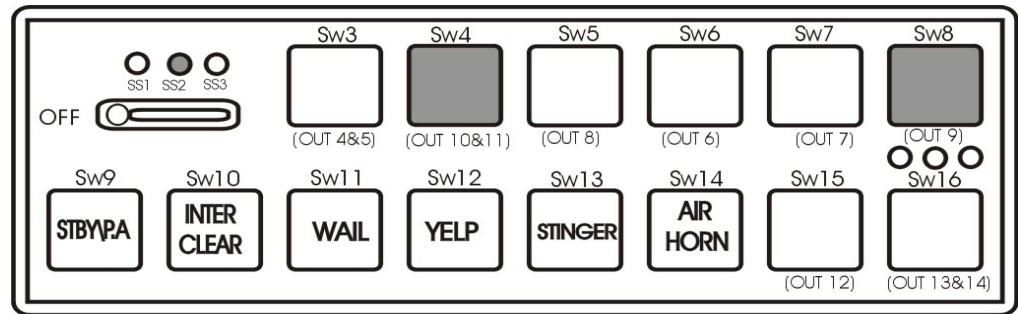

2) Select which switches will be ON with Master.
3) Save the configuration; press and hold SW9 (STBY/PA) until the long beep, this confirms the program is saved.

SLIDE 3

1) Enter setup mode Enter by holding SW5+SW8 and wait for the 2 beeps
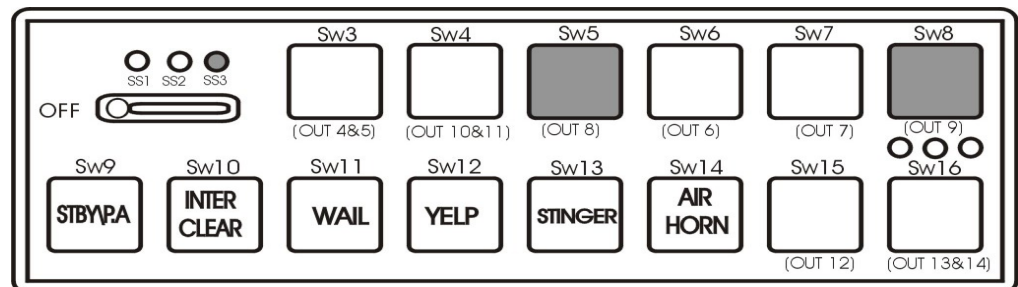
Figure 4.3 - Program
Master Switch 3

2) Select which switches will be ON with Master.
3) Save the configuration; press and hold SW9 (STBY/PA) until the long beep, this confirms the program is saved.

Arrow Stick with Master - When the Arrow Stick (AS) is activated by the master switch only one preset pattern will be displayed, the factory default is the "CENTER OUT" pattern, if one of the other 6 patterns is desired this must be programmed separately.

These patterns can be programmed into the individual Slide Switch master modes;
     * AS on SS1 press and hold SW3+SW7
     ** AS on SS2 press and hold SW4+SW7
     ***AS on SS3 press and hold SW5+SW7

1) Entering the setup mode press and hold the indicated keys and wait for the 2 beeps

Figure 5- Programming Arrow Stick
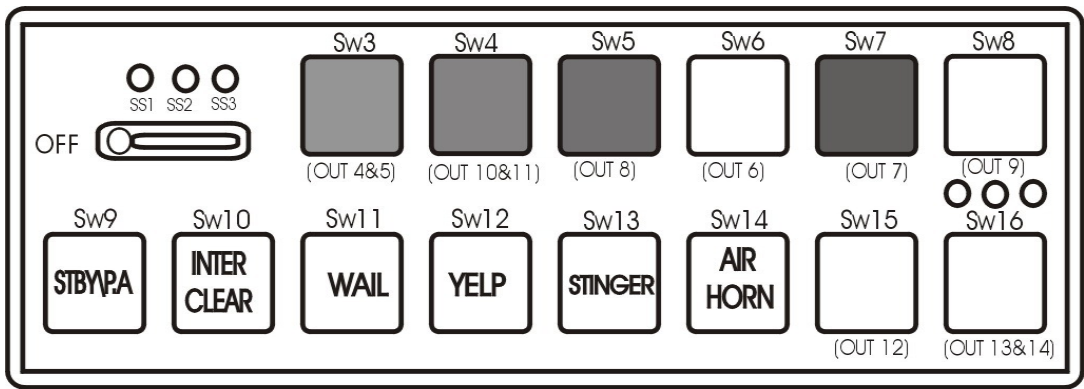
2) Select the arrow stick pattern from table 3 below.

Pattern	SWITCH	SWITCH SETTING only one at a time can be ON					
LEFT ARROW	SW10	**ON**	off	off	off	off	off
RIGHT ARROW	SW11	off	**ON**	off	off	off	off
CENTER OUT	SW12	off	off	**ON**	off	off	off
CENTER FLASH	SW13	off	off	off	**ON**	off	off
ALTERNATE LEFT & RIGHT	SW14	off	off	off	off	**ON**	off
RANDOM BAR FLASH	SW15	off	off	off	off	off	**ON**

3) **The 3 LED's above SW16 will show the pattern selected from Table 3.** Save the configuration; press and hold SW9 (STBY/PA) until the long beep, this confirms the program is saved.

Arrowstick Modes: - When ARROWSTICK is enabled the RDS17S has two modes of arrowstick control:

     CODE3 system (default) - this mode it is a *data control only* arrowstick and it needs a D&R traffic director or a D&R digital to analog convertor box in order to control standard ground controlled traffic directors. Using SW16 the following patterns can be activated: LEFT ARROW, RIGHT ARROW, CENTER OUT, CENTER FLASH, ALTERNATE LEFT-RIGHT, RANDOM FLASH.

     911 system - in this mode the RDS17S uses OUT13 and OUT14 for traffic director control. Using SW16 the following functions can be activated: LEFT ARROW (OUT13), RIGHT ARROW (OUT 14), CENTER OUT (OUT13 & OUT14).

Programming Inter Clear or Radio Rebroadcasting

1) Enter setup mode Enter by holding SW6+SW7 and wait for the 2 beeps

Figure 6- Programming RADIO-rebroadcasting
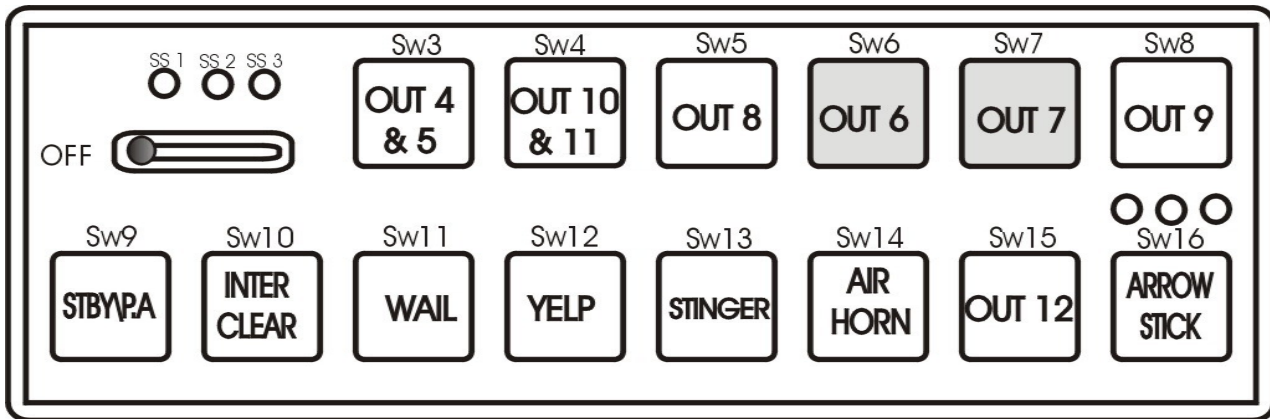
2) Set **SW11 ON for Inter Clear** or **SW11 OFF for Radio rebroadcast**. Save the configuration, press and hold SW9 (STBY/PA) until the long beep, this confirms the program is saved.

Factory Default Reset

The keypad setup can be reset to the factory default by following these steps:
- disconnecting the keypad data pigtail from the extension data cable;
- press and hold down the STBY/PA switch
- reconnect the keypad data pigtail to the extension cable and release the STBY/PA switch after the unit makes a long beep (aprox. 2 sec.)

The system is reset to factory default.

RDS17S PUSH BUTTON LABEL INSTALLATION INSTRUCTION

- **Remove the Slide Switch red knob.**
- **Depress the locking tab on each end to separate the front and back covers.**
- **Slowly remove the front cover and change the push button labels.**
- **Assemble the front and rear covers and make sure that the side tabs are locked.**
- **Install the Slide Switch knob.**

PACKING LIST		RDS-16P	
Part Number	Description	QTY	(√)
201-0013	HOUSING BLACK H.D. 75 AMP	1	
201-0046	HOUSING BLUE H.D. 75A AMP	1	
196-0002	PIN H.D. 75 AMP, 6 - 8 AWG	1	
196-0003	PIN H.D. 75A AMP, 10 - 12 AWG	1	
300-0029	GROMMET 75 AMP H.D.	2	
201-0020	PLUG 8 PIN VERT ENTRELEC	1	
201-0030	PLUG 10 PIN VERT ENTRELEC	1	
201-0034	PLUG 5 PIN VERT ENTRELEC	1	
PA-MIC	MICROPHONE W/ JACK PLUG	1	
CA-0113	MICROPHONE CLIP (HEAVYDUTY)	1	
215-0151	MICROPHONE CABLE, 18 ft	1	
215-0016	DATA CABLE	1	
200-0139	DATA CABLE COUPLING BOX	1	
401-0009	SCREW 10-32 X 3/8	4	
401-0007	WASHER #10 ZINC	4	
401-0010	LOCK WASHER #10 ZINC	4	
811-0037A	SIREN MOUNTING BRACKET	1	
RDS17S	RDS17S SYSTEM	1	
212-0042	RDS17S INSTALLATION MANUAL	1	
216-0014	TOUCHPAD LABEL SHEET	1	
211-0008	PACKING BOX	1	
813-0016A	REMOTE TOUCH PAD MNT BRKT	1	
813-0017A	RDS TP MTG BKT	1	
401-0155	SCREW 6-32 X 1/2	4	
403-0001	WASHER #6 ZINC	4	
403-0018	LOCK WASHER #6 ZINC	4	

Service and Maintenance Troubleshooting

PROBLEM	POSSIBLE CAUSE	PROBABLE SOLUTION
System runs properly but shuts down when heavy outputs are turned on.	Vehicle battery is low on charge. Bad wiring	Recharge vehicle battery or use outputs when vehicle is running and check the car wiring.
Some functions do not operate properly.	Bad wiring in the car.	Ensure proper fuse rating when replacing a fuse and check the car wiring.
Functions work but there is no back-lighting, when engine is running.	No power to "12V FROM IGN" pin.	Check 12V-ignition wire for any shorts or improper connections.
System runs properly but shuts down while running and starts again.	Vehicle circuit breaker not rated properly, and is overheating.	Use circuit breaker with 1.25 times the amperage rating for full load operation.
Some functions blow the fuses every time.		Ensure proper fuse rating and the car wiring. Ensure load does not exceed maximum output rating.
There is a burning smell when heavy loads come on. Lights are dim and wires are heating up.	Loads are exceeding absolute maximum limits of system.	Ensure proper fuse rating and ensure that loads are not exceeding limit of each output.
Lights dim when another light is turned on.	Improper wire gauge being used on power or ground connections.	Ensure that all proper wire gauge are used for the system's power and ground lines.
Siren's tone changes when another light or heavy load comes on.	The electronics may not be operating properly.	Ensure that all screws of terminal blocks are tight.
While using the two-way radio, lights come on, or function(s) is/are unstable.	Loose or poor ground connection, or improper power wiring.	Use dedicated power and ground wires from battery to system. Dedicate separate power and ground wires to the radio.
The system is emitting a buzzing sound and/or some functions are not operating properly.	Improper or poor wiring. Vehicle battery charge is low.	Ensure that all power and ground wiring connections are firmly secured. Ensure that all plugs are plugged in firmly and all screws on the terminal blocks are tight. Recharge vehicle battery.
Siren tone does not operate when it is selected, but corresponding red LED light does come on.	Possible microphone line problem (microphone signal over-rides all siren tones). Fuse blown.	Ensure secure connection of microphone and its extension cable Try another microphone. Check siren fuse.
When powering the siren on standby mode, the siren goes on.	Horn and Horn Ring wires are reversed.	Reverse the Horn and Horn Ring wires.
Functions work but there is no sound output.	Poor speaker connection. Blown speaker.	Ensure secure connection of speaker wires. Check and replace speaker if necessary.
All LED's are on but no functions will operate.	System is locked up (due to a power surge on battery boost).	Disconnect power to unit then reconnect.

Specifications

General

Input Voltage	11 to 16 Volts DC
Input Fuse	60 Amps **(external)**
Operating Temperature Ranges	-30°C to +65°C
Standby Current	50mA $\pm$ 10%
Weight	8 lbs/ 5 Kg

Physical Dimensions

Height	2.45"
Width	6.66"
Depth	6.44"
Depth (with touchpad)	7.42"

Siren

Operating Current	10 Amps
Frequency Range	734 to 1311 Hz (nominal)

Cycle Rate

Wail	20 cycles/min
Yelp	200 cycles/min
Stinger	800 cycles/min
Nominal Voltage Output	48V p-p (11Ω load)
Audio Frequency Response	100 – 4000 Hz $\pm$ 3dB
Audio Distortion	10% or less

Audio Power	32 watt
Input Impedance	600Ω (radio)

TOTAL current draw not to exceed 60A including siren

NOTES:

WARRANTY

D & R Electronics warrants its new products to be free from defects in material and workmanship, under normal use and service for a period of one year on parts replacement.

This warranty applies only to original purchasers acquiring the product directly from D&R Electronics, or its authorized dealers. Warranty will not be recognized without proof of purchase or bill of sale.

This warranty is not transferable.

The warranty begins on the date of delivery to the first user/purchaser.

This warranty shall not apply to products which must be repaired due to normal wear and tear, negligence, improper installation, abuse, misuse, or which have been altered or modified at a facility other than D & R Electronics, or its authorized depot centers.

Units proved to be defective within the warranty period, based on an examination by D&R Electronics, will be replaced or repaired at D & R Electronics' option. This warranty does not cover travel expenses or labor charges for removal or installation.

Lamps, flash tubes, batteries or other items considered consumables are not covered under warranty.

This warranty is in lieu of all other express warranties. D&R Electronics makes no warranties, expressed or implied, other than the express warranties contained herein.

PRODUCT RETURN POLICY

In order to provide you with faster service, product returns for repair or replacement, must have a **Return Goods Authorization Number (RGA number)**. Please contact our company to obtain a RGA number before you return the product to D & R ELECTRONICS. Write the RGA number clearly on the package. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

D & R ELECTRONICS assumes no responsibility or liability for expenses incurred for the removal and/or the installation of products requiring service and/or repair. Repairing or replacing product is at the discretion of D & R ELECTRONICS.

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