Trouble Shooting Reverse Polarity Wiring Problems

Switch doesn't work properly but the shaved kit transmitters do work

Step 1   Did you purchase a switch kit designed for three switches and only use two switches?
   YES - Connect third switch
   NO - Check wiring

Switch works properly but shaved kit transmitters do not work

Step 1   Does the LED on the remote light up when you press the transmitter button?
   YES - Transmitter works properly continue to step 2
   NO - Replace transmitter battery

Step 2   Can you hear the receiver make a clicking sound when you press channel 1 or 2 on
             the transmitter?
   YES - Receiver and relay work properly. Go to step 4
   NO - Go to step 3

Step 3   Does the LED on the receiver light up when the transmitter button is pressed?
   YES - Transmitter is properly learned and OK, go to Step 4
   NO - Check power and ground to the receiver and then reprogram the transmitters

Step 4   Use a test light to check for voltage at pin 87 of the relay. Did the test show greater
             than 10 volts?
   YES - The relay checked works properly. The other side of the motor is not properly grounded.
   NO - Connect pin 87 to a proper voltage source.

Limited Warranty Statement
SPAL USA WARRANTY STATEMENT

SPAL USA warrants this product to be free from defects in material and workmanship for a period of one (1) year from the date of sale to the original purchaser, and not more than two (2) years from the date of manufacture. SPAL USA will repair this product free of charge if, in the judgment of SPAL USA, it has been proven defective within the warranty period. The product should be returned, at the customer expense, to the location of original purchase. This warranty does not cover any expenses incurred in the removal and/or reinstallation of the product.This warranty does not apply to any product damaged by improper installation, accidental misuse, abuse, improper line voltage, fire, flood, lightning, or other acts of God, or a product altered or repaired by anyone other than SPAL USA.This warranty is in lieu of other warranties, expressed or implied, including any implied warranty of merchantability. No person is authorized to assume for SPAL USA any other liability concerning the sale of this product.
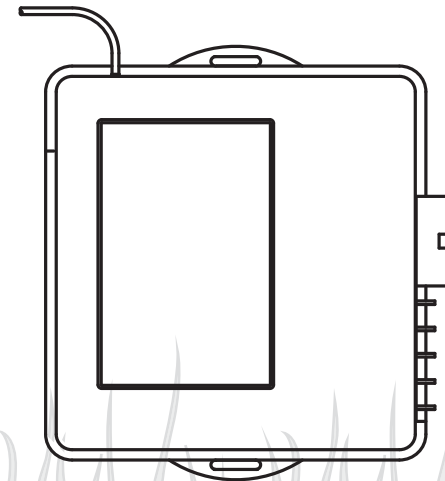
IMPORTANT-KEEP YOUR INVOICE WITH THIS WARRANTY STATEMENT!

SPAL USA, 512 Tuttle Street, Des Moines, IA 50309-4618
info@spalusa.com, www.spal-usa.com
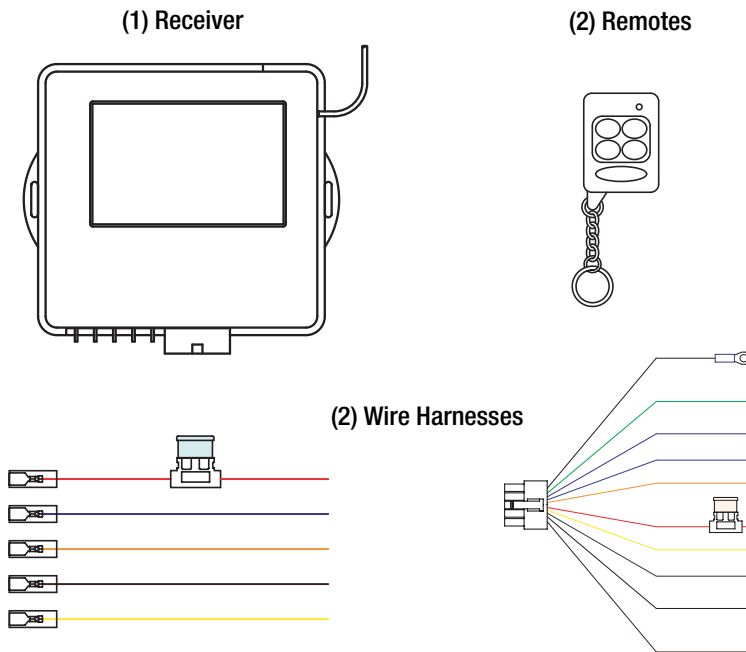Main/Sales: 800-345-0327, Sales: 888-SPAL-USA
Tech Support Line: 800-454-7725

8   10/04

SHAVED DOOR KIT
Shaved-B

Installation Manual & Operation Instructions

Each Kit Contains The Following Components

(1) Receiver

(2) Remotes

(2) Wire Harnesses

Installation Instructions for SPAL Shaved Door Handle Kit
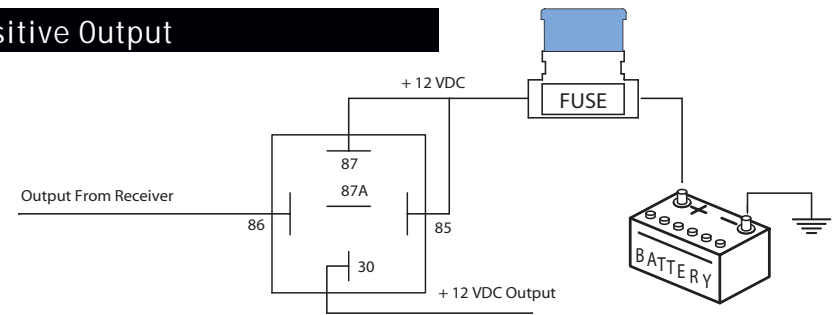### Shaved-40

This kit is designed to operate up to seven functions via the four-button remote control.

Channels 1 and 2 are Positive outputs used to open your drivers and passenger doors. Channels 3 through 7 are all negative outputs tht can be used ot operate power door locks, power door releases, truck releases, control linear actuators, or roll power windows up or down, with an additional (external) relay. (See Page 7)
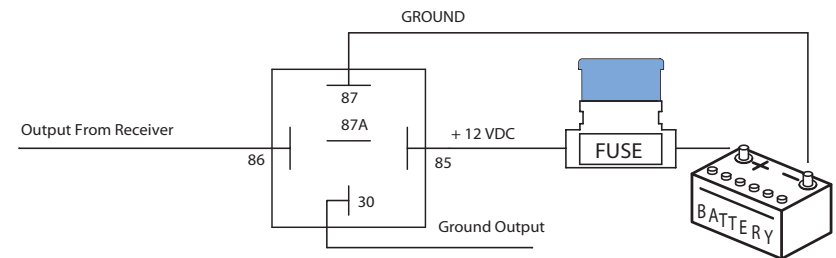
Proper wiring is critical to the correct operation of this product. Inspect all wiring to be certain of proper connections, a quality ground, and appropriate fusing. Also check wire rounting, keeping wires away from potential damage such as moving parts
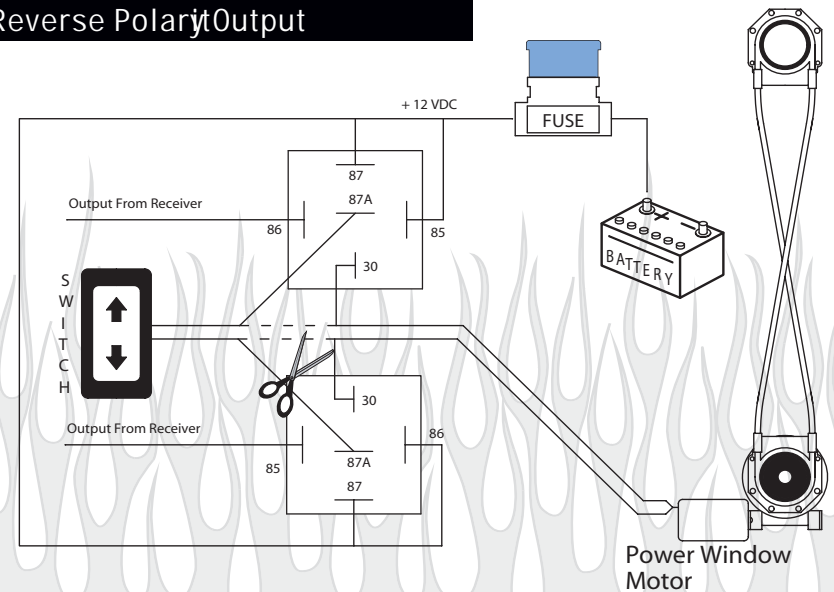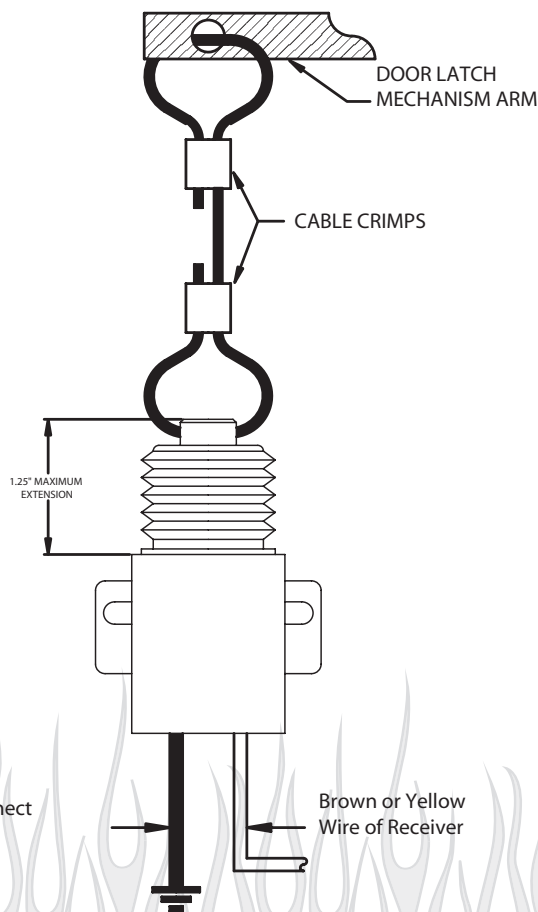
Optional Wiring Diagrams

Positive Output

+ 12 VDC

FUSE

Output From Receiver

87
87A
86   85
30

+ 12 VDC Output

BATTERY

Negative Output

GROUND

Output From Receiver

87
87A
86   85

+ 12 VDC

FUSE

30

Ground Output

BATTERY

Reverse Polarity Output

+ 12 VDC

FUSE

Output From Receiver

87
87A
86   85
30

BATTERY

SWITCH

Output From Receiver

30
86
85   87A
87

Power Window Motor

FOR POWER WINDOWS TWO RELAYS MUST BE PLACED BETWEEN THE SWITCH AND THE WINDOW MOTOR. THE DASHED LINES INDICATE WHERE THE WIRES MUST BE CUT.

- The solenoids provided in the SHAVED40 kit can be mounted horizontally or vertically (with the plunger UP) to the door with the provided hardware.
- Attach the solenoid to the door latch with the supplied cable and cable crimp.
  -Loop the cable through the solenoid and the door latch and crimp the two ends together with the cable crimp.

DOOR LATCH MECHANISM ARM

CABLE CRIMPS

1.25" MAXIMUM EXTENSION

Black: Connect to ground

Brown or Yellow Wire of Receiver

Solenoid Wiring:

- Attach the white wire of the **Driver Door** Solenoid to the Brown wire (large gauge/channel 1, from spade connector harness) of the receiver.
- Attach the white wire of the **Passenger Door** Solenoid to the Yellow wire (large gauge/channel 2, from spade connector harness) of the receiver
- Connect the remaining black wire of the solenoid to a ground located on the vehicle body. (The door is not a proper grounding source!)

A mechanical backup switch should be utilized in the case of power failure. (See the optional wiring section)
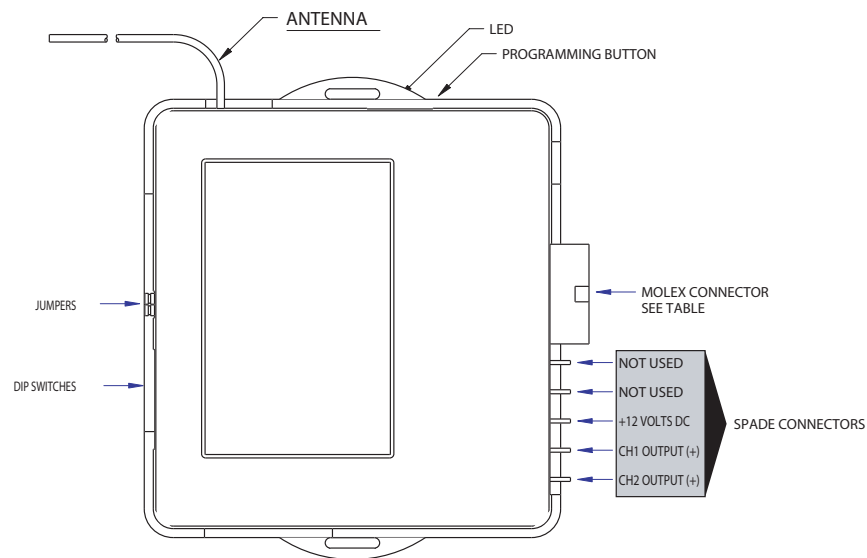
Receiver Mounting and Wiring:

The receiver must be mounted inside the vehicle to avoid moisture
Do not plug in the receiver module until all the wiring is complete!
Do Not Ground the Antenna!

ANTENNA

LED

PROGRAMMING BUTTON

JUMPERS

DIP SWITCHES

MOLEX CONNECTOR SEE TABLE

NOT USED
NOT USED
+12 VOLTS DC
CH1 OUTPUT (+)
CH2 OUTPUT (+)

SPADE CONNECTORS

Molex Connector			Spade Connectors		
Pin #	Wire Color	Circuit		Wire Color	Circuit
1	Black	Ground		Violet	Not Used
2	Not Used	Not Used		Orange	Not Used
3	Purple	Channel 7		Red	Positive 12 VDC**
4	Blue	Channel 5		Brown	Channel 1
5	Orange	Channel 3		Yellow	Channel 2
6	Red	Positive 12 VDC			
7	Yellow	Ignition*			
8	Not Used	Not Used			
9	White/Black	Channel 6			
10	Brown	Channel 4			

Notes:

*Connecting the YELLOW (ignition) wire will disable Channels 1-4 while the ignition key is ON.

**Whan installing a SHAVED ACT Kit replace the 35 Amp fuse with the supplied 10 Amp fuse
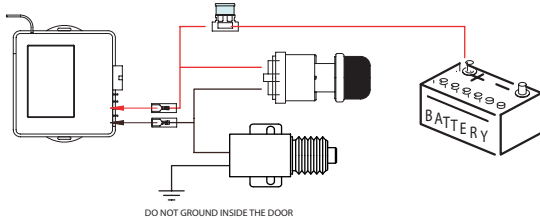
The unit will stop operating for 30 seconds if any combination of the Remote Control Buttons 1 and/or 2 are pressed eight (8) times in 30 seconds. After 30 seconds the unit will automatically reset to standard operating mode.

Optional Wiring Section

Emergency/Backup Switch (not included in kit):

It is strongly recommended that an emergency/backup switch be mounted outside the vehicle in the case of lost transmitters or keys locked in the vehicle.

12 Gauge Wire Must Be Used

DO NOT GROUND INSIDE THE DOOR

Inside Button Option:

Internal Buttons: If you wish to remove the door handles from inside the vehicle and use power buttons, you will need to wire the buttons as follows:

	Power Wire	Ground Wire
Drivers Door	Grey wire of Control Unit	Chassis Ground
Passenger Door	Green wire of Control Unit	Chassis Ground

Wiring Options

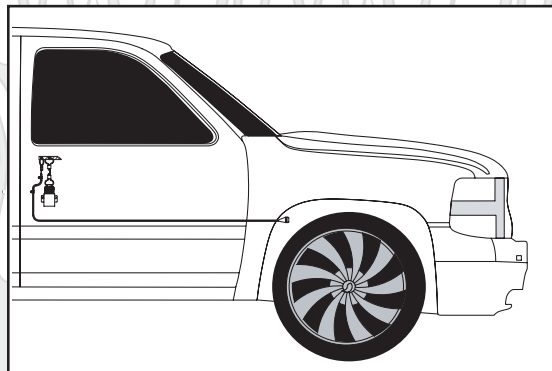| Item to be Activated	Description of Function	Relay Type	# of Relays Required	Diagram
1 Power window motor	Move window up & down	SPDT	2	Reverse
1 Power window motor	Move window one direction	SPDT	1	Reverse
Linear actuator	Move in & out	SPDT	2	Reverse
Solenoid	Activate Solenoid	SPST	1	Positive or Negative
Trunk Release	Open the Trunk	SPST	1	Positive or Negative
Door lock actuator	Lock & unlock	SPDT	2	Reverse

SPST = Single pole single throw relay, 30 or 40 amp
SPDT = Single pole double throw relay 30 or 40 amp
Relays can either be purchased from SPAL USA or from your local auto parts store.

Optional Mechanical Backup Cable (HR-Entry)

A mechanical backup cable should be utilized in all shaved door applications.
By using a mechanical backup, you do not run the risk of being locked out of the vehicle if the battery were to go dead.

SPAL USA offers a universal mechanical cable (part #HR-ENTRY) that can be run to a concealed location, such as the front wheel well.

Operation Section

Basic Function of the SPAL Shaved Door Kit

The remote control supplied with your kit has four buttons, but is capable of controlling 7 channels.

Channel 1: +12VDC	Opens drivers door
Channel 2: +12VDC	Opens passenger door
Channel 3:	
Channel 4:	Optional negative outputs (250 mA)
Channel 5:	**Additional relays are required for each channel**
Channel 6:	(See Page 7 For Wiring Diagrams)
Channel 7:	

Basic Functions Of The Remote Control

To Operate:	Press:
Channel 1	Button 1
Channel 2	Button 2
Channel 3	Button 3
Channel 4	Button 4
Channel 5	Button 1 + Button 2
Channel 6	Button 1 + Button 3
Channel 7	Button 1 + Button 4

Programming Section

Reprogramming the Remote Transmitters:

This Shaved Door kit can accept up to 4 SPAL remote transmitters (Part #MULTI-RCU7TX)

The remote transmitters are shipped Pre-Programmed. In the event that a remote transmitter loses the programmed code, or if you wish to add more remote transmitters, follow these instructions:

- Make sure ignition is OFF.
- Locate the programming button located on the side of the receiver, next to the LED.
- Press the programming button 3 times quickly (The LED will light).
- Press Button (1) on each transmitter you want learned in to the receiver (one at a time). There is a 10 second window to learn all new transmitters.
- The LED will remain lit for approximately 10 seconds after the last remote transmitter has been recognized.
- Wait for the LED to go out. Then test each remote transmitter for proper function.
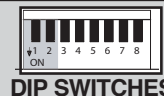
Jumper Settings:

To avoid damage to attached components, the jumpers must remain in the factory setting.

Dip Switch Settings:

If The Control Unit Is Connected To:		
	Dip Settings*	
Solenoids	1-2: Off	3-7: Off
Actuators	1-2: On	3-7: Off

DIP SWITCHES

* Switches 3-8 will always be in the OFF position