

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!



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Tech Support Line: 800-454-7725



SPAL USA

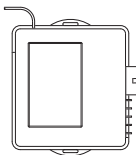


DELUXE SHAVED DOOR KIT SHAVED-DX

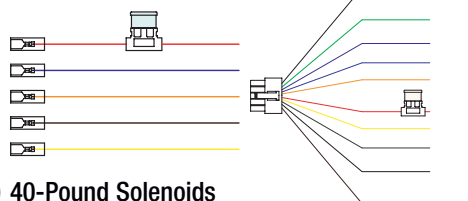
Installation Manual & Operation Instructions

Each Kit Contains The Following Components

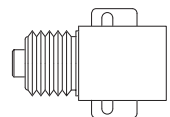
(1) Receiver



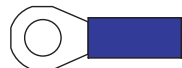
(2) Wire Harnesses



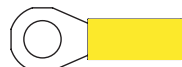
(2) 40-Pound Solenoids



(2) #10 Blue Rings



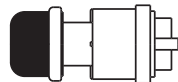
(2) Yellow 5/16" Ring Terminals



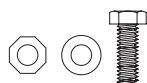
(2) Yellow Butt Connectors



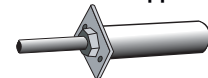
(1) Emergency Switch



(4) 1/4" x 20 x 1 Mounting Bolts/Nuts/Washers



(2) DP-3 Door Poppers



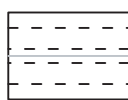
(1) HR-ENTRY Mechanical Back-Up Cable



(2) HR-LOOM-1/2 Billet Door Looms



(4) Cable Crimps



Installation Instructions for SPAL Shaved Door Handle Kit Shaved-DX

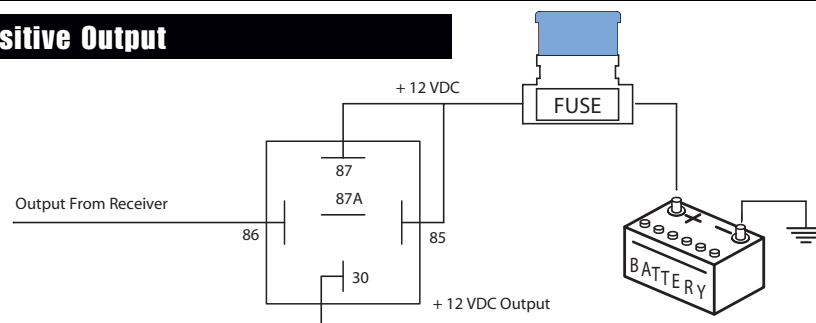
This kit is designed to operate two or more functions. Both doors and five other functions can be controlled with the SPAL four-button remote control. The additional channels can be used to operate power door locks, power door releases, trunk releases, control linear actuators, or roll up or down power windows.

Channels 1 and 2 are Positive outputs. Channels 3 through 7 are all negative outputs. Please refer to the diagrams on page 7 of this instruction manual for positive, negative, and reverse polarity diagrams.

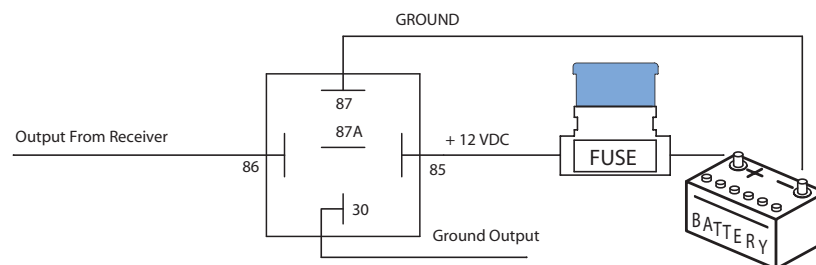
****Proper wiring is critical to the correct operation of this product. Make sure all wires are properly connected, properly grounded, free of potential damage, and are correctly fused****

Optional Wiring Diagrams

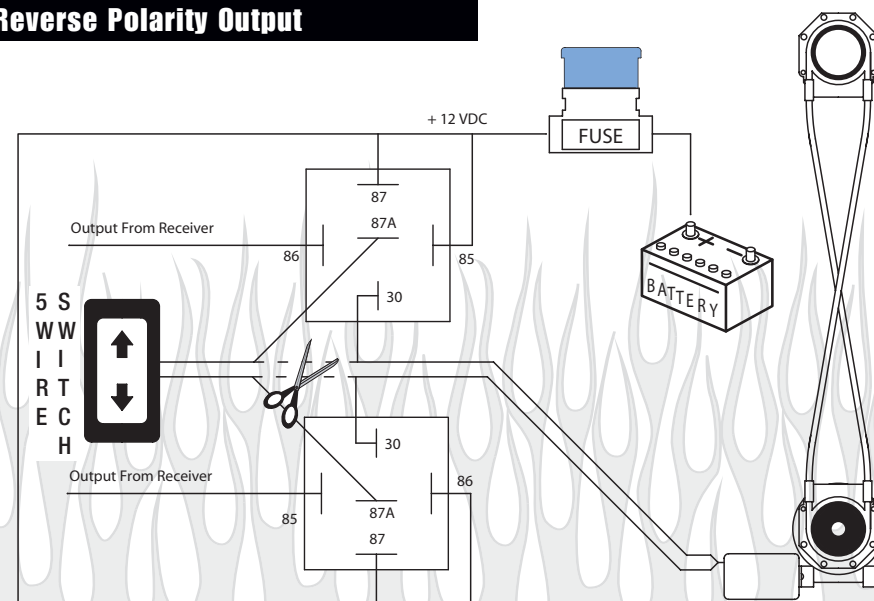
Positive Output



Negative Output



Reverse Polarity Output



****In a reverse polarity system, a switch that rests at ground must be used.****

Power Window Motor

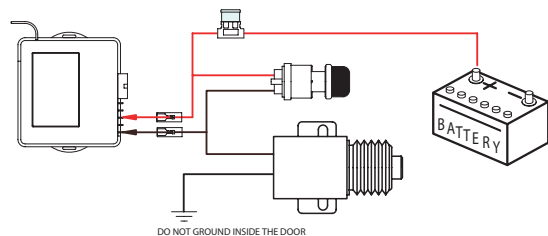


FOR POWER WINDOWS TWO RELAYS MUST BE PLACED BETWEEN THE SWITCH AND THE WINDOW MOTOR. THE DASHED LINES INDICATES WHERE THE WIRES MUST BE CUT.

Optional Wiring Section

Emergency/Backup Switch (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.



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

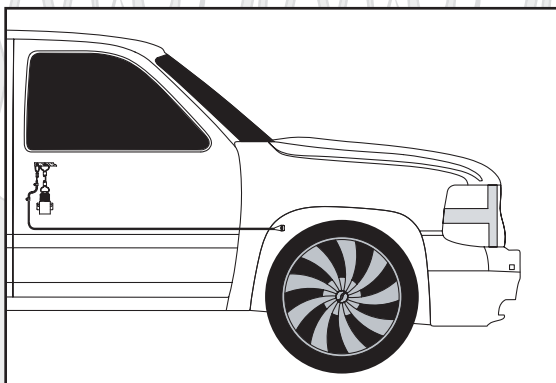
Item to be Activated	Description of Function	Relay Type	# of Relays Required	Diagram
1 Power window motor	Move window up & down	SPDT	2	Reverse
1 Power window motor	Move window one direction	SPDT	1	Reverse
Linear actuator	Move in & out	SPDT	2	Reverse
Solenoid	Activate Solenoid	SPST	1	Positive or Negative
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.

(See page 5 for installation instructions)

Operation Section

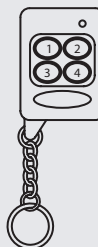
Basic Function of the SPAL Shaved Door Kit

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

Channel 1: Opens drivers door
Channel 2: Opens passenger door

Channel 3:
Channel 4:
Channel 5:
Channel 6:
Channel 7:

Optional negative outputs (250 mA)
Additional relays are required for each channel
(See Page 7 For Wiring Diagrams)



Basic Functions Of The Remote Control

To Operate:

Channel 1
Channel 2
Channel 3
Channel 4
Channel 5
Channel 6
Channel 7

Press:

Button 1
Button 2
Button 3
Button 4
Button 1 + Button 2
Button 1 + Button 3
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		

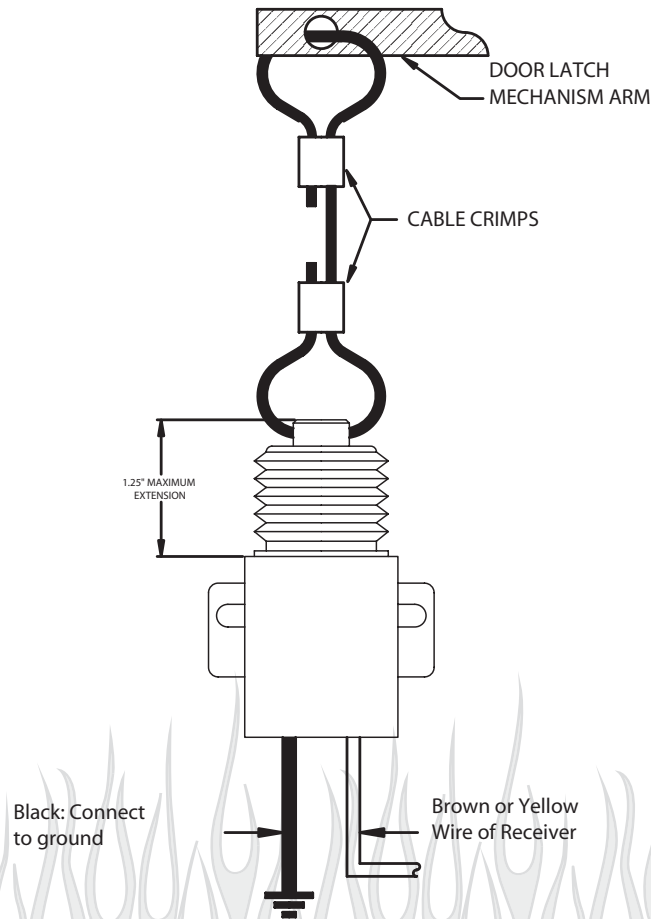


DIP SWITCHES

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

Mounting / Wiring Section

- The solenoids provided in the SHAVED-DX 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.



Solenoid Wiring:

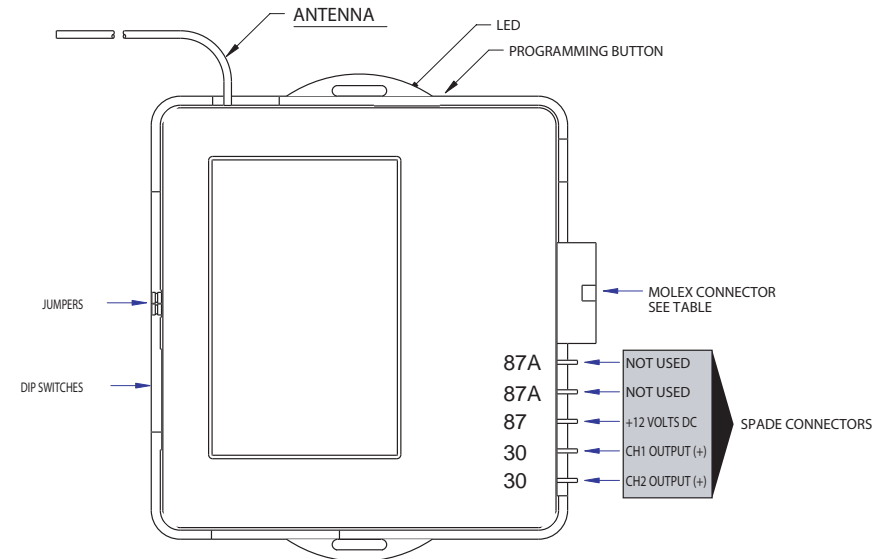
- Attach the white wire of the **Driver Door** Solenoid to the Brown wire (large gauge/channel 1, from spade connector harness) of the receiver.
- Attach the white wire of the **Passenger Door** Solenoid to the Yellow wire (large gauge/channel 2, from spade connector harness) of the receiver
- Connect 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)

Mounting / Wiring Section

Receiver Mounting and Wiring: (See page 6-7 for wiring diagram)

- **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!***



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:

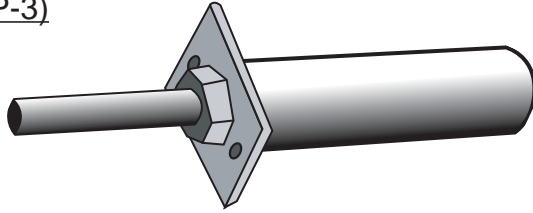
*Connecting the YELLOW (ignition) wire will disable Channels 1-4 while the ignition key is ON.

**When 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.

Mounting / Wiring Section

Door Poppers (DP-3)



Door Poppers can be mounted as flush or surface mount.

Flush mount

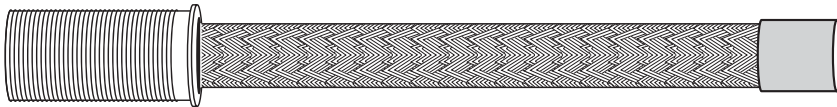
Remove the mounting plate from the Door Popper and install into the body.

Surface mount

Drill a hole for the Door Poppers and use the mounting plate to hold in place. The Door Poppers can also be trimmed to offer the proper amount of "push." Cut the rods and smooth the edges to prevent over-opening of doors.

The paint protector can be applied directly to the door with adhesive to protect the door paint from the rods.

Billet 1/2" Wiring Loom (HR-LOOM-1/2)



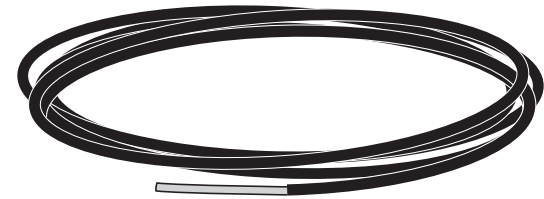
Installation Instructions:

Note: The position of the wiring loom will be specific to each application. Consider the location carefully for correct installation.

1. Select the desired location on the "A" post. Be sure there is enough clearance between the "A" post and the door.
2. Drill a 1/8" diameter pilot hole in the "A" post.
3. Shut the door and mark the location for the hole in the door using the hole previously drilled in the "A" post. Drill a 1/8" pilot hole into the door. **IMPORTANT** - The holes must be aligned opposite each other.
4. Drill a 3/4" hole in the "A" post with a hole saw bit.
5. Drill a 3/4" hole in the door with the same hole saw bit.
6. To provide the required clearances necessary in the "A" post or door, the bulkhead fitting needs to be shortened. If trimming is required, run the nut all the way up on the fitting, cut as needed and reverse the jam nut to clean the threads.
7. Insert the loose bulkhead fitting in the "A" post and tighten the jam nut as required.
8. Insert the braided stainless steel tube into the "A" post bulk-head fitting, then insert the fixed bulkhead fitting into the door and tighten the jam nut as required.
9. Repeat process for the opposite "A" post and door as required.
10. Install wiring through loom as required.

Mounting / Wiring Section

Mechanical Backup Switch (HR-ENTRY)



The position of this emergency entry device will be specific to each application. The example shown is only one of many that are possible. The actual location for the cable assembly routing and location for the exit of the pull loop are a choice to be made by the installer. Consider the location for the cable routing and exit carefully.

1: Determine routing for the cable assembly.

- Determine location where the cable sleeve tube will penetrate the doorjamb and A-pillar.
- Determine location for the cable pull loop exit through the inner wheel well and the firewall.
- This location should be in as inconspicuous a location as possible.
- This location should be where road debris picked up by the wheel: limbs, etc. or a tire blowout will not snag the loop and cause the door to open.

2: Drill a 1/2" diameter hole at the location determined above.

3: Drill a 3/8" diameter hole through the firewall as required for the cable assembly.

4: Install the cable tube sleeve in the door assembly, guide the sleeve through the billet wire looms in the doorpost and close the door.

5: Insert the cable through the item tube.

6: With the door closed, insert the cable assembly through the holes in the inner fender well and the firewall, then through the grommet and the cable tube sleeve.

7: Slide a cable clamp over the cable then slide the cable through the hole in the door latch arm and back through the cable clamp. Form a 2" diameter loop and crimp the clamp as required.

8: Install cable tube clamps as required for cable routing

- The cable in the door should pull as straight down as possible.
- Allow enough clearance for the door latch assembly to rotate as required, without any interference with your existing door latch operating cable and solenoids.
- Do not restrict the cable movement inside the cable tube with sharp bends.

9: With the door closed, allow a 6" to 8" loop to form in the area between the doorpost and the firewall. This will allow the door to open and close without binding the cable.

10: Install the grommet in the fender well, pull the cable assembly through the grommet and cut ONLY the cable tube to the required length at the outside of the grommet.

11: Secure the cable assembly with a clamp between the firewall and the inner fender wall if required.

12: Cut the cable to the required length. Attach the billet knob and install a cable clamp as required.

General Wiring Diagram

