

# Spartan RV Chassis's

With an

## HI - LO Engine Brake

Many hours have been spent, researching the different chassis wiring schemes in order to properly wire BrakeSwitch into the various chassis electrical systems. This August 14, 2009 document is the latest wiring version which was taken from a 2009 Tiffin Spartan chassis.

Over the years Spartan has been fairly consistent with their wiring of the Engine Brake with its HI, OFF and LO positions.

## BrakeSwitch Wiring:

BrakeSwitch comes with six wires for making the proper connections. The insulation colors are Purple, Black, two White and two Red wires.

The **PURPLE** wire connects to the Brake Lamp supply wire. By any name, this is the wire which provides power to the coach's rear brake lights **DURING ENGINE BRAKING**. This power is sent to the rear brake lights as long as the engine brake is operational, even after your foot has been removed from the brake pedal. By design the coach builder **LATCHES** the power to the rear brake lights **ON** whenever the engine brake is **ACTIVE**. This connection **IS NOT** the output of the two brake light switches mounted in or on the outside of the firewall. Connect this purple wire to the circuit by using a blue tap connector found at any automotive store. You can find this wire either under the dash behind the steering column in the large wire loom, or a better place is at the fuse/relay block. That block is located either on the firewall under the dash near the throttle pedal or possibly under the drawer stack between the seats. It will be in near proximity to the wiring connectors which pass through the firewall or floor near the steering column.

The **BLACK** wire connects to a ground stud, there is usually one located on or near the firewall by the throttle pedal. I use a large ring terminal so the ring will fit over the ground stud on the firewall.

Regrettably there is no simple way to access the wiring to the engine's brake switch except by removing the screws from the driver's side console and

then lifting up on the panel. You may not be able to remove all of the panel screws some may be under the edge of the dash. You should be able to lift the panel enough to access the engine brake switch harness. Disconnect the harness from the switch and move the harness where you can work on it. You will need to route the two White and two Red (BrakeSwitch) wires, under the dash and into the drivers console area.

The **TWO WHITE** wires are one circuit of the BrakeSwitch logic. Locate the number **5** pin position on the harness block. The harness block is usually marked on the side with the pin numbers. Cut the wire going to the switch harness about three inches from the switch harness block. Connect one of the Brake Switch **WHITE WIRES** to each end of the wire you just cut. After making these connections, you should have a wire from the wiring harness butt spliced to one of the Brake Switch **WHITE WIRES**. The second Brake Switch **WHITE WIRE** should be butt spliced to the second wire going to the switch harness block.


The **TWO RED** wires are the second circuit of the BrakeSwitch logic. Locate the number **2** pin position on the harness block. Cut the wire going to the switch harness about three inches from the switch harness block. Connect one of the Brake Switch **RED WIRES** to each end of the wire you just cut. Again after making these connections, you should have a wire from the wiring harness butt spliced to one of the Brake Switch **RED WIRES**. The second Brake Switch **RED WIRE** should be butt spliced to the second wire going to the switch harness block.

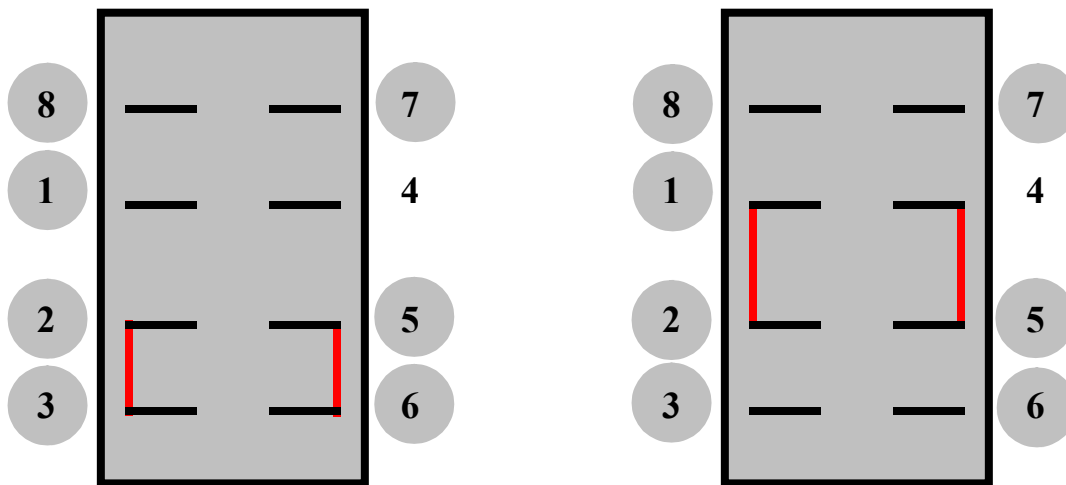
With BrakeSwitch wired this way, the engine's brake switch (on the driver's side console) will continue to **CONTROL** the engine brake through its **HI**, **OFF** or **LO** position selections. BrakeSwitch is now installed between the engine brake switch and the electronics controlling the transmission, engine brake, dash lamp (displaying engine braking) and the brake lights on the rear of the coach.

Use these wiring instructions in conjunction with the attached Spartan engine brake switch wiring schematics and you should have no problems installing BrakeSwitch.

# Spartan HI-LO Compression Brake Switch

## Bottom View of Switch

 < Denotes wire in Harness



**Denotes = Internal switch contacts**

### SWITCH IN **HI** POSITION

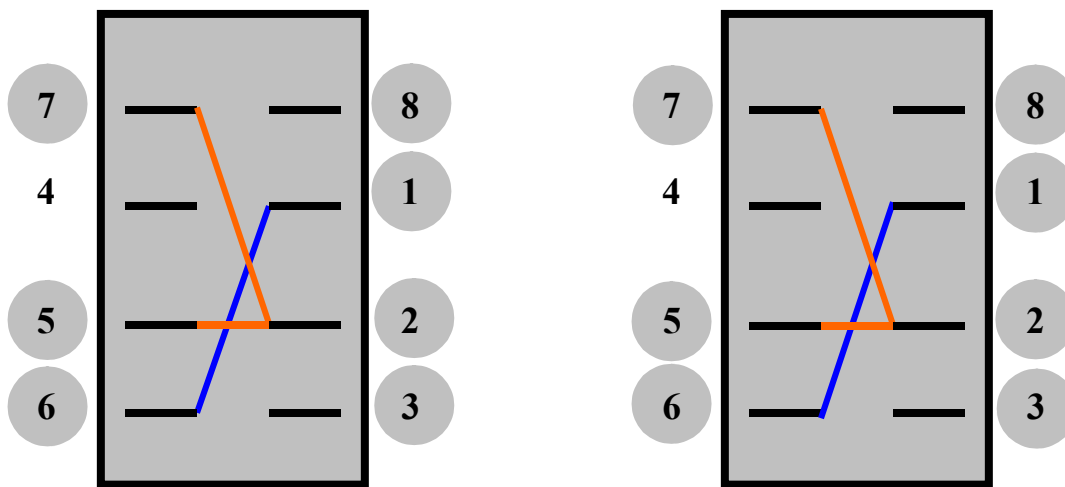
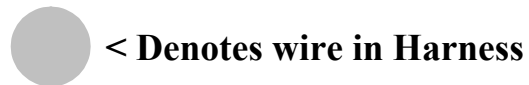
- 1 = Select Brake Input 1 (SP1013A)
- 2 = Common Ground (Jumper)
- 3 = Select Brake Input 2 (SP1014)
- 4 = No Connection

### SWITCH IN **LO** POSITION

- 5 = Common Ground (Jumper)
- 6 = Select Brake Input 1 (SP1013C)
- 7 = Common Ground
- 8 = 2 > Red Wires

# Spartan HI-LO Compression Brake Switch Harness

## Top View of Switch Harness



Denotes = External Ground Jumper

Denotes = External Select Brake Input 1 Jumper

SWITCH IN **HI** POSITION

SWITCH IN **LO** POSITION

- |                                    |                                    |
|------------------------------------|------------------------------------|
| 1 = Select Brake Input 1 (SP1013A) | 5 = Common Ground (Jumper)         |
| 2 = Common Ground (Jumper)         | 6 = Select Brake Input 1 (SP1013C) |
| 3 = Select Brake Input 2 (SP1014)  | 7 = Common Ground                  |
| 4 = No Connection                  | 8 = 2 > Red Wires                  |