Next Gen 6RStager Installation and Operational Manual for 2011-2017 6R80 Transmissions
Rev C

Note: The following instructions are for 8 cylinder 6R80 Automatic Transmission installations for 2011-2017 model years. Contact True Motorsports for other 6R80 configurations.

Each portion of this manual will outline the wiring diagram for 2011-2014 **and** 2015-2017 model years, as there are some slight variations in the system wiring between those model years. Pay attention to the wire colors when installing this system and ensure that each connection is a reliable connection that will not cause any intermittent behavior on the signals. For power connections to the 6RStager, ensure that the power source is a switched ignition source that powers up when you key on and that it has an appropriately sized fuse for the circuits connected. The 6RStager consumes less than 0.25 Amps during all modes of operation.

The 6RStager must be wired per the instructions outlined in this document and is designed to work for first gear launch setups. The 6RStager will not operate without interfacing to the transmission and brake pedal wiring. The brake pedal wiring must be wired for two reasons: 1) To prevent accidental engagement of the transbrake. 2) This is used for the 15-17 model years to prevent a condition that can lead to the throttle becoming stuck at WOT. Reference the Operational Manual section on Pages 9 & 10 for directions on how the system will function. Note that the foot brake pedal must be engaged prior to pressing the Transbrake enable button to engage the Transbrake.

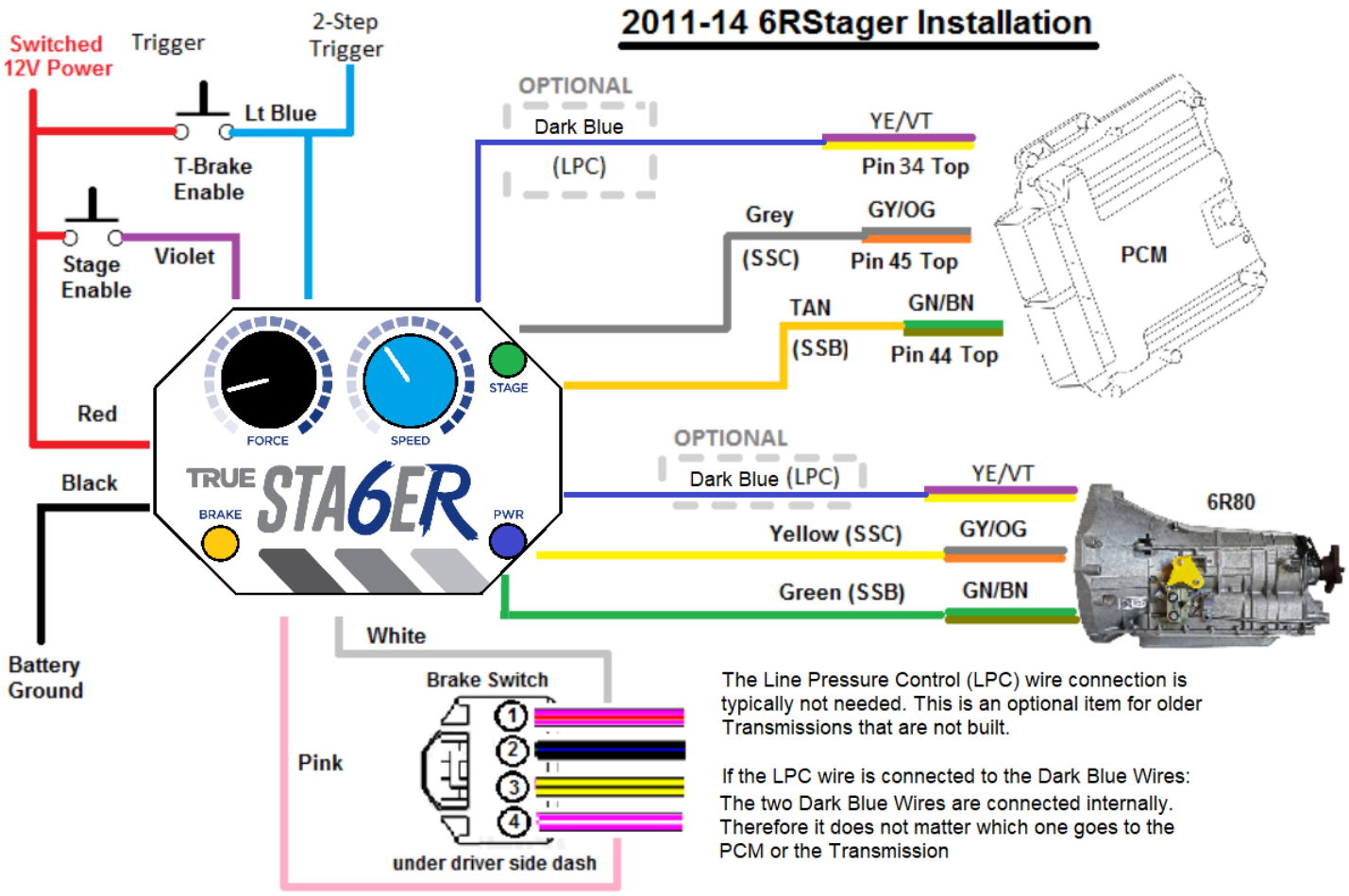
Perform the installation in the following order:

1. Turn the ignition off, open the hood **and disconnect the battery**. Locate the vehicle PCM (Powertrain Control Module). This should be under the hood near the front passenger side.

2. Locate and install the 6RStager control box in a location that is within the cab of the vehicle. Do not locate this device in the engine bay. Follow the wiring diagram instructions below and on the following pages. When wiring up this device, ensure that best practices are followed while wiring up the 6RStager. It is recommended that each connection be soldered and heat shrink applied.

3. The instructions for wiring the 6RStager will be outlined on pages 4 - 8. The diagrams shown on pages 2 and 3 should be used as an overall system wiring diagram for both sets of model years. Follow the instructions outlined below, to wire the 6RStager per the following wiring diagrams:

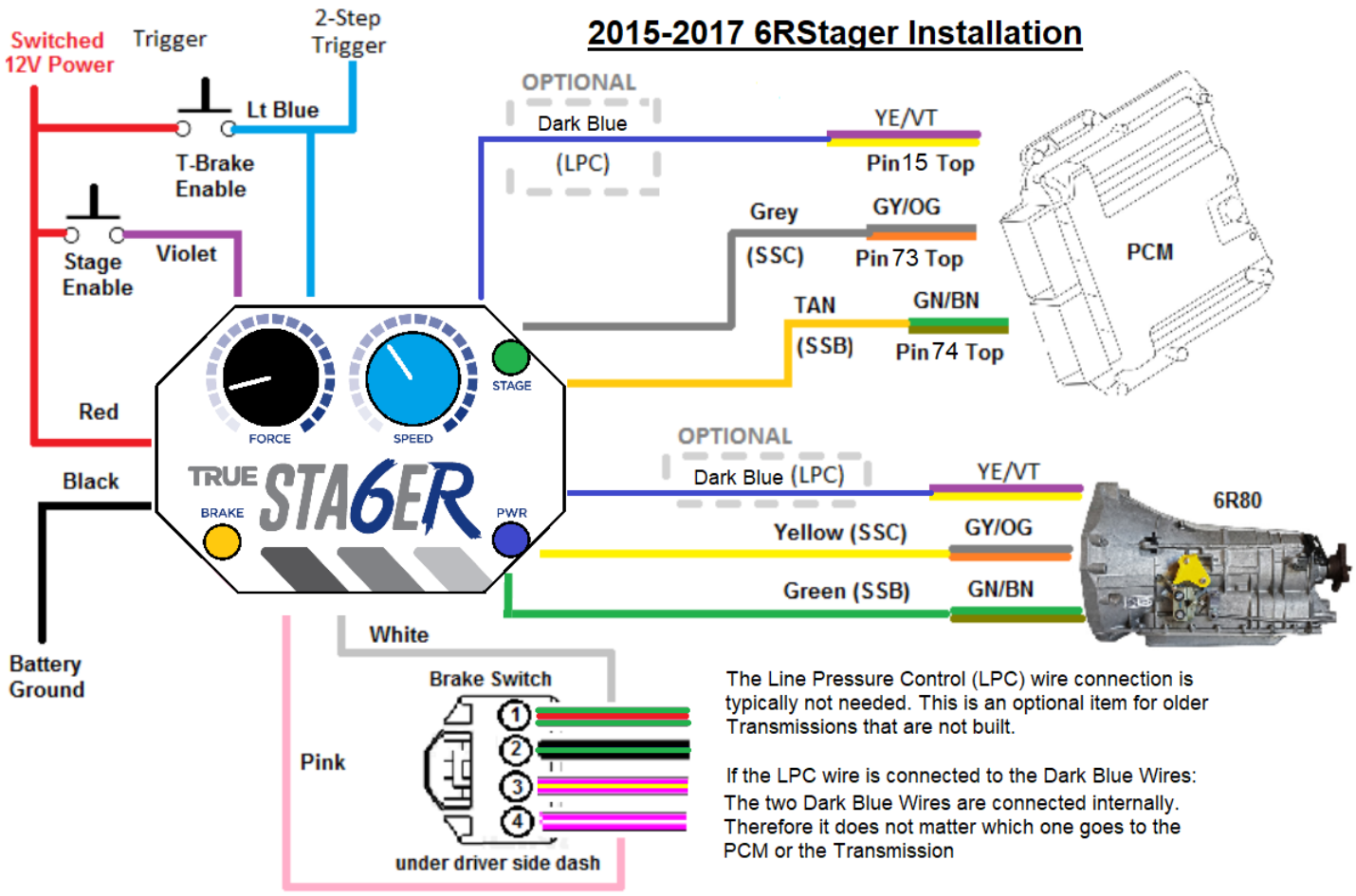
2011-2014 6R80 Wiring Diagram reference



- Connect the Grey Wire to the SSC wire (Grey/Orange) that is connected to the PCM
- Connect the Tan Wire to the SSB wire (Green/Brown) that is connected to the PCM
- Connect the Pink Wire to the Brake Pedal Position Switch Signal wire (Violet/White)
- Connect the White Wire to the Brake Pedal Position Switch Power wire (Violet/Red)
- Connect the Yellow Wire to the SSC wire (Grey/Orange) that is connected to the 6R80
- Connect the Green Wire to the SSC wire (Green/Brown) that is connected to the 6R80
- OPTIONAL: If the Transmission is stock, the Line Pressure Control (LPC) wires may need to be controlled to increase the pressure. The Dark Blue wires from the 6RStager can be installed in-line of the LPC wire by cutting and splicing into the Yellow/Violet wire. THIS LPC WIRING WILL REQUIRE SOME CODES TO BE DISABLED IN THE TUNE

Note: The signal at the light blue wire can be used to initialize a 2-step or other devices. If a 2-step interface is needed, attach to the light blue wire after the Transbrake Enable button. If the 2-step interface requires a low signal input a relay may need to be used and the light blue wire connection can be used to trigger a relay.

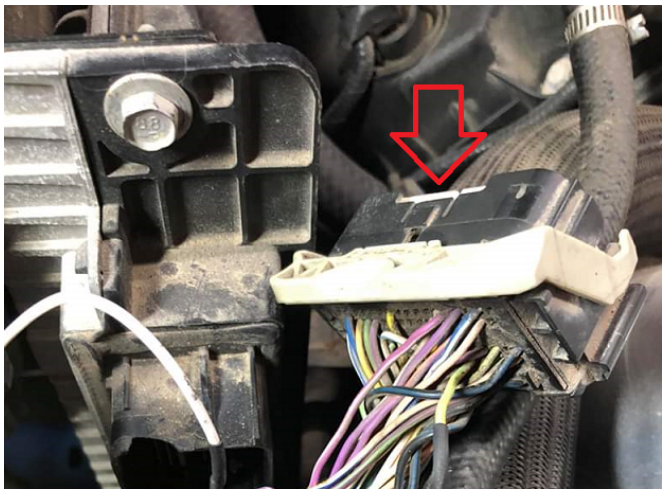
2015-2017 6R80 Wiring Diagram reference



- Connect the Grey Wire to the SSC wire (Grey/Orange) that is connected to the PCM
- Connect the Tan Wire to the SSB wire (Green/Brown) that is connected to the PCM
- Connect the Pink Wire to the Brake Pedal Position Switch Signal wire (Violet/White)
- Connect the White Wire to the Brake Pedal Position Switch Power wire (Green/Red)
- Connect the Yellow Wire to the SSC wire (Grey/Orange) that is connected to the 6R80
- Connect the Green Wire to the SSC wire (Green/Brown) that is connected to the 6R80
- OPTIONAL: If the Transmission is stock, the Line Pressure Control (LPC) wires may need to be controlled to increase the pressure. The Dark Blue wires from the 6RStager can be installed in-line of the LPC wire by cutting and splicing into the Yellow/Violet wire. THIS LPC WIRING WILL REQUIRE SOME CODES TO BE DISABLED IN THE TUNE

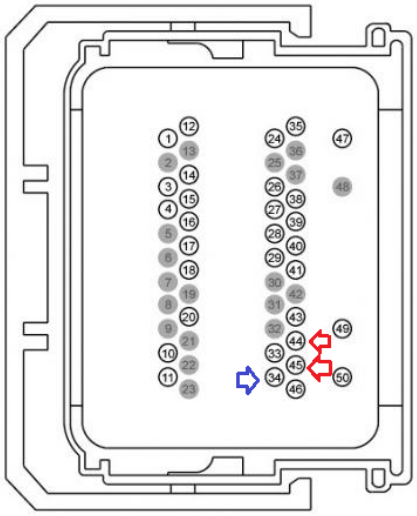
Note: The signal at the light blue wire can be used to initialize a 2-step or other devices. If a 2-step interface is needed, attach to the light blue wire after the Transbrake Enable button. If the 2-step interface requires a low signal input a relay may need to be used and the light blue wire connection can be used to trigger a relay.

4. Locate the PCM which is located on the right side of the engine. Disconnect the **Top PCM** connector. Move the Grey lever to disconnect the connector. This should be a 50 pin connector for 11-14 model years and a 95 pin connector for 15-17 models.

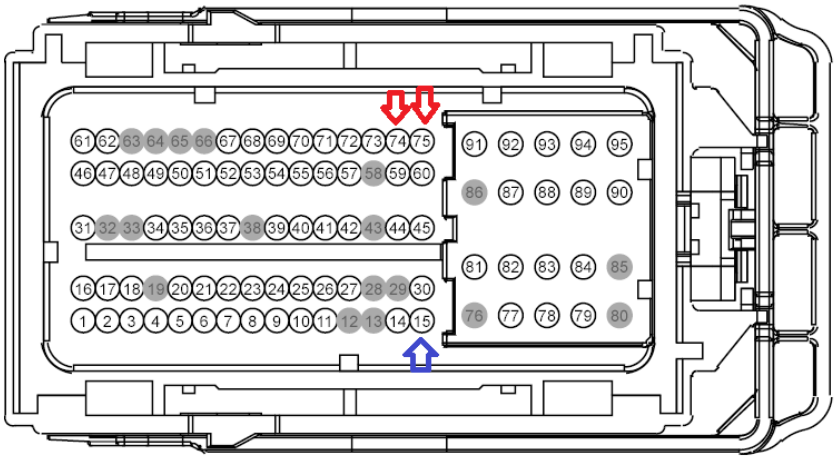


5. Remove at least 6-8 inches of the black tape so that you can access the wires.

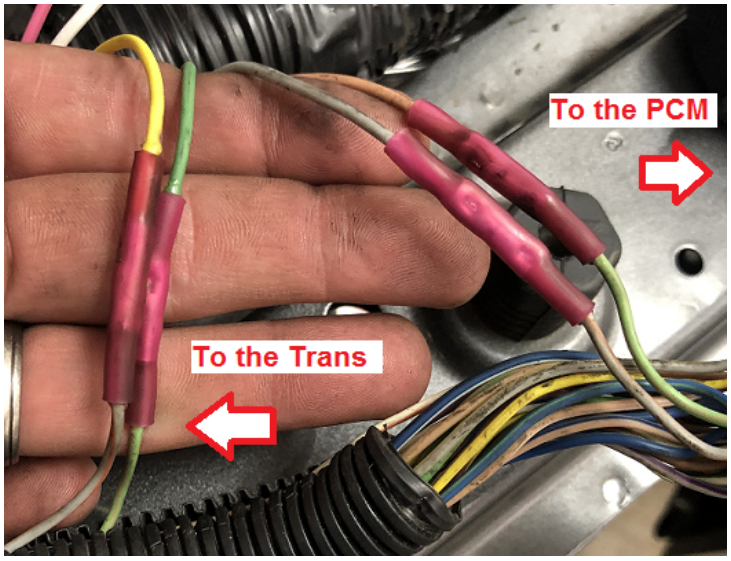
6. Identify the SSB and SSC solenoid wires so that the 6RStager can be inserted into this interface. For 2011-2014 models locate SSB's Green/Brown wire on pin 44 and SSC's Grey/Orange wire on Pin 45 as shown below.



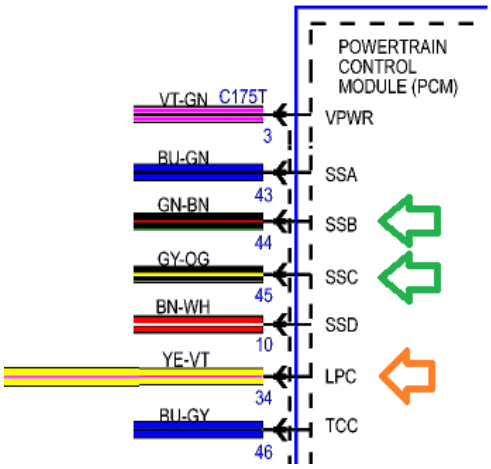
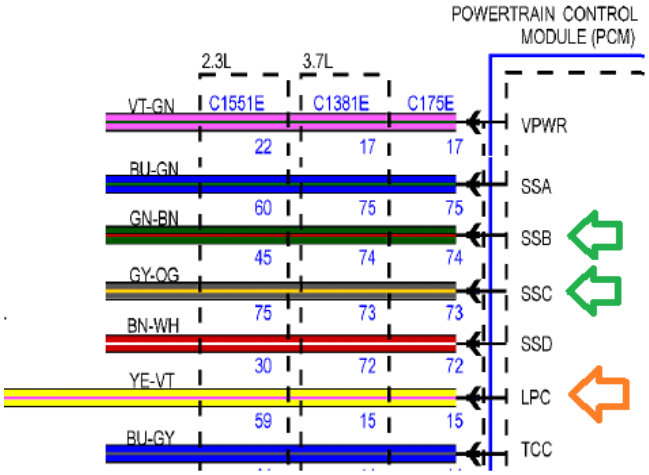
For 2015-2017 models locate SSB's Green/Brown wire on pin 74 and SSC's Grey/Orange wire on Pin 73 as shown below.



7. Find a good area on the wire harness near the PCM to splice into the SSB signal line coming out of the PCM (Green/Brown) and the SSC signal line coming out of the PCM (Grey/Orange) wire. Connect the wires per the wiring diagrams on pages 2 and 3. Ensure that the wires are connected towards the correct component as shown in the image on the next page.



Model Year Transmission Wire Interface Reference by Model Year:

2011-2014 Model Year	2015-2017 Model Year
	
To install the LPC, locate the Yellow/Violet LPC wire located on pin 34.	To install the LPC, locate the Yellow/Violet LPC wire located on pin 15.

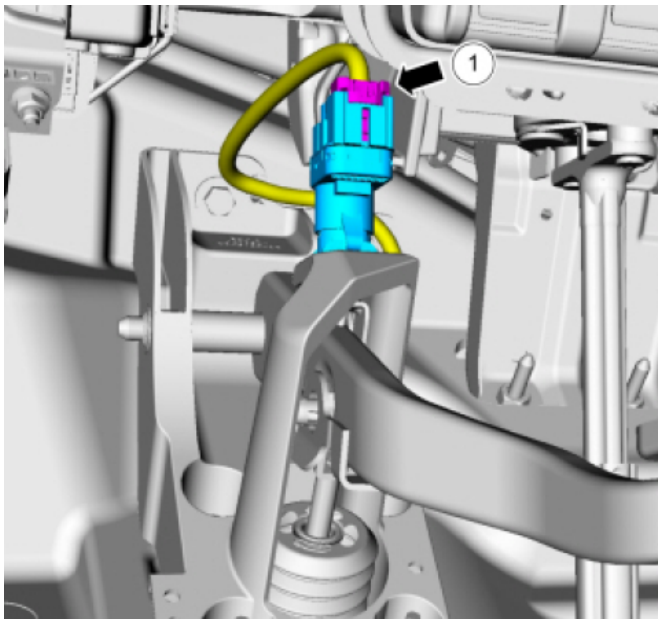
The Line Pressure Control (LPC) wiring is an ***optional*** item for the 6RStager Installation. This blue wire will interface to an internal relay that will increase the line pressure within the transmission so that the Transbrake clutches will hold higher horsepower setups and prevent them from moving forward before and after the car bumps forward. In most cases, such as built transmissions the LPC wiring is not required. However, if your Transbrake does not appear to be holding, consider adding this wiring to the circuit. When exercised, the internal relay will create an open circuit to LPC solenoid which will drive the line pressure higher.

Find a good area in the wire harness to splice into the LPC wire so that the two Dark Blue wires from the 6RStager can be inserted into the circuit.

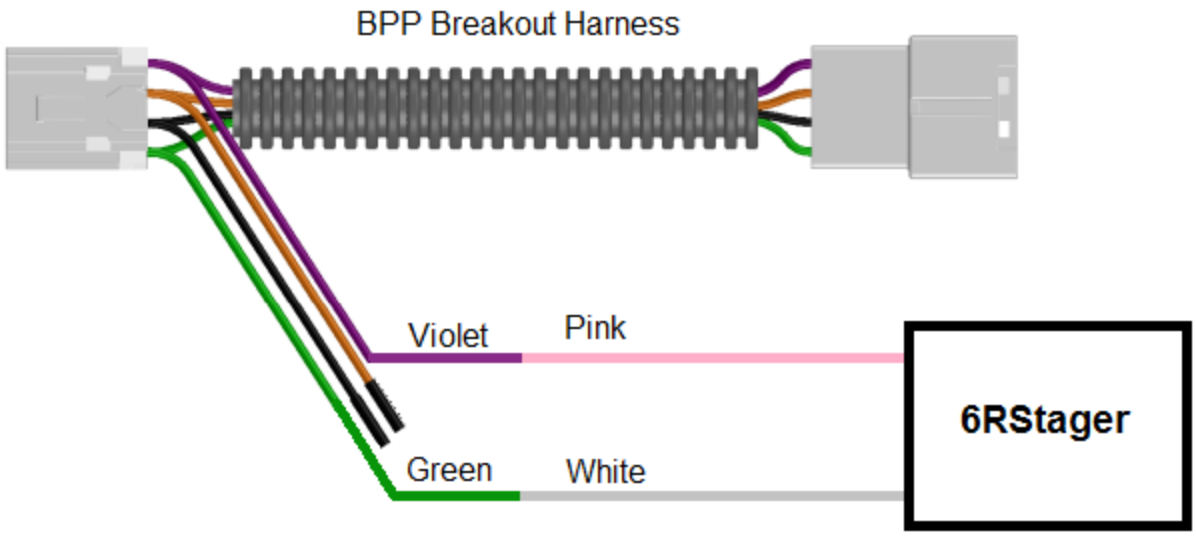
NOTE: Using this LPC wiring modification may cause a wrench light. If this happens, the following codes must be disabled: P0748SW, P0960SW, P0961SW, P0962SW, and P0963SW.

If the Transbrake is unable to hold your vehicle from moving forward consider talking to a 6R80 Transmission specialist about possible options with the Direct Clutch within the Transmission.

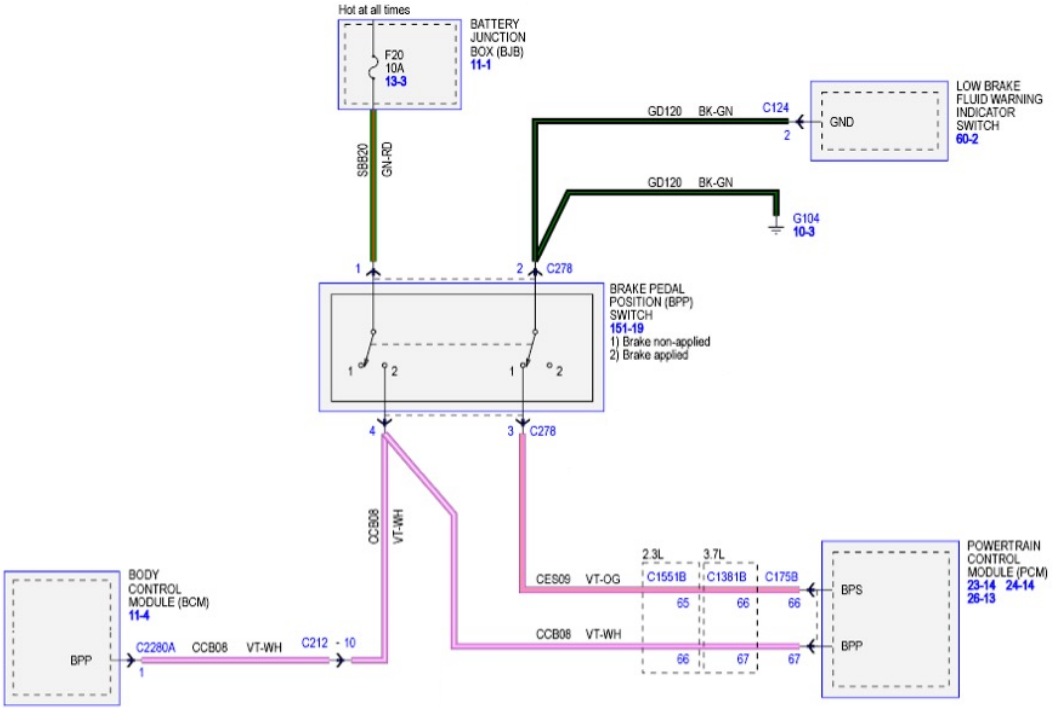
8. Locate the Brake Pedal Position (BPP) Switch under the driver side dash.



With the vehicle battery disconnected, disconnect the connector of the Brake Pedal Position Switch. Using the supplied Brake Pedal Position (BPP) Breakout Harness, connect the Violet wire from the BPP Harness and connect it to the Pink Wire coming from the 6RStager Harness. Connect the Green wire from the BPP Harness to the White wire from the 6RStager Harness



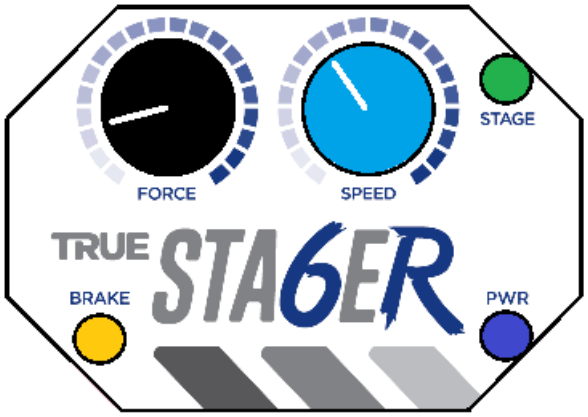
Plug one end of the BPP Harness into the Brake Pedal Connector and the other end into the previously disconnected Brake Pedal Harness. Below is the BPP vehicle schematic for reference. Please note that newer model years may deviate from this pinout, therefore it is important to verify the wiring per the below schematic reference.

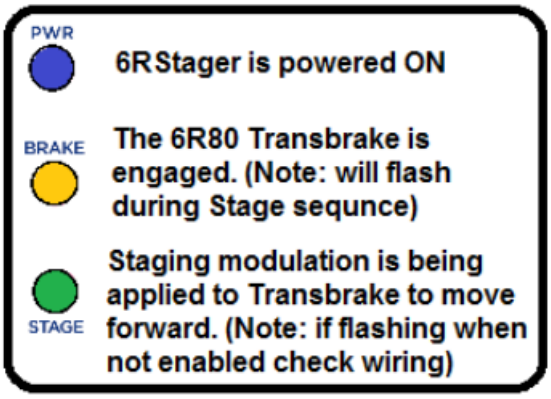


9. Connect the Red power wire to a switched 12V power source so that it will only turn ON when Ignition Power is applied or when a dedicated switch is used. Connect the Black wire to a clean battery ground connection. The Tranbrake enable (Lt Blue) and Stage enable (Violet) buttons should be wired so that the 6RStager will see a high voltage when the buttons are depressed. Any 2-step interfaces should be connected to the Light Blue wire connection.

   Refer to the Operators Manual on the following page.

6RStager Operator's Manual

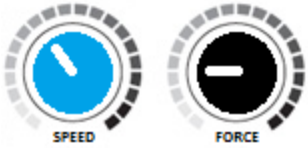




The 6RStager requires two input buttons for operation. Each input must be pulled above 10 volts to become active. The first input button will activate the Transbrake on the 6R80. The foot brake pedal on the vehicle must be depressed before the Transbrake will engage, as this is designed so that the Transbrake will not be accidentally depressed. Once the Transbrake has been enabled on the vehicle, the foot brake can be released. If the system is working, the brake lights will remain on while the Transbrake button is depressed.

To use the Stage button, the Transbrake button must be depressed and engaged prior to the Stage Button being depressed. Holding or tapping the Stage button while also holding the Transbrake button will enable the vehicle to creep forward slowly by momentarily disengaging the Transbrake. Use this Stage button to move from the Pre-stage to the Staging beams. When ready to launch, release the Transbrake button. Below is a guide to assist you in finding the best setting for your vehicle.

Step 1: Start with the Force to the 7 o'clock position and Speed near the 10 o'clock position.

Step 1	Step 2	Step 3	Step 4
Set Speed to 10 o'clock and Force to 7 o'clock  Press and hold the Bump Button	If NO movement,Increase the Speed 3-4 clicks  Press and hold the Bump Button	If NO movement, set Speed to 10 o'clock, increase Force 1  Press and hold the Bump Button	If NO movement after Step 3, repeat Step 2 and Step 3 until movement is present. Use the Speed knob to fine tune the vehicle speed while staging

Speed = Vehicle creep speed Force = Transbrake release power

The Next Gen 6RStager is equipped with Adaptive Bump and allows extra Force settings for increased Smooth Staging. The 6RStager has 12 settings and the Adaptive Bump provides access to pulse settings that are in-between each Force setting. In normal operation, the Force settings are 1, 2, 3, 4…. And with the Adaptive feature, while set to a Force position of 1, a time delay offset of 1+a or 1+a+a can be achieved. If set to a Force position of 2, a time delay offset of 2+a or 2+a+a can be achieved. You can think of the value +a as about an extra 1 msec of time for each bump pulse.

There are two methods for activating this adaptive feature:

1. With the 6RStager Powered ON, press and hold the Bump Button. After approximately 4 seconds, the Bump LED will blink momentarily.
    a. This single blink will increment the Force setting by a small amount (Force + a).
    b. If the button is held down another 4 seconds longer, a second blink will increment the Force setting another small amount (Force + a + a).
    c. The number of blinks will continue to tack on additional pulse time for the Force setting.
    d. This additional time will remain loaded into volatile memory within the unit. If power is cycled, this adaptive time setting will be erased and the Bump Button would need to be held again to achieve the blinks.
2. In some instances while moving from the Pre-Stage to Stage beams, the bump settings may need to change dynamically. The required bump settings when the transmission is hot versus cold may be different. If this is the case, holding the bump button down will gradually increase the Force setting. In the event that the car will not bump forward, simply holding the bump button down until the car moves forward can be achievable with this Adaptive Bump feature. The bump increase will be similar to the previously explained increment amount (Force + a).

NOTE: If the vehicle continues to roll forward after the bump, this is an indicator that your Transbrake is unable to grab and stop the vehicle from moving forward for the launch horsepower level. This could be an indicator of a worn clutch within the transmission. A possible method to overcome this with the 6RStager settings is to set the Speed and Force to the lowest settings. Tap the bump button and see if the car moves. If not, only increase Force 1 position and retry. Continue to increase the Force until the car moves. This quick tap of the bump button will only send one pulse to disengage the brake and should allow the brake to grab and stop the momentum of the vehicle. If not, consult a 6R80 Transmission expert.

The 6RStager was developed and produced by:

TRUE MOTORSPORTS

Racing Electronics Imagined Designed and Manufactured in the Midwest

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