



## 2005 Dodge Commander to Co-Pilot Retrofit Instruction Manual 1.0

### Please read all instructions before installation.

This manual is to help you retrofit an existing Commander Transmission controller system on a 2005 Dodge to an improved Co-Pilot Transmission Management Computer. If you are doing this retrofit for a customer, *please pass this manual on to your customer* for future reference.

There are three basic steps in this simple retrofit:

- The Commander module must be swapped with the new Co-Pilot and the dipswitches must be checked and changed as necessary.
- As many as two wires from your existing Commander installation must be disconnected (depending on your vehicle's features).
- Two wires from the supplied kit must be added.

### **Swapping Modules and setting dipswitches:**

Begin by disconnecting the negative terminals on all vehicle batteries. Now, unplug your existing Commander module and remove it from its mounting location. For your convenience, we have used the same wire plug-in and module shell for the Co-Pilot unit, although the Co-Pilot contains improved circuitry and advanced smart logic. As a result, the majority of the wiring connections that you made for the Commander unit can be reused. You will, however, need to access the dipswitches on the Co-Pilot's circuit board to customize it for your application. Use a 1/16<sup>th</sup> - inch hex (Allen wrench) to remove the face from the module. After the face has been removed the electronic board can be slid out of the casing from the front. The digital face is attached to the circuit board with a ribbon cable; *do not force the board from the case*. There are four (4) switches on the circuit board, check to make sure these switches meet these guidelines and match your preferences.

**SWITCH #1:** Momentary TCC disengagement from 4<sup>th</sup> to 3rd when tow/haul button is pushed  
If your Dodge has a **stock valve body**, flip #1 switch to the **ON** position  
If your Dodge has an **ATS valve body**, flip #1 switch to the **OFF** position

**SWITCH #2:** Automatically cancels Tow/Haul from a stop, only cancels once after ignition has cycled, and cancels at speed above 3mph.  
If you want automatic Tow/Haul cancel from a stop flip #2 switch **ON**  
If you **do not** want automatic Tow/Haul cancel from a stop flip #2 switch **OFF**

**SWITCH #3:** Speed setting  
**On**=low speed cut out is **8mph**,  
**Off**=low speed cut out is around **18mph** (**recommended** setting)

**SWITCH #4**  
Flip this switch to the **ON** position

Reassemble the module and remount it.

## Wires that must be uninstalled:

### **Purple Wire (Pin #16) – California Emissions:**

**If your Commander Installation did not use this wire, skip this step.**

If your previous installation used the **Purple** wire (California Emissioned vehicle), it must be uninstalled now. The Co-Pilot's smart logic automatically compensates for California Emissions features, making this wire unnecessary. The Purple wire runs from Pin #16 (see harness layout schematic) of the wiring harness to the PRNDL switch, which is located on the driver's side of the transmission. Disconnect the splice and protect the wire from the elements. The purple wire can be cut short at the module and capped.

### **White Wire (Pin #5) - Overdrive:**

**If your Commander Installation did not use this wire, skip this step.**

If your previous installation used the **White** wire (for Vehicles NOT equipped with tow/haul), it must be uninstalled now. This wire runs from Pin #5 (see harness layout schematic) of the wiring harness to the PCM on the driver's side of the engine block, pin B13. Disconnect the splice and protect the wire from the elements. The White wire can be cut short at the module and capped.

## Wires that must be installed:

In your retrofit kit, you should have found two wires (pink and orange). Use the supplied *wire harness layout diagram* and plug the Orange wire into pin #4 and the Pink wire into pin #12. When plugging in the wires, be sure to position the flat side of the pin connector up (towards the clip on the white plug) as shown:



For both the pink and orange wire, push the wire/pin connector into the white plug until you hear a click. Pull gently on the wire to make sure it is secure. Now connect these wires as instructed on Page 3.

**Note:** For the best possible connections, we urge you to solder all wire taps.

## -Pink Wire- Throttle Position Sensor (TPS) – PIN #12

**Where to connect it:** At the TPS connector located at the top of the accelerator pedal arm. This connector has six wires. In the fifth terminal there is a **brown with white** tracer wire, tap this wire.

**How to connect it:** Solder or use the provided t-tap hardware to tap the **Brown with white tracer** wire and crimp the t-tap spade onto the Co-Pilot's **pink** wire. Hook up these connectors.

**Tips:** This TPS connector is difficult to see, you may not be able to see all six wires on the connector until you unplug it. You might need to use a small screwdriver to release the connector clip.

## -Orange Wire- Manifold Absolute Pressure (MAP) Sensor - PIN #4

(Run this wire through the firewall to the engine compartment)

**Where to connect it:** At the MAP sensor connector located on the driver's side of the engine, next to the valve cover, and just over halfway back on the engine. The connector has four wires; tap the **light blue** wire, which is in the fourth ("D") terminal.

**How to connect it:** Solder or use the provided t-tap hardware to tap the **light blue** wire and crimp the t-tap spade on the Co-Pilot's **orange** wire. Hook up these connectors.

**Tips:** If the vehicle has had any aftermarket power modules installed, be sure to tap the MAP sensor wire **before** any taps from these power modules, i.e. place the Co-Pilot's tap closest to the sensor. Do your best to shield this connection from the elements.

Reconnect the negative battery terminals as well as the wiring harness into the back of the Co-Pilot. For your convenience, the Co-Pilot's controls and the basic operation are the same as the Commander's. Your new Co-Pilot Transmission Management Computer is ready for use.



18	17	16	15	14	13	12	11	10
	<b>GREEN</b> VSS	<b>PURPLE</b> NOT USED			<b>GRAY</b> EXHAUST BRAKE	<b>PINK</b> TPS	<b>BLUE</b> TCC	<b>YELLOW</b> PCM
9	8	7	6	5	4	3	2	1
<b>BLACK</b> GROUND			<b>BROWN</b> NOT USED	<b>WHITE</b> NOT USED	<b>ORANGE</b> MAP SENSOR			<b>RED</b> 12 V POWER



Dodge 2005+

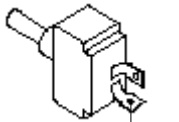
PIN	WIRE COLOR
1	RED
4	ORANGE
5	WHITE
6	BROWN
9	BLACK
10	YELLOW
11	BLUE
12	PINK
13	GRAY
16	PURPLE
17	GREEN

### Co-Pilot™

18	17	16	15	14	13	12	11	10
9	8	7	6	5	4	3	2	1

RED - 12 V POWER (PIN 1)
ORANGE - MAP SENSOR (PIN 4)
NOT USED
NOT USED
WHITE - N/A (PIN 5)
BROWN - N/A (PIN 6)
BLACK - GROUND (PIN 9)
YELLOW - PCM (PIN 10)
BLUE - TCC (PIN 11)
PINK - ACCELERATOR / TPS (PIN 12)
GRAY - EXHAUST BRAKE (if equipped) (PIN 13)
NOT USED
PURPLE - N/A (PIN 16)
GREEN - VSS (PIN 17)

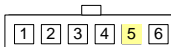
Applies *ONLY* to vehicles equipped with an Exhaust Brake



Remove the brake on/off switch's ground wire and replace with the Gray Commander wire

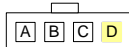
#### ACCEL SENSOR / TPS

(Located above accelerator pedal)  
PIN 5  
BROWN W/ WHITE WIRE



#### MAP SENSOR

(Located on top of engine, driver's side, next to valve cover)  
PIN D  
LIGHT BLUE WIRE  
Note: Tap *before* any power modules



#### VEHICLE SPEED SENSOR

Tap Here (do not cut)

#### PCM

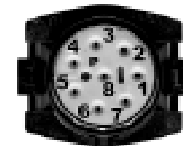
(Located on driver side of engine block)

DRK GREEN W/ YELLOW (VSS) Pin B11
YELLOW W/ LT BLUE Pin B25
BLACK Pin B50
PINK W/ GRAY Pin B32

Splice yellow from Co-Pilot with yellow w/ lt blue

Cut yellow w/ lt blue wire at Transmission Connector

Splice blue from Co-Pilot with yellow w/ lt blue



#### TRANSMISSION

8 Pin Connector on top of transmission on driver side

(YELLOW W/ LT BLUE)