

# 97-03 F150 Cruise Button Box (and many more Ford vehicles) Installation Guide

Rev. 1.3

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[www.accutach.com](http://www.accutach.com)

Thank you for purchasing the Accutach Co. Cruise Button Box. It is designed to allow you to repurpose the cruise control buttons on your stock 1997-2003 Ford F150/Lightning steering wheel to control other accessories.



## WARNINGS and DISCLAIMERS:

You use this product at your own risk. Accutach Company is not responsible for personal injury or property damage through the use of this product. While it is possible to use an SPDT switch in the Mustang's steering wheel control wire to switch the cruise control button function from cruise control and back again, Accutach Company strongly recommends that users permanently change the button functions from cruise control to control of your accessory. Should you choose to use a switch, you must make certain that the vehicle's cruise control is off before you flip the switch to enable accessory control. If the vehicle is in cruise control mode, and you switch the cruise control buttons to an alternate application, none of the steering wheel buttons will communicate with the cruise control system, including the Off button.

Do not touch the air bag wiring as you modify the cruise control wiring near the steering column. Make sure you disconnect the battery and follow the service manual's recommendations regarding air bag safety before doing any electrical work described in this installation guide. Failure to do so can result in injury or death.

We strongly recommend making wire connections with solder & shrink tubing, although properly made crimp splices can also be reliable. We do not recommend using "Scotch Lock" style connections for our products. Do not use the "twist & tape" method of connecting wires.

**Before you begin:**

You will need to identify a switched battery voltage power supply wire to splice into for power for the Cruise Button Box, and you will need a good chassis ground to ground the unit. We find the purple/orange wire at the convertible switch in the console near the fog light switch to be a suitable source of switched power, and any convenient chassis ground point will work. An ohmmeter will help you test your button circuit and installation.

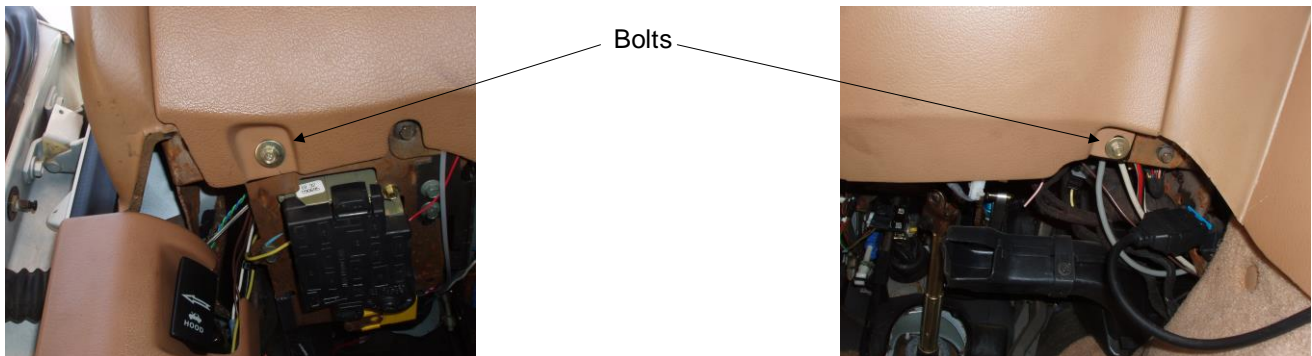
You will also need to locate a suitable place to install the unit inside of the vehicle's cabin, most likely under the dash or in the console near the shifter. It is not intended for use in the engine compartment or anywhere outside of the vehicle. If you wish to create a custom mounting bracket out of ABS plastic you can glue it to the ABS box with standard ABS cement from a hardware store.

**Locating the Cruise Control Signal Wire**

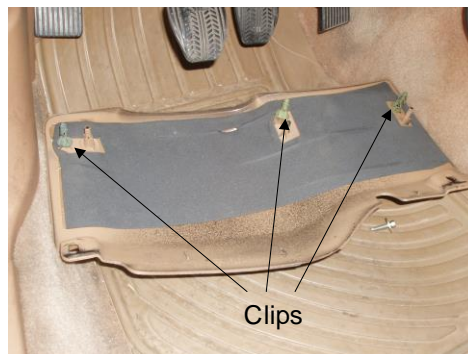
A Mustang is shown here as an example. You will need to locate the Cruise Control signal wire for your vehicle. Installation will be similar in other Ford vehicles. Please see the Ford service manual for your vehicle if you are having difficulty accessing the cruise button wires. The cruise button signal and return wire colors may be different for your vehicle and are listed in the appendix.

You will need to remove the plastic cover under the drivers side dash and then remove the metal plate. Then you will need to remove the bottom of the steering column cover to gain access to the wiring in the steering column.

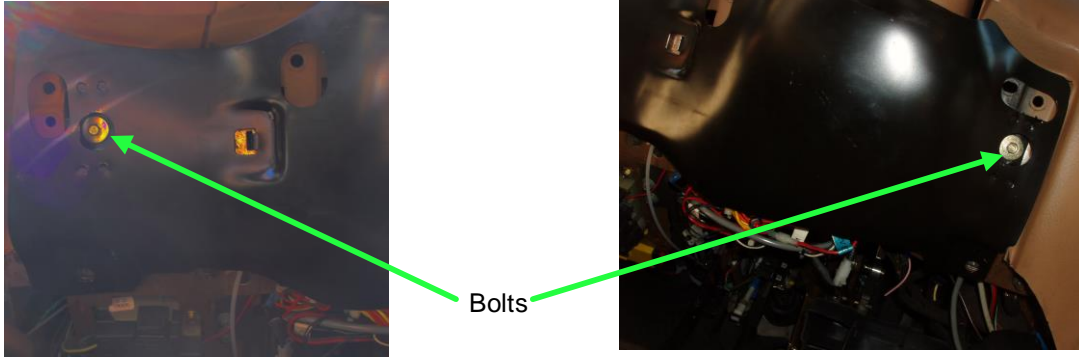
The plastic cover under the driver's side dash is held in place with two bolts and three clips. Remove the two bolts using an 8mm wrench:



Pull the plastic cover straight off or you may break the plastic that holds the clips in place. Here is a picture of the clips:



There are two bolts that hold the metal plate in place. Using an 8mm wrench, remove the two bolts and the metal plate:



Using a small Crescent wrench on the flats of the tilt wheel lever, unscrew the tilt wheel lever from the steering column:



Remove the 4 Philips screws from the bottom of the steering column cover:

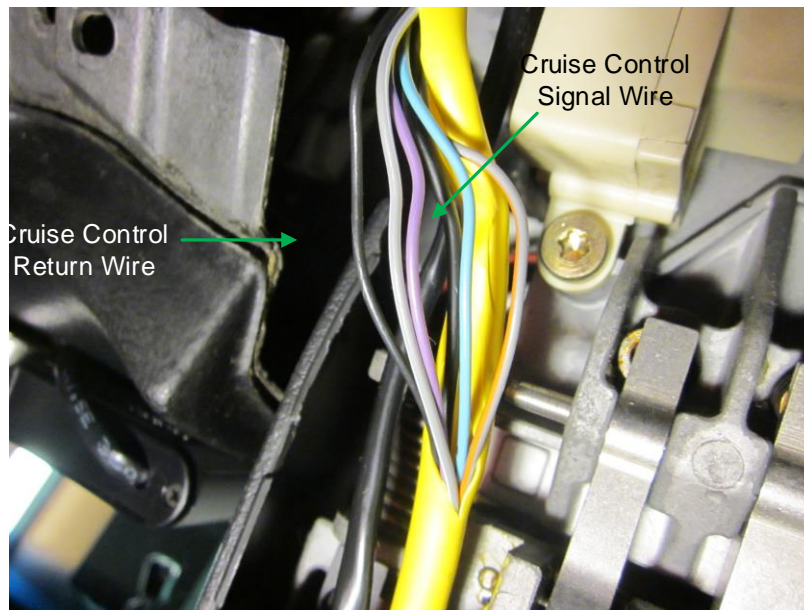


Remove the steering column bottom cover to expose the yellow sheathed cable that contains the cruise control button wires.

After the Cruise Button Box has been installed, reassembly is the reverse of the disassembly.

## Installing the Accutach Cruise Button Box

Carefully slit (without damaging the wires) the yellow sheath to access the light blue/black Cruise Control signal wire similar to the one shown in the photo below.



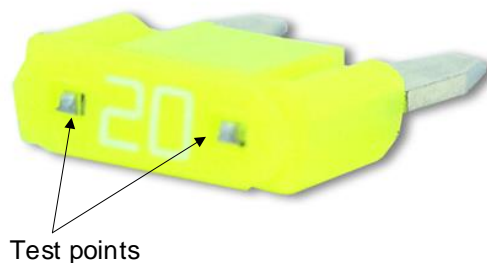
The return wire is dark green/orange in 1997-2003 F150s. The return wire is grounded via the cruise control servo unit for nearly all Ford vehicles including all 1997-2003 F150s. If you remove the cruise control servo unit, you must ground the return wire or the Cruise Button Box and the horns will not work. If you do need to ground the return wire, it is good practice to ground it to the same point that you ground the Cruise Button Box.

## Testing the steering wheel buttons

At this point, it is a good idea to test your steering wheel buttons and wiring. You will need an Ohmmeter for this test

Cut the Lt Blue/Black Cruise Control Signal wire, and locate the side of that wire that runs up into the steering wheel clockspring mechanism. Connect your Ohmmeter black lead to ground and the red lead to the Lt Blue/Black signal wire going up to the steering wheel. With no button pressed, you should see infinite ohms. With the Off button pressed, you should see near 0 ohms. With the Resume button pressed, you should see about 2200 Ohms. With the Set/Accel button pressed, you should see about 680 Ohms. With the Coast button pressed, you should see about 120 Ohms.

Hold the Ohmmeter black lead to a metal test point on an always-hot fuse and press the On button. You should see about 1075 ohms.



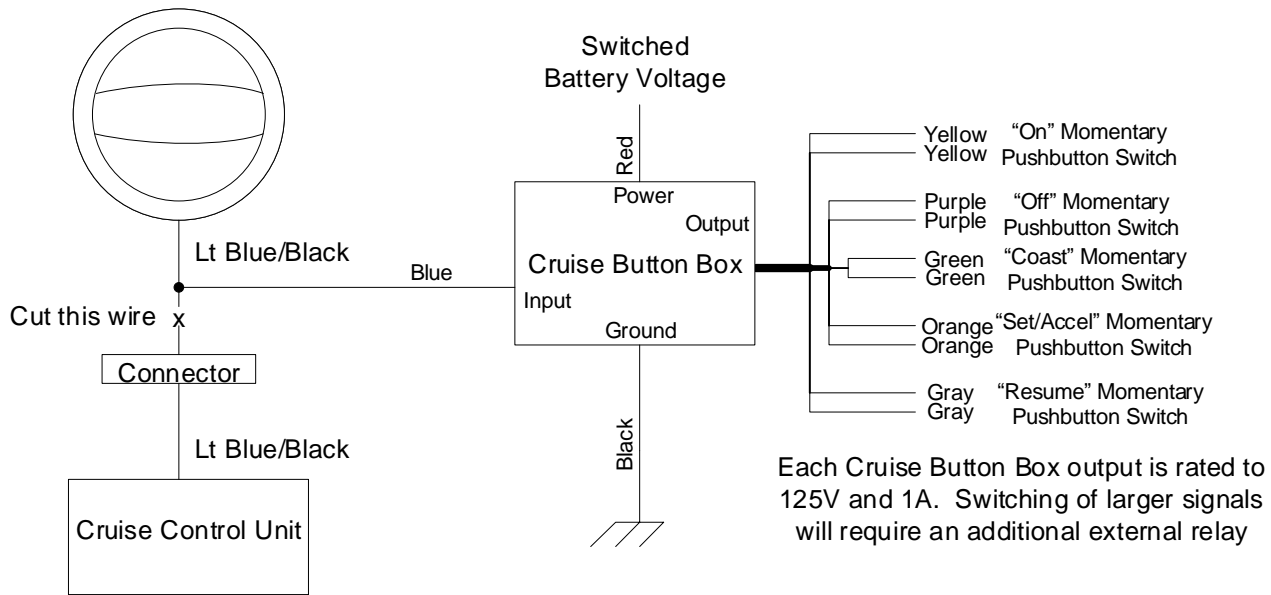
If you do not read the resistances listed above, diagnose what is wrong with your steering wheel button circuit before continuing with the installation of the Cruise Button Box.

Cut the Cruise Control Signal wire, and locate the side of that wire that runs up into the steering wheel clockspring mechanism. Splice the blue wire from the Accutach Cruise Button Box to that wire. Use shrink tubing to insulate the other side of the light blue/black wire that goes to the cruise control unit. Do not leave the OEM cruise control unit in the circuit or the Cruise Control Button Box will not work.

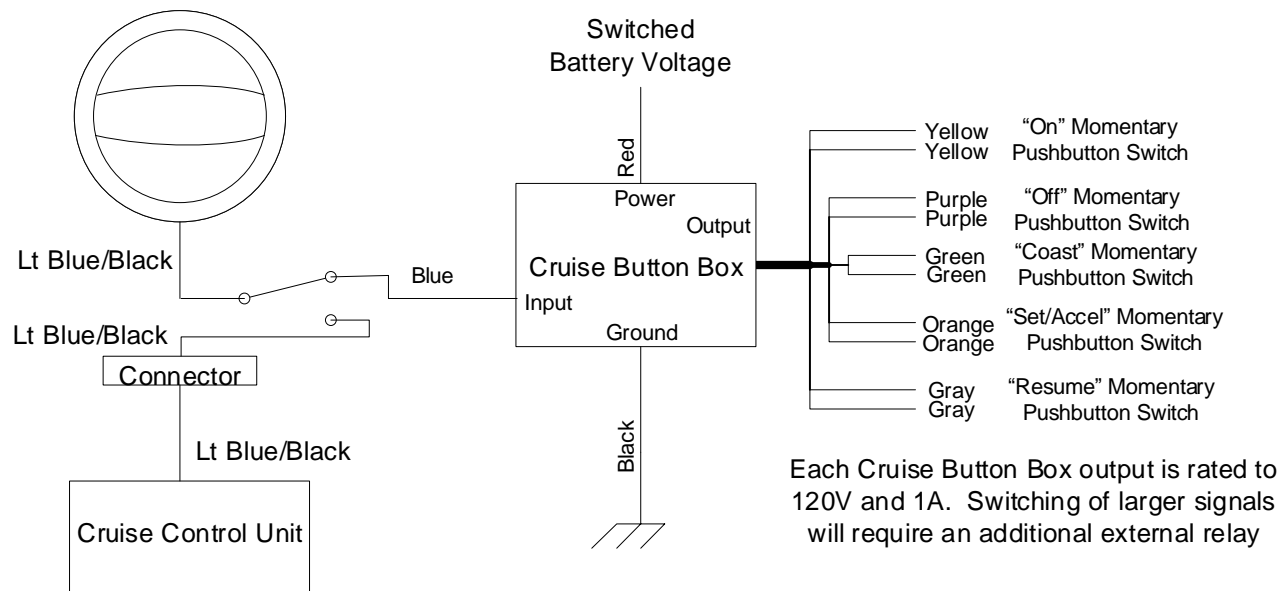
If you choose to use a switch to retain the use of the cruise control function of your vehicle (against our recommendations), then wire an SPDP switch common connection to the light blue/black wire going to the steering wheel, and run the light blue/black wire to one side of the SPDT switch and the Accutach Cruise Button Box blue wire to the other. This will allow you to switch between using the steering wheel buttons for cruise control or accessory control.

Connect the red wire from the Accutach Cruise Button Box to your switched power source, and connect the black wire from the Accutach Cruise Button Box to your chassis ground. At this point it is a good idea to test your unit. Please see the testing procedure at the end of this document.

Here is a schematic diagram of how to connect the Accutach Cruise Button Box to the vehicle:



If you choose to go against our recommendations and install a switch to select use between cruise control and an accessory for the cruise control buttons, you would wire it up this way:



## Testing the Cruise Button Box

At this point, you can reconnect your battery and test the Cruise Button Box.

Do not connect any of the colored wire pairs to any accessories. Turn the ignition key on. With an Ohm meter, test all of the colored wire pairs coming from the unit. With no button pressed, all of the wire pairs should show infinite resistance. With the press of each button, you should hear a relay click in the box and the one wire pair listed below should show a near zero resistance. All of the other wires should show infinite resistance.

Pressed Button	Near 0 Ohms
-On	Yellow pair
-Off	Purple pair
-Resume	Gray pair
-Set/Accel	Orange pair
-Coast	Green Pair

If you do not get these results, make sure that the light blue wire in the steering column is cut, and the Cruise Button Box blue wire has a good connection to the light blue wire that goes up to the steering wheel, not down to the cruise control system. If the light blue wire is not cut, the cruise control servo unit will load the wire so the cruise button box will not work.

If the blue wire is wired correctly, make sure that the voltage on the red wire is very close to battery voltage. If it is not very close to battery voltage, make sure the connection to power is a good connection. Also, make sure that you have a very good ground connection.

Feel free to contact Accutach Company if you have any questions or issues with the installation of the Cruise Button Box.

If the Cruise Button Box passes these tests, you are ready to wire the colored relay wire pairs to the accessory you want to control. Connect any of the colored wire pairs to whatever accessory you want controlled by the corresponding cruise control momentary pushbutton switch.

Each momentary pushbutton switch output is rated to 120V and 1A. Higher rated signals must be controlled by an external automotive relay (not supplied).

The Cruise Button Box typically draws less than 20mA quiescent and less than 70mA when a button is pressed.

Connect any of the colored wire pairs to whatever accessory you want controlled by the corresponding cruise control momentary pushbutton switch.

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The Cruise Button Box typically draws less than 20mA quiescent and less than 70mA when a button is pressed.

### **Pressing Multiple Buttons at Once**

Don't push multiple cruise control buttons at the same time. You can't push the On and Off buttons at the same time since they are part of a rocker assembly. You also can't press the Coast and Set/Accel buttons at the same time, since they are also part of a rocker assembly.

The following table describes what will happen if you accidentally press combinations of switches:

On + Coast:	Coast button pressed
On + Set/Accel:	Resume button pressed
On + Resume:	Resume button pressed
On + Coast + Resume:	No button pressed
On + Set/Accel + Resume:	On button pressed
Off + Coast:	Off button pressed
Off + Set/Accel:	Off button pressed
Off + Resume:	Off button pressed
Off + Coast + Resume:	Off button pressed
Off + Set/Accel + Resume:	Off button pressed
Coast + Resume:	Coast button pressed
Set/Accel + Resume:	Set/Accel button pressed

### **Auxiliary Switch Units**

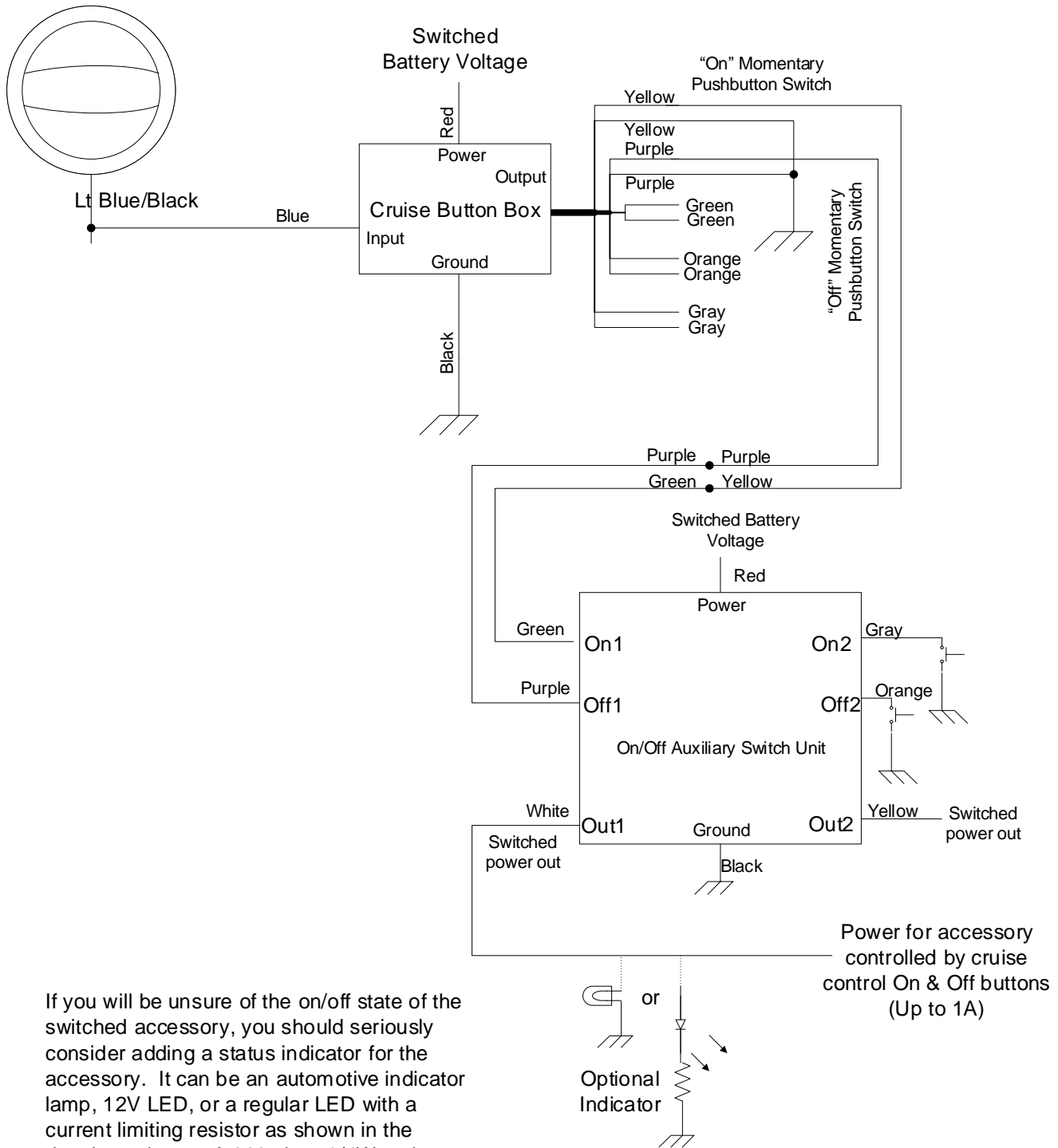
All of the cruise control buttons function as momentary on pushbutton switches. Some applications require switches that function as a toggle rather than ones that are only momentarily on. Accutach Co. has developed two different auxiliary switch units which can be used in conjunction with any momentary switch (ideal for use with Accutach's Cruise Control Button Box) to operate devices which normally use a toggle switch (typical on/off function). These two different devices cover just about any application. The Accutach Co. auxiliary switch units can switch circuits up to 120V, 1A. Switching higher voltage and/or current signals will require the use of an external relay. The Accutach Co "On/Off Auxiliary Switch Unit" and the "Toggle Auxiliary Switch Unit" are described below.

#### **On/Off Auxiliary Switch Unit**

Some people will prefer to turn an accessory on with one momentary pushbutton switch and off with another momentary pushbutton switch. The Accutach Co. On/Off Auxiliary Switch Unit provides two such circuits in one small box. For example, the cruise control On and Off buttons could be used to turn one accessory on and off and the cruise control Set/Accel and Coast buttons could be used to turn another accessory on and off.

For example, the cruise control On button could be used to Arm a nitrous system and the Off button could be used to disarm it. The cruise control Set/Accel button could be used to turn on a bottle warmer and the Coast button could be used to turn the bottle warmer off. That leaves the cruise control Resume button to be used as a purge pushbutton.

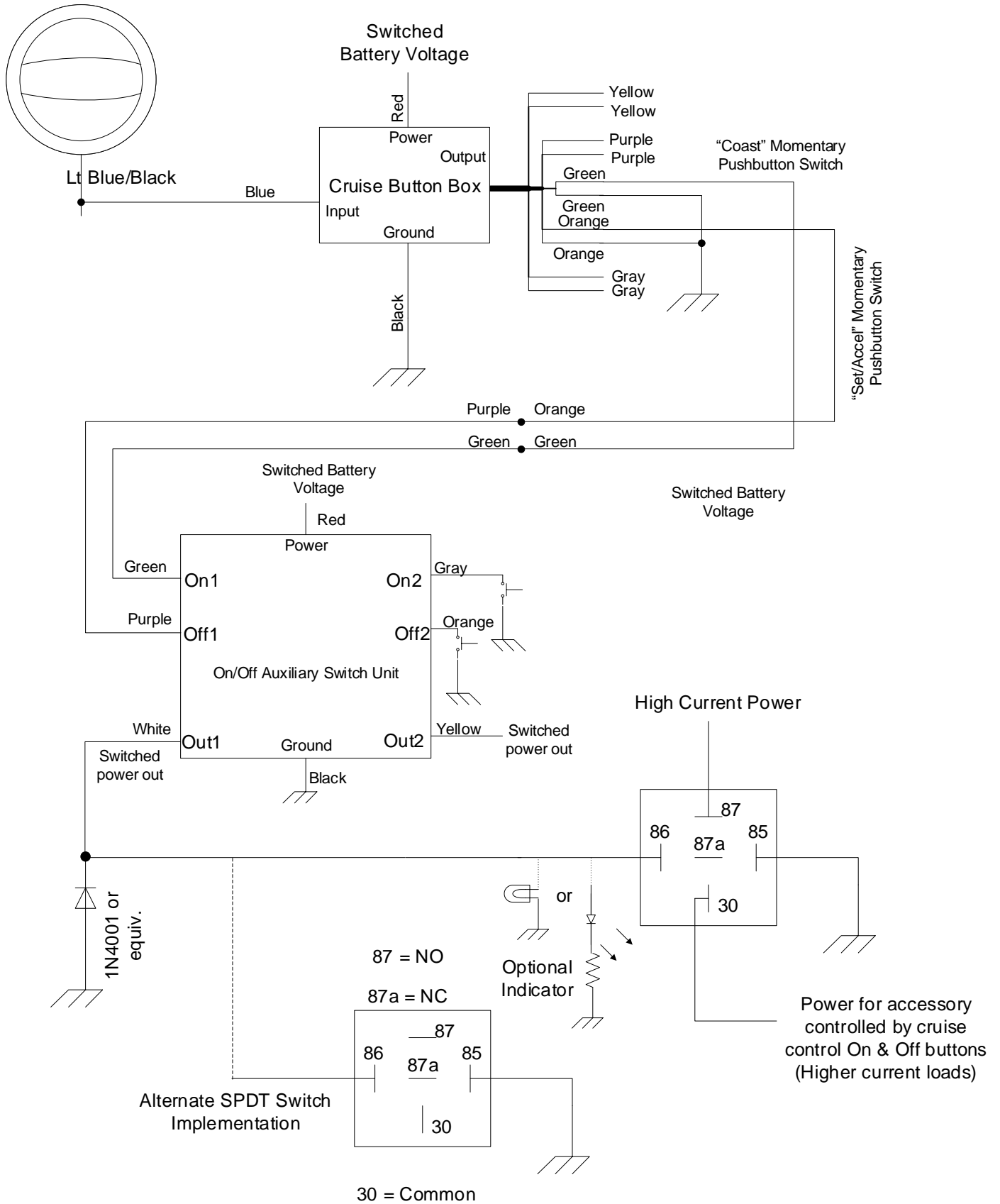
Here is an example of how to use the cruise control On and Off buttons to power an accessory that uses up to 1A of current:



If you will be unsure of the on/off state of the switched accessory, you should seriously consider adding a status indicator for the accessory. It can be an automotive indicator lamp, 12V LED, or a regular LED with a current limiting resistor as shown in the drawings above. A 680 ohm, 1/4W resistor is a good value for a 20mA LED



Here is an example of how to use the cruise control Set/Accel and Coast buttons to power an accessory that uses over 1A of current (or alternatively, an SPDT implementation):

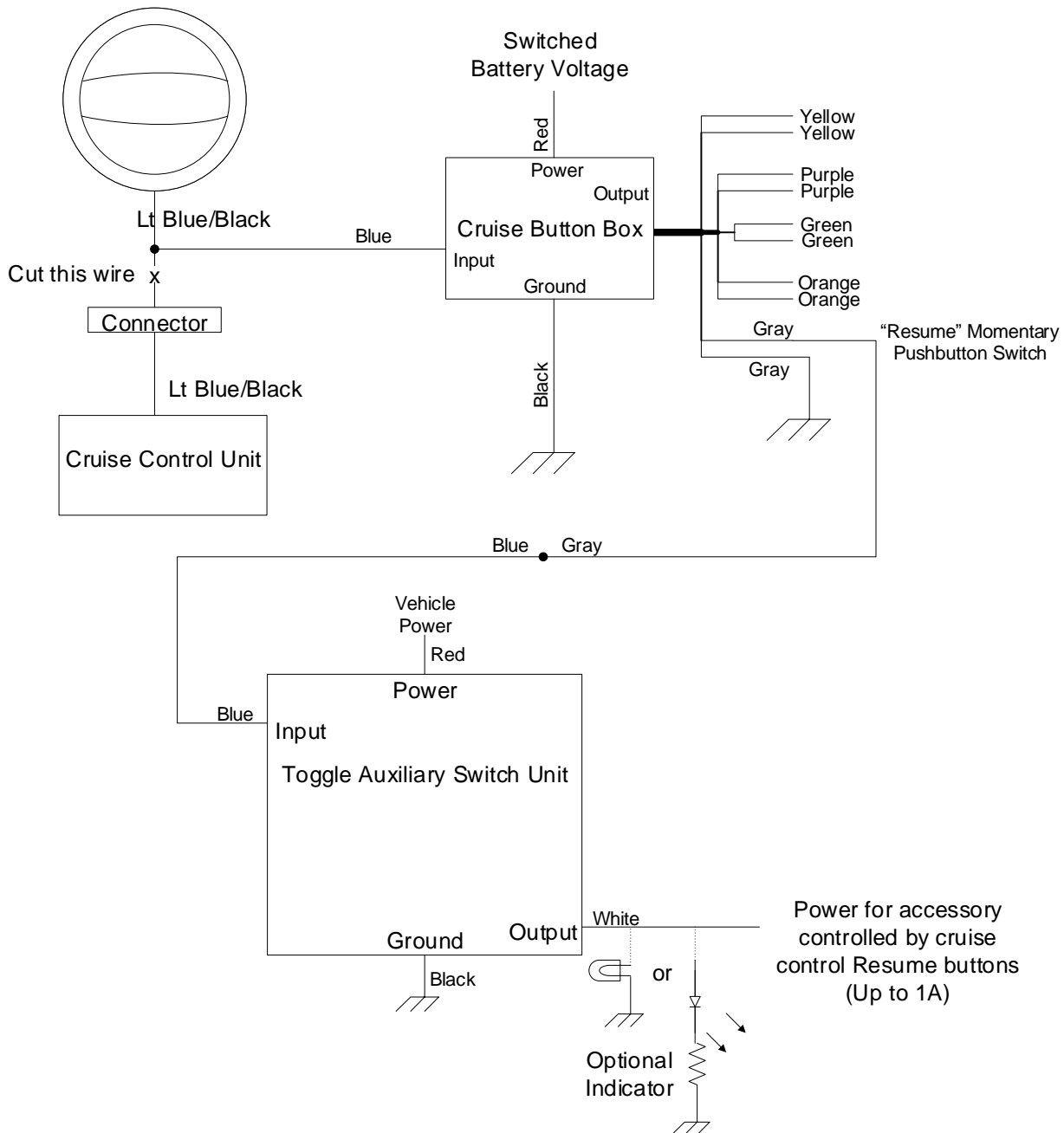


## Toggle Auxiliary Switch Unit

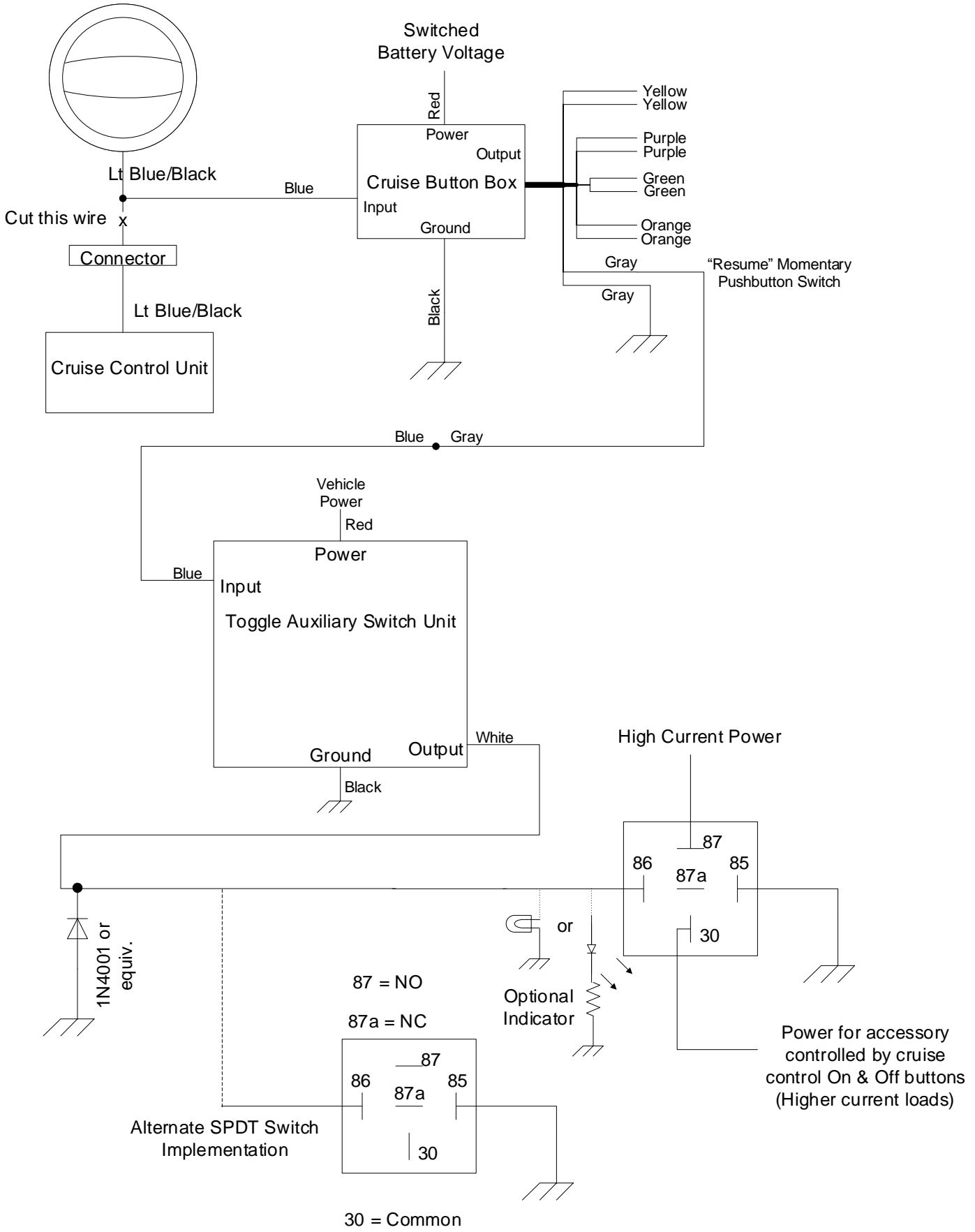
Some people will prefer to turn an accessory on with one momentary pushbutton switch and then off again with the same momentary pushbutton switch. The Accutach Co. Toggle Auxiliary Switch Unit provides one such unit in a small box. One of these boxes will be required for each pushbutton that is to be turned into a toggle switch.

For example, one of the cruise control buttons could be used in conjunction with a Toggle Auxiliary Switch Unit to power a brake line-lock unit during a tire-heating burnout.

Here is an example of how to use the cruise control Resume button to power an accessory that uses up to 1A of current:



Here is an example of how to use the cruise control Resume button to power an accessory that uses over 1A of current (or alternatively, an SPDT implementation):



## Troubleshooting:

With battery power (around 12V) and ground applied to the Cruise Control Button box, and no button pressed the voltage on the blue wire should be somewhere in the neighborhood of 8 volts. If it is not near 8 volts, disconnect it from the OEM light blue wire/black and check again. If it is not near 8 volts when disconnected, contact Accutach to return the defective unit. If it is near 8 volts when disconnected from the car, check the OEM light blue/black wire to make sure the OEM cruise control unit is not connected.

To test your cruise control buttons on your steering wheel, make sure the blue wire is not connected to the OEM light blue/black wire. With the key off and an ohm meter across the OEM light blue/black wire and ground, you should see infinite resistance with no button pressed.

With the Off button pressed, you should see near 0 ohms. With the Resume button pressed, you should see about 2200 Ohms. With the Set/Accel button pressed, you should see about 680 Ohms. With the Coast button pressed, you should see about 120 Ohms.

Turn put a DC voltmeter across the OEM light blue/black wire and ground, Turn the key on. You should see 0 Volts. Press the On button and you should see near battery voltage. If you don't see near battery voltage, check to make sure that the horn relay and horn fuse are in place and functional.

To test your cruise button box, connect the power ground and connect the blue input wire to the OEM light blue wire as specified previously in this document. Do not connect any of the colored wire pairs. Turn the key on. With an Ohm meter, test all of the colored wire pairs coming from the unit. With no button pressed, all of the wire pairs should show infinite resistance. With the press of each button, the one wire pair listed below should show a near zero resistance. All of the other wires should show infinite resistance.

Pressed Button	Near 0 Ohms
-On	Yellow pair
-Off	Purple pair
-Resume	Gray pair
-Set/Accel	Orange pair
-Coast	Green Pair

If you do not get these results, make sure that the light blue/black wire is the steering column is cut, and the Cruise Button Box blue wire has a good connection to the light blue/black wire that goes up to the steering wheel, not down to the cruise control system. If the light blue/black wire is not cut, the cruise control system will load the wire so the cruise button box will not work.

If the blue wire is wired correctly, make sure that the voltage on the red wire is very close to battery voltage. If it is not very close to battery voltage, make sure the connection to power is a good connection. Also, make sure that you have a very good ground connection.

If you have removed your OEM cruise control unit from the vehicle, you have removed the signal return for the steering wheel buttons. Ground the Cruise Control Dark Green/Orange cruise control signal return wire.

Feel free to contact Accutach company if you have any questions or issues with the Cruise Button Box

## Appendix

Ford used this Generation 2 steering wheel circuit in many of their vehicles from 1997 through 2004 and beyond in some models. The following list is a list of vehicles that use the same cruise control steering wheel circuit as the 1994-2004 Mustang. After 2002, Ford stopped publishing the resistor values of the steering wheel circuits for most, but not all vehicles. The 2003 and up vehicles listed with an asterisk \* have the same circuit published without resistor values as does the 1994 Mercury Capri. It is important that you test the resistor values prior to installing the Cruise Button Box if your vehicle is listed with the asterisk. Please contact us to tell us the results of your test so we can remove the asterisk.

Please contact us if you want to install a Cruise Button Box in a 2000-2002 Lincoln Navigator. Ford's schematics look as if they may have an error and we need data about the circuits in these vehicles.

Ford used Lt Blue for the signal wire in most 1994 to 2004 vehicles. For used Black for the return wire in most 1994 and 1995 vehicles. They used Dark Green/Orange wire for the return in most 1996-2004 vehicles. Most Ford vehicles ground the return wire through the cruise control servo unit. If you remove the servo unit from one of those vehicles, you must ground the return wire, preferably to the same point you ground the Cruise Button Box. If the vehicle ground the return wire to the chassis, you do not have to ground the return wire if you remove the servo unit.

The signal and return wire colors for each model are listed along with cruise control servo unit vs chassis grounding.

1994-2004 Cruise Button Box compatibility list:

First Year	Last year	Make	Model	Signal Wire	Ret Wire	Grounds to
95	2000	Ford	Contour*	Wht	Blk	Cruise Module
97	2001	Ford	F150	Lt Blu/Blk	Dk Grn/Org	Cruise Module
2002	2002	Ford	F150	Lt Blu/Blk	Dk Grn/Org	Cruise Module
2003	2003	Ford	F150*	Lt Blu/Blk	Dk Grn/Org	Cruise Module
95	2001	Ford	Explorer	Lt Blu/Blk	Dk Grn/Org	Cruise Module
97	97	Ford	F250 Light Duty	Lt Blu/Blk	Dk Grn/Org	Cruise Module
98	99	Ford	F250	Lt Blu/Blk	Dk Grn/Org	Cruise Module
2000	2002	Ford	Focus*	Wht	Brn	Cruise Module
2003	2008	Ford	Focus*	Wht	Brn	Cruise Module
96	2002	Ford	Ranger	Lt Blu/Blk	Dk Grn/Org	Cruise Module
2003	2006	Ford	Ranger*	Lt Blu/Blk	Dk Grn/Org	Cruise Module
2007	2011	Ford	Ranger*	Wht	Grn/Brn	Cruise Module
2004	2007	Ford	Taurus*	Lt Grn	Dk Grn/Org	Cruise Module
2005	2007	Mercury	Mariner*	Lt Grn	Dk Grn/Org	Cruise Module
2005	2007	Mercury	Monterey*	Lt Grn	Dk Grn/Org	Cruise Module
99	2001	Mercury	Mountaineer	Lt Grn	Dk Grn/Org	Cruise Module
2005	2005	Mercury	Sable*	Lt Grn	Dk Grn/Org	Cruise Module