

Title: Corvette C6 Column Lock Bypass

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C6 Column Lock Bypass

These instructions require you already know how to disassemble and remove the column lock and have good electronics skills with basic soldering.

Instructions:

- Extend steering column to maximum length (makes disassembly easier)
- Disconnect battery
- Remove Steering Wheel and lock plate (special tool for lock plate removal is recommended)
- Remove Column Lock mechanism (do not disconnect from computer).
- Remove black plastic back plate from column lock mechanism and carefully remove motor and ribbon cable
- Drill out plastic rivets in black plastic plate and detach microswitch
- Measure resistance between microswitch pins and mark cable to remember which side is closed when switch is open. This is the column lock “LOCKED” position. (For me this was the outside two pins). Press microswitch and repeat to mark “UNLOCKED” position.
- Place metal shell for Column Lock mechanism back on, add lock plate, and reassemble steering column then reconnect battery.
- Use volt meter and determine which side of motor is +12V when column should be locking.
- Disconnect battery once you know which side of motor is +12V when column is locked.
- Follow instructions on removing microswitch and soldering in 12VDC latching relay.
- Do NOT remove column lock motor, just add leads for 12VDC latching relay LOCK and UNLOCK.
- Place column lock motor, relay, diodes, and a ribbon cable containing resistors and bimetal inside plastic project box. Tie wrap everything in place.
- Attach project box to fixed object behind kick panel.
- Connect battery (have auto remote in hand and press unlock twice if alarm sounds)
- Test to see if everything works. If not, it is likely you connected the power leads backwards to the motor, reverse these leads and try again.

Notes:

- The column lock mechanism on a C6 includes the resistors used to determine if the vehicle is in a locked or unlocked position.
- The mechanical portion of the locking mechanism includes a DC motor, worm gear and block with locking pin, and microswitch.
- When you press accessory or start, power is applied to the DC motor, which turns the worm gear and causes the threaded block with locking pin to retract. Once fully retracted, the mechanism makes contact with the microswitch which sends the correct (UNLOCK) resistor value to the controller mechanism.
- When you stop the engine in reverse, power is applied in the reverse direction (polarity) to the DC motor which moves the threaded block and locking pin to the locked position. This releases the microswitch which then sends the (LOCKED) resistor value to the controller mechanism.
- Since I did not know if the controller mechanism would have problems if the DC motor was removed, I left the motor connected and only tapped the power leads to change the state of the latching relay.
- Latching relays use a combination of magnets and electromagnets to change the state of the relay. The magnets had sufficient strength to hold the relay in any position until the electromagnets overcome this force and cause the relay to switch. This lets us use a pulse (the temporary voltage applied to the motor) to change the state of the relay.
- Be very careful when disassembling the column lock mechanism. If you damage the ribbon cable, you will be unable to use it to build the bypass circuit.

ALL INFORMATION IS PROVIDED AS IS. NO WARRANTY OR GUARANTEE IS PROVIDED. I ASSUME NO LIABILITY FOR THE USE OF THIS INFORMATION.

Microswitch must be removed from ribbon cable (unsoldered) and replaced by connections to 12VDC Latching SPDT Relay. Work quickly, as too much heat can damage ribbon cable.

Thermal Overload Cutoff (bimetal contact), part of ribbon cable.

+12VDC to LOCK Column
Ground to UNLOCK Column

+12VDC to UNLOCK Column
Ground to LOCK Column

MICROSWITCH UNLOCKED

MICROSWITCH COMMON

UNLOCKED RESISTOR

LOCKED RESISTOR

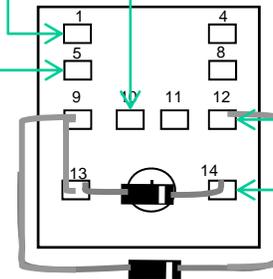
RIBBON CABLE

MICROSWITCH LOCKED

To Computer

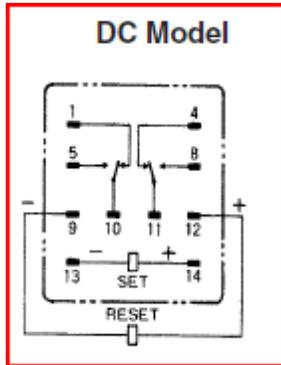
Normal Operations: When the start switch or accessory switch is pressed, the computer send +12VDC for about 1 second to the column lock motor UNLOCK pin, retracting the locking pin and in the retracted position the pin mechanism applies pressure to the microswitch. The computer senses the UNLOCK resistor value and either the car starts or switches to accessory mode. When the stop switch is depressed (car in reverse), the computer sends +12VDC for about 1 second to the column lock motor LOCK pin which forces the locking pin into the locking plate, releases the microswitch and sends the LOCKED resistor value to the computer.

- Replace microswitch locked
- Replace microswitch unlocked
- Replace microswitch common



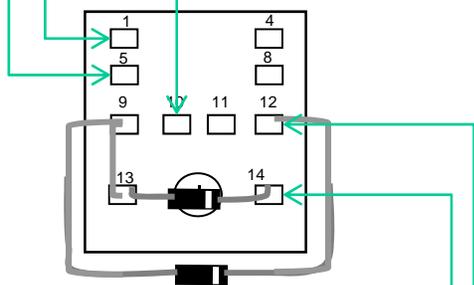
Connect to motor lock
Connect to motor unlock

Relay
MY2K -US-DC12
Bottom View



CAUTION SOLDERING RELAY: It is recommended you use a relay socket and do all soldering to the socket then attach the relay. If you attempt to solder direct to relay pins, use a small pair of needle nose as a heat sink by holding on to the base of the pin before soldering. The relay has solder joints on the inside of each pin that could get too hot and cause associated wiring to be disconnected internally, damaging the relay.

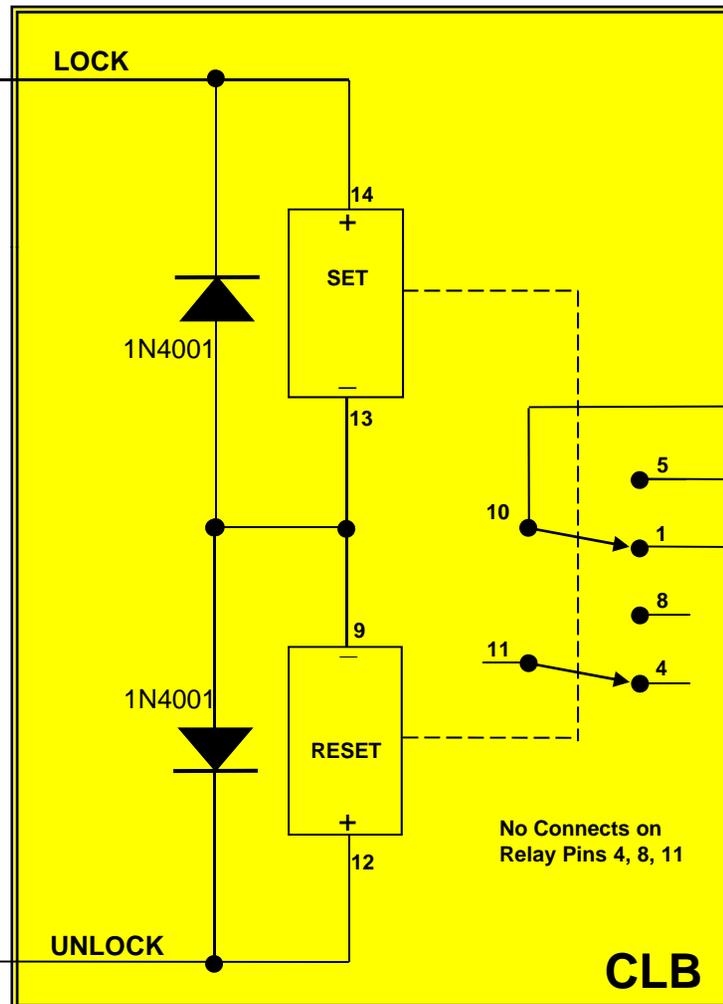
- Replace microswitch lock
- Replace microswitch unlock
- Replace microswitch common



Connect to motor lock
Connect to motor unlock

Solder to lock motor terminal (lock)

Solder to lock motor terminal (unlock)



Remove microswitch and connect these leads in its place

- 10 = Center Pin
- 1 = Unlock Pin
- 5 = Lock Pin

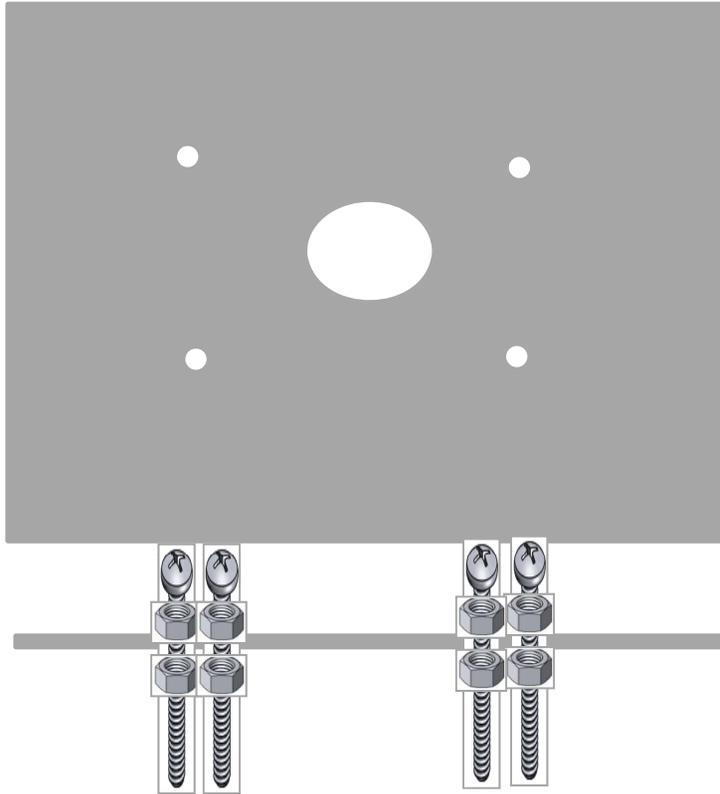
No Connects on
Relay Pins 4, 8, 11

Parts List

Part	Manufacturer	QTY
12V Latching DPDT Relay	OMRON MY2K –US-DC12	1
MY 14 pin Relay Socket	OMROM PY14	2
Diode	1N4001	2
Wire – Solid – Copper 20Gage	Misc (get at least 3 colors to help you keep track of what goes where)	10 ft
Project Box 2”x6”	Radio Shack	1
Tie Wraps	Various Lengths	10
Electrical Tape		1 roll

Special Tools

Lock Plate removal tool (or make one – see next slide)
C-Clip/ (Lock Ring) Removal Pliers (Small)



Any metal plate about 4 inches square

Drill center hole large enough to fit over steering column threaded shaft

Drill 4 small holes and place 4 small screws (about 2 inches long) with nuts above and below plate to lock screws in place.

After steering wheel is removed and you have direct access to locking plate, place this tool over steering column threaded shaft, adjust small screws so you can just start threading steering wheel bolt onto shaft and then tighten bolt to apply pressure to locking plate until locking clip is accessible for removal.

Removing the locking plate was difficult until I fabricated this tool.