

1969 THRU 1979 CORVETTE C3 STANDARD (NON-ADJUSTABLE) STEERING COLUMN DISASSEMBLY & REPAIR INSTRUCTIONS

PAPER #1

Disassembly and Repair Instructions Addressed in this Paper

	Difficulty	Page
REMOVE STRG WHEEL AND HORN PARTS	Easy	2 & 3
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REPLACE THE KEY WARNING BUZZER SWITCH	Easy	6

How the Paper is Setup

This is the first of three papers that address various replacement and adjustment procedures that can be performed on the Corvette C3 standard steering column. The first pages of each paper concern the disassembly and replacement procedures. The last pages concern reassembly of the column. There are some fairly easy steering column service procedures that are addressed in this paper. Subsequent papers address increasingly more difficult service procedures.

This paper makes reference to Descriptions #1, #2 and #3. They are shown in various sections on a page entitled Corvette C3 Standard Steering Column - Page #1.

There are two schematic drawings. One entitled 1969 through 1976 C3 Standard (Non-Adjustable) Steering Column Blowup. And the other for 1977 through 1979 C3 columns entitled Generic Standard Steering Column Blowup with Headlamp Dimmer. The frustrating part is that even though the drawings look similar, the call outs for the parts do not use the same numbers between the two drawings. I will call out numbers from the 1969-76 blowup drawing first then a dash and then the 1977-79 numbers.

The drawings are all available from the author or from the host websight.

Types of C3 Standard Steering Columns Addressed in this Paper

There were three different iterations of standard steering columns that were produced for the C3 Corvette model from 1968 through 1979. The one type that is not addressed in this paper is the standard 1968 model. It was a carry-over, energy absorbing column from 1967 and was not the function locking column that was used from 1968 forward.

1969 through 1976 - Standard Corvette Energy Absorbing (EA), Function Locking (FL) Steering Column

1977 – Standard Corvette EA, FL Steering Column with wash/wipe switch and headlamp dimmer, ignition key release lever, & optional cruise control

1978 & 1979 - Corvette EA, FL Steering Column with headlamp dimmer, ignition key release lever, & optional cruise control.

Terminology and Background

Starting with the 1969 model year, General Motors made two changes to their passenger cars that greatly affected the steering column. This was to meet federal motor vehicle antitheft standard (FMVSS 114) which was going into effect in January 1970. Up until that time, nearly all ignition lock cylinders and ignition switches were one unit and were attached to the instrument panel.

The first change was to separate the ignition lock cylinder from the ignition switch and move both components to the steering column. The lock cylinder was placed in the steering column head and the ignition switch was relocated on top of the steering column jacket (placing it up under the brake support bracket and difficult to access.) The second change was to lock the steering and the transmission shift functions with the ignition key.

The following definitions will help to identify the components. The ignition lock cylinder is the mechanism in the steering column head where you insert your ignition key. It is a purely mechanical device and works through a small gear and rack to push and pull a rod that actuates the ignition switch. The ignition switch is the electrical device that is mounted to the steering column down under the dash.

Unfortunately, making it more difficult for the car thief also makes the servicing of the steering column more complicated for the person(s) doing the servicing. Hopefully, this paper (and several others that I have authored) will assist your working on the Saginaw steering column and make the whole procedure less frustrating.

A Word of Caution Before Beginning Work On Your Steering Column

DISCONNECT THE BATTERY. With the steering column disassembled it is possible to inadvertently move the ignition switch to the start position.

Removing the Steering Wheel and Horn Parts

The following pictures may be helpful when working on the horn, telescoping lock, and steering wheel parts for the various C3 model years. The drawings are all available from the author or from the host websight.

[Corvette C3 69-75 Standard Steering Wheel and Horn Parts #1](#)

[Corvette C3 69-75 Standard Steering Wheel and Horn Parts #2](#)

[Corvette C3 76-79 Standard Steering Wheel and Horn Parts](#)

Remove the Steering Wheel and Hub

Carefully pry the horn cap assembly from the steering wheel. The 1969 through 1975 cap assembly consists of three pieces that are all staked together. At this time, you might want to check that the three stakes are secure. You may even want to add some JB Weld to the stakes for insurance. The 1976 through 1979 horn cap assembly snaps together.

Remove the screws securing the upper horn contact assembly and remove.

Remove the Steering Wheel and Hub (Continued)

On 1969 through 1975 models you can remove the six screws from the steering wheel and remove the wheel from the hub assembly or you can leave them together.

Pry off the retainer clip on 1975 and later columns. Remove the nut from the steering shaft #38-47. You should be able to see a small indentation on the end of the column shaft and aligned with it a matching indentation on the steering wheel hub. They will allow the parts to be aligned properly when you reassemble the steering wheel hub to the column. If you can't find the markings, use a crayon or chalk to make your own marks.

Next, using a steering wheel puller, remove the hub (1969 through 1975) or remove the steering wheel and hub (1976 through 1979.)

The spring, eyelet, and insulator can now be removed from the tower on the cancelling cam #5-6.

Removing Turn Signal Lever

On 1969 through 1976 columns remove the three cover screws and lift the shaft lock cover #2-3 off the shaft. The cover screws have plastic retainers on the back of the cover so it is not necessary to completely remove the screws. Later columns have a plastic cover that is snapped in place. Pry off the plastic cover with a screwdriver.

There should be a hole in the shaft lock that will allow access to the turn signal lever screw which is located at about the 10 o'clock position in the column. You will probably need to turn the steering shaft to align the hole with the screw.

On 1977 through 79 columns the turn signal lever actuates the headlamp dimmer function by pulling rearward on the lever. This lever plugs into a pivot assembly that is part of the steering column head. The turn signal lever has as a round shaft with a groove and a bullet nose on the end. When the lever is inserted into the column pivot, a spring loaded pin engages the groove on the lever and it is held securely in place. Grip the lever firmly and pull straight out to get it to disengage from the column pivot.

The 1977 turn signal lever is unique in that it also is used to turn on the windshield wipers. You must make sure that the wiper switch is OFF when installing or removing the lever.

The 1977 thru 1979 turn signal levers have a very annoying tendency to break. This can leave a broken stub that is flush with the dimmer pivot. There is a paper with suggestions and drawings of two very simple tools that can assist in the removal of the stub from the pivot without tearing the column apart. Go to the host websight and download the following:

[Turn Lever Stub Removal – 1977-82](#)

Remove Shaft Lock – Description #1

Place the Shaft Lock Compressing Tool (J-23653) on the end of the steering shaft. Now, compress the steering shaft lock #4-5 as far as possible using the shaft nut. Pry the round wire snap ring #3-4 out of the shaft groove. I don't have the special compressing tool so I have someone press down on the shaft lock while I use two thin bladed screwdrivers to pry the ring out of the groove. (Note, that person needs strong thumbs, the preload spring has a lot of force.) Don't distort the ring. If you do, you **must** purchase a new ring. The GM part number for the ring is 5694191. It is available from any GM dealer.

Lift the shaft lock, cancelling cam #5-6, bearing preload spring #6-7, and the thrust washer #11-13 off the shaft. A word of caution: If the steering column is out of the car, the steering shaft is now free to slide out of the column.

Remove Turn Signal Switch - Description #2

Push in the hazard warning knob and remove the knob and screw.

Remove the three turn signal switch screws #7-8. You may need to place the turn signal switch in "right turn" to access the upper right screw.

Remove the turn signal lever on 1976 and earlier models. It has a single retaining screw.

On 1977 through 79 columns the turn signal lever does not have to be removed in order to remove the turn signal switch. There is a lever arm that connects the pivot to the turn signal switch. It is held in place by a screw #9. The screw is roughly at the 10 o'clock position. Remove the screw and the lever arm.

Go down under the dash and remove the instrument panel trim cover under the steering column. You will find that a stamped crossbar that holds the headlamp vacuum switch comes with it. Unfasten the retaining screw and remove the air conditioning duct as well.

Now pull down the turn signal switch "harmonica" connector out of the bracket on the column. Remove the plastic wiring protector #9-34 (if applicable). It has a slit along its entire length so you can remove it from the wires. Disconnect the switch connector from the body harness.

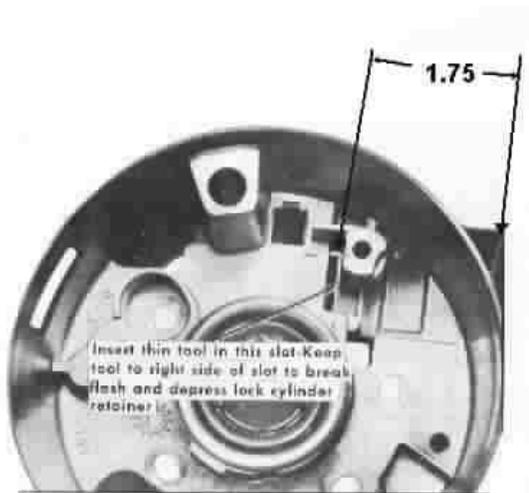
If you are only going to replace the lock cylinder #19 and/or the key warning buzzer switch #12-14 you can just pull the turn signal switch #8-11 out of the column far enough to work on them. You will not need to pull the wires all the way out of the column.

If you are replacing the turn signal switch or disassembling the column head, you are going to need to pull the switch completely out of the column, therefore, continue with the following: Wrap a piece of tape around the upper part of the connector and wires to prevent the connector from cocking and snagging when removing the switch. Pull the switch straight out, guiding the wiring harness and connector out at the same time.

Remove Lock Cylinder – Description #3

When removing the lock cylinder from the column, most shop manuals recommend inserting the ignition key and turning the lock cylinder to the “run” position. However, the lock cylinder can also be removed without the ignition key being inserted. Either way will prevent damage to the key warning buzzer switch.

The 1969 thru early 1979 lock cylinders are held in place by a metal spring tab that sticks out of the lock cylinder. This tab engages a rectangular slot in the column housing. Looking straight into the steering column housing, this slot is located right on the centerline of the lock cylinder, 1.75 inches from the underside of the chrome wings on the lock cylinder.



**Fig. 1 Remove Lock Cylinder
1969 through Early 1979 Standard Columns**

If your steering column has never had the lock cylinder removed or replaced, there will most likely be a thin metal die cast membrane covering the slot. Keeping a thin bladed tool to the right side of the slot, break the housing flash and the same time depress the spring tab at the lower end of the lock cylinder. Also I have found that if you don't push the spring tab pretty much in the center it will not release the lock cylinder because it tends to rock side to side. Don't be tempted to pry on the lock cylinder wings to get the lock cylinder moving. The wings will pop off and can't be put back on. The lock cylinder should slide right out.

On steering columns that were built in late 1979 there was a different method of retaining the lock cylinder in the column housing. A housing screw was introduced that passed through a notch on the lock cylinder. There is an allen head screw #16 at about the 2 o'clock position in the housing. It is right above the torcs head housing screw that is at the 3 o'clock position. You must remove that allen head screw and the lock cylinder should come right out. If you have a 1979 vehicle you may want to wait until you disassemble the column to the point where you can inspect the housing and determine if you require a lock cylinder with a spring tab or one with a notch for the allen head screw.

Lost Ignition Key

If for some reason you do not have the ignition key, you can still disassemble your steering column to the point where you can depress the metal spring tab or unscrew the allen screw retainer and remove the lock cylinder. You can then have a locksmith make new keys for that original lock cylinder or install a new one. Replacement lock cylinders are readily available from GM dealers as well as most automotive supply stores.

There is one method that is sometimes used to remove a lock cylinder that I do **not** approve. Some people screw a slam-puller into the lock cylinder and slam it out of the column (usually shearing the spring tab.) The slam-puller shocks are very hard on the column housing and your instrument panel.

Remove Key Warning Buzzer Switch - Description #3

The key warning buzzer switch #12-14 has a wedge spring #13-15 holding it in place. Insert the ignition key and turn the lock cylinder to the "run" position. Take a piece of stiff wire and bend a hook about ¼" from the end and insert the hook into the exposed loop of the clip. Pull up and out on the wire to remove both the clip and the switch.

Caution: Be very careful that you don't lose hold of the clip and let it fall back into the steering column. It can be quite difficult to extract. **AND YOU MUST EXTRACT IT!**

If replacing the lock cylinder and/or the key warning buzzer switch is all that was required, reassemble the column by following the instructions on the following pages.

If you are continuing with further repairs to your steering column, please download and proceed with D&R Instructions 2 and 3. **Note:** All of the previous service operations could be performed with the column still in the car. I recommend that for further disassembly of the column, it should be dropped and removed from the car.

The following procedures address reinstalling the key buzzer switch, the ignition lock cylinder and reassembling the steering column.

Reassembly - Ignition Lock Cylinder

Insert the ignition key into the lock cylinder. Now, hold the case of the lock cylinder and rotate the ignition key all the way clockwise against the stop. (This would normally be the "start" position.) You should be able to retract the plastic key buzzer tab and the metal spring tab should retract easily with slight pressure as well.

There is a keyway in the housing. Align the key on the lock cylinder (not the ignition key but the raised section on the lock cylinder case) with the keyway in the housing and push the cylinder into the housing until it hits the sector. Now rotate the ignition key counterclockwise maintaining a light push on the lock cylinder, until the drive section of the cylinder mates with the sector. Push in until the locking wedge snaps into the housing and the lock cylinder is secure (on late 1979 columns assemble the allen head screw to retain the lock cylinder).

Reassembly – Key Warning Buzzer Switch

Assemble the buzzer switch with the spring with the formed end of the clip under the end of the switch and the spring bowed away from the switch on the side opposite the contacts. Push the spring and switch into the cover to the step with the contacts toward the lock cylinder bore.

Reassembly - Turn Signal Switch

Install the new turn signal switch as follows: Feed the “harmonica” connector and wires down through the housing. Be sure it feeds under the mounting bracket. Assemble the wires into the plastic protector and the protector to the jacket. Clip the connector onto the bracket on the column jacket.

Snap the vehicle wiring harness onto the turn signal switch “harmonica” connector.

Note: It has been reported that sometimes if you have a new turn signal switch, the new switch connector will not snap onto the original wiring harness in your vehicle. It will be close but still will not snap correctly.

If you have this problem, take the connector from your original switch and swap it onto the wires of your new switch. Use the wire from a heavy paper clip and insert it into the "harmonica" connector from the contact side to disengage each wire and contact. There should be a small molded square channel in the connector that will guide you to a metal tang on the contact that holds it in place. Once you depress the tang and pop the wire and contact out of the connector, you should take a small knife blade and bend the tang back out so that it will engage the old connector correctly.

Make sure you install the wires in the correct order.

Install the three switch mounting screws. Assemble the hazard warning knob. Install the turn signal switch lever (1969 –76 columns). On 1977 and later columns install the lever arm between the pivot and the turn signal switch. Tighten the pivot screw and the screw that attaches the arm to the switch.

Reassembly - Washer, Spring, Cancelling Cam, Shaft Lock, and Retaining Ring

Place the thrust washer, upper bearing preload spring, and the cancelling cam onto the upper end of the shaft. Make sure that the two lobes on the cam are centered between the springs on the turn signal switch. Make certain that the turn signal switch is in the “neutral” position and the hazard warning plunger is out. **The switch assembly may be damaged if you don’t follow these instructions!**

Compress the shaft lock with the special tool or by hand and install the round wire retaining ring. **Make sure it is fully seated.** If you distort the ring you will have to purchase a new one from your local GM dealer. Reinstall the shaft lock cover (it either snaps in place or has three screws).

Reassembly - Turn Signal Lever and Shaft Lock Cover

Assemble the turn signal lever on 1969 through 1976 columns by aligning the hole in the shaft lock with tapped turn signal lever hole in the signal switch. Position the lever through the side of the column into the switch slot. Carefully locate and tighten the attaching screw.

On 1977 columns install the lever by aligning the lever pin with the washer switch slot. Push on the end of the lever until it seats securely.

Place the cover on the shaft lock and drive the three screws or snap the cover in place.

Reassembly - Steering Wheel and Horn Contact

Reassemble the steering wheel, steering wheel hub and lower horn contact. Align the markings on the steering shaft and steering wheel hub. Torque the steering wheel nut to 30 ft-lbs. Install the nut retainer (1975 through 1979).

Attach the contact to the hub with three screws. Snap on the horn cap. Reconnect the battery. You are done!!!

Replacement Parts

For tips on obtaining replacement parts for you Corvette steering column, you might consider obtaining my paper CORVETTE C3 UPPER STEERING COLUMN & SWITCH REPLACEMENT PARTS available at Terry Rudy's websight <http://www.corvettefaq.com> or by contacting me at JIML82@aol.com.

Words of Caution:

To maintain the energy absorbing function of the steering column, always replace screws, bolts, and nuts as specified.

Plastic parts that are 25 years old can be very brittle! Handle your steering column parts with care.

A helpful hint to make this job a bit easier. Take a large towel and roll it up the long way. Leave a short tail. Stuff the towel up between the windshield and dash pad. Let the short tail hang over the instrument cluster forming a table. As you disassemble the column, place the small retainers, screws, plates, etc up on the towel from left to right in the order that you remove them. The towel forms a nice no-slip table and prevents the small parts from dropping down your defroster ducts and becoming a permanent part of your air distribution system. When you go to reassemble the column, your parts are all handy and in the correct order for reinstallation.

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