How To: Automatic Transmission Indicator Pin Replacement

PRNDL

**Introduction**

This “How To” explains how I would remove the indicator pin from a second gen VCV. Improvements or clarifications to this technique are invited. Please help me improve this How To by sharing your experience and knowledge.

Vintage Chevy Vans (VCV) equipped with an automatic transmission remains a popular option. The 1967-70 second generation vans(2nd gens) from 1967-70 have a red indicator pin (pin) which points to the PRNDL housing (PRNDL) on the steering column. The tip of this “plastic” pin becomes worn from contact with the PRNDL. The pin will scratch the housing and the tip of the pin wears and eventually breaks and falls off.

The PRNDL will also crack and eventually break off near where the screws hold it to the column. This is due to the PRNDL being smaller in diameter than the steering column.

Most of these pins will have some wear in this area and require servicing. If you are installing an automatic transmission being set up with donated parts then this pin is usually worn out or broken off. Unfortunately, pin replacement cannot all be completed from the inside of the van. The lower part of the shift mechanism must be partially disassembled in addition to interior steering column operations. The lower part of the shift mechanism is on the top of the steering gear behind the grille.

Besides needing to replace a worn indicator pin, others may wish to install an automatic transmission in place of the typical 3 speed manual transmission. For those VCV owners who have the 3 speed manual

transmission installed and wish to change to an automatic transmission with the stock type PRNDL indicator, its best to replace the entire steering column including steering box. Some of the reasons for this will be mentioned in this tutorial.

Pic 34

This is the driver's viewpoint from inside the van. This is a 2nd gen auto trans indicator that comes with a the 2 speed Power Glide transmission (PG). It is a common auto trans option for early 2nd gens however the vast majority of VCVs came with a 3 speed manual. The PG is generally not considered the ideal choice for automatic transmissions. We use the PG as an example here because it was readily available for this How To and it was already removed from the van. Pin replacement for the THM 350 version is almost identical.


Pic 39

The housing for the PRNDL indicator is held on with two screws. (Leave them on for now) If the housing has already been removed then you will see this (pic 40) if the pin is in place.

Pic below shows the small plastic dust cover below the PRNDL.

This small plastic piece helps keep dirt out of the upper shift housing. If this is damaged when removing, it may not be able to be reused. Then there would be a much greater chance that you will have problems with this repair in the long run as the dirt will gradually collect. That is why this small part should be carefully removed. I have included many pics so that you have the greatest chance of removing and reinstalling it without damage. A little care at this point can go a long way. If this piece is damaged or missing, you may have to cover that area with something like tape.

Below pic shows the tabs that hold it in place.

There are tabs at the top and bottom.

Remove this carefully by gently squeezing the topsides with both of your thumbnails under the plastic. Gently squeeze toward the middle. Use both thumbs under the top part of the plastic cover. It's a tight fit and the plastic can break easily. If it is cold outside, you may wish to apply some gentle heat with a heat gun or hair dryer. If it feels real hot to the touch then back off with the heat as it could melt or distort.

Once loose at the top, lower the piece enough to clear the tabs at the bottom.  Then rotate it back.  Raise the shift arm and slid the dust cover up and over.  Put it in a safe place for later.

Below pic shows the dust cover removed.  Note the lack of spring or groove cut in shifter housing for the spring.  This identifies this column as from a manual transmission equipped van.

The pic below shows the auto trans column with the cut for the spring clip.

The spring clip goes through the indicator pin from the bottom.

Pic 40.

The indicator pin is moved by the spring clip that wraps around the shifter rod. One clip end goes through the bottom of the indicator pin (pin). The pin rotates on a shaft that is welded to the steering column housing. Below pic shows one removed. In this picture you can see where the shaft ears were welded.

Pic 29

The pin is held in place by a snap ring.

From this point onward, the repair process will disable the van. If you cannot complete the operation, it may cause the van to be difficult or impossible to shift the van from inside. Plan the repair accordingly if this is your daily driver.

Remove the belly pan.

Locate the lower shift rod connection. This is located on the top of the steering box. .

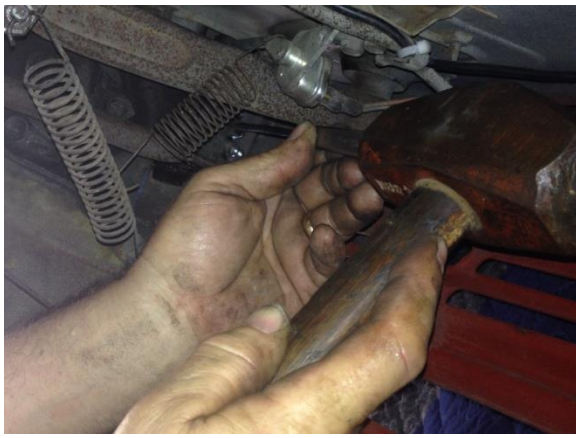
It can be seen through the front of the grille on the driver's side.

Crack loose the two bolts holding the lower shift housing onto the steering gear. Remove them enough to apply penetrating oil on the now exposed threads of the two bolts. Use a long spout on the oil can to put the lube right on the threads. Then work the bolts back in. If the bolts do not come loose, do not

force them.  Work the bolts back and forth until they move smoothly and come out with as little damage as possible.  Take your time on this step lest you require a pound of cure if you break off the bolt(s).  Stubborn bolts may require much back and forth and much oil.  Once you are sure that the bolts can be moved in and out without fear of damage, tighten them back into place but don't over tighten them.  The bolts should be tight when you are driving out the pin.

The pin punch must fit the pin and not rest on the housing or you will break the housing when you try to move the pin.  The pin punch that fit well for me was 1/4".


Get Comfortable.



Start with a pointed punch if desired. If there is no movement then use a ¼" pin punch. The goal is to avoid striking the housing. Drive the pin only partially out of the housing. This pic shows the position that worked well for me. In this pic, the punch is not centered on the pin correctly. Be sure the punch is centered before striking hammer blows. Be sure the pin punch is not flattened at the top or it will be too big for the housing and possible damage it. Do not drive the punch into the housing too far. Shorter pin punches will allow the tapered of the punch to be driven into the housing and cause damage. Do not try to drive the pin all the way. Stop driving the pin just as the pin touches the sheet metal. The pin should remain in the lower shift housing.

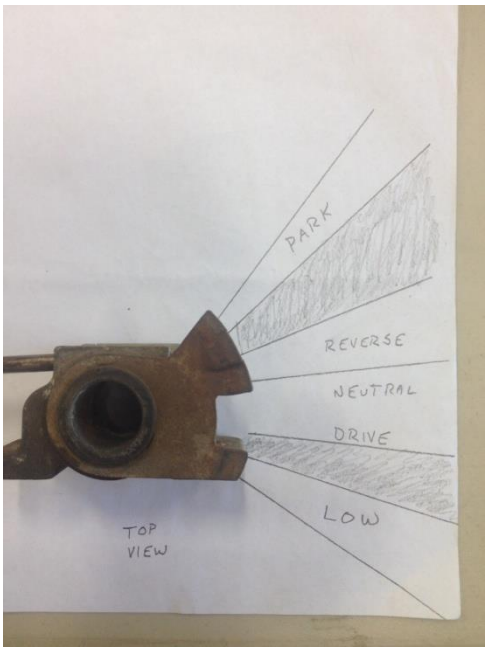
After the pin has been driven from the housing up to the point of contacting the sheet metal, remove the two bolts holding the lower shift housing onto the steering box.

Remove the lower shift housing from the steering gear. Wiggle, twist and oil the housing if required to remove it. Now wrap a bungie cord around the now loose end of the shifter housing to keep it from flopping around. If you don't, the rubber boot sealing the steering column can become damaged.

Disassemble the lower shift housing and clean. 

Lay everything out and inspect after cleaning.  By the way, the piece above the round plastic plug on the bottom is a 50 year old chunk of dried up grease.

The next pic is the “rooster tail” attachment to the lower shift housing which is part of the detents you feel when shifting.  They prevent you from shifting from certain areas unless you pick up on the column.




This pic shows the underside of the auto column lower shift housing.  The pressed in ring is part of the rooster tail.

Now place the lower shift housing components out of harm's way and proceed with the inside work.

Pic 51

While sitting inside the van, carefully remove the rubber housing near the base of shift handle to shifter arm joint.

Pic 52

You will see a pin which holds the shift arm to the housing.  This pin must be removed by driving it from the bottom. This is the view from the bottom.

Pic 53

Use a pointed punch similar to this one.

Pic 54

Drive the pin out from the bottom.  Do not apply too much hammer force to remove the pin.  If possible, support the top with a strap while hitting the punch with a hammer.  If need be, take off your belt, wrap it around the shift column and then around your leg.  The goal is to provide some support if you must hammer repeatedly to remove the pin.

This next pic shows how the shifter fits into the shaft.

Pic 67

This is what the original pin looks like.

Once the pin is out, remove the shifter arm.

The shift rod will now be able to fall away from the indicator pin. If the rod does not drop away, reinstall the handle and carefully move the shifter handle up and down. The lower part of the shift rod should fall away from the base of the indicator pin shaft.

Tape the lower shift shaft to the steering shaft to keep it from moving too much. If left loose, it can damage the large sealing boot at the base of the steering shaft.

Now comes the part that takes a lot of patience and care.  You will have to find the best way to get comfortable doing this next operation or you will damage some hard to come by parts.  This is a view from the floor looking up.  This is what you will have to do if you do not have the column out of the van.

Using a mirror or lying on your back looking up at the bottom of the shaft, locate the ends of the snap ring.  That is what the pencil tip is resting upon.

Pic 58

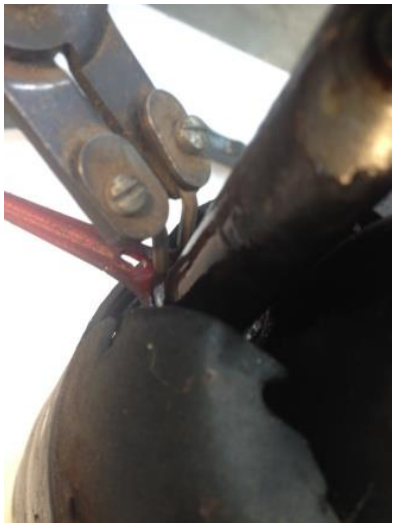
You will likely need to rotate the snap ring to a more accessible position to position the snap ring pliers in the holes properly.  The snap ring pliers that worked well for me are shown below.  I bought these at Sears many years ago.


Pic 56

Use the proper snap ring pliers with 0.045” diameter tips. This set had three size options. The 0.045” tips were bent at a 45 degree, which worked out well.

Pic 59

This shows the snap ring pliers being used to rotate the snap ring counter clockwise. This puts the two holes in the snap ring into a better position. The pliers can then get both bits into the holes without the lower steering wheel cup getting into the way. Get a pillow, moving blankets or pads on the floor so that you can get real comfortable for these operations if you are attempting this while the column is in the van.

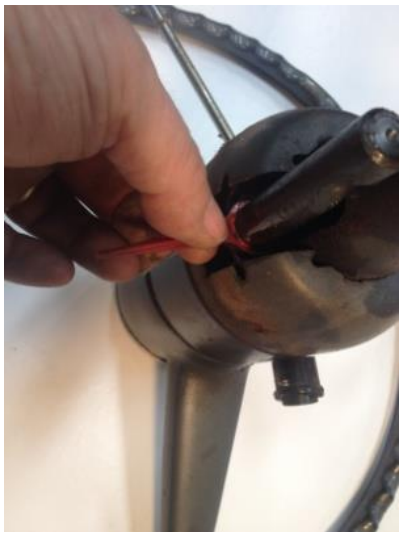


Pic 62

When the snap ring is in a position that allows the pliers to be inserted into both holes on the snap ring, squeeze the tool and carefully try to remove the snap ring. The pliers must be properly positioned to get a good bite on the snap ring. Be careful and take your time. This operation can be difficult. Try not to further damage the existing pin or overstretch the snap ring. You may have to try several times or use another tool to help you remove the snap ring from the groove on the upper shift shaft. I cannot stress enough to take your time. It will not be easy lying on your back or using a mirror while performing this operation. Try to restrain the snap ring from flying away. You will need that snap ring again for the reassembly.

Pic 32

This shows how the snap ring pliers should grip the snap ring. The tips are bell shaped which helps hold the bits onto the snap ring. Make sure the tips of the bit fit squarely into the holes of the snap ring. That will help keep it on the tool.



Pic 63

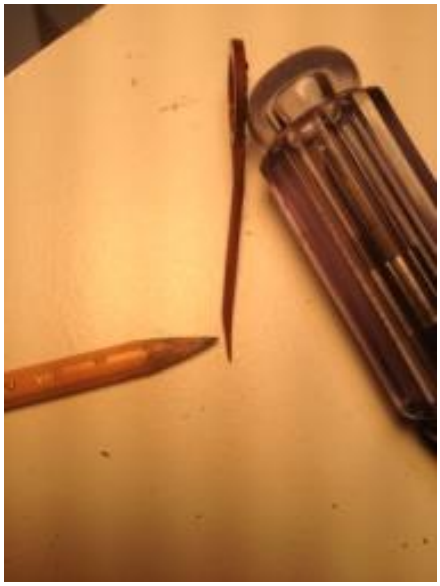
With the snap ring removed, the pin is now free. Gently move the pin back and forth on the shaft while pulling down. Don't kink the pin on the shaft. The pin should be tight but will slide down the shaft and can be removed. Lube the shaft if required.

Pic 33

Once removed, inspect the pin for wear and damage. A typical damage spot is the oblong retaining ring hole on the underside of the pin. This is where the retaining spring has contacted the pin. From the factory, there is a small raised oblong boss that helps hold the pin in place. This raised boss is usually broken off. You can see the rough edges where it was.

Pic 30

This shows the pin in place with the retaining ring on the upper shaft.  The upper shaft is removed for illustration.



Pic 64

Another wear point is the tip of the indicator pin.  The tip rubs on the back side of the PRNDL and wears the tip of the pin. You can see the sharp point where it has been contacting the clear PRNDL.  This causes the PRNDL to become streaked and cloudy.

Pic 66.

This shows the back side of the PRNDL.

Pic 47

The housing is cast for a grease fitting but they were never installed from the factory. It is a worthy addition for *manual* transmission columns. Some of the pics show the one I installed on a VCV with a 3 speed manual. See the "How To: Lower Shift Shaft Zerk Fitting" tutorial for that addition. (Soon to come.) The zerk fitting is optional on the automatic columns because of the much lower cycling of the shift arm. A good cleaning and lube is sufficient for automatic columns.

Reassembly

The snap ring that holds the pin in place should be checked for distortion. The snap ring on the bottom is out of round and will not properly retain the pin. It should be replaced.

This pic below shows the pin and snap ring in place on a shaft removed from the column. The poorly fitting snap ring leaves a gap that will cause problems. You want to avoid the gap seen in this pic. If the original snap ring doesn't fit well, it should be replaced. I found 9/16" snap rings at ACE Hardware that was similar and would work. The original is always best but if it is tweaked, replace it.

Below pic shows the pin not quite in place for several reasons;

An improperly cleaned shaft or bent shaft retainer ears can prevent the pin from laying flat and the snap ring will not be riding properly in groove. The pencil is pointing to a gap that was caused from removing the piece from the column. It is not likely to happen on most columns but the snap ring fit should be checked.

The replacement pin is a tight fit and final sizing should be completed on the column you are building. Before final placement, be sure the shaft is free from rust and other buildup. This area should be cleaned and smooth before final pin fitting. This is where the pin must rotate freely. The pencil is pointing to the area that should be carefully inspected. This is where the pointer will ride back and forth. Below that is the snap ring groove.

One way to clean this area is to use a strip of sandpaper behind the shaft.

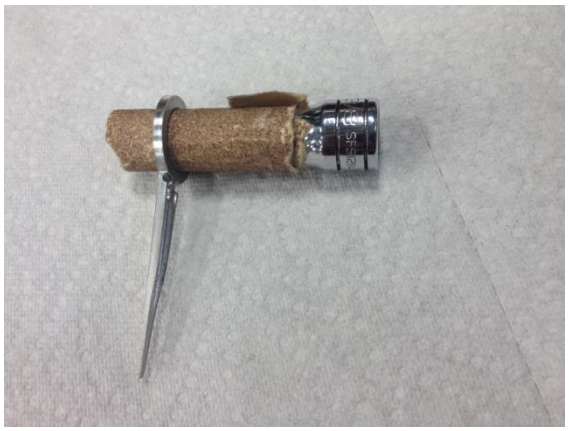
The top can be cleaned with a small file.  Be careful not to remove too much.  If you use a file, apply only gentle pressure while rotating around the shaft.  Avoid “flatspotting “ the shaft.

Be sure to cover the area below to avoid debris falling into the shaft.

The lower part of the shaft is usually less rusted (over here at least).

The pin will likely need some additional sanding to allow it to fit well over the shaft. These pins are shipped undersized slightly so that you can make the final fit. The pic below shows the inside diameter of the shaft being enlarged. Here I'm using 100 grit sandpaper rolled up for minor size adjustments. Just rotate the pin on the sandpaper to remove small amounts of material. (This pic shows a pin without the spring clip retainer.)

For faster material removal, wrap a socket with the 100 grit. For me, a 3/8” Snap-On 3/8” drive deep socket worked well. Reposition the sandpaper often. Recheck the fit frequently. You want a nice tight fit with little play. Don’t take off too much too fast. Use finer grit sandpaper as required. When you are finished, the pin should go on the shaft smoothly.



I had problems with a spot on the shaft and needed to file one spot quite a bit. The shaft is hardened steel and required a fair amount of filing at one particularly tough spot. File the shaft if you keep getting hung up on the same spot.

Once the shaft is clean and the pin moves freely, test the snap ring fit.

Above pic shows a test fit without snap ring in place.  Be sure the lower shift rod does not drop or go off the top of the steering column or the shaft will not align properly and can cause damage.

Below pic shows small screwdriver helping remove the snap ring during a trial fit.  Too many times removing the snap ring and it's worn out.

The snap ring pliers must fit the ring well or it becomes more difficult to install.  This is the most tedious part of the job.  It's much worse if the column is in the vehicle.  You will likely need to be at a contorted angle.  Take your time.

Once the snap ring is close, carefully push it on the rest of the way with a small screwdriver.  You should hear it snap into place.

Carefully raise the shifter column and test fit the spring.  The spring must gently fit into one of the two holes.

Test fit the PRNDL housing and check for proper fit.  The indicator should not touch the PRNDL housing.


With the lower shift housing loose, avoid excess travel while checking movement. The spring may slide off of the shifter groove as shown below. Just move it back into place.

Lube shift shaft with Moly Dryslide or similar.

Reinstall the bolts for the lower shift housing.  Make sure the slots are evenly aligned and check for depth of column movement.

Adjust accordingly.  Tighten bolts.

Apply Anti-Seize compound on rooster tail.

The last step is the PRNDL housing.  Be sure it fits well on the column.  The original units were slightly undersized which caused stress on the ears of the housing which then cracked.  Repopped units should be available soon.  Reinstall the PRNDL housing.

Many thanks to all who contributed to this effort and continue to keep these vans on the road.

Vintage Chevy Van On!

108VanGuy…