

1955-1957 Chevy UniSteer Rack and Pinion Install

Note. We originally did this install back in 2011 on our 1956 Hardtop test mule. The part numbers of the rack have changed and Unisteer no longer makes a different unit for Small or Big Block applications or LS applications. Their current offerings cover all. We have updated part numbers etc for 2020 and lined out anything that no longer applies. So here is the article. Click on the pics to see them full size.

Recently we received some questions thru Trifive.com regarding the use of an original column shift steering column with a UniSteer Rack and Pinion conversion. As this is a very popular conversion, we thought a tech article would help clear up some confusion.

We think you will be surprised at how easy this installation really is. The UniSteer kit is impeccably engineered and it is the only rack and pinion on the market with the correct steering geometry for the classic Chevy suspension. In fact, cutting down the column and trimming the steering shaft are the hardest parts, everything else is a bolt in...check it out.

You will require some special tools that most don't have in their toolbox. These can be purchased, or they can be rented, from most Automotive Parts Stores.

Tools you will need:

- 3/8" and 1/2" Drive Ratchets
- 3/4", 7/8" and 1-1/4" - 1/2" Drive Sockets
- 1/2" and 9/16" - 3/8" Drive Sockets
- 1/2", 9/16", 5/8" and 11/16" Open End Wrenches
- 5/8" and 11/16" Flare Nut Wrenches
- 3/16" and 1/4" Clutch Head Screwdrivers
- 4mm, 3/32" and 5/32" Allen Wrenches
- #2 Phillips Screwdriver
- 1/4" Drill Bit (supplied with kit)
- Pickle Fork
- Pitman Arm Puller
- Steering Wheel Puller
- Hammer
- 1/2" Electric Drill or equivalent
- Hacksaw or equivalent
- 1 Flat and 1 Round Metal File
- Inch-pound torque wrench
- Foot-pound torque wrench
- Sandpaper

Parts you will need:

Danchuk # ~~12572~~ or 12572A 17755 or 17755A Rack and Pinion Kit

Danchuk # 15405 Patriot Headers (or header with similar tube configuration)

Danchuk # 12573 or 12573A Steering Column U-Joint Kit (depending on which column you are using)

Danchuk # 12574 Power Steering Hose Kit

Danchuk # 10148 Power Steering Pump (or equivalent 1100 PSI, .5 gallon per minute flow rate pump) And suitable power steering pump brackets and such to fit your installation

Danchuk # 10178 or 10179 Steering Column Floor Mount (if you are planning on modifying and using the original column).

Note: The car we used had already been converted to a 500 Series power steering box, so our power steering pump had been installed and the column had already been replaced. We reused the existing parts. Also, ~~this article, and the UniSteer kit, covers SMALL BLOCK CHEVY with side mount applications only. You can use this system with a Big Block; see the UniSteer installation sheet, Step 1, for more details.~~

First, we need to remove the existing steering linkage. The linkage will be removed in one piece from the car.

1) Remove the cotter pins from the tie rod ends and with your 11/16" open-end wrench, remove the castle nuts. Wedge the pickle fork between the steering arm and the tie rod end and tap the end of the pickle fork with the hammer to dislodge the tie rod end from the steering arm. Pics 001-002

2) With your 1-1/4" socket and 1/2" ratchet, remove the pitman arm nut. Attach your pitman arm puller and remove the pitman arm from the original steering box. (If your car has original power steering you will also remove the power steering fluid hoses from the power steering pump at this time.) Pics 003-004

3) Unbolt the idler arm from the frame using your 9/16" open end wrench and your 9/16" socket and 3/8" ratchet. Pics 005-006

4) Remove the steering linkage and set aside. Pic 007

5) Using your 5/8" and 11/16" open-end wrenches, unbolt the steering arms from the spindles. Retain the bolts and nuts. Pics 008-009

Next, we need to remove the existing steering box. We will cover the removal of a stock box first; if you have already converted to a 605/500 box go to step 8.

6) Remove the horn ring cap with your 1/4" clutch head or Phillips head screwdriver. Remove the steering wheel nut with your 3/4" socket and 1/2" drive

ratchet. Use the steering wheel puller to remove the steering wheel. (We didn't need the puller for our wheel.) Pics 010-011-012-013

7) With your 9/16" socket and 3/8" ratchet unbolt the steering box from the frame. The steering shaft is connected to the stock box and runs up the column to the steering wheel. Once the box is loose, pull down and forward (away from the column) to remove the steering box/shaft assembly and set it aside. (Our car was already converted to a 500 box, so the picture of the shaft coming out of the column is only of the shaft with a rag joint on the end...but you get the idea.) Pics 014-015

8) To remove a 605/500 box, first remove the hoses from the box using your 5/8" and 11/16" flare nut wrenches. Loosen the rag joint from the 605/500 box. Then, using your 9/16" socket and 3/8" ratchet, unbolt the box from the frame; pull the box away from the column to unhook the rag joint. Remove the box and set aside. Pics 016-017-018

At this point, if you are replacing a stock box, you will remove the stock column for modification or replacement with an Ididit or Flaming River unit. If you are not removing or modifying the column, skip to step 22 for a stock column or step 29 for an Ididit column, and install the upper u-joint.

9) Remove the tension spring and seat from the steering shaft. Disconnect and remove the neutral safety switch, if you have an automatic transmission, or the backup light switch, if you have a manual transmission. Disconnect the horn and turn signal wiring from under the dash. Pic 019

10) With your 3/16" clutch head or Phillips screwdriver remove the lower column cover. Pic 020

11) Remove the 2 nuts holding the upper column clamp from the dash with your 1/2" socket and 3/8" ratchet. Pic 021

12) Remove the 2 bolts holding the column floor mount to the floor with your 1/2" open end wrench and remove the shift linkage from the shift lever. Pic 022

13) Remove the steering column and set aside. Pic 023

At this point you can either install your replacement steering column or you will modify your existing column for use with the rack and pinion unit. ***If you are running an automatic or manual transmission, and you plan to use a modified stock column, you will have to install a floor shifter. Modification of the stock column for a rack and pinion eliminates the column shift due to the necessity of using u-joints to connect the column to the rack. The bottom of the steering column shaft MUST be supported with a bearing if the u-joints are to work, which leaves no room for the shift tube. To retain column shift for an automatic, an Ididit or Flaming River column shift column must be used. A floor shift is***

your only option if you are running a manual transmission. If you are installing an aftermarket column, skip to step 24.

14) To modify the existing column you start by cutting the steering shaft from the original steering box, use your hacksaw or equivalent.

15) Disassemble the upper half of the steering column by removing the 3 screws from the lock plate with your Phillips screwdriver. Remove the turn signal housing, being careful not to damage the wires.

16) Disassemble the lower portion of the column by removing the 3 hex head screws with your 1/2" open-end wrench. Remove the lower bearing and inner column shift tube and set them aside. Pics 024-025

17) From the bottom of the column measure up 1.75" and scribe a mark. Using your hacksaw or equivalent, and cutting very straight, cut through the tube to remove the lower 1.75". Pics 026-027

18) Get the new lower column bearing from the kit. It will fit inside the column tube, as did the original. There are two existing threaded nuts in the column that will line up with two of the holes in the bearing. Line the bearing up with these holes and scribe a mark on the column for the third hole on the bearing. Drill the existing holes out with your drill and 1/4" drill bit and then drill the third hole. Pics 028-029-030-031-032-033

19) Using your file, de-burr the edges of the housing where the cut was made. You may need to file the area between the holes in order for the bearing to slide in place. Pics 034-035

20) Next, we will modify the steering shaft. Place the shaft that you cut off the original box next to the modified steering column tube. Measure carefully so that when cut, there will be 1" to 1-1/2" sticking out the bottom of the column. Cut to length with your hacksaw, then clean and sand the shaft so it fits snugly in the bearing.

21) Reverse the disassembly process and reassemble the column. Insert the new bearing in the bottom and, using your 5/32" Allen wrench, secure with the 3 Allen head screws provided in the kit and slide your modified shaft into place. Pics 036-037

22) Now we install the u-joint on the end of the shaft. We used a u-joint with a 3/4" smooth end for the end of the column and a 9/16" - 30 splined end for the steering shaft. The smooth part of the u-joint slides over the end of the shaft and is secured with a roll pin. Drill through the u-joint and shaft with your 1/4" drill bit and 1/2" drill, insert the pin into the hole and tap in place with your hammer. Pics 038-039-040-041

23) Slide the new lower column support bracket, Danchuk 10178 or 10179, over the modified column (you will probably have to remove the bolts holding in the lower bearing). Re-install the modified steering column reversing the procedure outlined in steps 10-12 and bolt the new bracket to the floor. Install the steering wheel. Do not tighten the upper and lower mounts at this time; you may need to make adjustments later. Do not install the lower column cover. Proceed to step 30 to install the rack and pinion unit. Pic 042

24) If you are installing an aftermarket column, (we used an Ididit column, Danchuk # 1665, for this article, which is for a column shift. You will use the appropriate column of your choice) install the new floor mount that comes supplied with the kit. Pic 043

25) Slide the new column into place and install the upper column mount, tighten the nuts using your 1/2" socket and 3/8" ratchet. Leave this a little loose to allow for adjustment later. Then, install the band clamp around the lower column mount and column tube. Tighten with your 7/16" socket and 3/8" ratchet. Leave this a little loose as well to allow for adjustment when you install the steering shaft. Check to be sure the column is in far enough to clear the firewall at the bottom. Pics 044-045-046-047-048

26) Install the turn signal arm with the supplied Phillips screw. Install the column shift arm and knob with your 3/32" Allen wrench. Install the tilt arm and flasher knob. Pics 049-050-051

27) Hook up the supplied wiring harness for the emergency flashers and turn signals to the column. Hook the green wire to the green horn wire in the stock harness. Plug the 6-pin connector into the stock harness. Hook the red wire to the red power wire from the stock harness. Hook up the neutral safety switch. Pics 052-053-054-055-056

28) Hook up the shift indicator wire to the new column and install the shift linkage to the shift arm. Install the steering wheel, do not install the lower column cover. Pic 057

29) Now install the u-joint on to the splined shaft at the bottom of the column. You will need a u-joint with a 3/4" - 36 spline for the column end, if using an Ididit column like we did, and a 9/16" - 30 splined shaft for the steering shaft end. Pic 058

(Originally we used the splined coupler supplied with the shaft kit for our Ididit column, but it extended the steering shaft too far into the engine compartment causing the shaft to hit one of the header tubes on our Patriot headers. Using the u-joint from step 29, and eliminating the coupler, solves this problem. We sourced this from UniSteer, as it is not in the shaft kit at this time. This u-joint should be available in our

shaft kits by the time you read this. If you are using an Ididit column without a column shift or a Flaming River column you would use a u-joint with a 3/4" Double D connection for the column end and a 9/16" – 30 spline for the steering shaft end.) Pic 059

Now we can install the rack and pinion into the car. *The unit comes installed on the bracket. If yours did not, follow the instructions supplied with the unit, Step 3A, on how to mount it to the brackets. Pic 060*

30) There are three holes on the driver side of the bracket and two on the passenger side that will line up with the holes in the frame for the old steering box and idler arm assembly. Lift up the rack and line the holes in the frame up with those in the bracket. Run the mounting bolts supplied with the kit through the holes from the outside of the frame and attach the nuts. Using your 9/16" open-end wrench, 9/16" socket and 3/8" ratchet, tighten the nuts. With your torque wrench, torque the nuts to 28 foot-pounds. Pics 061-062-063

31) With your 5/8" and 11/16" open-end wrenches, attach the new steering arms to the spindles, torque to 40 foot-pounds. Pics 064-065

Be sure you have the driver side arm on the driver side and the passenger side arm on the passenger side. The ears of the steering arms will point towards the center of the car. UniSteer says in their instructions that depending on what spindles and brakes you are using you MAY have to machine some material off of the steering arms. We did not.

32) Look at the top of the rack where the stub comes out. On the stub and on the housing there will be two pink dots. Line the pink dots up. This will center the rack. Pic 066

33) When you have the rack aligned, install the tie rods on the rack threading them equally on each side. Set the wheels so the toe-in appears to be correct and thread the tie rods out or in until they line up with the steering arm holes. Install with the threaded portion of the tie rod up, coming in from the bottom. Install the lock nuts and torque to 40 foot-pounds with your torque wrench. ***For different combinations of spindles with different brake kits, such as some dropped spindles, you may have to cut the tie rod ends shorter and dress the threads to get proper toe-in.*** Pics 067-068-069

Now we need to cut and fit the steering shaft and u-joints between the column and the rack.

34) Place the lower u-joint, 16mm DD x 3/4" DD, loosely on the shaft of the rack. Slide the splined end of the shaft into the upper u-joint at the column and insert the Allen bolt to hold it in place. Line up the shaft along side the lower u-joint to determine how much you will need to cut off the shaft so it will slide into the lower

u-joint. (We had to cut 1-1/2" off the shaft for our car.) Once you have cut the shaft you will need to notch it with your round file or a grinder so the pinch bolt in the u-joint can be installed.

Pics 070-071

35) When you have the shaft cut and notched it is time to install the shaft. First check the alignment of the two pink dots on the rack to be sure they are aligned. Then, look at your u-joints. The upper and lower u-joints are to be "phased" 90° apart and will not work properly if they are not. (The photos show you their relationship.) Turn the upper u-joint (steering column) until it is phased 90° from the lower and slide in the shaft between the two u-joints. Install the Allen head pinch bolts and torque to 30 foot-pounds. Turn the wheel and check for binding. Make whatever adjustments you need in the position of the steering column if you encounter binding of the u-joints. (The rack can also be rotated in the mounts if need be.) Then, using your 1/2" and 7/16" sockets and 3/8" ratchet tighten the upper and lower steering column mounts. Install the lower column cover with your 3/16" clutch head or Phillips screwdriver. Pics 072-073-074

36) Install the supplied -AN adapter fitting into the back of the power steering pump. Pic 075

37) Install the supplied -AN adapter fittings into the pressure and return ports on the rack. (Shown in our photo with the hoses already attached.) Apply the supplied Loctite 545 to the both sides of the 2 sealing washers on the fittings, spread evenly. Install the fittings into the rack and torque to 15 inch-pounds. Pics 076-077-078-079

38) Install the power steering hoses between the rack and the power steering pump. (See the UniSteer instruction sheet, step 6, to identify the pressure and return ports on the rack.) Fill the system with power steering fluid and start the engine. Turn wheels from left lock to right lock, and check for leaks. Congratulations, you are done! Pics 080-081

Now that wasn't so bad. Was it? All there is left to do is take the car for an alignment. You want to be sure everything is correct so you get the most from your new steering set up.

We hope we were able to take some of the mystery out of this job and answer some of your questions. Till next time...Happy Cruising!