

Diagnosing Front End Play Issues and Removing & Installing your 68-72 Bus Steering Box

Front End Play

To check where the play is; first you have to get your car up on ramps. You CANNOT do this with the front wheels hanging. With no load on the parts, no problems will show up. I cannot express enough how you have to have a load on the wheels.

On buses 68 to 79, you have to have the front wheels on ramps. Once up on ramps, we need your buddy Tim to turn the steering wheel back and forth through its play. With you under the bus, put the palm of your hand on the nut that comes out of the steering box that holds the pitman arm on. Two things here: 1) See if you can feel the arm moving from side to side before the arm pushes or pulls. If so, the bushings in the box are bad. 2) Look to see if the shaft is rotating before the arm moves. If so, the nut is not tight. Next, put your hand on the drag link end that is attached to the pitman arm. See if it's jumping before it moves. I have seen brand new drag link ends go bad in a matter of weeks (New doesn't always mean good). If all that checks out ok, move to the drag link end that is on the center pin arm. See if it is jumping before it moves the arm. Next, slide under farther so you are now on the backside of the front beam. Put your hand on the two inner tie rod ends. We are looking to see if your ends are jumping or if the center pin arm is moving up and down before it turns. Do the same with the outer ends.

On ball joint cars checking them is tough. I have seen ball joints that have no play, but are worn out. Again, have Tim move the top of the tire in and out. If you see play, get some new ball joints right away. Also, if you see ripped ball joint boots that is a sure way for the joints to wear out fast.

Keep in mind that a ball joint rides in a slot in the joint. If your car is lowered, the joint has a tendency to bottom out in the slot, wearing it out. A fix here is to have lowered spindles; this way the joint is in the stock position in the slot.

"I still have play, now what?" The problem could be your adjustment on your steering box or the placement of the steering wheel. Here is how the steering box works: When the peg or roller is in the middle of the worm, it's at its tightest point. As you go left or right, it gets progressively looser. If your steering wheel has been relocated, then it might be in a loose part of the worm gear. If that is the case, your steering can be loose when straight and tight as you turn back to the center of the worm. If you find yourself in that position, take off your inner tie rod ends or in the case

of a bus, take off your drag link arm. Turn the wheel all the way left and then all the way right. Count the turns. Then back up halfway. This will make sure the steering box is in the center of its worm gear. Now relocate the steering wheel if you have to and readjust your tie rods or drag link so that when the car is going straight the steering wheel is straight.

Still have play? Maybe the box needs adjustment. if you're not careful here, you can ruin a steering box fast. Make sure there is no load on the box. Now, make damn sure the steering box is centered as described above. Now, loosen the jam nut for the adjustment and tighten the screw until you feel it hit. You're driving the peg or roller into the worm gear. Now back off the screw until it's just free. Turn the steering wheel back and forth a little. If you feel it bind, you're too tight and back it off a little more. Once you can turn the wheel back and forth with no bind, lock the nut down.

One last note, if you have play in any part of the steering parts it adds up in the steering wheel. So a ½" play in a tie rod end and ½" play in a spindle means 1" play in the steering wheel. Don't be too quick to adjust the steering box until you have checked the other parts first.

TOOL LIST:

13mm Wrench
13, 17, & 30mm Socket
Large Standard Screw Driver
Small Hammer
Diagonal Cutters
¾" Ratchet
½" Ratchet
½" Impact
Pitman Arm Puller
Torque Wrench

Additional Parts Needed

Cotter Pin 3mm X 25mm
Power Punch or STP & CV Joint Grease



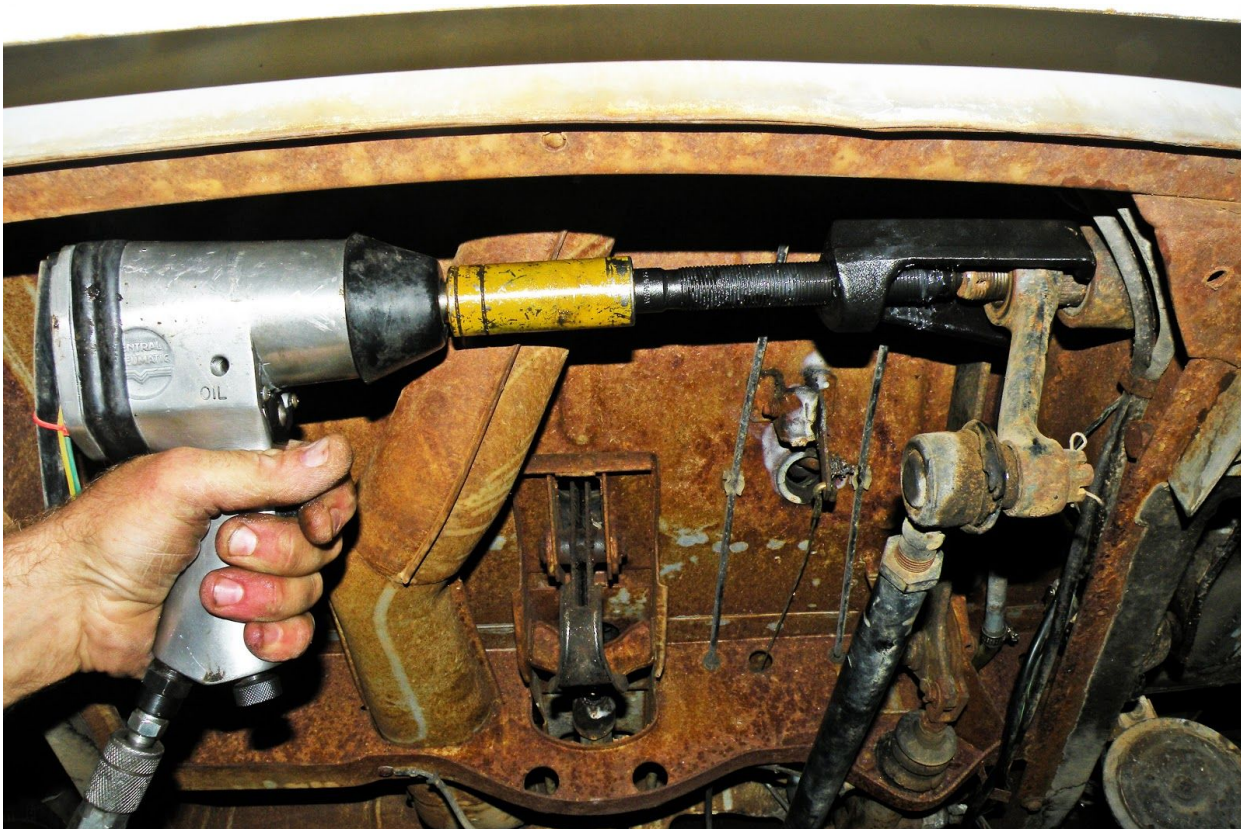
Removal of 68-72 VW Bus Steering Box



- 1) Remove pinch bolt from input shaft by bending the lock-tab from the nut & threading the nut off with a 13mm socket & wrench. Push bolt out and slide steering column up & off the input shaft.



- 2) Remove cotter pin from pitman arm nut, then remove nut using a 30mm socket



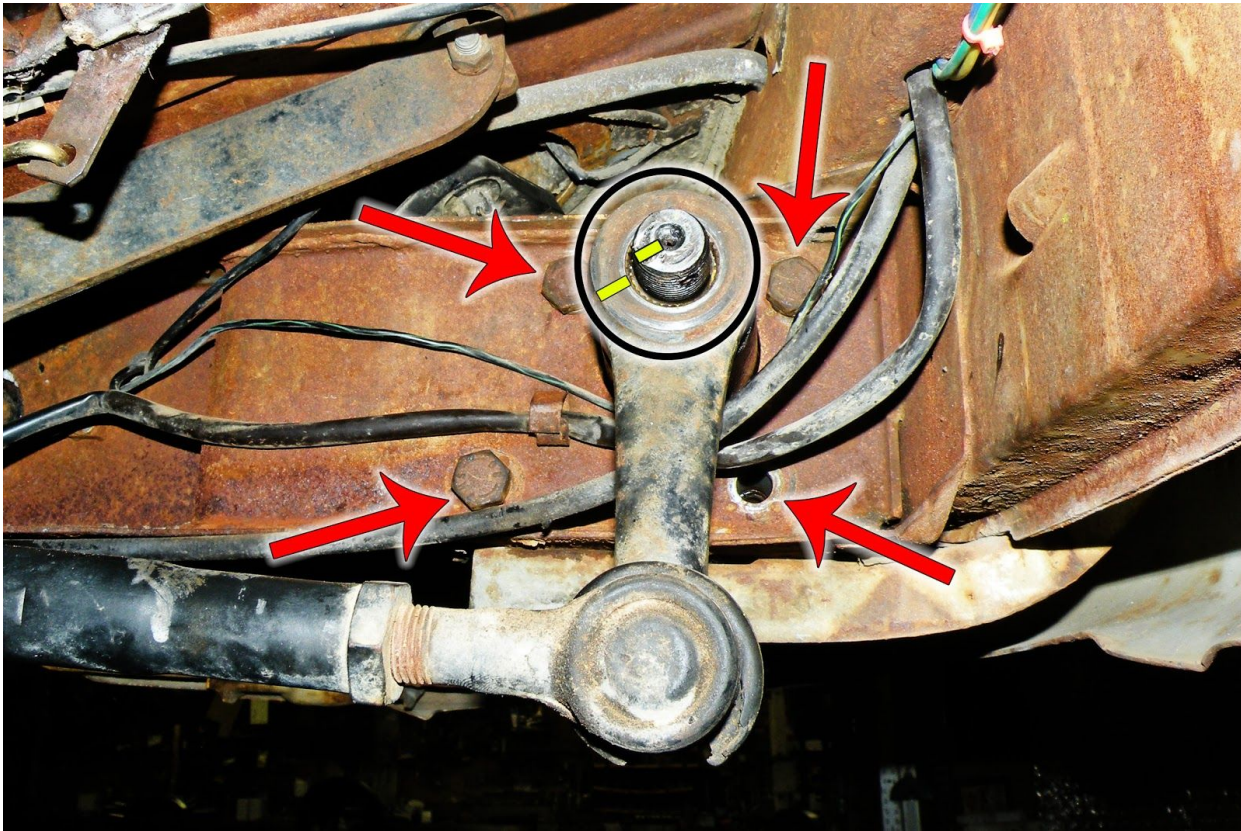
3) Using a pitman arm puller and air impact gun, remove pitman arm/ (The correct puller is required to do this)



4) Remove the 4 mounting bolts with a 17mm socket and the box is ready to pull out.



Installing 68-72 VW Bus Steering Box



- 1) Put the rebuilt box through the frame hole and install the four 17mm bolts. Torque to 30 ft. lbs.
- 2) Line up the alignment line on the pitman arm with the alignment line of the output shaft and torque the 30mm nut to 75 ft lbs. (Alignment lines are very important)



3) Line up the column with the detent on the input shaft and insert the pinch bolt and 13mm nut. Torque the nut to 18 ft lbs then bend lock tab back over the nut.

NOTE: There are two different input shafts on these steering boxes with the detent 90 degrees off. If your steering wheel spokes are 90 degrees off you will correct that by removing the mount bolts from the rubber coupler and repositioning it 90 degrees.

4) Replace cotter pin. If the hole for the pin is not lined up with the nut, tighten till it lines up.

Fill the box with Power Punch if you can find it, if you can't, use a mixture of 3 parts STP Oil Additive to 1 part CV Joint Grease. The consistency should be like a thick molasses, not runny. If you find the Power Punch it comes in a handy squirt bottle. If you end up having to mix your own, get a small squirt bottle (Like a mustard bottle) or a small funnel, and fill it before you put the box in.

The box is pre-adjusted during the rebuilding process. There is no need to change it's setting. If you feel you need to change the adjustment, please call us for instructions on the correct way to do that. (530) 246-4264

Find these instructions and other tech articles at www.WolfgangInt.com!

