

The Preventive Maintenance Series

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Corvair Alignment

Aligning a Corvair is like all the other mechanical procedures, not that bad of a job if all the necessary parts come loose. Many alignment shops will no longer accept old cars for the reason that torch work and new parts are necessary in many cases. If you have a Corvair with an original front and rear suspension and are contemplating alignment, the following may provide some useful information.

Alignment requirements are divided up according to early model, late model, FC models and then front and rear. Thanks to Corvair vendors, all replacement parts that might be required are available. You must inspect and replace any defective steering and suspension parts before doing an alignment and you need to adjust front wheel bearings and inflate tires correctly. Keep in mind that some parts may be working just fine but freeing up adjustment points may make them no longer serviceable.

Front Alignment

Positive caster in a Corvair helps steering wheel return on corners and provides stability which is helpful with the light front end. Un-equal caster will make the car drift and be more susceptible to side winds. Decreasing caster will make steering easier but with the light front end that a Corvair has it is almost insignificant; stability is more important. Caster does not affect tire wear.

Positive camber is designed into the Corvair front end to keep the maximum amount of tire contact with the pavement during wheel travel. Unequal camber from side to side will cause steering pull, but in general camber does not cause tire wear; only where the wear will occur on the tire tread area. For example, a significant amount of negative camber (with perfect toe-in) will concentrate all the normal wear on the inside of the tread area and this shows up as premature wear even though toe-in is correct.

Toe-In, when set correctly, will provide maximum tire life and best steering and handling characteristics. As the car moves down the road the overall force applied to the various parts will cause the tires to toe-out, hence the toe-in setting will become close to zero under driving conditions. **Toe adjustment is always the last procedure done during alignment.**

Rear Alignment

Camber at the rear of early model and FC vehicles is determined by the springs and is not adjustable other than spring height. All late model cars **do** have rear camber adjustments giving you the ability to maximize tire life or improve high speed handling as your driving style dictates. Again, toe determines what rate the tire wear occurs and camber determines where it will occur.

Toe is adjustable on the rear of all Corvair models and is set as toe in. As noted above, the tires will attempt to toe out as the car moves down the road bringing the actual

alignment during driving close to zero. This provides optimal tire life, steering, and handling.

Early Model Cars

Caster is adjusted by means of the left and right struts which are threaded and adjustable. Loosening the nuts may require torch work and that area is close to the gas tank. The struts themselves may have rusted badly in the middle of the sleeve inside the bushings and require replacement since there will be no threads to move the nuts on to. If you do need to replace the struts try to salvage the original nuts since the replacement nuts being sold are jam nuts and difficult to work with. Also, early model cars have different left and right struts. Once the struts are freed up or replaced, caster adjustment is quick.

Front camber is adjusted by adding or removing shims from the upper A-arm mount at the cross member. This requires releasing the upper ball joint with impact tools and torch work may be necessary to free up the two nuts & bolts where the shims reside. Add or subtract the same number of shims under both mounting bolts or you will change caster.

Setting front toe-in is accomplished by loosening up the four clamps and turning the tie rod sleeves; torch work is almost always necessary. If your tie rod ends and ball joints are good and you use the torch correctly, the only parts you may need are nuts and bolts. Be sure you set the toe in with the steering wheel locked straight ahead and the steering box adjusted correctly. If you do use a torch, grease the tie rod ends after they have cooled.

Setting rear toe-in is accomplished by adding or removing shims from the bolts that attach the cross mount to the transmission while allowing the rear motor mount stud to move in the slotted hole at the rear motor mount bracket. You are moving the drive train either forward or backward which changes the angle of the axles – thus changing the toe. If a change is necessary, you will need to remove the four steel strips that hold the engine perimeter seals to the body so that the drive train can move. In addition, use of a floor jack is necessary to take the strain off of the parts. If you move the drive train very much you may need to adjust the accelerator linkage or clutch linkage.

FC Vehicles

Caster is adjusted by uneven shimming of the upper A-arm and will require removing the upper ball joint stud from the steering knuckle. Also, torch work may be required to free up the nuts and bolts holding the A-arm to the cross member.

Camber is adjusted by adding or removing shims from the upper A-arm mount to the cross member so you can adjust caster and camber at the same time if necessary. You will need to release the upper ball joint stud and probably use a torch to free up the nuts and bolts. The 1961 Shop Manual has a good guide to determining what shims you may need. Again: removing or adding the same number of shims front and back on one side will change camber – removing or adding an uneven number front to back will change caster.

Front toe-in adjustment is the same as early model cars – see above.

Rear toe-in adjustment is the same as early model cars (see above), except that you would not need to check clutch or accelerator linkage if you change the rear toe.

Late Model Cars

Caster adjustment is identical to early model cars; see above.

Camber adjustment in the front is accomplished by using the cam action of the bolt which secures the lower control arm bushing – much easier than shimming upper A-arms but in order to free up the adjustment bolt you may need a torch and an impact hammer. In some cases the bushing and bolt may be rusted so badly that they need replacement before adjustments can be made. Once the parts are free, adjustment is quick.

Front toe-in adjustment is identical to early model cars – see above.

Rear camber adjustment is made before rear toe-in is adjusted and is accomplished by the cam action of the outer mounting bolt for the rear strut rod. You may need to use a torch to free up the nut and an air hammer to free up the bolt. In some cases the adjusting bolt may need replacement (special bolt) and you may need to replace the bushings (usually just the inner set). If you actually need to change the camber and toe, loosen up the smaller struts that attach between the trailing arm and the transmission cross mount. Tighten them when you are finished and the car is sitting normal. Be sure to use a new grade 8 nut (or lug nut) on the camber adjusting bolt and torque correctly.

Rear toe in is accomplished by loosening the four bolts that hold each trailing arm forward to the body and moving the slotted bracket within the index marks. This allows you to adjust toe independently on each side. Freeing up these bolts requires care; the two lower bolt ends can be shot with penetrating oil through two holes provided vertically but the upper two are boxed in the body. Use of an impact wrench on low power and working back and forth is helpful in breaking them loose. I have had to use a torch (through the two holes mentioned above) to get the two bottom bolts loose and in some cases it has been necessary to cut a window in the body under the rear seat to heat up the upper two welded nuts and release the bolts. Rear toe can change radically if the trailing arm bushing moves in its shell; be sure to inspect it.

Any alignment parts that have been replaced or freed up **must be torqued to the required value** – consult the shop manual.

Always recheck your numbers after you complete a test drive as components may shift or adjust slightly.

Next month: Tips, suggestions and specifications for home alignments or to pass on to your preferred alignment shop.