



SIDECAR GENERAL INSTRUCTION MANUAL

Although installing your California Sidecar is not difficult, it does require care and attention to detail. Before starting the installation, you should have the about 200 square feet of clean work space on a smooth, level surface along with the following hand tools:

Phillips screwdriver	1 – 1” and 1 ⁵ / ₁₆ ” open-end wrench
3/8” socket or box-end wrench	24 inch carpenters framing square
1- 1/2” socket or box-end wrench	rubber mallet
2 - 9/16” socket or box-end wrench	channel locks or vice grips for squeezing clamps
2 - 3/4” socket or box-end wrench	sharp knife
1 - 7/8” open-end wrench	wire cutter and crimper
2 - 1 ⁵ / ₁₆ wrenches	

Recommended tire pressure (Sidecar only) – 25-28 psi

Lug Nut Torque – 65 ft/lbs

For ease of installation you will need to make a stand to support the sidecar frame with 2”x4” You will need one stand in the front, approximately 9” tall and one in the back approximately 10” tall. **NOTE:** On the Companion GT, make stands level or no more than 1/2” lower in front.

Before attempting to install and handle a sidecar rig, some basic principles of sidecars should be understood. The following information is general and will vary with different car and motorcycle combinations. All measurements given are to be used as starting points from which finer adjustments can be made, depending on bike, rider and passenger.

SIDECAR WHEEL LEAD

The distance the sidecar axle leads the rear axle of the motorcycle. For the best performance under most conditions, the axle of the sidecar should be positioned eight to fourteen inches forward of the rear axle of the motorcycle. As you fine-tune your rig, you will find the farther to the rear the easier it turns.

TOE-IN ADJUSTMENT

The purpose of a slight inward set of the sidecar wheel in relation to the wheels of the motorcycle is to counteract the drag of the sidecar and offset the scrubbing tendency of the rear wheel. Too much toe-in will cause rapid tire wear, too little will cause the rig to pull to the side. A correct balance is achieved if the rig will not noticeably pull to the right or left while maintaining a speed of approximately 30-40 mph on a level highway. Toe-in should be the minimum that will allow straight-ahead steering. In most instances, it will be between 3/4 and 1 1/4 inch. We suggest you start at 1 1/4” and adjust outward as necessary.

LEAN-OUT

The amount that the motorcycle leans away from the sidecar will vary depending on several factors--- weight of the motorcycle, suspension of the sidecar and the general load that will be carried in the sidecar. Each motorcycle and car combination is an individual and in most cases only experimentation will produce the best possible lean-out combination. Generally speaking, the more the motorcycle leans out, the easier your left turns; however, the easier the wheel will lift on right turns. Conversely, the more the motorcycle leans in, the harder it will be to pick up the wheel on right turns; however, it will take more effort to make left turns. The added weight of a driver will lessen the degree of lean in. Ballast added to an empty sidecar or passenger, will counteract the tendency of the wheel to lift.

What you want to achieve is sometimes referred to as the vertical ideal. When the motorcycle is rigged properly, with the normal load, the wheels of the motorcycle and the sidecar should be near vertical. The unit should track straight when moving at a steady speed. The sidecar should set level when viewed from the rear when under anticipated loading conditions. Achieving the vertical ideal is usually a trial and error process and the odds are very strong against good reference point for refining the alignment.

Installing Sidecar Frame Assembly

- 1) Install brackets to motorcycle as listed in your motorcycle instruction manual.
- 2) Start by supporting bike so that it leans very slightly left of vertical. If necessary, use the side stand and blocks of wood. Bike should remain at riding height. **DO NOT USE THE RIDE OFF STAND.**
- 3) Place frame alongside bike on 2"x 4" stands, with the front 1" lower than rear.
- 4) Now slide the sidecar frame into place with the rod ends installed into the clevis ends. Install the 5/8" bolt through the clevis and rod end. Then check that the following conditions are met:
 - Sidecar frame is level on stands.
 - Sidecar frame is level. (Friendship models are 1" lower in front)
 - Sidecar has approximately 1¼" toe-in as shown in Figure three.
 - Sidecar axle leads motorcycle axle 8" to 14".

ACHIEVING TOE-IN:

Lay one straight 2"x4" parallel to the outfit on the outside of the motorcycle (opposite the sidecar). Make sure the rear wheel is exactly parallel to the motorcycle frame and that the frame is not distorted or bent. Gently nudge the 2" x 4" parallel to the front wheel pointed straight ahead, bring the 2" x 4" parallel to the front wheel. Do not forget to make an allowance if the rear tire is wider than the front. If it is, make two shims equal to one-half the difference in width between shims on 2" x 4" where it will contact the front tire. Measurements will be more accurate if the 2" x 4" rests upon a brick at front and rear.

Take another 2" x 4" and gently lay against the sidecar wheel at the same height as the first 2" x 4". Ensure that this 2" x 4" is parallel to the sidecar wheel. You are now ready to determine toe-in.

- 1) Double check for interference with cables, levers, etc. Install covers, boards, lights etc., and tighten.
- 2) Mount body back to frame.
- 3) Wire as listed in instructions.
- 4) Now you are ready for a test ride. **Remember:**
 - a.) Driving a sidecar rig is not harder than riding a two-wheeler, just different.
 - b.) **The sidecar will have a tendency to lift on right turns.** Take extra care in making right turns until you are comfortable with speed and turn angle. 100 lbs. of ballast is recommended to minimize this tendency.
 - c.) There should be no pulling to either side at constant speed and a minimum of pulling while starting or stopping.
 - d.) Slight low speed shimmy is not unusual. It can be minimized or eliminated with a California Sidecar Steering Damper.
 - e.) **IMPORTANT.** Do your test riding and experimenting in an area as free of traffic as possible. A vacant parking lot is suggested.
 - f.) Remember, the rig is now over twice as wide as your basic two-wheeler, with a track of almost 5 feet.

CALIFORNIA SIDECAR "QUICK DISCONNECT"

- 1) Place stand side down. Position dolly or frame stand under frame of sidecar.
- 2) Loosen bolts on upper rear and upper front struts.
- 3) Loosen the nuts on the bolts attaching the rod ends to the clevis.
- 4) Remove upper front strut bolt and store strut with sidecar.
- 5) Stand on left-hand side of your motorcycle, gently rock sideways and remove bolt from upper rear strut connecting point.

CAUTION: Be careful not to lean bike away from sidecar at this point, as in some cases the lower 70-degree strut clamp may be close to muffler.

- 6) Remove the two bolts attaching rod ends to clevis.
- 7) Disconnect wiring and brake line at coupler.
- 8) Next, move sidecar away from motorcycle.
- 9) Re-install in reverse order.