

13.3.B Installing the Axle

In this section you will install the axle, set the wheels to a 0.5° toe-in angle and attach the gear legs to the receptacles in the bottom fuselage.

Since the gear legs have not been drilled for mounting the axle, you can adjust the wheel alignment during the installation. You will construct a simple jig that will help you accurately align the wheels.



Before you start, make sure the serial numbers match. The gear-leg receptacle, the gear legs and the axel mount serial numbers must match.

Steps...

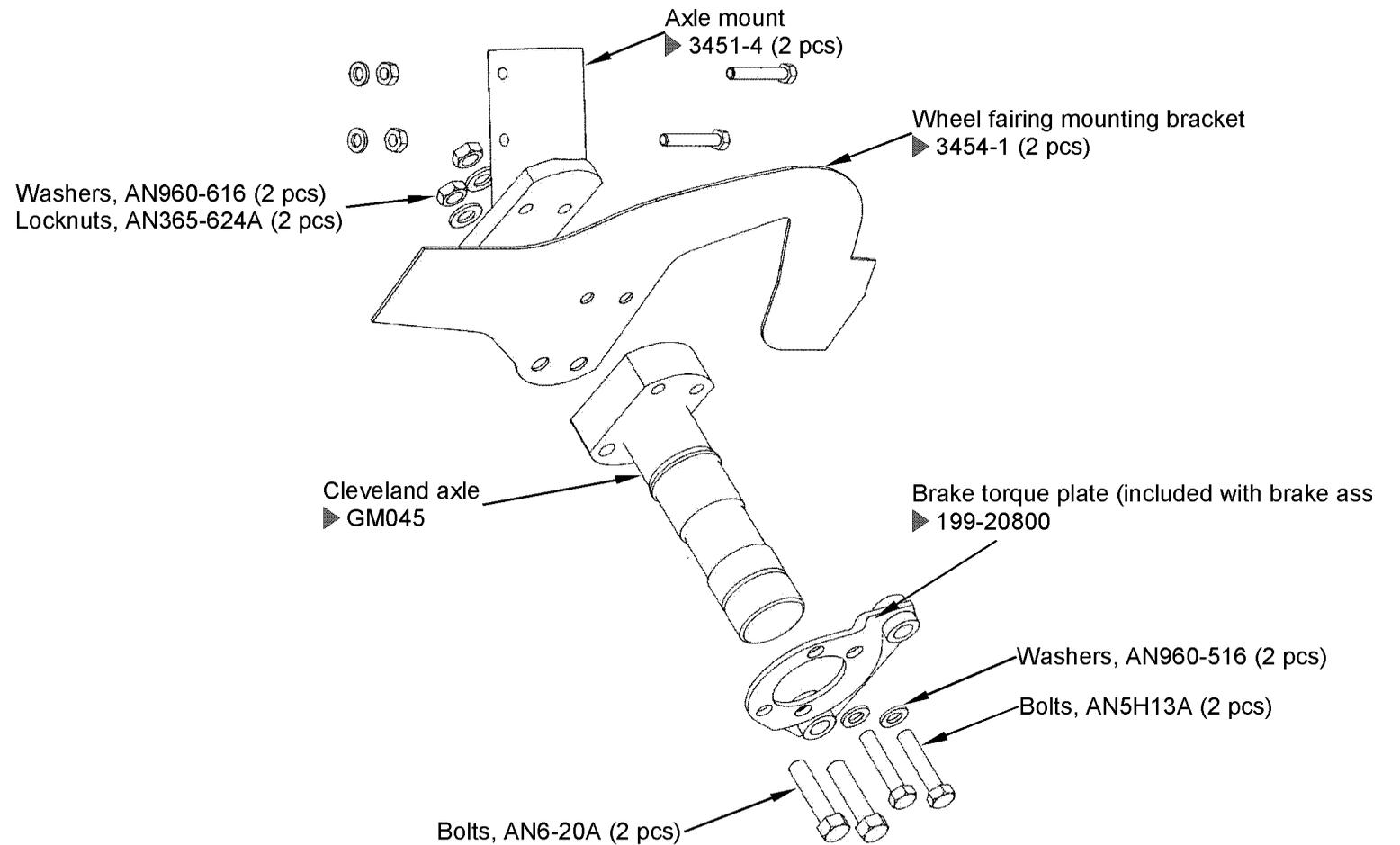
1. Mount the wheel fairing mounting bracket (3454-1) to the axel mount (3451-1) as shown in Figure 13.3.B.1.

Tip: Read the next step. You will complete the mounting of the brake torque plate and the axle at the same time as this step.
2. Mount the brake torque plates (199-20800) so they are on the aft side of the axle. The left and right sides of the torque plates must be mirror images.

You will notice two bushings in the brake torque plates. Align the bushings to the two upper holes of the axle. Do not remove the tape covering the bushings. Simply align the holes and push the bolt through the tape.
3. Install the AN5H13A bolts and the AN960-516 washers in the upper two holes of the axle mount. These two holes are threaded.
4. Safety wire the AN5H13A bolts.

WARNING: The AN5H13A bolts used in this mounting must be safety wired prior to flight!
5. Install the AN6-20A bolts, AN960-616 washers, and AN365-624A locknuts in the lower two holes.

Figure 13.3.B.1 Axle assembly



Securing the Wheels to the Axle

Steps...

1. Secure the wheels to the axles by carefully sliding the wheel onto the axle until the inboard bearing is seated. Install using a MS21025-24 axle nut.
2. Tighten the nut until there isn't any slop in the wheel bearings. Now lock the axle nut in position with an MS24665-362 cotter pin.

Tip: Do not run the cotter pin completely through the axle nut. Later the bolt that retains the wheel pant will thread through the center of the axle.

3. Slide the axle mount and the installed wheel onto the bottom part of the gear leg.

Make sure the axle mount is pushed all the way onto the gear leg.

Building the Wheel Alignment Jig

Now you will need to construct a wheel alignment jig as shown in Figure 13.3.B.4. The purpose of the wheel alignment jig is to allow you to accurately install the wheels at 0.5° of toe-in. The jig simply allows you to accurately measure 0.5° at a distance over three feet.

Steps...

1. Tie a 5' (1500 mm) piece of straight angle steel or aluminum to each wheel.

It is important that the straight angle touches the wheel and not the tire. If the straight angle touches the tire, deflate the tire or install a spacer of equal thickness on the fore and aft side of the wheel.

Mount the straight angle pieces so both the left and right sides are at the same height.

2. Place a long straight piece of 2' x 4", three feet (910 mm) forward of the front of the tires as shown in Figure 13.3.B.4.

This completes the wheel alignment jig. Now you will complete the steps for the wheel alignment toe-in.

Figure 13.3.B.2 Securing the wheels to the axle

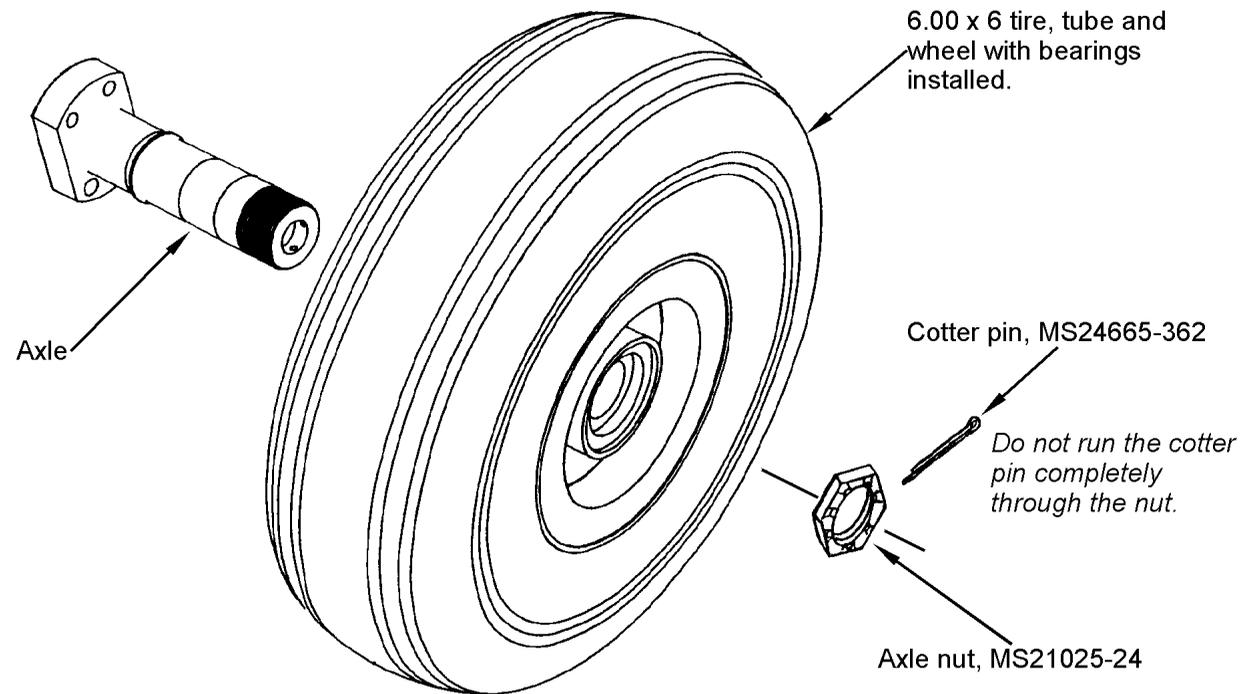
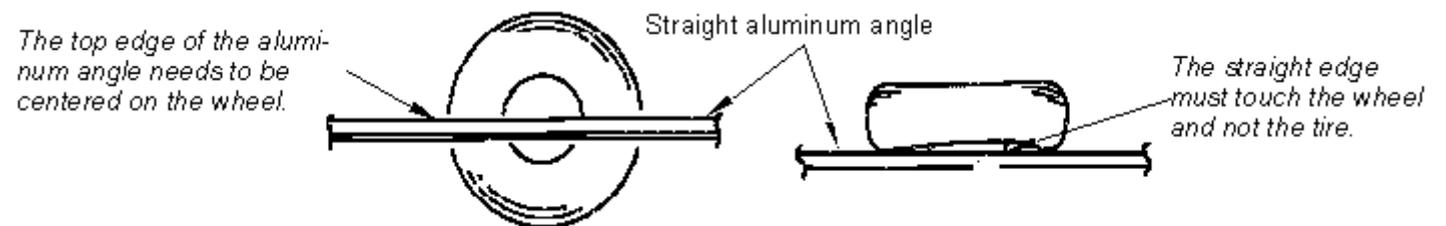


Figure 13.3.B.3 Attaching the straight angle to the tire



Setting the Wheel Alignment Toe-in

Steps...

1. Set the wheels at 0.5° toe-in.

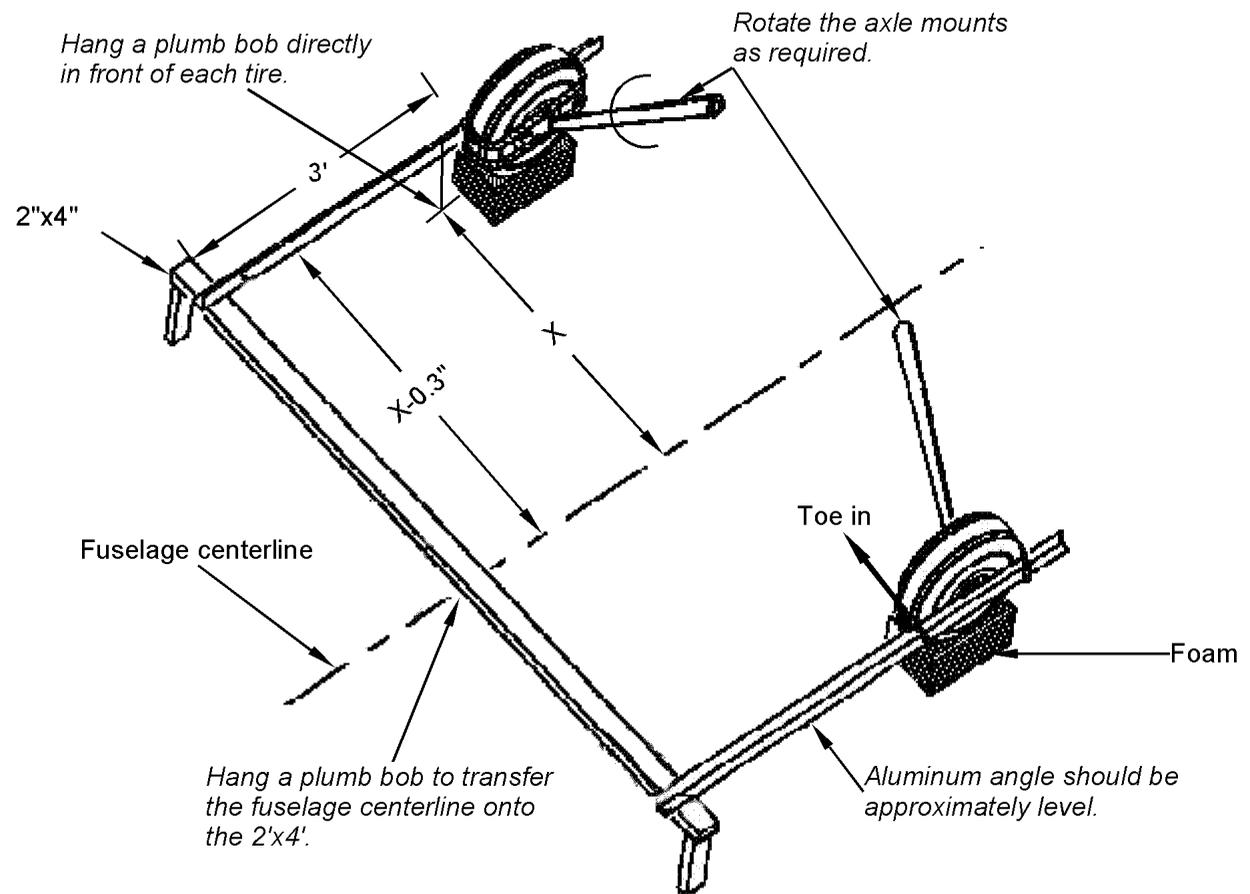
In summary:

- Transfer the fuselage centerline to the 2' x 4" using a plumb bob.
 - Drop a plumb bob from the straight angle directly in front of the tires.
 - Measure the distance to the fuselage centerline on the 2' x 4". Be aware that this distance will change slightly as you adjust the wheels so you may have to take this measurement a couple of times.
2. Make a mark 3' (910 mm) forward of where you took the measurement. Measure the distance from the angle to the fuselage centerline at this location.
 3. Adjust the wheels so the distance from the angle to the fuselage centerline, at the 2' x 4", is 0.3" (8 mm) less than the distance to the fuselage centerline in front of the tires.
 4. Rotate the axle mount to get the correct amount of toe-in. Re-check both dimensions. Once you have the axle mount aligned, drop superglue into the axle mount to keep it aligned during drilling.
 5. Using the two $3/16"$ (4.7 mm) pilot holes in the axle mount, drill the gear leg and axle mount.

We recommend the following procedure for drilling the gear legs and axle mounts.

- Use cutting oil and turn the bit slowly. It may take a few drill bits to get through the hardened steel gear legs. (Use a cobalt steel drill.)
- Drill one $3/16"$ (4.7 mm) pilot hole through the gear leg at a time. There are four pilot holes in each of the axle mounts.
- Check the alignment of the holes to the holes on the opposite side.
- Insert a $3/16"$ bolt through each hole after drilling. Drill the hole as straight as possible.

Figure 13.3.B.4 Wheel alignment jig



- Using the pilot holes, drill the holes to final size with a 1/4" (6.3 mm) diameter drill. Drill the holes all the way through the gear legs (3451-2).
Insert an AN4-23A bolt before you drill the next hole. This will help keep the gear leg aligned.
 - Secure the gear leg to the axle mount with AN4-23 bolts, AN960-416 washers, and AN365-428A locknuts.
- Tip:** The AN4-23A bolts must be installed from the aft side of the gear leg for clearance with the brakes.

Attaching the Gear Legs

Steps...

- Slide the gear legs (3451-2) into the receptacles in the bottom fuselage.
Tip: If this is a tight fit, use oil to allow the gear legs to slide in more easily.
- Install the washers (AN960-616) and the bolts (AN6H30A).
The bolt secures to a castle nut welded to the receptacle.

Figure 13.3.B.5 Securing the axle mount to the gear leg

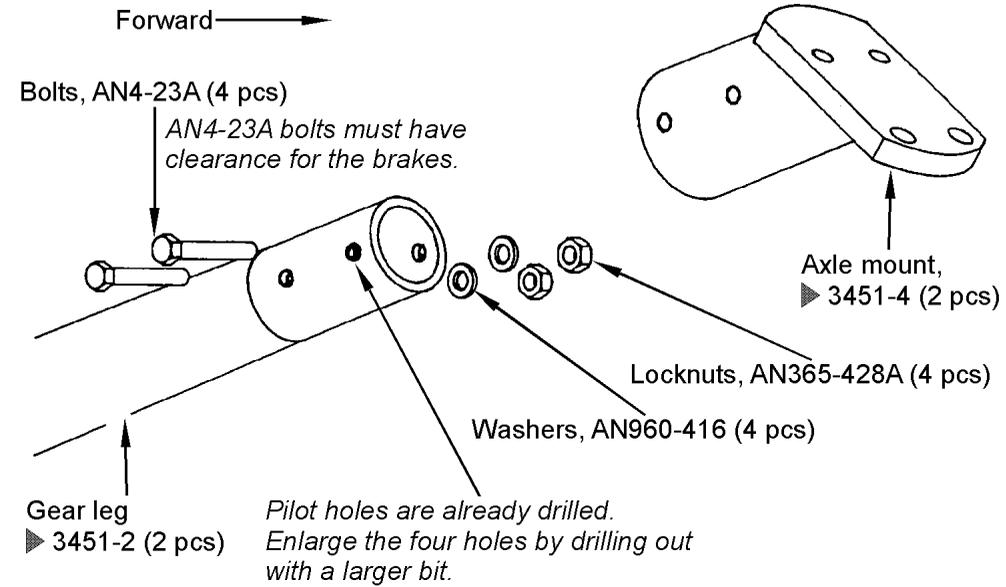


Figure 13.3.B.6 Attaching the gear leg to the receptacle

