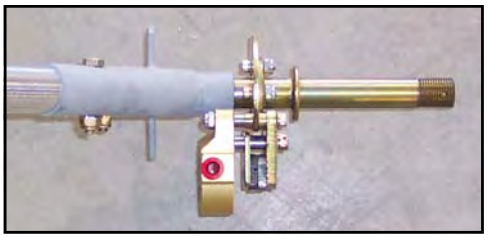
Gear leg and Axle Assembly

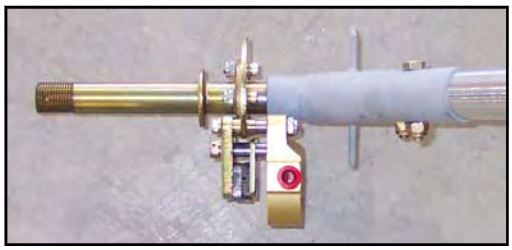
Section Objective: Proper construction of the main gear assemblies.
Required Parts: 2 Main gear legs ALG-0010, Axle weldment ALG-0011L and ALG-0011R, 2 wheel and brake assemblies.
Required Hardware: 4 AN4-15A, 4 AN365-428 elastic stop nuts, AN960-416 washers.
Required Tools: 1/8" bit, 3/16" bit, 1/4" bit, Cut off wheel, Drill press, v-block, Dremel tool, assorted dremel bits, Lightning tool kit.
Required Conditions: N/A
Required Skills or training: Simple knowledge of hand tools and the use of them.

Date Completed

1. The picture to the right shows the right gear leg components; Gear leg **ALG-0010** axle weldment **ALG-0011R**, axle/brake assembly.

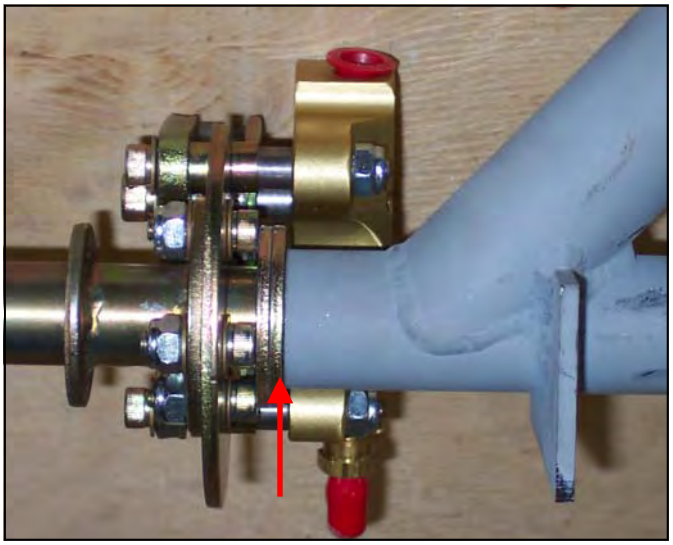


2. The picture to the right shows the left gear leg assembly; Gear leg **ALG-0010,** axle weldment **ALG-0011L,** axle/brake assembly.



Note: Remove tire and wheel to ease assembly

3. Make sure to use the drawing above as reference.
4. Slide the left axle assembly into the left weldment.
5. Use some washers or shim of some sort of shim to insure a 1/8" gap between the weldment and the bolts in the axle assembly.



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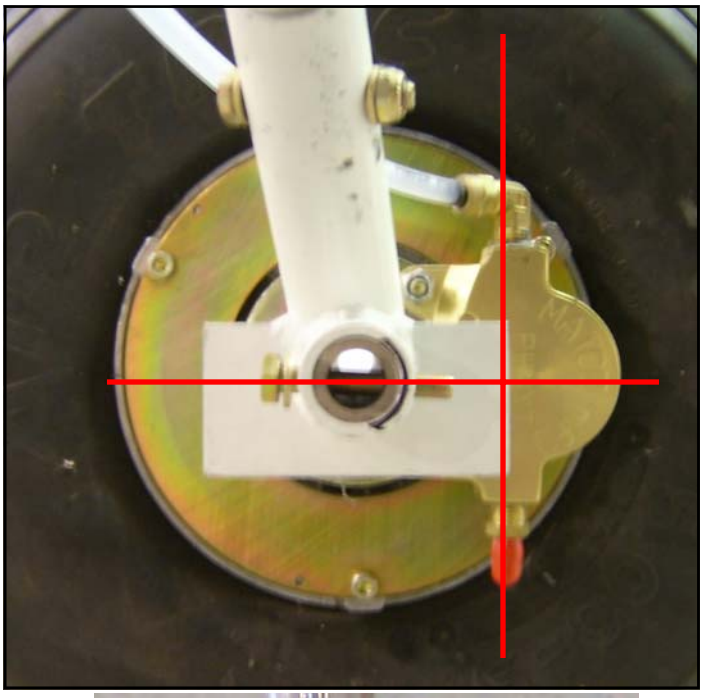
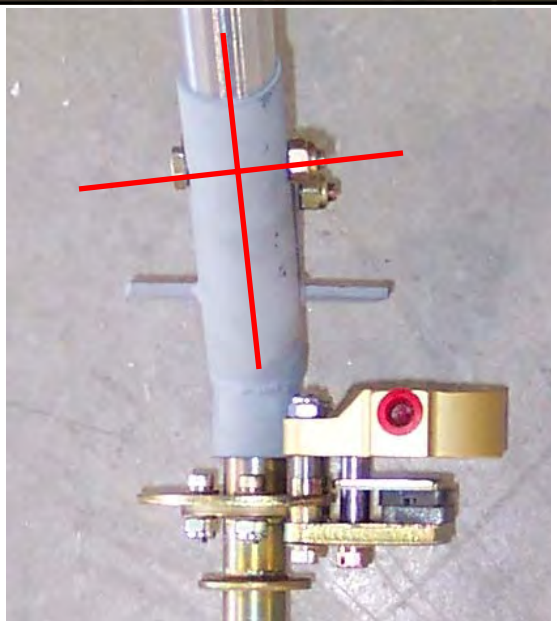


6. Align the axle/brake assembly so that the brake caliper is 90 to the plate on the weldment.
7. Measure the mid point between the plate and the inside of the weldment.
8. Drill a 1/4” hole here thru the axle and weldment. **Remove Shims**
9. Bolt with a AN4-15A, washer and nyloc nut.
10. There will be about 1/2” -3/4” of the axle protruding out the end cut this off.
11. Test fit the gear leg to the weldment, make sure it bottoms out.

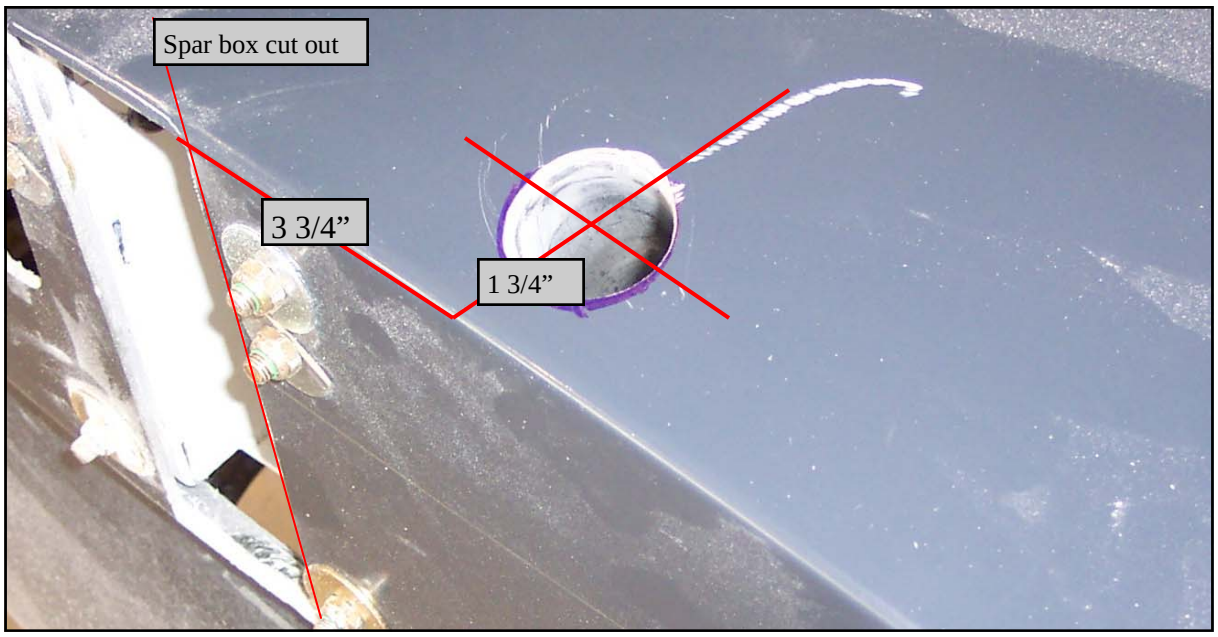


12. Measure down 1 1/4” from the top of the weldment, and drill a 1/4” hole 90 to the gear leg, and direction of travel.
13. Final bolt with a AN4-15A, nyloc nut and a washer.
14. Repeat this procedure for the right gear assembly.

15. Refer to **Fuselage Assembly Section 5** page 7 for gear leg install to the spar box.
16. Refer to **Setting main Gear toe Section 40** for gear leg final installation.
17. Steps 15-16 must be complete before moving on it this section to wheel pant install.

1. Rotate the aircraft over to cut the **Gear leg holes**.
2. Using the spar cut out in the wing root as a reference, measure on the inside how far back the gear leg tube is and how far from the side it is to the center, this does not have to be accurate but with a 1/4” or so.
3. Transfer the measurement to the out side of the fuselage Should be 3 3/4” back and 1 /34” in from the side and square to it.
4. Drill a 1/4” hole in the center of the mark.
5. Use a dremel or air-tool with a plunge bit (pencil bit) to work the hole out slowly.

When the hole is large enough use a drum sander to finish up, the gear leg must slide thru easily and have a minimum of 1/8” clearance around it.



Note: At this point you will be able to install the gear leg into the fuselage. They however will not be installed for the final time. This can not be done until the gear toe is set. When ready to set the toe refer to section 40 and this will explain ho the main gear legs are installed for the final time.

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Main wheel pant fabrication and installation

Section Objective: Proper fit and installation of the main gear wheel pants.
Required Parts: Left main wheel pant-front PN104-120, Left main wheel pant-back PN104 -121, Right main wheel pant-front PN104-118, Right main wheel pant-back PN104-119, 8" of 1/8"-1" aluminum stock, Out-board wheel pant brackets ALG-0015.
Required Hardware:, 26 #6 nut-plates, 26 #6 CS screws, 26 #6 timmermann washers, 52-3/32" CS rivets,
Required Tools: 3/32" bit, 1/8" bit, 9/64" bit, 1/8" clecos, rivet squeezer, Cut off wheel, sanding blocks, drum sander, Lightning tool kit.
Required Conditions: N/A
Required Skills or Training: Simple knowledge of hand tools.

Date Completed

Note: Main gear toe must be set before proceeding!

1. Fit both wheel pant fronts to the rears.
2. Some sanding of the front half is required to provide a good seam where the two parts meet.
3. Mark the locations for the mounting holes in the front half. Measure in 1/2" from the edge for each hole. The first hole goes in the top of the pant. Each hole around the side will have 3.5" spacing. Pilot holes should be 1/8" for trial fitting and clecos to hold together.
4. Do not put the last hole in the bottom as it may become too close to the edge or be removed completely when the pant is fitted around the tire.

5. Trim the inside of the wheel pant so that it clears the axle weldment and tire, do not try to make it perfect yet just get the pant to fit around for now, but keep the cutting to a minimum.
6. The joggle line in the pant must end up forward of the axle by 1/8” to 1/4”.
7. Note in both picture how the pant is fitted. The pant can be off-set as shown to cover up the majority of the axle weldment.

Note: A variety of different wood pieces are very helpful when fitting the wheel pants as the help to position the correctly while fitting.

8. Slide the out board wheel pant bracket in place in the axle.
9. Put the wheel pant on again and slide the out board bracket out until it touches the wheel pant.
10. Mark thru the hole for the cotter key in the axle.
11. Remove the bracket and drill with an 1/8” bit.
12. Reinstall the bracket with cotter key.
13. Place the wheel pant back in place.

14. Transfer the out line of the bracket to the out-side of the pant.
15. Make sure the wheel pant is where you want it, the level line on it should be level with the ground.
16. Drill 2 holes, both are to be 1/2” from the ends of the mount and centered in the middle of it. Use an 1/8” bit for a pilot hole and clecos to hold them together.
17. For the inside bracket, fabricate 2 parts, made of 1/8” thick aluminum 1” wide and 4” long.
18. Mount these to the axle weldment.
19. As with the outboard bracket transfer the mounts location to the outside of the pant.
20. The bracket may have to bent slightly to match the inside of the wheel pant, there is no specific way just make it touch and be creative.
21. Drill an 1/8” hole that is 1” from the end and centered in the bracket and hold with a cleco.

Date Completed

21. Make the same bracket for the front as with the back.
22. Slide the front half on to the back half, it may be needed to trim for the tire or brake lines and weldment to fit on to the back half as it did while off of the plane.
23. Cleco the front pant to the back half .
24. Transfer the marks for the bracket to the front half once again and match drill the bracket as before.

25. Now that the wheel pants are fitted to the mounts carefully mark where they must be trimmed to add clearance for operation.
25. There must be 1/8” around the axle weld-ment and landing gear leg
26. There must be 1/2” around the tire, this is good for all operations, if operating off of hard surfaces alone you can reduce this to 1/4” if desired.

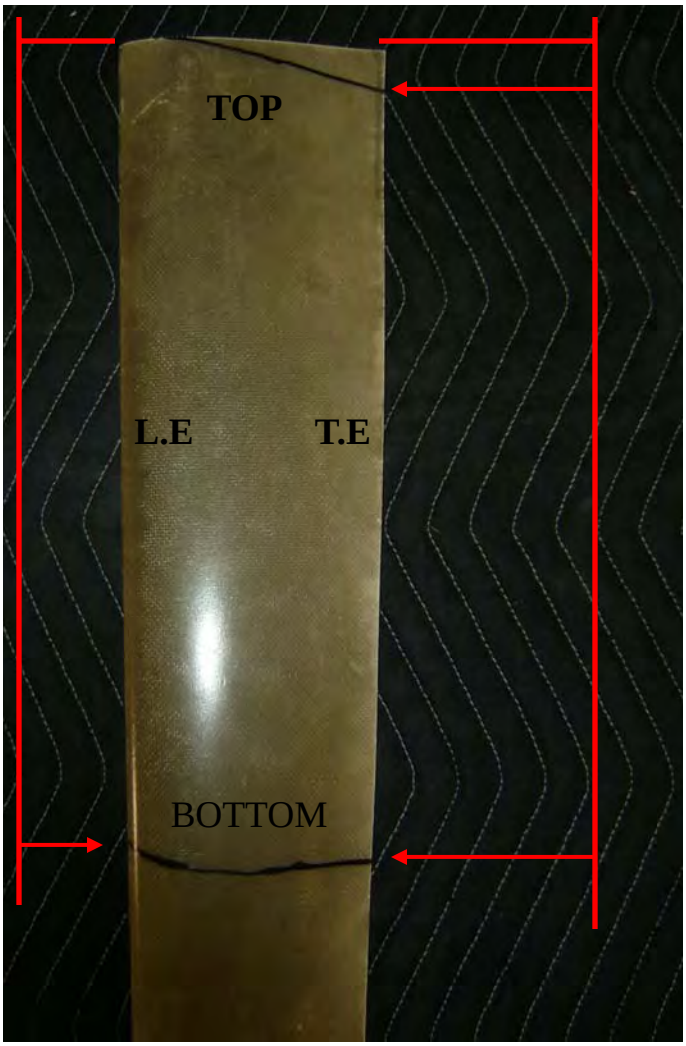
27. Remove the wheel pants.
28 Install #6 nut plates in all holes using counter sunk 3/32” rivets.

Main Gear leg Fairing Installation

Section Objective: Proper fabrication, fit and installation of the main gear leg fairings.
Required Parts: 2 gear leg fairings PN104-116, Aluminum piano hinge, 0.040 aluminum flat stock
Required Hardware: 3/32” rivets, 4 #8 nut plates, 4 #8 screws.
Required Tools: Cut-off wheel, sanding blocks, drum sander, 3/32” bit, deburring tool, file, rivet squeezer, Lightning tool kit.
Required Conditions: N/A
Required Skills or Training: Simple knowledge of hand tools.

Date Completed

1. All 3 gear leg fairings provided in the kit are the same.
2. Mark one fairing left and one right to avoid confusion later.
3. Make 2
4. At the leading edge measure down from the top 18 1/4” mark this.
5. At the trailing edge measure down from the top 1” and 18 3/4” mark.
6. Mark as shown in the picture at right.

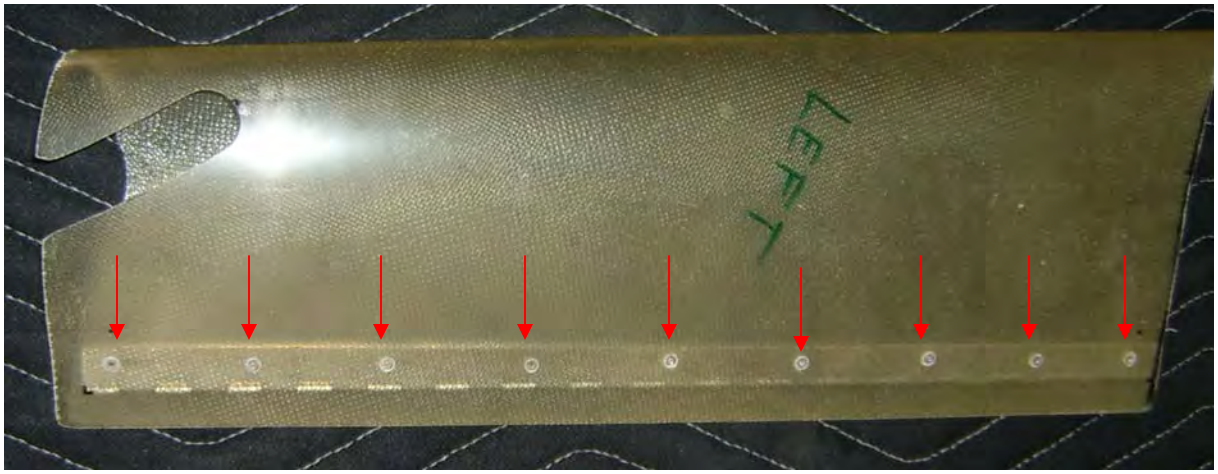


Date Completed

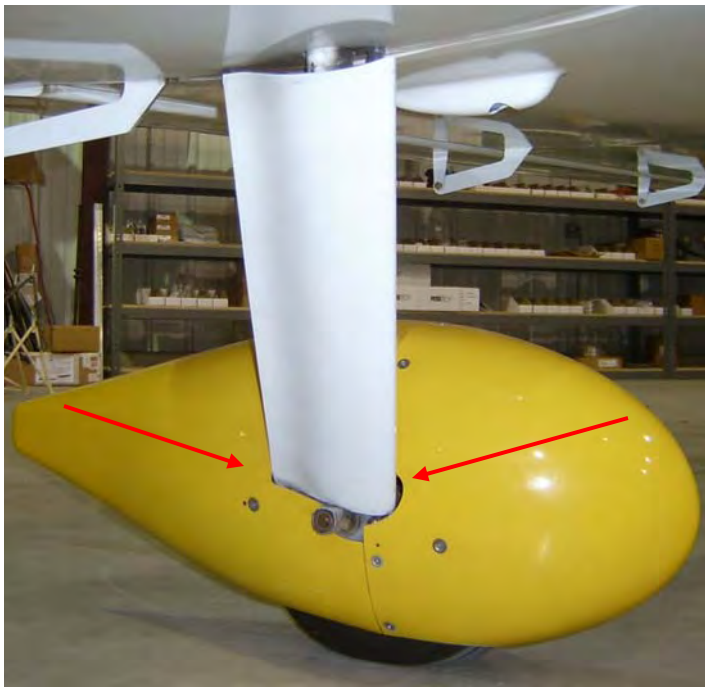
7. Use a snips to cut on the line.
8. Use the following pictures as a guide line for final trimming of the leg fairing.
9. The picture at right is of the lower end, the fairing should fit down to the axle stub on the inside and the out side, with clearance for the brake line.

10. The picture at right is what your leg fairings should look like when trimmed. The right fairing will be a mirror image.
11. Note the cut out for the brake line, this is made large enough to fit around the brake line with a piece of 1/4” split fuel line over it. Spilt one side of a 4” long piece of 1/4” fuel hose to protect the brake line.

12. Cut the piano hinge to length so that the top end is flush with end of the fairing and that the bottom is 1/2” recessed.
13. The piano hinge should be fitted parallel to the trailing edge of the part and 7/8” inset with the hinge facing reward. Clamp in place .



14. Drill 3/32” holes thru the glass and piano hinge every 4th leaf in the hinge. As you drill the holes install a cleco to help hold the hinge correctly.
15. Pull the rivets.
16. Flip the part over and repeat this process, you must offset the rivets in the other side by one leaf to have clearance from the other rivets.
17. Install both gear leg fairings onto the gear to check final fit.
18. When installing the pin, measure the length of the piano hinge and make the pin length 1 -2” longer. You can install the pin 2 ways. Bend cut only 1” extra bend one end over 90 and slide the pin all the way tucking the end in the faring, it should not come out there is enough friction to hold it in place. Or leave it 2” extra , make a loop at the end no more than 3/8” diameter , slide this up and tuck it in , than put a countersunk screw with timmermann washer and nut thru the faring .



19. You must now finish fitting the wheel pants to fit around the gear leg faring.
20. Do not shorten the faring.
21. Cut a v shaped slot in the back half of the pant, take your time as it should fit snuggly around the leg faring, finish the edge with some rubber if you like.
22. Do the same to the front half with a half round cut out.