

TOTAL PERFORMANCE **VAN'S AIRCRAFT**

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REVISION DESCRIPTION:

Page: 35-01 REV 3: Replaced WD-1230 Nose Fork with WD-01230-1 Nose Fork.

Page: 35-06 REV 4: Deleted Step 5 and Figure 3, U-1210C Anti-Rotation Plates are not used with the WD-01230-1 Nose Fork.

Page: 35-07 REV 3: In all Figures and Steps changed WD-1230 to WD-01230-1.

Deleted Step 2, revised all following step numbers.

In Step 3 (now Step 2) added instruction to apply Loctite #243 to the screw threads.

In Step 4 (now Step 3) and Figure 2, removed the NAS1149F2090P Washer.

Step 6 moved to Page 35-08 (now Step 1) revised instructions to reflect new parts.

Step 7 moved to Page 35-08 (now Step 2).

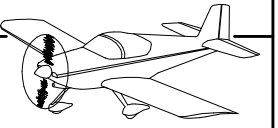
Figure 3 moved to Page 35-08 (now Figure 1), updated parts and added WASHER-00010.

New Figure 3 added to depict proper Belleville Washer orientation.

New Figure 4 added to depict tow-bar bolt hardware installation, was previously on page 36-11 Figure 1.

New Step 5 added to install tow-bar bolt hardware.**

Page: 35-08 REV 1: Added Steps 1 & 2 and Figure 1, moved from page 35-07.



SECTION 35: LANDING GEAR & ENGINE MOUNT

WD-1221
ENGINE
MOUNT
STANDOFF

U-1203E
INBOARD
DOUBLER PLATE

U-1203B
INBOARD
WEAR PLATE

U-1203C
DOUBLER
PLATE

U-1203
INBD MAIN GEAR
ATTCH BRKT

U-1202C,
OUTBOARD
DBLR PLATE

U-1202D,
OUTBOARD
WEAR PLATE

U-1220-L
GEAR LEG

U-1202,
OUTBOARD MAIN
GEAR ATTACH BRACKET

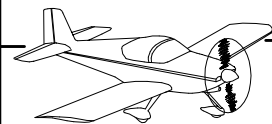
WD-1201,
NOSE GEAR
ASSEMBLY

U 5:00 X 5-6 TIRE,
3 PLACES

U-WHLNW51CC.G25

U-611 DISK
SPRING,
2 PLACES

WD-01230-1
NOSE FORK



Step 1: Using a 3/8" bit, final-drill the two 3/16" holes in the top of the Firewall Assembly common to the WD-1221 Engine Mount Standoff. Be sure to drill perpendicular to the vertical face of the Firewall Assembly. Deburr the holes in the Firewall Assembly.

Step 2: Permanently bolt the WD-1221 Engine Mount Standoff to the Firewall Assembly using the hardware called out in Figure 1. If the bolt holes do not align, up to 1/32 may be filed from edges of holes to allow bolts to pass through the Firewall Assembly and into the engine mount standoff.

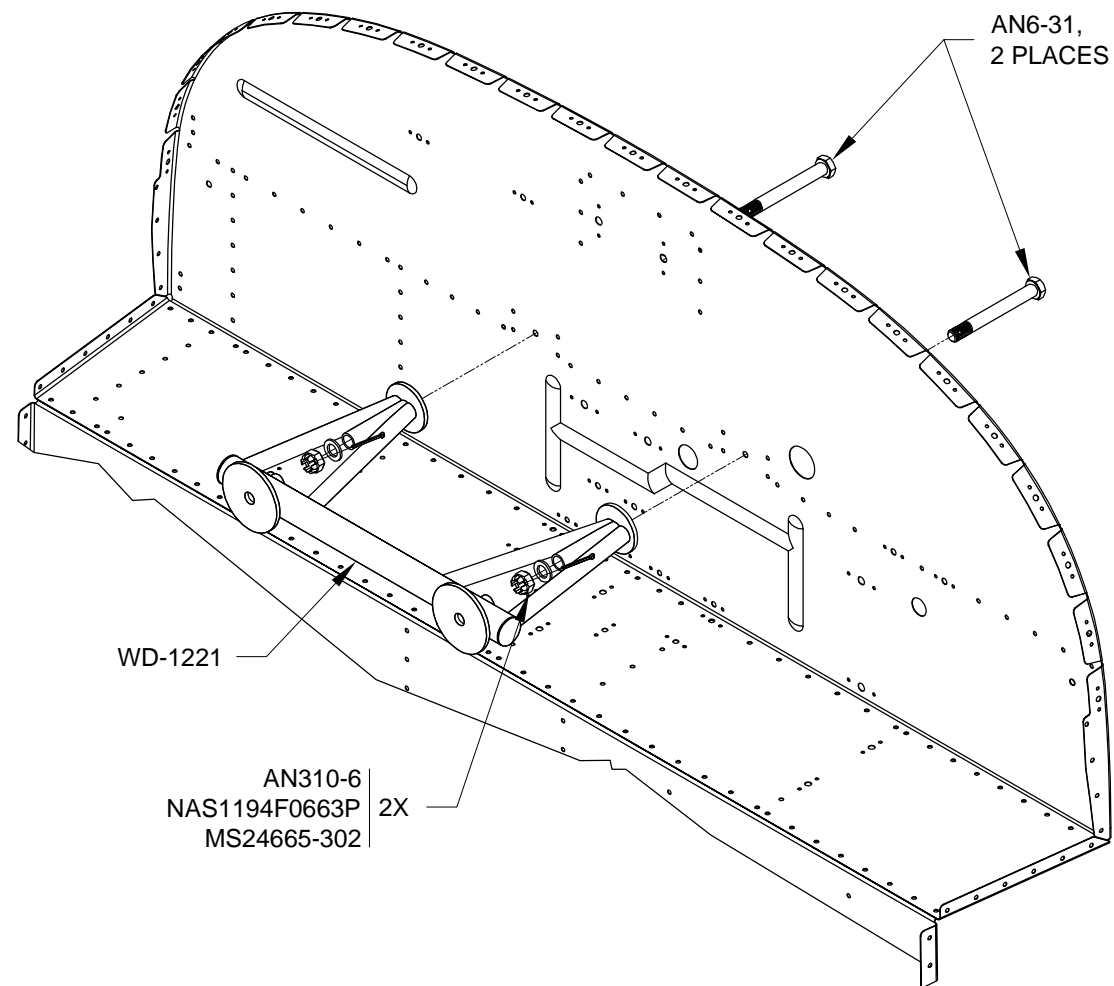


FIGURE 1: ATTACHING THE ENGINE MOUNT STANDOFF

NOTE: See the documentation included with the wheel and brake package for helpful assembly tips, recommended torque, lubricants, fluids and sealant.

Step 3: Split the U-WHLNW51CC.G25 Nose Wheel Assembly by removing the bolts holding the two Wheel Halves together.

Step 4: Remove the nut and washers from the valve stem of the U 5:00X5-6IT Tube (not shown in Figure 2). Dust the tube and the inside of the U 5:00X5-6 Tire with talcum powder. The notch on the wheel half should be aligned with the notch for the valve stem on the opposite wheel half. The red dot on the tire is installed next to the valve stem. Bolt the wheel halves together, taking care that the tube is not pinched between the wheel halves.

Step 5: SLOWLY inflate the tire. Deflate it fully and re-inflate it SLOWLY a couple more times to work out any wrinkles in the tube. Inspect for a good seat around the wheel rim. The final inflation pressure is 22 psi.

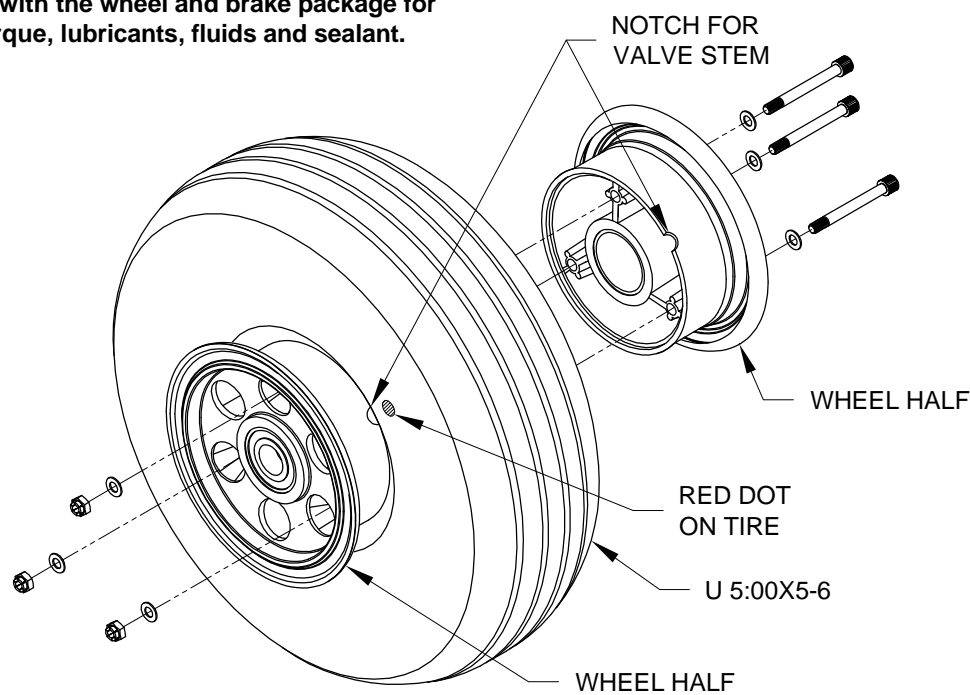


FIGURE 2: NOSE WHEEL AND TIRE ASSEMBLY

NOTE: Follow the instructions in Steps 6-9 for both Main Wheel and Tire Assemblies.

Step 6: Split the Main Wheel Assembly by removing the cap screws holding the Brake Disk to the wheel. Remove the bolts holding the Inner and Outer Wheel Halves together. Pull the bearings from the Main Wheel Assembly, clean and dry. Pay close attention to how the bearings, and hubs are installed so that they can be reinstalled in the same way. See Figure 3.

Step 7: Dust the U 5:00X5-6IT Tube (not shown in Figure 3) and the inside of the U 5:00X5-6 Tire with talcum powder, then mount the tube and tire on the Inner and Outer Wheel halves. The red dot on the tire is installed next to the valve stem of the tube (see Figure 3). Bolt the wheel halves together, taking care not to pinch the tube between the wheel halves. Carefully observe the manufacturer's bolt torque specifications shown on the document in the wheel/ brake package. Attach the brake disk with the cap screws and lockwire screws.

Step 8: SLOWLY inflate the tire. Deflate it fully and re-inflate it SLOWLY a couple more times to work out any wrinkles in the tube. It's a good idea to do this with the valve core removed; in the event a finger gets pinched the tire can be quickly deflated. The final inflation pressure is 28 psi.

Step 9: Be sure the bearings are fully greased and reinstall the bearings. See Figure 3.

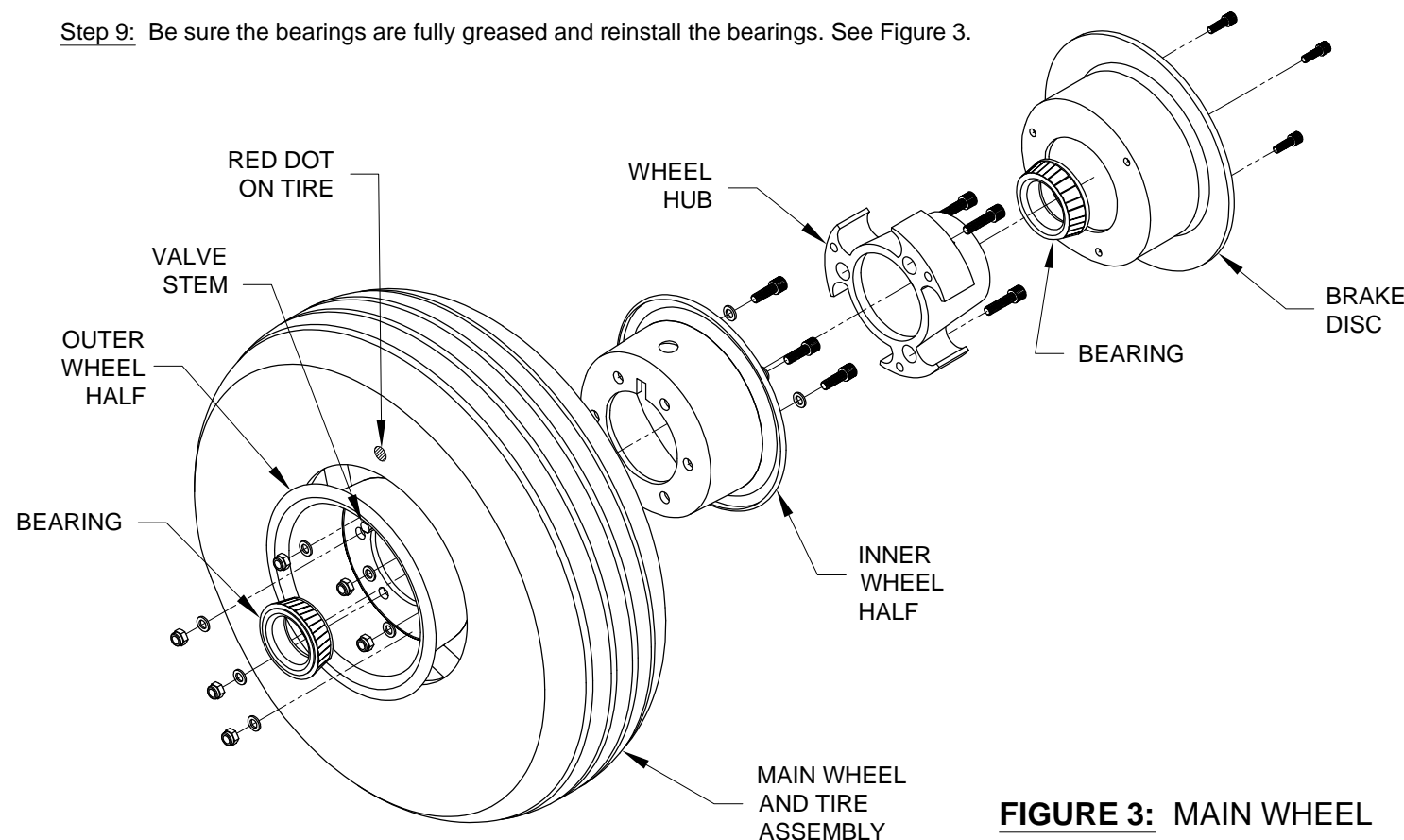


FIGURE 3: MAIN WHEEL AND TIRE ASSEMBLY

Step 10: Apply a small amount of pipe thread sealant to the threads of the fluid fittings and install in the U-1203 Inboard Main Gear Attach Brackets as shown in Figure 4. The angled fittings should be set at a 45° angle to the top plane of the inboard main gear attach brackets. See Figure 4.

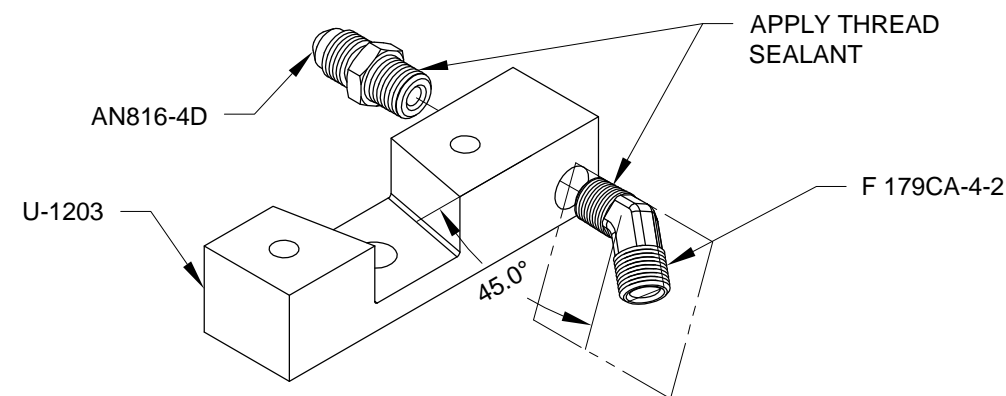
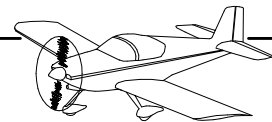


FIGURE 4: INBOARD MAIN GEAR ATTACH BRACKET FITTINGS



CAUTION: Gear legs left unpainted (bare or primed) will corrode. Low quality paint coverings will delaminate from the surface and also allow corrosion over time.

Step 1: Clean then prime the U-1220-L/R Gear Legs using a two part epoxy or other high quality primer. Using a paint compatible with the primer paint the gear legs.

NOTE: The following instructions describe the right side installation. When completed with the right side, repeat process for left side installation.

Step 2: Deburr then lightly prime (keep primer thickness to a minimum) the U-1202C Outboard Doubler Plates, U-1202D Outboard Wear Plate, U-1203 Inboard Wear Plate and U-1203E Inboard Doubler Plates.

To prevent rust, lightly coat the gear leg contact areas of the U-1202D Outboard Wear Plate and U-1203 Inboard Wear Plate, and the bare metal areas of the U-1202 and U-1203 with grease.

Step 3: Install the U-1202C Outboard Doubler Plate and U-1202D Outboard Wear Plate to the F-1204 Center Section Assembly as shown in Figure 1. Use two temporary AN5 bolts as alignment pins to assure alignment while torquing the nuts on the screws.

NOTE: On the right side the U-1203 Inboard Main Gear Attach Bracket brake line fittings are on the aft side of the gear leg as shown in Figure 3. On the left side of the aircraft the inboard main gear bracket brake line fittings are forward of the gear leg.

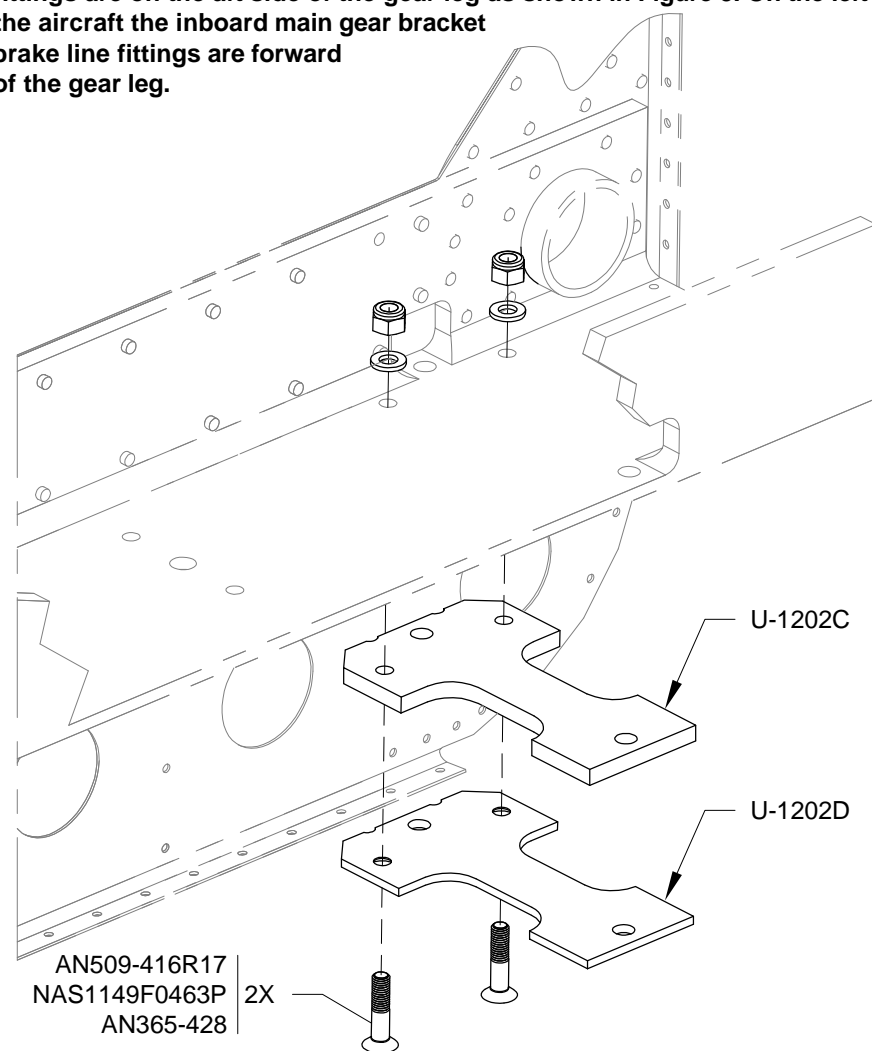


FIGURE 1: WEAR AND DOUBLER PLATE ATTACH

Step 4: Maneuver the U-1220-R Gear Leg and U-1202 Outboard Main Gear Attach Bracket into position at the same time as shown in Figure 2. Insert the two bolts with washers and nuts but don't tighten them down yet.

NOTE: When torquing bolts remember to account for the prevailing torque. See Section 5V. If using the torque wrench on the head of the bolt also account for the torque to overcome friction required to turn the shank of the bolt.

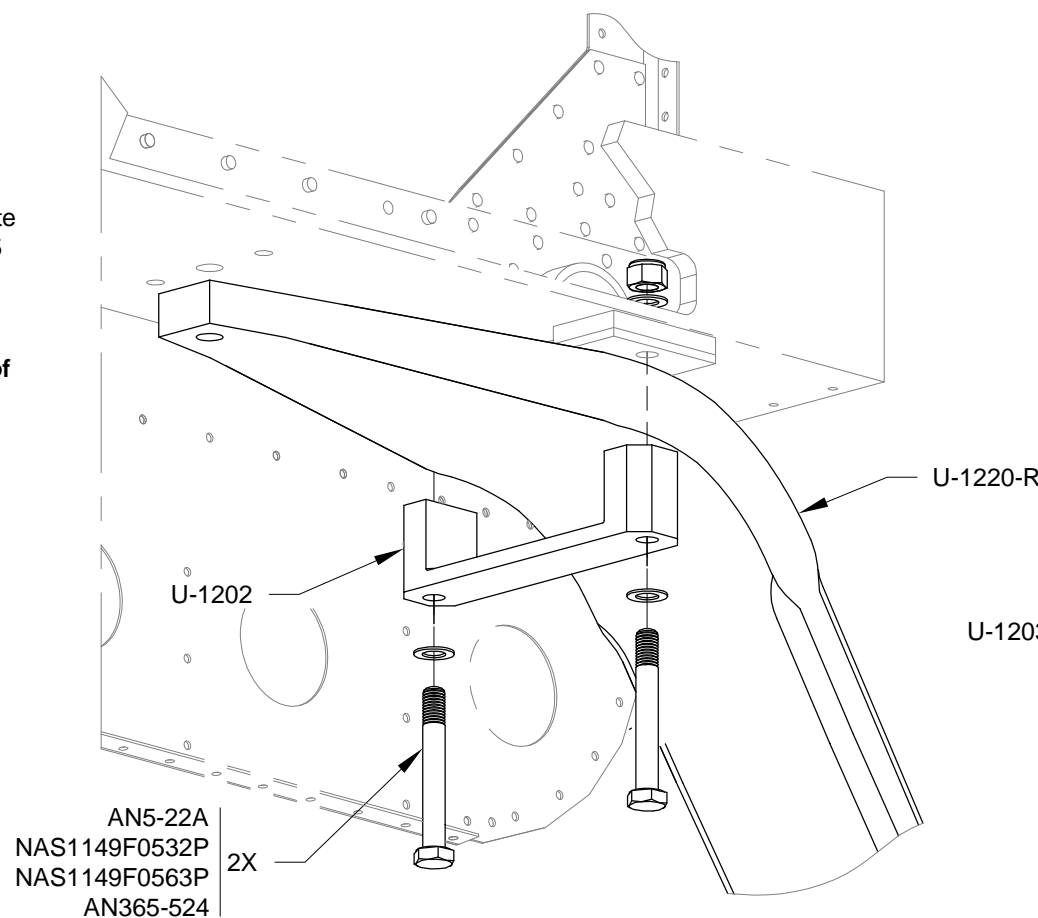


FIGURE 2: GEAR LEG ATTACH OUTBOARD

Step 5: Install the U-1203B Inboard Wear Plate, U-1203E Inboard Doubler Plate, U-1203 Inboard Main Gear Attach Bracket, and U-1203C Doubler Plate using the hardware called out in Figure 3. Spacers can be used between the floor and the end of the gear leg to position the inboard end of the leg away from the center section.

When the U-1220-R Gear Leg is properly positioned, tighten and torque the three inboard bolts.

Step 6: Use a hammer and brass drift (or block of wood - to protect the head of the bolts) to seat the two outboard bolts fully against the bottom of the U-1202 Outboard Main Gear Attach Bracket. Evenly tighten the bolts, moving from one to another, while checking that the outboard main gear attach bracket is pulling up around the U-1220-R Gear Leg evenly (that is the gap between wear plate and gear attach bracket is the same at each bolt) until the final torque is reached.

Seat the bolts again with hammer and drift then make a final check of the torque.

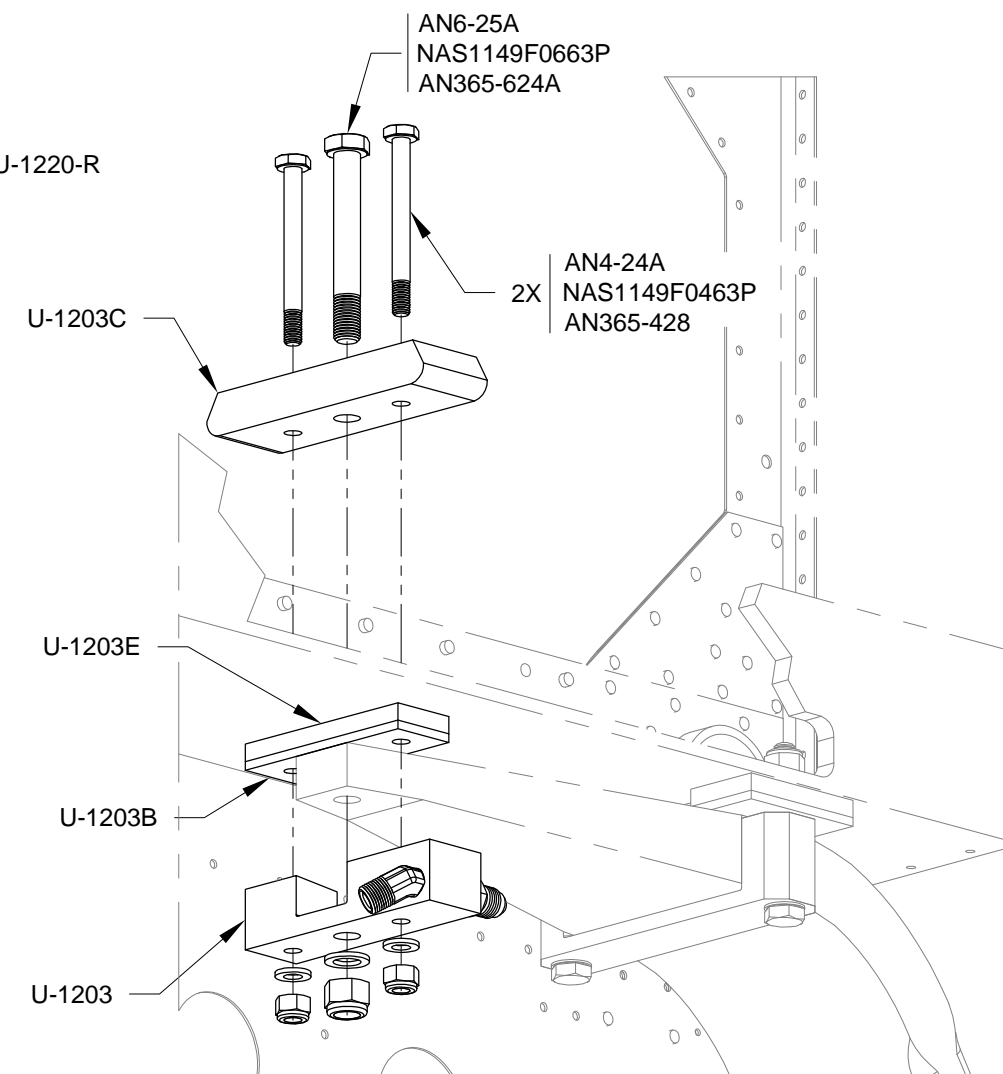


FIGURE 3: GEAR LEG ATTACH INBOARD

Step 1: Bolt the main gear axles and brake plates to the U-1220-L and U-1220-R Main Gear Legs with the provided hardware and check that the axles are properly aligned using the C-1211 Align Blocks as shown in Figure 1. If needed, add shims to align the axles properly (1/2° and 1° shims are available in the Van's Aircraft Accessories Catalog). See Figure 1.

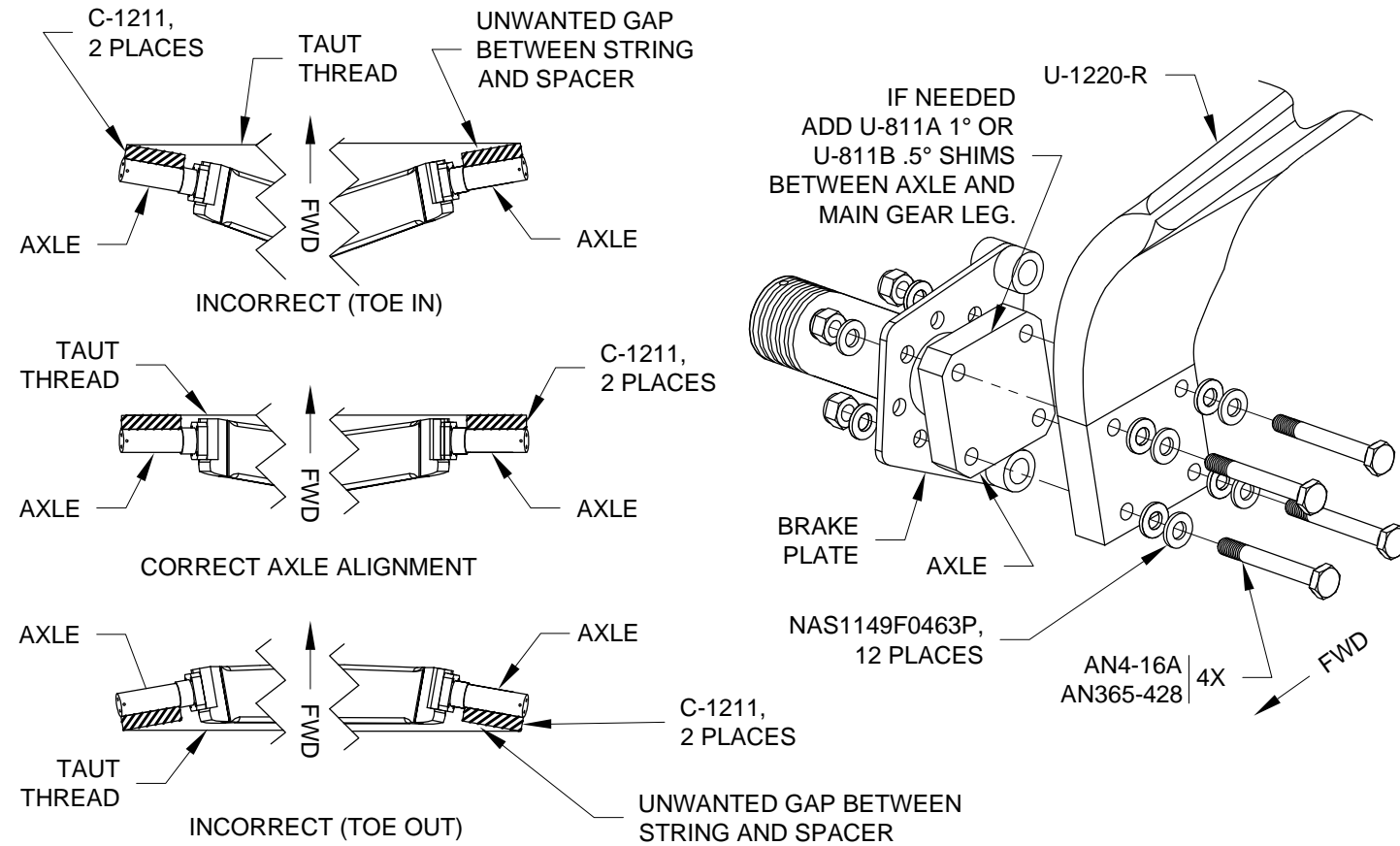


FIGURE 1: ATTACHING AND ALIGNING THE MAIN GEAR AXLES

Step 2: Apply pipe thread sealant and attach the fluid fittings to the brake as shown in Figure 2. Note that the brakes should mirror each other when installed.

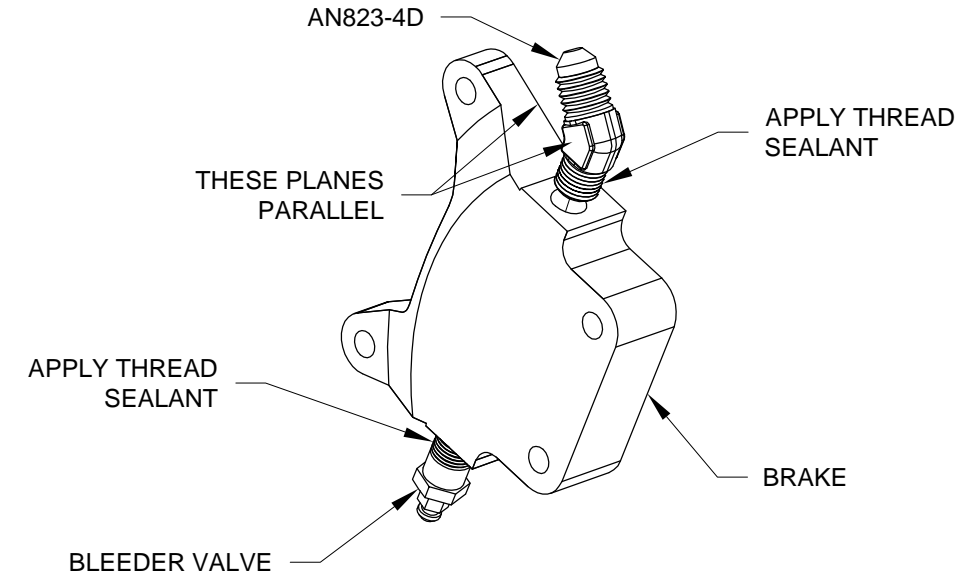


FIGURE 2: ADDING FITTINGS TO BRAKE ASSEMBLY (RIGHT SHOWN)

Step 3: Slide the main gear wheel assembly and washer onto the axle and secure with the axle nut as shown in Figure 3. The axle nut should be tightened to the point that there is no play in the assembly and the rubber seal on the bearing doesn't spin with the wheel. See the instructions included with the wheel and brake package for further details on axle nut torque. Install the cotter pin as shown in Figure 3.

Step 4: Install left and right side Brake Assemblies as shown in Figure 3. Slide the studs of the Cylinder Assembly into the Brake Plate, place the Stationary Brake Shoe behind the Brake Disk, then bolt the Stationary Brake Shoe and Cylinder Assembly together. The bleeder valve should be on the bottom of the Brake Assembly when installed as shown on Page 35-05 Figure 2 Section A-A.

Step 5: Lower the fuselage onto the main gear.

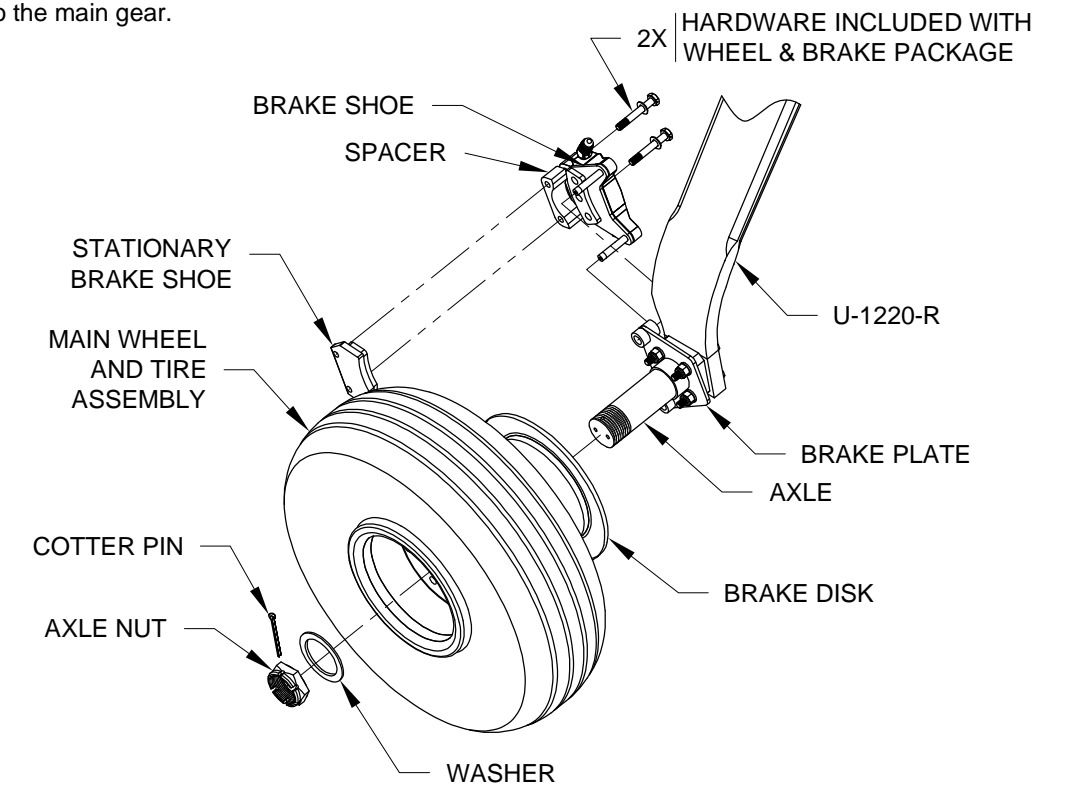
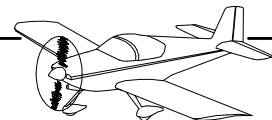


FIGURE 3: ATTACHING THE WHEELS AND BRAKES



NOTE: See Section 5P for detailed instructions on tube flaring and installation.

Step 1: Make the F-1289D-L Caliper Brake Line by unrolling and cutting a 43 3/4" length of AT0-032X1/4 aluminum tubing. Make the F-1289D-R Caliper Brake Line by unrolling and cutting a 41 1/2" length of AT0-032X1/4 aluminum tubing.

Slip a nut and collar on each tube, polish and flare the end on each caliper brake line as shown in Figure 1. Add another nut and collar on each tube and polish and flare the unfinished end of the tube.

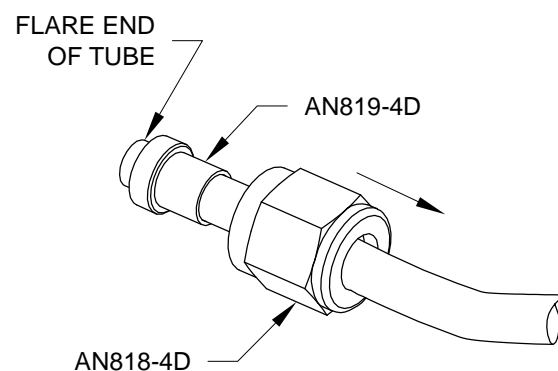


FIGURE 1: MAKING THE CALIPER BRAKE LINES

NOTE: See Section 5X for detailed fitting assembly instructions.

Step 2: Attach the F-1289C-L and F-1289C-R Main Brake Lines to the fittings in the U-1203 Inboard Main Gear Attach Brackets as shown in Figure 2. Attach the F-1289D-L and F-1289D-R Caliper Brake Lines to the AN fitting installed on the inboard main gear attach brackets using the hardware installed in Step 1.

Step 3: Route the F-1289D-L and F-1289D-R Caliper Brake Lines as shown in Figure 2. Take care that the lines are routed aft of the gear leg, and that the caliper brake lines are clear of the gear leg installation hardware. Attach the caliper brake lines to the fluid fittings on the brake assemblies using the hardware installed in Step 1.

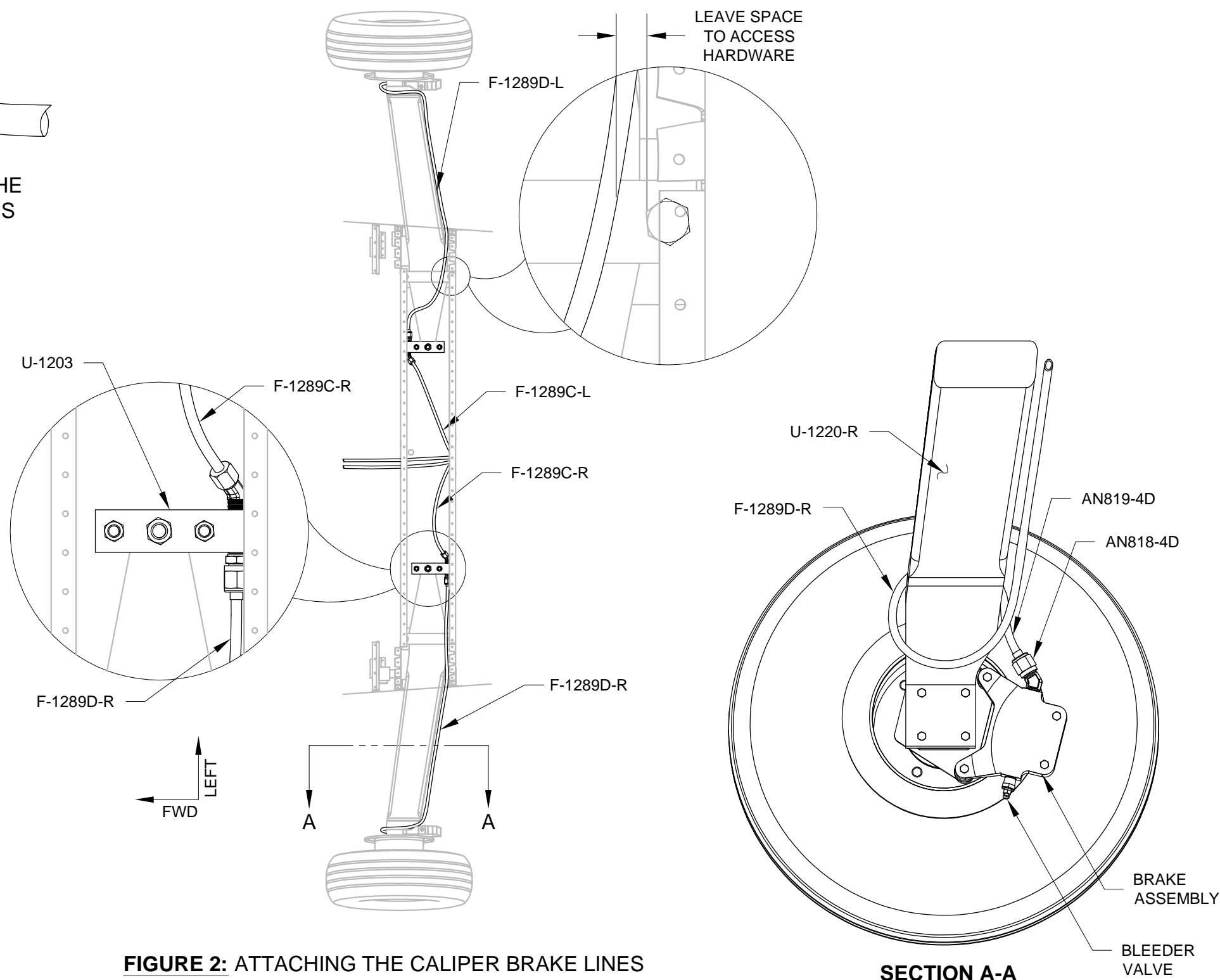
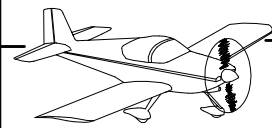


FIGURE 2: ATTACHING THE CALIPER BRAKE LINES

SECTION A-A



Step 1: Secure the F-1289C-L and F-1289C-R Main Brake Lines to the F-1204D Center Section Aft Bulkhead and to each other with the provided wire ties as shown in Figure 1.

Step 2: Make a slit in one side of the provided PT 1/2ODX2 CLEAR tubing. Slip the pieces of tubing around the F-1289D-L and F-1289D-R Caliper Brake Lines and secure the tubing pieces and caliper brake lines with the provided wire ties as shown in Figure 1.

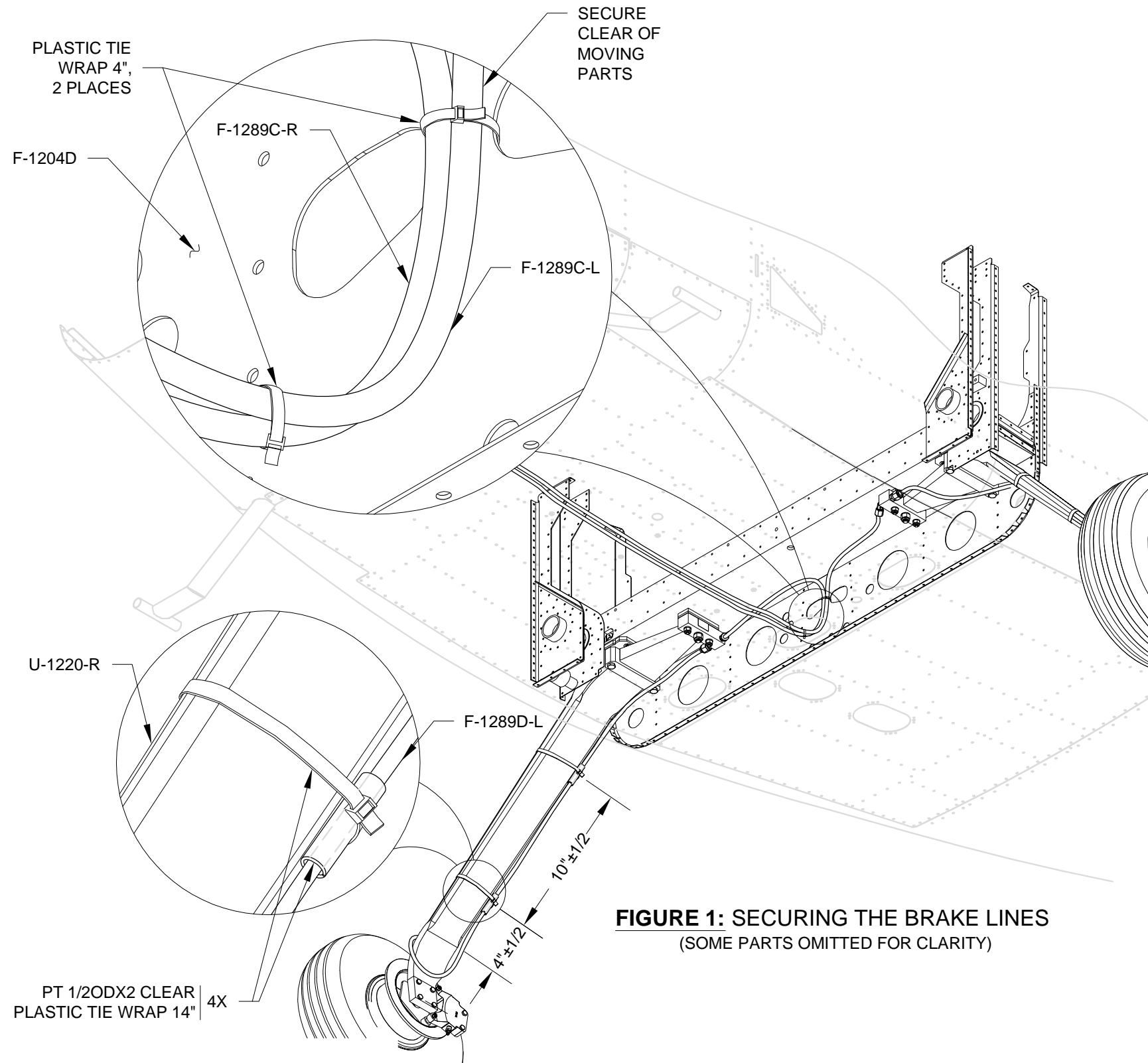


FIGURE 1: SECURING THE BRAKE LINES
(SOME PARTS OMITTED FOR CLARITY)

Step 3: Cleco then rivet the F-1275G-L and F-1275G-R Cover Plates to the F-1273-L Baggage Corner Skin, F-1275F-L Fuselage Corner Skin, and F-1276 Bottom Skin using the rivets called out in Figure 2.

Step 4: Install the F-1276B Cover Plates and HW-00003 Dome Plugs as shown in Figure 2.

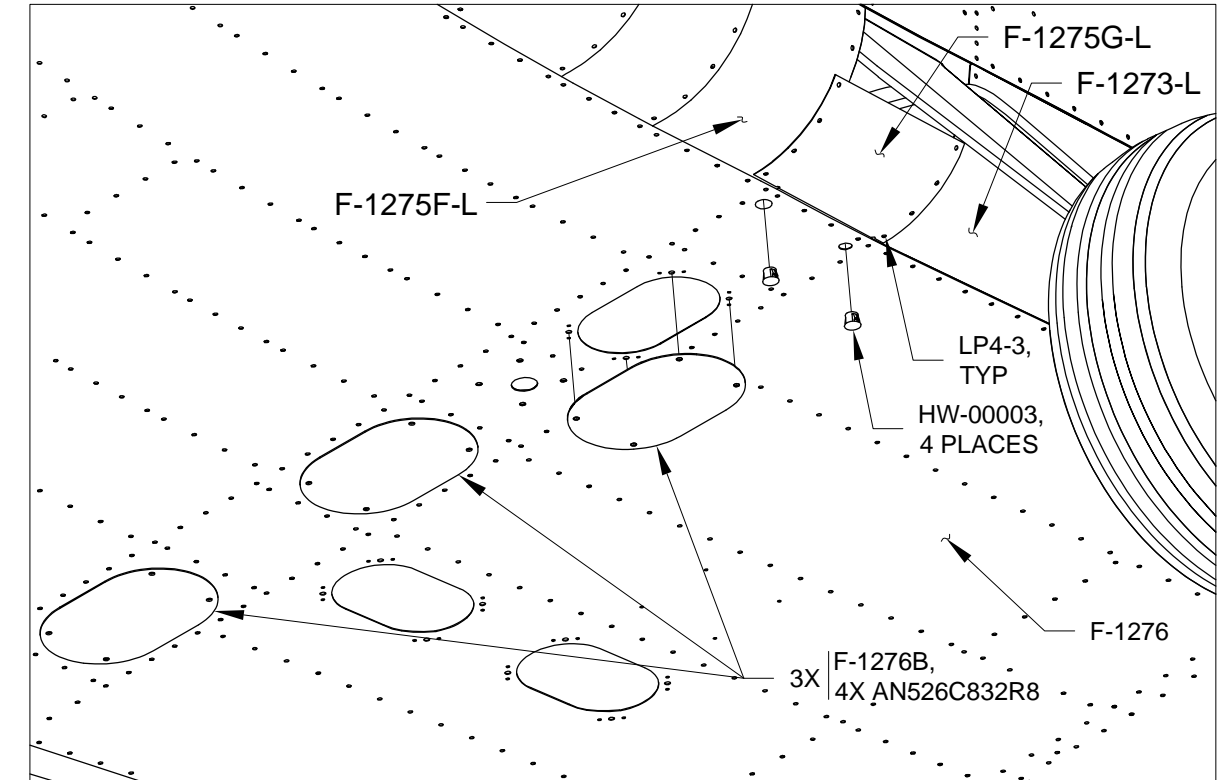
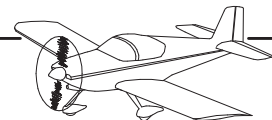


FIGURE 2: COVER PLATE INSTALLATION



Step 1: Attach the WD-1201 Nose Gear Assembly to the fuselage using the hardware called out in Figure 1.

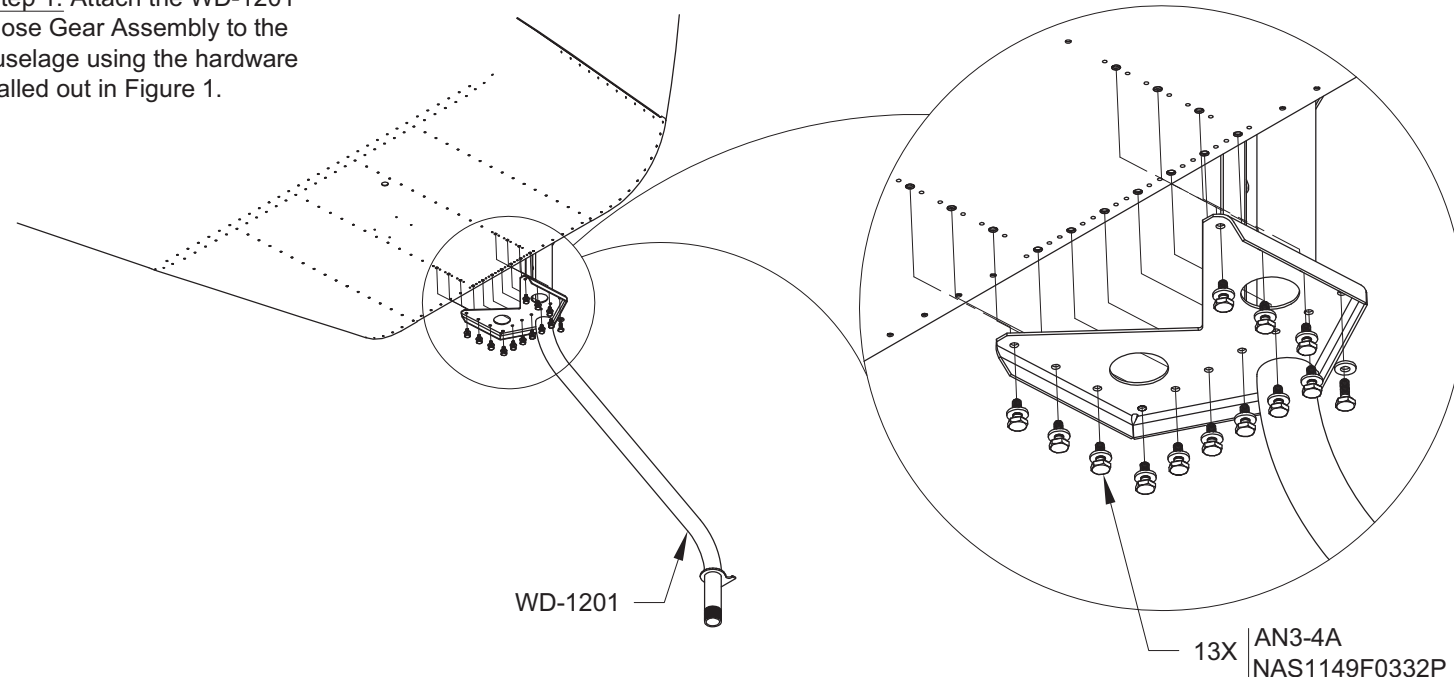


FIGURE 1: ATTACHING THE NOSE GEAR

Step 2: Apply Loctite #243 to the threads of the 5/16-24X3/4 screws. Install the screws into the WD-01230-1 Nose Fork as shown in Figure 2.

Step 3: Grease the SF 4048-16 Bronze Bushings with Aeroshell #5, (Blue) Marine/Boat Trailer Grease or equivalent. Slide the Nose Fork Assembly and the two U-611 Washers (The U-611 washers are "cupped", and to function properly, the outside perimeter of both washers must be in contact with each other when installed, as per Figure 3) onto the WD-1201 Nose Gear Assembly. Finally, thread on the MS21025-20 Nut.

Step 4: Thread safety wire through the bolt holes used to secure the Nose Wheel and Tire Assembly to the Nose Fork Assembly, then attach a spring scale to the end of the safety wire. Tighten the MS21025-20 Nut until a force of 18-20 lbs is measured as the Nose Fork Assembly pivots around the spindle. Use the nut as a drill guide and drill #30 both sides of the nose gear leg for the cotter pin. Deburr as required then secure the nut with the cotter pin called-out in Figure 2.

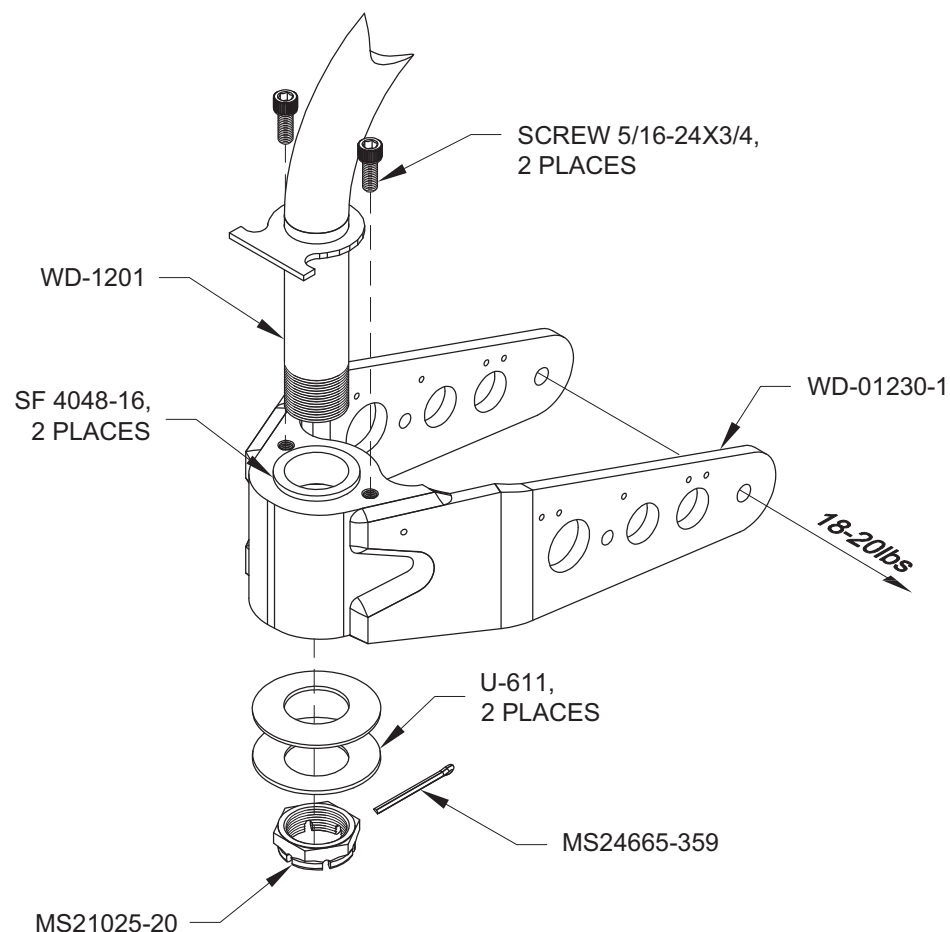


FIGURE 2: INSTALLING THE NOSE FORK ASSEMBLY

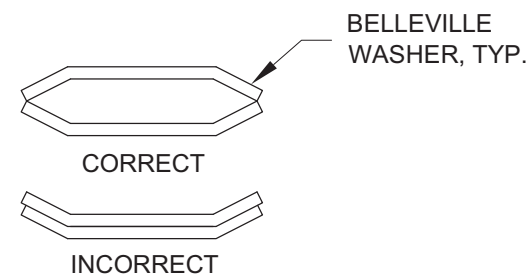


FIGURE 3: BELLEVILLE WASHER ORIENTATION (NOT TO SCALE)

NOTE: The hardware installed in Step 5 will be used for a tow-bar interface.

Step 5: Install the bolts, washers, and nuts shown in the Figure 4 detail on each side of the nose fork.

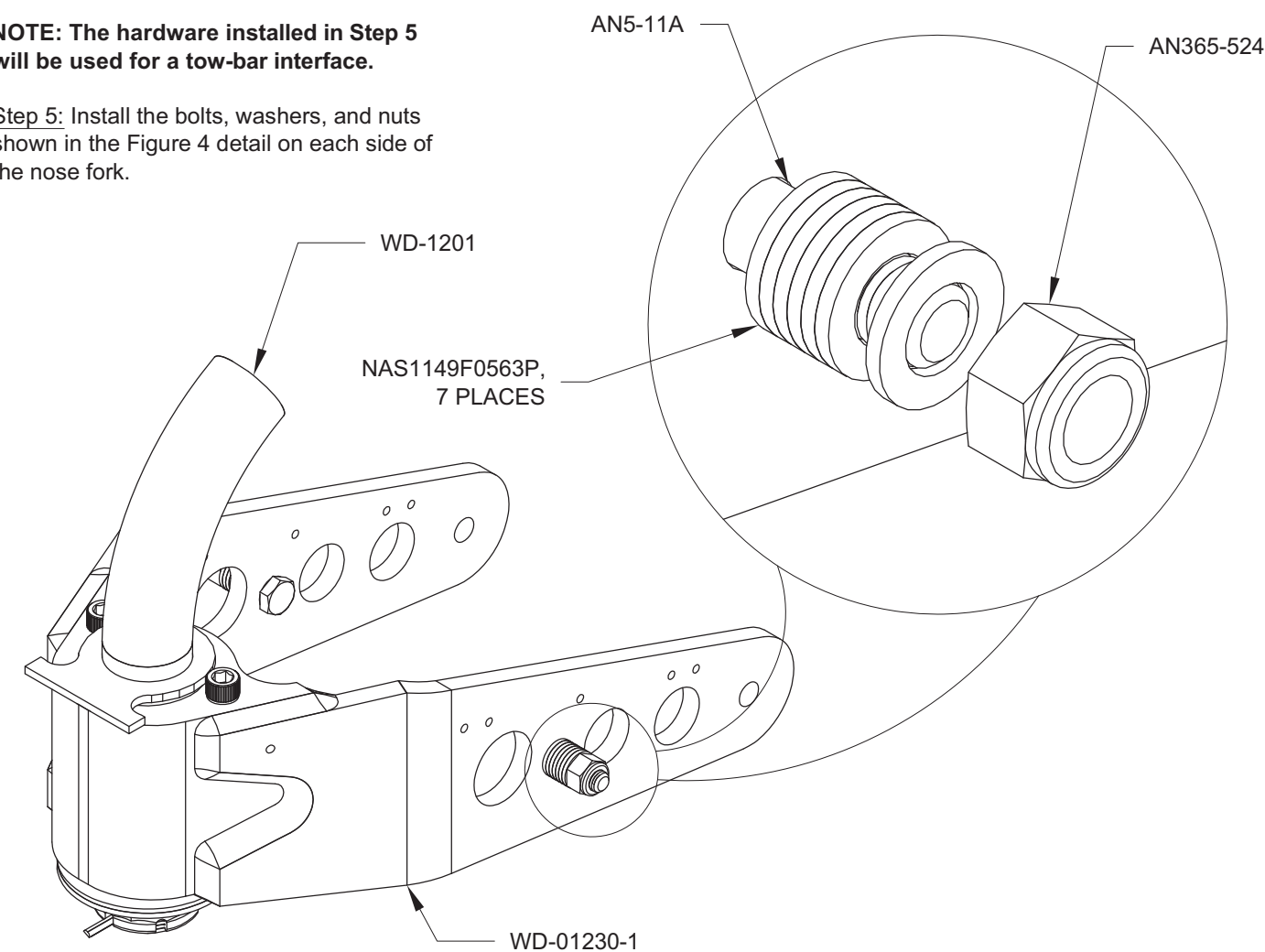
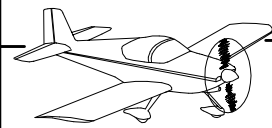


FIGURE 4: ADDING HARDWARE TO NOSE FORK



Step 1: Assemble the U-01210A-1 Axle, WASHER-00010 Wave Washers, and the U-01210B-1 Spacers as shown in Figure 1.

Bolt the Nose Wheel and Tire Assembly to the Nose Fork Assembly using the hardware called out in Figure 1.

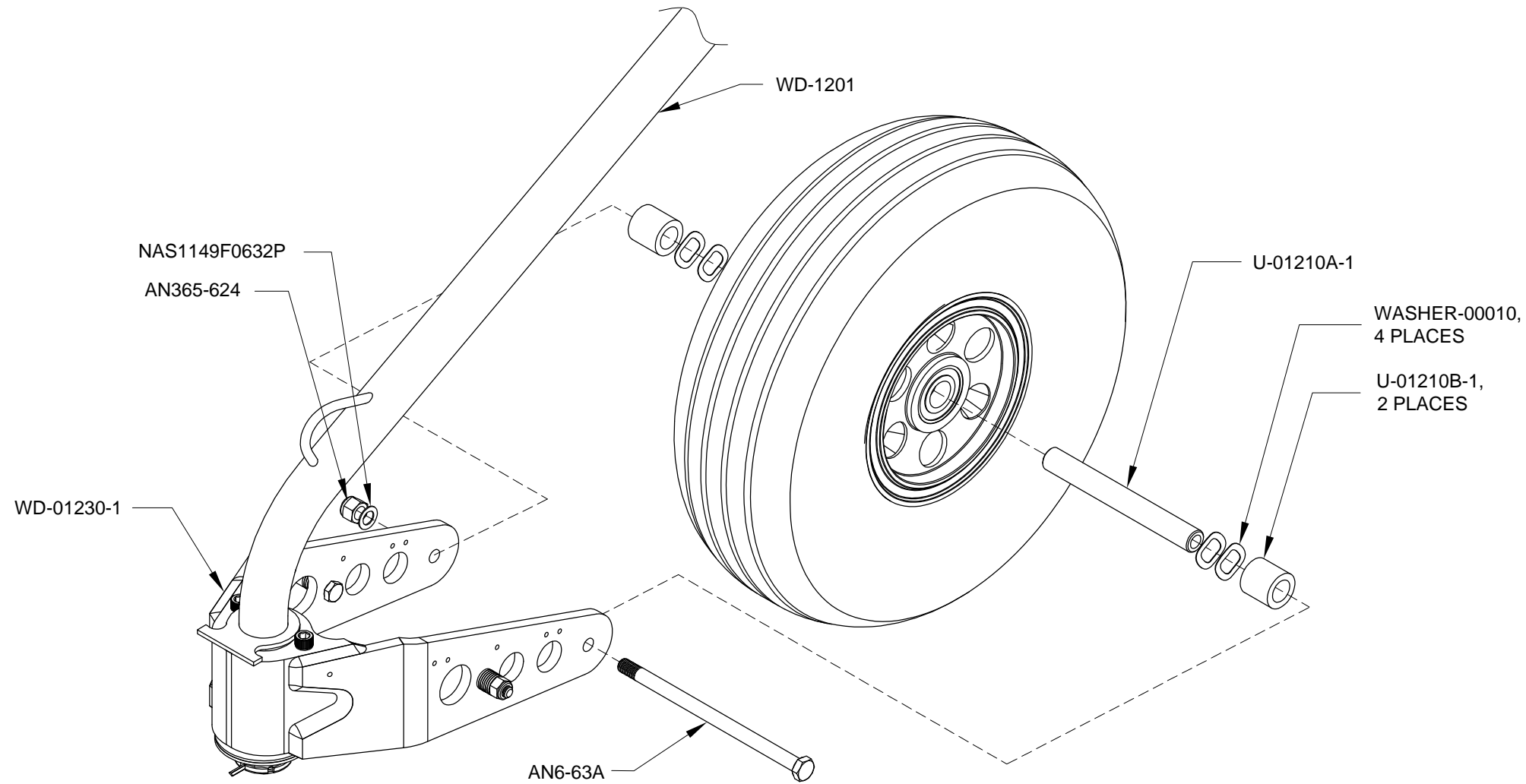


FIGURE 1: INSTALLING THE NOSE WHEEL AND TIRE ASSEMBLY

NOTE: The fuselage may now be lowered onto the nose wheel.

Step 2: Fill the brake system with the brake fluid recommended in the wheel and brake package instructions. Follow the instructions in the wheel and brake package for bleeding the brake system (note that the loop around the base of the main gear legs is standard for RV aircraft and has not hindered the removal of air from the brake system).