

MAIN LANDING GEAR - MAINTENANCE PRACTICES

1. General

- A. This section gives description, removal, and installation instructions for the main landing gear. For the maintenance procedures for the main gear wheel and brakes, refer to Wheels and Brakes - Maintenance Practices. For the maintenance procedures for the nose landing gear, refer to Nose Landing Gear - Maintenance Practices.

2. Description

- A. The fixed, tricycle landing gear assembly has a tubular main gear and a steerable nose gear. Each main gear has a hydraulically operated disk-type brake (with a fairing), a two-piece gear spring fairing and a gear-to-fuselage fairing.
 - (1) The tubular main gear has a center spring tube and two outer spring tubes. The center spring tube is attached to each outboard spring tube through a trunnion assembly. The trunnion assembly is attached to the fuselage at two points on each side of the lower fuselage structure. Because of the vertical loads when you land or taxi the airplane, the center and outboard spring tubes turn on the longitudinal axes around the four attached points. Each trunnion assembly uses a bearing and race, and a bearing cap attached by two cap bolts. This lets the main gear be easily removed for gear replacement, or for float installation.

NOTE: The three-piece steel tube assembly has a slightly larger diameter for the Model 208B than the Model 208. The design is identical for the Model 208 and 208B assemblies.

3. Tools, Equipment and Materials

- A. For a list of necessary tools, equipment and materials, refer to Landing Gear - General.

4. Main Gear Assembly Removal/Installation

- A. Remove the Main Gear Assembly (Refer to Figure 201).
 - (1) Remove the main gear fairings. Refer to Main Gear Fairing Removal/Installation.
 - (2) Remove the cargo pod, if installed (Airplanes 20800001 thru 20800395 and 208B00001 thru 208B01170). Refer to Chapter 25, Cargo Pod - Maintenance Practices.
 - (3) Remove only the main gear outer cover, if a cargo pod is installed (Airplanes 20800396 and On and 208B01171 and On).
 - (a) Remove the screws that attach the main gear outer cover.
 - (b) Remove the main gear outer cover.
 - (4) Use jacks to lift the airplane. Refer to Chapter 7, Jacking - Maintenance Practices.
 - (5) Put a support below the main gear assembly at the attach trunnion.

CAUTION: Make sure that the gear support can hold a weight of approximately 400 pounds (180 kg). This will help prevent damage to the equipment.

- (6) Use an ink marker and put marks on the left and right trunnions to refer to during installation.
- (7) Drain the brake system.
- (8) Disconnect the brake line at the bulkhead fitting in the center spring tunnel.
- (9) Put a cap on the open end of the brake line.
- (10) Carefully loosen the bearing cap bolts.
 - (a) Remove the bearing cap bolts, washers, and shims that attach the bearing cap to the fuselage attach fitting.
 - 1 Keep the shims for installation.
 - (b) While the gear assembly is on the supports, lower it as an assembly to the ground.
- (11) Remove the bearings from the bearing races.

CAUTION: Do not try to remove the bearing races unless it is absolutely necessary. This will help prevent damage to the attach trunnion. The bearing races are press-fitted onto the attach trunnion.

CAUTION: If the landing gear is to be removed and put in storage for long periods, such as during extended float operations, it is recommended that the bearings be removed and kept separate. Before the bearings are put in storage, a protective grease layer must be applied to all the bare surfaces of the bearings and races.

- B. Install the Main Gear Assembly (Refer to Figure 201).

- (1) Put a support below the main landing gear assembly below the airplane.
- (2) Install the bearings on each bearing race.
- (3) Lift the landing gear assembly so the bearings align with the cutouts in the fuselage attach fittings.
NOTE: If you are installing the same bearing cap that you removed, wait to install the shims until after you examine the gap between the bearing cap and the fuselage attach fitting.
- (4) Put the bearing caps in their position at the fuselage attach fitting.
 - (a) Install the bearing cap bolts and washers hand tight on each bearing cap.
 - (b) Torque the bearing cap bolts from 770 to 950 inch-pounds (87 to 107 N-m).
 - (c) Use a feeler gage to make sure that the gap is less than 0.001 inch (0.025 mm) between the bearing cap and the fuselage attach fitting.
NOTE: Shims of different thickness are available to use if the gap is more than 0.001 inch (0.025 mm). Refer to the Illustrated Parts Catalog.
 - (d) If the gap between the bearing cap(s) and the fuselage attach fitting is more than 0.001 inch (0.025 mm) do the steps that follow:
 - 1 Remove the bearing cap bolts, washers, and bearing cap(s) from the fuselage attach fitting.
 - 2 Put a shim on each of the bearing cap bolts between the bearing cap(s) and the fuselage attach fitting.
NOTE: Use the thinnest shim necessary to make the gap between the bearing caps and the fuselage attach fitting less than 0.001 inch (0.025 mm) when the bearing cap bolts are torqued.
NOTE: Make sure that the shims are the same thickness on both the inboard and outboard sides of each bearing cap.
NOTE: Do not use more than one layer of shims.
 - 3 Put the bearing cap(s) in their position at the fuselage attach fitting.
 - 4 Install the bearing cap bolts and washers hand tight on each bearing cap.
 - 5 Torque the bearing cap bolts from 770 to 950 inch-pounds (87 to 107 N-m).
 - 6 Use a feeler gage to make sure that the gap is less than 0.001 inch (0.025 mm) between the bearing cap and the fuselage attach fitting.
 - 7 If the gap is more than 0.001 inch (0.025 mm), do the steps again to install thicker shims until the gap is less than 0.001 inch (0.025 mm).
NOTE: Do not use more than one layer of shims.
- (5) Connect the brake line at the bulkhead fitting in the center spring tunnel.
- (6) Bleed the brake system. Refer to Wheels and Brakes - Maintenance Practices.
- (7) Remove the airplane from the jacks. Refer to Chapter 7, Jacking - Maintenance Practices.
- (8) Install the main landing gear fairings. Refer to Main Gear Fairing Removal/Installation.
- (9) Install the cargo pod (Airplanes 20800001 thru 20800395 and 208B0001 thru 208B1170), if it was removed.
- (10) Airplanes with a cargo pod installed, if only the main outer cover was removed (Airplanes 20800396 and On and 208B1171 and On), do the steps that follow:
 - (a) Install the main gear outer cover with the screws.
 - (b) Make sure that the drain hole is clear of blockage after the main gear outer cover is installed.

5. Main Gear Spring Removal/Installation (Airplanes Without Cargo Pod)

CAUTION: Removal/Installation of the Main Gear Spring must be done at 72°F, +20 or - 20°F (22°C, +11 or - 11°C). Damage to the spring can occur from incorrect tolerance readings.

- A. Remove the Main Gear Spring (Refer to Figure 201 and Figure 202).
 - (1) Chock the wheel of the main landing gear on the opposite side of the airplane of the main gear spring to be removed.
 - (2) Remove the main gear fairings of the main gear spring to be removed. Refer to Main Gear Fairing Removal/Installation.
 - (3) Open the brake bleeder valve at the brake caliper and drain the brake system.

- (4) Disconnect the brake line at the brake caliper.
- (5) Put a cap on the open end of the brake line.
- (6) Remove the clamps that attach the brake line to the main gear spring.
- (7) Put an aircraft jack below the fuselage attach fitting at the jack point on the side the main gear spring is to be removed.
- (8) Remove the bearing cap bolts and bearing caps on the side the main gear spring is to be removed.
- (9) Remove the fillet seal at the point where the main gear spring goes into the center spring. Refer to Figure 201
- (10) Remove the fillet seal at the point where the center gear spring goes in to and out of the trunnion. Refer to Figure 201
- (11) Use the jack to carefully lift the airplane until there is sufficient clearance between the attach trunnion and fuselage attach fitting to remove the bolt and pin.
- (12) Remove the fillet seal from the bolt head, washers and nut that hold the pin in the trunnion.
- (13) Remove the nut, washers and bolt that hold the pin in the attach trunnion.

NOTE: Keep the washers for installation.

- (14) Put a support below the attach trunnion.
- (15) Use a drift punch to remove the pin from the attach trunnion.

NOTE: The pin serial number placard is installed on the trunnion. Once the pin is removed, it must be identified so it will be installed on the same airplane and in the same location. If the pin is replaced with a new pin, the placard must also be replaced. A new placard must have the pin part number and the serial number stamped on it, and then it must be installed where the previous placard was installed. The pin serial number is the airplane's serial number, followed by an L for the left side or an R for the right side, then the sequence number of the pin. For example, the first replacement pin for an airplane serial number 208B970 on the left side would be SNB970L-2. Refer to CAB03-7 for instructions on the placard installation.

- (16) Twist and pull the main gear spring to remove it from the center spring.

- (a) If the main gear spring cannot be removed, install the main landing gear spring puller. Refer to Main Landing Gear Spring Puller.

NOTE: Cessna Propeller Aircraft Product Support is the source to get instructions to fabricate the main landing gear spring puller.

CAUTION: Make sure to be careful when the main gear spring is removed. This will help prevent damage to the landing gear during the removal process.

CAUTION: Make sure that the force applied by each jack is not more than 12 tons. This will help prevent damage to the main gear.

CAUTION: Do not apply heat to the main gear to remove the main gear springs. If you do, you can damage the main gear.

- 1 Increase the hydraulic jack (load) pressure until the main gear spring is removed or until a maximum force of 12 tons is applied by both jacks.

WARNING: Make sure the jacks extend equally when you apply the force. This will help prevent injury to personnel and damage to the equipment.

NOTE: The maximum pressure for the recommended jacks is 5000 PSI.

a If necessary, use spacers to extend the reach of the jacks while the main gear spring is removed.

b If the main gear spring still does not move when the maximum pressure is applied, get in touch with Cessna Propeller Aircraft Product Support for assistance; 316-517-5800 or Fax 316-942-9006.

- 2 Make sure that the jacks, spacers and the main gear spring do not fall during the main gear spring removal.

- (17) If necessary, remove the attach trunnion. Refer to Remove the Main Gear Assembly.

- (a) If you cannot remove the attach trunnion, you will need to use a special tool.

NOTE: Cessna Propeller Aircraft Product Support, (316) 517-5800 or Fax (316) 942-9006, is the source to get a special tool or the instructions to fabricate the tool.

- B. Install the Main Gear Spring (Refer to Figure 201 and Figure 202).

- (1) Examine for gouging, chafing or corrosion on the faying surfaces of the main gear spring and the center spring. Refer to Main Landing Gear - Inspection/Check.
 - (a) If gouging, chafing or corrosion is found, prepare the damaged area for measurement. Refer to Center Spring and Main Gear Spring Interface Area Special Detailed Inspection and Repair.
- (2) Clean the unpainted surfaces of the main gear spring and the center spring with isopropyl alcohol.
- (3) Make sure that the main gear spring interior and exterior unpainted surfaces, except for the faying surface with the center spring, have a layer of polyurethane corrosion protection primer.
 - (a) Fill and drain the interior of the main gear spring with Type II corrosion protection primer (zinc chromate).
 - (b) If necessary, apply a layer of Type II corrosion protection primer as a spray to the unpainted surfaces of the exterior of the main gear spring except for the faying surface with the center spring. Refer to Landing Gear - General.
 - (c) Apply a faying seal of Type I, Class B to the spring plug. Refer to Figure 201 Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
 - (d) Install the spring plug in to the main spring.

NOTE: Do not obstruct or seal over the pin holes in the main spring.
 - (e) Install a fillet seal using Type I, Class B sealant around the top of the plug and the spring edge. Refer to Figure 201 and Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
- (4) Make sure that the center spring interior unpainted surface, except for the faying surface with the main gear spring, has a layer of Type II corrosion protection primer (zinc chromate). Refer to Landing Gear - General.
 - (a) Apply a layer of Type II corrosion protection primer as a spray to the unpainted surfaces of the interior of the center spring except for the faying surface with the main gear spring.
- (5) Immediately before the installation of the main gear spring, axle fitting and pin, do the steps that follow.
 - (a) Clean the faying surfaces with isopropyl alcohol.
 - (b) Use a brush and apply a Type II corrosion-protection primer to the faying surfaces that are the shaded areas shown in Figure 201 and Landing Gear - General.
- (6) If necessary, install the attach trunnion on the center spring.

NOTE: The Type II corrosion-protection primer on the faying surface must be wet during the installation. Refer to Landing Gear - General.
- (7) Make sure that the attach trunnion is held in position, and the airplane is lifted sufficiently at the jack point of the fuselage attach fitting to give clearance to install the pin in the attach trunnion.
- (8) Twist and push the main gear spring to install it in the center spring.

NOTE: The Type II corrosion-protection primer on the faying surface must be wet during the installation. Refer to Landing Gear - General.
- (9) Align the attach holes for the pin.
- (10) Use a brush and apply a Type II corrosion-protection primer to the pin, refer to Figure 201 and Landing Gear - General.
- (11) Use a nonmetallic hammer to tap the pin through the aligned holes in the attach trunnion, center spring and the main gear spring.

NOTE: The Type II corrosion-protection primer on the faying surface must be wet during the installation. Refer to Landing Gear - General.
- (12) Shank seal the bolt that holds the attach pin in position with Type I, Class B sealant. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
- (13) Install the bolt, washers and nut that hold the pin in the attach trunnion.
 - (a) Torque the nut from 30 to 40 inch-pounds (3.4 to 4.5 N-m).
 - (b) Apply a fillet seal around the bolt head, washers and nut. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
- (14) Lower the airplane at the jack point of the fuselage attach fitting until the bearings touch the recesses in the fuselage attach fitting.

- (15) Use the bearing cap bolts to install the bearing caps.
 - (a) Torque the bearing cap bolts from 770 to 950 inch-pounds (87 to 107 N-m).
- (16) Use methyl n-propyl ketone (or equivalent) to clean the outside of the main gear spring.
- (17) Use Type 1, Class B-1/2 sealant and apply a fillet seal around the center spring at the attach trunnion. Refer to Figure 201 and Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.
- (18) Use Type 1, Class B-1/2 sealant and apply a fillet seal around the main gear spring at the center spring. Refer to Figure 201 and Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.
- (19) If removed, install the axle fitting on the main gear spring while the primer is still wet.

NOTE: The Type II corrosion-protection primer on the faying surface must be wet during the installation.
- (20) Use Type 1, Class B-1/2 sealant and apply a fillet seal around the main gear spring at the axle fitting. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.
- (21) Remove the aircraft jack from the fuselage attach fitting.
- (22) Install the clamps that attach the brake line to the main gear spring.

NOTE: The upper clamp must be installed no closer than 0.75 inch (19.05 mm) to the trunnion. Refer to Figure 201.
- (23) Connect the brake line fitting at the brake caliper.
- (24) Bleed the brake system. Refer to Wheels and Brakes - Maintenance Practices.
- (25) Install the main gear fairings. Refer to Main Gear Fairing Removal/Installation.

6. Main Gear Spring Removal/Installation (Airplanes With Cargo Pod)

CAUTION: Removal/Installation of the Main Gear Spring must be done at 72°F, +20 or -20°F (22°C, +11 or -11°C). Damage to the spring can occur from incorrect tolerance readings.

- A. Remove the Main Gear Spring (Refer to Figure 201 and Figure 202).
 - (1) Chock the wheel of the main landing gear on the opposite side of the airplane of the main gear spring to be removed.
 - (2) Remove the main gear fairings of the main gear spring to be removed. Refer to Main Gear Fairing Removal/Installation.
 - (3) Open the brake bleeder valve at the brake caliper and drain the brake system.
 - (4) Disconnect the brake line at the brake caliper.
 - (5) Put a cap on the open end of the brake line.
 - (6) Disconnect the brake line at the fuselage.
 - (7) Put a cap on the open end of the brake line.
 - (8) Remove the clamps that attach the brake line to the main gear spring.
 - (9) Remove the brake line from the airplane.
 - (10) Prepare the aft bearing cap for jacking.
 - (a) Remove the bolts from the aft bearing cap.
 - (b) Turn the bearing cap away from the attach trunnion.
 - (c) Install the outboard bolt of the bearing cap.
 - (11) Put an aircraft jack below the fuselage attach fitting at the jack point on the side the main gear spring is to be removed.
 - (12) Remove the forward bearing cap bolts and bearing cap on the side that the main gear spring is to be removed from.
 - (13) Remove the main gear strut cover on the side from which the main gear spring is to be removed.

NOTE: The main gear strut cover is in the cargo pod and outboard of the center spring cover.
 - (14) Put a board and a jack between the center spring and the floor of the cargo pod to hold the complete gear assembly (trunnion and gear).

CAUTION: Make sure that you put a board on the floor of the cargo pod below the jack. This will help prevent damage to the cargo pod.

CAUTION: When you put the jack between the center spring and the cargo pod, be careful not to cause damage to the center spring.

- (15) Use the floor jack to carefully lift the airplane until the tire is approximately 2 inches above the ground.
- (16) Put aircraft jacks below the wings (in addition to the gear support jacks).
- (17) Use the jack in the cargo pod to lower the complete gear assembly (trunnion and gear) until there is sufficient clearance between the attach trunnion and fuselage attach fitting to remove the bolt and pin.
 - (a) If necessary, remove the outboard bolts from the center spring cover to get the necessary clearance.
- (18) Remove the fillet seal at the point where the main gear spring goes into the center spring. Refer to Figure 201
- (19) Remove the fillet seal at the point where the center gear spring goes in to and out of the trunnion. Refer to Figure 201
- (20) Make sure that the attach trunnion is out of the bearing caps.
- (21) Remove the fillet seal from the bolt head, washer and the nut that hold the pin in the trunnion.
- (22) Remove the nut, washer and bolt that hold the pin in the attach trunnion.

NOTE: Keep the washers for installation.

- (23) Use a slide hammer to remove the pin from the aft side of the attach trunnion.

NOTE: The pin serial number placard is installed on the trunnion. Once the pin is removed, it must be identified so it will be installed on the same airplane and in the same location. If the pin is replaced with a new pin, the placard must also be replaced. A new placard must have the pin part number and the serial number stamped on it, and then it must be installed where the previous placard was installed. The pin serial number is the airplane's serial number, followed by an L for the left side or an R for the right side, then the sequence number of the pin. For example, the first replacement pin for an airplane serial number 208B970 on the left side would be SNB970L-2. Refer to CAB03-7 for instructions on the placard installation.

- (24) Twist and pull the main landing gear spring to remove it from the center spring.

- (a) If the main landing gear spring cannot be removed, use a main landing gear spring puller to remove the main gear spring. Refer to Main Landing Gear Spring Puller.

NOTE: Cessna Propeller Aircraft Product Support, 316-517-5800 or Fax 316-942-9006, is the source to get the instructions to fabricate the main landing gear spring puller.

CAUTION: Make sure to be careful when the main gear spring is removed. This will help prevent damage to the landing gear during the removal process.

CAUTION: Make sure that the force applied by each jack is not more than 12 tons. This will help prevent damage to the equipment.

CAUTION: Do not apply heat to the main gear to remove the main gear springs. If you do, you can damage the main gear.

- 1 Increase the hydraulic jack (load) pressure until the main gear spring is removed or until a maximum force of 12 tons is applied by both jacks.

WARNING: Make sure the jacks extend equally when you apply the force. This will help prevent injury to personnel and damage to the equipment.

NOTE: The maximum pressure for the recommended jacks is 5000 PSI.

- a If necessary, use spacers to extend the reach of the jacks while the main gear spring is removed.
- b If the main gear spring still does not move when the maximum pressure is applied, get in touch with Cessna Propeller Aircraft Product Support for assistance; (316) 517-5800 or Fax (316) 942-9006.

- 2 Make sure that the jacks, spacers and the main gear spring do not fall during the main gear spring removal.

- (25) If necessary, remove the attach trunnion. Refer to the Main Gear Assembly.

- (a) If you cannot remove the attach trunnion, you will need to use a special tool (trunnion puller).

NOTE: Cessna Propeller Aircraft Product Support, (316) 517-5800 or Fax (316) 942-9006, is the source to get a special tool or the instructions to fabricate the tool.

- B. Install the Main Gear Spring (Refer to Figure 201 and Figure 202).

- (1) Examine for gouging, chafing or corrosion on the faying surfaces of the main gear spring and the center spring. Refer

to the Main Landing Gear - Inspection/Check.

- (a) If gouging, chafing or corrosion is found, prepare the damaged area for measurement. Refer to Center Spring and Main Gear Spring Interface Area Special Detailed Inspection and Repair.
- (2) Clean the unpainted surfaces of the main gear spring and the center spring with isopropyl alcohol.
- (3) Make sure that the main gear spring interior and exterior unpainted surfaces, except for the faying surface with the center spring, have a layer of polyurethane corrosion protection primer.
 - (a) Fill and drain the interior of the main gear spring with Type II corrosion protection primer (zinc chromate).
 - (b) If necessary, apply a layer of Type II corrosion protection primer as a spray to the unpainted surfaces of the exterior of the main gear spring except for the faying surface with the center spring. Refer to Landing Gear - General.
 - (c) Apply a faying seal of Type I, Class B to the spring plug. Refer to Figure 201 Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
 - (d) Install the spring plug in to the main spring.

NOTE: Do not obstruct or seal over the pin holes in the main spring.
 - (e) Install a fillet seal of Type I, Class B around the top of the plug and the spring edge. Refer to Figure 201 and Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
- (4) Make sure that the center spring interior unpainted surface, except for the faying surface with the main gear spring, has a layer of Type II corrosion protection primer (zinc chromate).
 - (a) Apply a layer of Type II corrosion-protection primer as a spray to the unpainted surfaces of the interior of the center spring except for the faying surface with the main gear spring.
- (5) Immediately before the installation of the main gear spring, axle fitting, attach trunnion and pin do the steps that follow.
 - (a) Clean the faying surfaces with isopropyl alcohol.
 - (b) Use a brush and apply a Type II corrosion protection primer to the faying surfaces, shaded areas shown in Figure 201. Refer to Landing Gear - General.
- (6) If necessary, install the attach trunnion on the center spring.

NOTE: The Type II corrosion-protection primer on the faying surface must be wet during the installation. Refer to Landing Gear - General.
- (7) Make sure that the jack in the cargo pod and the complete assembly, including the attach trunnion and gear, is held in position.
- (8) Make sure that the airplane is lifted sufficiently below the wings and at the jack point of the fuselage attach fitting to give clearance to install the pin in the attach trunnion.
- (9) Twist and push the main gear spring to install it in the center spring.

NOTE: The Type II corrosion-protection primer on the faying surface must be wet during the installation. Refer to Landing Gear - General.
- (10) Align the attach holes for the pin.
- (11) Use a brush and apply a Type II corrosion-protection primer to the pin, refer to Figure 201 and Refer to Landing Gear - General.
- (12) Use a nonmetallic hammer to tap the pin wet through the aligned holes in the attach trunnion and the main gear spring.

NOTE: The Type II corrosion-protection primer on the faying surface must be wet during the installation. Refer to Landing Gear - General.
- (13) Shank seal the bolt that holds the attach pin in position with Type I, Class B sealant. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
- (14) Install the bolt, washers and nut that hold the pin in the attach trunnion.
 - (a) Torque the nut from 30 to 40 inch-pounds (3.4 to 4.5 N-m).
 - (b) Apply a fillet seal around the bolt head, washers and nut. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices
- (15) Use the jack in the cargo pod to lift the complete gear assembly (trunnion and gear) until the bearings touch the

recesses in the fuselage attach fitting.

- (16) Use the bearing cap bolts to install the forward bearing cap.

- (a) Torque the bearing cap bolts from 770 to 950 inch-pounds (87 to 107 N-m).

- (17) Remove the jack in the cargo pod from the airplane.

- (a) If necessary, install the outboard bolts in the center spring cover.

- (18) Install the main gear strut cover on the side the main gear spring is to be removed.

NOTE: The main gear strut cover is in the cargo pod and outboard of the center spring cover.

- (19) Use methyl n-propyl ketone (or equivalent) to clean the outside of the main gear spring.

- (20) Use Type 1, Class B-1/2 sealant and apply a fillet seal around the center spring at the attach trunnion. Refer to Figure 201 and Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.

- (21) Use Type 1, Class B-1/2 sealant and apply a fillet seal around the main gear spring at the center spring. Refer to Figure 201 and Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.

- (22) If removed, install the axle fitting wet on the main gear spring.

NOTE: The Type II corrosion protection primer on the faying surface must be wet during the installation.

- (23) Use Type 1, Class B-1/2 sealant and apply a fillet seal around the main gear spring at the axle fitting. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.

- (24) Remove the jacks from below the wings.

- (25) Use the floor jack at the fuselage attach fitting to carefully lower the aircraft.

- (26) Remove the aircraft jack from the fuselage attach fitting.

- (27) Use the bearing cap bolts to install the aft bearing cap.

- (a) Remove the outboard bolt of the aft bearing cap.

- (b) Put the bearing cap in position.

- (c) Install the bearing cap bolts of the aft bearing cap.

- (d) Torque the bearing cap bolts from 770 to 950 inch-pounds (87 to 107 N-m).

- (28) Connect the brake line at the fuselage.

- (29) Install the clamps that attach the brake line to the main gear spring.

NOTE: The upper clamp must be installed no closer than 0.75 inch (19.05mm) to the trunnion. Refer to Figure 201.

- (30) Connect the brake line fitting at the brake caliper.

- (31) Bleed the brake system. Refer to Wheels and Brakes - Maintenance Practices.

- (32) Install the main gear fairings. Refer to Main Gear Fairing Removal/Installation.

7. Main Gear Fairing Removal/Installation

- A. Remove the Main Gear Fairing (Refer to Figure 202).

- (1) Remove the screws that attach the axle fitting fairing to the lower end of the main spring lower fairing.

- (2) Loosen the nuts and bolts that attach the axle fitting to the main-gear-spring. Refer to Figure 201.

- (3) Remove the axle fitting fairing from the airplane.

- (4) Remove the screws on the inboard split line of the main-gear-spring lower fairing.

- (5) Remove the screws that attach the main-gear-spring upper fairing to the main-gear-spring lower fairing.

- (6) Remove the main-gear-spring lower fairing from the airplane.

- (7) Remove the gear-to-fuselage fairing screws and the screws on the lower split line of the gear-to-fuselage fairing.

- (8) Remove the main-gear-spring upper fairing from the airplane.

- (9) Remove the gear-to-fuselage fairing from the airplane.

- (10) Remove the bolts that attach the stiffeners to the belly of the airplane (208B only).

- (11) Remove the stiffeners from the airplane (208B only).

(12) Remove the bolts and washers that attach the center spring cover and cover stiffeners, if applicable, to the belly of the airplane.

(13) Remove the center spring cover and cover stiffeners, if applicable from the airplane.

B. Install the Main Gear Fairing (Refer to Figure 202).

(1) Put the center spring cover and cover stiffeners, if applicable, in position on the belly of the airplane.

(2) Install the bolts and washers that attach the center spring cover and cover stiffeners, if applicable, to the belly of the airplane.

(3) Put the stiffeners in position on the belly of the airplane (208B only).

(4) Install the bolts that attach the stiffeners to the belly of the airplane (208B only).

(5) Put the gear-to-fuselage fairing in position.

(6) Install the gear-to-fuselage fairing screws and the screws on lower split line of the gear-to-fuselage fairing to attach the gear-to-fuselage fairing.

(7) Align the main gear spring upper fairing with the gear-to-fuselage fairing.

(8) Install only the upper screw that attaches the gear-to-fuselage fairing to the main-gear-spring upper fairing.

(9) Align the main gear spring lower fairing with the main-gear-spring upper fairing. Refer to Figure 202.

NOTE: The head profile of the screws is lower on new installations of the main-gear-spring upper fairing to the main-gear-spring lower fairing for Airplanes 2080533 and On or 208B02295 and On. If a new main-gear-spring upper fairing is to be installed, it should include the screws with the lower head profile.

NOTE: For the main-gear-spring upper fairing, the hard Line-X coating can be cracked or missing. The coating only serves a cosmetic function.

(10) Install the upper screws that attach the main-gear-spring upper fairing to the main-gear-spring lower fairing.

(11) Install the inboard screws that attach the main-gear-spring lower fairing.

(12) Put the axle fitting fairing in position with its slots behind the heads of the nuts and bolts that attach the axle fitting to the main gear spring. Refer to Figure 201.

(13) Install the screws that attach the axle fitting fairing to the main gear spring lower fairing.

(14) Put the axle fitting fairing in position to remove the force on the main-gear-spring lower fairing.

(15) Make sure that the axle fitting fairing slots are still in position behind the heads of the nuts and bolts that attach the axle fitting to the main gear spring. Refer to Figure 201.

(a) Torque the nuts on the bolts that attach the axle fitting to the main gear spring. Refer to Torque Data - Maintenance Practices

8. Main Gear Axle Removal/Installation

A. Remove the Main Gear Axle (Refer to Figure 201).

(1) Remove the main wheel. Refer to Wheels And Brakes - Maintenance Practices.

(2) Remove the nuts and bolts that attach the torque plate and axle to the axle fitting.

CAUTION: Make sure to put a support below the brake caliper and torque plate. This will help prevent damage to the brake line.

(3) Look at and record the initial position of the shim to make the camber check easier.

B. Install the Main Gear Axle.

(1) Before you install the main gear axle, do a visual inspection of the inner surface for corrosion.

NOTE: The main gear axle is a time limited part. You should verify the current number of landings, inspection status and replacement time before you install the main gear axle. Refer to Chapter 4, Replacement Time Limits and Typical Inspection Time Limits for the applicable inspection criteria.

(2) Put the shim, axle and torque plate in position against the axle fitting.

(a) Make sure that the position of the shim is the same as the initial position when it was removed.

(3) Install the bolts, spacers, washers and nuts that attach the shim, axle and torque plate to the axle fitting.

- (a) Torque the nuts on the bolts that attach the axle and torque plate to the axle fitting. Refer to Torque Data - Maintenance Practices
- (4) Install the main wheel. Refer to Wheels And Brakes - Maintenance Practices.
- (5) Do a wheel camber check. Refer to Main Landing Gear - Adjustment/Test, Wheel Camber Check.

9. Main Landing Gear Spring Puller

A. Install the Main Landing Gear Spring Puller (Refer to Figure 201, Figure 203 and Table 201).

- (1) Remove the main wheel. Refer to Wheels And Brakes - Maintenance Practices.
- (2) Remove the main gear axle. Refer to Main Landing Gear - Maintenance Practices.
- (3) Remove the bolts, strap, plate (if applicable), washers and nuts that attach the axle fitting to the main gear spring.
- (4) Remove the axle fitting from the main gear spring.
- (5) Do all the steps of the main gear spring removal through the step to remove the pin from the attach trunnion. Refer to Main Gear Spring Removal/Installation.
- (6) Install the penetrating oil basin around the center spring and main gear spring joint.

NOTE: The penetrating oil basin procedure is optional. It can improve the main gear spring removal success rate. Cessna Propeller Aircraft Product Support, 316-517-5800 or Fax 316-942-9006, is the source to get the oil basin or the instructions to fabricate it.

- (a) Remove the sealant at the interface of the springs.
- (b) Apply Type V Class E sealant to the mating surfaces of the oil basin halves. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.
- (c) Put the oil basin in position around the joint.
- (d) Install the bolts, washers and nuts that attach the oil basin to the springs.
- (e) Apply Type V Class E sealant to the joints between the sides of the oil basin and the springs. Refer to Chapter 20, Fuel, Weather and High-Temperature Sealing - Maintenance Practices.

NOTE: The sealant will hold the penetrating oil in the oil basin.

- (f) Make sure that the drain plug is installed in the lower side of the oil basin.
- (g) If necessary, remove the fill plug and fill the oil basin with Kroil penetrating oil.
- (h) Install the fill plug in the oil basin.
- (i) Let the penetrating oil soak into the joint between the center spring and the main gear spring.

NOTE: If the penetrating oil soaks into the joint from 24 to 48 hours, it can improve the success rate for the main landing gear spring removal.

- (j) When it is time to remove the main gear spring, do the steps that follow:
 - 1 Remove the drain plug from the oil basin.
 - 2 Drain the Kroil penetrating oil from the oil basin.
 - 3 Install the drain plug in the oil basin.
- (k) Remove the bolts, washers and nuts that attach the oil basin to the springs.
- (l) Remove the oil basin from the springs.
- (m) Clean the area around the joint.

(7) Install the main landing gear spring puller on the main gear spring.

NOTE: Cessna Propeller Aircraft Product Support, 316-517-5800 or Fax 316-942-9006, is the source to get the instructions to fabricate the main landing gear spring puller.

CAUTION: Make sure to be careful when the main landing gear spring puller is installed. This will help prevent damage to the main gear spring during the installation process.

- (a) Put the support plate in position on the gear spring.
- (b) Put the push plate in position on the gear spring.
- (c) Align the plates of the spring puller on the floor.
- (d) Loosely install the top spacer bolts, spacers and nuts (three places) in the spring puller.

- (e) Put the spring puller in position on the gear spring.
- (f) Loosely install the bottom spacer bolts, spacers and nuts (two places) in the spring puller.
- (g) Loosely install the axle bolts and nuts (two places) in the spring puller.
- (h) Install the puller in the spring puller.
 - 1 Put the guard in position in the puller.
 - 2 Put the puller with the guard in position between the plates of the spring puller.
 - 3 Install the puller bolt and nut in the spring puller.
 - a Torque the puller bolt from 40 to 60 foot pounds (54.2 to 81.3 N-m).
- (i) Tighten the spacer and axle bolts.
 - 1 Torque the bolts from 15 to 25 ft lb (20.3 to 33.9 N-m)
- (8) Put two similar hydraulic jacks in position between the push plate and the support plate.

NOTE: The correct position for the jacks between the plates is aligned with the marks on the plates.
- (9) Connect both hydraulic jacks to the same pump.
- (10) If each jack can apply more than 12 tons of force, connect both jacks to the same pressure gage.

NOTE: This is the end of the main landing gear spring puller installation procedures. The puller can help during the main gear spring removal procedures.

B. Remove the Main Landing Gear Spring Puller (Refer to Figure 203).

- (1) If the gear spring is separated from the center spring and on the floor, do the steps that follow:
 - (a) Remove the push plate and support plate from the gear spring.
 - (b) Loosen the spacer and axle bolts.
 - (c) Hold the puller and guard in position and remove the puller bolt and nut.
 - (d) Remove the puller and guard from the spring puller.
 - (e) Remove the axle bolts and nuts (two places) from the spring puller.
 - (f) Remove the gear spring from the spring puller.
 - (g) Hold the plates in position and remove the spacer bolts, spacers, and nuts (five places) from the spring puller.
- (2) If the gear spring is not separated from the center spring, do the steps that follow:
 - (a) Remove the hydraulic jacks, if necessary.
 - (b) Loosen the spacer bolts and axle bolts.
 - (c) Hold the puller and guard in position and remove the puller bolt and nut.
 - (d) Remove the puller and guard from the spring puller.
 - (e) Remove the axle bolts and nuts (two places) from the spring puller.
 - (f) Remove the spring puller from the gear spring.
 - (g) Put the spring puller on the floor.
 - (h) Remove the push plate and support plate from on the gear spring.
 - (i) Hold the plates in position and remove the spacer bolts, spacers and nuts (five places) from the spring puller.

Table 201. Main Landing Gear Spring Puller Parts

Name	Number	Comments
Spacer Bolt	NAS464-8-86	5 Required
Spacer	2680002-6	5 Required
Spacer Nut	MS21245-L8	5 Required
Puller Bolt	NAS464-17-82	1 Required
Puller Nut	MS21245-L16	1 Required
Axle Bolt	NAS464-7-86	2 Required

Axle Nut	MS21245-L7	2 Required
Penetrating Oil Basin	T2680002-15	1 Required
Basin Plug	MS21913D8	2 Required
Basin Bolt	AN4-10A	4 Required
Basin Washer	NAS1149F0432P	8 Required
Basin Nut	AN315-4R	4 Required