

Document Title: Description	Function Group: 600	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Description

Overview – G710B to G746B

The front axle of a motor grader performs several functions: steering, axle pivot, and wheel lean. It must also be capable of carrying heavy front mounted attachments.

Tandem drive and AWD (All Wheel Drive) grader front axles share a group of common parts. What differentiates the two axles is the “wheel group” that attaches to the knuckle. A tandem drive grader uses a spindle to mount a wheel hub. An AWD grader uses a cradle to mount a hydraulic motor.

Steering

Two hydraulic cylinders pivot the spindles or cradles on king pins in the knuckle. Bushings support the king pins in the knuckle frame. The drag link makes both sides turn together. On tandem drive graders, the king pins are retained by square head setscrews. On AWD graders, however, socket head setscrews are used to provide clearance for hoses. Thrust loads are transmitted between the knuckle and spindle or cradle by a special thrust washer.

Pivoting axle

The pivot of the front axle allows the front wheels to travel over uneven ground with minimal main frame movement. The axle frame mounts onto a pivot pin welded to the main frame. Angular contact bushings, which are pre-loaded and shim adjustable, support the axle frame on the pivot pin. With the front axle raised off the ground, a person weighing 68 – 82 kg (150 – 180 lb) should be able to move the axle on the pivot pin. Stop blocks restrict axle pivot to 16° on each side of the grader's center line.

Wheel lean

Leaning the wheels reduces the turning radius, braces against moldboard imposed side loads, and gives better stability while grading on slopes. Setscrews retain the pivot pins in the knuckles. The pivot pins are supported in the axle frame by spherical bushings. End float is 0,000 – 0,102 mm (0.000 – 0.004 in.) and is shim adjustable. One or two hydraulic cylinders pivot the knuckles and pins to a maximum of 18° each side of center. A lock valve prevents cylinder drift under load. The tie bar keeps both wheels parallel so that they lean together. The pivot block, like a universal joint, allows movement in two directions during wheel lean and steering. Slightly pre-loaded bushings and thrust washers are used in the pivot block.

Wheel hub – Tandem drive wheel group

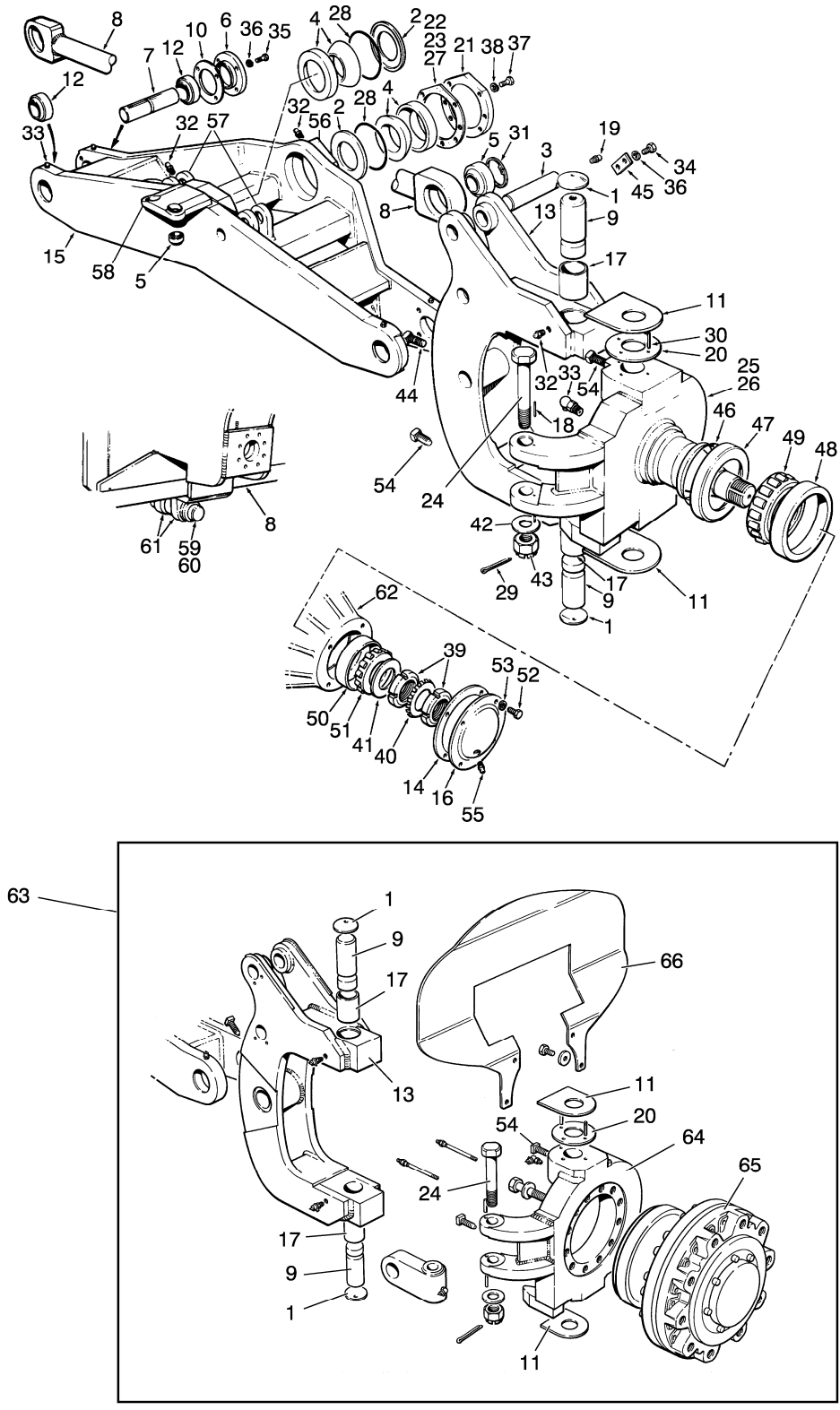
Two tapered roller bearings support the wheel hub. The spindle locknut tightness determines preload. A V-ring seal prevents bearing cavity pressurization and dirt ingress.

Wheel hub – AWD Wheel group

A hydraulic motor is mounted directly onto the AWD hub. The hub mounts into the knuckle the same as the tandem drive axle. A hose guard is mounted to the back of the hub to protect the hydraulic hoses.

Toe-in

The term “toe-in” means that the distance between the front (toe) of the tires is less than the distance between the rear of the tires. On tandem drive models, toe-in is 3 – 6,5 mm (1/8 – 1/4 in.). On AWD models there is no toe-in as front wheels are also driving wheels. Toe-in is altered by adjusting the drag link length.

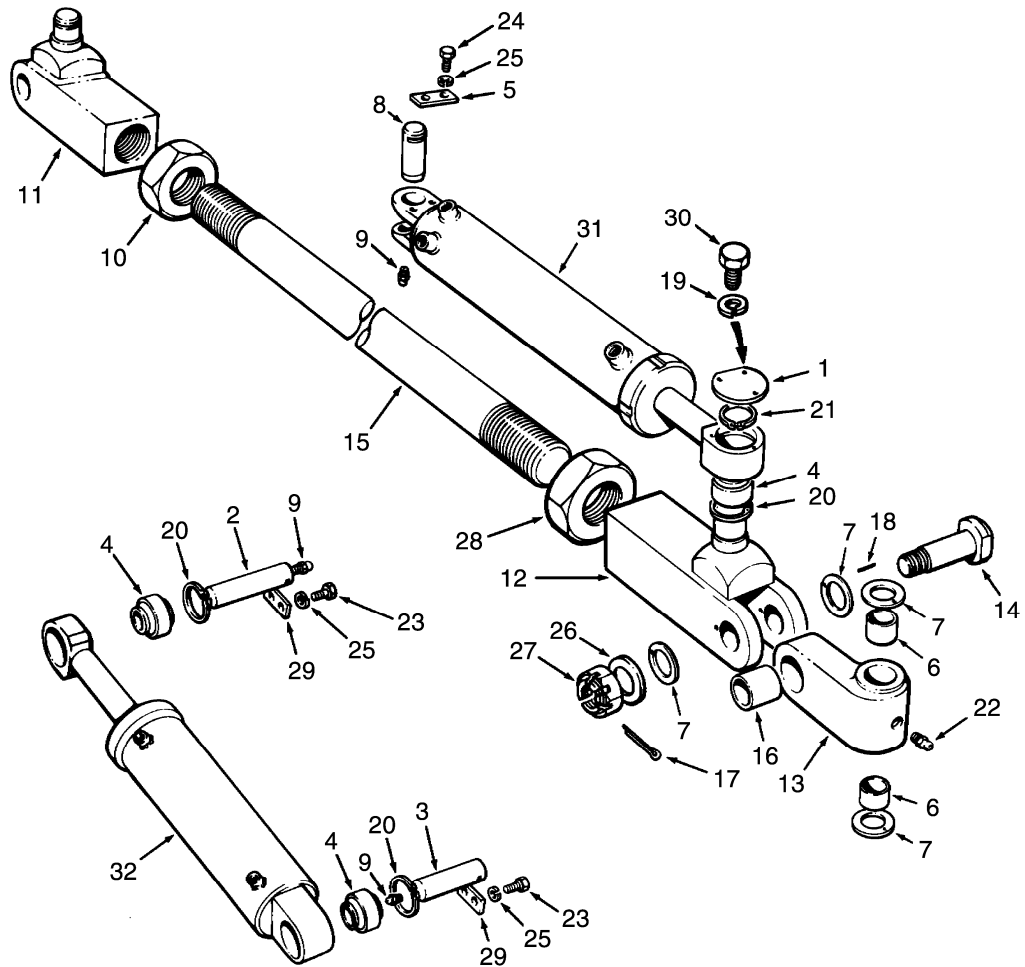


G0007566

Figure 1
Front axle – G710B to G746B

- 1. Expansion ring
- 2. Back-up washer
- 3. Bearing pin
- 4. Bearing
- 5. Bearing
- 6. Bearing cap

7. Pivot pin
8. Tie bar
9. King pin
10. Shim
11. Spacer
12. Bearing
13. Knuckle - R.H and L.H.
14. Gasket - hub cap
15. Front axle
16. Hub cap
17. Bushing
18. Roll pin
19. Grease fitting
20. Thrust washer
21. Cap
22. Shim - 0.010 in.
23. Shim - 0.005 in.
24. Pin
25. Hub and spindle - L.H.
26. Hub and spindle - R.H.
27. Shim - 0.007 in.
28. O-ring
29. Cotter pin
30. Roll pin
31. Snap ring - internal
32. Grease fitting
33. Grease fitting
34. Bolt
35. Bolt
36. Lock washer
37. Bolt
38. Lock washer
39. Locknut
40. Tabwasher
41. Washer - wheel bearing
42. Flat washer
43. Slotted nut
44. Setscrew
45. Lock plate
46. V-ring seal
47. Back-up ring
48. Cup - inner bearing
49. Cone - inner bearing
50. Cup - outer bearing
51. Cone - outer bearing
52. Bolt
53. Lock washer
54. Setscrew
55. Grease fitting
56. Front bearing mount
57. Lug - wheel lean cylinder
58. Anchor lug - steering cylinder
59. Pin and lug assembly
60. Pin
61. Lug
62. Hub - wheel
63. AWD models
64. AWD hub - RH and LH
65. AWD wheel motor
66. Hose guard



G0007567

Figure 2
Drag link – G710B to G746B

- 1. Cap
- 2. Bearing pin
- 3. Bearing pin
- 4. Bearing
- 5. Lock plate
- 6. Bushing
- 7. Thrust washer
- 8. Anchor pin
- 9. Grease fitting
- 10. Jam nut - L.H.
- 11. Yoke - L.H.
- 12. Yoke - R.H.
- 13. Pivot block
- 14. Pivot pin
- 15. Drag link
- 16. Bushing
- 17. Cotter pin
- 18. Roll pin
- 19. Lock washer
- 20. Snap ring - internal
- 21. Snap ring - external
- 22. Grease fitting
- 23. Bolt

24. Bolt
25. Lock washer
26. Flat washer
27. Slotted nut
28. Jam nut
29. Lock plate
30. Bolt

Document Title: Description	Function Group: 600	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Description

Overview – G780B

The heavy-duty front axle performs all the functions that the standard front axle does: steering, axle pivot, and wheel lean. The fundamental differences between the heavy-duty axle and the standard axle are its size and the types of bearings used. The heavy-duty axle has a more rugged construction to withstand the stresses exerted in rigorous applications.

Steering

A king pin passes through the entire length of the spindle and is retained by a setscrew. Needle roller bearings support the king pin in the knuckle. Thrust loads are transmitted between the spindle and the knuckle by a thrust bearing.

Pivoting axle

The axle pivot pin is a separate part. It is clamped to the main frame by split mounting blocks. Needle roller bearings support the axle frame on the pivot pin. The axle frame end float is limited to 0,076 – 0,127 mm (0.003 – 0.005 in.) and is shim adjustable.

Thrust washers underneath the pivot pin end caps handle the thrust and torsional forces generated between the axle frame and the pivot pin. Minimal force should be required to pivot the front axle when the axle is raised off the ground. Stop blocks restrict axle pivot to 16° on each side of the grader's center line.

Wheel lean

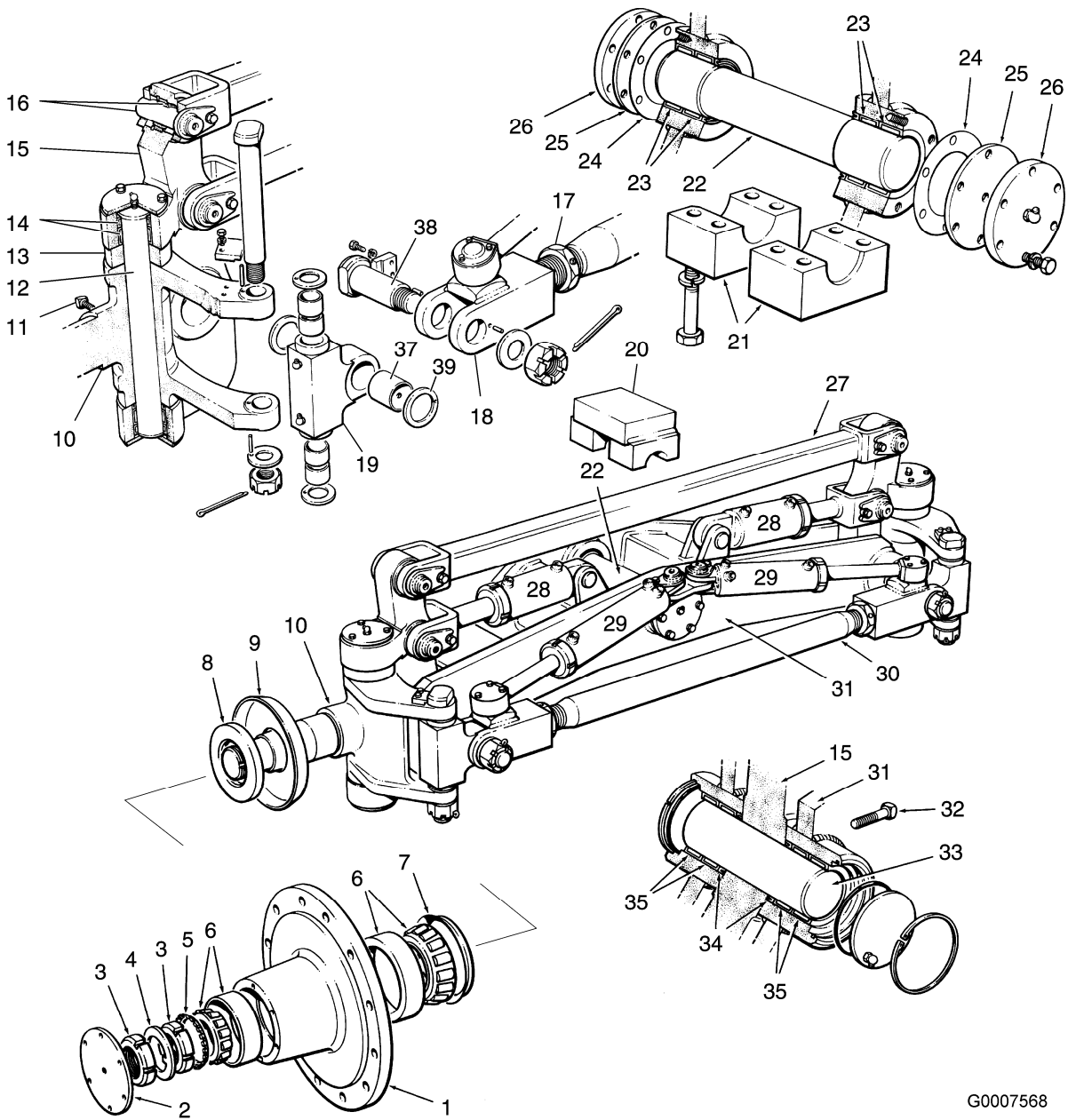
Two hydraulic cylinders pivot the knuckles on pivot pins in the axle frame to a maximum of 18° on each side. A lock valve prevents cylinder drift under load. The tie bar keeps both wheels parallel so that they lean together. Knuckle pivot pins are retained by setscrews and supported in the axle frame by needle roller bearings. End float (shim adjustable) is 0,000 - 0,102 mm (0.000 – 0.004 in.). Slightly preloaded bushings and thrust washers are used in the pivot block.

Wheel group

The heavy-duty front axle has a wider stance between the front tires than the standard front axle to allow full mobility with 20.5 x 25 tires. Two tapered roller bearings support the wheel hub. The spindle locknut tightness determines preload. With the front axle raised, the wheel can be turned with a torque force of 11 – 16 N•m (1 – 2 kgf•m)(8 – 12 lbf•ft). This is measured at one of the hub cap bolts. A V-ring seal prevents bearing cavity pressurization and dirt ingress.

Toe-in

The toe-in measurement for the heavy-duty front axle is 3 - 6,5 mm (1/8 – 1/4 in.). It is the same as the standard front axle. Toe-in is altered by adjusting the drag link length.



G0007568

Figure 1
Front axle – G780B

1. Wheel hub
2. Hub cap
3. Spindle nuts
4. Tabwasher
5. Lock washer
6. Wheel bearings
7. V-ring seal
8. Spacer
9. Dust shield
10. Spindle
11. Lock screw
12. King pin
13. Thrust bearing
14. King pin bearing
15. L.H. knuckle
16. Pin and bearing
17. Toe-in adjustment locknut

18. L.H. steering yoke
19. Pivot block assembly
20. Mounting block - frame
21. Mounting block - matched halves
22. Pivot pin
23. Pivot needle bearings
24. Shims
25. Thrust washer
26. Thrust cap
27. Leaning wheel tie bar
28. Leaning wheel cylinders
29. Steering cylinders
30. Drag link
31. Axle frame
32. Lock screw
33. Knuckle pivot pin
34. Dust seals
35. Knuckle pivot bearings
36. Pivot block pin
37. Bushing
38. Radius arm pin
39. Thrust washer

Document Title: Steering axle – Disassembly	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Steering axle – Disassembly

The following pages describe how to overhaul the front axle for Models G710B to G746B. Overhaul instructions for the heavy-duty front axle (installed on the Model G780B) are described later in this section. Before starting the overhaul procedure, make sure work area is clean and safe. Make sure proper tools, including a safe lifting device, are available and in good working order. Read all warnings and act accordingly.

NOTE!

Place the grader in the Service Position before starting this overhaul procedure. Refer to [191 Service positions](#).

Document Title: Preparation and Wheel Removal	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Preparation and Wheel Removal

Op nbr 622-051

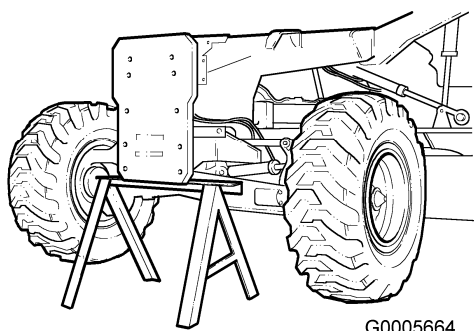
1. Start the engine when it is safe to do so. Position the moldboard centrally on the circle and 90° to the frame. Lower the moldboard onto wooden blocks. Shut down the engine.



WARNING

Never work under/on machines without using recommended support equipment.

2. Loosen the wheel rim bolts with the tires on the ground. Start the engine and operate the blade lift cylinders to raise the front end of the grader. Place a safe stand under the nose of the grader. Operate the blade lift cylinders and lower the front end of the grader onto the stand. Shut down the engine. Remove and retain the ignition key.
3. Remove the wheel rim bolts and lock washers and roll the rims and tires away from the front axle.



G0005664

Figure 1

Document Title: Wheel Hub - Removal	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Wheel Hub - Removal

Op nbr 622-052

18516 Socket wrench

1. Attach a safe lifting device to the wheel hub. Remove the hub cap. Remove and discard the hub cap gasket.
2. Bend back the tabs of the tabwasher. Using the special tool P/N 18516, remove the outer locknut, tabwasher and inner locknut. Discard the tabwasher. Remove the wheel bearing washer.
3. Pull the wheel hub out slightly on the spindle and remove the outer bearing cone. Remove the wheel hub from the spindle.

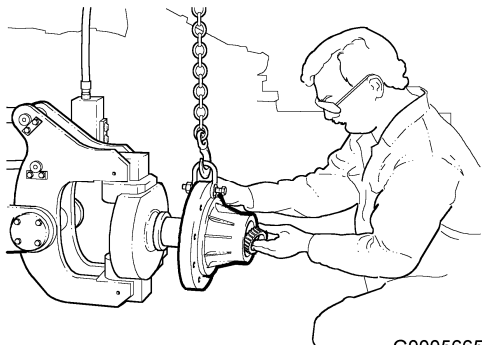


Figure 1

4. Remove the inner bearing cone. Remove and discard the back-up ring and V-ring seal.
5. Inspect the bearing cups for signs of damage or wear. If necessary, use a hammer and soft metal drift to remove them. If replacing the bearing cups, place them in a freezer to shrink them for easier installation.

Document Title: Steering Cylinder Removal	Function Group: - 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Steering Cylinder - Removal

Op nbr 622-053



Compressed air. Never direct to bare skin. Use protective equipment.

NOTE!

Residual pressure may remain in hydraulic circuits containing lock valves.

1. Identify the hydraulic hoses to prevent confusion during assembly. Disconnect the steering cylinder hoses. Plug the open ports and fittings to prevent contamination.
2. Remove the bolts and lock washers retaining the piston rod end cap. Remove the end cap. Remove and discard the external snap ring.
3. Use a suitable puller to remove the piston rod end from the yoke pivot stud.

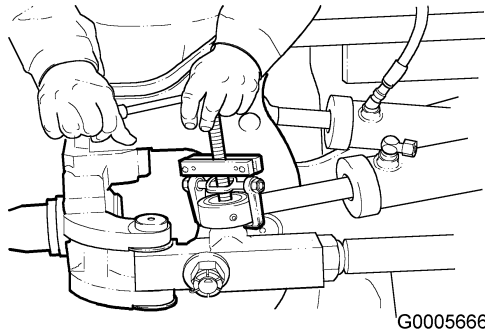


Figure 1

4. Remove the bolts, lock washers and lock plate from the cylinder barrel end.
5. Use a bottle jack under the cylinder barrel anchor pin and remove the pin. Remove the steering cylinder from the front axle. Remove the bearing from the anchor lug.

NOTE!

The bearing can only be removed in one direction.

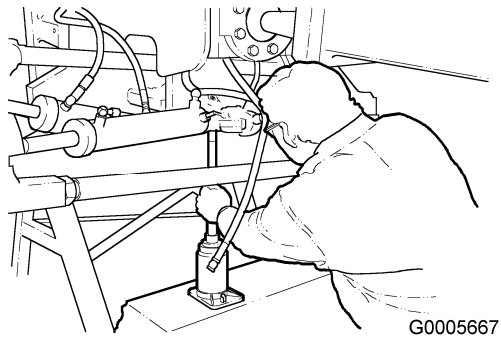


Figure 2

6. Place the steering cylinder on a clean workbench. Remove and discard the internal snap ring. Use a hammer and appropriate drift to remove the bearing.
7. Examine the bearings for signs of damage or wear and replace if necessary.
8. Repeat the removal procedure for the other steering cylinder.

Document Title: Drag link, removing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Drag link, removing

Op nbr 622-054

1. Use a safe lifting device to support the drag link. Remove and discard the cotter pin securing the slotted nut that retains the pivot pin. Remove the slotted nut, flat washer and pivot pin.

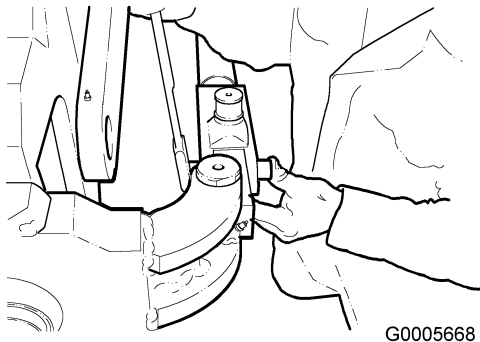


Figure 1

2. Repeat the disassembly procedure for the other pivot pin. Remove the drag link from the front axle. Remove the thrust washers.

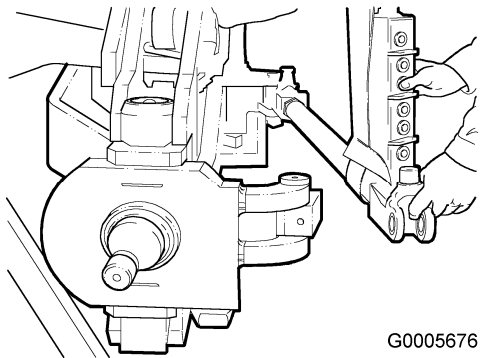


Figure 2

Document Title: Pivot block, removing and disassembling	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Pivot block, removing and disassembling

Op nbr 622-055

1. Remove and discard the cotter pin securing the slotted nut that retains the pivot block pin. Remove the slotted nut, flat washer and pivot block pin. Slide the pivot block out of the spindle clevis and remove the thrust washers.
2. Place the pivot block in a vise. Use a hammer and soft metal drift to remove the bushings. Discard the bushings.
3. Repeat the disassembly procedure for the other pivot block.

Document Title: Spindle - Removal and Disassembly	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Spindle - Removal and Disassembly

Op nbr 622-056

1. Remove the setscrews securing the upper and lower king pins.

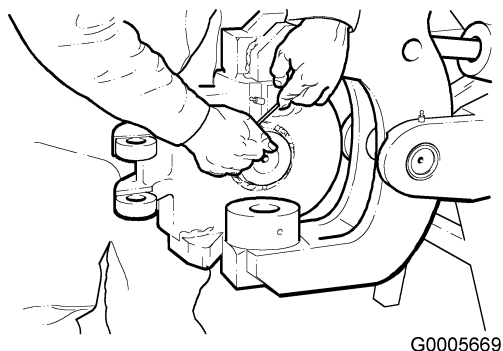


Figure 1

2. Cut a slot in the upper and lower expansion plugs. Remove and discard the plugs.
3. Use a safe lifting device to support the spindle. Use a slide hammer to force the upper and lower king pins out of the spindle.
4. Carefully slide the spindle out of the knuckle. Remove the thrust washer and upper and lower spacers. Use a hammer and soft metal drift to remove the king pin bushings. Discard the bushings.

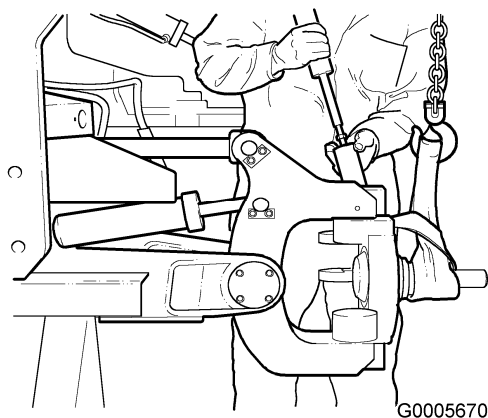


Figure 2

Document Title: Wheel Lean Cylinder - Removal	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Wheel Lean Cylinder - Removal

Op nbr 622-057

1. Identify the hydraulic hoses to prevent confusion during assembly. Disconnect the wheel lean cylinder hoses. Plug the open ports and fittings to prevent contamination.



WARNING

Compressed air. Never direct to bare skin. Use protective equipment.

NOTE!

Residual pressure may remain in hydraulic circuits containing lock valves.

2. Support the wheel lean cylinder with a block of wood. Remove the bolts, lock washers and lock plates securing the bearing pins.
Use a hammer and drift to remove the bearing pins. Remove the wheel lean cylinder from the front axle.

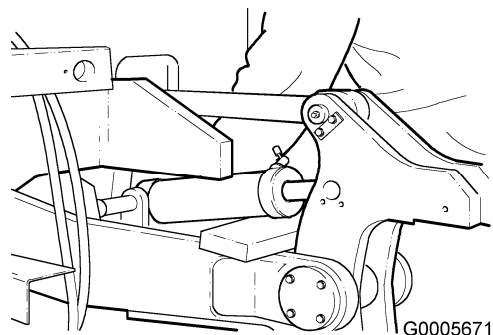


Figure 1

3. Place the wheel lean cylinder on a clean workbench. Remove and discard the internal snap rings. Use a hammer and appropriate drift to remove the bearings.
4. Examine the bearings for signs of damage or wear and replace if necessary.
5. Repeat the removal procedure for the other wheel lean cylinder if installed on the machine.

Document Title: Tie bar, removing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Tie bar, removing

Op nbr 622-058

1. Remove the bolts, lock washers and lock plates securing the bearing pins. Use a hammer and drift to remove the bearing pins. Remove the tie bar from the front axle.

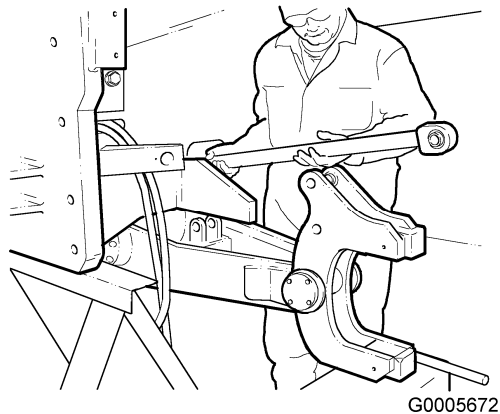


Figure 1

2. Place the tie bar on a clean workbench. Remove and discard the internal snap rings. Use a hammer and appropriate drift to remove the bearings.

NOTE!

The bearings can only be removed in one direction.

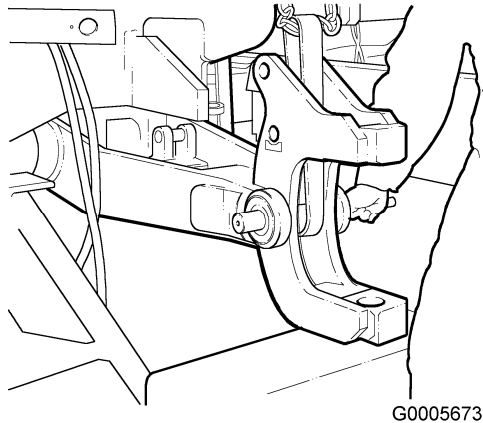
3. Examine the bearings for signs of damage or wear and replace if necessary.

Document Title: Knuckle, removing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Knuckle, removing

Op nbr 622-059

1. Remove the setscrew securing the pivot pin.
2. Use a safe lifting device to support the knuckle. Remove the bolts and lock washers retaining the bearing cap. Remove the bearing cap and shims.
3. Use a hammer and drift to remove the pivot pin. Remove the knuckle from the front axle.



G0005673

Figure 1

4. Use a hammer and appropriate drift to remove the bearings from the axle frame. Examine the bearings for signs of damage or wear and replace if necessary.

NOTE!

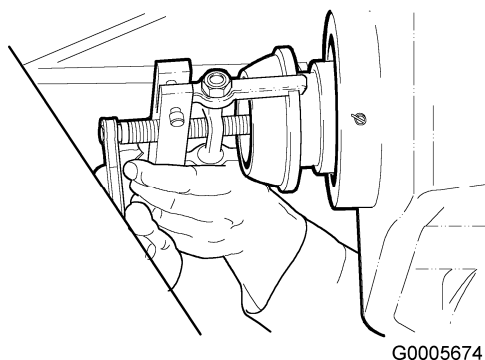
The rear bearings can only be removed in one direction.

Document Title: Front axle frame, removing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Front axle frame, removing

Op nbr 622-060

1. Remove the bolts and lock washers retaining the bearing cap to the axle frame. Remove the cap and shims.
2. Use a safe lifting device to support the axle frame. Force the axle frame back as far as possible. (It may be necessary to use a chain hoist attached to the rear of the drawbar.)
3. Remove the front bearing cup and the O-ring. Discard the O-ring.
4. Use a suitable bearing puller to remove the front bearing cone and back-up washer from the pivot pin.



G0005674

Figure 1

5. Lower the rear of the axle frame until it is below the pivot pin. Pull the axle frame forward. Lower the axle frame to the ground as soon as it clears the front portion of the pivot pin.
6. Remove and discard the rear O-ring. Use a suitable bearing puller to remove the rear bearing cone and back-up washer from the pivot pin. Remove the rear bearing cup from the axle frame.

Document Title: Steering axle – Assembly	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Steering axle – Assembly

Preparing for assembly

Clean and inspect all components. Pay special attention to bearings and bushings. If there evidence of damage or wear, replace all defective items with genuine Volvo parts.

Document Title: Front axle frame, installing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Front axle frame, installing

Op nbr 622-061

1. Apply grease to the axle frame rear counterbore. Use a hammer and soft metal drift to install the rear bearing cup into the axle frame. Alternatively, place cups in a freezer to shrink them for easier assembly. Lubricate and install a new O-ring.
2. Install the rear back-up washer on the pivot pin. Heat the rear bearing cone evenly to a maximum of 121°C (250°F) and install it on the pivot pin. Make sure that it seats properly.
3. Use a safe lifting device and raise the axle frame off the ground. Engage the front of the axle frame with the pivot pin. Pull the axle frame back far enough to clear the rear portion of the pivot pin. Raise the rear of the axle frame until it aligns with the pivot pin.

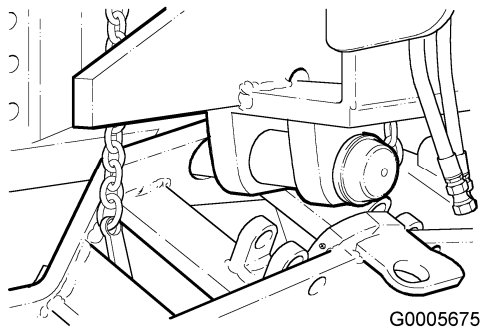


Figure 1

4. Position the axle frame ahead to fully engage the rear bearing cup and cone. Install the front back-up washer. Lubricate the back-up washer and pivot pin. Heat the front bearing cone evenly to a maximum of 121°C (250°F) and install it on the pivot pin. Make sure that it seats properly. Lubricate and install a new O-ring. Lubricate and install the front bearing cup.
5. Install the pivot cap without any shims and secure with two bolts and lock washers. Tighten the bolts evenly until the axle frame stays in place when moved and released.
6. Use feeler gauges to measure the gap between the pivot cap and the axle frame. Four measurements are required. Calculate the average of the four measurements. This method determines the number of shims needed.
7. Use a micrometer to measure the correct shim pack thickness. Remove the pivot cap. Install the shim pack and pivot cap. Install the bolts and lock washers and torque-tighten the bolts in a diagonal sequence to 108 N•m (11 kgf•m)(80 lbf•ft).

Document Title: Knuckle, installing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
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Knuckle, installing

Op nbr 622-062

1. Use a hammer and appropriate drift to install the bearings into the axle frame counterbores. Attach a safe lifting device to the knuckle and slide it into place on the axle frame. Align the holes and install the pivot pin.

NOTE!

The rear bearings can only be installed in one direction.

2. To adjust the knuckle pivot pin end play, first remove any dirt or paint on the machined surfaces of the bearing cap and the axle frame. Install the bearing cap without any shims and secure with two bolts and lock washers. Pivot the knuckle back and forth; at the same time, torque-tighten the bolts in an opposing sequence to 47 N•m (5 kgf•m) (35 lbf•ft).
3. Use feeler gauges to measure the gap between the bearing cap and axle frame surfaces. Two measurements are required. Calculate the average of the two measurements. This method determines the number of shims needed.
4. Use a micrometer to measure the correct shim pack thickness. Remove the bearing cap. Install the shim pack and bearing cap. Install the bolts and lock washers.
Torque-tighten the bolts in a diagonal sequence to 47 N•m (5 kgf•m)(35 lbf•ft).
5. Apply 'Loctite' 243 thread-locking compound (or equivalent) onto the setscrew. Install the setscrew to secure the knuckle pivot pin.

Document Title: Tie bar, installing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
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Tie bar, installing

Op nbr 622-063

1. Secure the tie bar in a vise. Use a hammer and appropriate drift to install the bearings. Install new snap rings.

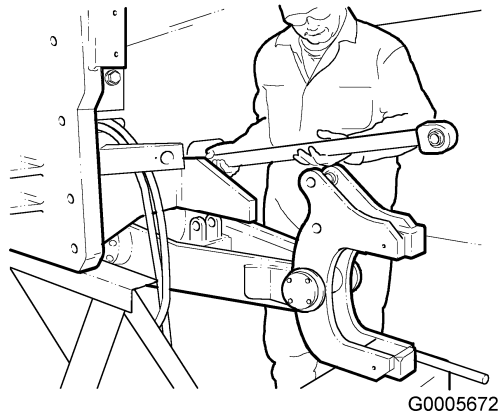


Figure 1

2. Install the tie bar onto the front axle. Install the bearing pins. Install the lock plates and secure them with bolts and lock washers.
Torque-tighten the bolts to 47 N•m (5 kgf•m)(35 lbf•ft).

Document Title: Wheel Lean Cylinder - Installation	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Wheel Lean Cylinder - Installation

Op nbr 622-064

1. Secure the wheel lean cylinder in a vise. Use a hammer and appropriate drift to install the bearings. Install new snap rings.
2. Install the wheel lean cylinder onto the front axle. Install the bearing pins. Install the lock plates and secure them with bolts and lock washers.
Torque-tighten the bolts to 47 N•m (5 kgf•m)(35 lbf•ft).
Connect the hydraulic hoses.
3. Repeat the installation procedure for the other wheel lean cylinder if installed on the machine.

Document Title: Spindle - Assembly and Installation	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Spindle - Assembly and Installation

Op nbr 622-065

1. Use a hammer and appropriate soft metal drift to install new king pin bushings. Be sure to align the grease holes and grease fittings.
2. Attach a safe lifting device to the spindle. Insert the spacer for the lower king pin, and the thrust bearing and spacer for the upper king pin. Fully install the spindle in the knuckle.

NOTE!

Ensure the grease channel for the upper king pin thrust bearing faces upward.

3. Use a hammer and appropriate drift to install the upper king pin. Use a bottle jack to install the lower king pin.
4. Apply 'Loctite' 243 thread-locking compound (or equivalent) onto the upper and lower setscrews and install them. Torque-tighten the setscrews to 108 N•m (11 kgf•m)(80 lbf•ft).

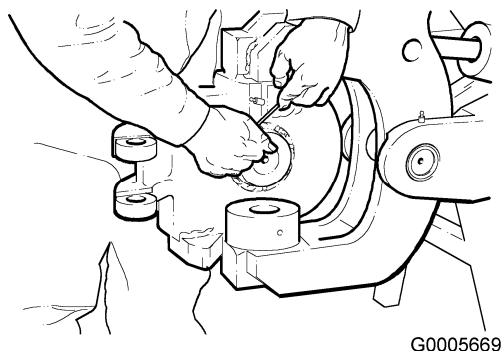


Figure 1

5. Install new upper and lower expansion plugs. Indent the plugs to properly secure them.

Document Title: Pivot Block - Assembly and Installation	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Pivot Block - Assembly and Installation

Op nbr 622-066

1. Secure the pivot block in a vise. Use a hammer and soft metal drift to install new bushings. Be sure to align the grease holes and grease fittings.
2. Align the dowels and dowel holes. Install the pivot block thrust washers. To ease thrust washer installation, apply a small amount of grease to hold them in place.
3. Use a soft-faced hammer to force the pivot block pin into position. Install the slotted nut and flat washer. Torque-tighten the nut to 68 – 102 N•m (7 – 10 kgf•m)(50 – 75 lbf•ft) until the pivot block moves with a small amount of preload. Install a new cotter pin.

Document Title: Drag link, installing	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Drag link, installing

Op nbr 622-067

1. Align the dowels and dowel holes. Install the drag link thrust washers. To ease thrust washer installation, apply a small amount of grease to hold them in place.
2. Use a safe lifting device to support the drag link. Tap the drag link into place and align the thrust washers.
3. Install the pivot pin, flat washer and slotted nut.
Torque-tighten the nut to 68 – 102 N•m (7 – 10 kgf•m) (50 – 75 lbf•ft).
Install a new cotter pin.
Repeat the assembly procedure for the other pivot pin.

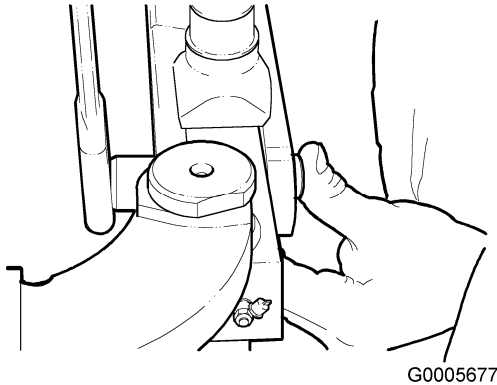


Figure 1

Document Title: Steering Cylinder - Installation	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Steering Cylinder - Installation

Op nbr 622-068

1. Remove the grease fitting and secure the rod end of the steering cylinder in a vise. Be sure to align the grease groove and grease fitting hole.
Use a hammer and appropriate drift to install the bearing.
2. Install a new internal snap ring. Install the grease fitting.
3. Use a hammer and appropriate drift to install the steering cylinder bearings into the front axle.
NOTE!
The steering cylinder bearings can only be installed from the top of the anchor lug counterbores.
4. Install the steering cylinder onto the anchor lug and pivot block. Remove the grease fitting from the steering anchor pin. Be sure to align the anchor pin lock plate groove with the cylinder lug bolt holes.
5. Use a bottle jack to push the steering anchor pin into position. Use an assistant to align the holes for easier installation of the anchor pin.
Once the anchor pin is in position, install the grease fitting, lock plate, bolts and lock washers.
Torque-tighten the bolts to 47 N•m (5 kgf•m)(35 lbf•ft).
6. Use a hammer and appropriate drift to install the rod eye and bearing onto the yoke pivot stud. Secure the rod eye with a new external snap ring.
7. Install the cap, bolts and lock washers.
Torque-tighten the bolts to 12 N•m (1 kgf•m)(9 lbf•ft).
8. Connect the hydraulic hoses.
9. Repeat the installation procedure for the other steering cylinder.

Document Title: Wheel Hub - Installation	Function Group: 622	Information Type: Service Information	Date: 2015/10/26
Profile: GRD, G746B [GB]			

Wheel Hub - Installation

Op nbr 622-069

18516 Socket wrench

1. Use a hammer and soft metal drift to install the inner and outer bearing cups into the wheel hub. Alternatively, place cups in a freezer to shrink them for easier assembly.
2. Pack the inner bearing cone with grease and install the cone. Carefully install a new back-up ring. Apply 2 cups of grease to the inside of the wheel hub. Lubricate and install a new V-ring seal onto the spindle.
3. Attach a safe lifting device to the wheel hub. Slide the wheel hub onto the spindle.

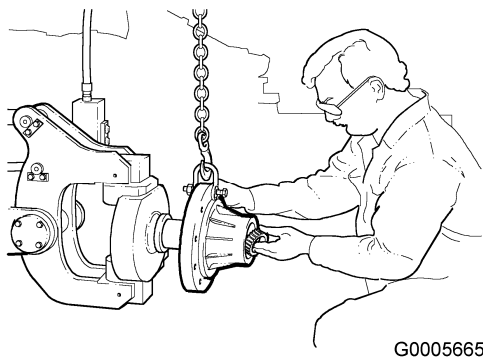


Figure 1

4. Pack the outer bearing cone with grease and install it on the spindle. Install the wheel bearing washer and the inner locknut.

NOTE!

Always install the inner and outer locknuts with the chamfer facing outwards from the wheel hub.

NOTE!

Do not over-lubricate the wheel bearing cones. Excess grease can damage the hub cap gasket.

5. Set the wheel preload by first installing one of the hub cap bolts. Use tool P/N 18516 to tighten the locknut. When tightening the locknut, rotate the wheel hub and periodically take a rolling torque reading using a torque wrench attached to the hub cap bolt. Stop tightening when the rolling torque reaches 11 – 16 N•m (1 – 2 kgf•m)(8 – 12 lbf•ft).

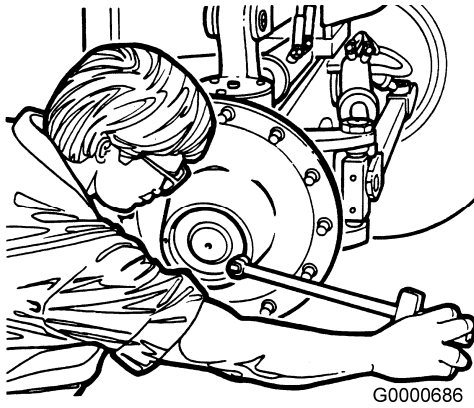


Figure 2
Determining wheel bearing preload

6. Install a new tabwasher and the outer locknut. Use tool P/N 18516 and torque-tighten the locknut to 271 – 305 N•m (28 – 31 kgf•m)(200 – 225 lbf•ft).
Bend the tabs so they engage into the slots of both locknuts.
7. Install a new hub cap gasket. Install the hub cap and secure with the bolts and lock washers.
Torque-tighten the bolts to 24 N•m (2 kgf•m)(18 lbf•ft).



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