



Specifications

14M and 16M Motor Graders Braking and Hydraulic Fan System

B9H1-Up (Machine)
R9H1-Up (Machine)
B9J1-Up (Machine)
R9J1-Up (Machine)

Important Safety Information

Most accidents that involve product operation, maintenance and repair are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. A person must be alert to potential hazards. This person should also have the necessary training, skills and tools to perform these functions properly.

Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.

Do not operate or perform any lubrication, maintenance or repair on this product, until you have read and understood the operation, lubrication, maintenance and repair information.

Safety precautions and warnings are provided in this manual and on the product. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION". The Safety Alert "WARNING" label is shown below.



The meaning of this safety alert symbol is as follows:

Attention! Become Alert! Your Safety is Involved.

The message that appears under the warning explains the hazard and can be either written or pictorially presented.

A non-exhaustive list of operations that may cause product damage are identified by "NOTICE" labels on the product and in this publication.

Caterpillar cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this publication and on the product are, therefore, not all inclusive. You must not use this product in any manner different from that considered by this manual without first satisfying yourself that you have considered all safety rules and precautions applicable to the operation of the product in the location of use, including site-specific rules and precautions applicable to the worksite. If a tool, procedure, work method or operating technique that is not specifically recommended by Caterpillar is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the product will not be damaged or become unsafe by the operation, lubrication, maintenance or repair procedures that you intend to use.

The information, specifications, and illustrations in this publication are on the basis of information that was available at the time that the publication was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time. These changes can affect the service that is given to the product. Obtain the complete and most current information before you start any job. Cat dealers have the most current information available.



When replacement parts are required for this product Caterpillar recommends using Cat replacement parts or parts with equivalent specifications including, but not limited to, physical dimensions, type, strength and material.

Failure to heed this warning can lead to premature failures, product damage, personal injury or death.

In the United States, the maintenance, replacement, or repair of the emission control devices and systems may be performed by any repair establishment or individual of the owner's choosing.

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Specifications Section

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i02733173

Piston Pump (Brake, Hydraulic Fan)

SMCS Code: 1387-QP; 4268-QP; 5070-HFN;
5070-BRK

Part No.: 250-8337
S/N: B9J1-Up

Part No.: 250-8337
S/N: R9J1-Up

Piston Pump (Brake, Hydraulic Fan)

SMCS Code: 1387-QP; 4268-QP; 5070-HFN;
5070-BRK

Part No.: 257-6832
S/N: B9H1-Up

Part No.: 257-6832
S/N: R9H1-Up

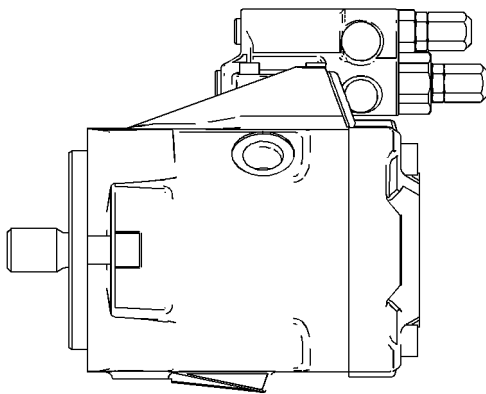


Illustration 1

g01099661

Pump type variable piston

The rotation of the shaft is counterclockwise when the rotation of the shaft is viewed from the drive end.

Displacement of the pump per revolution 28 cc
(1.7 in³)

Pump speed at load 2000 rpm

Reference: Refer to the Specifications, "Pump Control Valve (Brake, Hydraulic Fan)" for your machine for information regarding pressure and flow control.

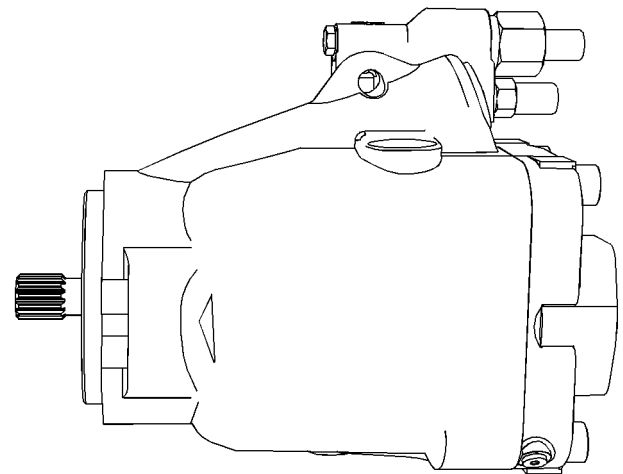


Illustration 2

g01190515

Pump type variable piston

The rotation of the shaft is counterclockwise when the rotation of the shaft is viewed from the drive end.

Displacement of the pump per revolution 41 cc
(2.5 in³)

Pump speed at load 2000 rpm

Reference: Refer to the Specifications, "Pump Control Valve (Brake Hydraulic Fan)" for your machine for information regarding pressure and flow control.

i04035915

i02652579

Pump Control Valve (Brake, Hydraulic Fan)

SMCS Code: 5455-BRK; 5455-HFN

Part No.: 168-2210
S/N: B9J1-Up

Part No.: 168-2210
S/N: R9J1-Up

Pump Control Valve (Brake, Hydraulic Fan)

SMCS Code: 5455-BRK; 5455-HFN

Part No.: 284-3799
S/N: B9H1-Up

Part No.: 284-3799
S/N: R9H1-Up

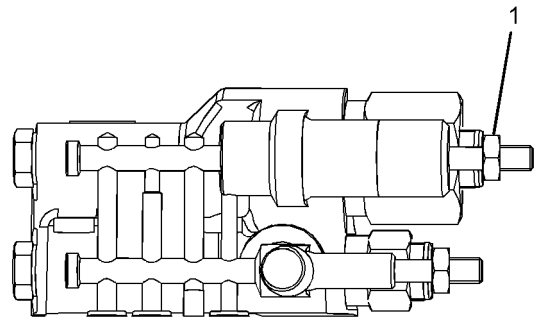
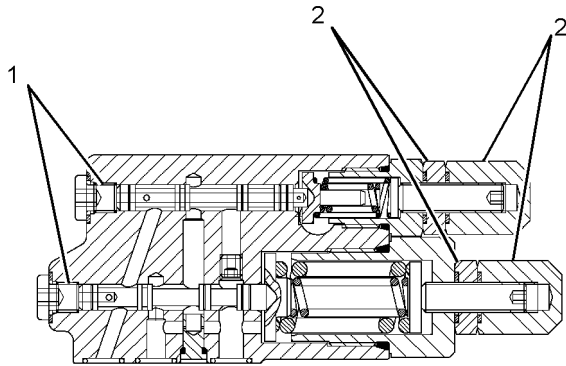


Illustration 3 g01313148
Pump Control Valve

- (1) Apply blue Loctite 242 to the threads prior to assembly.
- (2) Torque for nuts 21 N·m (185 lb in)

Adjustment Information

High-pressure cutoff

Maximum pressure for the high ambient fan pump 22000 ± 350 kPa (3200 ± 50 psi)

Flow Control

Margin pressure .. 1800 ± 100 kPa (260 ± 15 psi)

Illustration 4 g01332636

- (1) Torque for the locknut ... 7 ± 1 N·m (60 ± 10 lb in)

Adjustment Information

High pressure cutoff

Maximum pressure for the high ambient fan pump 21500 kPa (3100 psi)

Flow Control

Margin pressure 1800 kPa (260 psi)

i03904071

Control Manifold (Brake, Hydraulic Fan)

SMCS Code: 5264-HFN; 5264-BRK

Part No.: 251-8256
S/N: B9H1-750

Part No.: 251-8256
S/N: B9J1-1272

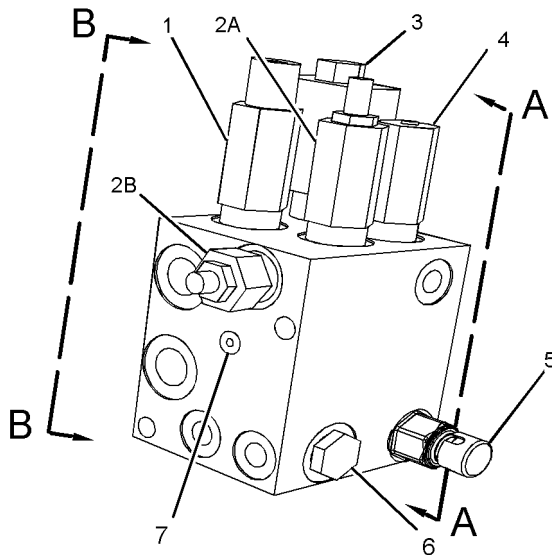


Illustration 5

g01394595

- (1) Refer to Specifications, "Diverter Valve (Hydraulic Fan)".
- (2) Refer to Specifications, "Valve Replacement Kit (Diverter Valve and Relief Valve)" For information regarding diverter valve (2A) and relief valve (2B).
- (3) Refer to Specifications, "Solenoid Valve (Hydraulic Fan)".
- (4) Refer to Specifications, "Relief Valve (Brake, Hydraulic Fan) (Main)".
- (5) Refer to the 237-0957 Pressure Sensor Gp in the Specifications, "Pressure Sensor (Brake Oil Accumulator)".
- (6) Refer to Specifications, "Shuttle Valve (Brake Accumulator)".
- (7) Torque for the three plugs $8.5 \pm 0.5 \text{ N}\cdot\text{m}$
($75 \pm 5 \text{ lb in}$)

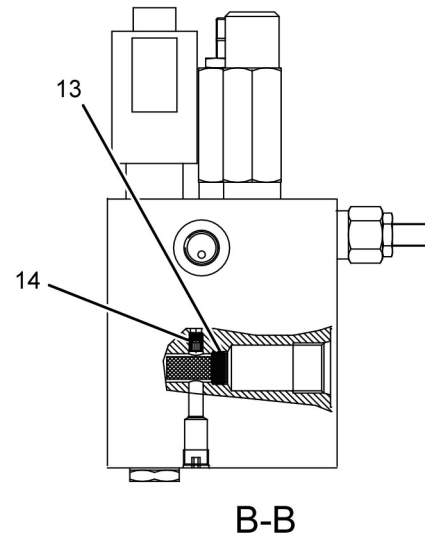
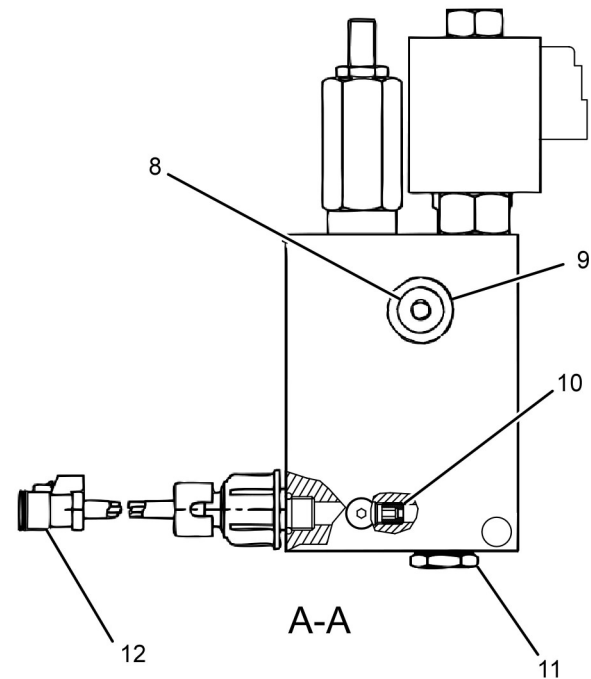


Illustration 6

g01516181

- (8) Refer to Specifications, "Shuttle Valve (Brake, Hydraulic Fan)".
- Note:** Lubricate all O-rings with the lubricant that is being sealed, prior to assembly.
- (9) Torque for the outer plug $31 \pm 3 \text{ N}\cdot\text{m}$
($275 \pm 27 \text{ lb in}$)
- (10) Torque for the orifice plug $7 \pm 1 \text{ N}\cdot\text{m}$
($60 \pm 9 \text{ lb in}$)

- (11) Refer to Specifications, "Check Valve (Brake Accumulator)".
- (12) Torque for connector 20 ± 2 N·m
(177 ± 18 lb in)
- (13) Torque for the screen 7 ± 1 N·m (60 ± 9 lb in)
- (14) Torque for the orifice plug 4 ± 0.5 N·m
(35 ± 5 lb in)

i03867674

Control Manifold (Brake, Hydraulic Fan)

SMCS Code: 5264-HFN; 5264-BRK

Part No.: 353-2604
S/N: B9H751-Up

Part No.: 353-2604
S/N: R9H1-Up

Part No.: 353-2604
S/N: B9J1273-Up

Part No.: 353-2604
S/N: R9J1-Up

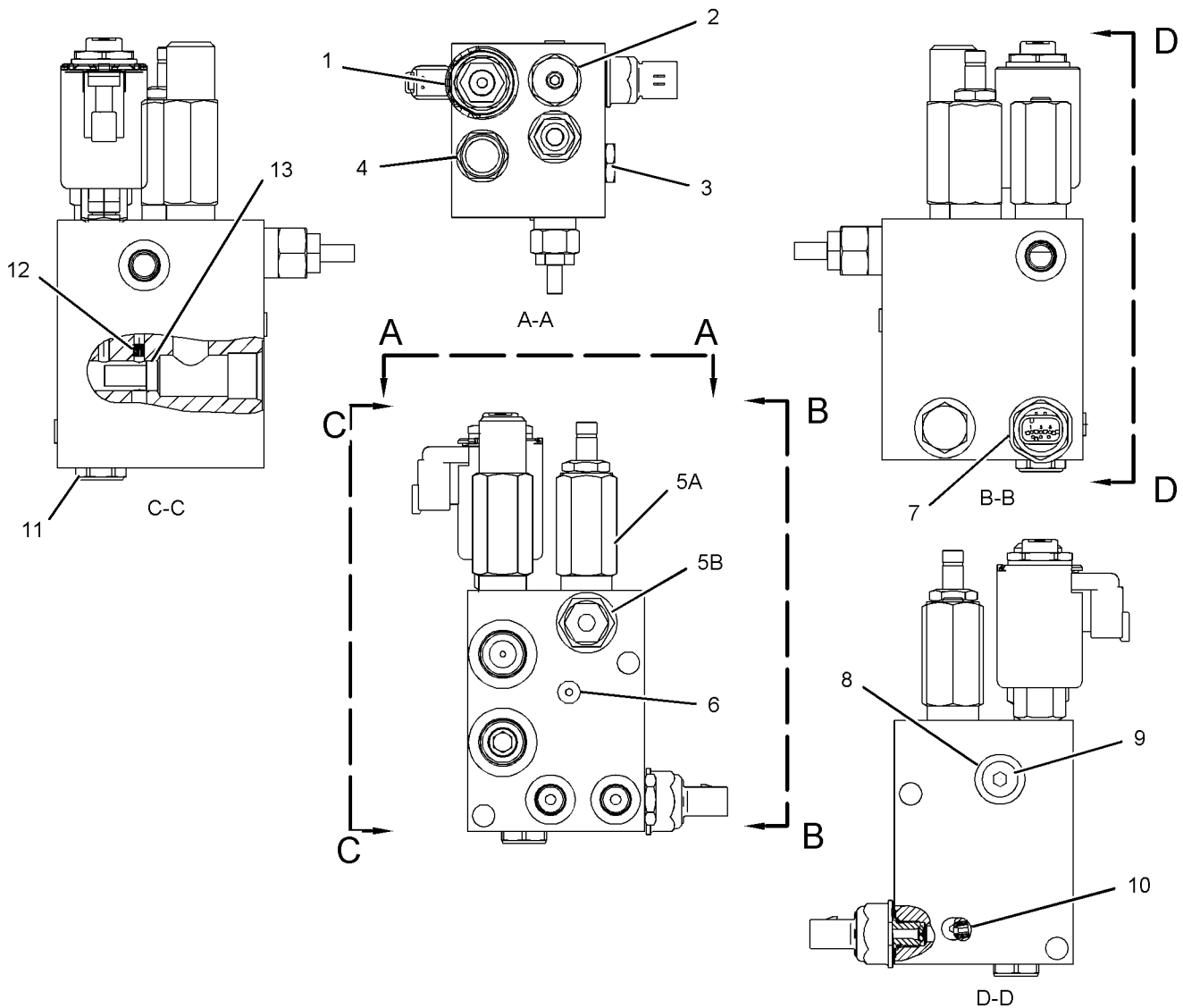


Illustration 7

g02110759

(1) Refer to Specifications, "Solenoid Valve (Hydraulic Fan)".

(2) Refer to Specifications, "Relief Valve (Brake, Hydraulic Fan) (Main)".

i02733181

- (3) Refer to Specifications, "Shuttle Valve (Brake Accumulator)".
- (4) Refer to Specifications, "Diverter Valve (Hydraulic Fan)".
- (5) Refer to Specifications, "Valve Replacement Kit (Diverter Value and Relief Valve)" For information regarding diverter valve (5A) and relief valve (5B).
- (6) Torque for the three plugs $8.5 \pm 0.5 \text{ N}\cdot\text{m}$
($75 \pm 5 \text{ lb in}$)
- (7) Refer to the 296 - 5270 Pressure Sensor Gp in the Specifications, "Pressure Sensor (Brake Oil Accumulator)" story.
- (8) Refer to Specifications, "Shuttle Valve (Brake, Hydraulic Fan)".

Note: Lubricate all O-rings with the lubricant that is being sealed, prior to assembly.

- (9) Torque for the outer plug $31 \pm 3 \text{ N}\cdot\text{m}$
($275 \pm 27 \text{ lb in}$)
- (10) Torque for the orifice plug $7 \pm 1 \text{ N}\cdot\text{m}$
($60 \pm 9 \text{ lb in}$)
- (11) Refer to Specifications, "Check Valve (Brake Accumulator)".
- (12) Torque for the orifice plug $4 \pm 0.5 \text{ N}\cdot\text{m}$
($35 \pm 5 \text{ lb in}$)
- (13) Torque for the screen $7 \pm 1 \text{ N}\cdot\text{m}$ ($60 \pm 9 \text{ lb in}$)

Valve Replacement Kit (Diverter Valve and Relief Valve)

SMCS Code: 4263; 5066-BRK; 5117-BRK

Part No.: 282 - 5396

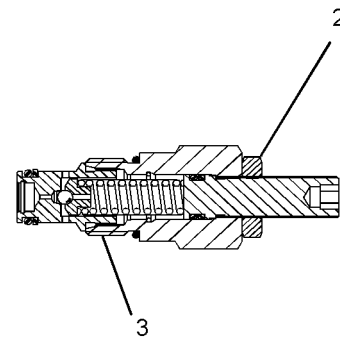
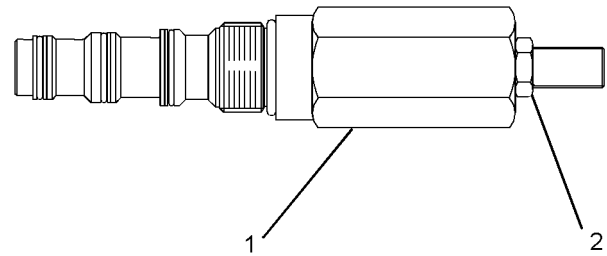


Illustration 8

g01370901

Note: This is a dual valve kit that consists of a diverter valve and a relief valve. These valves must be replaced as a set.

- (1) Installation torque for diverter valve (cut-in for brake) $50 \pm 5 \text{ N}\cdot\text{m}$ ($37 \pm 4 \text{ lb ft}$)
- (2) Installation torque for nut $12 \pm 1 \text{ N}\cdot\text{m}$
($105 \pm 9 \text{ lb in}$)
- (3) Installation torque for relief valve (cut-out for brake) $40 \pm 4 \text{ N}\cdot\text{m}$ ($30 \pm 3 \text{ lb ft}$)

i02554426

Diverter Valve (Hydraulic Fan)

SMCS Code: 5066-HFN

Part No.: 277-2132

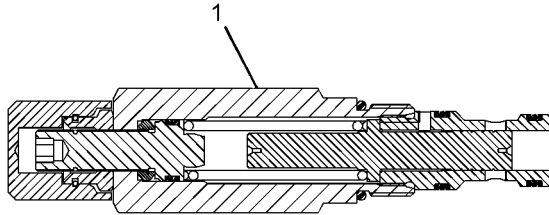


Illustration 9

g01278482

(1) Installation torque for diverter valve ... $50 \pm 5 \text{ N}\cdot\text{m}$
($37 \pm 4 \text{ lb ft}$)

Cracking pressure for diverter valve 1750 kPa
(255 psi)

i02562056

Relief Valve (Brake, Hydraulic Fan) (Main)

SMCS Code: 5117-HFN; 5117-BRK

Part No.: 251-8330

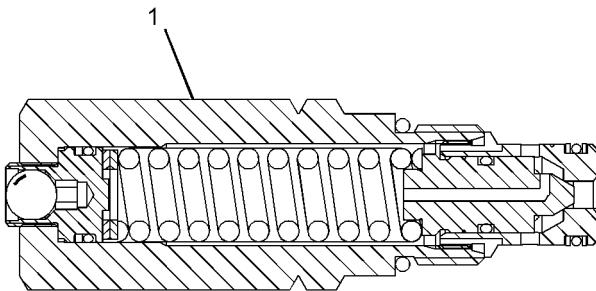


Illustration 10

g01282498

(1) Installation torque for relief valve $50 \pm 5 \text{ N}\cdot\text{m}$
($37 \pm 4 \text{ lb ft}$)

Pressure setting for the relief valve 24100 kPa
(3500 psi)

i02590062

Shuttle Valve (Brake, Hydraulic Fan)

SMCS Code: 5079-BRK; 5079-HFN

Part No.: 239-0618

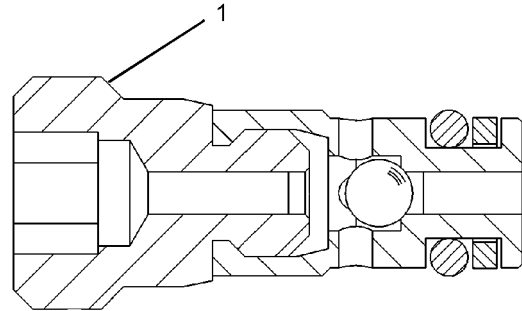


Illustration 11

g01213965

(1) Shuttle Valve

Torque for shuttle valve assembly $9.5 \pm 1 \text{ N}\cdot\text{m}$
($85 \pm 9 \text{ lb in}$)

Operating pressure 42000 kPa (6000 psi)

i02590077

Solenoid Valve (Hydraulic Fan)

SMCS Code: 5479-HFN

Part No.: 189-8627

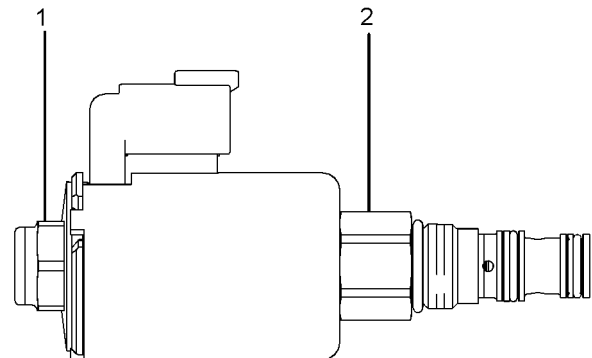


Illustration 12

g01214001

Coil

Nominal voltage 24 VDC

Maximum current at $100 \text{ }^\circ\text{C}$
($212 \text{ }^\circ\text{F}$) 1.9 Ampere

Resistance at $25 \text{ }^\circ\text{C}$ ($77 \text{ }^\circ\text{F}$) $5 \pm 0.3 \text{ ohms}$

(1) Torque for nut $35 \pm 3 \text{ N}\cdot\text{m}$ ($26 \pm 2 \text{ lb ft}$)

(2) Torque for adapter 50 ± 7 N·m (37 ± 5 lb ft)

i02563140

i03904221

Pressure Sensor (Hydraulic Fan)

SMCS Code: 1408-PXS

Part No.: 264 - 4297

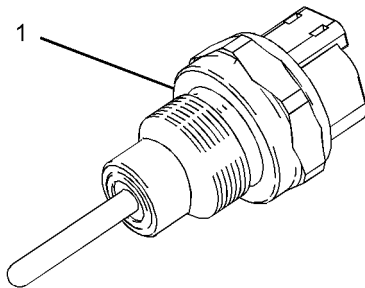


Illustration 13

g01296767

(1) Final installation torque 20 ± 3 N·m
(175 ± 27 lb in)

Gear Motor (Hydraulic Fan)

SMCS Code: 1386-GT; 5061-HFN

Part No.: 250 - 9831

S/N: B9J1-1039

Part No.: 341 - 2719

S/N: B9J1040-Up

Part No.: 341 - 2719

S/N: R9J1-Up

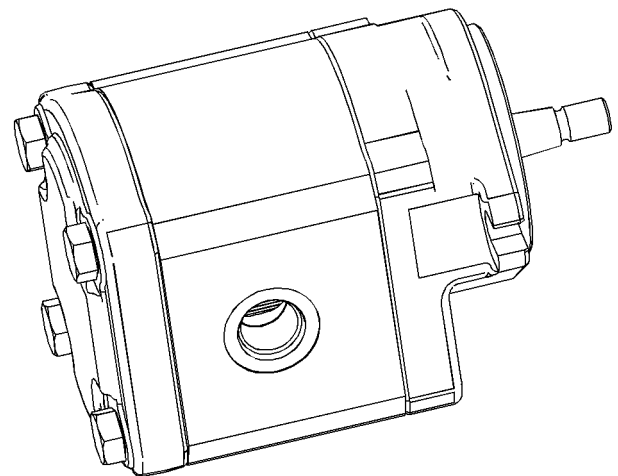


Illustration 14

g01101930

Type of motor Gear

The rotation of the shaft is clockwise when the motor is viewed from the shaft end.

Displacement 24 cc (1.5 in³)

Maximum pressure 27600 kPa (4000 psi)

Maximum speed at 27600 kPa (4000 psi) .. 3200 rpm

Note: The preceding parameters are for a bench test. The proper settings for your machine may vary. Refer to the appropriate Testing and Adjusting article for your machine.

i02650665

i04036089

Gear Motor (Hydraulic Fan)

SMCS Code: 1386-GT; 5061-HFN

Part No.: 341 - 2765
S/N: B9H1-716

Part No.: 322 - 8602
S/N: B9H717-Up

Part No.: 322 - 8602
S/N: R9H1-Up

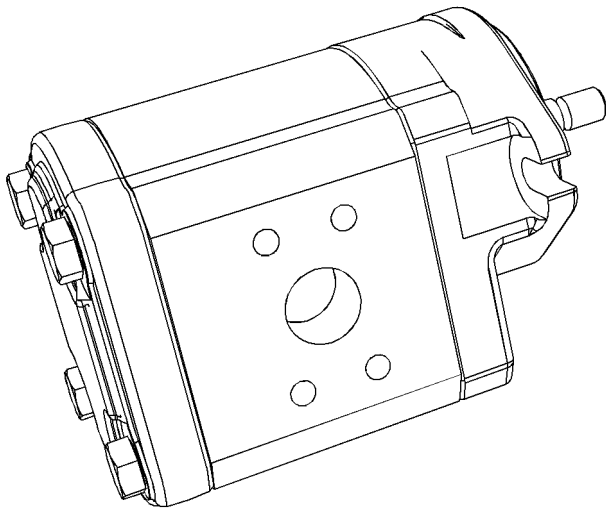


Illustration 15

g01191328

Type of motor Gear

The rotation of the shaft is clockwise when the motor is viewed from the shaft end.

Displacement 38 cc (2.32 in³)

Maximum pressure 27600 kPa (4000 psi)

Maximum speed at 27600 kPa (4000 psi) .. 3000 rpm

Note: The preceding parameters are for a bench test. The proper settings for your machine may vary. Refer to the appropriate Testing and Adjusting article for your machine.

Brake Accumulator

SMCS Code: 4263

Part No.: 249 - 3860
S/N: B9J1-Up

Part No.: 249 - 3860
S/N: R9J1-Up

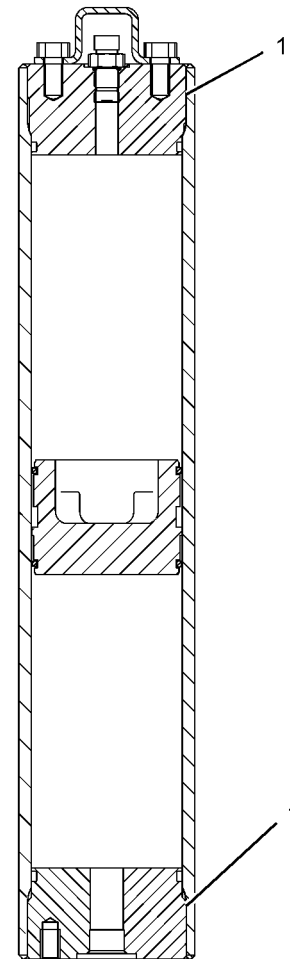


Illustration 16

g01097856

(1) Torque for two end caps 122 N·m (90 lb ft)

Oil capacity 1.47 L (90 cubic inch)

Capacity for nitrogen 1.56 L (95 cubic inch)

Maximum operating pressure .. 20690 kPa (3000 psi)

Minimum burst pressure 82800 kPa (12000 psi)

Operating temperature range -40 to 100 °C
(-40 to 212 °F)

Note: Precharge pressure varies according to ambient temperature.

Reference: Refer to the Braking and Hydraulic Fan System Testing and Adjusting, "Brake Accumulator (Service) - Test and Charge" for information in order to test and charge the brake accumulator.

Operating temperature range -40 to 100 °C
(-40 to 212 °F)

Note: Precharge pressure varies according to ambient temperature.

Reference: Refer to the Braking and Hydraulic Fan System Testing and Adjusting, "Brake Accumulator (Service) - Test and Charge" for information in order to test and charge the brake accumulator.

i04036090

Brake Accumulator

SMCS Code: 4263

Part No.: 260-9427
S/N: B9H1-Up

Part No.: 260-9427
S/N: R9H1-Up

i03788574

Check Valve (Brake Accumulator)

SMCS Code: 4263-CV; 5067-ZJ

Part No.: 348-0421

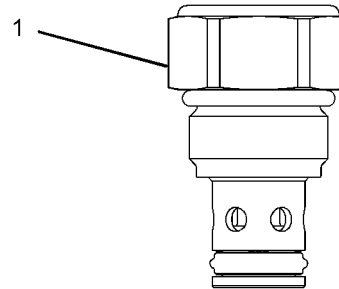
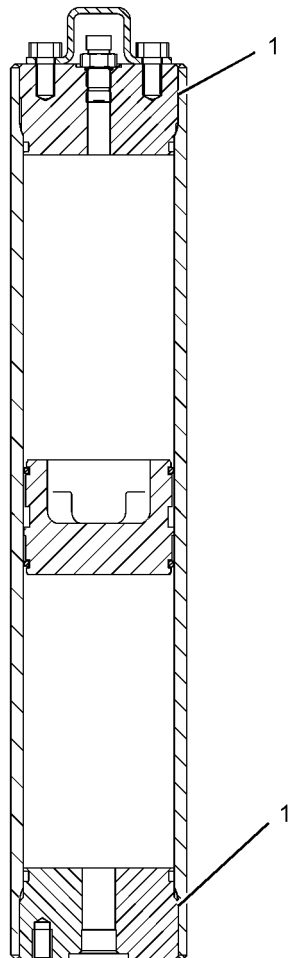


Illustration 17

g01097856

- (1) Torque for two end caps 122 N·m (90 lb ft)
- Oil capacity 1.90 L (116 cubic inch)
- Capacity for nitrogen 1.98 L (121 cubic inch)
- Maximum operating pressure .. 20690 kPa (3000 psi)
- Minimum burst pressure 82800 kPa (12000 psi)

Illustration 18

g02046775

- Cracking pressure 206 kPa (30 psi)
- Maximum operating pressure .. 35000 kPa (5000 psi)
- (1) Installation torque for the check valve 40 ± 4 N·m (30 ± 3 lb ft)

i03868789

Pressure Sensor (Brake Oil Accumulator) (Use with the 251-8256 Control Manifold Gp)

SMCS Code: 4263-PXS

Part No.: 237-0957
S/N: B9H1-750

Part No.: 237-0957
S/N: B9J1-1272

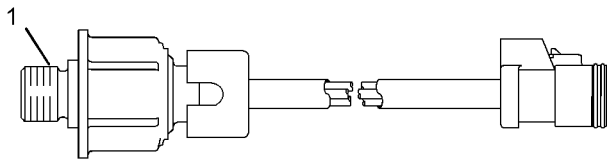


Illustration 19

g01098068

Maximum operating pressure .. 34500 kPa (5000 psi)
Operating voltage 5 ± 0.25 VDC
(1) Final installation torque 20 ± 2 N·m
(175 ± 18 lb in)

i03866329

Pressure Sensor (Brake Oil Accumulator) (Use with the 353-2604 Control Manifold Gp)

SMCS Code: 4263-PXS

Part No.: 296-5270
S/N: B9H752-Up

Part No.: 296-5270
S/N: R9H1-Up

Part No.: 296-5270
S/N: B9J1274-Up

Part No.: 296-5270
S/N: R9J1-Up

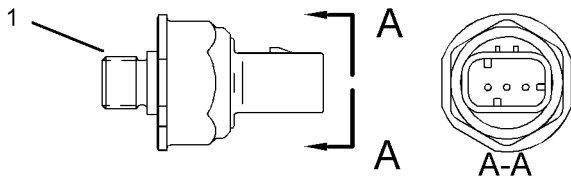


Illustration 20

g02109946

Maximum operating pressure .. 34500 kPa (5000 psi)

Operating voltage 5 ± 0.25 VDC

(1) Final installation torque 30 ± 3 N·m
(265 ± 27 lb in)

i02594838

Shuttle Valve (Brake Accumulator)

SMCS Code: 4289-ZJ

Part No.: 257-8414

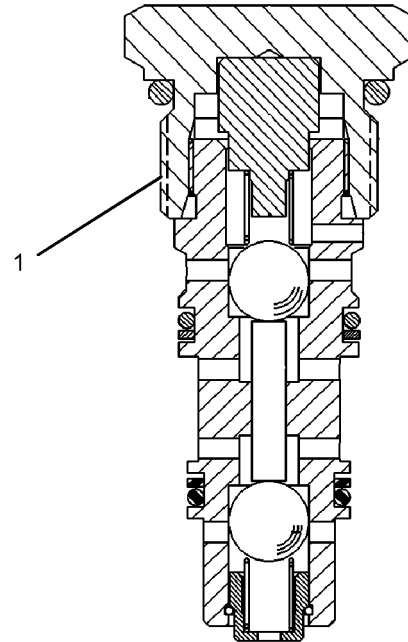


Illustration 21

g01181445

(1) Shuttle valve

Torque for shuttle valve assembly 40 N·m
(30 lb ft)

Operating pressure 21000 kPa (3050 psi)

i02866459

i04036710

Brake Control Valve (Service)

SMCS Code: 4265

Part No.: 308-9523
S/N: B9H1-Up

Part No.: 308-9523
S/N: B9J1-Up

Part No.: 308-9523
S/N: R9J1-Up

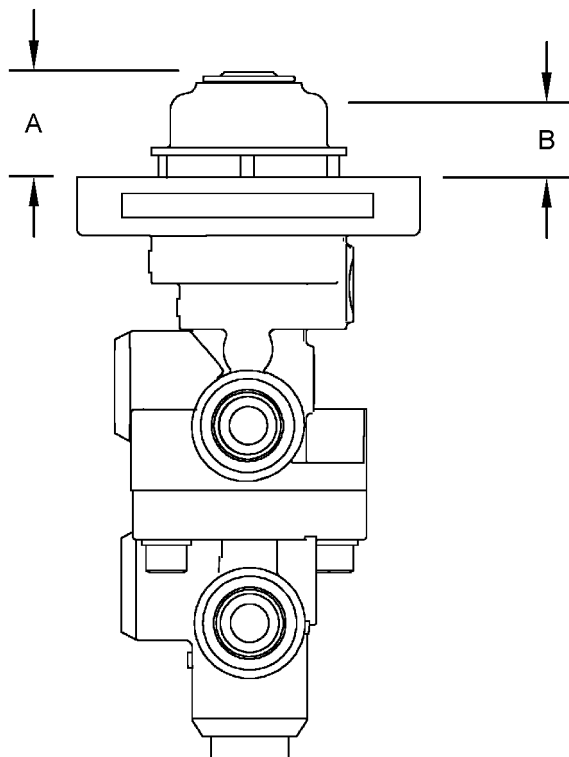


Illustration 22

g01249496

- (A) Height of installed valve 30.2 mm (1.19 inch)
- (B) Height of the valve with the service brake in the FULLY APPLIED position ... 22.4 mm (0.88 inch)
- Service brake pressure 5860 ± 350 kPa (850 ± 50 psi)

Note: The output pressure of the upper port will be approximately 207 kPa (30 psi) higher than the output pressure of the lower port.

Brake Control Valve (Service)

SMCS Code: 4265

Part No.: 355-7411
S/N: R9H1-Up

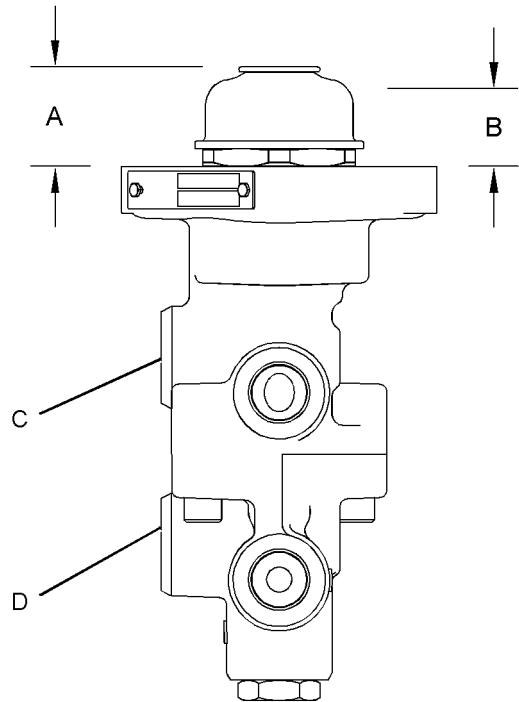


Illustration 23

g02235457

- (A) Height of installed valve 24.6 mm (0.97 inch)
- (B) Height of the valve with the service brake in the FULLY APPLIED position ... 15.4 mm (0.61 inch)
- (C) Pressure of inlet valve 5950 ± 207 kPa (863 ± 30 psi)
- (D) Pressure of inlet valve 5909 ± 207 kPa (857 ± 30 psi)

Note: The output pressure of the upper port (C) will be approximately 41 kPa (6 psi) higher than the output pressure of the lower port (D).

i02590823

Limit Switch (Service Brake)

SMCS Code: 1408-ZS; 4269-ZS

Part No.: 171 - 3759

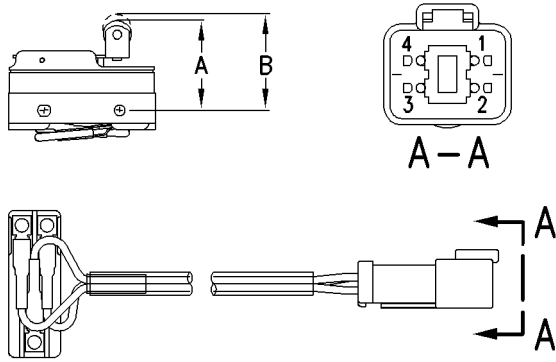


Illustration 24

g00657164

Maximum actuating force 1.7 N (.38 lb)

Maximum force for overtravel 89 N (20 lb)

(A) Operating position 30.18 ± 0.38 mm
(1.188 \pm .015 inch)

Contact (2) and contact (1) are closed when the switch is in the operating position.

(B) Free position 32.16 ± 0.38 mm
(1.266 \pm .015 inch)

Contact (2) and contact (4) are closed when the switch is in the free position.

i04038167

Service Brakes

SMCS Code: 4251

Part No.: 284 - 5041, 284 - 5042
S/N: B9J1-Up

Part No.: 284 - 5041, 284 - 5042
S/N: R9J1-Up

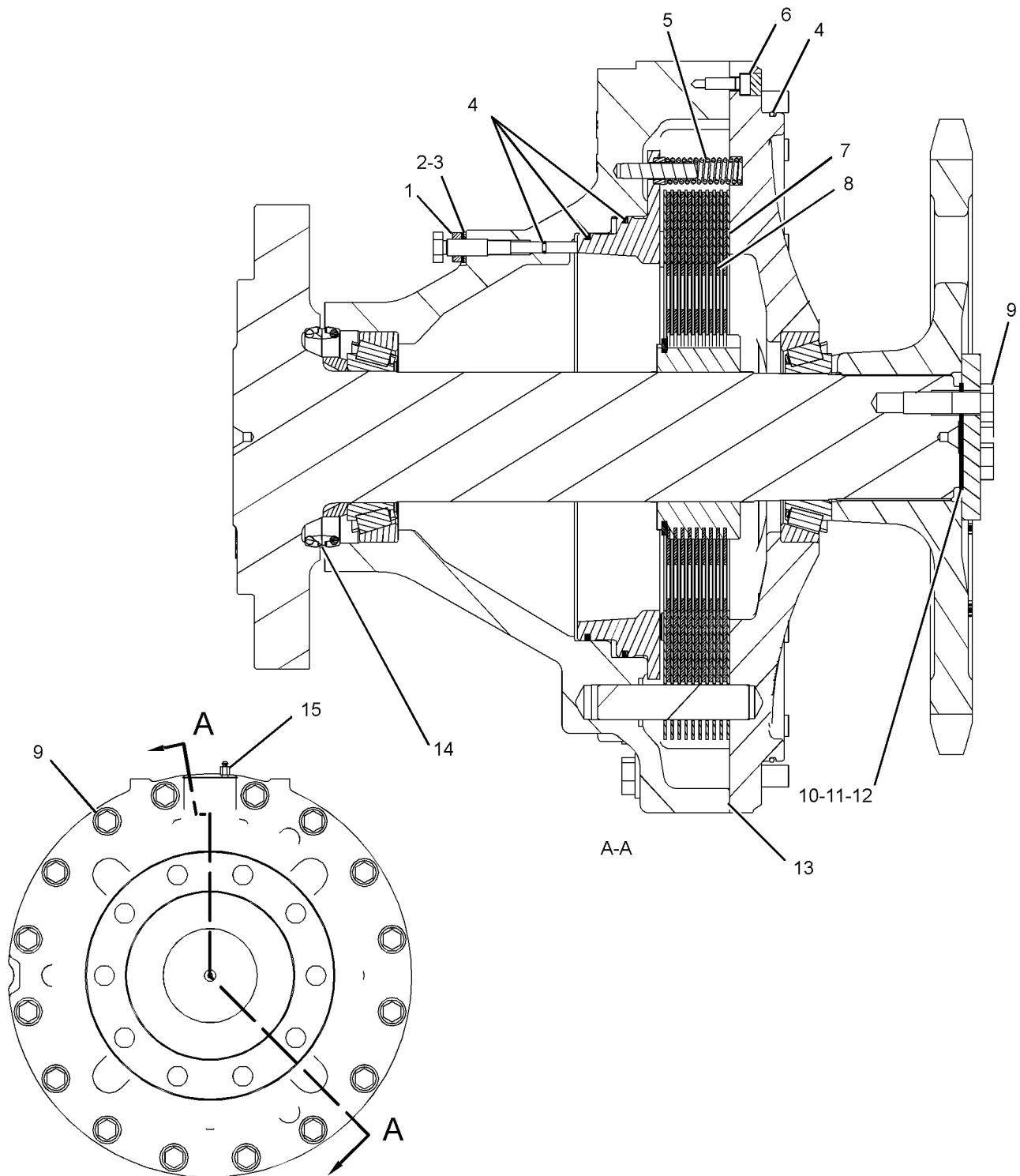


Illustration 25
Front Wheel Group

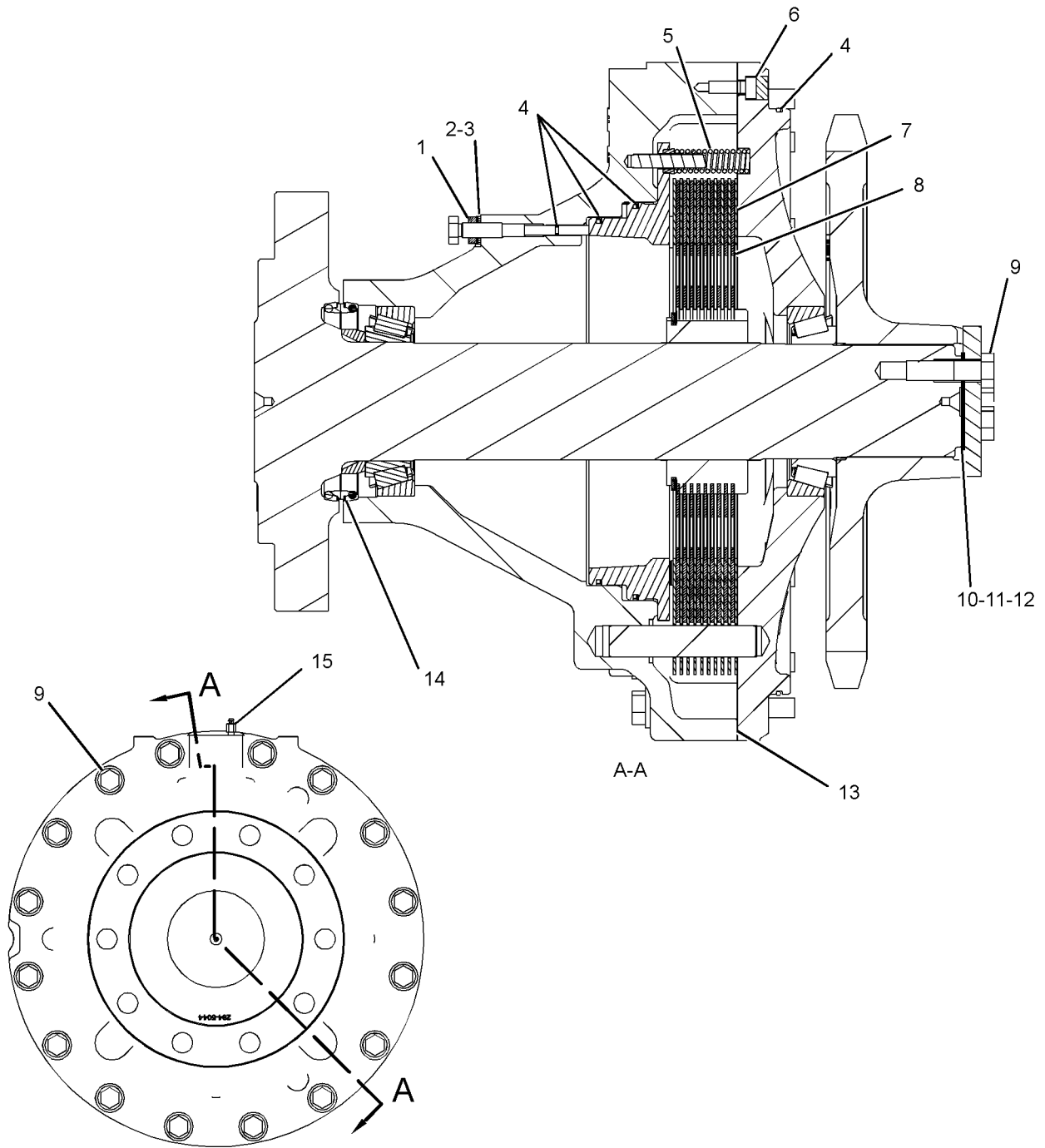


Illustration 26
Rear Wheel Group

g01369030

- (1) Torque for nut $65 \pm 10 \text{ N}\cdot\text{m}$ ($48 \pm 7 \text{ lb ft}$)
- (2) 284 - 8959 Washer
Quantity One
Thickness of one shim 2.0 mm (0.08 inch)

- (3) 284 - 8960 Washer
Quantity Three
Thickness of one shim 0.5 mm (0.02 inch)

Reference: For additional information, refer to the Braking and Hydraulic Fan System Testing and Adjusting, "Service Brake - Test (14M)" for your machine for additional information concerning the installation of the shims and the compensator.

(4) Lubricate the seals, the shafts, and the bores lightly with the lubricant that is being sealed prior to assembly.

(5) Spring

Quantity Four
Test length 60.6 mm (2.39 inch)
Test force 400 ± 24 N (90 ± 5.5 lb)
Free length after test 78.8 mm (3.10 inch)
Outside diameter 19 mm (0.75 inch)

(6) Torque for four bolts 60 ± 12 N·m (45 ± 9 lb ft)

(7) Plate

Number of plates Ten
Thickness of one plate 1.91 ± 0.064 mm
(0.0752 ± 0.0025 inch)

(8) Friction Disc

Number of discs Nine
Thickness of one disc 3.6 ± .08 mm
(0.142 ± 0.003 inch)
Minimum reusable thickness for one
disk 3.43 mm (0.135 inch)

(9) Torque for 20 bolts .. 270 ± 40 N·m (200 ± 30 lb ft)

(10) 270-6942 Shim

Quantity Four
Thickness of one shim 0.12 mm (0.005 inch)

(11) 270-6943 Shim

Quantity One
Thickness of one shim 0.18 mm (0.007 inch)

(12) 270-6944 Shim

Quantity Four
Thickness of one shim 0.5 mm (0.02 inch)

Reference: For additional information regarding the installation of these shims, refer to the Disassembly and Assembly, "Service Brakes" manual for your machine.

(13) Clean the mounting surface. Prior to assembling the wheel housing to the cover, apply 1U-8846 Gasket Sealant to the mounting surface.

(14) The seals and all of the surfaces that are contacting the seals must be clean and dry at assembly. Apply a thin film of oil to the metal seal ring prior to assembly.

(15) Torque for purge screw 12 ± 3 N·m
(105 ± 25 lb in)

i04038168

Service Brakes

SMCS Code: 4251

Part No.: 286-0681, 286-0682
S/N: B9H1-Up

Part No.: 286-0681, 286-0682
S/N: R9H1-Up

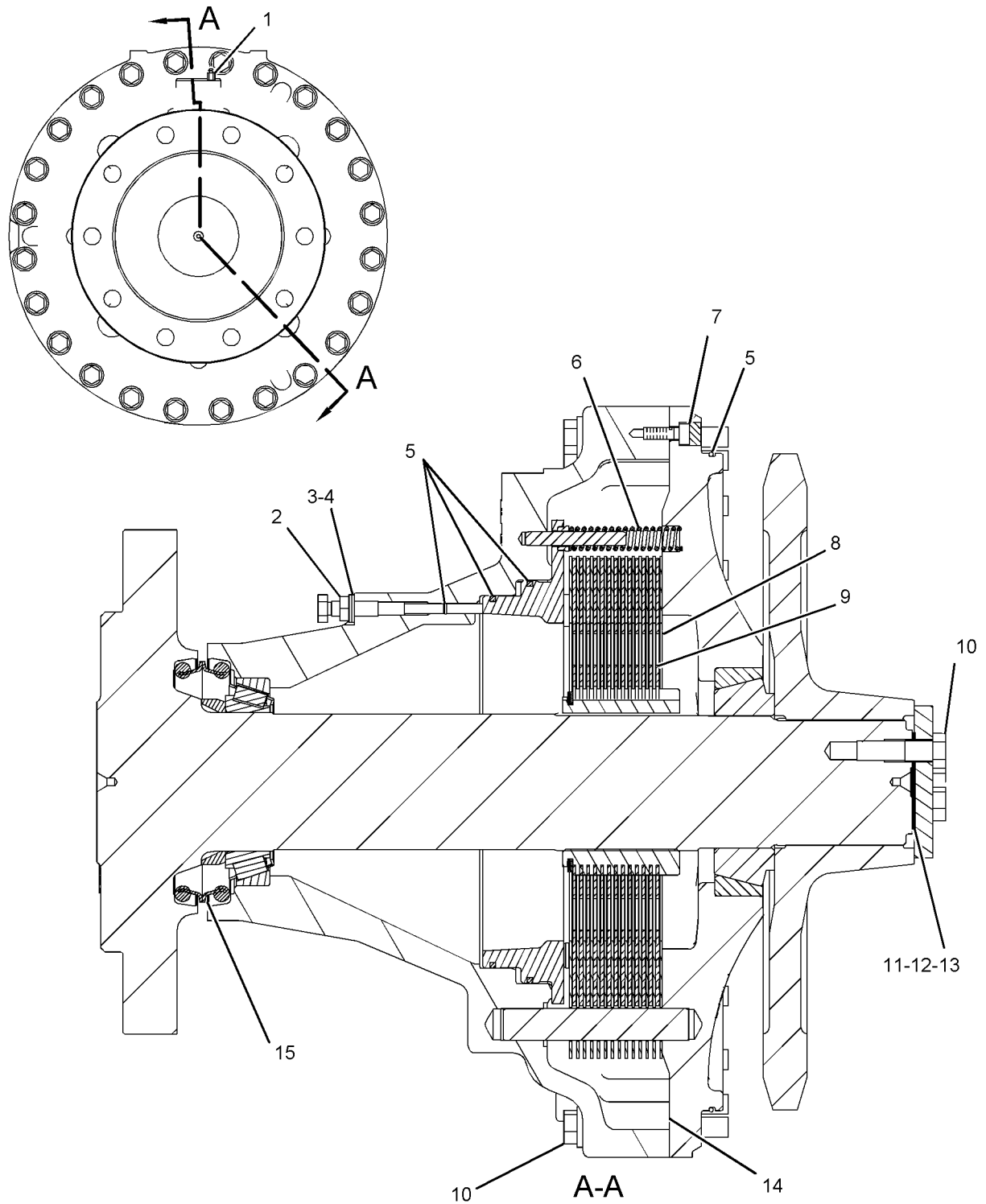


Illustration 27
Front Wheel Gp

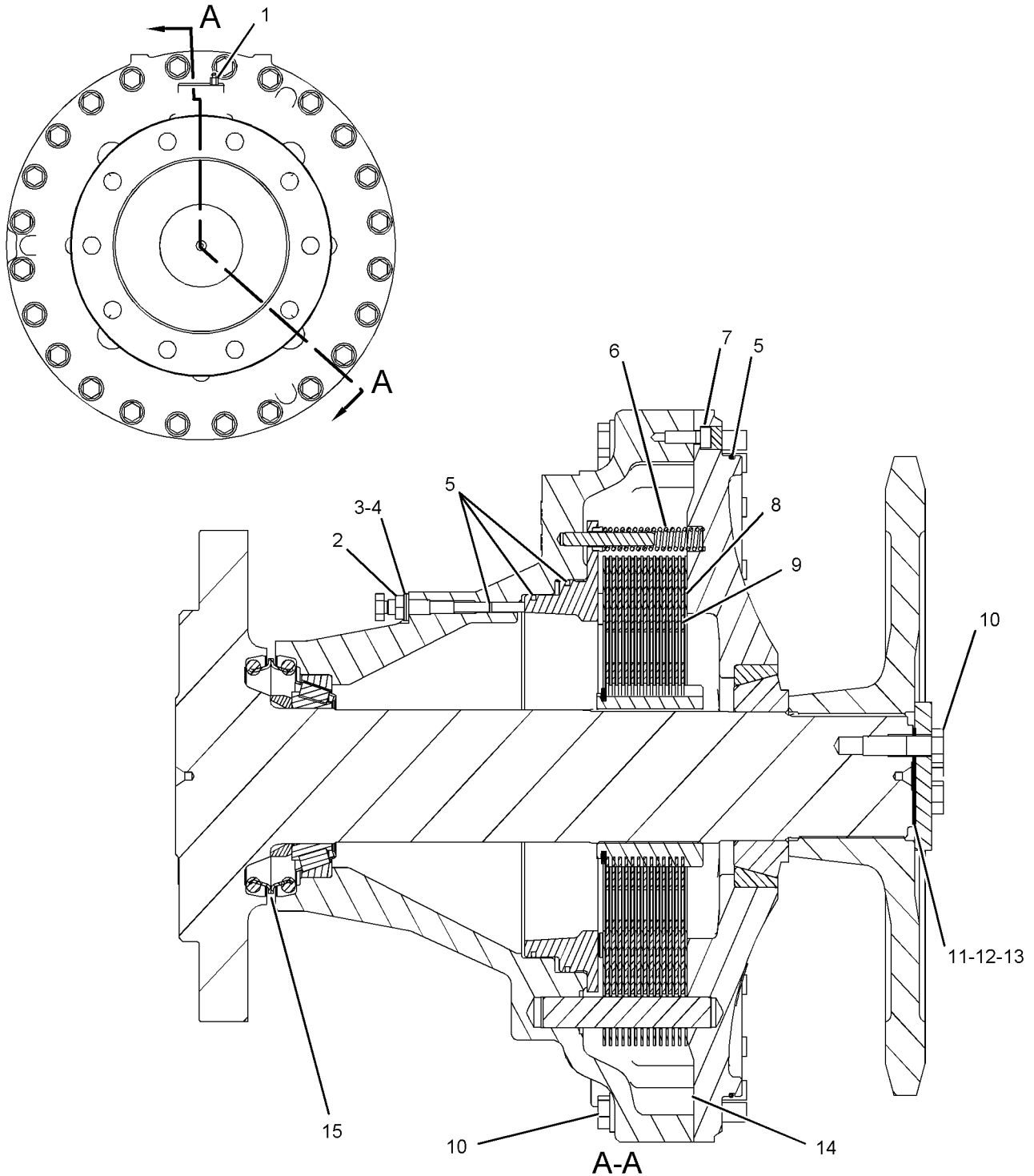


Illustration 28
Rear Wheel Gp

g01370428

- | | | | |
|----------------------------------|---------------------------------------------------------------------|-----------------------------|--------------------|
| (1) Torque for purge screw | $12 \pm 3 \text{ N}\cdot\text{m}$
($105 \pm 25 \text{ lb in}$) | Quantity | Three |
| (2) Torque for nut | $65 \pm 10 \text{ N}\cdot\text{m}$ ($48 \pm 7 \text{ lb ft}$) | Thickness of one shim | 0.5 mm (0.02 inch) |
| (3) 284 - 8960 Washer | | (4) 284 - 8959 Washer | |
| | | Quantity | One |

Thickness of one shim 2.0 mm (0.08 inch)

Reference: For additional information, refer to the Braking and Hydraulic Fan System Testing and Adjusting, "Service Brake - Test (16M)" for your machine for additional information concerning the installation of the shims and the compensator.

- (5) Lubricate the seal lightly with the lubricant that is being sealed prior to assembly.
- (6) 288 - 3883 Spring
 - Quantity Four
 - Test length 89.9 mm (3.54 inch)
 - Test force 400 N (90 lb)
 - Free length after test 114.2 mm (4.50 inch)
 - Outside diameter 19 mm (0.75 inch)
- (7) Torque for four bolts 60 ± 12 N·m (45 ± 9 lb ft)
- (8) 284 - 9557 Plate
 - Number of plates 14
 - Thickness of one plate 1.91 ± 0.064 mm (0.075 ± 0.0025 inch)
- (9) 259 - 6836 Friction Disc
 - Number of discs 13
 - Thickness of one disc 3.6 ± 0.08 mm (0.142 ± 0.003 inch)
 - Minimum reusable thickness for one disk 3.43 mm (0.135 inch)
- (10) Torque for 28 bolts 270 ± 40 N·m (200 ± 30 lb ft)
- (11) 270 - 6942 Shim
 - Quantity Four
 - Shim thickness 0.12 mm (0.005 inch)
- (12) 270 - 6943 Shim
 - Quantity One
 - Shim thickness 0.18 mm (0.007 inch)
- (13) 270 - 6944 Shim
 - Quantity Four
 - Shim thickness 0.5 mm (0.02 inch)

Reference: For additional information regarding the installation of these shims, refer to the Disassembly and Assembly, "Service Brakes" manual for your machine.

- (14) Clean the mounting surface. Prior to assembling the wheel group and the tandem, apply 1U - 8846 Gasket Sealant to the mounting surface.

- (15) The seals and all of the surfaces that are contacting the seals must be clean and dry at assembly. Apply a thin film of oil to the metal seal ring prior to assembly.

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Service Brake Lines

SMCS Code: 4257

Part No.: 249 - 6549
S/N: B9H1-Up

Part No.: 249 - 6549
S/N: R9H1-Up

Part No.: 235 - 6401
S/N: B9J1-Up

Part No.: 235 - 6401
S/N: R9J1-Up

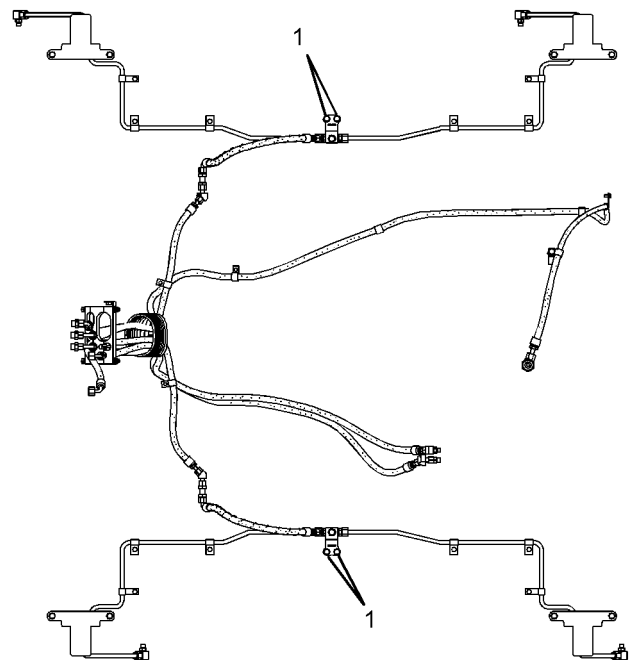


Illustration 29

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14M is shown in the illustration.

- (1) Apply blue Loctite 242 to the threads prior to assembly.

i04035951

i04035952

Gear Motor Mounting (Hydraulic Fan)

SMCS Code: 5061-MT; 5061

Part No.: 231 - 2313
S/N: B9J1-Up

Part No.: 231 - 2313
S/N: R9J1-Up

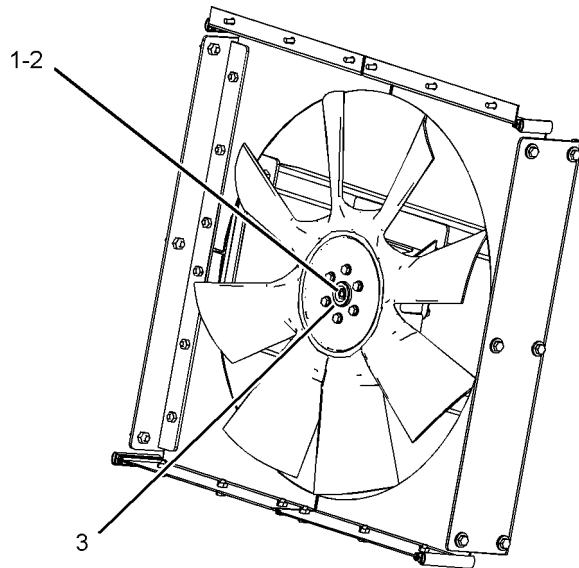


Illustration 30

g01283677

- (1) Apply blue Loctite 242 to the threads prior to assembly.
 - (2) Initial torque for nut 85 ± 10 N·m (63 ± 7 lb ft)
- Tap the face of adapter (3) in order to seat adapter (3) on the motor shaft.
- (2) Final torque for nut 85 ± 10 N·m (63 ± 7 lb ft)

Note: Maintain 3 mm (0.12 inch) of clearance between the fan blade and the shroud.

Gear Motor Mounting (Hydraulic Fan)

SMCS Code: 5061-MT; 5061

Part No.: 249 - 7366
S/N: B9H1-Up

Part No.: 249 - 7366
S/N: R9H1-Up

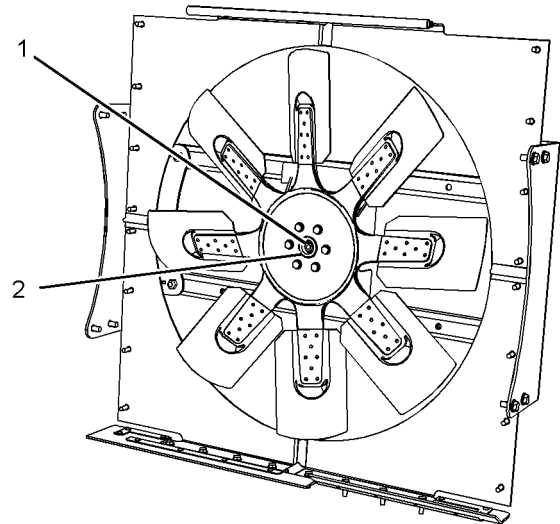


Illustration 31

g01188664

- (1) Initial torque for nut 85 ± 10 N·m (63 ± 7 lb ft)
- Tap the face of adapter (2) in order to seat adapter (2) on the motor shaft.
- (1) Final torque for nut 85 ± 10 N·m (63 ± 7 lb ft)

Note: Prior to assembly, thoroughly clean the taper of the shaft and the bore of adapter (2). Prior to assembly, thoroughly degrease the taper of the shaft and the bore of adapter (2). Prior to assembly, apply blue Loctite 242 to the threads of the shaft.

Note: Maintain 5 mm (0.20 inch) of clearance between the fan blade and the shroud.

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