

# Specifications

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## **PM-102 Cold Planer**

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Z2X250-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.

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. 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 be made unsafe by the operation, lubrication, maintenance or repair procedures that you choose.**

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. Caterpillar dealers have the most current information available.



**When replacement parts are required for this product Caterpillar recommends using Caterpillar 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.**

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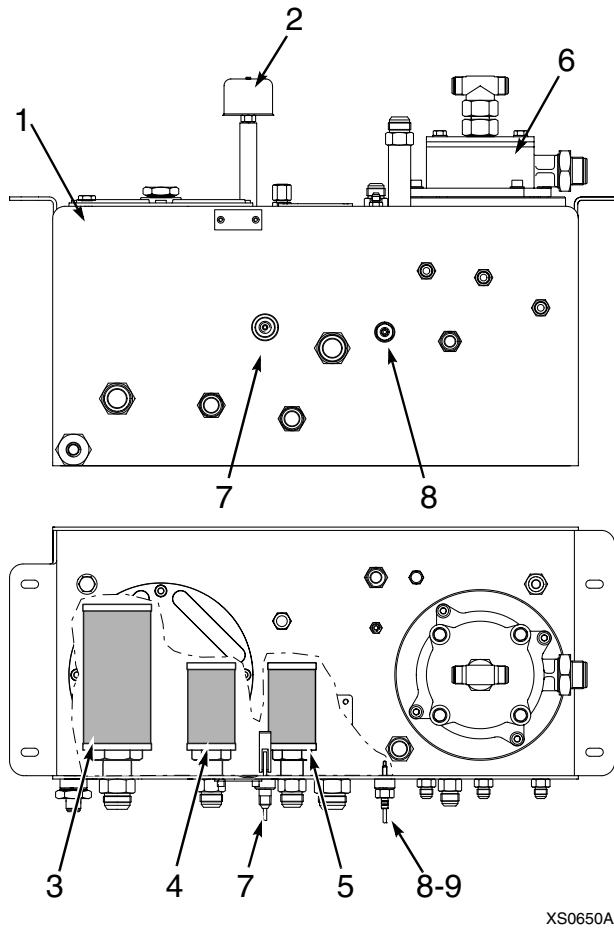
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# Specifications Section

## Hydraulic Tank

SMCS Code: 5056

Part No.: 497107519



XS0650AA

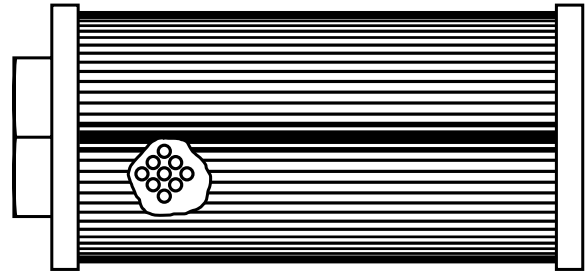
Illustration 1

- (1) Hydraulic tank
  - (2) Breather cap
  - (3) Conveyors system suction filter
  - (4) Cooling system suction filter
  - (5) Steering system suction filter
  - (6) Return filter
  - (7) Oil level sensor
  - (8) Temperature sensor
- (9) Torque for the temperature sensor ....  $6 \pm 1 \text{ N}\cdot\text{m}$   
( $53.1 \pm 8.85 \text{ lb in}$ )

## Suction Filter (Steering System)

SMCS Code: 5068

Part No.: 271-4222



XS0651AA

Illustration 2

Wire mesh..... 60 micron

Minimum collapse/burst pressure .. 345 kPa (50 psi)

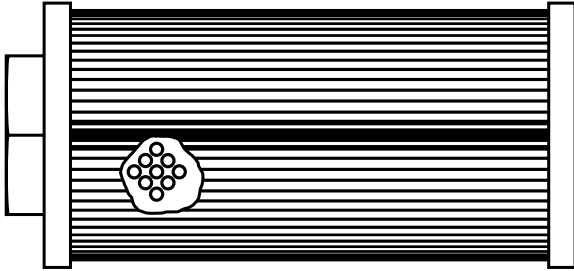
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## Suction Filter (Cooling System)

SMCS Code: 5068

Part No.: 271-4222

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XS0651AA

Illustration 3

Wire mesh..... 60 micron

Minimum collapse/burst pressure .. 345 kPa (50 psi)

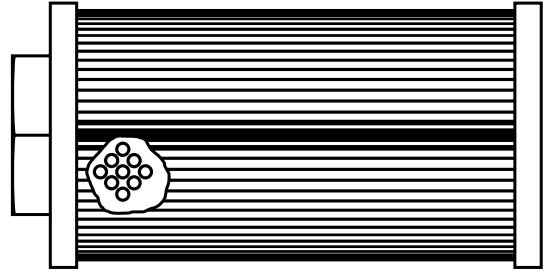
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## Suction Filter (Conveyors System)

SMCS Code: 5068

Part No.: 268-9886

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XS0652AA

Illustration 4

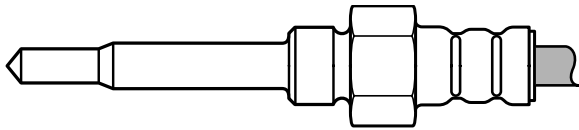
Wire mesh..... 60 micron

Minimum collapse/burst pressure ... 345 kPa (50 psi)

### Temperature Sensor (Hydraulic Oil)

SMCS Code: 509T

Part No.: 658007



XS0653AA

Illustration 5

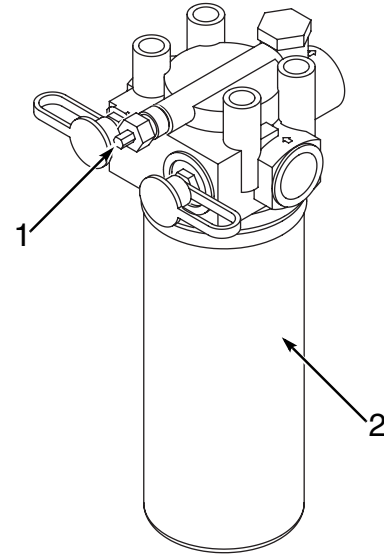
Operating temperature range..... -40 °C to 150 °C  
(-40 °F to 302 °F)

Torque for the temperature sensor ..... 6 ± 1 N•m  
(53.1 ± 8.85 lb in)

### Hydraulic Oil Filter (Traction - Charge)

SMCS Code: 5068

Part No.: 192-0717



XS0661AA

Illustration 6

- (1) Pressure switch
- (2) Hydraulic filter

Bypass pressure setting ..... 345 ± 34 kPa  
(50.04 ± 4.93 psi)

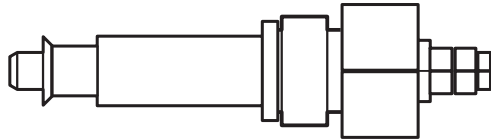
Collapse (minimum pressure) ..... 1380 kPa  
(200.15 psi)

Hydrostatic burst (minimum pressure) ..... 6895 kPa  
(1000 psi)

## Pressure switch (Propel Filter Plugging)

SMCS Code: 1435

Part No.: 134-0404



XS0662AA

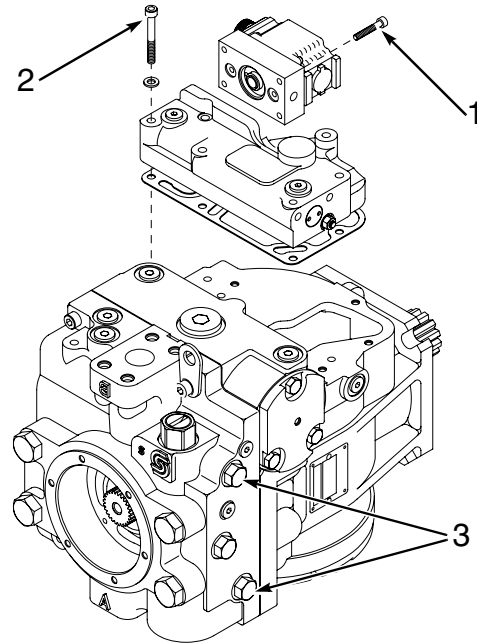
Illustration 7

Circuit.....	Normally open
Voltage .....	6 - 30 Volt DC
Maximum current .....	200 mA
Differential pressure to close circuit .....	40 ± 4 psi
Differential pressure to open circuit .....	30 ± 4 psi minimum

## Piston Pump (Propel)

SMCS Code: 5073

Part No.: 663168



XS0665AA

Illustration 8

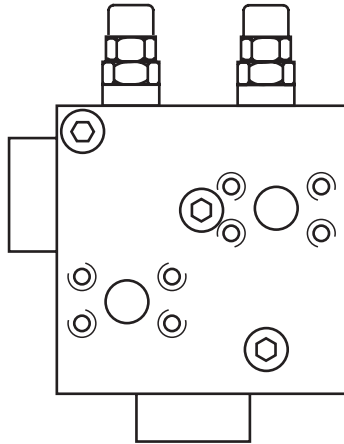
Pump rotation .....	Counterclockwise
Type .....	Variable displacement
Pump displacement .....	55 cc <sup>3</sup> /rev (3.36 inch <sup>3</sup> /rev)
Charge pressure .....	2300 kPa (333.58 psi)
Filtration .....	Remote pressure
(1) Tighten four bolts to the following torque .....	5.4 N•m (3.98 lb ft)
(2) Tighten six bolts to the following torque .....	16 N•m (11.80 lb ft)
(3) Pressure limiter setting .....	32000 +/-100 kPa (4641.21 +/- 14.5 psi)



## Flow Divider Valve (Propel)

SMCS Code: 5097

Part No.: 685382



XS0664AA

Illustration 9

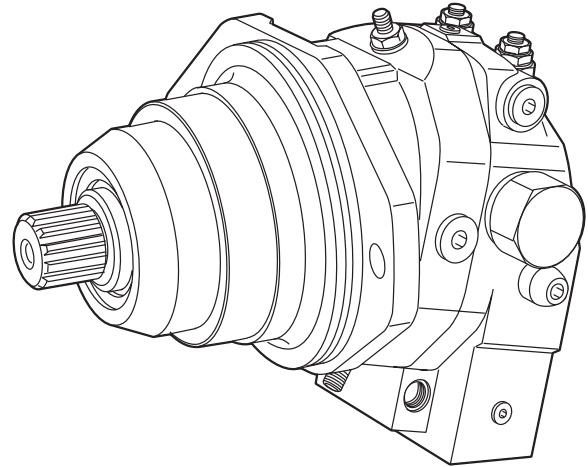
Maximum pressure..... 32000 kPa (4641.21 psi)

Voltage ..... 24 Volt

## Piston Motor (Propel)

SMCS Code: 5058

Part No.: 658142



XS0660AA

Illustration 10

Maximum displacement . 28.1 cm<sup>3</sup>/rev (1.71 in<sup>3</sup>/rev)

Minimum displacement ..... 11 cm<sup>3</sup>/rev (0.67 in<sup>3</sup>/rev)

Maximum rotation speed..... 5550 rpm

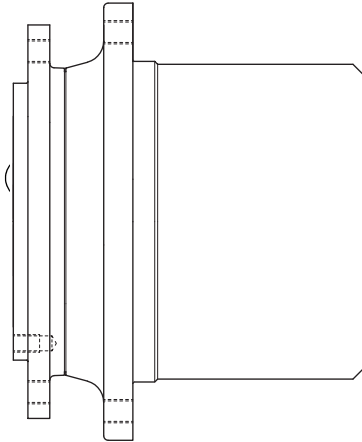
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## Reduction Gear (Propel)

**SMCS Code:** 4050

**Part No.:** 801216

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XS0685AA

Illustration 11

Nominal input torque..... 6000 N•m (4425.37 lb ft)

Maximum output torque .. 10000 N•m (7375.61 lb ft)

Ratio..... 1:53

Maximum input speed..... 3500 rpm

Braking torque..... 230 ± 23 N•m  
(169.64 ± 16.96 lb ft)

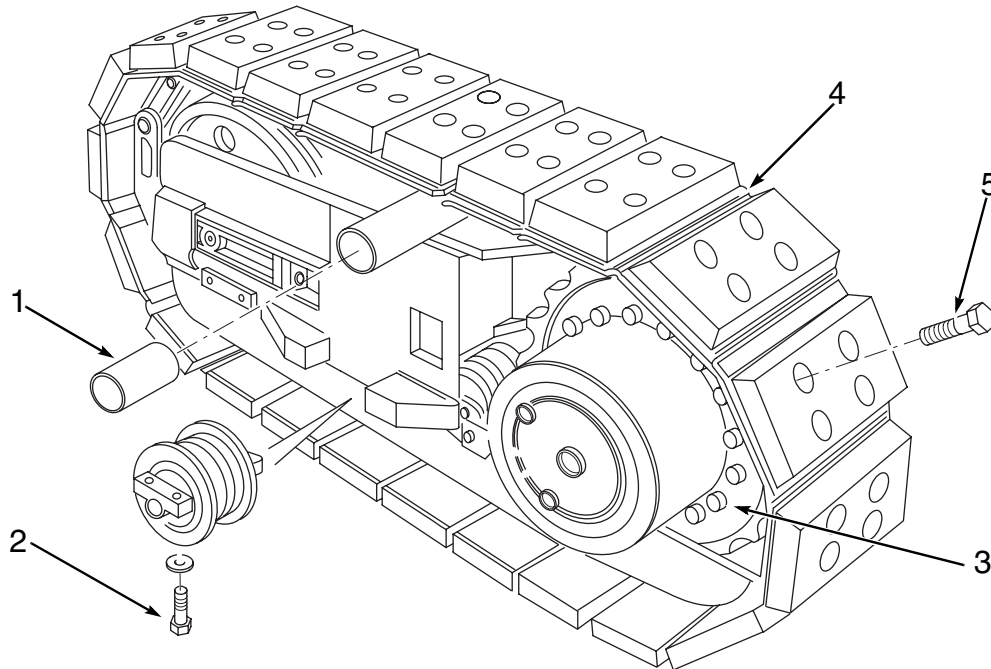
Minimum brake release pressure..... 1300 kPa  
(188.55 psi)

Maximum operating pressure ..... 32000kPa  
(4641.21 psi)

## Track Assembly

SMCS Code: 4170

Part No.: 497112508, 497112509, 497112510



XS0666AA

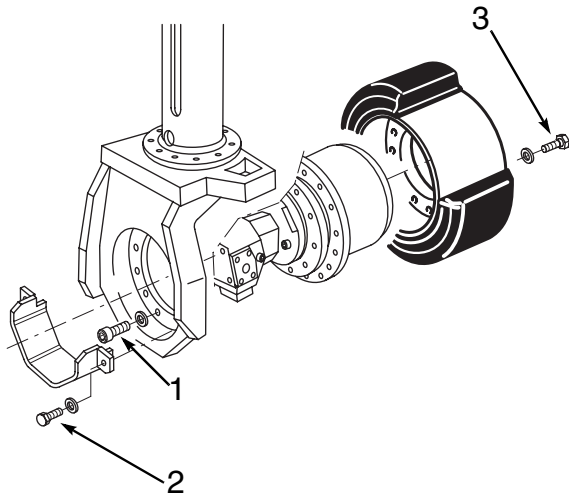
Illustration 12

- (1) Apply 185-3998 High Strength Thread Lock to the surface of bushings before you install each bushing on the tracks.
- (2) Tighten eight bolts for each track to the following torque .....  $108 \pm 17 \text{ N}\cdot\text{m}$   
(79.66  $\pm$  12.54 lb ft)
- (3) Tighten twelve bolts for each track to the following torque.....  $270 \pm 40 \text{ N}\cdot\text{m}$   
(199.14  $\pm$  29.5 lb ft)
- (4) Tighten sixteen bolts for each track to the following torque.....  $270 \pm 40 \text{ N}\cdot\text{m}$   
(199.14  $\pm$  29.5 lb ft)
- (5) Tighten seventy-six bolts for each track to the following torque.....  $174 \pm 14 \text{ N}\cdot\text{m}$   
(128.33  $\pm$  10.32 lb ft)

## Wheels (If Equipped)

SMCS Code: 4201

Part No.: 497113503, 497113508, 497113509,  
497113510



XS0667AA

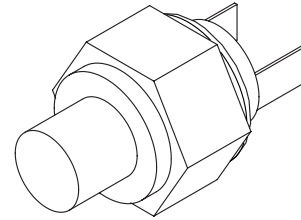
Illustration 13

- (1) Tighten twelve bolts for each wheel group to the following torque ..... 205 N•m (151.2 lb ft)
- (2) Tighten four bolts for each wheel group to the following torque ..... 84.8 N•m (62.55 lb ft)
- (3) Tighten eight bolts for each wheel to the following torque ..... 288 N•m (212.42 lb ft)

## Pressure Switch (Brake)

SMCS Code: 5734, 1435

Part No.: 270-4363



XS0668AA

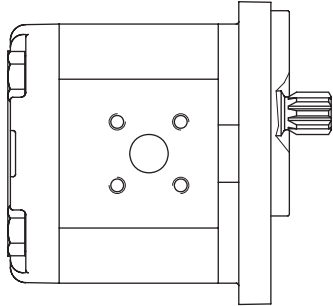
Illustration 14

Maximum voltage .....	48V DC
Current intensity (resistive) .....	0.5 A
Working pressure .....	25000 kPa (3625.94 psi)
Actuation pressure .....	300 - 600 kPa (43.51 - 87.02 psi)
Contact position .....	Normally Closed

### Gear Pump (Steering)

SMCS Code: 5073

Part No.: 663168



XS0643AA

Illustration 15

Rotation..... Bidirectional

Maximum pressure..... 23000 kPa (3335 psi)

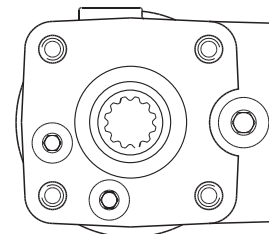
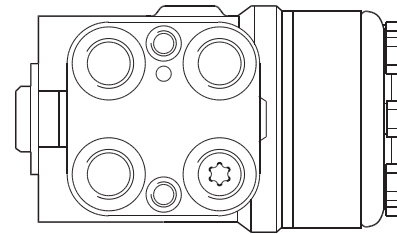
Maximum speed..... 19.2 cc<sup>3</sup>/rev (1.17 inch<sup>3</sup>/rev)

Maximum speed..... 3000 rpm

### Metering Pump (Steering)

SMCS Code: 4312

Part No.: 670013



XS0642AA

Illustration 16

Displacement ..... 200 cc/rev (12.2 in<sup>3</sup>/rev)

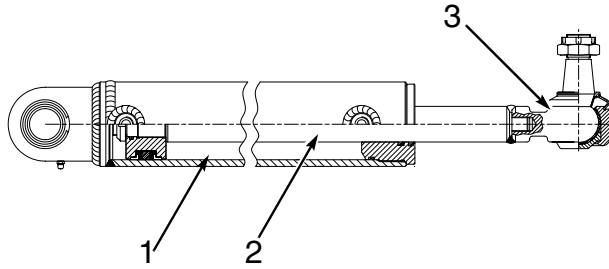
Rated flow capacity ..... 50 L/min (13.21 US gpm)

Shock valves ..... 21000 kPa (3045.79 psi)

## Hydraulic Cylinder (Front Steering - Track version)

SMCS Code: 4303, 7562

Part No.: 095075023



XS0639AA

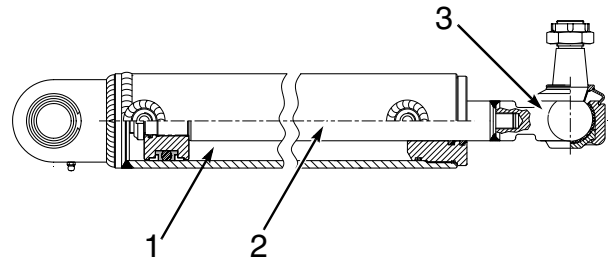
Illustration 17

- (1) Bore diameter ..... 80 mm (3.15 inch)
  - (2) Rod diameter ..... 40 mm (1.57 inch)
  - (3) Stroke ..... 345 mm (13.58 inch)
- Maximum operating pressure ..... 21000 kPa  
(3045.79 psi)

## Hydraulic Cylinder (Front Steering - Wheel Version)

SMCS Code: 4303, 7562

Part No.: 095055041



XS0640AA

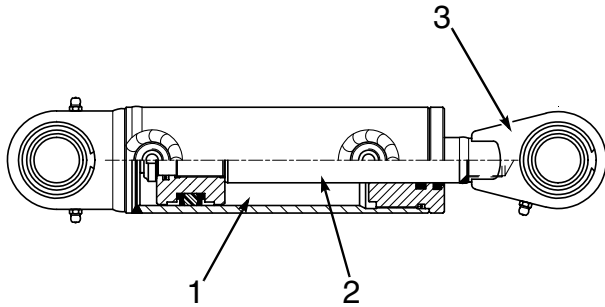
Illustration 18

- (1) Bore diameter ..... 80 mm (3.15 inch)
  - (2) Rod diameter ..... 40 mm (1.57 inch)
  - (3) Stroke ..... 425 mm (16.73 inch)
- Maximum operating pressure ..... 21000 kPa  
(3045.79 psi)

## Hydraulic Cylinder (Right Rear Track Steering)

SMCS Code: 4303, 7562

Part No.: 095099054



XS0641AA

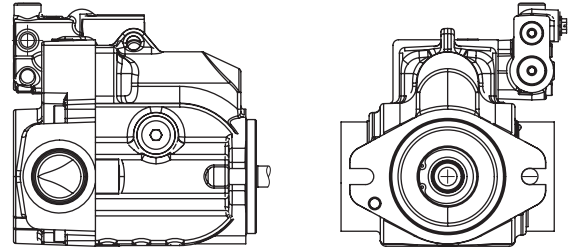
Illustration 19

(1) Bore diameter .....	60 mm (2.36 inch)
(2) Rod diameter .....	30 mm (1.18 inch)
(3) Stroke.....	95 mm (3.74 inch)
Maximum operating pressure.....	21000 kPa (3045.79 psi)

## Piston Pump (Auxiliary)

SMCS Code: 5070

Part No.: 253-5160



XS0658AA

Illustration 20

Rotation of the pump is clockwise when the pump is viewed from the drive end.

Displacement .....	45 cm <sup>3</sup> /rev (2.75 in <sup>3</sup> /rev)
Maximum rated pressure ..	21000 kPa (3045.79 psi)
Maximum rated speed .....	2650 rpm
Minimum rated speed .....	500 rpm

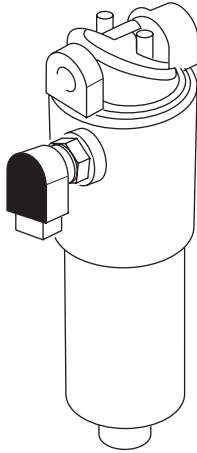
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## Hydraulic Oil Filter (Auxiliary)

**SMCS Code:** 5068

**Part No.:** 271-8876

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XS0659AA

Illustration 21

Maximum flow ..... 90 L/min (23.8 US gpm)  
Minimum collapse ..... 2000 kPa (290 psi)  
Bypass pressure setting..... 500 kPa (72.52 psi)

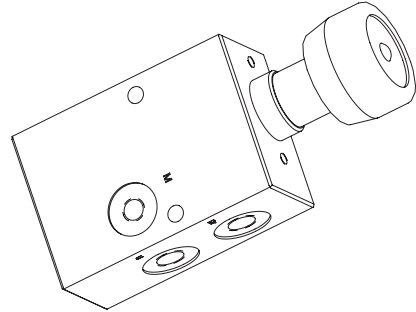
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## Regulation Valve (Moldboard Ground Pressure)

**SMCS Code:** 5137

**Part No.:** 259-6982

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XS0657AA

Illustration 22

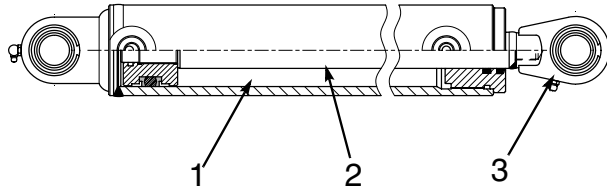
Maximum inlet pressure..... 21000 kPa (3045.79 psi)  
Maximum regulated pressure 4200 kPa (609.16 psi)  
Maximum flow ..... 20 l/min (5.28 US gpm)



## Hydraulic Cylinder (Moldboard)

SMCS Code: 5102; 7562

Part No.: 095066020



XS0656AA

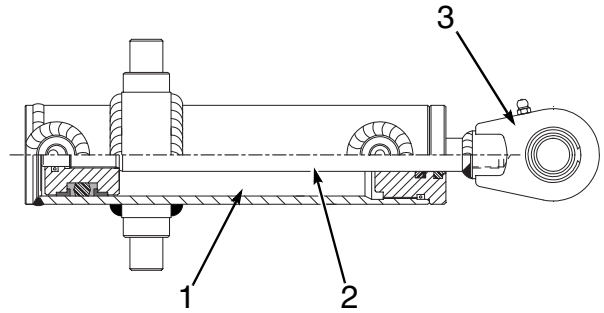
Illustration 23

- (1) Bore diameter ..... 60 mm (2.36 inch)
- (2) Rod diameter ..... 30 mm (1.18 inch)
- (3) Stroke..... 370 mm (14.56 inch)
- Maximum operating pressure..... 21000 kPa  
(3045.79 psi)

## Hydraulic Cylinder (Moldboard Access Door)

SMCS Code: 5138; 7562

Part No.: 095066021



XS0655AA

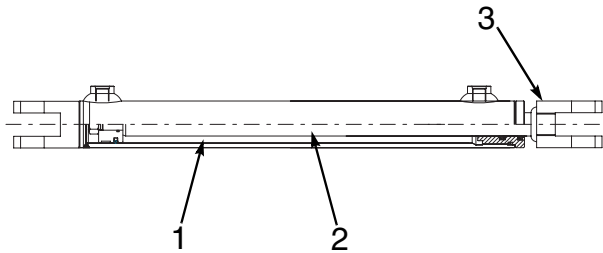
Illustration 24

- (1) Bore diameter ..... 50 mm (1.97 inch)
- (2) Rod diameter ..... 20 mm (0.79 inch)
- (3) Stroke ..... 155 mm (6.10 inch)
- Maximum operating pressure ..... 21000 kPa  
(3045.79 psi)

## Hydraulic Cylinder (Left and Right Side Plate)

SMCS Code: 5102; 7562

Part No.: 700335



XS0704AA

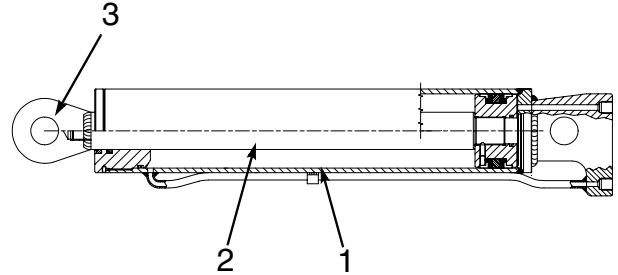
Illustration 25

- (1) Bore diameter ..... 30 mm (1.81 inch)
  - (2) Rod diameter ..... 15 mm (0.59 inch)
  - (3) Stroke ..... 325 mm (12.79 inch)
- Maximum operating pressure ..... 18000 kPa  
(2610.78 psi)

## Hydraulic Cylinder (Left and Right Front Legs)

SMCS Code: 7224; 7562

Part No.: 095055038



XS0669AA

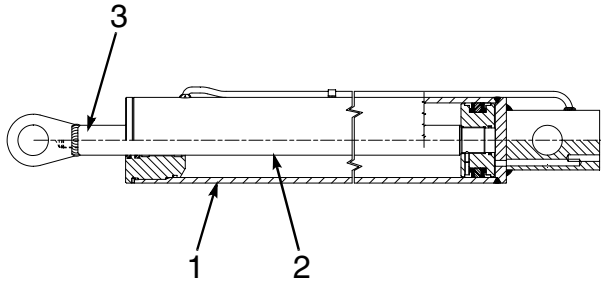
Illustration 26

- (1) Bore diameter ..... 80 mm (3.15 inch)
  - (2) Rod diameter ..... 40 mm (1.57 inch)
  - (3) Stroke ..... 350 mm (13.78 inch)
- Maximum operating pressure ..... 20000 kPa  
(2900.75 psi)

### Hydraulic Cylinder (Left Rear Leg)

SMCS Code: 7224; 7562

Part No.: 095099053



XS0671AA

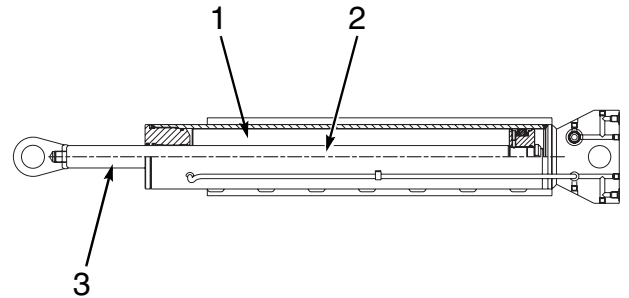
Illustration 27

- (1) Bore diameter ..... 100 mm (3.94 inch)
- (2) Rod diameter ..... 40 mm (1.57 inch)
- (3) Stroke..... 570 mm (22.44 inch)
- Maximum operating pressure..... 20000 kPa  
(2900.75 psi)

### Hydraulic Cylinder (Right Rear Leg)

SMCS Code: 7224; 7562

Part No.: 497101512



XS0672AA

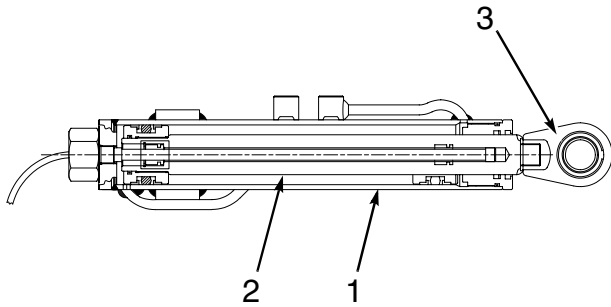
Illustration 28

- (1) Bore diameter ..... 100 mm (3.94 inch)
- (2) Rod diameter ..... 40 mm (1.57 inch)
- (3) Stroke ..... 570 mm (22.44 inch)
- Maximum operating pressure ..... 20000 kPa  
(2900.75 psi)

## Hydraulic Cylinder (Right Rear Leg Movement)

SMCS Code: 7224; 7562

Part No.: 497101015



XS0688AA

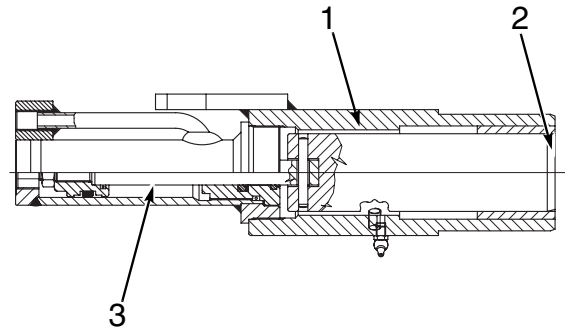
Illustration 29

- (1) Bore diameter ..... 60 mm (2.36 inch)
  - (2) Rod diameter ..... 40 mm (1.57 inch)
  - (3) Stroke ..... 290 mm (11.42 inch)
- Maximum operating pressure ..... 12000 kPa  
(1740.45 psi)

## Hydraulic Cylinder (Right Rear Leg Radial Lock)

SMCS Code: 7224; 7562

Part No.: 497101507



XS0689AA

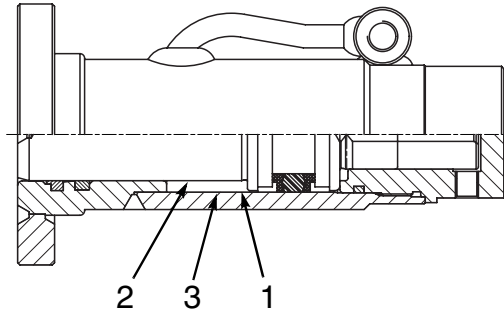
Illustration 30

- (1) Bore diameter ..... 81 mm (3.19 inch)
  - (2) Rod diameter ..... 50 mm (1.97 inch)
  - (3) Stroke ..... 60 mm (2.36 inch)
- Maximum operating pressure ..... 21000 kPa  
(3045.79 psi)

## Hydraulic Cylinder (Right Rear Leg Vertical Lock)

SMCS Code: 7224; 7562

Part No.: 497101035



XS0690AA

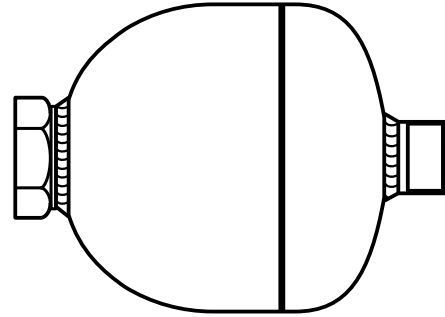
Illustration 31

- (1) Bore diameter ..... 50 mm (1.97 inch)
- (2) Rod diameter ..... 40 mm (1.57 inch)
- (3) Stroke..... 35 mm (1.38 inch)
- Maximum operating pressure..... 21000 kPa  
 (3045.79 psi)

## Accumulator (Right Rear Track Tensioner)

SMCS Code: 5077

Part No.: 104549



XS0683AA

Illustration 32

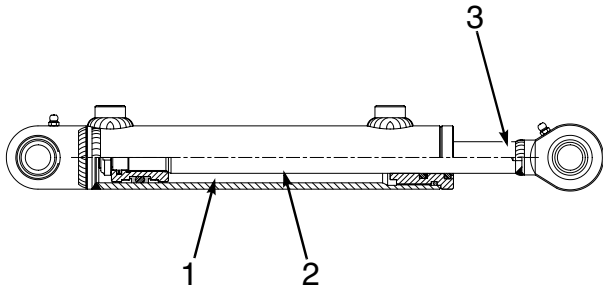
- Nominal volume ..... 0.75 L (0.20 US gal)
- Gas charging ..... Nitrogen
- Permissible operating temperature .. -10 °C to 80 °C  
 (14 °F to 176 °F)

**NOTE:** It is not possible to adjust the nitrogen gas pressure.

## Hydraulic Cylinder (Canopy)

**SMCS Code:** 5102; 7562

**Part No.:** 497120515



XS0654AA

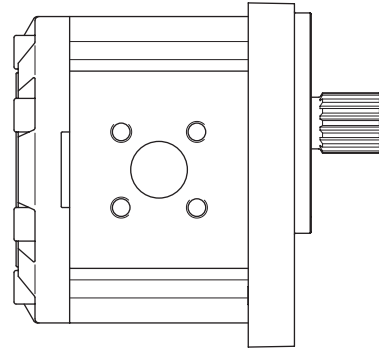
Illustration 33

- (1) Bore diameter ..... 40 mm (1.57 inch)
- (2) Rod diameter ..... 25 mm (0.98 inch)
- (3) Stroke ..... 175 mm (6.89 inch)
- Maximum operating pressure ..... 20000 kPa  
(2901 psi)

## Gear Pump (Conveyors)

**SMCS Code:** 5073

**Part No.:** 663168



XS0647AA

Illustration 34

- Rotation ..... Bidirectional
- Displacement ..... 33.1 cc (2.02 in<sup>3</sup>)
- Minimum speed ..... 800 rpm
- Maximum speed ..... 3000 rpm
- Maximum supply pressure ..... 27000 kPa (3910 psi)

### Gear Motor (Primary Conveyor)

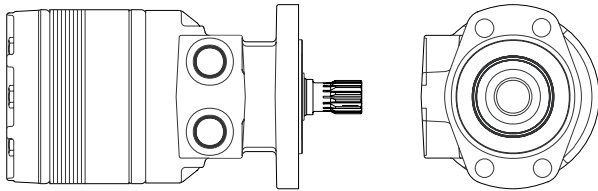
SMCS Code: 5061

Part No.: 658007

### Gear Motor (Secondary Conveyor)

SMCS Code: 5061

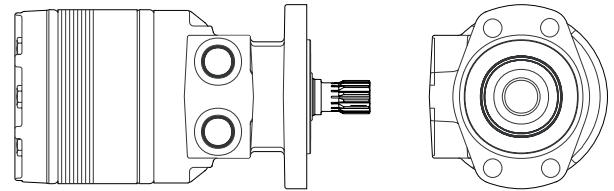
Part No.: 658007



XS0646AA

Illustration 35

Rotation..... Bidirectional  
Displacement ..... 195 cc (11.9 in<sup>3</sup>)  
Maximum speed at maximum intermittent flow .....  
477 rev/min  
Maximum supply pressure ..... 30000 kPa (4350 psi)



XS0646AA

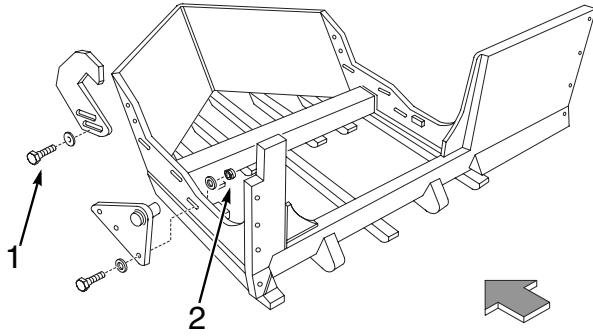
Illustration 36

Rotation ..... Bidirectional  
Displacement ..... 195 cc (11.9 in<sup>3</sup>)  
Maximum speed at maximum intermittent flow .....  
477 rev/min  
Maximum supply pressure ..... 30000 kPa (4350 psi)

## Antislab (Primary Conveyor)

SMCS Code: 670s

Part No.: 497017503



XS0644AA

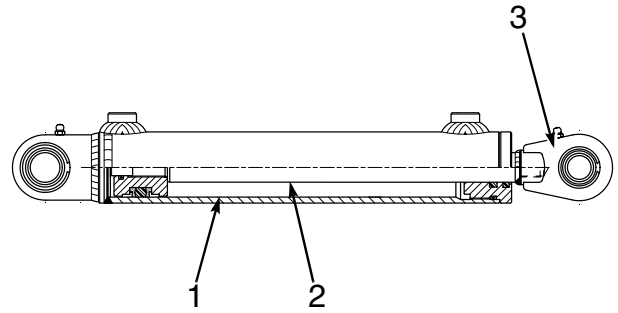
Illustration 37

- (1) Tighten four bolts to the following torque .....  
84.8 N•m (62.54 lb ft)
- (2) Tighten six locknuts to the following torque .....  
84.8 N•m (62.54 lb ft)

## Hydraulic Cylinder (Antislab)

SMCS Code: 5102, 7562

Part No.: 095050063



XS0645AA

Illustration 38

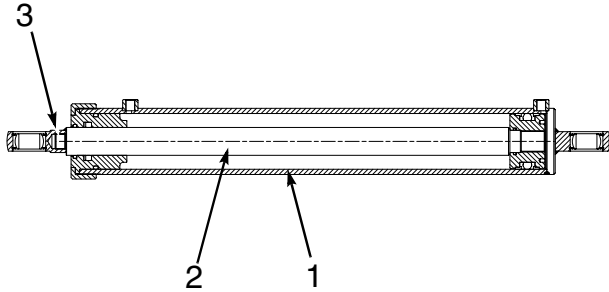
- (1) Bore diameter ..... 50 mm (1.97 inch)
  - (2) Rod diameter ..... 25 mm (0.99 inch)
  - (3) Stroke ..... 250 mm (9.84 inch)
- Operating pressure ..... 21000 kPa (3045.79 psi)



## Hydraulic Cylinder (Secondary Conveyor Raise/Lower)

SMCS Code: 5102, 7562

Part No.: 700035



XS0649AA

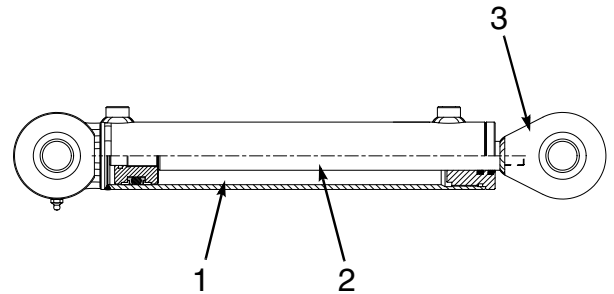
Illustration 39

- (1) Bore diameter ..... 80 mm (3.15 inch)
- (2) Rod diameter ..... 40 mm (1.57 inch)
- (3) Stroke..... 550 mm (21.65 inch)
- Operating pressure ..... 16000 kPa (2321 psi)

## Hydraulic Cylinder (Secondary Conveyor Swing)

SMCS Code: 5105, 7562

Part No.: 497013001



XS0648AA

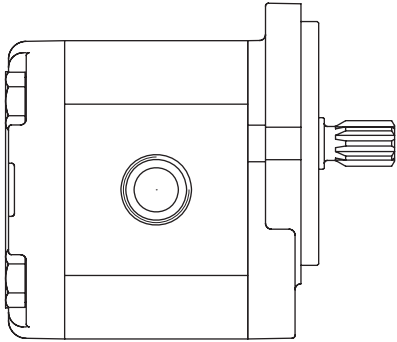
Illustration 40

- (1) Bore diameter ..... 60 mm (2.36 inch)
- (2) Rod diameter ..... 30 mm (1.18 inch)
- (3) Stroke ..... 300 mm (11.81 inch)
- Operating pressure ..... 16000 kPa (2321 psi)

## Gear Pump (Cooling System)

SMCS Code: 5073

Part No.: 663069



XS0670AA

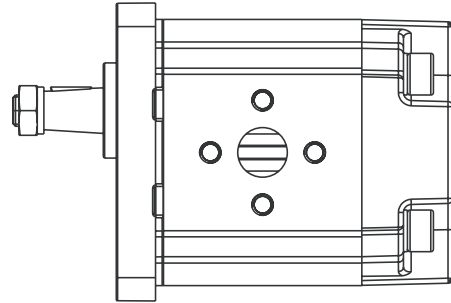
Illustration 41

Rotation.....	Bidirectional
Displacement .....	16.8 cc (1.02 in <sup>3</sup> )
Minimum speed.....	500 rpm
Maximum speed.....	3000 rpm
Peak pressure .....	28000 kPa (4060 psi)
Rated pressure .....	25000 kPa (3625 psi)

## Gear Motor (Hydraulic Oil Radiator)

SMCS Code: 5061

Part No.: 640940



XS0687AA

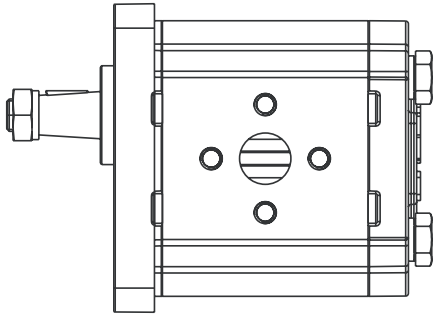
Illustration 42

Rotation .....	Bidirectional
Displacement .....	14.53 cc/rev. (0.89 in <sup>3</sup> /rev)
Maximum continuous pressure .....	25000 kPa (3625.94 psi)
Maximum intermittent pressure .....	28000 kPa (4061.06 psi)
Maximum peak pressure ..	30000 kPa (4351.13 psi)
Maximum speed .....	3000 rpm
Minimum speed .....	500 rpm

## Gear Motor (Engine Cooling Radiator)

SMCS Code: 5061

Part No.: 640939



XS0686AA

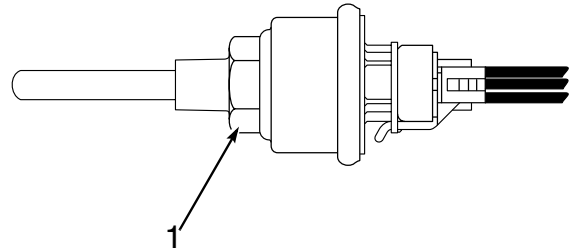
Illustration 43

- Rotation..... Bidirectional
- Displacement ..... 16.85 cc/rev. (1.03 in<sup>3</sup>/rev)
- Maximum continuous pressure ..... 25000 kPa  
(3625.94 psi)
- Maximum intermittent pressure..... 28000 kPa  
(4061.06 psi)
- Maximum peak pressure .. 30000 kPa (4351.13 psi)
- Maximum speed..... 3000 rpm
- Minimum speed..... 500 rpm

## Level Sensor (Cooling System)

SMCS Code: 7470

Part No.: 165-6634



XS0705AA

Illustration 44

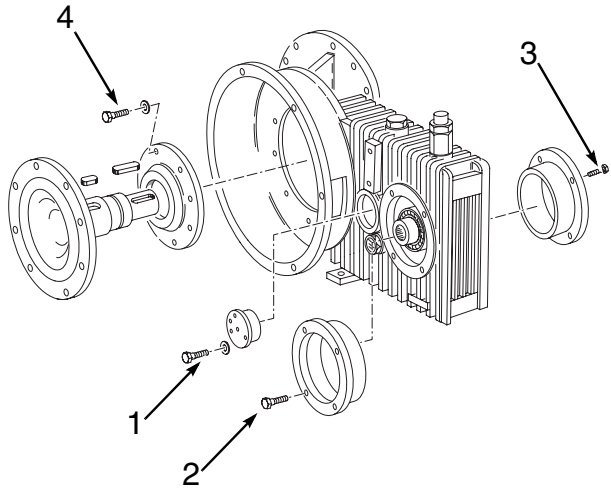
- Current rating, input ..... 10 mA
- Current rating, output..... 10 mA max.
- Operating temperature range..... -40 °C to 125 °C  
(-40 °F to 257 °F)

(1) Tighten the sensor to the following torque .....  
 $22 \pm 3 \text{ N}\cdot\text{m}$  (16.23 ± 2.21 lb ft)

## Coupling Unit

SMCS Code: 3279

Part No.: 095053501



XS0684AA

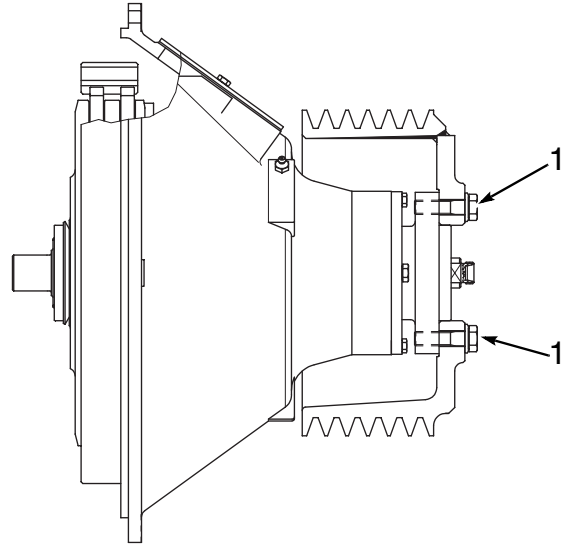
Illustration 45

- (1) Apply 185-3996 Thread Lock to the surface of the screws and tighten five screws to the following torque ..... 50 N•m (36.88 lb ft)
- (2) Apply 185-3996 Thread Lock to the surface of the screws and tighten four screws to the following torque ..... 50 N•m (36.88 lb ft)
- (3) Apply 185-3996 Thread Lock to the surface of the screws and tighten four screws to the following torque ..... 50 N•m (36.88 lb ft)
- (4) Apply 185-3996 Thread Lock to the surface of the screws and tighten eight screws to the following torque ..... 50 N•m (36.88 lb ft)

## Clutch

SMCS Code: 3169

Part No.: 497003502



XS0678AA

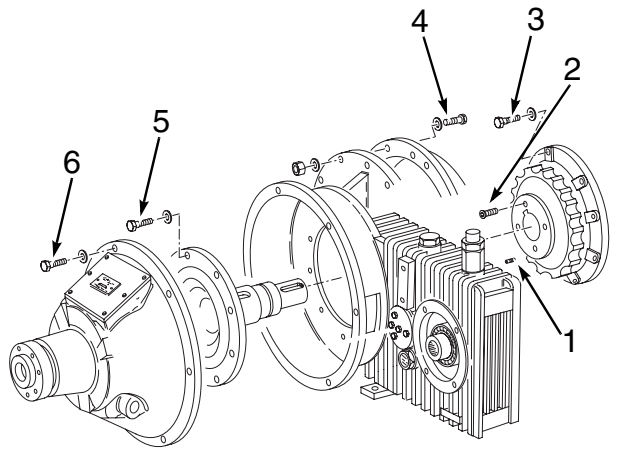
Illustration 46

- Maximum speed ..... 2500 rpm
- Slip torque..... 2000 N•m (1475.12 lb ft)
- (1) Tighten eight screws to the following torque.....  
84.8 N•m (62.54 lb ft)

# Clutch and Coupling Unit Installation

SMCS Code: 5602

Part No.: 497003000



XS0703AA

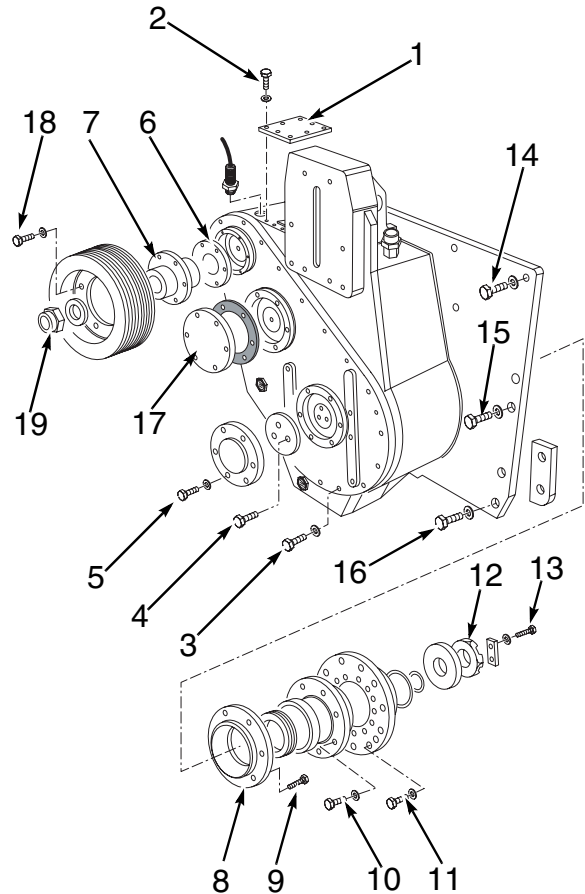
Illustration 47

- (1) Apply 185-3996 Thread Lock to the surface of the dowels and tighten two dowels to the following torque ..... 92 N•m (67.85 lb ft)
- (2) Apply 185-3996 Thread Lock to the surface of the screws and tighten four screws to the following torque ..... 26 N•m (19.17 lb ft)
- (3) Tighten eight screws to the following torque ..... 42 N•m (30.98 lb ft)
- (4) Tighten twelve screws to the following torque ..... 49 N•m (36.14 lb ft)
- (5) Tighten eight screws to the following torque ..... 49 N•m (36.14 lb ft)
- (6) Tighten twelve screws to the following torque ..... 49 N•m (36.14 lb ft)

# Reduction Gear (Milling Drum)

SMCS Code: 6236

Part No.: 385051504



XS0680AA

Illustration 48

- (1) Apply 185-3985 Gasket Maker to the internal side of the plate.
- (2) Tighten eight screws to the following torque..... 15.4 N•m (11.36 lb ft)
- (3) Tighten twenty-two screws to the following torque ... 53 N•m (39.09 lb ft)
- (4) Tighten three screws to the following torque ..... 53 N•m (39.09 lb ft)
- (5) Tighten six screws to the following torque ..... 53 N•m (39.09 lb ft)
- (6) Apply 185-3985 Gasket Maker to the internal side of the plate.
- (7) Apply 185-3985 Gasket Maker to the internal side of the plate.

- (8) Apply 185-3985 Gasket Maker to the internal side of the plate.
- (9) Tighten eight screws to the following torque.....  
84.3 N•m (62.17 lb ft)
- (10) Tighten twelve screws to the following torque....  
177 N•m (130.55 lb ft)
- (11) Tighten twelve screws to the following torque....  
392 N•m (289.12 lb ft)
- (12) Tighten the crown nut to the following torque ....  
550 N•m (405.66 lb ft)
- (13) Tighten two screws to the following torque .....  
32.7 N•m (24.12 lb ft)

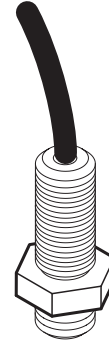
Install the reduction gear to the machine.

- (14) Tighten five screws to the following torque .....  
205 N•m (151.2 lb ft)
- (15) Tighten four screws to the following torque.....  
205 N•m (151.2 lb ft)
- (16) Tighten four screws to the following torque.....  
84.8 N•m (62.54 lb ft)
- (17) Apply 185-3985 Gasket Maker to the internal side of the plate.
- (18) Tighten eight screws to the following torque.....  
84.8 N•m (62.54 lb ft)
- (19) Tighten the nut to the following torque.....  
5.4 N•m (3.98 lb ft)

## Milling Drum Speed Sensor (Reduction Gear)

**SMCS Code:** 4803

**Part No.:** 4P-5820



XS0682AA

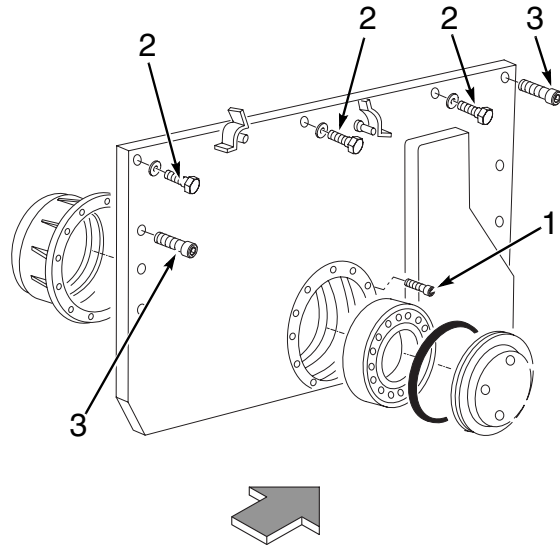
Illustration 49

Tighten the nut to the following torque.....  
37 ± 4 N•m (27.29 ± 2.95 lb ft)

## Drum Support (Right Rear Side Plate)

SMCS Code: 5635

Part No.: 497102510



XS0679AA

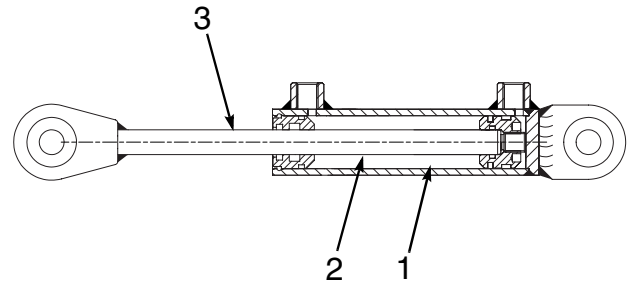
Illustration 50

- (1) Tighten eight screws to the following torque .....  
84.8 N•m (62.54 lb ft)
- (2) Tighten three screws to the following torque.....  
205 N•m (151.2 lb ft)
- (3) Tighten four screws to the following torque.....  
205 N•m (151.2 lb ft)

## Hydraulic Cylinder (Belt Tensioner)

SMCS Code: 5918; 7562

Part No.: 700349



XS0681AA

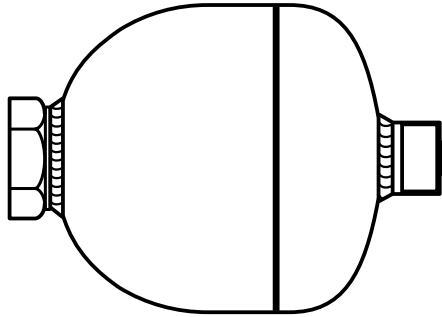
Illustration 51

- (1) Bore diameter ..... 32 mm (1.26 inch)
- (2) Rod diameter ..... 15 mm (0.59 inch)
- (3) Stroke ..... 100 mm (3.94 inch)
- Maximum operating pressure ..... 14000 kPa  
(2030.53 psi)

## Accumulator (Belt Tensioner)

SMCS Code: 5077

Part No.: 104541



XS0683AA

Illustration 52

Nominal volume ..... 0.7 L (0.18 US gal)

Gas charging..... Nitrogen

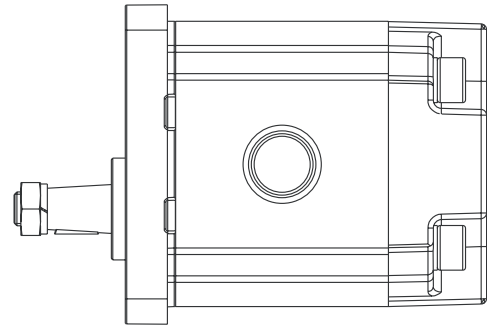
Permissible operating temperature .. -10 °C to 80 °C  
(14 °F to 176 °F)

**NOTE:** It is not possible to adjust the nitrogen gas pressure.

## Gear Motor (Water Spray)

SMCS Code: 5061

Part No.: 259-6976



XS0674AA

Illustration 53

Rotation ..... Bidirectional

Displacement..... 6.61 cc/rev (0.4 in<sup>3</sup>/rev)

Minimum rated speed ..... 600 rpm

Maximum rated speed ..... 4000 rpm

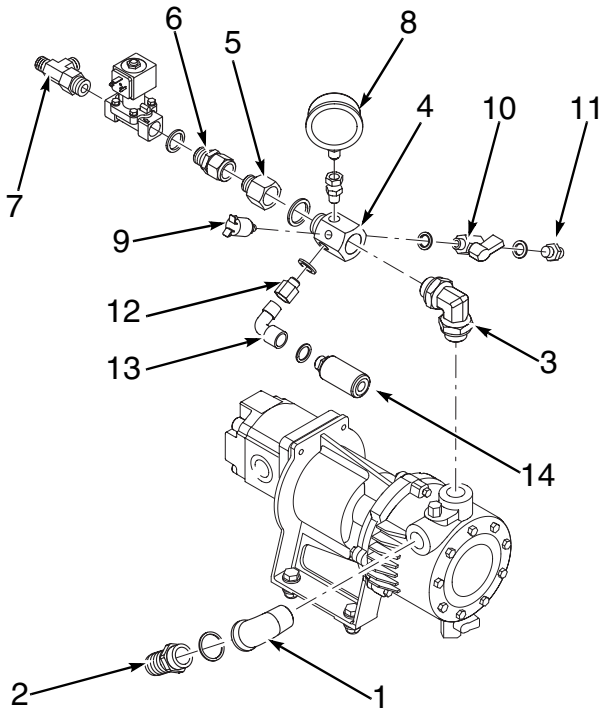
Maximum rated pressure ..... 25000 kPa (3625 psi)



# Water Spray System Pump Assembly

SMCS Code: 5612

Part No.: 497116556



XS0673AA

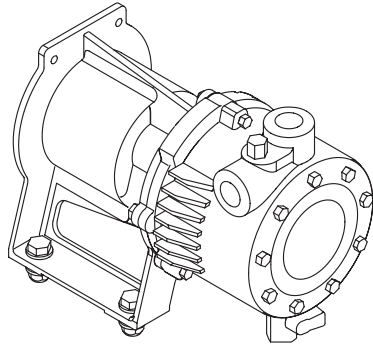
Illustration 54

- (1) Apply 185-3992 Pipe Sealant between the pump and connector.
- (2) Tighten the connector to the following torque .....  
100 N•m (73.76 lb ft)
- (3) Tighten the connector to the following torque .....  
100 N•m (73.76 lb ft)
- (4) Tighten the connector to the following torque .....  
190 N•m (140.14 lb ft)
- (5) Tighten the connector to the following torque .....  
100 N•m (73.76 lb ft)
- (6) Tighten the connector to the following torque .....  
60 N•m (44.25 lb ft)
- (7) Tighten the connector to the following torque .....  
60 N•m (44.25 lb ft)
- (8) Tighten the pressure indicator to the following torque .....  
20 N•m (14.75 lb ft)
- (9) Apply 185-3992 Pipe Sealant and tighten the pressure switch to the following torque .....  
16 N•m (11.80 lb ft)
- (10) Tighten the valve to the following torque .....  
35 N•m (25.81 lb ft)
- (11) Tighten the connector to the following torque ....  
35 N•m (25.81 lb ft)
- (12) Tighten the reduction to the following torque .....  
35 N•m (25.81 lb ft)
- (13) Apply 185-3992 Pipe Sealant between the reduction and the connector and tighten the connector to the following torque .....  
40 N•m (29.50 lb ft)
- (14) Tighten the quick coupler connector to the following torque .....  
40 N•m (29.50 lb ft)

## Water Spray Pump

SMCS Code: 5614

Part No.: 253-3786



XS0675AA

Illustration 55

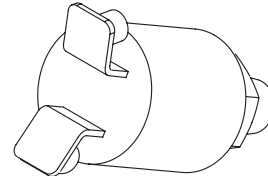
Maximum flow at 2900 rpm..... 50 Lpm  
(13.20 US gpm)

Maximum water temperature allowed ..... 60 °C  
(140 °F)

## Pressure Switch (Water)

SMCS Code: 7454

Part No.: 3T-3727



XS0676AA

Illustration 56

Actuation pressure

..... at -40 °C (-40 °F):  
166 ± 55 kPa (24.07 ± 7.98 psi)  
..... at 25 °C (77 °F):  
159 ± 20 kPa (23.06 ± 2.9 psi)  
..... at 121 °C (249.8 °F):  
152 ± 55 kPa (22.04 ± 7.98 psi)

Deactuation pressure

..... at -40 °C (-40 °F):  
118 ± 55 kPa (17.11 ± 7.98 psi)  
..... at 25 °C (77 °F):  
111 ± 20 kPa (16.1 ± 2.9 psi)  
..... at 121 °C (249.8 °F):  
104 ± 55 kPa (15.08 ± 7.98 psi)

Proof pressure, static..... 1725 kPa (250.19 psi)

Burst pressure, static..... 17200 kPa (2494.65 psi)

Operating temperature range ..... -40 °C to 121 °C  
(-40 °F to 249.8 °F)

Contact position..... Normally open

## Water Spray System Filter Assembly

SMCS Code: 5612

Part No.: 283-0978

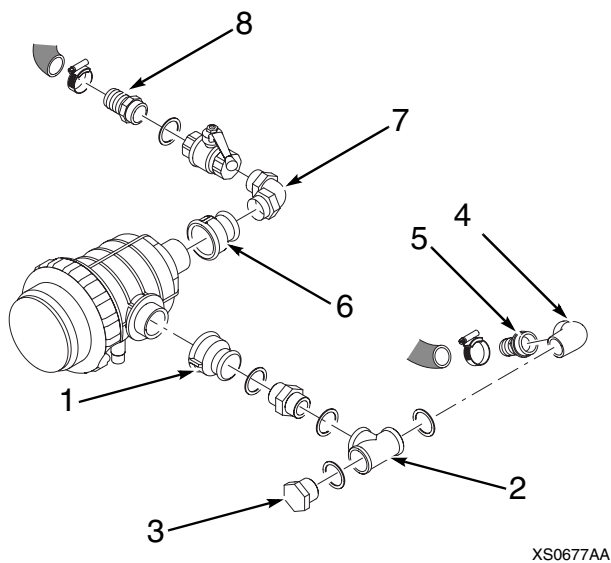


Illustration 57

- (1) Apply 185-3992 Pipe Sealant between the filter and connector.
- (2) Tighten the connector to the following torque .....  
200 N•m (147.51 lb ft)
- (3) Tighten the plug to the following torque .....  
200 N•m (147.51 lb ft)
- (4) Apply 185-3992 Pipe Sealant between the connector (2) and 90° connector.
- (5) Tighten the plug to the following torque .....  
200 N•m (147.51 lb ft)
- (6) Apply 185-3992 Pipe Sealant between the filter and connector.
- (7) Tighten the connector to the following torque .....  
200 N•m (147.51 lb ft)
- (8) Tighten the connector to the following torque .....  
200 N•m (147.51 lb ft)

## Alternator Installation

SMCS Code: 1405

Part No.: 497107529

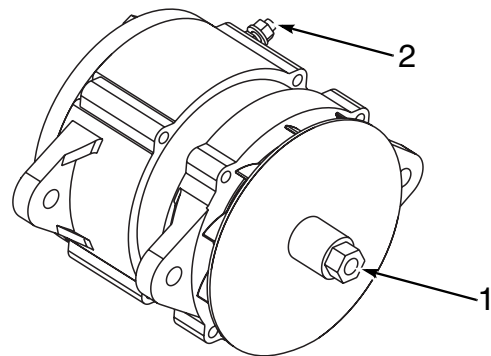


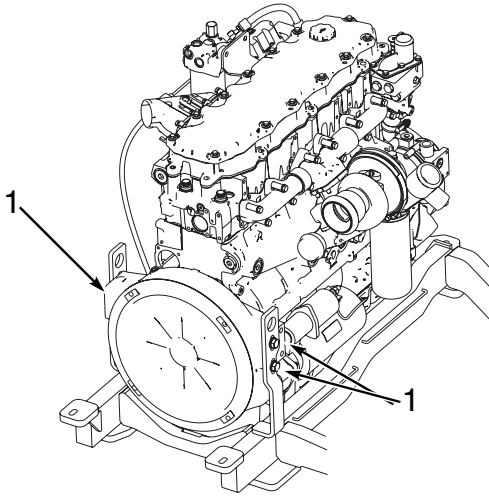
Illustration 58

- (1) Tighten the nut to the following torque.....  
127 ± 10 N•m (93.67 ± 7.37 lb ft)
- (2) Tighten the nut to lock the cables to the following torque ..... 18.2 ± 2.4 N•m (13.42 ± 1.77 lb ft)

## Engine Installation

SMCS Code: 1002

Part No.: 497107506



XS0700AA

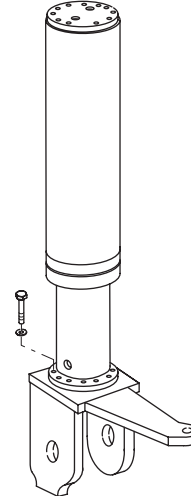
Illustration 59

(1) Tighten four bolts to the following torque .....  
288 N•m (212.42 lb ft)

## Front Legs

SMCS Code: 7224

Part No.: 497117502



XS0695AA

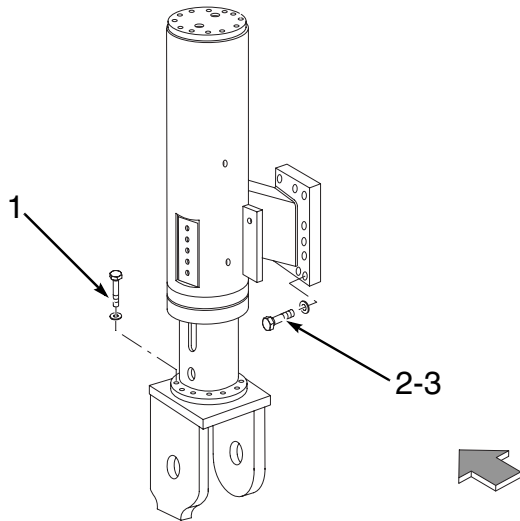
Illustration 60

Tighten eight bolts for each column to the following  
torque ..... 190 N•m (140.14 lb ft)

## Rear Left Leg

SMCS Code: 7224

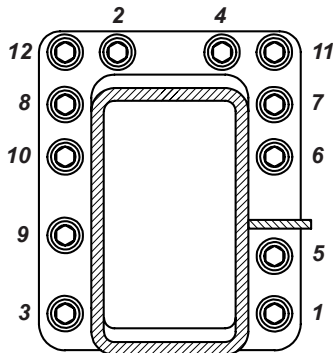
Part No.: 497107501



XS0696AA

Illustration 61

- (1) Tighten eight bolts to the following torque .....  
 190 N•m (140.14 lb ft)
- (2) Use the following procedure to tighten the rear left leg bolts.



XS0697AA

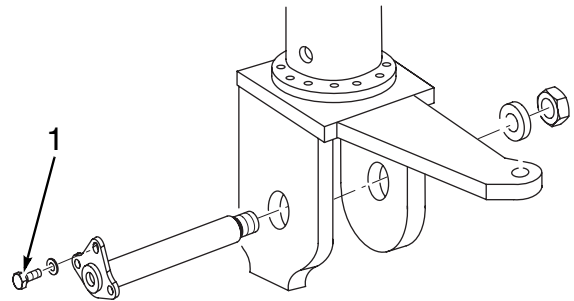
Illustration 62

- (1) Apply 185-3998 High Strength Thread Compound when you install every bolt.
- (2) Using an impact wrench completely tighten twelve bolts in the numerical sequence shown. Re-tighten the twelve bolts in the same sequence.
- (3) Tighten the twelve bolts to  $500 \pm 10$  N•m ( $368.78 \pm 7.37$  lb ft) in the numerical sequence.

## Front Track Installation

SMCS Code: 4170

Part No.: 497112512



XS0692AA

Illustration 63

- (1) Tighten two bolts to the following torque .....  
 135 N•m (99.57 lb ft)

## Right Rear Track Installation

SMCS Code: 4170

Part No.: 497112514

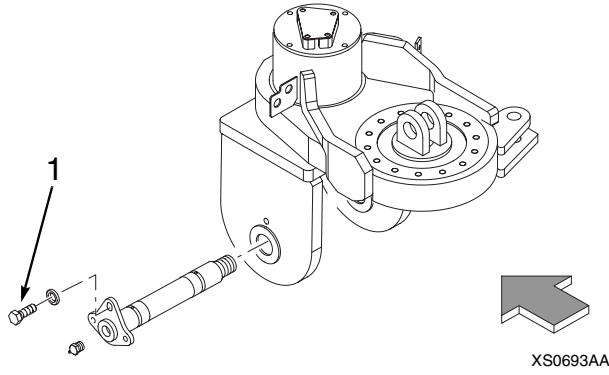


Illustration 64

(1) Tighten one bolt to the following torque.....  
135 N•m (99.57 lb ft)

## Left Rear Track Installation

SMCS Code: 4170

Part No.: 497112513

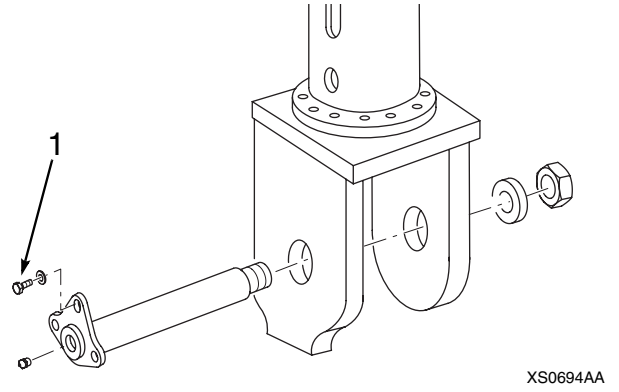


Illustration 65

(1) Tighten one bolt to the following torque.....  
135 N•m (99.57 lb ft)

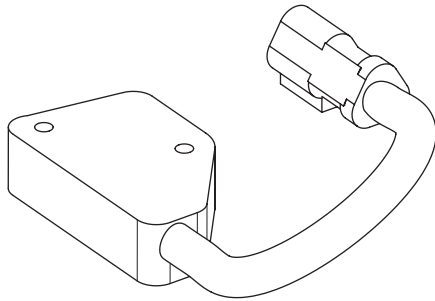
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## Right Rear Column Rotation Sensor (Actuator Position)

SMCS Code: 430S

Part No.: 219-2392

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XS0698AA

Illustration 66

Operating temperature range..... -40 °C to 85 °C

Rotation range ..... 310 °

Supply voltage..... 9 - 32 VDC

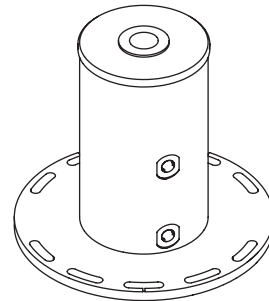
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## Right Rear Leg Rotation Actuator

SMCS Code: 5078

Part No.: 258-7793

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XS0699AA

Illustration 67

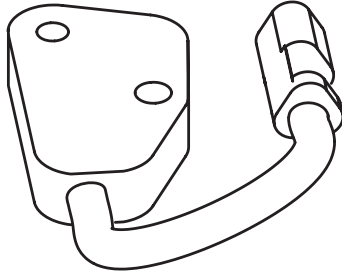
Net output torque ..... 135 N•m (99.57 lb ft)

Displacement ..... 310 °

## Right Rear Leg Steering Sensor

**SMCS Code:** 430S

**Part No.:** 224-5530



XS0702AA

Illustration 68

Operating temperature range..... -40 °C to 85 °C

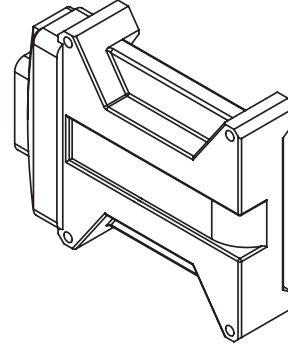
Rotation range ..... 310 °

Supply voltage ..... 9 - 32 VDC

## Electronic Control Module

**SMCS Code:** 3168

**Part No.:** 283-4138



XS0701AA

Illustration 69

Supply voltage ..... 9 -36 V

Operating temperature..... -40 °C to 70 °C  
(-40 °F to 158 °F)

Maximum current ..... 40 Amp



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