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## **PARTS MANUAL**

**SDA-1200 STEERABLE DRIVE AXLE**

**SDA-1400 STEERABLE DRIVE AXLE**

**SDA-1600 STEERABLE DRIVE AXLE**

**WITH EXTENDED SERVICE BRAKES  
AND ABS PROVISIONS**

## 10.0 ABS PARTS AND SERVICE

Refer to axle Parts List, and figures on pages ABS 2 and ABS 3.

### 10.1 ABS SENSOR REMOVAL

1. Remove the brake drum & hub, as directed in Section 4.0.
2. Push the grommet through the brake dust shield, towards the differential.
3. Remove the grommet from the ABS sensor cable.
4. Remove all of the ABS sensor cable clamps.
5. Remove the ABS sensor block from the ABS sensor bracket.
6. Remove the ABS sensor & clip from the ABS sensor block.
7. Pull the connector end of the ABS sensor cable through the hole in the dust shield.

### 10.2 ABS SENSOR ASSEMBLY INSPECTION

Look for any visible damage to the sensor, cable assembly, connector, clamps, grommet, mounting block, mounting brackets, or brake spider. Replace any damaged components.

### 10.3 ABS SENSOR ASSEMBLY INSTALLATION

1. Install the ABS sensor bracket. Be certain to use the special shorter locknuts. Torque the nuts to 175 lb.-ft.
2. Install the ABS sensor clip fully into the ABS sensor block, with the retaining tabs toward the inboard side of the block. If you are replacing the ABS sensor, be certain to use the new sensor clip that comes with it.
3. Push the sensor into the block as far as possible.
4. Mount the block, with the sensor installed, to the sensor bracket. Make sure the block is securely attached to the sensor bracket.
5. Push the connector end of the ABS sensor cable through the hole in the dust shield. Position the cable as is shown in Figure 10.1, page ABS 2.
6. If the sensor cable includes a wire loom, remove any loom outboard of the dust shield.

7. Install the clamps that are attached to the brake spider, starting from the sensor end of the cable. See Figure 10.2, page ABS 3, for details of the clamp assembly. These clamps will not fit over the cable if it has a wire loom on it.
8. Put the grommet on the sensor cable, inboard of the dust shield. The small face of the grommet should face outboard.
9. Install the grommet in the hole provided in the dust shield. Be sure, at the location of the grommet, the ABS cable has no wire loom. The grommet will be too large to fit in the hole in the dust shield if it is placed over the loom and the cable.
10. Install the wheel bearings, hub, and brake drum using the instructions in Section 6.0. When installing the hub, the exciter ring should push the ABS sensor inboard. After installing the hub, slight rubbing between the exciter ring and ABS sensor is acceptable.

**NOTE:** It is important that the wheel bearings be adjusted properly to ensure that the antilock function does not shut down as a result of excessive wheel end play.

### 10.4 ABS SENSOR OPERATIONAL TEST

1. Connect a voltmeter to the ABS sensor terminals.
2. Set the voltmeter range to 1 VAC or the closest AC range greater than 1V.
3. Spin the wheel approximately 3 to 5 mph. For a 500 revolution per mile tire, 3 to 5 mph is 25 to 42 revolutions per minute.
4. With the wheel rotating, measure the output voltage of the sensor. The voltage should be greater than 0.250 VAC.
5. If the voltage is low, check the sensor cable and the position of the sensor relative to the exciter ring.

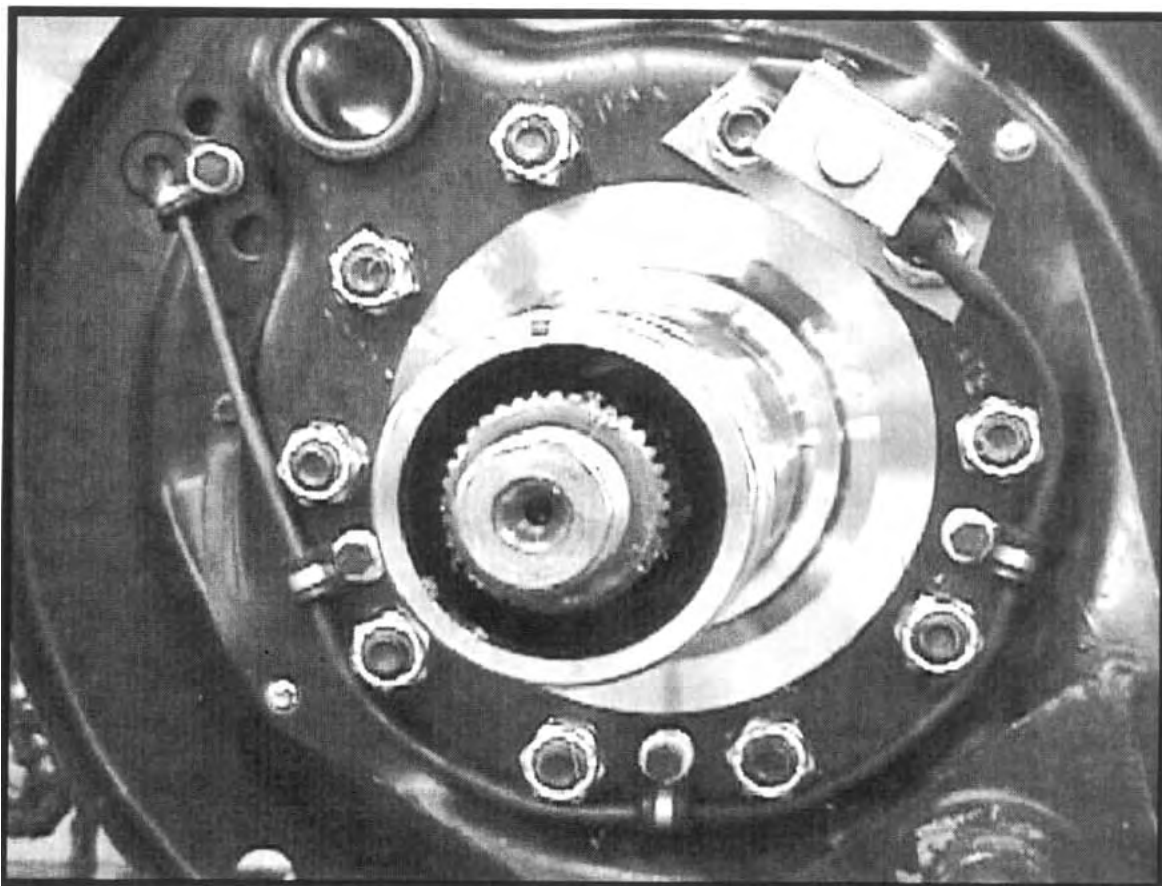


Figure 10.1: ABS Assembly, Left-hand Side



Figure 10.2: Clamp Assembly, ABS Cable, Inside Steerable End

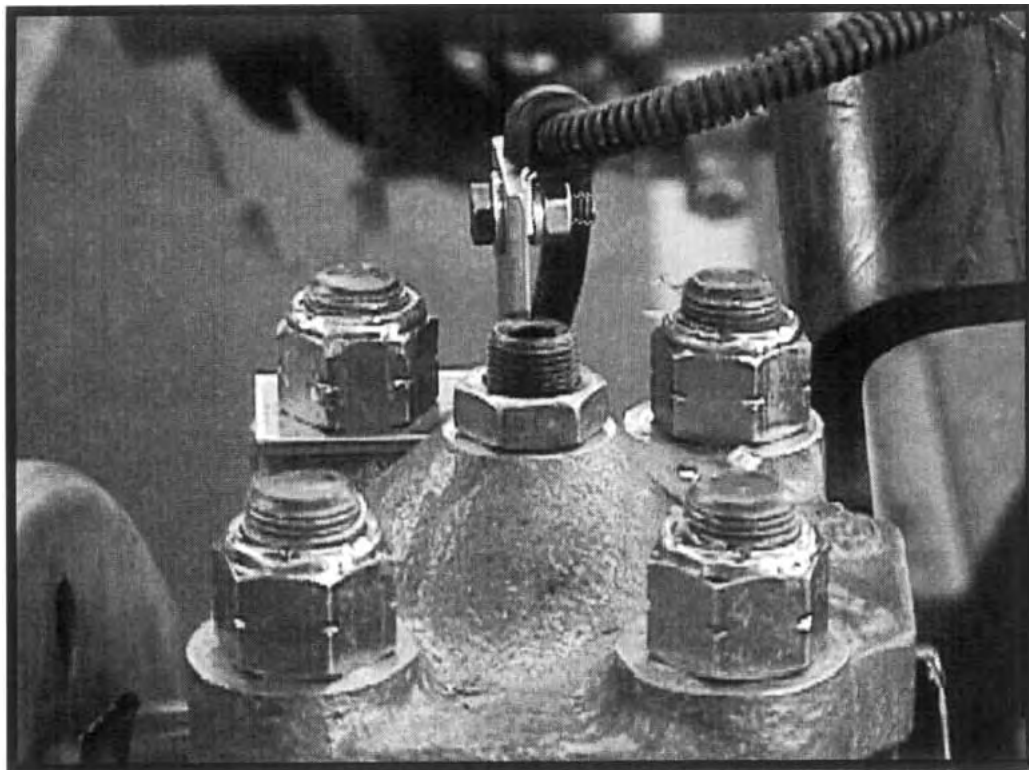
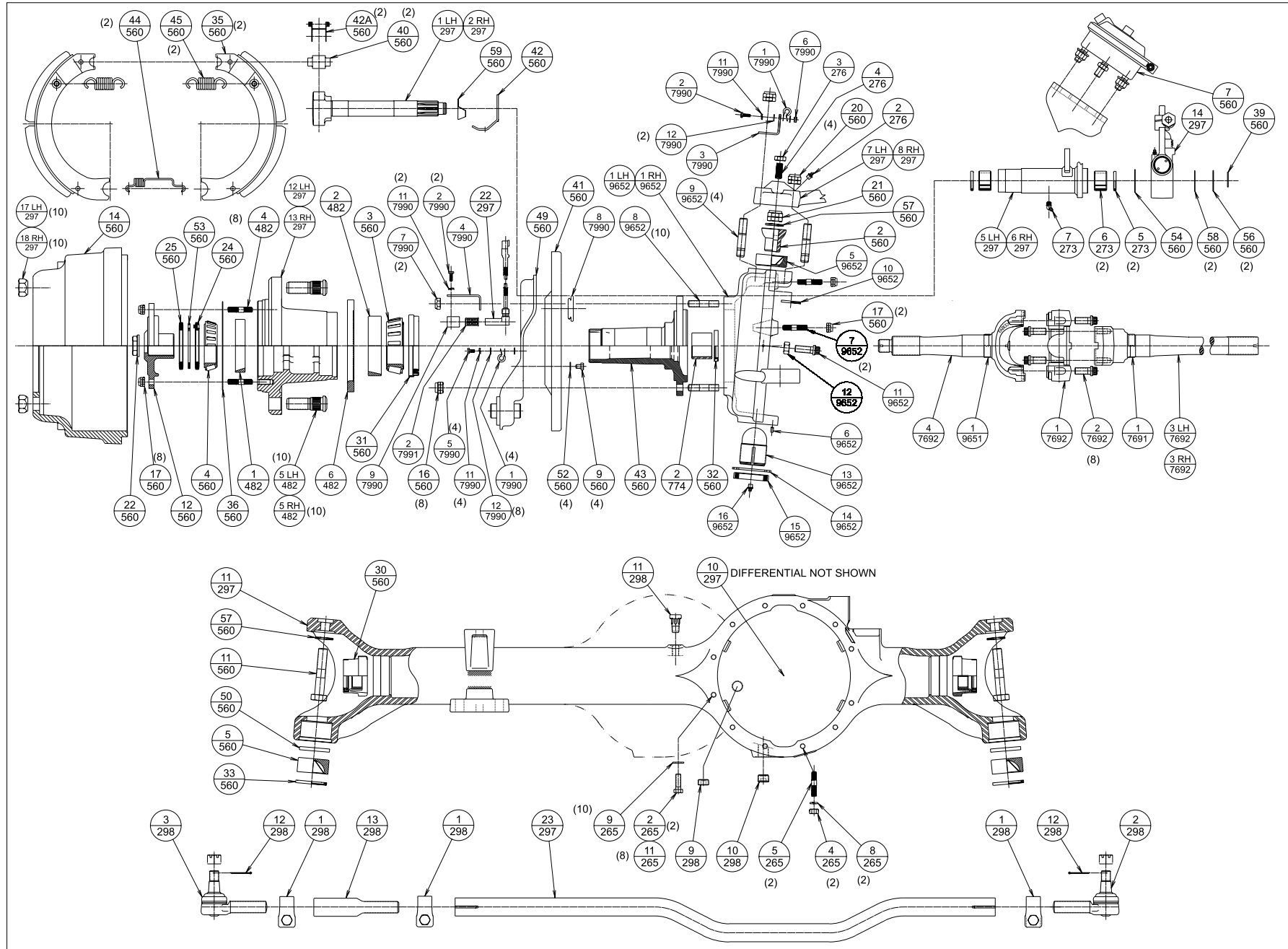


Figure 10.3: Bracket Assembly, ABS Cable, Left-hand Side



SDA-1200,1400,1600 WITH ABS & EXTENDED SERVICE BRAKES ILLUSTRATED PARTS

## SDA-1200, SDA-1400, SDA-1600

### FRONT STEERABLE DRIVE AXLE PARTS LIST

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1LH/297	Cam Shaft, S-Cam, Left-hand, ES Brakes	1
2LH/297	Cam Shaft, S-Cam, Right-hand, ES Brakes	1
2/265	Bolt, 1/2-13 x 1 3/4, Grade 5, Hex Head	2
11/265	Bolt, 1/2-13 x 1 1/2, Grade 5, Hex Head	8
4/265	Nut, 1/2-20, Hex	2
5/265	Stud, 1/2 x 2 3/8, Double Ended	2
8/265	Washer, 1/2, spring Lock (Split)	2
9/265	Washer, 1/2, Hardened, Plated	10
5LH/297	Assembly, Bracket, Brake Chamber, Left-hand	1
5/273	Seal	2
6/273	Bushing	2
7/273	Grease Fitting, 1/8 NPT, 45°	1
6RH/297	Assembly, Bracket, Brake Chamber, Right-hand	1
5/273	Seal	2
6/273	Bushing	2
7/273	Grease Fitting, 1/8 NPT, 45°	1
7LH/297	Assembly. Arm, Steering	1
2/276	Fitting, Grease, 1/8 NPT	1
3/276	Nut, Jam, Hex, 5/8-18	1
4/276	Screw, Socket Set, 5/8-18 x 1 3/4 Long	1
8RH/297	Assembly, Cap, Kingpin, Upper, or Arm, Steering	1
2/276	Fitting, Grease, 1/8 NPT	1
3/276	Nut, Jam, Hex 5/8-18	1
4/276	Screw, Socket Set, 5/8-18 x 1 3/4 Long	1
1/298	Clamp with Bolt & Locknut	3
2/298	End, Tie Rod, Right-hand Threads	1
3/298	End, Tie Rod, Left-hand Threads	1
9/298	Plug, 3/4 NPT Square Countersunk	1
10/298	Plug, 3/4 NPT Square Sock Head Magnetic	1

**SDA-1200, SDA-1400, SDA-1600**  
**FRONT STEERABLE DRIVE AXLE PARTS LIST**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>
11/298	Vent, Breather, 3/8 NPT	1
12/298	Cotter Pin, 1/8 x 2	2
13/298	Tube, Tie Rod Adjuster	1
10/297	Differential	1
11/297	Axle Housing	1
12LH/297	Assembly, Wheel Hub, left-hand with Exciter Ring	1
2/482	Bearing Cup, Inner	1
1/482	Bearing Cup, Outer	1
4/482	Stud, 1/2 x 2 9/16	8
5LH/482	Stud, Wheel, Left-hand	10
6/482	Ring, ABS Exciter	1
13RH/297	Assembly, Wheel Hub, Right-hand with Exciter Ring	1
2/482	Bearing Cup, Inner	1
1/482	Bearing Cup, Outer	1
4/482	Stud, 1/2 x 2 9/16	8
5RH/482	Stud, Wheel Right-hand	10
6/482	Ring, ABS Exciter	1
14/297	Assembly, Slack Adjuster	2
2/560	Ball Stud, Upper Kingpin	2
3/560	Bearing Cone, Inner	2
4/560	Bearing Cone, Outer	2
5/560	Bearing, Lower Kingpin	2
7/560	Chamber, Air Brake	2
9/560	Bolt, 3/8-16 X 1/2, Grade 5, Hex Head	8
11/560	Bolt, 7/18-14 x 4 1/2, Grade 8, Hex Head	2
12/560	Weldment, Drive Flange	2
14/560	Brake Drum	2
16/560	Nut, 5/8-18 UNJF-3B High Tensile Hex	16
17/560	Nut, 1/2-20 UNJF-3B High Tensile Hex	20



**SDA-1200, SDA-1400, SDA-1600**  
**FRONT STEERABLE DRIVE AXLE PARTS LIST**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>
20/560	Nut, 3/4-16 Hex UNJF-3B High Tensile	8
21/560	Nut, 7/8-14 Hex UNJF-3B High Tensile	2
22/560	Nut, 1 1/4-12 Hex Flange	2
24/560	Nut with Dowel, Wheel Bearing Inner	2
25/560	Nut, Outer wheel Bearing	2
30/560	Assembly, Seal, Floating, Inner Axle Shaft	2
31/560	Seal, Unitized, Wheel Hub	2
33/560	Seal, Lower Kingpin	2
32/560	Seal, Yoke Shaft	2
35/560	Shoe & Lining, ES Brake	4
36/560	Shim, Drive Flange, .005 Thick	4
	Shim, Drive Flange, .015 Thick	4
	Shim, Drive Flange, .030 Thick	4
39/560	Snap Ring	2
40/560	Roller, ES Brake Shoe	4
41/560	Brake Dust Shield	2
42/450	Retainer, Spring, ES Brakes	2
42A/560	Retainer, Roller, ES Brakes	4
43/560	Assembly, Spindle with Bushing	2
2/774	Bushing, Spindle	2
44/560	Spring, ES Brake Shoe Retaining	4
45/560	Spring, Brake Shoe Release, ES Brakes	4
50/560	Plate, Lower Kingpin Bearing	2
49/560	Plate, Brake Spider, ABS Provision	2
52/560	Washer, 3/8" SAE, Flat	8
53/560	Washer, Wheel Bearing Lock	2
54/560	Washer, S-cam	2

## SDA-1200, SDA-1400, SDA-1600

### FRONT STEERABLE DRIVE AXLE PARTS LIST

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>
56/560	Washer, .059 Camshaft Shim	4
58/560	Washer, .031 Camshaft Shim	4
57/560	Washer, 7/8 Plain	4
59/560	Washer, S-cam	
17LH/297	Nut, Left-hand Wheel Mounting	10
18RH/297	Nut, Right-hand Wheel Mounting	10
3LH/7692	Assembly, Axle Shaft, with Wear Ring	1
1/7691	Ring, Wear sleeve	1
1/7692	Cross & Bearing, 8.5C	1
2/7692	Screw, Flange, 1/2-20 x 1 1/4, 12-Point	8
4/7692	Assembly, Yoke Shaft, with Wear Ring	1
1/9651	Ring, Wear Sleeve	1
3RH/7692	Assembly, Axle Shaft, with Wear Ring	1
1/7691	Ring, Wear sleeve	1
1/7692	Cross & Bearing, 8.5C	1
2/7692	Screw, Flange, 1/2-20 x 1 1/4, 12-Point	8
4/7692	Assembly, Yoke Shaft, with Wear Ring	1
1/9651	Ring, Wear Sleeve	1
1/7990	Clamp	10
2/7990	Bolt, 1/4-20 x 3/4, Grade 5, Hex Head	6
3/7990	Bracket, Clamp, ABS, Sensor Wire	2
4/7990	Bracket, Mounting, ABS, Sensor	2
5/7990	Bolt, 1/4-28 x 1/2, Grade 5, Hex Head	8
7/7990	Nut, Hex, Lock, 5/8-18	4
6/7990	Nut, 1/4-20 Hex	2
8/7990	Grommet, Rubber, Brake Dust shield	2
9/7990	Block, Sensor, ABS	2
11/7990	Washer, 1/4, Spring Lock (Split)	14

# **SDA-1200, SDA-1400, SDA-1600** **FRONT STEERABLE DRIVE AXLE PARTS LIST**

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>QTY</u>
12/7990	Washer, 1/4 SAE Plain	20
22/297	Kit, Sensor, ABS, with Clip	2
2/7991	Clip, Sensor, ABS	2
23/297	Tie Rod, Axle	1
1LH/9652	Assembly, Yoke, Spindle, Left-hand	1
5/9652	Bearing, Upper Kingpin	1
10/9652	Seal	1
6/9652	Dowel Pin, 1/4 x 1/2, Oversize	1
7/9652	Stud, 1/2 x 2 3/8, Double Ended	2
8/9652	Stud, 5/8 x 2 7/8, Double Ended	10
9/9652	Stud, 3/4 x 3 3/4, Double Ended	4
13/9652	Ball Stud, Lower Kingpin	1
16/9652	Fitting, Grease, 1/8 NPT	1
12/9652	NUT, 1/2-13 Thin Hex	1
15/9652	Nut, Special Kingpin Lock	1
11/9652	Capscrew, 1/2-13 x 1 3/4, 12-Point	1
14/9652	Washer, Special Lock	1
1RH/9652	Assembly, Yoke, Spindle, Right-hand	1
5/9652	Bearing, Upper Kingpin	1
10/9652	Seal	1
6/9652	Dowel Pin, 1/4 x 1/2, Oversize	1
7/9652	Stud, 1/2 x 2 3/8, Double Ended	2
8/9652	Stud, 5/8 x 2 7/8, Double Ended	10
9/9652	Stud, 3/4 x 3 3/4, Double Ended	4
13/9652	Ball Stud, Lower Kingpin	1
16/9652	Fitting, Grease, 1/8 NPT	1
12/9652	NUT, 1/2-13 Thin Hex	1
15/9652	Nut, Special Kingpin Lock	1
11/9652	Capscrew, 1/2-13 x 1 3/4, 12-Point	1
14/9652	Washer, Special Lock	1