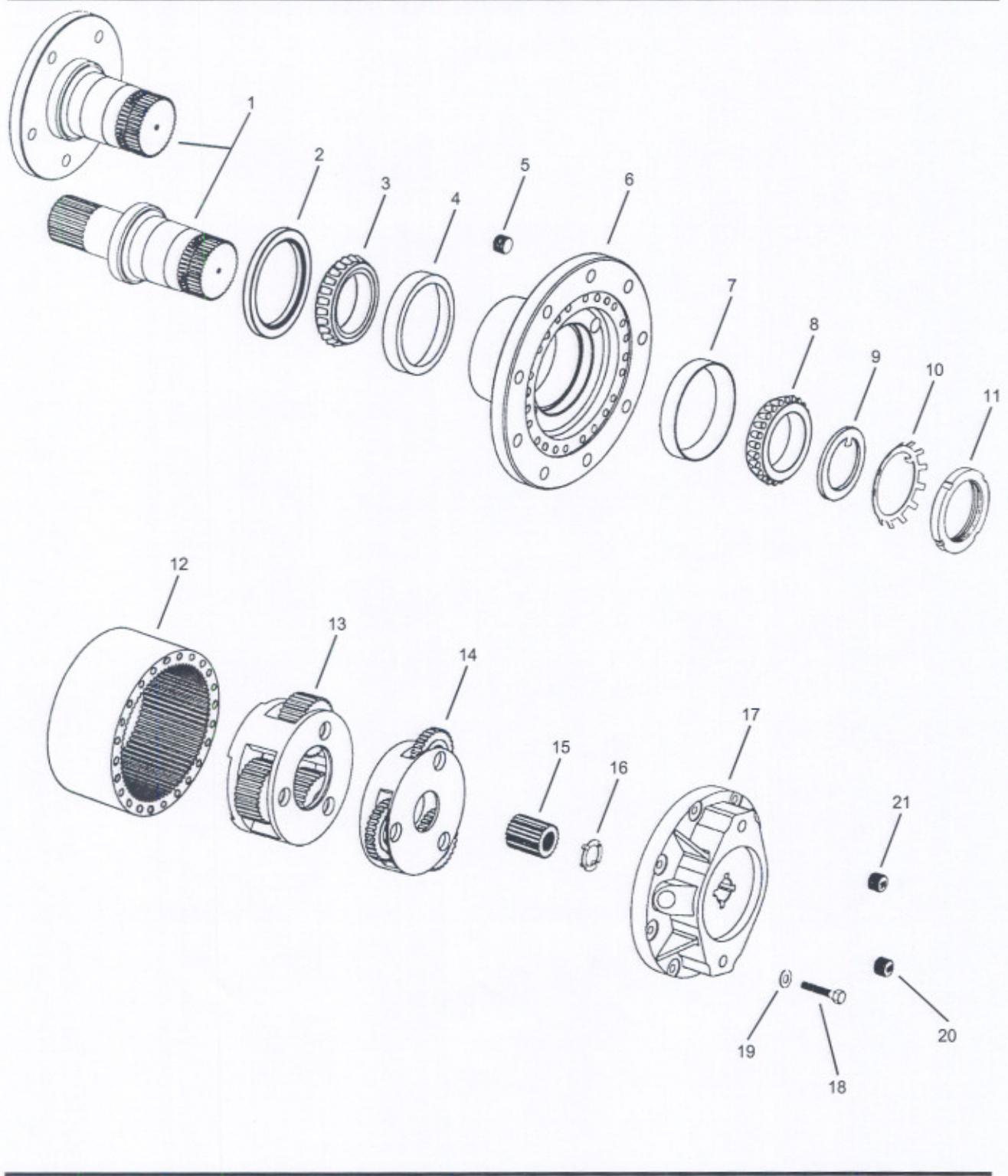


**Power Wheel® Service Manual**  
**Model 9 Double Reduction**  
**Shaft and Spindle Output Drives**



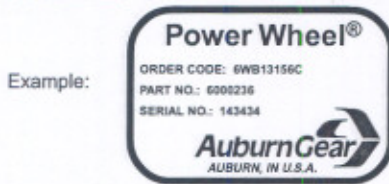
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## IDENTIFICATION

**IMPORTANT:** All Power Wheel units and kits are shipped with a nameplate that includes the Auburn Gear part number and order code as shown.



In addition to the nameplate, Power Wheel drives are stamped with an identification number which appears on the cover or hub flange as shown.

Example: 6000236-A-4-9

When ordering parts, the information included on the nameplate or the stamped identification number is necessary to accurately identify the drive and obtain the correct replacement parts. Once this information has been obtained, contact Auburn Gear for the appropriate parts list.

## DISASSEMBLY OF POWER WHEEL

### STEP 1

Remove twentyfour hex head bolts (18) and flat washers (19) from cover (17). Lift cover (17) from assembly. Thrust washer (16) usually remains with cover (17).

### STEP 2

Lift sun gear (15) from primary carrier assembly (14).

### STEP 3

Remove primary carrier assembly (14).

### STEP 4

Remove the secondary carrier assembly (13). It may be necessary to remove the ring gear (12) first, if difficulty is encountered in removing the carrier assembly (13).

### STEP 5

If not previously removed (see step 4) remove ring gear (12) from hub(6). It may be necessary to strike ring gear (12) with a rubber mallet to loosen from hub (6).

### STEP 6

One tab of lock washer (10) will be engaged in the slot of bearing nut (11); bend back to release. Remove the bearing nut (11), lock washer (10) and thrust washer (9). **NOTE:** A special locknut wrench, 593RR, is required for the removal of the bearing locknut. Contact Auburn Gear for procurement of wrench and other service tools.

### STEP 7

Bolt spindle/shaft drive tool, 598FF, to hub (6). Drive output shaft (1) from hub (6) by turning bolt in center of spindle/shaft drive tool. Care should be taken to avoid damaging splines and threads on output shaft. **NOTE:** Bearing cone (8) has been designed with a press fit with respect to output shaft (1). Considerable force will be required to remove cone from shaft.

### STEP 8

Remove oil seal (2) and bearing cones (3 & 8) from hub (6). Inspect bearing cups (4 & 7) in hub (6) and remove only if replacement is required.

## ASSEMBLY OF POWER WHEEL

### STEP 1

Press new bearing cups (4 & 7) into each side of hub (6). It is recommended that bearing cups (4 & 7) and cones (3 & 8) be replaced in sets.

### STEP 2

Assemble bearing cone (3) into cup (4) at seal end of hub (6) and press a new seal (2) into hub (6).

### STEP 3

Lubricate lips of oil seal (2) and lower hub (6) onto output shaft (1). Keep hub (6) centered to prevent damage to oil seal (2).

### STEP 4

Assemble bearing cone (8) over output shaft (1). Press bearing cone (8) over output shaft bearing journal using press and cylindrical bearing cone driver 598F. Press bearing cone (8) down until rollers just touch cup (7). Take care to avoid pressing cone (8) too far. **NOTE:** If a press is not available, place tool 598F over splined end of output shaft (1) on the edge of bearing cone (8) and drive into place with hammer or mallet. If this method is used, care must be taken to avoid damage to bearing cone and spindle.

### STEP 5

Install thrust washer (9) and bearing nut (11). **DO NOT install lock washer (10) at this time.**

### STEP 6

Place spindle/shaft drive tool, 598FF, over output shaft (1) and bolt or pin to hub (6).

### STEP 7

Check initial rolling torque by installing a lb.-in. torque wrench (arm or dial type) on center nut of spindle/shaft drive tool and turning hub (6) slowly and steadily with the torque wrench. Note mean torque. An initial bearing rolling torque of greater than 52 lb.-in. with boot seal installed or 48 lb.-in. without boot seal means that the cone (8) was pressed on too tightly in step 4. In this case, back off bearing cone (8) by pressing output shaft (1) out of cone (8) until initial preload is relieved. See step 7 of disassembly procedure.

### STEP 8

Torque bearing nut (11) with bearing nut wrench 593RR until a bearing rolling torque of 44 - 52 lb.-in., with a boot seal installed, or 40 - 48 lb.-in., without a boot seal, is reached. This may require several trials of pressing the cone (8) by torquing the nut (11) and then checking the rolling torque. Rotate hub (6) by hand as nut is being tightened in order to seat bearings. **NOTE:** Up to 250 lb.-ft. of torque may have to be applied to bearing nut (11) in order to press cone (8) into position.

### STEP 9

Remove bearing nut (11) and install lock washer (10). Replace bearing nut (11).



**STEP 10**

Re-torque bearing nut (11) to 65 - 75 lb.-ft. (88 - 100 Nm).

**STEP 11**

Secure bearing nut (11) by bending a lock washer (10) tab into one of four bearing nut slots. If no tab aligns with a slot, the nut may be tightened until one of the slots aligns with a lock washer tab.

**STEP 12**

Apply a bead of silicone sealant to face of hub (6) that mates with ring gear (12). See instructions on sealant package.

**STEP 13**

Assemble ring gear (12) to hub (6) being careful to align all the bolt holes.

**STEP 14**

Place secondary carrier assembly (13) into ring gear (12) aligning the gear teeth. Carrier splines mesh with splines on output shaft (1).

**STEP 15**

Lower primary carrier assembly (14) into assembly. Align sun gear teeth with secondary carrier planetary gears and primary planet gears with ring gear (12).

**STEP 16**

Install primary sun gear (15) into primary carrier assembly. Sun gear (15) should turn freely by hand when assembled.

**STEP 17**

Apply a bead of silicone sealant to cover face of ring gear (12). Secure thrust washer (16) with tangs engaged in cover (17). **NOTE:** Washer (16) can be secured to cover (17) with a small amount of grease or silicone sealant. Assemble cover (17) to ring gear (12). Align cover (17) with hub (6) such that pipe plug holes on cover (17) align with mounting holes in hub (6).

**STEP 18**

Install twentyfour 3/8-16 x 6 1/2 inch Grade 8 bolts (18) and flat washers (19) and torque to 45 - 50 lb.-ft. (61 - 67 Nm).

**STEP 19**

Position filler opening horizontally and fill unit to oil level hole in hub (6). Install pipe plugs (5), (20) and (21).

**NOTE:** When installing a hydraulic motor to the Power Wheel drive it is necessary to place an "O" ring or gasket (not supplied by Auburn Gear) between the motor and the planetary drive. "O" ring sizes: SAE A 2-042, SAE B 2-155, SAE C 2-159, SAE D 2-163. Apply sealant to motor mounting bolt threads when holes in cover are thru holes.

## CARRIER ASSEMBLIES

It is recommended that the primary and secondary carrier assemblies (13 & 14) be serviced in their entirety to protect the integrity of the Power Wheel drive.

## LUBRICATION RECOMMENDATIONS

**IMPORTANT:** POWER WHEEL PLANETARY DRIVES ARE SHIPPED WITHOUT LUBRICANT AND MUST BE FILLED TO THE PROPER LEVEL PRIOR TO START UP.

Observe lubrication recommendations given by the original equipment manufacturer. When specific recommendations are not available, use mild extreme pressure lubricant API-GL-5, No. 80 or 90 when filling the Power Wheel under normal temperature ranges between 0 - 120°F (-18 to 49°C). Power Wheel is to be half full of oil when unit is mounted level and horizontal. Use drain and fill plugs located in cover. Oil is to be changed after first 50 hours of operation with subsequent changes every 1000 hours or yearly, which ever comes first. If unit is to be operated vertically, if ambient conditions are outside the specified range, or if the oil temperature exceeds 200°F (93°C) contact Auburn Gear for oil and level recommendations.

## STORAGE

A protective film is applied to the Power Wheel at the factory to prevent rust during shipment. Additional protection may be required if the Power Wheel is to be stored for an extended period of time.

## SEALING COMPOUND

Silastic RTV732 sealer and General Electric Sillimate RTV No. 1473 or RTV No. 1503 are recommended for sealing gasket surfaces. Sealant should be applied in a continuous bead, which should be centered on the surface to be sealed but should move to the inside of the hole at each bolt hole location. For service requirements order Auburn Gear part number 604101.

## SPECIFICATIONS

|  |                             |
|--|-----------------------------|
| Maximum intermittent output torque ..... | 130,000 lb. in. (14,690 Nm) |
| Maximum input speed .....                | 5,000 RPM                   |
| Oil capacity .....                       | 50 oz (1,478ml)             |

| ITEM NO. | DESCRIPTION*               | NO. USED IN ASS'Y. | ITEM NO. | DESCRIPTION*                | NO. USED IN ASS'Y. |
|----------|----------------------------|--------------------|----------|-----------------------------|--------------------|
| 1        | Output Shaft or Spindle    | 1                  | 12       | Ring Gear                   | 1                  |
| 2        | Oil Seal                   | 1                  | 13       | Secondary Carrier Assembly  | 1                  |
| 3        | Bearing Cone 14-00-133-007 | 1                  | 14       | Primary Carrier Assembly    | 1                  |
| 4        | Bearing Cup 14-00-133-006  | 1                  | 15       | Primary Sun Gear            | 1                  |
| 5        | Pipe Plug 03-04-101-09     | 1                  | 16       | Thrust Washer               | 1                  |
| 6        | Hub                        | 1                  | 17       | Cover                       | 1                  |
| 7        | Bearing Cup 613314         | 1                  | 18       | Hex Head Bolt (Grade 8)     | 24                 |
| 8        | Bearing Cone 613315        | 1                  | 19       | Flat Washer                 | 24                 |
| 9        | Thrust Washer 619320       | 1                  | 20       | Magnetic Plug 14-00-052-002 | 1                  |
| 10       | Lock Washer 605003         | 1                  | 21       | Pipe Plug 03-04-101-01      | 1                  |
| 11       | Bearing Nut 614912         | 1                  |          |                             |                    |

\* Contact Auburn Gear with part number and order code of drive to obtain the appropriate parts list. Refer to parts list for the specific part numbers and quantities.

### Model 9 Power Wheel® Service Kits

| Part No. | Description              | Included Items |
|----------|--------------------------|----------------|
| 593RR    | Bearing Locknut Tool     | Not Shown      |
| 598F     | Bearing Cone Driver      | Not Shown      |
| 598FF    | Spindle/Shaft Drive Tool | Not Shown      |