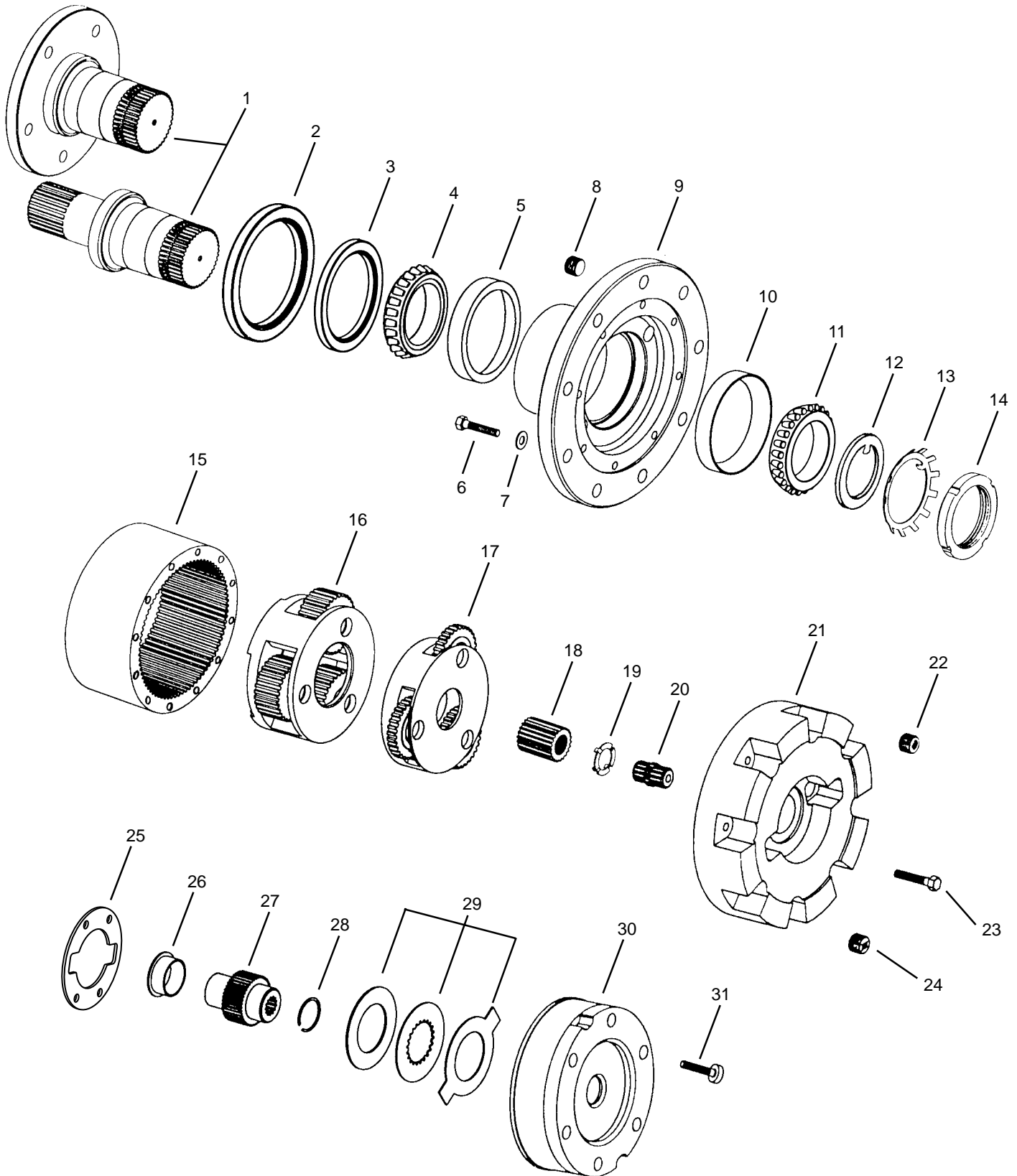


Power Wheel® Service Manual
Model 7 Double Reduction
Shaft and Spindle Output Drives
With Integral Parking Brake Option



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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.



Example:

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

If brake portion of drive is to be serviced, remove motor from planetary drive. Temporarily install two 1/2-13 x 1.25 screws into hydraulic motor mounting holes and torque to 50 lb. ft. (67 Nm). These must be used to hold spring back-up plate in position when parking brake assembly is removed from the drive. If the brake portion of drive does not require service go to step 5.

STEP 2

Remove the four T-50 Torx head screws (31) holding the parking brake assembly in position. It may be necessary to lightly strike the piston assembly (30) with a rubber mallet to loosen from spindle or cover.

STEP 3

Remove disc pack (29) from drive only if necessary. Be careful to maintain discs in order.

STEP 4

If brake piston assembly (30) has been removed slide the coupling (27) and retaining ring (28) from splines on input shaft (20). Remove sleeve bearing (26) only if replacement is required.

STEP 5

Remove eight hex head bolts (23) from cover (21). Lift cover (21) from assembly. Thrust washer (19) usually remains with cover (21).

STEP 6

Remove the splined input shaft (20) and lift sun gear (18) from primary carrier assembly (17).

STEP 7

Remove primary carrier assembly (17).

STEP 8

Remove the secondary carrier assembly (16).

STEP 9

One tab of lock washer (13) will be engaged in slot of bearing nut (14); bend back to release. Remove the bearing nut (14), lock washer (13) and thrust washer (12). **NOTE:** A special locknut wrench, 596Z, is required for the removal of the bearing locknut. Contact Auburn Gear for procurement of wrench and other service tools.

STEP 10

Bolt spindle drive tool, 598FF, to ring gear (15). Grade 8 bolts should be used. Drive shaft (1) from hub (9) by turning center bolt of spindle drive tool. Care should be taken to avoid damaging splines and threads on shaft. **NOTE:** Bearing cone (11) has been designed with a press fit with respect to shaft (1). Considerable force will be required to remove cone from shaft.

STEP 11

Remove spindle drive tool from ring gear (15).

STEP 12

Remove the 18 bolts (6) and flat washers (7) from hub (9) and remove ring gear (15). It may be necessary to strike ring gear (15) with a rubber mallet to loosen from hub (9).

STEP 13

Remove boot seal (2) if included, oil seal (3) and bearing cones (4 & 11) from hub (9). Inspect bearing cups (5 & 10) in hub (9) and remove only if replacement is required.

ASSEMBLY OF POWER WHEEL

STEP 1

Press new bearing cups (5 & 10) in each side of the hub (9). It is recommended that bearing cups (5 & 10) and cones (4 & 11) be replaced in sets.

STEP 2

Assemble bearing cone (4) into cup (5) at seal end of hub (9) and press a new seal (3) into hub (9).

STEP 3

Lubricate lips of oil seal (3) and boot seal (2) if unit is so equipped and lower hub (9) onto output shaft (1). Keep hub (9) centered to prevent damage to oil seal (3).

STEP 4

Assemble bearing cone (11) over output shaft (1). Press bearing cone (11) over output shaft bearing journal using press and cylindrical bearing cone driver 598E. Press bearing cone (11) down until rollers just touch cup (10). Take care to avoid pressing cone (11) too far. **NOTE:** If a press is not available, place tool 598E over splined end of output shaft (1) on the edge of bearing cone (11) and drive into place with hammer or mallet. If this method is used, care must be taken to avoid damage to bearing cone and shaft.

STEP 5

Install thrust washer (12) and bearing nut (14). **DO NOT install lock washer (13) at this time.**

STEP 6

Clean mating surfaces and apply a bead of silicone sealant to face of hub (9) that mates with ring gear (15). (See instructions on sealant package). Hub (9) is attached to ring gear (15) with 18 3/8-24 grade 8 hex head cap screws (6) and flat washers (7). Torque cap screws to 50 – 60 lb. ft. (70 – 81Nm).

STEP 7

Place spindle drive tool, 598FF, over shaft (1) and bolt or pin to ring gear (15). Make sure center bolt of drive tool is not touching shaft and is prevented from rotating by jam nuts provided on tool.

STEP 8

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 (9) 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 (11) was pressed on too tightly in step 4. In this case, back off bearing cone (11) by pressing output shaft (1) out of cone (11) until initial preload is relieved. See step 10 of disassembly procedure.

STEP 9

Torque bearing nut (14) with bearing nut wrench 596Z until a bearing rolling torque of 42 – 50 lb. in., with a boot seal installed, or 38 – 46 lb. in., without a boot seal, is reached. This may require several trials of pressing the cone (11) by torquing the nut (14) and then checking the rolling torque. Rotate hub (9) 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 (14) in order to press cone (11) into position.

STEP 10

Remove bearing nut (14) and install lock washer (13). Replace bearing nut (14).

STEP 11

Re-torque bearing nut (14) to 60 – 70 lb. ft. (80 – 94Nm).

STEP 12

Install sleeve bearing (26) in cover (21). Assemble retaining ring (28) to adapter coupling (27) and place into sleeve bearing (26) in cover (21). It may be necessary to rotate coupling to align splines.

STEP 13

Install eight hex head bolts (23) and torque to 20 – 25 lb. ft. (27 – 34 Nm) with dry threads. Lubed threads torque to 16 – 21 lb. ft. (22 – 28 Nm).

STEP 14

The proper disc pack and piston cylinder assembly will depend on the Power Wheel brake model number: Contact Auburn Gear for specific part numbers. Disc packs are supplied as a matched set. Replacement packs are packaged individually to retain the matched characteristics. Pre-soak the disc pack in the oil used in the Power Wheel drive before placing into the unit. Do not remove from package until just before inserting the disc pack into the drive.

STEP 15

Carefully remove the disc pack and align the tangs on the steel separator plates. Place the complete disc pack (29) into the Power Wheel drive so that the tangs on the separator plates are within the slots in the drive. Also, the spline on the friction discs should be aligned with the spline on the Power Wheel adapter coupling (27). Check to make sure that the disc pack is properly seated.

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.

STEP 16

Clean seal surface of the drive and piston assembly (30) of any old sealant and wipe any oil from seal surface of spindle or cover. Most piston kits include a gasket which should be placed on cover face to seal interface with piston assembly. If no gasket is included, apply a continuous 1/32 bead of silicone sealant to seal surface on inside of the bolt circle. **NOTE:** Do not use excessive amount of sealant as this can interfere with proper operation of the parking brake.

STEP 17

Align the four piston assembly holes with the four holes in the Power Wheel spindle or cover. Apply Loctite 262 to the four screws to be installed and torque to 80 – 94 lb. ft. (108 – 127 Nm).

STEP 18

Remove the two screws installed in motor mounting holes.

STEP 19

Before using the brake, it is recommended that a pressure release check be performed. Using a suitable hydraulic source, bleed the air from the brake and pressurize the brake to the specified release pressure. The brake plates should now turn freely. If the hydraulic source will provide at least 1000 PSI pressure, apply 1000 PSI and check to make sure that the pressure does not decay more than 30 PSI in 60 seconds.

CARRIER ASSEMBLIES

It is recommended that the primary and secondary carrier assemblies (17 & 16) 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 and ring gear. 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 Silimate RTV No. 1473 or RTV No. 1503 are currently 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	70,000 lb. in. (7,910 Nm)
Maximum input speed	2,500 RPM
Oil capacity	36 oz (1065 ml)
Maximum parking brake release pressure	3,000 PSI (206 bar)

ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.	ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.
1	Output Shaft or Spindle	1	17	Primary Carrier Assembly	1
2	Boot Seal 604405	1	18	Primary Sun Gear	1
3	Oil Seal 604415	1	19	Thrust Washer	1
4	Bearing Cone 613317	1	20	Splined Input Shaft	1
5	Bearing Cup 613316	1	21	Cover	1
6	Hex Head Bolt (Grade 8)	18	22	Magnetic Plug 14-00-052-002	1
7	Flat Washer	18	23	Head Hex Bolt	8
8	Pipe Plug 03-04-101-09	1	24	Pipe Plug	1
9	Hub	1	25	Brake Gasket 904502	1
10	Bearing Cup 613318	1	26	Sleeve Bearing 612701	1
11	Bearing Cone 613319	1	27	Coupling	1
12	Thrust Washer 619321	1	28	Retaining Ring 613915	1
13	Lock Washer 605004	1	29	Disc Pack	1
14	Bearing Nut 614913	1	30	Piston Assembly	1
15	Ring Gear 616240	1	31	Torx Head Screw	4
16	Secondary Carrier Assembly	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 7 Power Wheel® Service Kits

Part No.	Description	Included Items
641023**	Bearing and Seal Kit	3, 4, 5, 10, 11, and 13
641024**	Seal Kit	3 and 13
596Z	Bearing Locknut Tool	Not Shown
598E	Bearing Cone Driver	Not Shown
598FF	Spindle/Shaft Drive Tool	Not Shown

** Indicates kit also includes a tube of sealant, part number 604101.