

Power Wheel® Service Manual

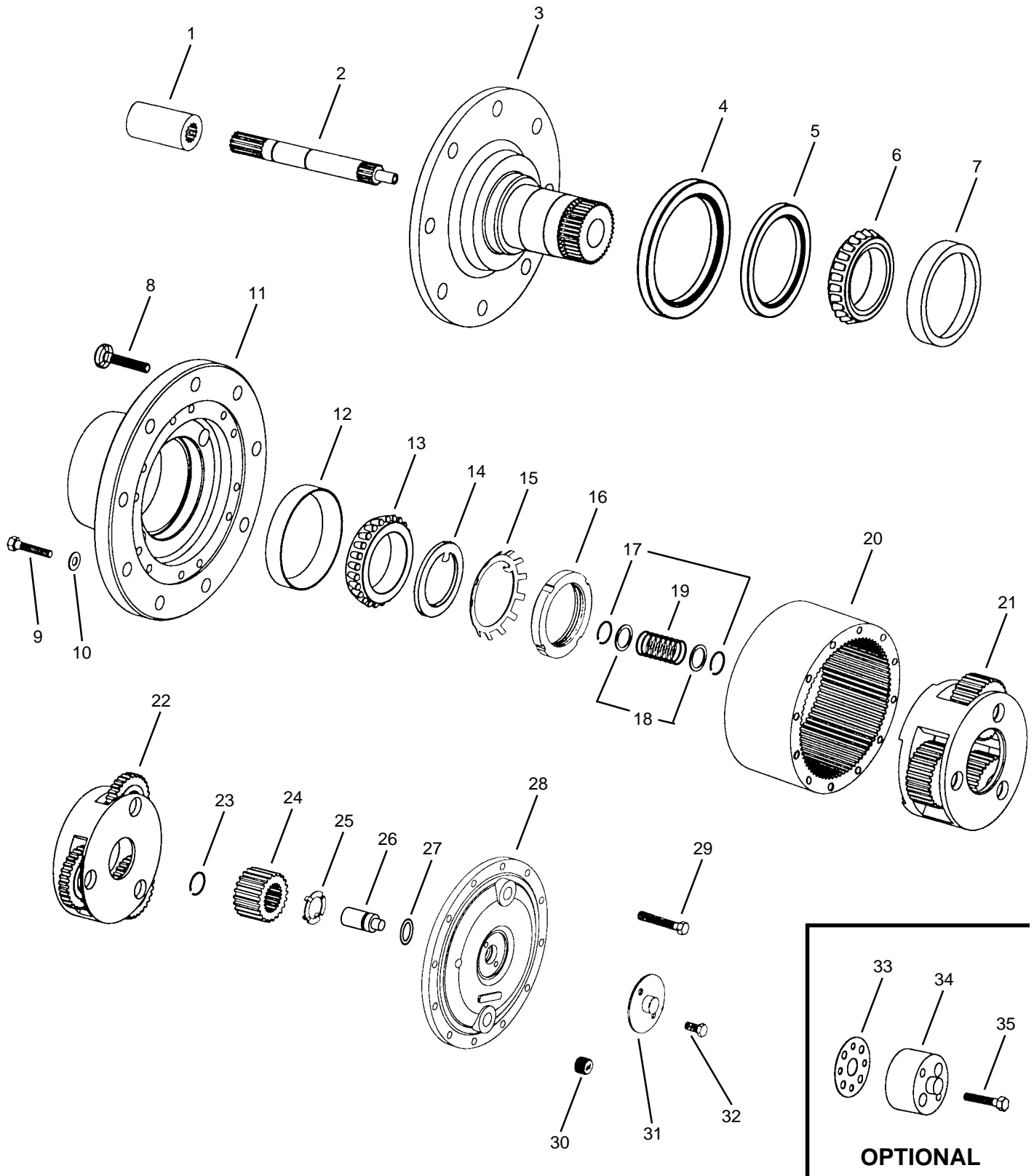
Model 6 Series B

Double Reduction

Wheel 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.

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

Slide the coupling (1) from splines on input shaft (2).

STEP 2

Position the assembly upright on face of spindle (3).

STEP 3

Remove the disengage cover (31) if necessary.

STEP 4

Remove eight bolts (29) and the large cover (28) from the unit. The thrust washer (25) and the disengage plunger (26) usually remain attached to the large cover (28) when it is removed. Remove thrust washer (25), disengage plunger (26) and "O" ring (27) from the large cover (28).

STEP 5

Remove primary sun gear (24) from end of input shaft (2).

STEP 6

Remove the primary carrier assembly (22).

STEP 7

Remove the secondary carrier assembly (21).

STEP 8

Remove the input shaft (2) from spindle (3). Remove the retaining rings (17), washers (18), and disengage spring (19) from input shaft (2) only if replacement is required.

STEP 9

One tab of lock washer (15) will be engaged in slot of bearing nut (16); bend back to release. Remove the bearing nut (16), lock washer (15) and thrust washer (14). **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 (20). Grade 8 bolts should be used. Drive spindle (3) from hub (11) by turning center bolt of spindle drive tool. Care should be taken to avoid damaging splines and threads on spindle. **NOTE:** Bearing cone (13) has been designed with a press fit with respect to spindle (3). Considerable force will be required to remove cone from spindle.

STEP 11

Remove spindle drive tool from ring gear (20).

STEP 12

Remove the 12 bolts (9) and washers (10) from hub (11) and remove ring gear (20). It may be necessary to strike ring gear (20) with a rubber mallet to loosen from hub (11).

STEP 13

Remove the boot seal (4) and oil seal (5) and bearing cones (6 & 13) from hub (11). Inspect bearing cups (7 & 12) in position and remove only if replacement is required.

ASSEMBLY OF POWER WHEEL

STEP 1

Press new bearing cups (7 & 12) in each side of the hub (11). It is recommended that bearing cups (7 & 12) and cones (6 & 13) be replaced in sets.

STEP 2

Assemble bearing cone (6) into cup (7) at seal end of hub (11) and press a new seal (5) into hub (11). Install boot seal (4) on hub (11) if unit is so equipped.

STEP 3

Position spindle (3) upright on bench. Lubricate lips of seal (5) and lower hub (11) onto spindle (3). Hub (11) should be centered as it is lowered over spindle (3) to prevent seal damage.

STEP 4

Assemble bearing cone (13) over spindle (3). Press bearing cone (13) over spindle bearing journal using press and cylindrical bearing cone driver 598E. Press bearing cone (13) down until rollers just touch cup (12). Take care to avoid pressing cone (13) too far. **NOTE:** If a press is not available, place tool 598E over splined end of spindle (3) on the edge of bearing cone (13) 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 (14) with tab in keyway of spindle and bearing nut (16). **DO NOT install lock washer (15) at this time.**

STEP 6

Clean mating surfaces and apply a bead of silicone sealant to face of hub (11) that mates with ring gear (20). See instructions on sealant package. Hub (11) is attached to ring gear (20) with 12 3/8-24 grade 8 hex head cap screws (9) and flat washers (10). Torque cap screws to 52 - 60 lb.-ft. (70 - 81 Nm).

STEP 7

Place spindle drive tool, 598FF, over spindle (3) and bolt or pin to ring gear (20). Make sure center bolt of drive tool is not touching spindle 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 drive tool and turning hub (11) slowly and steadily with the torque wrench. Note mean torque. An initial bearing torque of greater than 52 lb.-in. with boot seal installed or 46 lb.-in. without boot seal means that the cone (13) was pressed on too tightly in step 4. In this case, back off bearing cone (13) by pressing spindle (3) out of cone (13) until initial preload is relieved. See step 10 of disassembly procedure.

STEP 9

Torque bearing nut (16) 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 (13) by torquing the nut (16) and then checking the rolling torque. Rotate hub (11) 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 (16) in order to press cone (13) into position.

STEP 10

Remove bearing nut (16) and install lock washer (15). Replace bearing nut (16).

STEP 11

Re-torque bearing nut (16) to 60 - 70 lb.-ft. (80 - 94 Nm).

STEP 12

Secure bearing nut (16) by bending a lock washer (15) 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 13

Assemble a washer (18), spring (19), a second washer (18), and a retaining ring (17) in the middle grooves of input shaft (2). Install a second retaining ring (17) in groove near small end of input shaft (2).

STEP 14

Assemble the splined end of the input shaft (2) closest to the disconnect spring down into spindle (3).

STEP 15

Assemble the secondary carrier assembly (21) to spindle (3) at splines.

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

Assemble the primary carrier assembly (22) into the ring gear (20). It will be necessary to rotate carrier to align secondary sun gear {part of primary carrier assembly (22)} with planet gear teeth in secondary carrier assembly (21). Assemble primary sun gear (24) over input shaft (2). Rotate primary sun gear (24) to align input shaft (2) to gear splines and gear teeth in primary carrier assembly (22).

STEP 17

Lubricate "O" ring (27) and assemble in groove inside cover hole, push disengage plunger (26) into cover (28) with pointed end facing inside of unit.

STEP 18

Assemble the thrust washer (25) with tangs engaged with cover (28). **NOTE:** A small amount of grease applied to the back side of thrust washer (25) will hold washer in place. Apply a bead of silicone sealant to end of face of ring gear (20). Assemble cover (28) aligning holes of cover and ring gear. Assemble the eight 5/16-18 x 1 inch hex head bolts (29). Torque bolts to 20 - 25 lb.-ft. (27 - 34 Nm).

STEP 19

Assemble the disengage cover (31) with dimpled center protruding out if wheel is to be used to drive the vehicle. Assemble and torque the two 5/16-18 x 1/2 inch bolts (32). Torque bolts to 10 - 20 lb.-ft. (13 - 27 Nm).

STEP 20

Invert the Power Wheel assembly and assemble the coupling (1), with counterbore out, to the input shaft (2).

STEP 21

After motor is assembled to drive or drive is sealed at spindle, fill with lubricant to proper level and replace all plugs.

CARRIER ASSEMBLIES

It is recommended that the primary and secondary carrier assemblies (21 & 22) 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.

TOWING VEHICLE

CAUTION: The Power Wheel will not normally be damaged by towing; however, the hydraulic drive components may be damaged unless the Power Wheel is disengaged from the drive motor. Road speeds in excess of 25 MPH should be avoided unless clearly specified to be permissible by the equipment manufacturer.

TO DISENGAGE POWER WHEEL

CAUTION: For units equipped with the standard spring disconnect, assemble the disengage cover (31) with the dimpled center protruding in ward. For units equipped with the optional quick disconnect, push in center plunger of disconnect.

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	50,000 lb. in. (5,650 Nm)
Maximum input speed	5,000 RPM
Oil capacity	31 oz (920 ml)

ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.	ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.
1	Coupling	1	19	Disengage Spring 14-02-156-001	1
2	Input Shaft	1	20	Ring Gear	1
3	Spindle	1	21	Secondary Carrier Assembly	1
4	Boot Seal 604405	1	22	Primary Carrier Assembly	1
5	Oil Seal 604415	1	23	Retaining Ring	1
6	Bearing Cone 613317	1	24	Primary Sun Gear	1
7	Bearing Cup 613316	1	25	Thrust Washer	1
8	Wheel Bolt	9	26	Disengage Plunger 610801	1
9	Hex Head Bolt (Grade 8)	12	27	"O" Ring 614101	1
10	Flat Washer	12	28	Large Cover	1
11	Hub	1	29	Hex Head Bolt	8
12	Bearing Cup 613318	1	30	Magnetic Plug 14-00-052-002	1
13	Bearing Cone 613319	1	31	Disengage Cover 14-02-039-005	1
14	Thrust Washer 619321	1	32	Hex Head Bolt 618305	2
15	Lock Washer 605004	1	33	Quick Disconnect Gasket	1
16	Bearing Nut 614913	1	34	Quick Disconnect Assembly	1
17	Retaining Ring	2	35	Hex Head Bolt	2
18	Washer	2			

* 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 6 Series B Power Wheel® Service Kits

Part No.	Description	Included Items
641023**	Bearing and Seal Kit	5, 6, 7, 12, 13, 15, and 27
641024**	Seal Kit	5, 15, and 27
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.