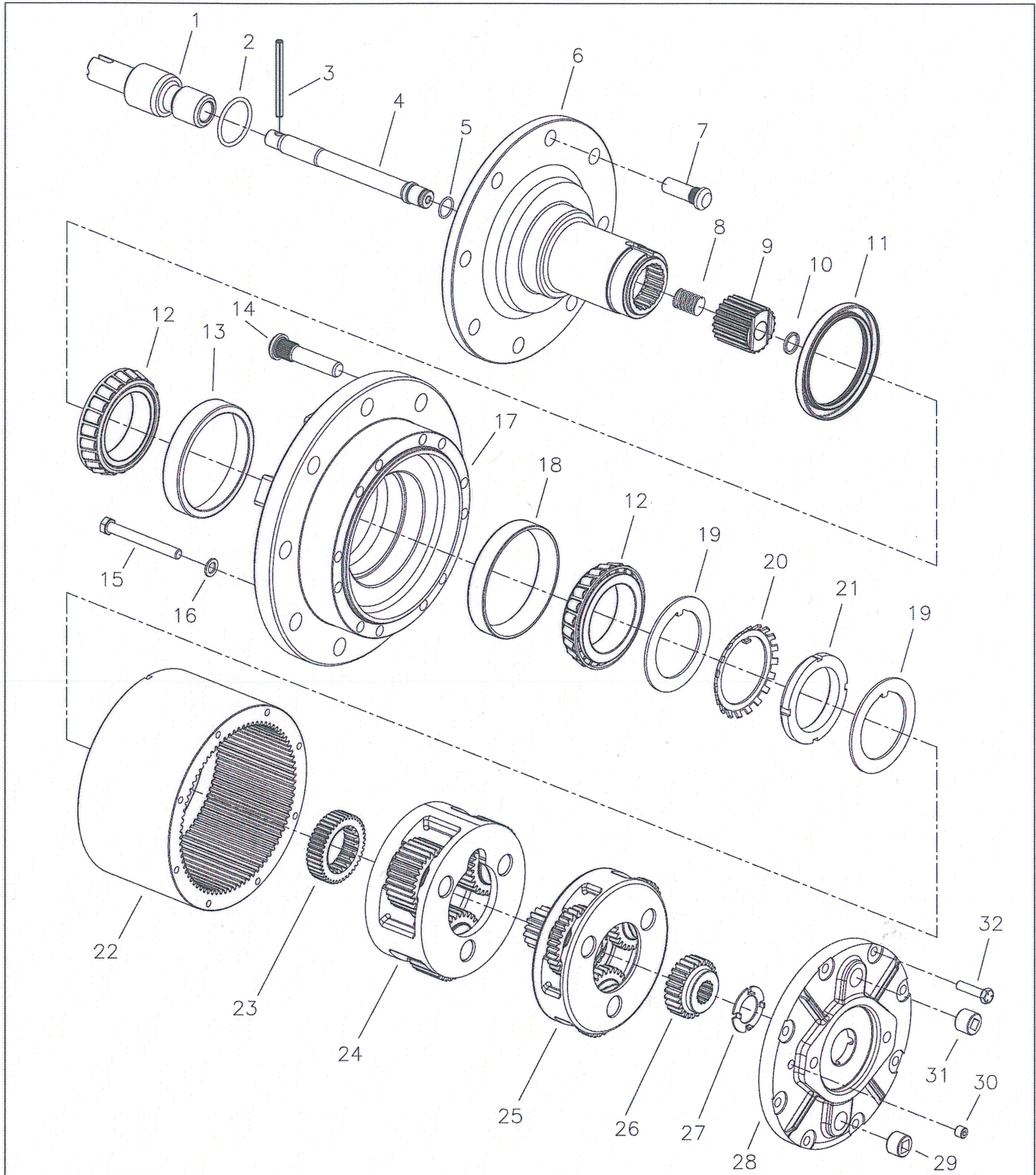


Power Wheel® Service Manual
Model 6 Series B TwisToTow®
Double Reduction
Spindle Output Drives



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IDENTIFICATION

IMPORTANT: All Power Wheel units and kits are shipped with a label that includes the Auburn Gear part number, order code and work order.

Example:



In addition to the label, Power Wheel drives are stamped with the last four digits of the part number and a date code, which appears on the cover (28) or hub flange (17) as shown.

Example: 3180 13268

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

DISASSEMBLY OF POWER WHEEL

STEP 1

Place alignment marks on cover (28), ring gear (22) and hub (17) for proper alignment during re-assembly.

STEP 2

Remove eight hex head bolts (32) from cover (28). Thrust washer (27) usually remains with cover.

STEP 3

Lift primary sun gear (26) from primary carrier assembly (25).

STEP 4

Remove primary carrier assembly (25) from ring gear (22).

STEP 5

Remove the secondary carrier assembly (24). Remove adaptor (23) from secondary carrier assembly (24). Note that adaptor (23) may have remained on coupling (9). If difficulty is encountered in removing the secondary carrier assembly (24), it may be necessary to remove the ring gear (22) first, (see Step 7).

STEP 6

Remove inboard thrust washer (19).

STEP 7

Remove twelve hex head bolts and washers, (15) & (16). Remove ring gear (22) from hub (17). It may be necessary to strike ring gear (22) with a rubber mallet to loosen from hub (17).

STEP 8

Drive roll pin (3) out of inner disconnect shaft (4). Remove inner disconnect shaft (4) along with spring (8), coupling (9), and retaining ring (10) from spindle output (6).

STEP 9

Inspect coupling (9) for damage. If necessary to replace coupling (9), remove retaining ring (10) from inner disconnect shaft (4) and remove coupling (9).

STEP 10

Remove spring (8) from inner shaft (4).

STEP 11

Unscrew outer disconnect shaft (1) from spindle output (6). Remove O-ring (2) from spindle output (6) and remove O-ring (5) from outer disconnect shaft (1).

STEP 12

One tab of lock washer (20) will be engaged in slot of bearing nut (21); bend tab back to release. Remove the bearing nut (21), lock washer (20) and outboard thrust washer (19). **NOTE:** A special bearing locknut tool, 596Z, is required for the removal of the bearing nut (21). Contact Auburn Gear to purchase bearing locknut tool and other service tools.

STEP 13

Place assembly in a press on the hub flange (17) with spindle (6) facing downward. Place material under spindle (6) so as to not damage the spindle when it is pressed out of hub (17). Care should be taken to avoid damaging threads on spindle (6) while pressing it out. **NOTE:** Bearing cone (12) has been designed with a press fit with respect to spindle (6). Considerable force will be required to remove bearing cone (12) from spindle (6).

If a press is not available, you will need the 598FF spindle/shaft drive tool. Place the small disk of the tool on the end of spindle (6). Mount the cross tube to the hub (17). Turn the screw against the small disk, **DO NOT** use an impact gun. Turning the screw will force the spindle (6) out of the bearing cone (12).

STEP 14

Remove the oil seal (11) and two bearing cones (12) from hub (17). Inspect bearing cups (13 & 18) in position and remove only if replacement is required.

ASSEMBLY OF POWER WHEEL

STEP 1

If replacement is required, press new bearing cups (13 & 18) in each side of the hub (17). It is recommended that bearing cups (13 & 18) and cones (12) be replaced in sets.

STEP 2

Assemble bearing cone (12) into cup (13) at seal end of hub (17) and press a new seal (11) into hub (17).

STEP 3

Position output spindle (6) upright on bench. Lubricate lips of seal (11) and lower hub (17) onto spindle (6). Hub (17) should be centered as it is lowered over spindle (6) to prevent seal damage.

NOTE: [On heavy duty seals (order code T) there is to be no lubrication on seal (11), spindle (6), or hub (17)].

STEP 4

Using bearing cone driver 598E, press inboard bearing cone (12) onto spindle (6) until rollers just contact inboard bearing cup (18).

STEP 5

Install tab of outboard thrust washer (19) into slot of spindle (6). Place lock washer (20) onto spindle (6).

STEP 6

Using fingers, begin screwing bearing nut (21) onto threads of spindle (6). Then torque bearing nut (21) to 60-70 lb-ft (80-90 Nm) using bearing locknut tool 596Z.

STEP 7

Rotate hub (17) several revolutions in each direction to allow bearings to seat.

STEP 8

Using an appropriate pick, check each roller of the inner bearing cone (12) for looseness. If all rollers are tight, proceed to step 11.

STEP 9

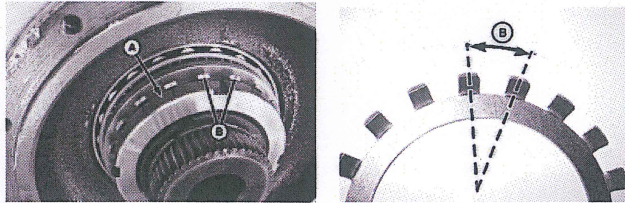
With bearing locknut tool 596Z placed on bearing nut (21), tap end of bearing locknut tool with an appropriate hammer to advance the inner bearing cone (12) further onto spindle (6).

STEP 10

Repeat steps 7 thru 9 until all inner bearing cone (12) rollers are tight.

STEP 11

Identify and mark the nearest tab/slot combination required to achieve the recommended setting. Refer to figures below.



STEP 12

Towing speeds less than 35 MPH:

Set the bearing preload by tightening the bearing nut (21) onto the spindle (6) between 3/4 tab to 1 full tab. To advance the bearing nut to the preload position, tighten bearing nut using bearing locknut tool 596Z until the slot and tab combination identified in Step 11 are aligned. Do not exceed 150 lb-ft. If the appropriate slot and tab are not aligned prior to reaching 150 lb-ft, tap end of bearing locknut tool as described in Step 9 and continue to tighten bearing nut (21). Repeat as required until the tab/slot combination identified in Step 11 are aligned.

Towing speeds 35 MPH and higher:

Provide bearing clearance by loosening bearing nut (21), using bearing locknut tool 596Z, to the nearest tab/slot alignment.

STEP 13

Secure bearing nut (21) by bending the tab of lock washer (20) into the aligned slot of bearing nut (21).

STEP 14

Install O-ring (2) into spindle output (6). Lubricate O-ring.

STEP 15

Install O-ring (5) into outer disconnect shaft (1). Lubricate O-ring.

STEP 16

Install outer disconnect shaft (1) into spindle output (6) by rotating clockwise until tight (hand tight).

STEP 17

Install inner disconnect shaft (4) with spring (8), coupling (9), and retaining ring (10).

STEP 18

Install roll pin (3) into inner disconnect shaft (4). It will be necessary to overcome spring (8) to expose the receiving hole in inner disconnect shaft (4). Center roll pin (3) with inner disconnect shaft (4).

STEP 19

Place the inner disconnect shaft (4) in the engaged position with coupling (9) extending out of spindle output (6).

STEP 20

Install inboard thrust washer (19).

STEP 21

Install adaptor (23).

STEP 22

Apply a "continuous" bead of silicone sealant to the face of hub (17) that mates with ring gear (22). See instructions on sealant package.

STEP 23

Assemble ring gear (22) to hub (17) being careful to align the alignment marks made in STEP 1 of Disassembly procedure and all the bolt holes. Install twelve hex head bolts and washers (15) & (16) through spindle side of hub (17) and into ring gear (22). Torque bolts to 52-60 lb-ft. (70-81 Nm).

STEP 24

Place secondary carrier assembly (24) into ring gear (22) aligning the gear teeth. Splines on carrier (24) mesh with splines on adaptor (23).

STEP 25

Lower primary carrier assembly (25) into ring gear (22). Align teeth of secondary sun gear, [which is attached to primary carrier assembly (25)], with planet gears of the secondary carrier assembly (24) while at the same time aligning primary planet gears with teeth on ring gear (22).

STEP 26

Install primary sun gear (26) into primary carrier assembly (25). Primary sun gear (26) should turn freely by hand when assembled.

STEP 27

Apply a "continuous" bead of silicone sealant to face of ring gear (22) that mates with cover (28).

Secure thrust washer (27) with tangs engaged in cover (28).

NOTE: Thrust washer (27) can be secured to cover (28) with a small amount of grease or silicone sealant. Assemble cover (28) to ring gear (22). Use the alignment marks made in STEP 1 of Disassembly procedure to align cover (28) with ring gear (22).

STEP 28

Install eight hex head bolts (32) thru cover (28) into ring gear (22). Torque bolts to 20-25 lb-ft. (27-34 Nm).

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 (24 & 25) 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, whichever ever occurs 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 rust 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 gasket sealer, order Auburn Gear part number 604101.

SPECIFICATIONS

Maximum intermittent output torque 50,000 lb. in. (5.650 N-m)
 Maximum input speed 5,000 RPM
 Oil capacity 25 oz (740 cc)

ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.	ITEM NO.	DESCRIPTION*	NO. USED IN ASS'Y.
1	Disconnect Outer Shaft	1	17	Hub	1
2	O-ring	1	18	Bearing Cup	1
3	Roll Pin	1	19	Thrust Washer	2
4	Disconnect Inner Shaft	1	20	Lock Washer	1
5	O-ring	1	21	Bearing Nut	1
6	Spindle Output	1	22	Ring Gear	1
7	Wheel Bolt	8	23	Adaptor	1
8	Spring	1	24	Secondary Carrier Assembly	1
9	Coupling	1	25	Primary Carrier Assembly	1
10	Retaining Ring	1	26	Primary Sun Gear	1
11	Oil Seal	1	27	Thrust Washer	1
12	Bearing Cone	2	28	Cover	1
13	Bearing Cup	1	29	Magnetic Plug 14-00-052-002	1
14	Wheel Bolt	9	30	Pipe Plug 03-04-101-09	1
15	Hex Head Bolt	12	31	Pipe Plug 03-04-101-01	1
16	Flat Washer	12	32	Hex Head Bolt	8

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

Model 6 Series B TwisToTow® Power Wheel® Service Kits

Part No.	Description	Included Items
596Z	Bearing Locknut Tool	Not Shown
598E	Bearing Cone Driver	Not Shown
598FF	Spindle/Shaft Drive Tool	Not Shown
6410103**	Bearing & Seal Kit	2, 5, 11, 12 - 2 pcs, 13, 18, 20
6410102**	Seal Kit	2, 5, 11, 20,

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