

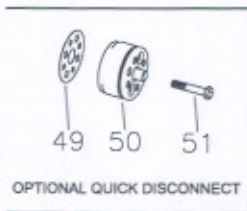
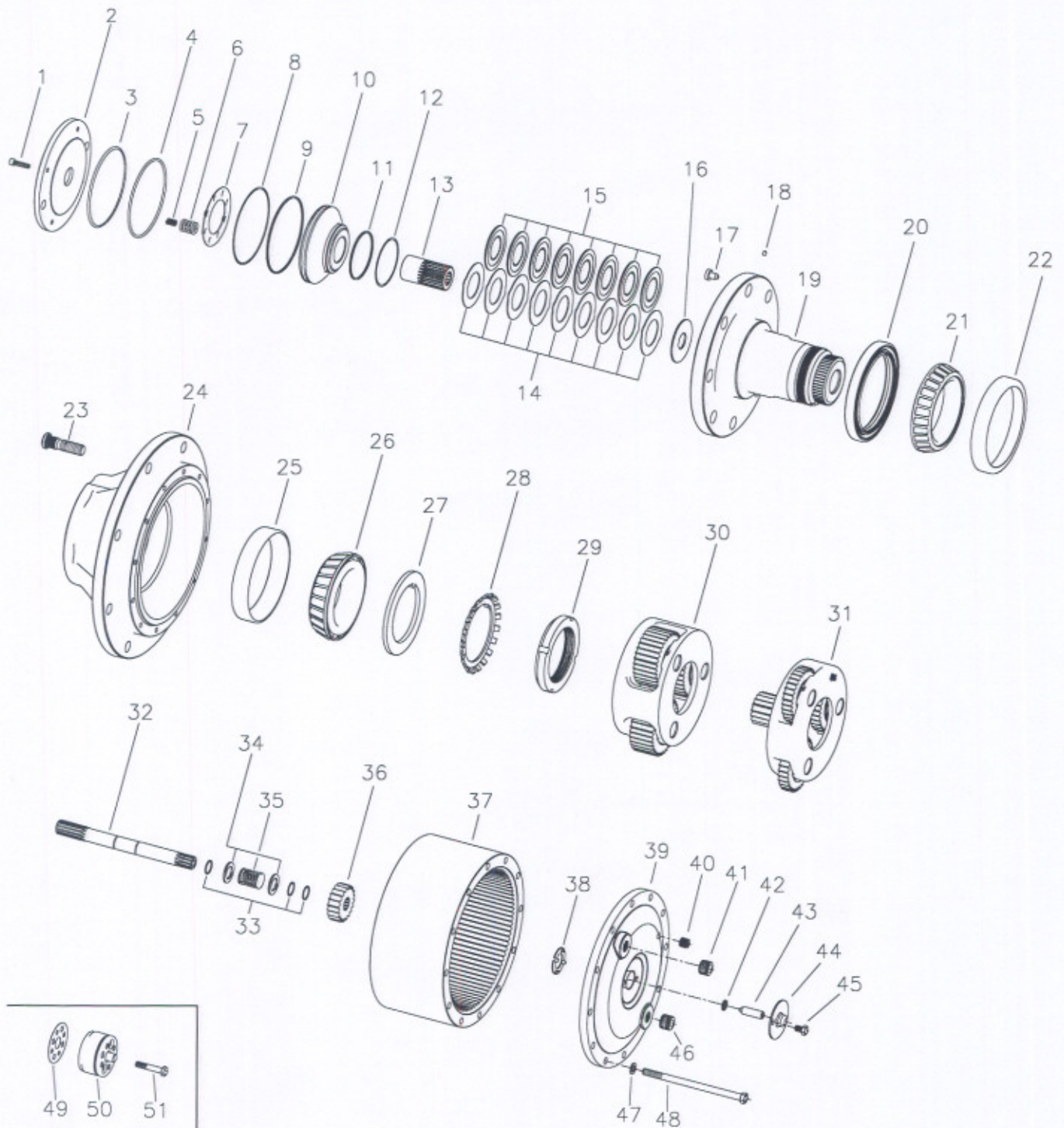
Power Wheel® Service Manual
Model 8 N Series
Double Reduction
Internal Brake Wheel Drives



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IDENTIFICATION

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



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

Example: **60002039, D4 15 SAT**

When ordering parts, the information included on the label 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 BRAKE ASSEMBLY

STEP 1

The brake assembly can be serviced independent of the base Power Wheel. Place the Power Wheel upright on the large cover (39).

STEP 2

Remove four socket head screws (1) from the end plate (2). There will be spring pressure against the plate as the screws are removed. Remove outer springs (6), inner springs (5) and spring retainer (7).

STEP 3

Remove "C" ring (4) from spindle (19). Remove coupling (13). Apply low-pressure air to the brake pressure port in spindle (19) while supporting the piston (10) for its removal. Remove backup rings (8 & 12) and "O" rings (9 & 11).

STEP 4

Remove stationary plates (14), rotating disc (15) and thrust washer (16). Inspect plates for damage.

ASSEMBLY OF BRAKE

STEP 1

With the Power Wheel spindle (19) remaining upright install thrust washer (16) then one stationary plate (14) with its two tabs aligned in the grooves in the spindle (19). Then alternate a rotating disc (15) with a stationary plate (14). Align the splines on the rotating disc (15) as accurately as possible. Install coupling (13) spline end into the rotating disc (15). The coupling (13) may need to be rotated to engage all the splines of the rotating disc (15).

STEP 2

Coat backup rings (8 & 12) and "O" rings (9 & 11) with hydraulic oil then install on piston (10). Be sure the backup rings (8 & 12) go to the outside. Coat the piston bores with hydraulic oil then install the piston (10). Install "C" ring (4).

STEP 3

Install spring retainer (7) in the bore of piston (10). Place inner and outer springs (5 & 6) in the same positions they were removed.

STEP 4

Lubricate "O" ring (3) and install on pilot of backup plate (2). Install backup plate on top of springs aligning the four mounting holes and the motor mount holes. Install four socket head cap screws (1) and tighten down in a cross pattern compressing the springs. Torque the four screws to 15-19 lb-ft [20.3-25.8 Nm]

DISASSEMBLY OF POWER WHEEL

STEP 1

Position the assembly upright on face of spindle (19).

STEP 2

Remove the disengage cover (45) if necessary.

STEP 3

Remove twelve bolts (48) and flat washers (47) and the large cover (39) from the unit. The thrust washer (38) and the disengage plunger (43) usually remains attached to the large cover (39) when it is removed. Remove thrust washer (38) and the disengage plunger (43) and O-Ring (42) from the large cover (39).

STEP 4

Remove primary sun gear (36) from end of input shaft (32).

STEP 5

Remove the primary carrier assembly (31).

STEP 6

Remove the secondary carrier assembly (30). It may be necessary to remove the ring gear (37) first, if difficulty is encountered in removing the carrier.

STEP 7

Remove the input shaft (32) from spindle (19). Remove the retaining rings (33) from input shaft (32) only if replacement is required.

STEP 8

If not previously removed (see step 6) remove ring gear (37) from hub (24). It may be necessary to strike ring gear (37) with a rubber mallet to loosen from hub (24).

STEP 9

One tab of lock washer (28) will be engaged in bearing nut of slot (29); bend back to release. Remove the bearing nut (29), lock washer (28) and thrust washer (27). **Note:** A special locknut wrench, 609Q, 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 hub (24). Drive spindle (19) from hub (24) by turning bolt in center of spindle drive tool. **Note:** Do not use an impact wrench. Care should be taken to avoid damaging splines and threads on spindle. **Note:** Bearing cone (26) has been designed with a press fit with respect to spindle (19). Considerable force will be required to remove cone from spindle.

STEP 11

Remove oil seal (20) and bearing cones (21 & 26) from hub (24). Inspect bearing cups (22 & 25) in position and remove only if replacement is required.

ASSEMBLY OF POWER WHEEL

STEP 1

Press new bearing cups (22 & 25) in each side of the hub (24). It is recommended that bearing cups (22 & 25) and cones (21 & 26) be replaced in sets.

STEP 2

Assemble bearing cone (21) into cup (22) at seal end of hub (24) and press a new seal (20) into hub (24).

STEP 3

Position spindle (19) upright on bench. Lubricate lips of seal (20) (on standard seals only) and lower hub (24) onto spindle (19). Hub (24) should be centered as it is lowered over spindle (19) to prevent seal damage.

NOTE: On [HEAVY DUTY SEALS (order code "T")] there is to be no lubricant on seal (20), spindle (19), or hub (24)].

STEP 4

Assemble bearing cone (26) over spindle (19). Press bearing cone (26) over spindle bearing journal using press and cylindrical bearing cone driver 598F. Press bearing cone (26) down until rollers just touch cup (25). Take care to avoid pressing cone (26) too far. **NOTE:** If a press is not available, place tool 598F over splined end of spindle (19) on the edge of bearing cone (26) 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.

If used [HEAVY DUTY SEALS (order code "T")]

Assemble bearing cone (26) over spindle (19). Press bearing cone (26) over spindle bearing journal using press and cylindrical bearing cone driver 598F. Press bearing cone (26) to 6000 to 6500 lbs while pressing continuously rotate or oscillate hub. - Release pressure and repeat.

STEP 5

Install thrust washer (27) and bearing nut (29). **DO NOT install lock washer (28) at this time.**

When is used [HEAVY DUTY SEALS (order code "T")]

Install thrust washer (27) lock washer (28) and bearing nut (29). Torque nut (29) to 60-70 lb ft and secure locknut (29) by bending lock washer tab (28) into one of four locknut slots (29) if no tab aligns with the slot in nut may be tightened until one of the slots aligns with lock washer tab (28).

STEP 6

Place spindle drive tool, 598FF, over spindle (19) and bolt or pin to hub (24).

STEP 7

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 (24) slowly and steadily with the torque wrench. Note mean torque. An initial bearing torque of greater than 48 lb.-in. means that the cone (26) was pressed on too tightly in step 4. In this case, back off bearing cone (26) by pressing spindle (19) out of cone (26) until initial preload is relieved. See step 8 of disassembly procedure.

STEP 8

Torque bearing nut (29) with bearing nut wrench 609Q until a bearing rolling torque of 40 - 48 lb.-in., is reached. This may require several trials of pressing the cone (26) by torquing the nut (29) and then checking the rolling torque. Rotate hub (24) 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 (29) in order to press cone (26) into position.

STEP 9

Remove bearing nut (29) and install lock washer (28). Replace bearing nut (29).

STEP 10

Re-torque bearing nut (29) to 65 - 75 lb.-ft. (88 - 100 Nm).

STEP 11

Secure bearing nut (29) by bending a lock washer (28) 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

Assemble a washer (34), spring (35), a second washer (34), and a retaining ring (33) in the middle grooves of input shaft (32). Install a second retaining ring (33) in groove near small end of input shaft (32).

STEP 13

Assemble the long splined end of the input shaft (32) down into spindle (19).

STEP 14

Assemble the secondary carrier assembly (30) to spindle (19).

STEP 15

Clean mating surfaces and apply a bead of silicone sealant to face of hub (24) that mates with ring gear (37). See instructions on sealant package. Assemble ring gear (37) to hub (24) being careful to align bolt holes.

STEP 16

Assemble the primary carrier assembly (31) into the ring gear (37). It will be necessary to rotate carrier to align secondary sun gear (part of primary carrier assembly (31)) with planet gear teeth in secondary carrier assembly (30). Assemble primary sun gear (36) over input shaft (32). Rotate primary sun gear (36) to align input shaft (32) to gear splines and gear teeth in primary carrier assembly (31).

STEP 17

Lubricate "O" ring (42) and assemble in groove inside cover hole, push disengage plunger (43) into cover (39) with pointed end facing inside of unit.

STEP 18

Assemble the thrust washer (38) with tangs engaged with cover (39). **NOTE:** A small amount of grease applied to the backside of thrust washer (38) will hold washer in place. Apply a bead of silicone sealant to end of face of ring gear (37). Assemble cover (39) aligning holes of cover and ring gear. Assemble the twelve 3/8-16 x 6-1/2 inch grade 8 bolts (48) and flat washers (47). Torque bolts to 45 - 50 lb.-ft. (61 - 67 Nm).

STEP 19

Assemble the disengage cover (44) 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 (45). Torque bolts to 10 - 20 lb.-ft. (13 - 27 Nm).

STEP 20

After motor is assembled to drive or drive is sealed at spindle, fill with lubricant to proper level and install pipe plugs (40, 41 & 46) torque to 11-25 lb.-ft. (15-33.8 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.

CARRIER ASSEMBLIES

It is recommended that the primary and secondary carrier assemblies (30 & 31) 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, whichever 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 (44) with the dimpled center protruding inward. 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 100,000 lb. in. (11,300 Nm)
 Maximum input speed 4,000 RPM
 Oil capacity 57 oz (1,685 ml)

| ITEM NO. | DESCRIPTION* | NO. USED IN ASS'Y. | ITEM NO. | DESCRIPTION* | NO. USED IN ASS'Y. |
|----------|---|--------------------|----------|--|--------------------|
| 1 | Assy-Spindle Screw-Skt HD (84642) Ausco | 4 | 7 | Assy-Spindle Spring Retainer (83426) Ausco | 1 |
| 2 | Assy-Spindle Plate-End (84432) Ausco | 1 | 8 | Assy-Spindle Backup Ring (84446) Ausco | 1 |
| 3 | Assy-Spindle Ring-O (84684) Ausco | 1 | 9 | Assy-Spindle Ring-O (83218) Ausco | 1 |
| 4 | Assy-Spindle C-Ring (84740) Ausco | 1 | 10 | Assy-Spindle Piston (84431) Ausco | 1 |
| 5 | Assy-Spindle Inner Spring (87516) Ausco | 4 | 11 | Assy-Spindle Ring-O (83219) Ausco | 1 |
| 6 | Assy-Spindle Outer Spring (81867) Ausco | 11 | 12 | Assy-Spindle Backup Ring (84439) Ausco | 1 |

| | | | | | | | |
|----|------------------------------|---------------|---|----------------------------------|--------------------|---------------|----|
| 13 | Coupling | | 1 | 33 | Ring -Retaining | | 3 |
| 14 | Assy-Spindle Stationary Disc | (84433) Ausco | 9 | 34 | Washer-Thrust | | 2 |
| 15 | Assy-Spindle Rotating Disc | (83344) Ausco | 8 | 35 | Spring-Disengage | | 1 |
| 16 | Assy-Spindle Washer-Thrust | (84469) Ausco | 1 | 36 | Gear-Sun | | 1 |
| 17 | Assy-Spindle Protective Plug | (76871) Ausco | 1 | 37 | Gear-Ring | | 1 |
| 18 | Assy-Spindle Pin-Plug | (30844) Ausco | 1 | 38 | Washer-Thrust | | 1 |
| 19 | Spindle | | 1 | 39 | Cover | | 1 |
| 20 | Oil Seal | | 1 | 40 | Plug-Pipe | 605204 | 1 |
| 21 | Bearing Cone | 60110101 | 1 | 41 | Plug-Pipe | 03-04-101-01 | 1 |
| 22 | Bearing Cup | 60110201 | 1 | 42 | Ring-O | 614101 | 1 |
| 23 | Bolt-Wheel | | 8 | 43 | Plunger | 610801 | 1 |
| 24 | Hub | | 1 | 44 | Cover-Disconnect | 14-02-039-005 | 1 |
| 25 | Bearing Cup | 613308 | 1 | 45 | Bolt-Hex Head | 618305 | 2 |
| 26 | Bearing Cone | 613307 | 1 | 46 | Plug-Pipe Magnetic | 14-00-052-002 | 1 |
| 27 | Thrust Washer | 619334 | 1 | 47 | Washer-Flat | 14-00-047-002 | 12 |
| 28 | Washer-Lock | 605007 | 1 | 48 | Bolt-Hex Head | 618319 | 12 |
| 29 | Nut-Bearing | 614918 | 1 | OPTIONAL QUICK DISCONNECT | | | |
| 30 | Secondary Carrier Assembly | | 1 | 49 | Gasket | 904501 | 1 |
| 31 | Primary Carrier Assembly | | 1 | 50 | Quick Disconnect | 949001 | 1 |
| 32 | Input Shaft | | 1 | 51 | Bolt-Hex Head | 618316 | 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 8B Internal Brake Power Wheel® Service Kits

| Part No. | Description | Included Items |
|-----------|---------------------------|---------------------------|
| 941071 | Kit-Friction Disc (Brake) | 6, 7, 4, 14,15 and 16 |
| 941072 | Kit-Seal (Brake) | 3, 4, 8, 9, 11 and 12 |
| 941073 | Kit-Service (Brake) | 1, 2, 3 |
| 641062 ** | Kit-Seal | 20, 28 and 42 |
| 641063 ** | Kit-Bearing & Seal | 20, 21, 22, 25, 26 and 28 |
| 609Q | Bearing Locknut Tool | Not Shown |
| 598F | Bearing Cone Driver | Not Shown |
| 598FF | Spindle/Shaft Drive Tool | Not Shown |

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

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