

D2 DIRECT DRIVE SPINDLE SPINDLE REBUILD INSTRUCTIONS

DOC #15-2003

WARRANTY + SERVICE 888.960.0364
PARTS 888.960.0361



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SPINDLE REBUILD INSTRUCTIONS

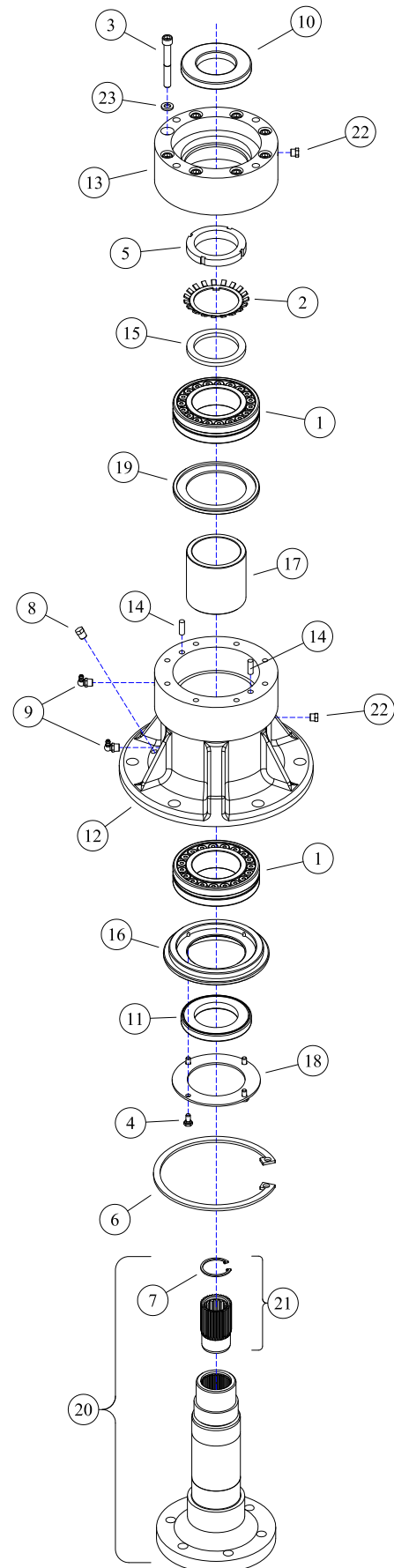
D2 SPINDLE PARTS BREAKOUT

Grease with #2 lithium based grease every 500hrs.
Use 10 pumps (.44oz) into each of the two grease zerk.

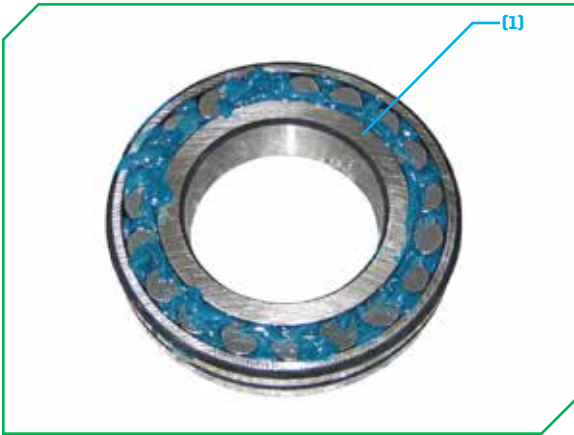
Warning: Do not overgrease
Overgreasing will cause damage or premature failure of the bearings, housing & seals.

REF#	PARTS DESCRIPTION	REQ	PART #
1	BEARING	2	10-0055
2	LOCKING WASHER	1	11-0048
3	3/8 X 2-3/4 NC SKT HEAD CAPSCREW	8	11-0703
4	1/4 X 1/2 NC CAPSCREW	4	11-0741
5	2-1/2 SPANNER NUT	1	11-1037
6	LARGE SNAP RING	1	11-2021
7	SMALL SNAP RING	1	11-2022
8	PIPE PLUG	1	21-1136
9	1/8 X 90 GREASE ZERK	2	23-0005
10	UPPER SEAL	1	33-0035
11	LOWER SEAL	1	33-0057
12	SPINDLE HOUSING	1	35-0021
13	SEAL/MOTOR MOUNT	1	35-0022
14	ALIGNMENT PIN	2	35-0032
15	SPACER	1	35-0050
16	BOTTOM SEAL PLATE	1	35-0063
17	SPACER	1	35-0064
18	BOTTOM PLATE	1	35-0065
19	GREASE CATCH	1	35-0066
20	SPINDLE SHAFT COMPLETE	1	35-0090
*21	SPLINED INSERT KIT	1	35-0091
22	BREA THER	2	80-1016
23	3/8 LOCK WASHER GR 5	8	11-0005

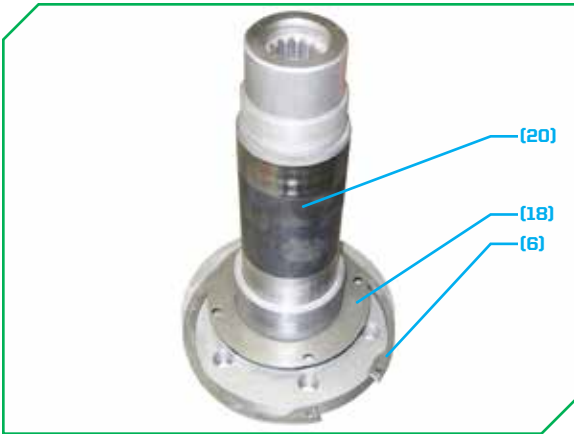
* The splined insert kit includes the insert removal tool 11-0913.



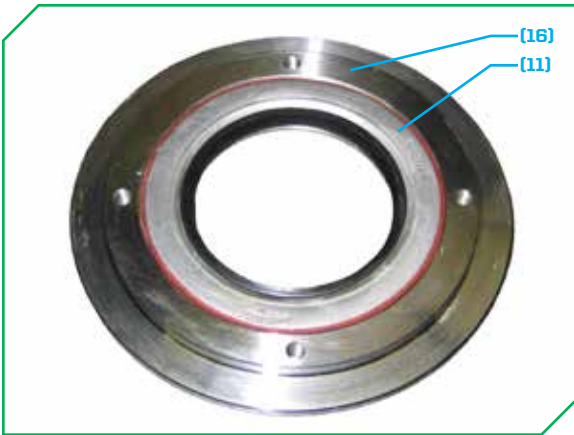
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- Pack the (2) bearings (1) with #2 lithium based grease on both sides as illustrated.



- Place the large snap ring (6) and bottom plate (18) onto the spindle (20).



- Place the lower seal (11) into the recess of the bottom seal plate (16).
 - Lightly tap (evenly all the way around) until the lower seal (11) is fully seated.
 - **NOTE:** The lettering on the lower seal (11) should be facing UP (so it can be read).

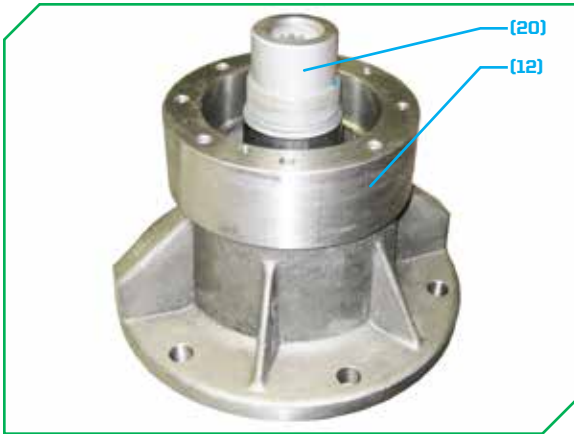


- Press the bottom seal plate (16) down around the spindle shaft (lower seal (11) facing down) all the way down until it no longer can move, as illustrated.

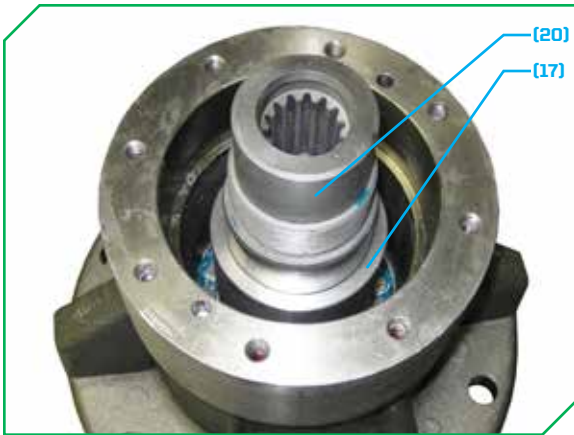
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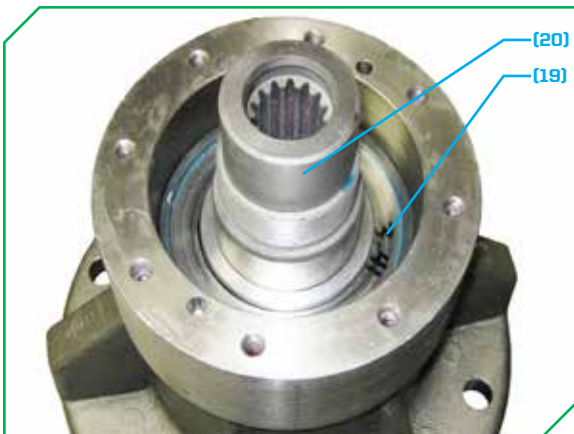
- Press the bearing (1) down around the spindle shaft (20) all the way down until it no longer can move, as illustrated.



- Place the spindle housing (12) down around the spindle shaft (20) until it has been fully seated.

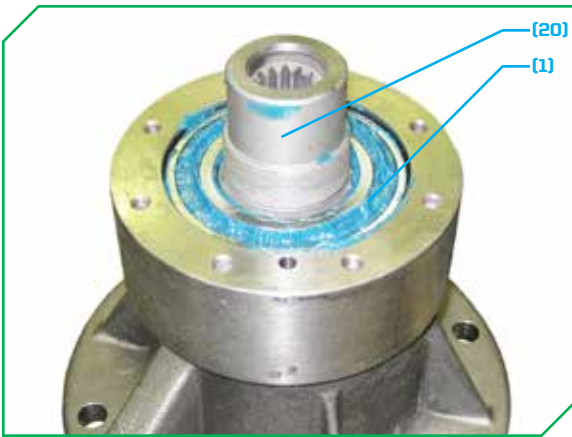


- Slip the spacer (17) down around the spindle shaft (20) until fully seated as illustrated.

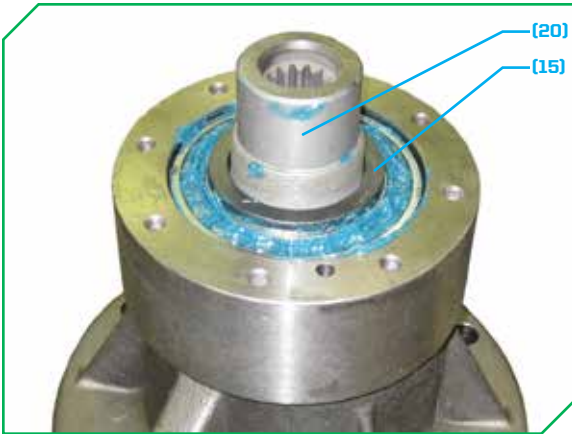


- Place the grease catch (19) (lip facing up) down around the spindle shaft (20) it has been seated against the spacer (17) placed around the spindle shaft (20) in the previous step.

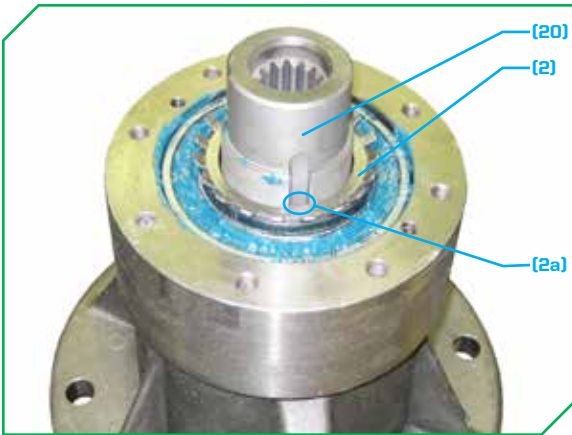
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- Place the bearing ⁽¹⁾ around the spindle shaft ⁽²⁰⁾ and press it into place as illustrated.



- Place the ring spacer ⁽¹⁵⁾ down around the spindle shaft ⁽²⁰⁾ until it is resting on the bearing ⁽¹⁾ as illustrated.



- Place the locking washer ⁽²⁾ down around the spindle shaft ⁽²⁰⁾ until it is resting on top of the ring spacer ⁽¹⁵⁾ placed around the spindle shaft ⁽²⁰⁾ in the previous step.
 - Confirm the tab ^(2a) of the locking washer ⁽²⁾ is placed inside of the slot on the spindle shaft ⁽²⁰⁾.

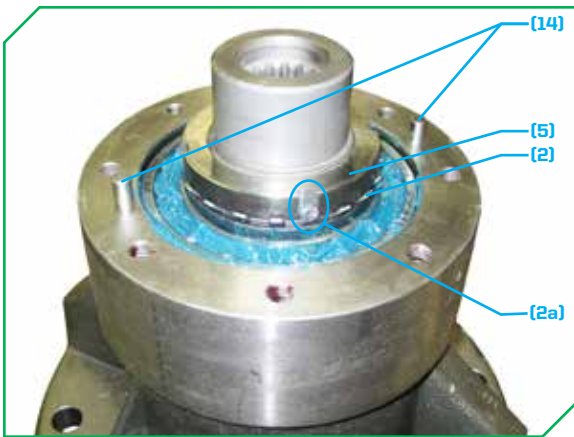


- Thread the spanner nut ⁽⁵⁾ down onto the spindle shaft ⁽²⁰⁾ until it contacts the locking washer ⁽²⁾.
 - Tighten as far as possible by hand.

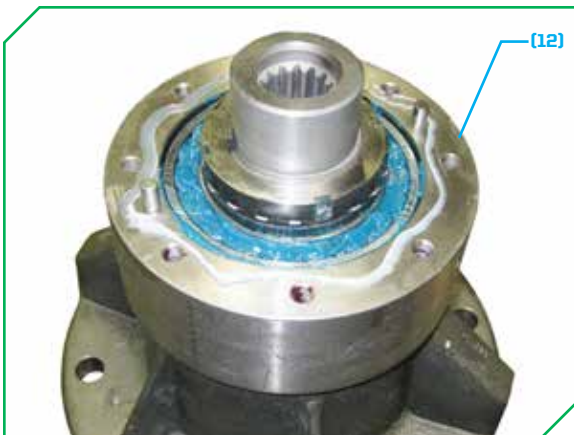
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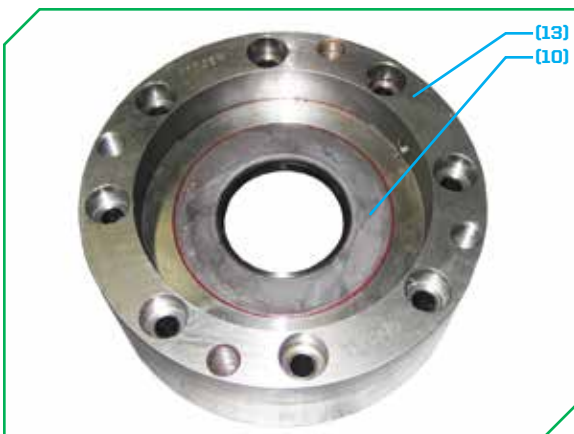
- Using a torque wrench and socket fitting the spanner nut ⁽⁵⁾, torque the spanner nut ₍₅₎ to 250ft-lbs (339Nm).



- Lock the spanner nut ⁽⁵⁾ into place by tapping one or more of the locking washer ₍₂₎ tabs _(2a) into one or more of the slots on the spanner nut ₍₅₎.
 - The spanner nut ₍₅₎ may be tightened further slightly to allow one of its slots to line up with a tab _(2a) on the locking washer ₍₂₎ if necessary.
- Place the (2) alignment pins ⁽¹⁴⁾ into their respective recesses within the spindle housing ₍₁₂₎.
 - Gently tap them in to confirm they are fully seated.

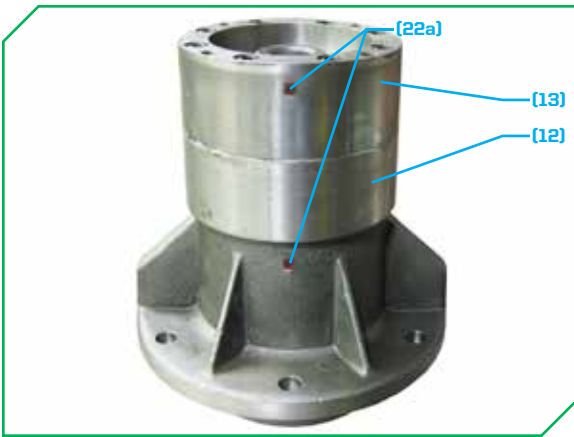


- Clean off any grease / debris off of the top surface of the spindle housing ₍₁₂₎.
- Run a thin bead of silicone caulking on the top surface of the spindle housing ₍₁₂₎.

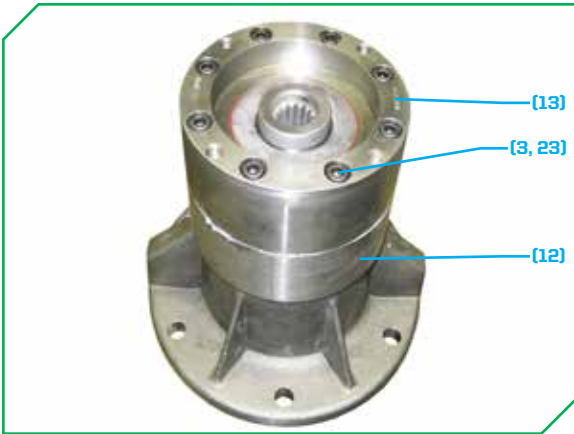


- Place the upper seal ₍₁₀₎ into the recess of the seal / motor mount ₍₁₃₎.
 - Lightly tap (evenly all the way around) until the upper seal ₍₁₀₎ is fully seated.
 - **NOTE:** The lettering on the upper seal ₍₁₀₎ should be facing **UP** (so it can be read).

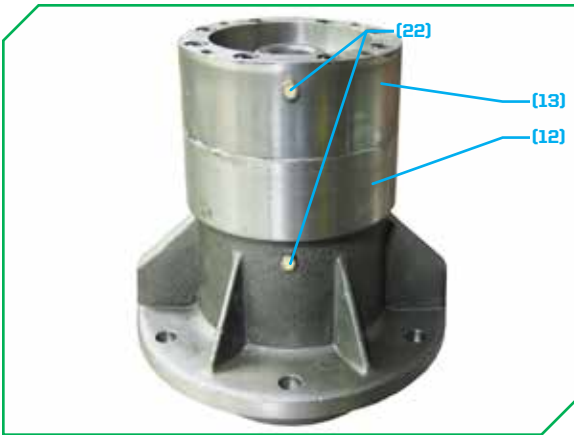
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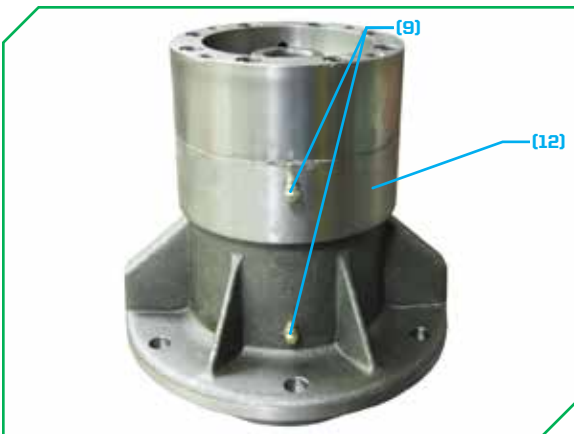
- Place the seal / motor mount (13) onto the spindle housing (12) and push down until they are fully seated against each other.
 - Line up the alignment pin (14) recesses on the underside of the seal / motor mount (13) with the alignment pins (14) on the spindle housing (12).
 - **NOTE:** When seating the seal / motor mount (13) onto the spindle housing (12), make sure the breather holes (22a) are lined up.



- Secure the seal / motor mount (13) to the spindle housing (12) with the cap screws (3) and lock washers (23).
 - Use Loctite 262 on the cap screw (3) threads.
 - Torque the cap screws (3) down evenly in a criss-cross pattern to 30ft-lbs (41Nm).

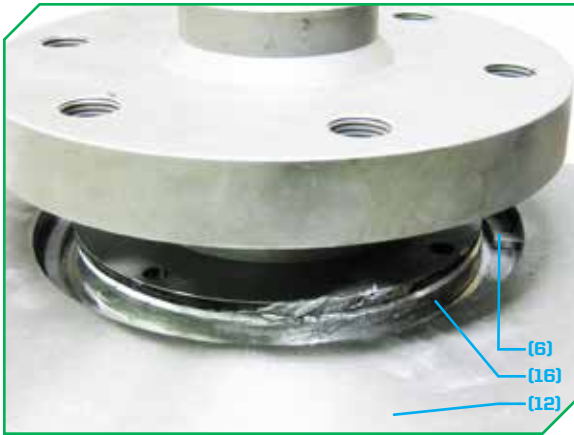


- Screw the (2) breathers (22) into the seal / motor mount (13) and spindle housing (12).
 - Confirm they are threaded in as far as possible.



- Screw the (2) 90° grease zerks (9) into the spindle housing (12).
 - Confirm they are threaded in as far as possible, and are pointed up as illustrated.

SPINDLE REBUILD INSTRUCTIONS



- Secure the bottom seal plate⁽¹⁶⁾ to the spindle housing⁽¹²⁾ with the snap ring⁽⁶⁾.
 - Use snap ring pliers to place the snap ring⁽⁶⁾ into its recess.



- Secure the bottom plate⁽¹⁸⁾ to the bottom seal plate⁽¹⁶⁾ with the cap screws⁽⁴⁾.
 - Use Loctite 262 on the cap screw⁽⁴⁾ threads.
 - Torque the cap screws⁽⁴⁾ down evenly in a criss-cross pattern to 8ft-lbs [15Nm].



- Place a dial indicator on the spindle assembly as illustrated.
- Using a pry bar as illustrated, pry the spindle shaft⁽²⁰⁾ up and down against the spindle housing⁽¹²⁾; check the end play with the dial indicator.
 - End play should be between .015 - .045 inches.
 - If necessary, strike the center of the spindle shaft⁽²⁰⁾ sharply (where the dial indicator is touching in the illustration) with a heavy mallet and a section of wood between the mallet and spindle shaft⁽²⁰⁾ (to protect the spindle shaft⁽²⁰⁾); recheck end play.



- Insert the splined spindle insert⁽²¹⁾ into the spindle shaft⁽²⁰⁾ and secure it in place with the snap ring⁽⁷⁾.