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ESP & ESSP PUMP ASSEMBLY & DISASSEMBLY INSTRUCTIONS

**Note: The ESP is a 50 GPM pump with 4 bolts on the lower housing.
The ESSP is a 100 GPM pump with 6 bolts on the lower housing.**

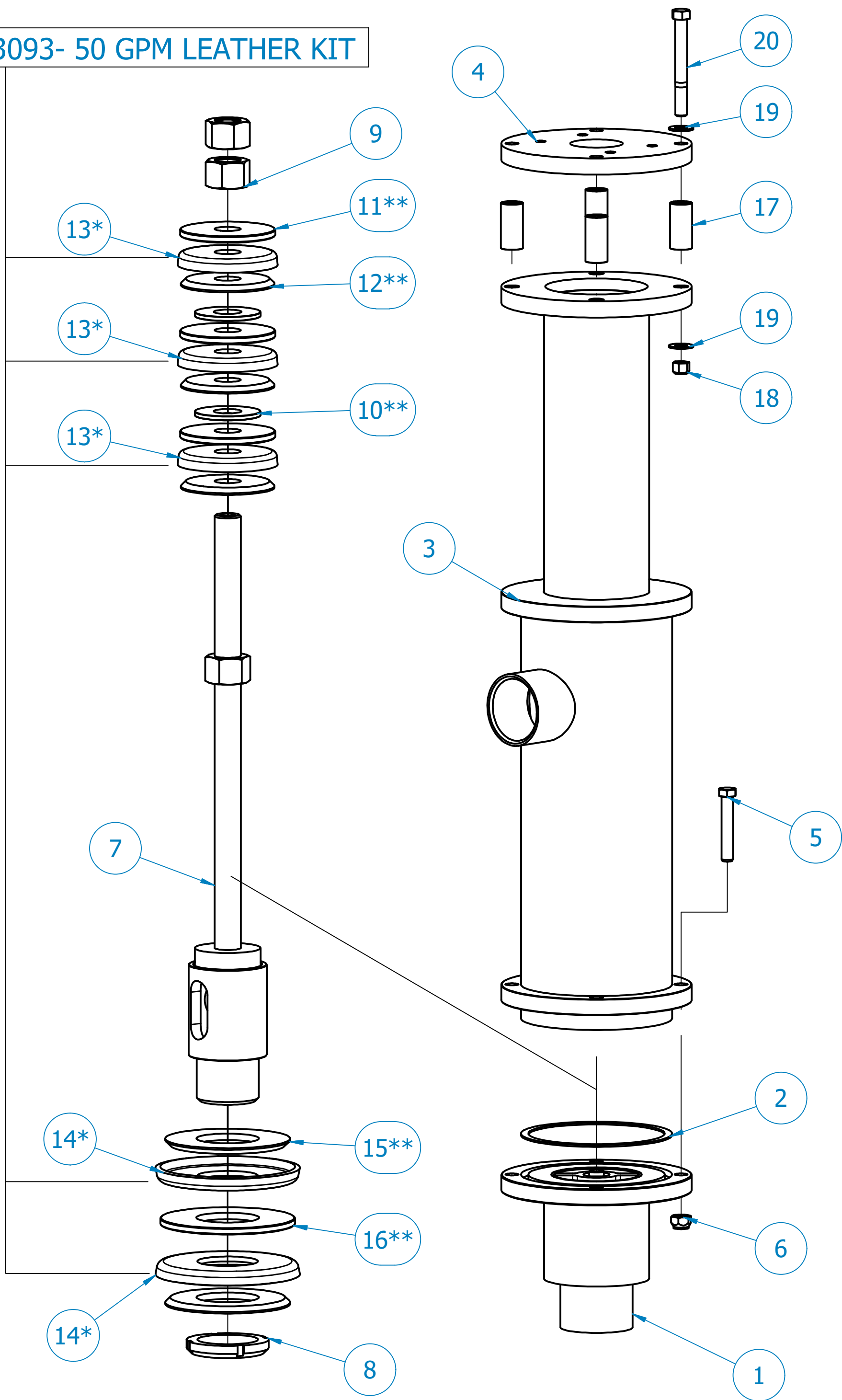
DISASSEMBLY

1. Be sure the pump is at the top of its stroke.
2. Disconnect power wire lead and hydraulic hoses. (mark hoses to be sure to reconnect correctly)
3. Remove the 4 bolts on the top plate holding the pump head to the pump and unscrew the pump head shaft from the pump shaft using the wrench flats on the pump head shaft (if necessary).
4. Remove the pump from the machine by loosening the two unions connecting the pump to the plumbing.
5. Remove the 4 (or 6) bolts holding the bottom of the pump to the lower check assembly. Then remove the lower check assembly.
6. Inspect the lower check located within the lower check assembly. Ensure it is free of debris and can properly seat within the assembly.
7. Place a piece of pipe with approximately 1¼" inside diameter over the pump shaft at the top of the pump and drive the shaft assembly out the bottom of the pump housing with a dead blow or heavy hammer.
8. Remove the two 1" hex nuts, the small steel rings and the old leather cups from the top of the shaft assembly.
9. Remove the spanner nut, the large steel rings and the old leather cups from the bottom of the lower shaft assembly.
10. Inspect the check ball located within the shaft assembly. Ensure it is free of debris and can properly seat within the assembly.
11. Inspect the pump housing for pits and grooves. Shallow grooves will not cause a problem. Deep grooves or grooves with sharp edges will cause a bad seal. If the housing is not perfectly smooth, it can be honed lightly to a concentric smoothness.

REASSEMBLY

1. Assemble the steel rings and leather cups on the top section of the shaft assembly. Refer to the diagram for proper sequence. Put one 1" nut on the shaft until it is flush with shaft top. **Do not tighten at this point.**
Note: The beveled edge of the steel rings will face the inside of the leather cups.
2. Apply a thin coating of spray lubricant to the inside of the pump housing and to the three upper leather cups.
3. Put the partially assembled shaft in the pump housing from the bottom end and push the shaft in until the shaft is completely in the housing. (Approximately 4 inches)
4. Put a large beveled ring inside of a large leather cup. Insert this assembly sideways in the pump housing and press with thumbs until it straightens out and slides on the shaft. (Apply a thin coat of lubricating oil to pump housing and leather cup if necessary) This beveled steel ring should be installed closest to the central ball and this leather cup must face the top of the pump.
5. Install the large spacer ring.
6. Install the final beveled ring and leather cup assembly facing the bottom of the pump.
7. Install the spanner nut on the shaft assembly and tighten spanner nut.
8. Drive the shaft assembly to the top position.
9. Put a bar in through the discharge outlet of the pump into the hole of the check ball cage to hold shaft from rotating while tightening the top 1" nuts and the lower spanner nut.
10. Replace the gasket in the groove of the lower check assembly. Be sure all old gasket is removed first.
11. Re-install the lower check ball assembly by tightening bolts in a cross pattern (like wheel lugs).
12. Re-install pump assembly on the machine and tighten the plumbing unions.
13. Re-install the pump head assembly.

20323093- 50 GPM LEATHER KIT



PARTS LIST			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	LOWER CHECK ASSEMBLY, ESP 50 GPM NEALCO	20323119-R1	1
2	GASKET, ESP PUMP	20322889*	1
3	HOUSING, ESP 50 GPM CYLINDER	20323085	1
4	PUMPHEAD MOUNTING PLATE, ESP 50 GPM PUMP	21934948	1
5	BOLT,HEX HEAD 7/16-14 X 2-1/2,GR8 PLAIN	95782371	4
6	NUT,LOCK 7/16-14,GR9,ECOGUARD FINISH	95505681	4
7	CENTRAL BALL ASSEMBLY, ESP/ESSP	20323077	1
8	NUT, SPANNER, N-12	20323051	1
9	NUT, HEX, 1"	95997490	3
10	WASHER, 1" x 2 1/2" O.D., ZINC	95922159**	2
11	RING, SMALL SPACER, ESP PUMP	21935176**	3
12	RING, SMALL BEVELED, ESP PUMP	21935168**	3
13	LEATHER SEAL, SMALL, ESP 50 GPM	21915251*	3
14	LEATHER SEAL, LARGE, ESP 50 GPM	21906904*	2
15	RING, LARGE BEVELED, ESP PUMP	21935143**	2
16	RING, LARGE SPACER, ESP PUMP	21935150**	1
17	SPACER, PUMP MOUNTING PLATE, 1/2" SCH 80 @ 1 3/4"	25250574	4
18	NUT, LOCK, 7/16"-20 NYLON INSERT	30300074	4
19	WASHER, 7/16" YELLOW ZINC	30300076	8
20	BOLT, HEX, 7/16" x 3 3/4" GR 8 YELLOW ZINC	30300075	4

REV 1: CHANGED LOWER CHECK TO NEW DESIGN (20323119-R1) 10/31/2018
REV 2: REPLACED COUPLER NUTS WITH SPACER 15150266 (#17) AND
3/8" x 1 1/4" BOLTS WITH 3/8" x 3 1/2" THRU BOLTS (#20) 11/2/2018

NOTE:

- ITEM 8 & 9 (x2) ARE PART OF ITEM 7- 20323077 CENTRAL BALL ASSY, BUT MAY BE PURCHASED SEPERATELY.
- ITEM 2 COMES WITH ITEM 1- 20323119 LOWER CHECK BALL ASSY AND WITH 20323093 LEATHER KIT.

* ITEMS CONTAINED IN KIT 20323093- 50 GPM LEATHER KIT
** ITEMS CONTAINED IN KIT 21915970- 50 GPM WASHER KIT

TOLERANCES (EXCEPT AS NOTED)		NEALCO® EQUIPMENT, LLC	
DECIMAL ±		ESP 50 GPM MATERIAL PUMP ASSEMBLY VIEW	© 2014 NOTE: THIS INFORMATION IS PROPRIETARY AND CONFIDENTIAL.
FRACTIONAL ±		MAT'L: VARIES	REV: 2
ANGULAR ±		DRAWN BY: J MIXELL DATE: 7/9/14	QUOTE NO:
SCALE: 1:0.3		DRAWING NO: 20323069A	C
APPROVED BY:			