

## Rebuild Kit Replacement Instructions

Unist 230 Pump 60 $\mu$ L Part Number 231-000-611

Item numbers in these instructions refer to the drawings found on the back of this sheet.

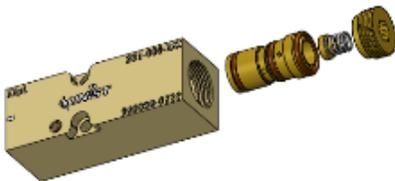
If any seals are not adequately greased Molykote 55 or equivalent is recommended.

### 1. Tools Needed:

- 1/4" hex key
  - 3/32" hex key
  - 7/64" hex key
  - A clean surface
2. If necessary, remove the pump from the pump stack using a 7/64" hex key.
  3. Remove the two bolts (item 20) that hold the air cap to the pump body using an 3/32" hex key.
  4. Remove air cap (item 18), air piston (item 16), metering pin (item 15), and spring (item



- 14) from the air side. Set on a clean surface.
5. Use the 1/4" hex key to remove the brass plug (item 12) from the fluid side (bottom) of the pump.
6. Remove the check seal, spring, pump inserts and all seals (items 2-11). Depending how long the pump has been in service and what fluids have been ran through the pump this can be accomplished by either banging



the bottom of the pump body on a hard smooth surface or pushing on the inserts from the opposite side to force the parts out.

7. Discard all old seals and internal pump components. Clean any debris from the inside of the pump block to ensure

contaminants do not interfere with pump performance upon re-assembly.

8. Drop the brass washer (item 2) into the fluid side of the pump body. Ensure it sits flat on the internal shelf
9. Ensure there is a light coat of grease on the -012 O-ring (item 3) and drop it on top of the washer. Ensure it sits flat on the washer.
10. The -005 X-ring (item 4) should be in the counter bore of the fluid inlet insert (item 5). Ensure this is assembled and lightly greased.
11. Insert the fluid inlet insert (item 5) into the pump body with the -005 X-ring (item 4) facing the washer.
12. Ensure there is an -012 O-ring (item 3) and -005 O-ring (item 6) installed on the fluid displacement chamber (item 7) and they are lightly greased. Install this assembly with the O-ring facing the other insert.
13. Ensure the outlet check valve is assembled with the flat check seal (item 8) and the brass housing (item 9). Install this assembled with the seal facing the inside of the pump.
14. Install the outlet check valve spring (item 10) around the nub on the outlet check valve housing (item 9)
15. Ensure the -013 O-ring (item 11) is lightly greased and install on the chamfer of the displacement chamber (item 7)
16. Install and tighten the brass plug (item 12) to 75 in-lbs [8.5 Nm]

17. Flip the pump over and install the metering pin return spring (item 15) and metering pin (item 14). Ensure the metering pin has a light coat of grease around the smaller diameter shaft.
18. Ensure the air piston (item 16) is coated with super lube or equivalent grease. Install the air piston into the air cap (18). Twist the parts as you slide them together.
19. Ensure there is a -016 O-ring (item 17) installed in the groove of the air cap (item 16) and install the assembly into the pump.
20. Use the air cap retainer (item 19) to hold the air cap in place and tighten screws (item 20) to 6 in-lbs using 3/32" hex key.
21. Replace the 3 O-rings on the pump manifold block with the 3 -007 O-rings that were shipped with the rebuild kit.



22. Reinstall the pump onto the manifold

# Rebuild Kit Replacement Instructions

Unist 230 Pump 60µL Part Number 231-000-611

ECR/ECN	REV.	DESCRIPTION	DATE
	A	RELEASED FOR PRODUCTION	08/16/2022

\*SEE WORK INSTRUCTION WI0275 FOR PROPER ASSEMBLY METHOD\*

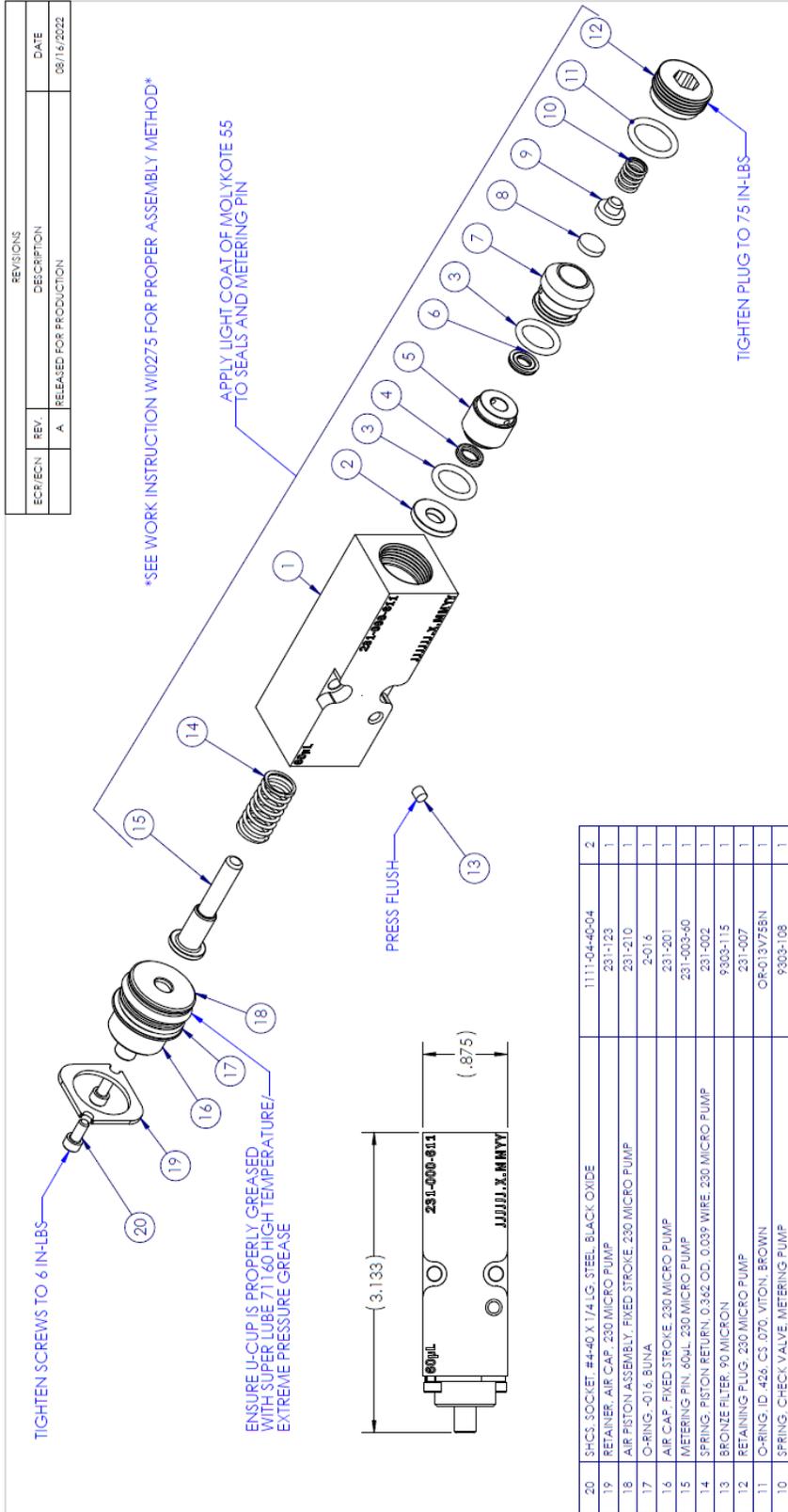
APPLY LIGHT COAT OF MOLYKOTE 55 TO SEALS AND METERING PIN

TIGHTEN SCREWS TO 6 IN-LBS

ENSURE U-CUP IS PROPERLY GREASED WITH SUPER LUBE 71160 HIGH TEMPERATURE/EXTREME PRESSURE GREASE

PRESS FLUSH

TIGHTEN PLUG TO 75 IN-LBS



DATE	06/29/2022
DRAWN BY:	ZS
STATUS:	RELEASED
ITEM TYPE:	A3M
DWG SIZE:	ANSI B (11x17)
TITLE:	PUMP ASSEMBLY, 60UL VITON, FIXED OUTPUT, 230 MICRO PUMP
REV/DWG. NO.	A 231-000-611
SCALE:	1:1

UNLESS OTHERWISE SPECIFIED:  
DIMENSIONS ARE IN INCHES  
TOLERANCES UNLESS OTHERWISE SPECIFIED:  
FRACTIONS: ±0.005  
DECIMALS: ±0.001  
ANGLES: ±0.1°  
HOLE POSITION: ±0.010  
HOLE POSITION: ±0.010

UNIST  
PUMP ASSEMBLY, 60UL VITON, FIXED OUTPUT, 230 MICRO PUMP  
REV/DWG. NO. A 231-000-611  
SCALE: 1:1

ITEM NO.	DESCRIPTION	PART NUMBER	QTY.
20	SHCS, SOCKET, #4-40 X 1/4 LG, STEEL, BLACK OXIDE	1111-04-40-04	2
19	RETAINER, AIR CAP, 230 MICRO PUMP	231-123	1
18	AIR PISTON ASSEMBLY, FIXED STROKE, 230 MICRO PUMP	231-210	1
17	O-RING-01.6, BUNA	2-016	1
16	AIR CAP, FIXED STROKE, 230 MICRO PUMP	231-201	1
15	METERING PIN, 60UL, 230 MICRO PUMP	231-005-60	1
14	SPRING, PISTON RETURN, 0.342 O.D., 0.039 WIRE, 230 MICRO PUMP	231-002	1
13	BRONZE FILTER, 90 MICRON	9303-115	1
12	RETAINING PLUG, 230 MICRO PUMP	231-007	1
11	O-RING, ID. 426, CS, 070, VITON, BROWN	OR-013V75BN	1
10	SPRING, CHECK VALVE, METERING PUMP	9303-108	1
9	BODY, CHECK VALVE, INJECTOR PUMP	9303-107	1
8	CHECK SEAL, CHECK VALVE, VITON, INJECTOR PUMP	9303-112	1
7	PUMP INSERT, DISPLACEMENT CHAMBER, 60UL, 230 MICRO PUMP	231-004-60	1
6	U-CUP, STRAIGHT, 1/16 CS X 3/16 ID X 5/16 OD, 75 DURO, BLACK, VITON	U4-0187-0312-0602-V75BN	1
5	PUMP INSERT, FLUID INLET, 60UL, 230 MICRO PUMP	231-005-60	1
4	X-RING, OD. 313, CS, 063, VITON, 75 DUROMETER, BLACK	XR-008V75BK	1
3	O-RING, ID. 344, CS, 070, VITON	2-012-V684-75	2
2	RETAINING WASHER, 60UL, 230 MICRO PUMP	231-004-60	1
1	PUMP BODY, 230 MICRO PUMP	231-001	1