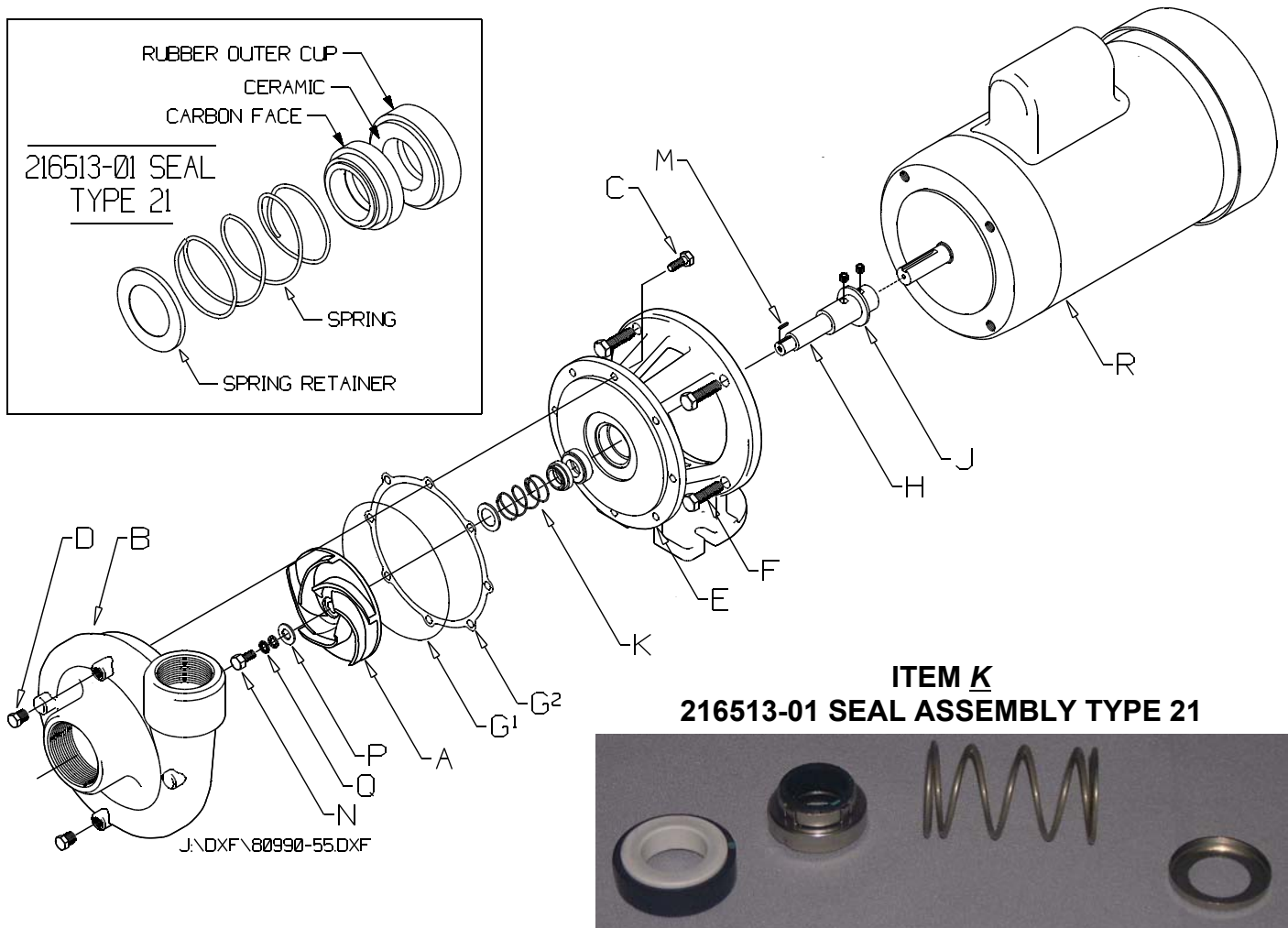


CD Series Seal Replacement

Please refer to the drawing at the bottom of the page for component references (A) through (R).

DISASSEMBLY

1. Disconnect the power source to the pump motor.
2. Disconnect the electrical connections, tagging the wires carefully to preserve the correct rotation. Loosen the bolts holding the pump bracket (E) to the surrounding structure.
3. Disconnect the piping or hoses that are connected to the pump inlet and outlet on the volute (B).
4. Remove the pump and motor assembly to the seal replacement repair area.
5. Remove the volute (B) from the pump bracket (E) by removing the bolts (C).
6. Remove the impeller (A) by removing the impeller lockdown bolt (1/4-20 bolt) (N) and lockwashers (P,Q). Slide the impeller off of the shaft (H). Do Not throw the shaft key (M) away. A small pair of c-clamp or standard vise grips may be clamped to the pump shaft (H) to prevent rotation while unscrewing the impeller lockdown bolt. Avoid damaging the set screws of the shaft with the vise grips.
7. Slide the seal head, spring and spring retainer (K) from the shaft. This is the carbon portion of the seal.
8. Remove the four motor bolts (F) and remove the bracket (E) from motor.
9. Remove the ceramic seal seat from the pump bracket (E). This is the portion of the seal (K) that is pressed into the rear of the pump bracket (E). Use a wooden or plastic dowel to tap the seal seat from the bracket. Also remove the rubber cup that the ceramic seal seat is pressed into.



REASSEMBLY

1. Clean the seal seat cavity of the pump bracket (E) thoroughly.
2. Thoroughly clean the pump shaft (H). Assure that the shaft is not grooved and that there is no evidence of pitting or fretting. If the shaft is grooved, fretted or worn, replace it.
3. Install the the pump shaft (H) onto the motor shaft, aligning the set screws of the pump shaft with the keyway of the motor shaft. Ensure that all debris and burrs are removed from the motor shaft and that the rubber slinger (J) is in place.
4. To install the seal place the bracket (E) on a firm surface with the seal seat cavity (pump end) up. Then place a small amount of vegetable oil on the rubber seat cup. Place the seat in the seal cavity with the ceramic portion face up toward the pump end. Evenly push the seat into the cavity with your fingers then gently tap the seat into place with a wooden dowel or plastic rod (1-1/8" / 28mm OD). To help ensure the seat is not damaged place the cardboard disk supplied with the seal over the seat face.
5. Install the bracket (E) on the motor (R). Secure the bracket with the four motor bolts (F).
6. Pull out the pump shaft (H) as far as it will go toward the volute (B) end and slightly snug one set screw to hold the shaft in place.
7. Installing the seal head assembly:
 - a. Apply a small amount of vegetable oil on the pump shaft and I.D. of the rubber inner liner of the carbon portion of the seal.
 - b. Install the rotary seal head (carbon portion) onto the pump shaft and slide toward the seat until the carbon face touches the ceramic seal seat.
 - c. Install the seal spring and retainer.
8. Install the impeller (A) onto the end of the shaft (H). Install the shaft key (M), impeller flatwasher (P), 2 lockwashers (Q) and lockdown bolt (N). Tighten the lockdown bolt securely (10 ft. lbs.). ***Serviceable Loctite must be used on the lockdown bolt. Lockwasher pairs must be assembled cam face to cam face.***
9. Loosen the pump shaft (H) set screws.
10. Install new volute gasket or O-ring (G1 or G2) and mount the volute (B) to the bracket (E). Secure with bolts (C) and tighten evenly.
11. Setting impeller clearance: Slide the pump shaft forward until the impeller touches the inside of the volute. Slide the shaft back ***.010-.015"***. Do not slide the shaft back any further. This will damage the seal. Tighten the pump shaft set screws. Turn the shaft by hand to ensure the impeller does not rub against the volute.
12. Return the pump to the installation and reconnect electric connections.
13. Start pump momentarily (2 seconds or less) to observe the shaft rotation. If the rotation corresponds to the rotation arrow on the front of the volute, the pump may be put into service. If the rotation is incorrect, switch any two leads on 3-phase motors. Check the wiring diagram of the motor for single phase rotation changes.
14. Remove the top pipe plug (if applicable) or open the air bleeder on the front of the volute and prime the pump thoroughly, ***making sure all air is purged from the pump head.*** Water should come out of the plug hole or bleeder before attempting to start the pump. ***All air must be purged before allowing the pump to run continuously.***
15. Start the pump allowing adequate time to purge all of the air from system. Observe any gauges, flow meters, etc. to see if the pump performs properly.

DO NOT ALLOW THE PUMP TO RUN DRY AS THIS WILL DESTROY THE SEAL AND VOID THE PUMP WARRANTY. A BROKEN CERAMIC SEAL IS CAUSED BY THE PUMP BEING RUN WITH INSUFFICIENT WATER IN THE HEAD OR TOO MUCH TENSION ON THE SEAL SPRING

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