



This repair stack instruction sheet **MUST** be used in conjunction with Goulds Water Technology Installation, Operation and Maintenance manual for the Model e-SV. Contact your local Goulds Water Technology distributor or the factory for a replacement manual if needed.

Before placing repaired pump back on line, **CAREFULLY** examine removed components and entire pump system for indications of the cause of the component failure and possible corrective action. Massive component failure may indicate that the pumping system is not adequately protected from deadheading, running beyond maximum flow, water hammer, abrasive particulate, etc.

# Model e-SV

## Vertical, Multi-Stage Pumps

**REPAIR STACK INSTALLATION INSTRUCTIONS**

## SAFETY INSTRUCTIONS

**TO AVOID SERIOUS OR FATAL PERSONAL INJURY OR MAJOR PROPERTY DAMAGE, READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN MANUAL AND ON PUMP.**



This is a SAFETY ALERT SYMBOL. When you see this symbol on the pump or in the manual, look for one of the following signal words and be alert to the potential for personal injury or property damage.



Warns of hazards that **WILL** cause serious personal injury, death or major property damage.



Warns of hazards that **CAN** cause serious personal injury, death or major property damage.



Warns of hazards that **CAN** cause personal injury or property damage.

**NOTICE: INDICATES SPECIAL INSTRUCTIONS WHICH ARE VERY IMPORTANT AND MUST BE FOLLOWED.**

**THOROUGHLY REVIEW ALL INSTRUCTIONS AND WARNINGS PRIOR TO PERFORMING ANY WORK ON THIS PUMP.**

**MAINTAIN ALL SAFETY DECALS.**



Hazardous machinery can cause personal injury or death.

**FAILURE TO DISCONNECT AND LOCKOUT ELECTRICAL POWER BEFORE ATTEMPTING MAINTENANCE CAN CAUSE SEVERE PERSONAL INJURY.**



Hazardous fluids can cause personal injury or property damage.

**IF PUMPING HAZARDOUS OR TOXIC FLUIDS, SYSTEM MUST BE FLUSHED PRIOR TO PERFORMING SERVICE.**

## PUMP STACK REMOVAL

1. Close all necessary suction and discharge valves.
2. Drain the liquid from the pump by removing the lower drain plug and the upper vent plug.
3. Remove the coupling guards, the 4 coupling hex cap screws, the coupling and coupling drive pin.
4. Remove the 4 motor hex cap screws. \*On 33-125SV units with motor frames 213TC and larger and 1-22SV units with motor frames 280TC and larger, remove the 4 motor adapter flange hex cap screws.
5. With an adequately sized crane, carefully remove the motor. **DO NOT** rest the motor on the motor shaft.
6. Remove Seal Gland or Cartridge Seal
  - For 1-22SV units, remove the 4 socket head cap screws to lift and remove the seal gland.
  - For 33-125SV units without cartridge seal;
    1. Remove the 4 socket head cap screws.
    2. Lift and remove the seal gland. If seal gland does not lift by hand, use the two tapped holes provided to loosen and lift the gland for removal.
  - For 33-125SV units with cartridge seal;
    1. Loosen the 4 set-screws located around the ID of the pump shaft.
    2. Remove the 4 socket head cap screws.
    3. Remove the cartridge seal using the two tapped holes provided on the gland of the cartridge seal by threading two of the hex cap screws into these holes and evenly tightening these screws.
    4. Once loosened, lift and remove the cartridge seal.
7. Remove the 4 tie rod nuts and washers.
8. Remove Motor Adapter / Motor adapter assembly and upper seal plate
  - For 1-22SV units lift the motor adapter to remove. \*Note that the upper seal plate may remove with the motor adapter when lifting. If the upper seal plate remains on the pump casing, lift to remove.
  - For 33-125SV units, lift the motor adapter assembly (motor adapter and top seal plate). A crane may be required to safely lift the motor adapter assembly.
9. Remove the pump stack, grasp the pump shaft, rock side to side to free the stack, then lift vertically. If the first stage bowl remained in the pump body, **CAREFULLY** pry up the bowl and remove.

## REPAIR STACK INSTALLATION

1. Inspect and clean the inside of the pump body, removing any debris.
2. Remove repair stack from packaging, inspect for damage and clean, removing any tape used to hold components together.
3. Grasp shaft of repair stack and lower into the pump body. Center the stack within the pump body until the first stage seats in the bottom. Push down on stack to lock in place.
4. Replace O-ring in top groove in casing.
5. Re-install the upper seal plate and motor adapter
  - For 1-22SV units place the upper seal plate squarely on top of the pump casing and press down firmly. The seal plate should seat firmly and the o-ring should remain in the casing groove. Once upper seal plate is installed the motor adapter can be placed on top of the assembly and aligned as originally installed.
  - For 33-125SV units, lift the motor adapter assembly (motor adapter and top seal plate) and place squarely on top of the pump casing, aligned as originally installed. A crane may be required to safely lift the motor adapter assembly.
6. Reinstall Tie Rods, Nuts, and Washers (see “Torque Values” for appropriate tightening torque). The tie-rod nuts should be tightened in small increments in a diagonal pattern to ensure it seats properly. Pay close attention to ensure that the casing o-ring remains in the casing groove.
7. Reinstall Seal Gland or Cartridge Seal
  - For 1-22SV units, remove the used stationary seal face from the seal gland.
    1. Remove the used stationary seal seat from the seal gland.
    2. With a clean cloth wipe the seal bore and inspect for damage; replace seal gland if damaged.
    3. Insert the new stationary seal seat into the seal bore of the seal gland with the seal face out. DO NOT scratch or damage the seal face. Ensure that the seal is seated firmly and squarely inside the seal bore. With a clean lint-free cloth or alcohol swab wipe the seal face clean of all lubricant or debris. DO NOT use grease or heavy lubricants to install seal, as these materials can cause the seal to leak.
  - 4. Replace o-ring on seal gland.
  - 5. Install the rotating portion of the seal onto the pump shaft, seating the plate fully and squarely.
  - 6. Re-install the 4 socket head cap screws (see “Torque Values” for appropriate tightening torque). The screws should be tightened in small increments in a diagonal pattern to ensure the seal gland seats properly.
- For 33-125SV units without cartridge seal;
  1. Remove the used stationary seal seat from the seal gland.
  2. With a clean cloth wipe the seal bore and inspect for damage; replace seal gland if damaged.
  3. Inspect the seal seat for any burrs or debris. Lubricate the shaft or sleeve lightly. Use a water-based lubricant. Install the new seat by pressing the seal housing with your thumb.
  4. Insert the new stationary seal seat into the seal bore of the seal gland with the seal face out. DO NOT scratch or damage the seal face. Ensure that the seal is seated firmly and squarely inside the seal bore. With a clean lint-free cloth or alcohol swab wipe the seal face clean of all lubricant or debris. DO NOT use grease or heavy lubricants to install seal, as these materials can cause the seal to leak.
  5. Rotate the rotary portion of the mechanical seal on the pump shaft until it “locks” and you are unable to turn freely. If you are unable to turn initially, the seal is seated properly.
  6. Replace o-ring on seal gland.
  7. Install the seal gland onto the pump shaft, seating the plate fully and squarely.
  8. Re-install the 4 socket head cap screws (see “Torque Values” for appropriate tightening torque). The screws should be tightened in small increments in a diagonal pattern to ensure the seal gland seats properly.
- For 33-125SV units with cartridge seal;
  1. Replace the o-ring on the cartridge seal.
  2. Slide the cartridge seal assembly along the pump shaft into position and alignment with bolt holes. Seat the cartridge seal squarely and firmly.
  3. Re-install the 4 socket head cap screws (see “Torque Values” for appropriate tightening torque). The screws should be tightened in small increments in a diagonal pattern to ensure the seal gland seats properly.

  8. Reinstall the coupling pin and locate the spacer shim on the shaft, resting on the seal gland or cartridge seal. If the shim is not available, a 5mm shim can be used.
  9. Lower the motor slowly onto the motor adapter and align the motor shaft with the coupling and motor mounting holes. Reinstall the 4 motor hex cap screws (see "Torque Values" for appropriate tightening torque) to secure motor to motor adapter.
  10. Reinstall the coupling halves evenly to maintain a consistent gap on either side of the coupling halves. The coupling halves should not touch. Torque the coupling bolts to the appropriate values defined in “Torque Values”.
  11. Remove the spacer shim and save for future use.
  12. FOR 33-125SV PUMPS WITH CARTRIDGE SEAL ONLY; tighten the 4 set screws on the shaft collar.

## TORQUE VALUES

HP	Motor Bolt	Adapter Flange	Coupling		
			1-5SV	10-22SV	33-125SV
0.5-7.5 HP	20 lbs ft (27 N m)	—	15 lbs ft (20 N m)	40 lbs ft (54 N m)	37 lbs ft (50 N m)
10-75 HP	45 lbs ft (61 N m)	48 lbs ft (65 N m)*	15 lbs ft (20 N m)	40 lbs ft (54 N m)	48 lbs ft (65 N m)

\*213TC and 215TC Adapter Flange use 30 lbs ft (40 N m)

Pump Size	Tie Rod Nuts	Vent / Drain Plug
1-5SV	18.44 lbs ft (25 N m)	18.44 lbs ft (25 N m)
10-22SV	22 lbs ft (30 N m)	18.44 lbs ft (25 N m)
33-125SV	44 lbs ft (60 N m)	29 lbs ft (40 N m)

Seal Gland [lbs ft (N m)]	
1-22SV	33-125SV
18 lbs ft (25 N m)	37 lbs ft (50 N m)

## COMMERCIAL WARRANTY

For goods sold to commercial buyers, Seller warrants the goods sold to Buyer hereunder (with the exception of membranes, seals, gaskets, elastomer materials, coatings and other "wear parts" or consumables all of which are not warranted except as otherwise provided in the quotation or sales form) will be (i) be built in accordance with the specifications referred to in the quotation or sales form, if such specifications are expressly made a part of this Agreement, and (ii) free from defects in material and workmanship for a period of one (1) year from the date of installation or twelve (12) months from the date of shipment (which date of shipment shall not be greater than eighteen (18) months after receipt of notice that the goods are ready to ship), whichever shall occur first, unless a longer period is specified in the product documentation (the "Warranty").

Except as otherwise required by law, Seller shall, at its option and at no cost to Buyer, either repair or replace any product which fails to conform with the Warranty provided Buyer gives written notice to Seller of any defects in material or workmanship within ten (10) days of the date when any defects or non-conformance are first manifest. Under either repair or replacement option, Seller shall not be obligated to remove or pay for the removal of the defective product or install or pay for the installation of the replaced or repaired product and Buyer shall be responsible for all other costs, including, but not limited to, service costs, shipping fees and expenses. Seller shall have sole discretion as to the method or means of repair or replacement. Buyer's failure to comply with Seller's repair or replacement directions shall terminate Seller's obligations under this Warranty and render the Warranty void. Any parts repaired or replaced under the Warranty are warranted only for the balance of the warranty period on the parts that were repaired or replaced. Seller shall have no warranty obligations to Buyer with respect to any product or parts of a product that have been: (a) repaired by third parties other than Seller or without Seller's written approval; (b) subject to misuse, misapplication, neglect, alteration, accident, or physical damage; (c) used in a manner contrary to Seller's instructions for installation, operation and maintenance; (d) damaged from ordinary wear and tear, corrosion, or chemical attack; (e) damaged due to abnormal conditions, vibration, failure to properly prime, or operation without flow; (f) damaged due to a defective power supply or improper electrical protection; or (g) damaged resulting from the use of accessory equipment not sold or approved by Seller. In any case of products not manufactured by Seller, there is no warranty from Seller; however, Seller will extend to Buyer any warranty received from Seller's supplier of such products.

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