



Rebuild and Maintenance Guide

Industrial Pumps



Excellence is our Passion

Preface

This guide has been developed to assist maintenance personnel who service industrial centrifugal pumps in achieving their goals of pump reliability, longevity and cost reduction.

Most industrial centrifugal pumps carry a significant capital equipment value and it is therefore important to extend their useful lives and ensure that they run efficiently and reliably. Proactive maintenance can reduce the risk of breakdowns and increase pump reliability and longevity. Without proactive maintenance, some pump failures may go unnoticed until there is the inevitable breakdown.

Pump breakdowns can have significant negative impact, such as a stop in production and the cost of a broken piece of capital equipment. Many of these breakdowns are the result of simple, needless failures, such as the loss of clamp load between two assemblies caused by a loose fastener. This loss of clamp load could lead to misalignment and ultimately cause bearing failure. Taking some proactive steps can reduce the risk of this occurrence and can help extend the mean time between failure (MTBF).

LOCTITE® brand products have been helping OEMs around the world to prevent common failures and extend end-product life. These same technologies are used by the people who maintain equipment.

Various LOCTITE® brand products can be used in all stages of pump maintenance:

- Assembly
- Installation
- Repair
- On-going maintenance
- Disassembly

The use of LOCTITE® brand products in a proactive maintenance program can:

- Prevent common failures, both major and minor
- Allow for the recycling of parts to avoid scrap and replacement costs
- Assist in disassembly
- Help ensure reliability and a consistent running condition

To highlight the common failures, challenges and LOCTITE® product solutions, a

common Goulds

3196 pump was used. This type of

pump is very common, has been an industry standard, and is manufactured by one of the leaders in the pump industry.

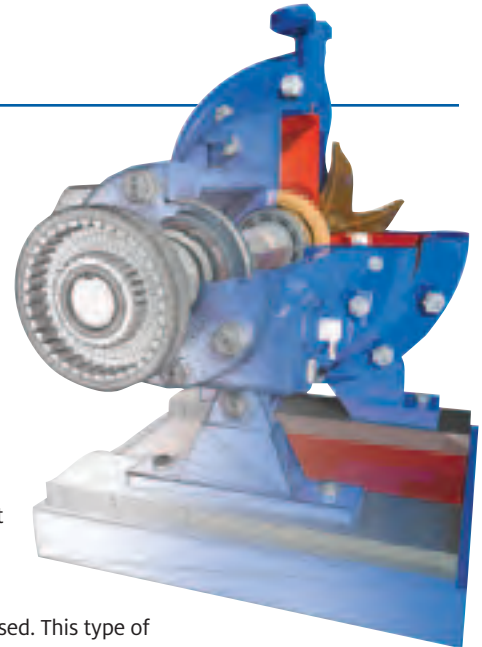
The environments in which these pumps operate, not necessarily pump construction, can affect pump operation and efficiency and present challenges to end users. We chose the Goulds 3196 to demonstrate the solutions to these common challenges. Similar solutions will apply to other types and brands of centrifugal pumps. **Contact your local Henkel representative if help is needed for your specific applications.**

PART 1: PUMP ASSEMBLY

During the assembly of a pump there are many simple steps that can be taken to help reduce or eliminate common failures and that will also make future disassembly much easier. The following sections will discuss proven reliability applications and techniques starting with the bearing housing of the common 3196 end-section centrifugal pump all the way through to the final assembly of the pump casing, attaching the coupling and grouting the base.

PART 2: PUMP REPAIR

Repairs are a critical element to pump maintenance. Because of the harsh environments and operating parameters, pump parts are subject to wear, erosion, corrosion, leaks, etc. In addition to preventative measures, LOCTITE® brand products can be used to restore pump parts. Alternative solutions such as scrap and replacement or the use of other repair technologies may be too costly. Using LOCTITE® brand products to restore parts is a very cost-effective solution because users can be assured of the consistent quality, performance, availability and support that is provided and expected from Henkel Corporation.



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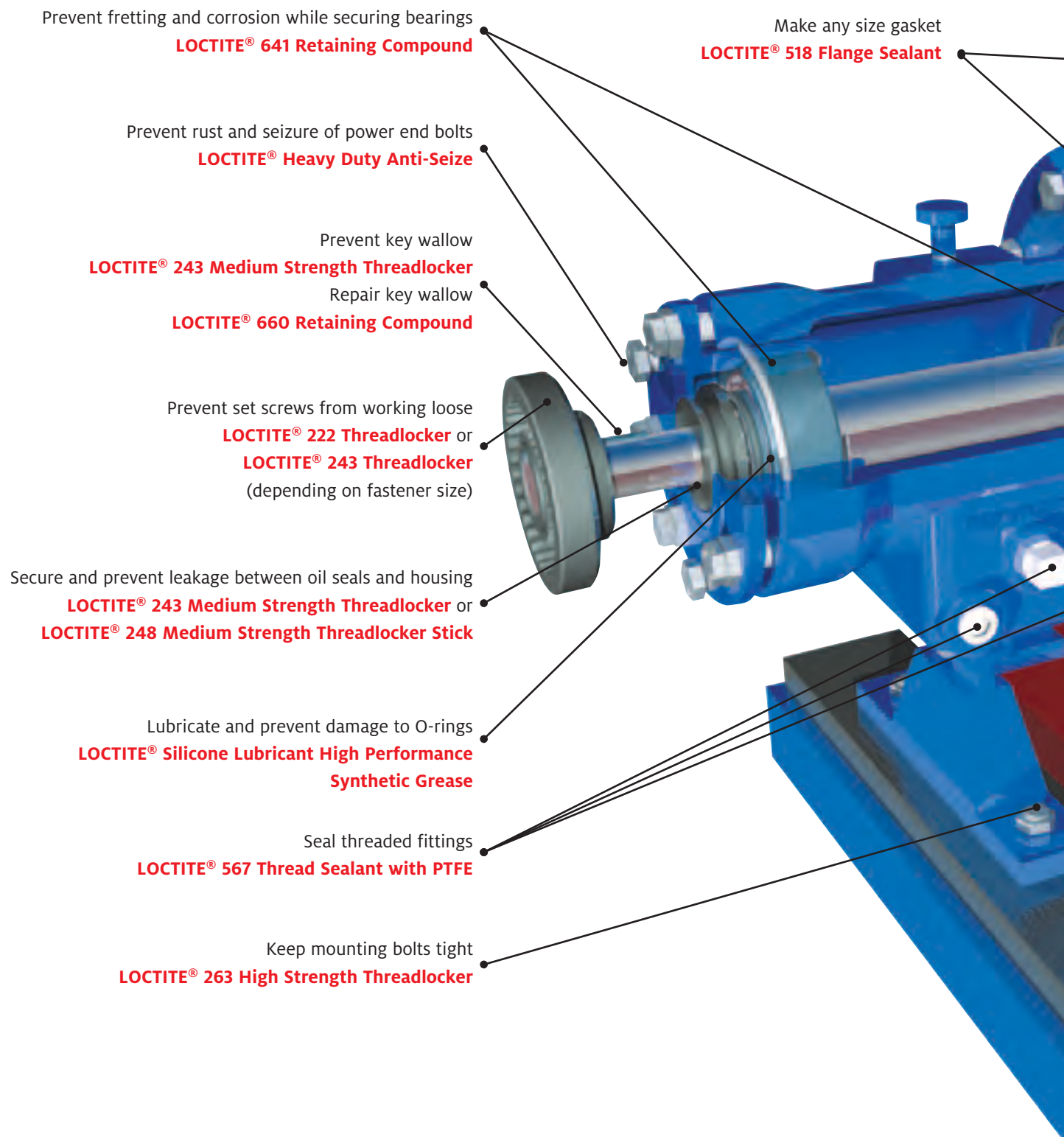
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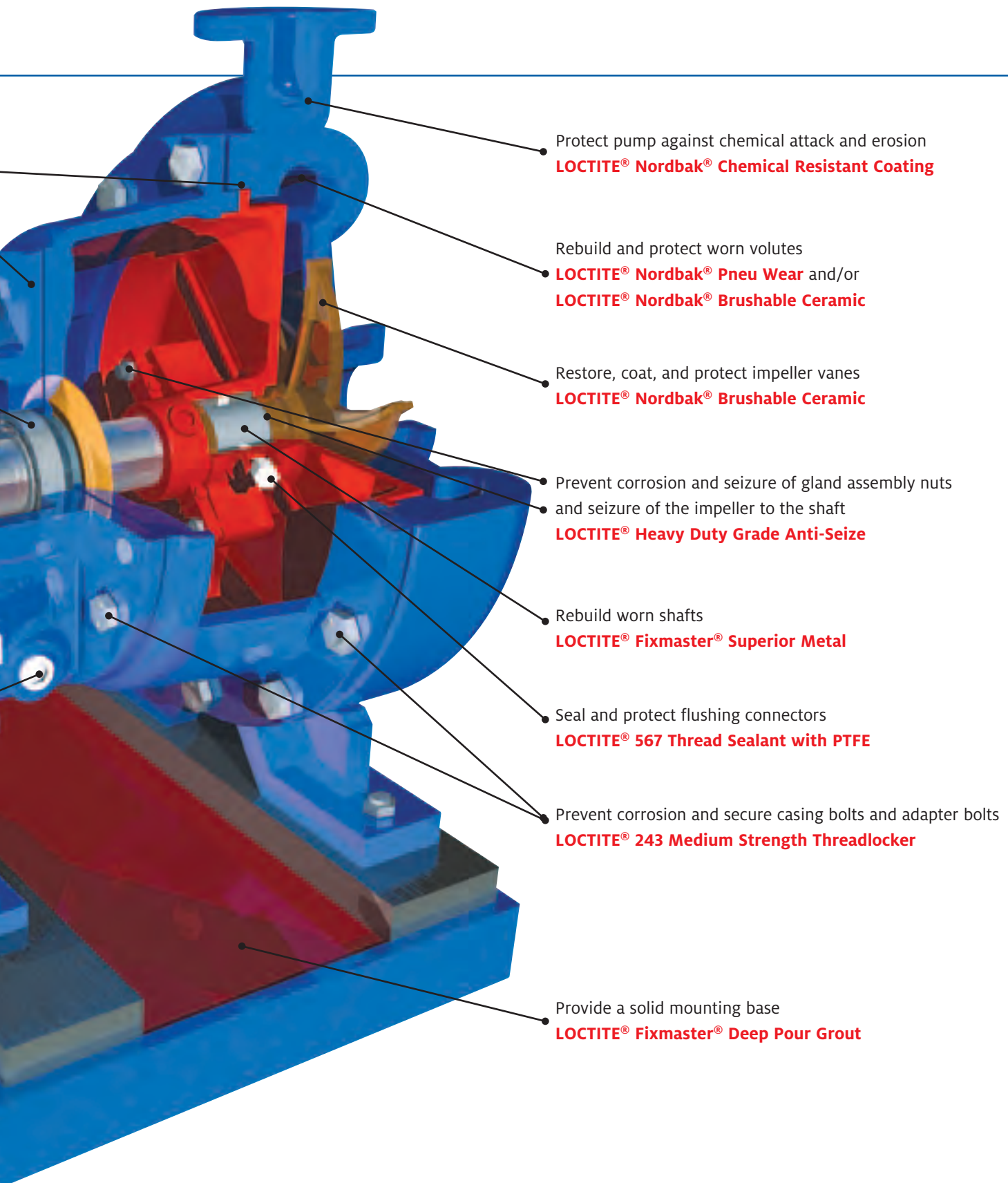
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Industrial Pump Applications





PUMP ASSEMBLY

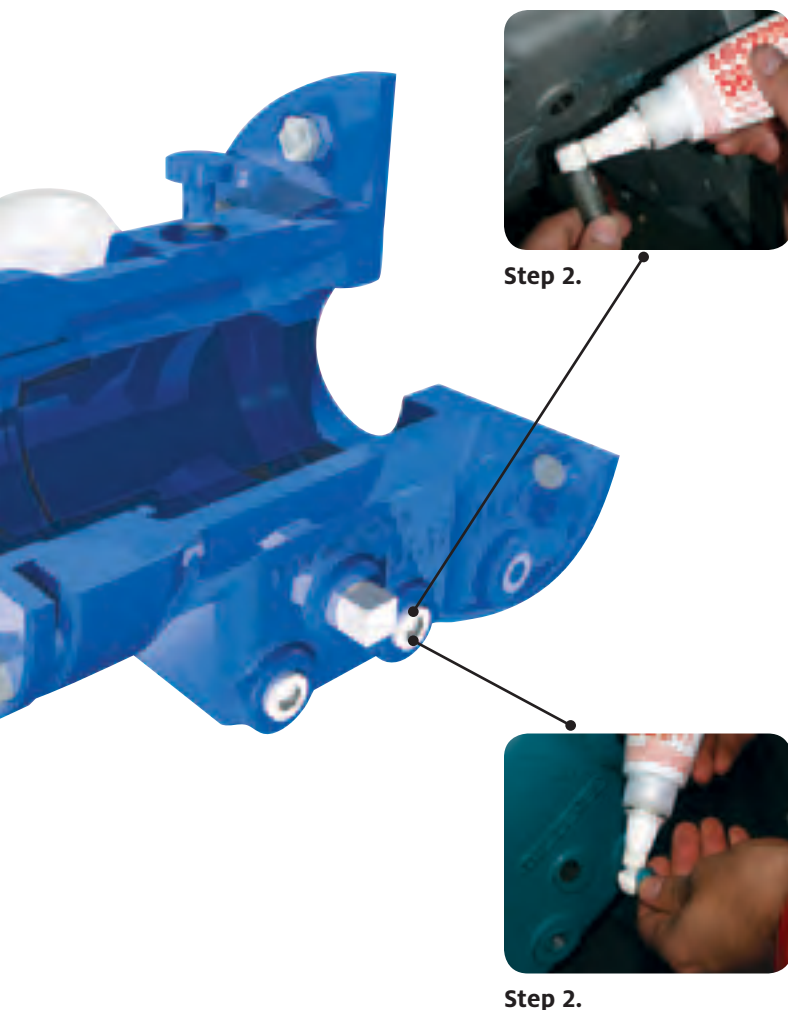
Bearing Frame and Housing

■ CHALLENGE:

Prevent oil leaks from threaded assemblies

■ CAUSE:

- Drain plugs, oiler nipples, fittings, etc., all have air space between the threads and can weep oil out from the bearing housing.
- Constant pressure changes within the bearing housing can force these threaded assemblies to leak.



■ SOLUTION:

- Seal threaded assemblies with LOCTITE® 567 Thread Sealant with PTFE.
- LOCTITE® 567 Thread Sealant with PTFE is designed to cure only when enclosed in metal, such as in a threaded assembly.
- Once cured, moisture and oil cannot penetrate this barrier as the pressure changes within the bearing housing.
- The thread sealant prevents fittings from loosening, yet allows for easy disassembly with normal hand tools.

■ STEPS:

1. Clean parts of contamination. If necessary, spray LOCTITE® 7649 Primer N onto threaded parts (male and female). Allow to dry.
2. Apply a band of LOCTITE® 567 Thread Sealant with PTFE to male threads, starting one to two threads from end of fitting.
3. Assemble parts per OEM specifications.

RESULTS:

- Less oil consumption, thereby reducing the risk of the pump running low on lubricant.
- Elimination of the potential hazards and cleanup associated with oil leaks.
- Elimination of seized fittings because moisture and air have been sealed out.
- Elimination of rust and corrosion within the thread space.
- Contaminants prevented from getting into the oil through the gaps in the threads.

PUMP ASSEMBLY

Bearing Frame and Housing

■ CHALLENGE:

Prevent leaks and seizures between the bearing housing and oil seal

■ CAUSE:

- As with any press fit, there are small air spaces between the housing and the oil seal. This air space can create a leak path where corrosion can form.

■ SOLUTION:

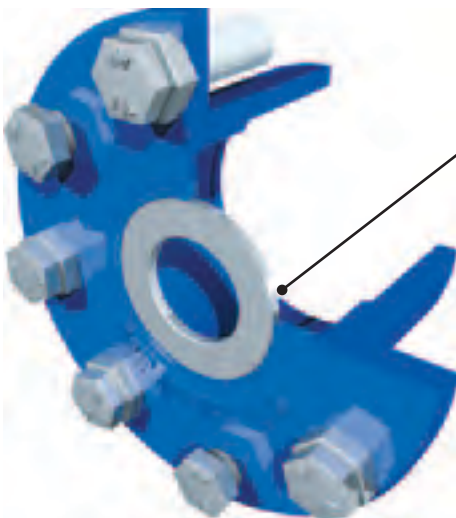
- Fill the air spaces by applying a LOCTITE Medium Strength Threadlocker to the outside diameter of the metal bodied oil seal.

■ STEPS:

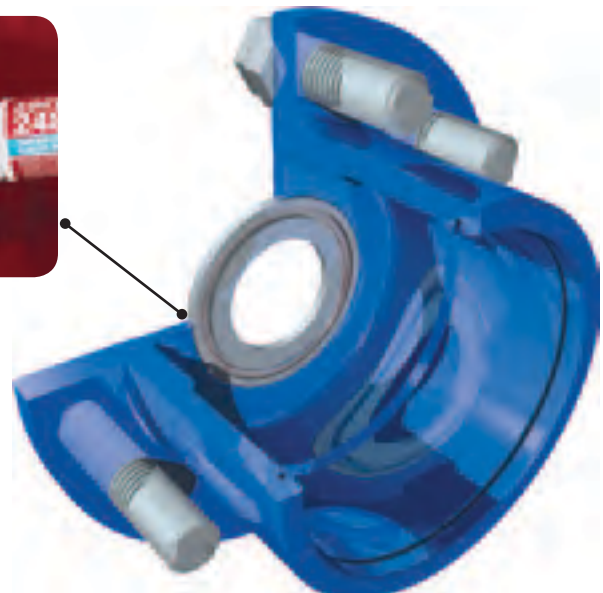
1. Clean the outside diameter of the oil seal and the side diameter of the bearing housing with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply LOCTITE® 248 Medium Strength Threadlocker Stick to the outside diameter of the oil seal.
3. Wipe off any excess and press into housing using normal techniques.

RESULTS:

- A sealed assembly eliminates leaks, contamination and corrosion.
- Elimination of cleanup and hazards associated with oil seal leaks.
- Less oil consumption.
- Reduced risk of running low on lubricant.
- Service of the pump is easier.
- The oil seal can be easily removed with a screwdriver during the next overhaul.



Step 2.



PUMP ASSEMBLY

Bearing Frame and Housing

■ CHALLENGE:

Keeping O-rings pliable to ensure a proper seal

■ CAUSE:

- The typical pump environment is very humid, and water washout can remove lubricants from the O-ring.
- When adjustments are made to the impeller, this creates sliding abrasion and potential damage to the O-ring and ultimately leads to the loss of sealing.
- O-rings cannot be serviced once installed and may begin to dry out.

■ SOLUTION:

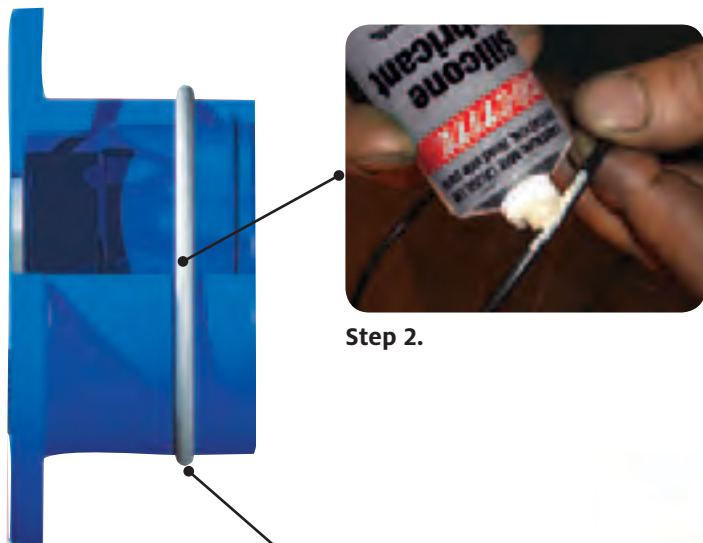
- Lubricate O-rings with LOCTITE® Silicone Lubricant High Performance Synthetic Grease.
- The synthetic formulation of LOCTITE® Silicone Lubricant High Performance Synthetic Grease provides superior lubrication over extended periods of time and has excellent water washout resistance.

■ STEPS:

1. Clean O-ring to remove any grit or contaminants.
2. Apply LOCTITE® Silicone Lubricant High Performance Synthetic Grease to the O-ring by smearing it to completely cover the entire surface.
3. Slide O-ring over the bearing housing and into the O-ring groove.

RESULTS:

- Lubricated O-rings remain pliable and capable of sealing oil in and contaminants out.
- O-rings are prevented from adhering to the bearing frame.



Step 2.

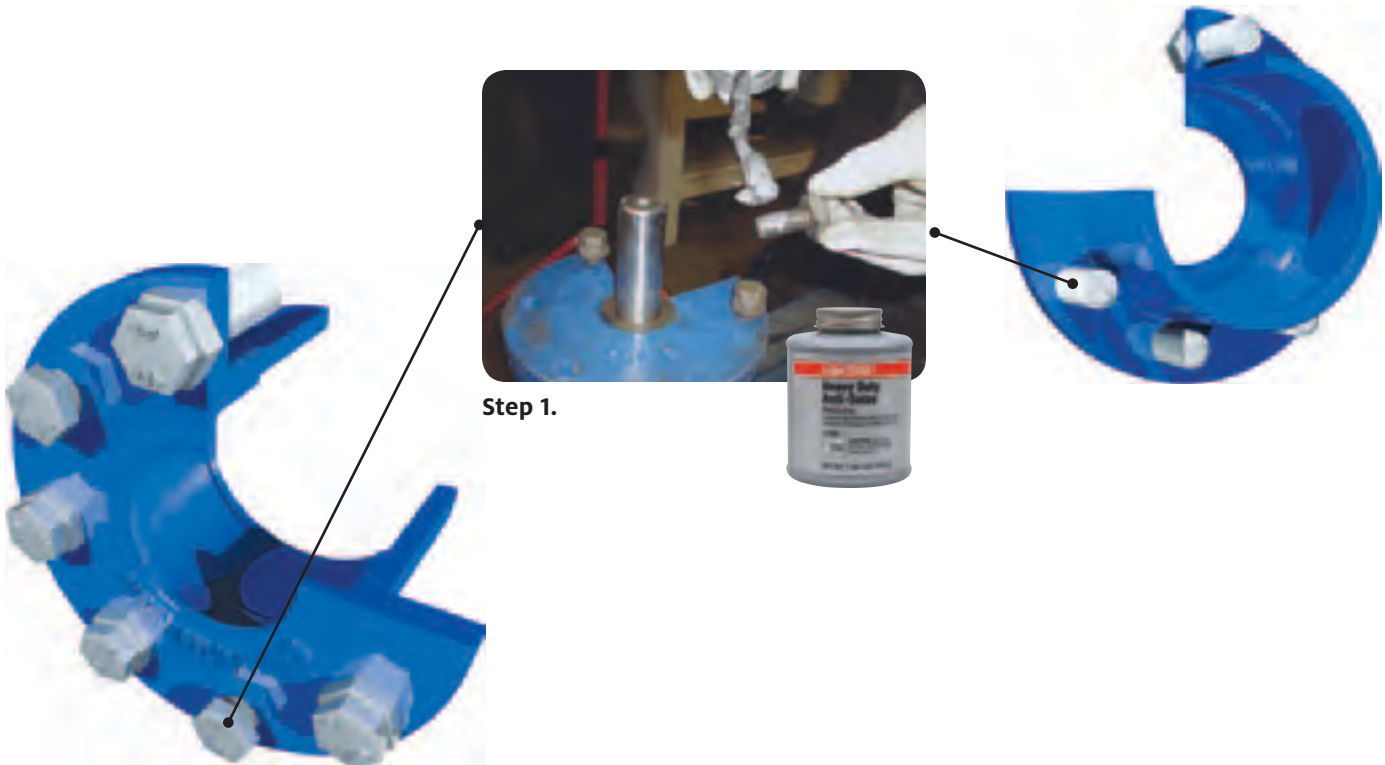


Step 3.



PUMP ASSEMBLY

Bearing Frame and Housing



■ CHALLENGE:

Prevent corrosion and seizure of power end jack bolts, jam nuts and clamp bolts

■ CAUSE:

- Any exposed metal parts on a pump that are not stainless or coated, such as power end nuts and bolts, are subject to rust. When rust forms within the air space between the threads, the bolts will seize in place.

■ SOLUTION:

- Apply LOCTITE® Heavy Duty Anti-Seize to the power end bolts.
- Loctite® Heavy Duty Anti-Seize is metal-free.

■ STEPS

1. Apply Loctite® Heavy Duty Anti-Seize liberally to the bolt threads.
2. Assemble jam nuts onto the bolts.
3. Thread the bolts into the bearing housing and adjust as required.

RESULTS:

- Easy adjustment of bolts when needed to ensure that the pump runs closest to its best efficiency point (BEP).
- Easy disassembly/removal of bolts.

PUMP ASSEMBLY

Bearing Frame and Housing

■ CHALLENGE:

Prevent bearing spinout, corrosion and component damage

■ CAUSE:

- Bearings are prone to spinning either on their shafts or within their housings, resulting in damage to these parts regardless of whether or not they have been pressed, shrink or slip fitted in place.
- The air space that exists between a bearing and shaft is an area where rust can form and cause damage to the parts.

■ SOLUTION #1:

- Outer Bearing – Apply a coating of LOCTITE® 641 Retaining Compound to the outside diameter of the outer bearing.
- LOCTITE® 641 Retaining Compound is low strength, which allows for easy disassembly during future overhauls.

■ STEPS:

1. Clean parts with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply a coating of LOCTITE® 641 Retaining Compound to the outside diameter of the outer bearing.
3. Assemble using normal techniques.

■ SOLUTION #2:

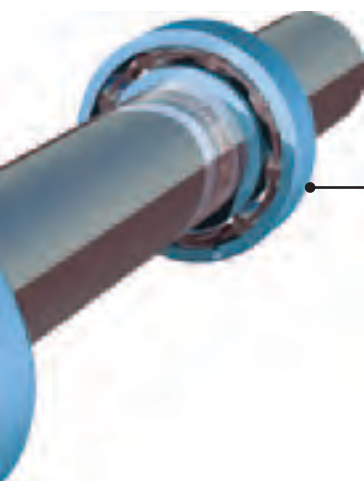
- Inner Bearing – Apply LOCTITE® 641 Retaining Compound to the inside diameter of the inner bearing.

■ STEPS:

1. Clean parts with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply a bead of LOCTITE® 641 Retaining Compound to the circumference of the shaft at the leading area of engagement.
3. Press the bearing onto the shaft using normal techniques.
4. Wipe off any excess material.

RESULTS:

- Shaft and/or bearing housing damage is eliminated.
- Bearings are easily removed with standard tools.
- Corrosion (the rust left on a shaft after a bearing has been removed) is eliminated because the air space between the bearing and the shaft or housing is sealed.



Solution #1, Step 2.



Solution #2, Step 2.

PUMP ASSEMBLY

Frame Adapter

■ CHALLENGE:

Prevent oil leaks between the frame adapter and the oil seal

■ CAUSE:

- The small air spaces between the adapter and the oil metal seal can allow oil to leak.

■ SOLUTION:

- Fill the air by applying a LOCTITE Medium Strength Threadlocker to the outside diameter of the oil lip seal.
- LOCTITE® 248 Medium Strength Threadlocker Stick allows the oil seal to be easily removed with a screwdriver during the next overhaul.

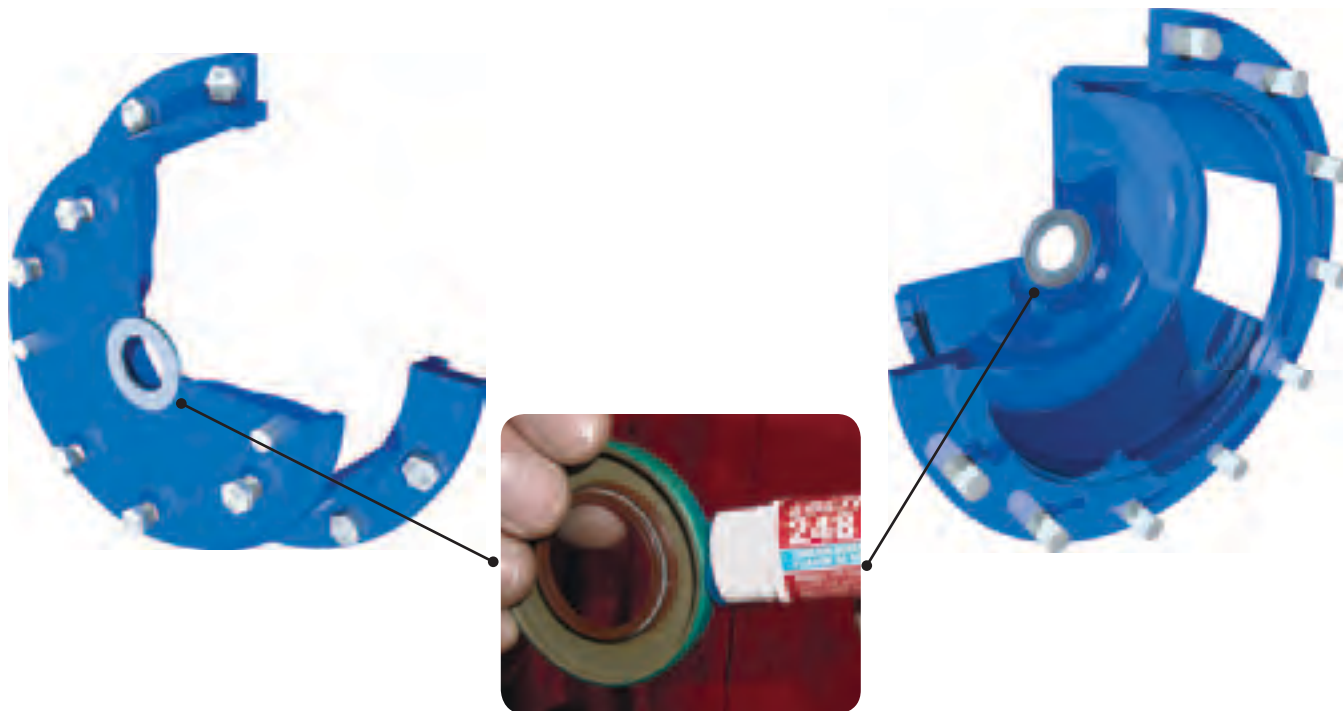
■ STEPS:

1. Clean the outside diameter of the oil seal and the inside diameter of the frame adapter with LOCTITE® ODC-Free Cleaner & Degreaser.

2. Apply LOCTITE® 248 Medium Strength Threadlocker Stick to the outside diameter of the oil seal.
3. Wipe off any excess and press into the adapter using normal techniques and tools.

RESULTS:

- Elimination of leaks along with associated cleanup and hazards.
- Less oil consumption.
- Reduced risk of running low on lubricant.
- Ease of pump service.
- Elimination of leaks, contamination and corrosion due to a unitized assembly.



Step 2.

PUMP ASSEMBLY

Frame Adapter

■ CHALLENGE:

Prevent dowel pins from seizing to the bearing frame and frame adapter

■ CAUSE:

- The dowel pins are exposed to the exterior pump environment and if not protected can rust and seize themselves to the bearing frame. When these pins seize in the bearing frame, the disassembly becomes very difficult.

■ SOLUTION:

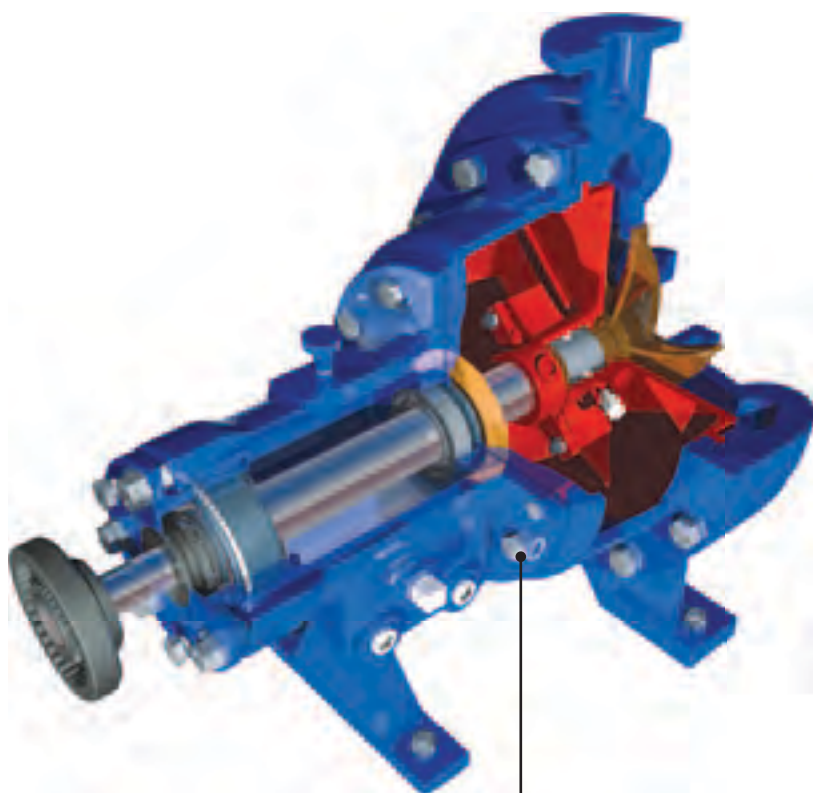
- Before assembly, apply LOCTITE® Heavy Duty Anti-Seize to the dowel pins.
- LOCTITE® Heavy Duty Anti-Seize Compound provides a protective coating to parts that are exposed to severe heat and moisture.

■ STEPS:

1. Clean the parts.
2. Apply LOCTITE® Heavy Duty Anti-Seize to the pins.
3. Assemble adapter to the bearing frame.

RESULTS:

- Prevention of rust and seizure of these close-fitting parts.
- The bearing frame and frame adapter will be easier to separate during the next disassembly.



Step 2.



PUMP ASSEMBLY

Frame Adapter

■ CHALLENGE:

Prevent gasket failure between the bearing frame and frame adapter

■ CAUSE:

- Leaks occur because a cut gasket can relax over time, resulting in loss of clamp load between the two flanges.
- Cut gaskets can also leak because they are prone to extrusion, misalignment, shrinkage and breaks.
- Flange imperfections can be leak paths that a cut gasket may not be able to seal over time.

■ SOLUTION:

- Apply LOCTITE® 518 Flange Sealant to the flange face of the frame adapter.
- The LOCTITE® 518 Flange Sealant not only eliminates the gasket but also eliminates all the failure modes of cut gaskets and, most important, it seals all of the air space between the two parts.

Note: In some cases the cut gasket is required for spacing. In this case, apply LOCTITE® 518 Flange Sealant to both sides of the gasket as a shellac.

- LOCTITE® 518 Flange Sealant can cure through fairly large gaps and surface imperfections.

■ STEPS:

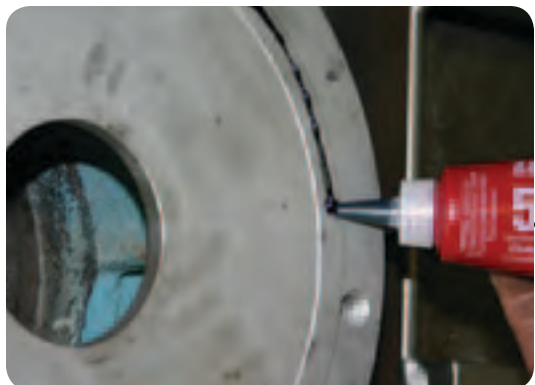
1. Remove old gasketing material and other heavy contaminants with LOCTITE® Chisel Gasket Remover.
2. Clean both flange surfaces with LOCTITE® ODC-Free Cleaner & Degreaser.
3. Spray LOCTITE® 7649 Primer N on only one flange surface and allow to dry.
4. Apply a continuous bead of LOCTITE® 518 Flange Sealant to the other surface.

Note: Circle bolt holes with sealant if appropriate.

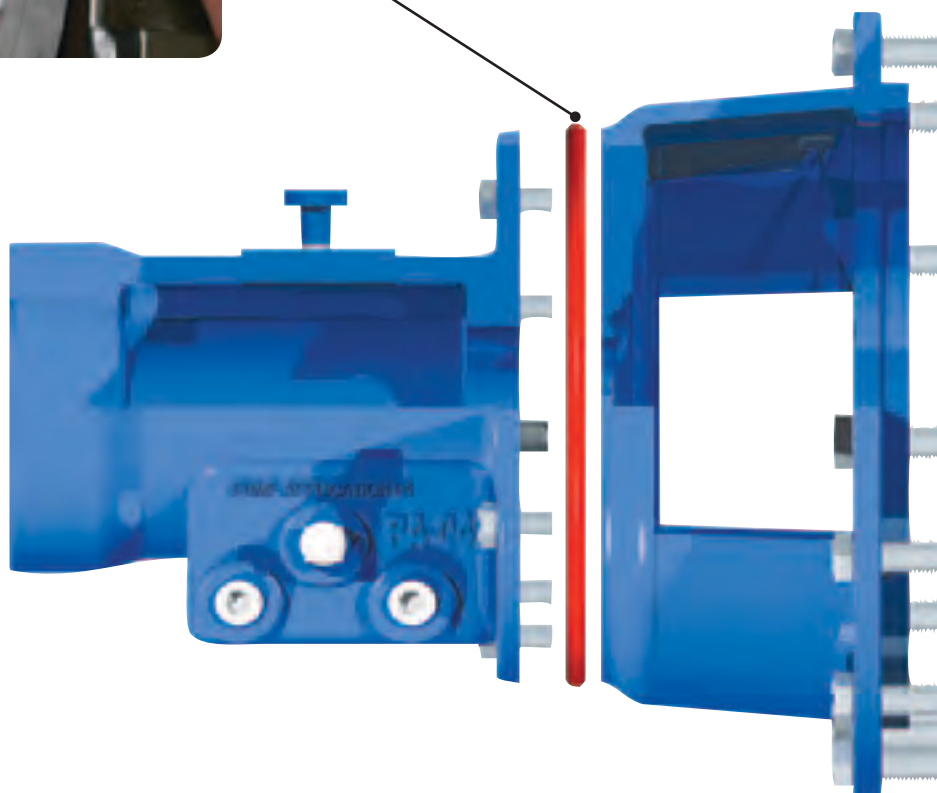
5. Assemble parts and tighten as required.
6. Allow to cure:
 - No pressure – immediate service
 - Low pressure (up to 500 psi) – 30 to 45 minutes
 - High pressure (500 to 2500 psi) – 4 hours
 - Extreme high pressure (2500 to 5000 psi) – 24 hours

RESULTS:

- Elimination of common cut gasket failures such as compression set, shrinkage, relaxation and breaks.
- Constant clamp load is ensured.
- Reliable seal.
- Elimination of oil leaks between the bearing frame and frame adapter, along with associated cleanup costs and hazards.
- Reduced oil consumption.
- Reduced risk of running low on oil.



Step 4.



PUMP ASSEMBLY

Frame Adapter

■ CHALLENGE:

Prevent fastener loosening and corrosion to frame adapter mounting bolts

■ CAUSE:

- Bolts can work themselves loose because they are always under strain caused by torque. Also, vibration, thermal expansion and contraction, and shock all contribute to loosening and reduction of clamp load.

■ SOLUTION:

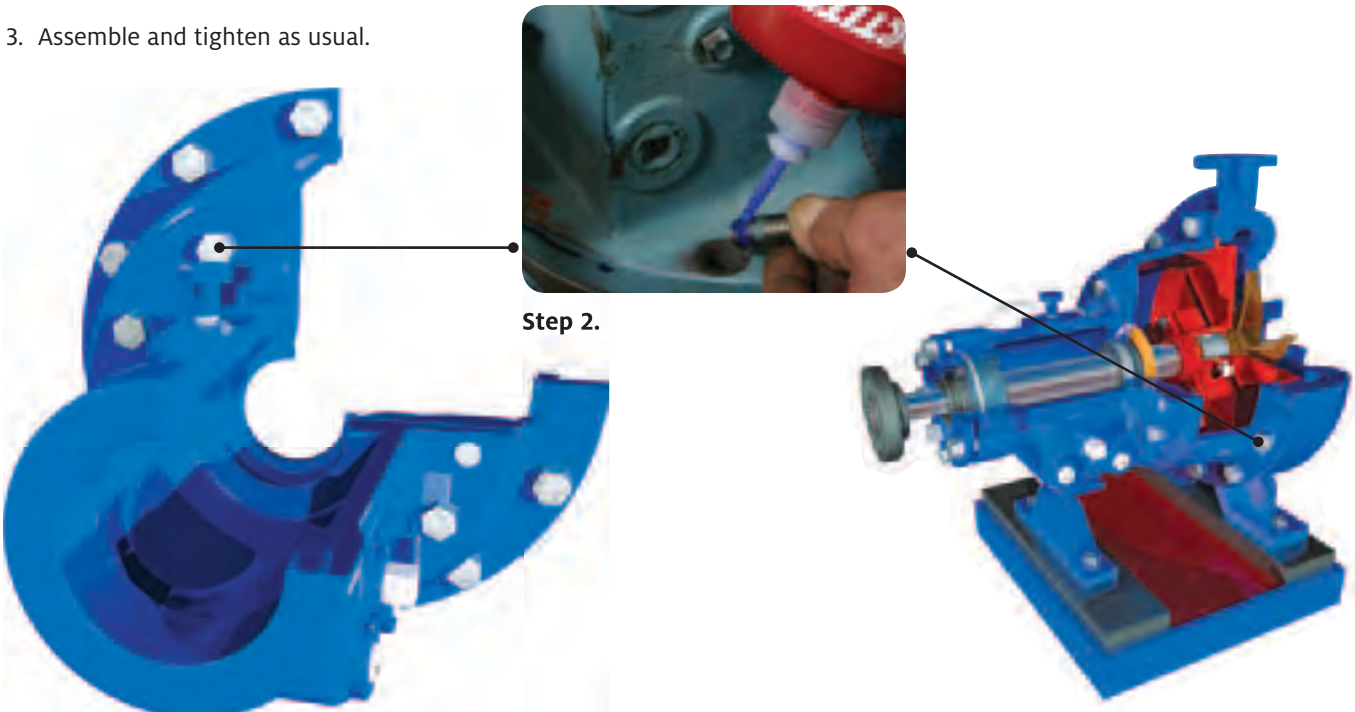
- Apply a LOCTITE Medium Strength Threadlocker to the frame adapter bolts.

■ STEPS:

1. Clean threads with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply a full dia bead of LOCTITE® 243 Medium Strength Threadlocker across 3-4 threads of the adaptor bolts.
3. Assemble and tighten as usual.

RESULTS:

- Prevention of the bolts from rusting and seizing in place because a LOCTITE® brand threadlocker will seal all of the air space within the threads.
- Easy and consistent disassembly.
- Prevention of bolts from loosening.
- Torque and clamp load is maintained.
- Proper clamp load is ensured between flange surfaces, and leaks are eliminated, when LOCTITE® 518 Flange Sealant is used instead of a cut gasket.



PUMP ASSEMBLY

Gland Assembly

■ CHALLENGE:**Prevent seizure and loosening of gland studs****■ CAUSE:**

- Just as the gland nuts can rust and seize to the gland studs, so can the gland studs rust and seize to the stuffing box. If the nuts were to seize to the studs, the torque required to remove them could cause the studs to back out.

■ SOLUTION:

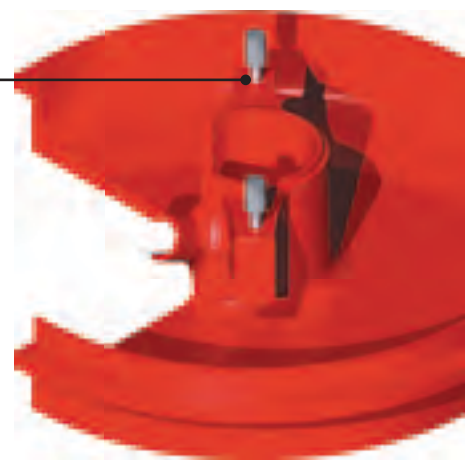
- Apply LOCTITE® 263 High Strength Threadlocker.

■ STEPS:

1. Place several drops of LOCTITE® 263 High Strength Threadlocker down the side of the female threads.
2. Apply several drops of LOCTITE® 263 Threadlocker onto the stud threads.
3. Install the studs.

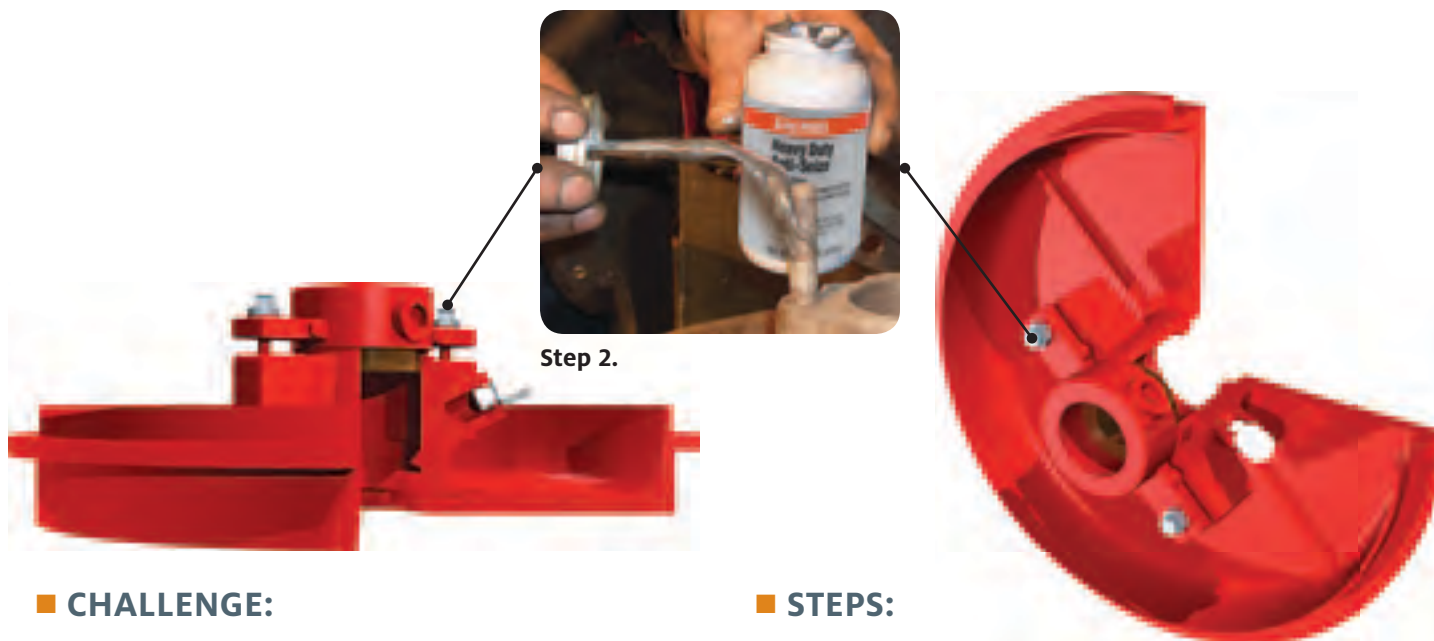
RESULTS:

- Eliminated potential for corrosion.
- Eliminated possibility of the studs backing out during gland adjustments.

**Step 2.**

PUMP ASSEMBLY

Gland Assembly



■ CHALLENGE:

Prevent corrosion and seizure of packing gland nuts

■ CAUSE:

- The gland assembly is subject to severe corrosion and seizure because of the continuous flow of water that lubricates and cools the packing. This continuous flow of water also causes the gland studs and nuts to rust and seize.
- If the nuts seize to the studs, it becomes impossible to properly adjust the gland follower and, ultimately, proper lubrication and cooling cannot be maintained. This can lead to the packing running dry, overheating and subsequent wearing and gouging of the shaft. What starts out as a simple failure mode of a corroded threaded assembly can lead to a major failure of one of the main pump components.

■ SOLUTION:

- Apply LOCTITE® Heavy Duty Anti-Seize to the studs.
- LOCTITE® Heavy Duty Anti-Seize is metal-free and is designed to have superior water washout resistance, a key feature in a gland application.

■ STEPS:

1. Clean the parts.
2. Apply LOCTITE® Heavy Duty Anti-Seize to the studs.
3. Assemble gland nuts and adjust gland follower as necessary.

RESULTS:

- Elimination of gland nuts freezing to the studs.
- Proper adjustments can be made to the gland follower.
- Water can properly flow through the packing for lubrication and cooling.
- Excessive shaft wear can be prevented.

PUMP ASSEMBLY

Gland Assembly

■ CHALLENGE:

Prevent corrosion within the gland flushing connector

■ CAUSE:

- Whether using a mechanical seal or packing, these components are typically cooled and lubricated by either a product flush or an external flush. In either case, the flushing connector is prone to corrosion and seizure. This is especially true for pumps configured with packing. Since packing typically requires 40-60 drops per minute for proper cooling and lubrication, there is plenty of available moisture for rust to attack the gland assembly components.

■ SOLUTION:

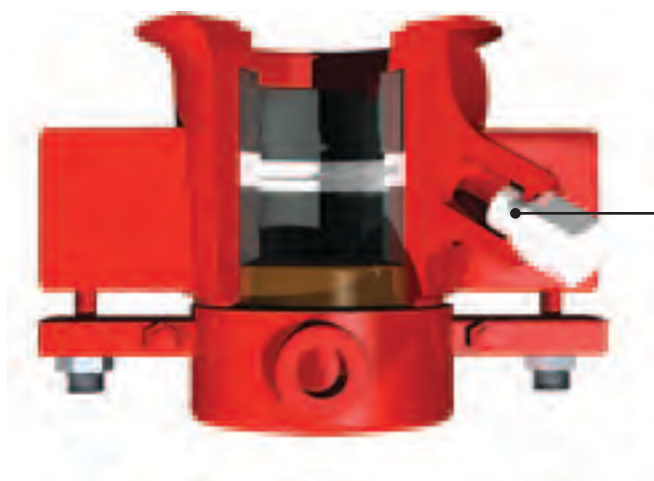
- Apply LOCTITE® 567 Thread Sealant.
- LOCTITE® 567 Thread Sealant fills the air space within the threads.
- Allows the flushing connector to be removed with normal hand tools when necessary.

■ STEPS:

1. Clean the parts with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply a band of LOCTITE® 567 Thread Sealant to male threads, starting one to two threads from the end of the fitting.
3. Assemble parts snugly. Do not overtighten.

RESULTS:

- Prevention of leaks and corrosion.
- Eliminated seizure.
- Ensured easy maintenance of flushing connectors.



Step 2.

PUMP ASSEMBLY

Pump Casing

■ CHALLENGE:

Prevent the frame adapter, stuffing box and casing from seizing together

■ CAUSE:

- When assembling these components, there are areas where the clearance is very tight. These small clearances are areas where rust and corrosion can work in to seize the components together, making disassembly very difficult.

■ SOLUTION:

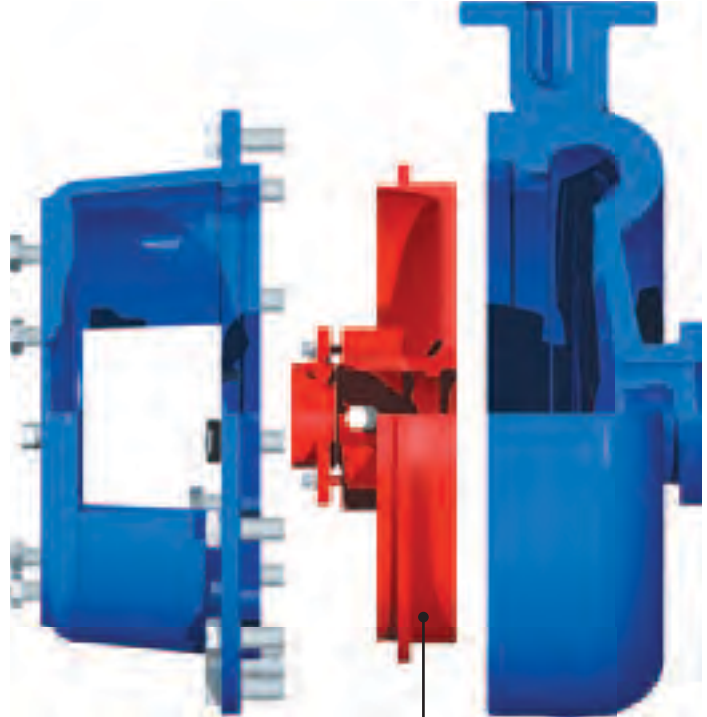
- Apply a LOCTITE Anti-Seize compound during assembly. Because LOCTITE Anti-Seize compounds have superior water washout resistance, they will stay where they are applied.

■ STEPS:

1. Clean the parts.
2. Apply LOCTITE® Heavy Duty Anti-Seize to the outside diameter of the stuffing box at the mating point.
3. Assemble components as usual.

RESULTS:

- Sufficient lubrication provided during assembly.
- Prevention of rust while in service.
- Efficient disassembly.



Step 2.

PUMP ASSEMBLY

Pump Casing

■ CHALLENGE:

Prevent leaks between the stuffing box and casing

■ CAUSE:

- The use of cut gaskets suffers from inherent problems, such as gasket relaxation, shrinkage, extrusion and breakage, which can lead to leaks.

■ SOLUTION #1:

- Replace the cut gasket and apply LOCTITE® 518 Flange Sealant to the flange surface.
- Direct metal-to-metal contact along with the use of LOCTITE® 518 Flange Sealant allows for a positive seal.
- Since there is metal-to-metal contact, proper clamp load can be maintained and the two parts become unitized – they act as one.

■ STEPS:

1. Remove old gasketing material with LOCTITE® Chisel Paint Stripper.
2. Clean both flanges with LOCTITE® ODC-Free Cleaner & Degreaser.
3. Spray LOCTITE® 7649 Primer N on only one surface and allow 1-2 minutes to dry.
4. Apply a continuous bead of LOCTITE® 518 Flange Sealant to the other surface.

Note: Circle all bolt holes, if appropriate.

5. Assemble and tighten as required.
6. Allow to cure.

■ SOLUTION #2:

- Coat the gasket material with LOCTITE® 518 Flange Sealant.
- If there is not enough clearance between the impeller and the casing to eliminate the gasket, the cut gasket must be used.
- LOCTITE® 518 Flange Sealant will fill all the air space that cut gaskets simply cannot fill.
- LOCTITE® 518 Flange Sealant will withstand expansion and contraction caused by pressure and temperature changes.

■ STEPS:

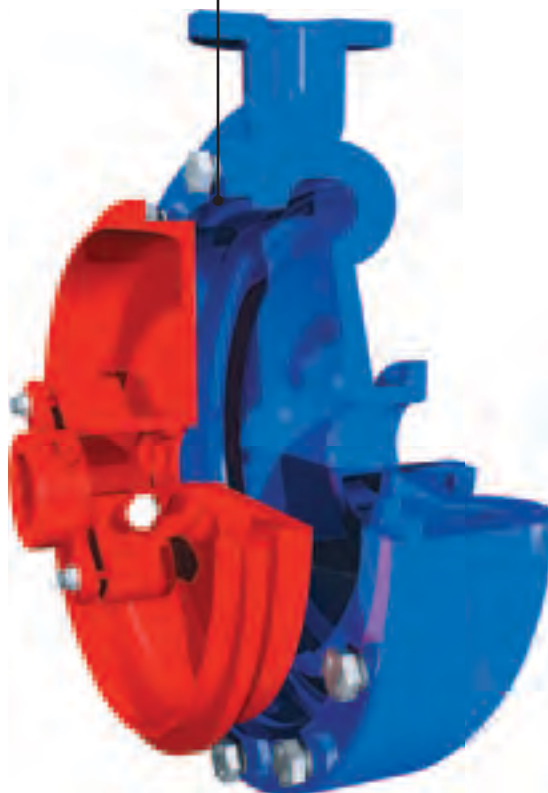
1. Remove old gasketing material with LOCTITE® Chisel Paint Stripper.
2. Clean both flanges with LOCTITE® ODC-Free Cleaner & Degreaser.
3. Spray LOCTITE® 7649 Primer N to both flange faces and both sides of the gasket. Allow 1-2 minutes to dry.
4. Smear LOCTITE® 518 Flange Sealant to both sides of the precut gasket.
5. Assemble and tighten as required.
6. Allow to cure.

RESULTS:

- Eliminated casing gasket leaks.
- Eliminated corrosion and damage on the flange surface.



Solution #2, Step 4.



PUMP ASSEMBLY

Pump Casing

■ CHALLENGE:

Prevent corrosion and seizure of the pump casing bolts

■ CAUSE:

- The severe pump environments of constant temperature, pressure and humidity changes result in corrosion.
- Casing bolts that are rusted and seized make pump maintenance difficult and create additional labor associated with drilling and tapping the bolt hole.

■ SOLUTION:

- Apply LOCTITE® 243 Medium Strength Threadlocker in the bolt holes prior to assembling the casing.
- LOCTITE® 243 Medium Strength Threadlocker fills all the air space within the threads.

■ STEPS:

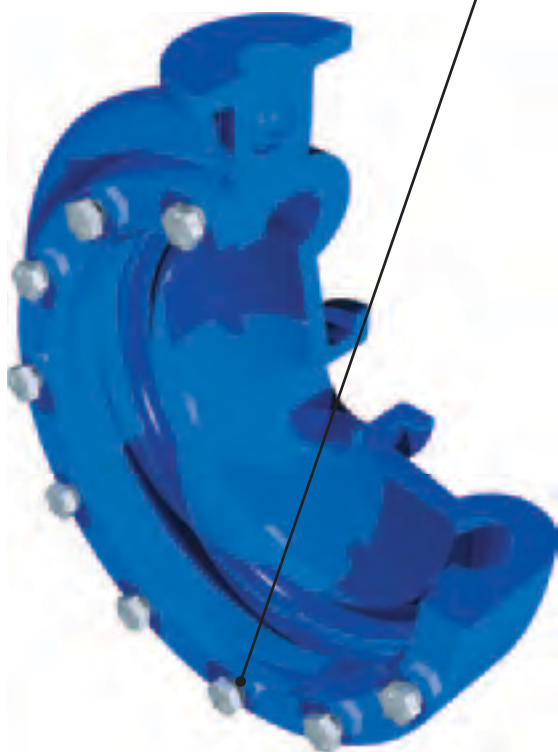
1. Place several drops of LOCTITE® 243 Medium Strength Threadlocker down the side of the female threads.
2. Apply several drops of LOCTITE® 243 Medium Strength Threadlocker onto the bolt threads.
3. Install bolts.

RESULTS:

- Proper clamp load is maintained.
- Elimination of rust and seizure.
- Easy disassembly with normal hand tools.



Step 1.



PUMP ASSEMBLY

Impeller

**Step 2.****■ CHALLENGE:**

Prevent seizure of the impeller to the shaft

■ CAUSE:

- The combination of small air spaces within the threads and high humidity and temperatures allows for rust to develop and seize the impeller to the shaft.

■ SOLUTION:

- Apply LOCTITE® Heavy Duty Anti-Seize compound to the shaft threads prior to impeller assembly.

■ STEPS:

1. Clean the shaft and impeller threads.
2. Apply LOCTITE® Heavy Duty Anti-Seize to the shaft threads.
3. Assemble the impeller using normal techniques.

RESULTS:

- Prevention of seizure.
- Easier disassembly.

PUMP ASSEMBLY

Keyways / Key Stock

■ CHALLENGE:

Prevent keyway wallow by securing the key stock in the keyway — new components

■ CAUSE:

- In a new assembly, the fit between the key stock and the keyway are usually fairly tight. Over time the fit between the key stock and the keyway can loosen and lead to damage to the keyway.

■ SOLUTION:

- Proactively apply a LOCTITE Medium Strength Threadlocker to the keyway and then insert the key stock.
- The viscosity of a LOCTITE Medium Strength Threadlocker is appropriate for the gap fill and provides the proper amount of strength, while allowing for easy removal.
- If the key needs to be removed, simply use a hammer to tap a metal chisel or drift against the key stock to pop it out of the keyway.

■ STEPS:

1. Clean the keyway and key stock with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply several drops of LOCTITE® 243 Medium Strength Threadlocker directly into the keyway.
3. Insert the key stock into the keyway.

Note: Cover the shaft with a rag to prevent splatter when inserting the key stock.

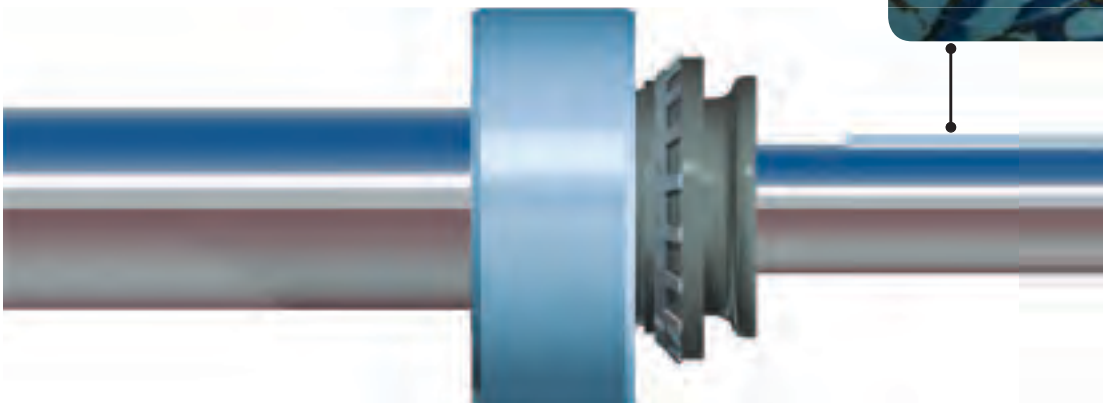
4. Wipe off any excess threadlocker.

RESULTS:

- Prevention of corrosion.
- Prevention of keyway wallow.
- A unitized assembly.



Step 2.



PUMP ASSEMBLY

Keyways / Key Stock

■ CHALLENGE:

Stop keyway wallow and prevent downtime and scrap costs — worn components

■ CAUSE:

- Over time, keyways can wear out if the key stock is not secured in place, which results in keyway wallow. This is a common failure for power transmission components such as couplings, sprockets, sheaves, etc.
- If keyway wallow is allowed to perpetuate, further damage can result, such as a sheared key stock or damage to the coupling. If the key stock shears, the result is a loss of power transmission (i.e., the pump will stop running) and further damage to the shaft will occur.

■ SOLUTION:

- If the keyway has already been wallowed out, use LOCTITE® 660 Retaining Compound to stop the wallow and allow the components to return to service.
- LOCTITE® 660 Retaining Compound is a very thick product, which allows it to fill large gaps.

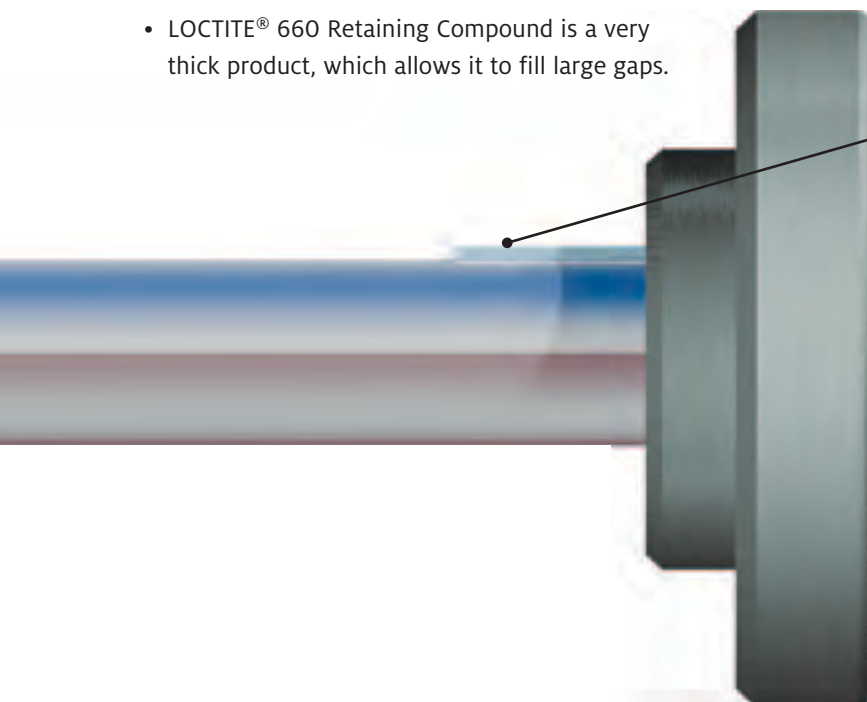
■ STEPS:

1. Clean the keyway and key stock with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply LOCTITE® 660 Retaining Compound into the keyway.
3. Assemble parts and wipe off excess.

Note: If keyway wallow is severe, shims can be used on both sides of the keyways in conjunction with the LOCTITE® 660 Retaining Compound.

RESULTS:

- Assembly is restored, unitized and ready for service without a major overhaul.



Step 2.

PUMP ASSEMBLY

Coupling

■ CHALLENGE:

Prevent coupling from loosening or moving, resulting in disengagement, damage or misalignment

■ CAUSE:

- Couplings are held in place by a key and a set screw.
- If the set screw was to loosen, the coupling can begin to slide along the shaft and disengage, or it can begin to wallow out the keyway.

■ SOLUTION:

- LOCTITE Medium and Low Strength Threadlockers.

■ STEPS:

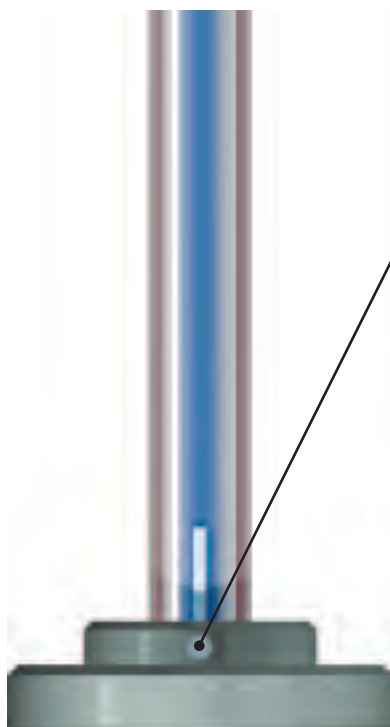
1. Clean set screw with LOCTITE® ODC-Free Cleaner & Degreaser.

2. If necessary, spray all threads with LOCTITE® 7649 Primer N and allow to dry.
3. Apply a couple of drops of a LOCTITE® 222 Low Strength Threadlocker to the set screw (use a LOCTITE Medium Strength Threadlocker if the set screw is over 1/4" in diameter).
4. Assemble in the coupling as usual.

Note: Consider applying a LOCTITE brand retaining compound or threadlocker to the shaft prior to assembling the coupling to completely unitize the coupling to the shaft and prevent any possible corrosion.

RESULTS:

- Assembly is restored, unitized and ready for service without a major overhaul.



Step 3.



PUMP ASSEMBLY

Pump Base Mounting

■ CHALLENGE:

Prevent pump mounting bolts from losing clamp load, leading to misalignment

■ CAUSE:

- Vibration and possible impact shock can work to loosen the mounting bolts.
- Loose bolts result in a loss of clamp load, which in turn allows the pump to lose its level and aligned configuration.

■ SOLUTION #1:

- Apply LOCTITE® 263 High Strength Threadlocker to the mounting bolts.

■ STEPS:

1. Clean threads with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Apply LOCTITE® 263 High Strength Threadlocker to the mounting bolts.
3. Assemble and tighten as usual.

■ SOLUTION #2:

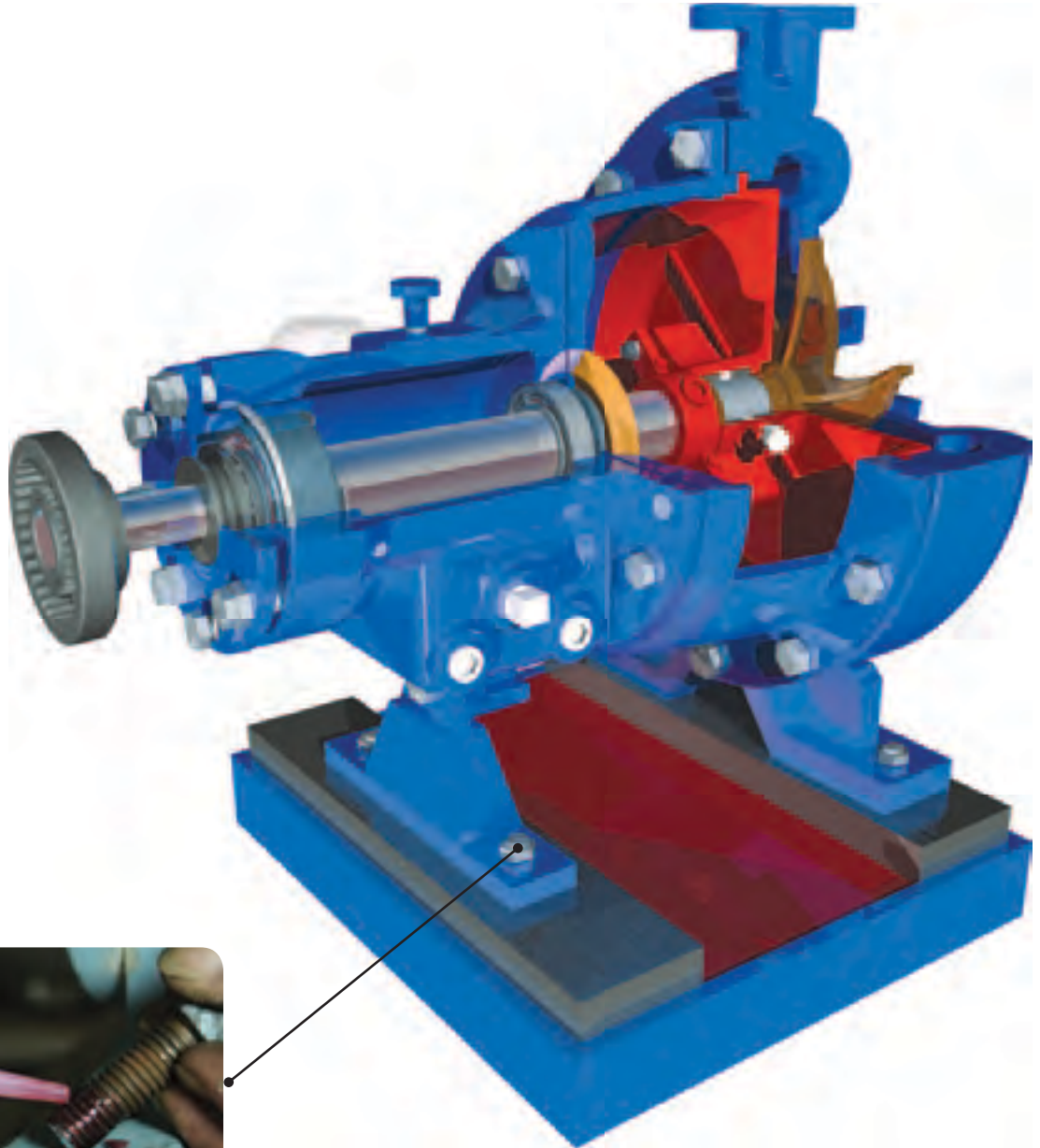
- Apply LOCTITE® 290 Wicking Grade Threadlocker to the mounting bolts after the pump has been leveled and aligned.

■ STEPS:

1. Clean the parts with LOCTITE® ODC-Free Cleaner & Degreaser.
2. Align the pump.
3. Tighten the nuts on the mounting studs.
4. Apply LOCTITE® 290 Wicking Grade Threadlocker to the mounting bolts.

RESULTS:

- Mounting bolts are secured in place.
- Proper clamp load is maintained.
- Elimination of bolt corrosion.
- Prevention of misalignment.



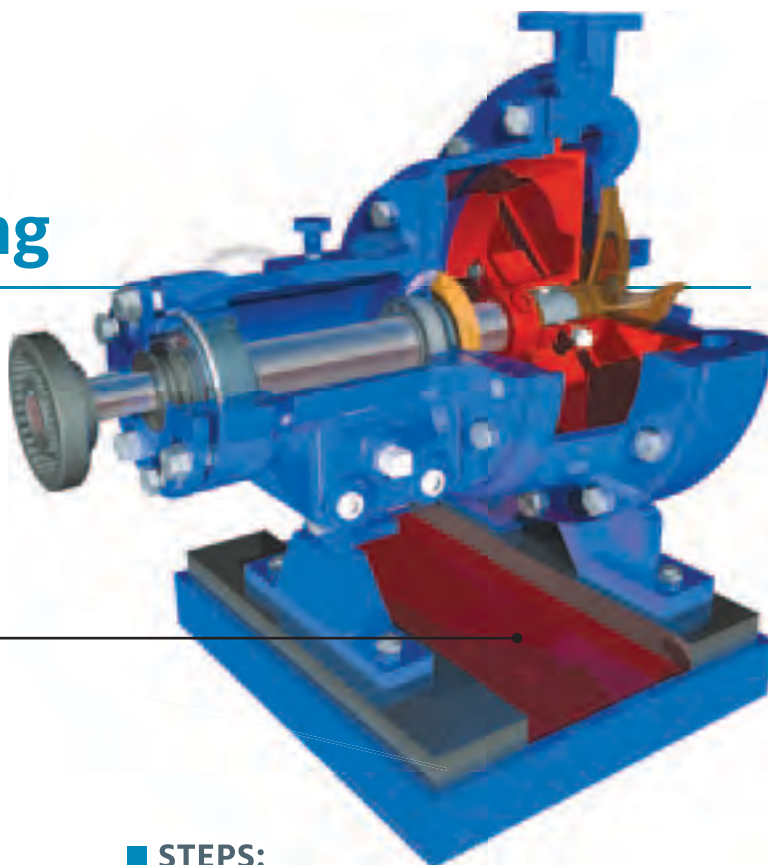
Solution #1, Step 2 and Solution #2, Step 4.

PUMP ASSEMBLY

Pump Base Grouting



Step 6.



■ CHALLENGE:

Prevent twisting, vibration and corrosion of pump base

■ CAUSE:

- The pump base is made to not only provide a level mounting surface but is also designed to withstand torque loads and vibration/reverberations. The base by itself is not strong enough to withstand these forces along with the chemical attack and corrosion it is subject to.

■ SOLUTION:

- Fill the pump base with a LOCTITE® Fixmaster® epoxy grout.
- The base needs to be filled with a grout to fill the entire air space thereby preventing corrosion and providing a much more solid unit that can withstand torque loads and vibration. LOCTITE® Fixmaster® epoxy grouts are:
 - Non-shrinking
 - Self-leveling
 - Resistant to high impact
 - Able to withstand chemical attack

■ STEPS:

1. After the base has been leveled with shims or wedges, build a form around the base to contain the grout.
2. Line the forms with either a thick mil plastic sheeting or a high-pressure laminate.
3. Coat the plastic or laminate with a release agent to prevent the epoxy grout from bonding to the forms.
4. A good release agent choice is LOCTITE® Silicone Spray Lubricant in the aerosol packaging.
5. After the forms have been lined and built, seal any gaps in the forms with a LOCTITE® silicone to prevent the grout from leaking.
6. Then simply mix the grout per the label instructions and pour into place.

RESULTS:

- Solid pump base that is resistant to compression, corrosion and chemical attack.

PUMP REPAIR

Oil Seepage

■ CHALLENGE:

Prevent oil loss from seepage

■ CAUSE:

- This cast part can have porosities created during the casting. These porosities can lead to the housing weeping oil.

■ SOLUTION #1:

- Coat interior of bearing frame to seal porosities with LOCTITE® Nordbak® Brushable Ceramic.

■ STEPS:

1. Blast the interior of the bearing frame to remove contaminants.
2. Apply LOCTITE® Nordbak® Brushable Ceramic to the interior of the bearing housing to protect and coat the bearing frame.

■ SOLUTION #2:

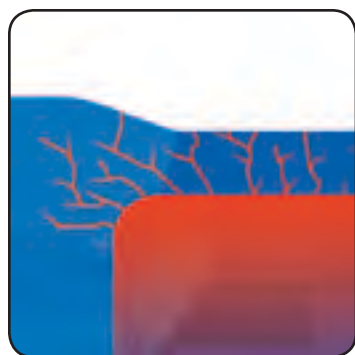
- For a part where the specific leak points are known, brush on LOCTITE® 290 Wicking Grade Threadlocker.

■ STEPS:

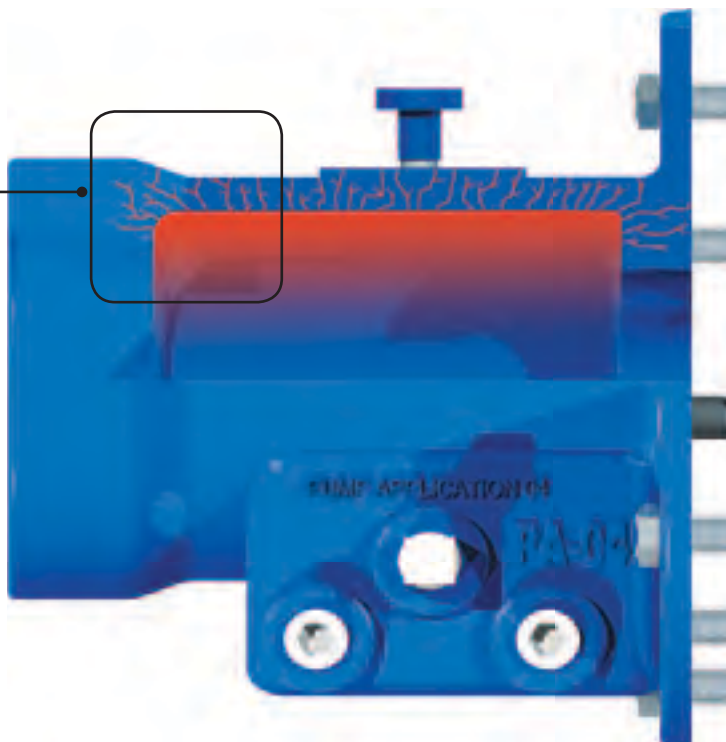
1. Clean the surface.
2. Bake it dry.
3. Brush on LOCTITE® 290 Threadlocker.
4. Allow to cure.

RESULTS:

- Elimination of oil loss through seepage.
- Reduced oil consumption.
- Reduced cleanup.

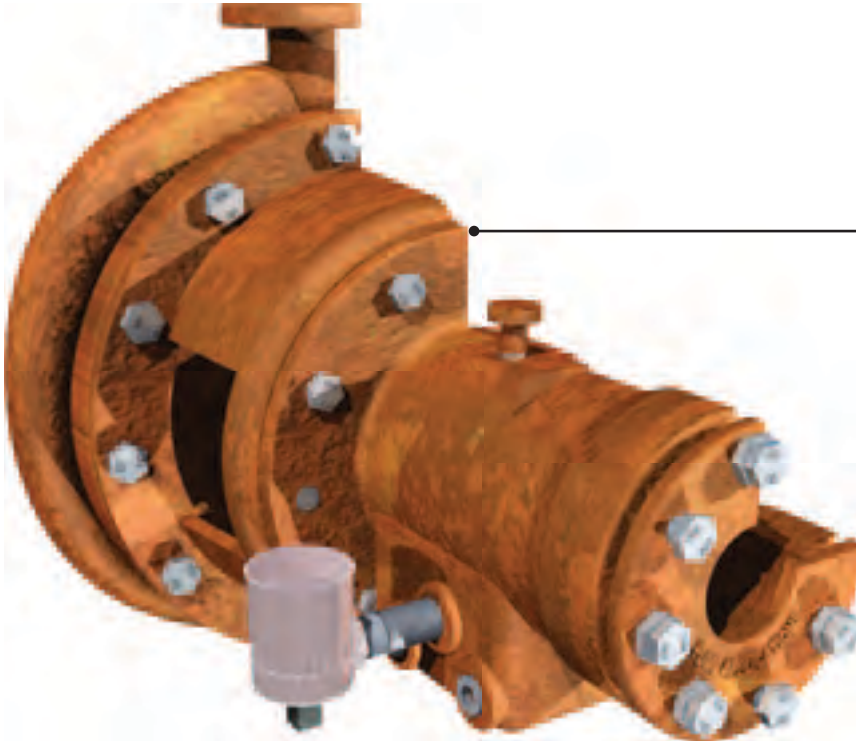


Leak paths in housing.



PUMP REPAIR

Corrosion



Corroded external components.

■ CHALLENGE:

Prevent corrosion damage to external parts

■ CAUSE:

- The external components can suffer from rust and chemical attack due to exposure to the elements, extreme temperatures, temperature changes, humidity and chemicals.

■ SOLUTION:

- LOCTITE® Nordbak® Chemical Resistant Coating.
- Originally developed to protect mining equipment from sulfuric acid.
- Provides an excellent coating to protect pump parts from a variety of severe chemical environments.

■ STEPS:

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply LOCTITE® Nordbak® Chemical Resistant Coating per the package instructions.

RESULTS:

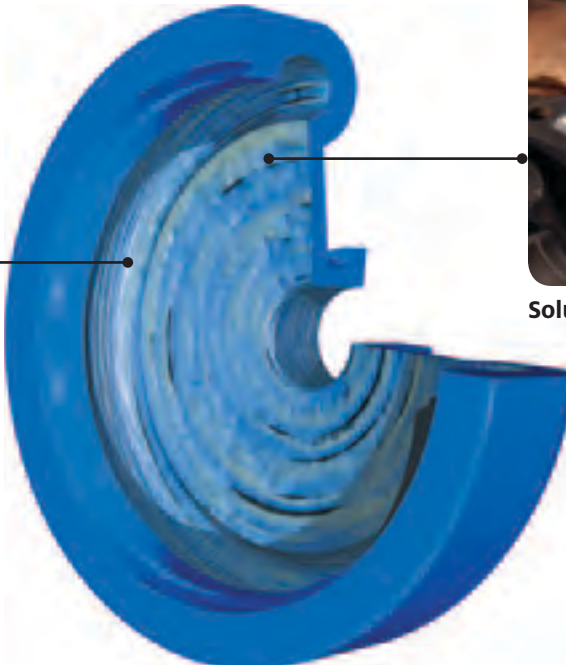
- Extended equipment life.
- Reduced component consumption.
- Increased pump reliability.

PUMP REPAIR

Casing / Impeller Wear

■ CHALLENGE:**Rebuild worn areas to restore pump casing and impellers****■ CAUSE:**

- Pump casings and impellers are subject to wear from abrasive slurries and solids, cavitation and chemical attack. Each of these can wear down internal sections of pump casing.
- Some of the common wear areas include the cutwater, wear ring seats, impeller vane tips and inside the volute.
- Casing and impeller wear typically falls within the following category types:
 - Minor abrasive wear from pumping light slurries
 - Heavy casing wear and erosion from pumping solids and/or cavitation
 - Chemical attack
 - Wear to specific areas of the casing or impeller

**Solution #1, Step 2.****■ SOLUTION #1:**

- Repair minor surface wear. Rebuild and coat the surface with LOCTITE® Nordbak® Brushable Ceramic.
- Provides a high gloss, low friction finish to help ensure the pump runs as close to its BEP as possible.

■ STEPS:

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply LOCTITE® Nordbak® Brushable Ceramic per the package instructions.
3. Apply a coat of white LOCTITE® Nordbak® Brushable Ceramic first, and then a second coat of grey LOCTITE® Nordbak® Brushable Ceramic, to allow for easy visual inspection of the coating and wear.
4. Use as many coats as necessary to restore the casing to original dimensions.

**Solution #1, Step 3.**

PUMP REPAIR

Casing / Impeller Wear

■ CHALLENGE (continued):

Rebuild worn areas to restore pump casing and impellers

■ SOLUTION #2:

- Repair heavy surface wear to the casing. Rebuild the casing with LOCTITE® Nordbak® Wear Resist Putty.
- Ceramic fibres provide superior wear resistance.

■ STEPS:

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply LOCTITE® Nordbak® Pnue Wear per the package instructions.
3. Use isopropyl alcohol to smooth the finish.
4. Apply a topcoat of LOCTITE® Nordbak® Brushable Ceramic to provide a low-friction finish.

■ SOLUTION #3:

- Repair damage from chemical attack and provide a protective coating. Coat the casing and the impeller with LOCTITE® Nordbak® Chemical Resistant Coating.
- Protects parts in severe chemical environments.

■ STEPS:

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply LOCTITE® Nordbak® Chemical Resistant Coating per the package instructions.

■ SOLUTION #4:

- Rebuild worn areas of the casing and impeller. Apply LOCTITE® Fixmaster® Superior Metal or LOCTITE® Nordbak® Wear Resistant Putty to rebuild worn cutwaters, wear ring seats, impeller vane tips or other specific areas of the casing.
- Use LOCTITE® Fixmaster® Superior Metal to rebuild heavily worn areas.
- Use LOCTITE® Nordbak® Wear Resistant Putty in areas where there is constant abrasion, such as wear ring seats.

■ STEPS:

1. Clean and abrade the surface to a near white metal finish.
2. Mix and apply the products per the package instructions.

RESULTS:

- Reduced component consumption by salvaging and extending the life of pump casings.
- Casings protected from wear and chemical attack.
- Pumps helped to run close to their BEP.



Worn impeller prior to repair.



Solution #4, Step 2.

PUMP REPAIR

Shaft Wear

■ CHALLENGE:

Restore worn shaft to the original condition

■ CAUSE:

- Wear caused by packing and oil seals is typically the result of constant pressure and abrasion against the shaft surface.
- Over time, oil seals can cut a groove in a shaft.
- Neglect and improper water lubrication can cause the packing to heat up and in turn to cause severe wear to the shaft.

■ SOLUTION:

- Rebuild shafts with LOCTITE® Fixmaster® Superior Metal.
- LOCTITE® Fixmaster® Superior Metal is an epoxy with high compressive strength that will not rust.

■ STEPS:

1. To make the repairs, turn the shaft on a lathe and even out the worn areas to at least 0.030", leaving a rough surface finish.
2. Clean the shaft of any cutting fluids or oils with LOCTITE® ODC-Free Cleaner & Degreaser.
3. Mix the product per the package instructions.



Worn shaft.

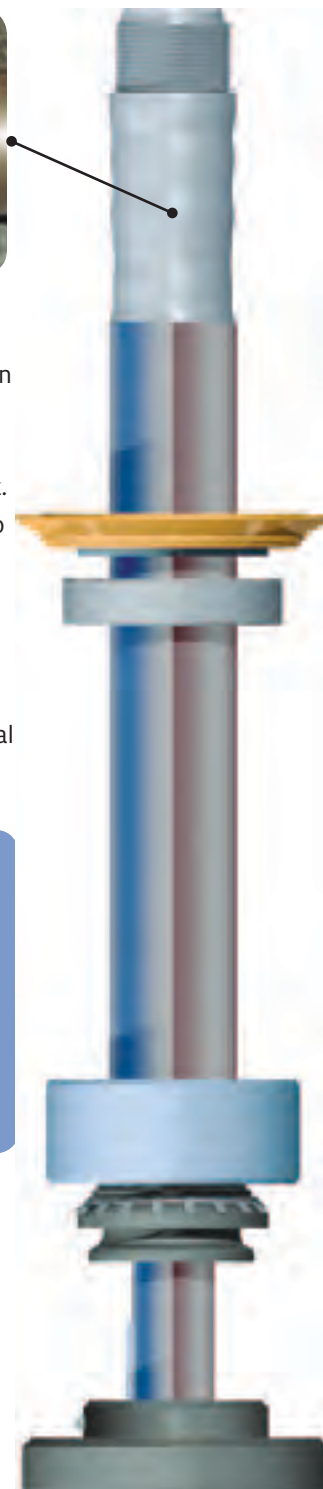
4. While the shaft is turning on the lathe, apply LOCTITE® Fixmaster® Superior Metal by pressing it into the shaft. Firm pressure is required to squeeze out any potential air pockets.
5. The cured product can be turned on the lathe and brought down to the original shaft diameter.

RESULTS:

- Quick return to service.
- Reduced component consumption.
- Extended shaft life.



Step 4.



PUMP REPAIR

Keyway Wallow

■ CHALLENGE:**Repair wallowed out keyways****■ CAUSE:**

- Shaft vibration and external forces affect key stability. Over time, this instability leads to keyway wallow.

■ SOLUTION:

- Apply a bead of LOCTITE® 660 Retaining Compound directly in the worn keyway.
- LOCTITE® 660 Retaining Compound is a heavy-bodied product designed to fill large voids, up to 0.030".

■ STEPS:

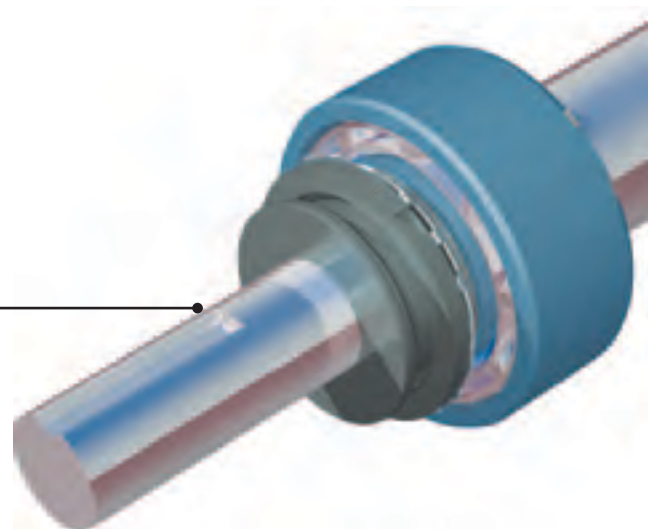
1. If the keyway wallow is severe, you may need to add shims to both sides.
2. Apply LOCTITE® 660 Retaining Compound directly into the keyway.
3. Press the new key stock into the keyway and the assembly is restored without having to take apart the pump.

RESULTS:

- A secured fit to the keyway.
- Elimination of repeat wallowing.



Step 2.



PUMP SOLUTIONS

Product Table

| ASSEMBLY SECTIONS | | | | | | | |
|---------------------------------|-------------------|---|-------------------------------|--|------------------|---------|---------|
| COMPONENTS | APPLICATION | LOCTITE® SOLUTIONS | NEW NAME | BENEFITS | PACKAGE | ITEM # | IDH # |
| BEARING FRAME AND HOUSING | Threaded fittings | LOCTITE® 567 Thread Sealant with PTFE | LOCTITE® 567 TB50MLAU | High temperature, solvent resistant | 50 ml | 56747A | 473168 |
| | | LOCTITE® 565 Thread Sealant | LOCTITE® 565 PST SEALANT 50ML | Controlled strength | 50 ml | 56531 | 88551 |
| | | LOCTITE® 561 Pipe Sealant Stick with PTFE | LOCTITE® 561 ST19GAU | Semisolid, controlled strength | 19 g | 943428 | 943428 |
| | Oil seals | LOCTITE® 248 Threadlocker | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19 g | 933728 | 933728 |
| | | LOCTITE® 243 Threadlocker | LOCTITE® 243 B050MLAU | Medium strength, oil resistant, primerless | 50 ml | 44092 | 1311321 |
| | O-rings | LOCTITE® Food Grade Grease | LOCTITE® LB 8014 B08OZAU | NLGI 2, NSF H1 | 429 ml | 1167237 | 1198200 |
| | Power end bolts | LOCTITE® Silver Grade Anti-Seize | LOCTITE® LB 767 B0500GEN | General purpose, up to 1600°F | 454 g brush top | 76769 | 552091 |
| | | LOCTITE® Silver Anti-Seize Stick | LOCTITE® LB 8070 ST20GMEN/SP | Semisolid, general purpose | 20 g | 41205 | 864067 |
| | | LOCTITE® C5-A Copper Based Anti-Seize Lubricant | LOCTITE® LB 8008 C5-A 1LBEN | General purpose, up to 1800°F | 454 g brush top | 51007 | 160796 |
| | | LOCTITE® Heavy Duty Anti-Seize | LOCTITE® LB 8009 B018OZEN | Metal-free, high lubricity | 544 g brush top | 51606 | 209758 |
| | | LOCTITE® Food Grade Anti-Seize | LOCTITE® LB 8014 B08OZAU | NSF approved, up to 750°F | 0.9 kg can | 1167237 | 1198200 |
| | Bearings | LOCTITE® 641 Retaining Compound | LOCTITE® 641 B050MLAU | Press & slip fits, low strength | 50 ml | 45079 | 1496859 |
| | | LOCTITE® 609 Retaining Compound | LOCTITE® 609 B050MLAU | Press fit, general purpose | 50 ml | 30015 | 234551 |
| | | LOCTITE® 620 Retaining Compound | LOCTITE® 620 B050MLAU | Slip fit, high temperature | 50 ml | 62050 | 234776 |
| FRAME ADAPTER | Oil seals | LOCTITE® 248 Threadlocker Stick | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19 g | 933728 | 933728 |
| | | LOCTITE® 243 Threadlocker | LOCTITE® 243 B050MLAU | Medium strength, oil resistant, primerless | 50 ml | 44092 | 1311321 |
| | Dowel pins | LOCTITE® Silver Grade Anti-Seize | LOCTITE® LB 767 B0500GEN | General purpose, up to 1600°F | 454 g brush top | 76769 | 552091 |
| | | LOCTITE® Silver Anti-Seize Stick | LOCTITE® LB 8070 ST20GMEN/SP | Semisolid, general purpose | 20 g | 41205 | 864067 |
| | | LOCTITE® C5-A Copper Based Anti-Seize Lubricant | LOCTITE® LB 8008 C5-A 1LBEN | General purpose, up to 1800°F | 454 g brush top | 51007 | 160796 |
| | | LOCTITE® Heavy Duty Anti-Seize | LOCTITE® LB 8009 B018OZEN | Metal-free, high lubricity | 544 g brush top | 51606 | 209758 |
| | | LOCTITE® Food Grade Anti-Seize | LOCTITE® LB 8014 B08OZAU | NSF approved, up to 750°F | 0.9 kg can | 1167237 | 1198200 |
| | Gasketing | LOCTITE® 518 Flange Sealant | LOCTITE® 518 TB50MLAU | General purpose, up to 0.050 | 50 ml | 25583A | 472904 |
| | | LOCTITE® 515 Flange Sealant | LOCTITE® 515 TB50MLAU | General purpose, up to 0.050" | 50 ml | 51531A | 473169 |
| | | LOCTITE® Instant Gasket | LOCTITE® SI 5900 AE190ML | High adhesion, up to 0.250" | 190 ml power can | 743913 | 899129 |
| | Adapter bolts | LOCTITE® 243 Threadlocker | LOCTITE® 243 B050MLAU | Medium strength, oil resistant, primerless | 50 ml | 44092 | 1311321 |
| | | LOCTITE® 248 Threadlocker Stick | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19 g | 933728 | 933728 |

Product Table

| ASSEMBLY SECTIONS | | | | | | | |
|---------------------|--------------------------|---|-------------------------------|--|-----------------|---------|---------|
| COMPONENTS | APPLICATION | LOCTITE® SOLUTION | NEW NAME | BENEFITS | PACKAGE | ITEM # | IDH # |
| GLAND ASSEMBLY | Packing gland studs | LOCTITE® 263 Threadlocker | LOCTITE® 263 BO50MLEN | High strength, oil resistant, primerless | 50 ml | 44130 | 1331618 |
| | | LOCTITE® 268 Threadlocker Stick | LOCTITE® 268 ST19GAU | Semisolid, high strength | 19 g | 3775B | 933730 |
| | | LOCTITE® 243 Threadlocker | LOCTITE® 243 BO50MLAU | Medium strength, oil resistant, primerless | 50 ml | 44092 | 1311321 |
| | | LOCTITE® 248 Threadlocker Stick | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19 g | 933728 | 933728 |
| | Packing gland nuts | LOCTITE® Silver Grade Anti-Seize | LOCTITE® LB 767 BO500GEN | General purpose, up to 1600°F | 454 brush top | 76769 | 552091 |
| | | LOCTITE® Silver Anti-Seize Stick | LOCTITE® LB 8070 ST20GMEN/SP | Semisolid, general purpose | 20 g | 41205 | 864067 |
| | | LOCTITE® C5-A Copper Based Anti Seize Lubricant | LOCTITE® LB 8008 C5-A 1LBEN | General purpose, up to 1800°F | 454 g brush top | 51007 | 160796 |
| | | LOCTITE® Heavy Duty Anti-Seize | LOCTITE® LB 8009 BO18OZEN | Metal-free, high lubricity | 454 g brush top | 51606 | 209758 |
| | | LOCTITE® Food Grade Anti-Seize | LOCTITE® LB 8014 BO8OZAU | NSF approved, up to 750°F | 0.9 kg can | 1167237 | 1198200 |
| | Flushing connectors | LOCTITE® 567 Thread Sealant with PTFE | LOCTITE® 567 TB50MLAU | High temperature, solvent resistant | 50 ml | 56747A | 473168 |
| | | LOCTITE® 565 Thread Sealant | LOCTITE® 565 PST SEALANT 50ML | Controlled strength | 50 ml | 56531 | 88551 |
| | | LOCTITE® 561 Pipe Sealant Stick with PTFE | LOCTITE® 561 ST19GAU | Semisolid, controlled strength | 19 g | 943428 | 943428 |
| PUMP CASING | Stuffing box | LOCTITE® Silver Grade Anti-Seize | LOCTITE® LB 767 BO500GEN | General purpose, up to 1600°F | 454 g brush top | 76769 | 552091 |
| | | LOCTITE® Silver Anti-Seize Stick | LOCTITE® LB 8070 ST20GMEN/SP | Semisolid, general purpose | 20g | 41205 | 864067 |
| | | LOCTITE® C5-A Copper Based Anti-Seize Lubricant | LOCTITE® LB 8008 C5-A 1LBEN | General purpose, up to 1800°F | 454 g brush top | 51007 | 160796 |
| | | LOCTITE® Heavy Duty Anti-Seize | LOCTITE® LB 8009 BO18OZEN | Metal-free, high lubricity | 544 g brush top | 51606 | 209758 |
| | | LOCTITE® Food Grade Anti-Seize | LOCTITE® LB 8014 BO8OZAU | NSF approved, up to 750°F | 0.9 kg can | 1167237 | 1198200 |
| | Gasketing | LOCTITE® 518 Flange Sealant | LOCTITE® 518 TB50MLAU | General purpose, up to 0.050" | 50 ml | 25583A | 472904 |
| | | LOCTITE® 515 Flange Sealant | LOCTITE® 515 TB50MLAU | General purpose, up to 0.050" | 50 ml | 51531A | 473169 |
| | Casing bolts | LOCTITE® 243 Threadlocker | LOCTITE® 243 BO50MLAU | Medium strength, oil resistant, primerless | 50 ml | 44092 | 1311321 |
| | | LOCTITE® 248 Threadlocker Stick | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19 g | 933728 | 933728 |
| IMPELLER | Shaft & impeller threads | LOCTITE® Silver Grade Anti-Seize | LOCTITE® LB 767 BO500GEN | General purpose, up to 1600°F | 454 g brush top | 76769 | 552091 |
| | | LOCTITE® Silver Anti-Seize Stick | LOCTITE® LB 8070 ST20GMEN/SP | Semisolid, general purpose | 20 g | 41205 | 864067 |
| | | LOCTITE® C5-A Copper Based Anti-Seize Lubricant | LOCTITE® LB 8008 C5-A 1LBEN | General purpose, up to 1800°F | 454 g brush top | 51007 | 160796 |
| | | LOCTITE® Heavy Duty Anti-Seize | LOCTITE® LB 8009 BO18OZEN | Metal-free, high lubricity | 544 g brush top | 51606 | 209758 |
| | | LOCTITE® Food Grade Anti-Seize | LOCTITE® LB 8014 BO8OZAU | NSF approved, up to 750°F | 0.9 kg can | 1167237 | 1198200 |
| KEYWAYS / KEY STOCK | Prevent keyway wallow | LOCTITE® 243 Threadlocker | LOCTITE® 243 BO50MLAU | Medium strength, oil resistant, primerless | 50 ml | 44092 | 1311321 |
| | | LOCTITE® 248 Threadlocker Stick | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19 g | 933728 | 933728 |
| | Repair keyway wallow | LOCTITE® 660 Retaining Compound | LOCTITE® 660 TB50MLEN | Press fit repair | 50 ml | 66040 | 473166 |

PUMP SOLUTIONS

Product Table

| ASSEMBLY SECTIONS | | | | | | | |
|--------------------|----------------|---------------------------------|-----------------------|--|---------|--------|---------|
| COMPONENTS | APPLICATION | LOCTITE® SOLUTIONS | NEW NAME | BENEFITS | PACKAGE | ITEM # | IDH # |
| COUPLING | Coupling | LOCTITE® 243 Threadlocker | LOCTITE® 243 BO50MLAU | medium strength, oil resistant, primerless | 50ml | 44092 | 1311321 |
| | | LOCTITE® 248 Threadlocker Stick | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19g | 933728 | 933728 |
| PUMP BASE MOUNTING | Mounting bolts | LOCTITE® 271 Threadlocker | LOCTITE® 271 BO50MLAU | High strength | 50ml | 135381 | 1571118 |
| | | LOCTITE® 263 Threadlocker | LOCTITE® 263 BO50MLEN | High strength, oil resistant, primerless | 50ml | 44130 | 1331618 |
| | | LOCTITE® 290 Threadlocker | LOCTITE® 290 BO50MLAU | Wicking for post-assembly | 50ml | 45076 | 1496855 |

| REPAIR SECTIONS | | | | | | | |
|----------------------|------------------|--|----------------------------------|-------------------------------------|------------------|--------|---------|
| COMPONENTS | APPLICATION | LOCTITE® SOLUTIONS | NEW NAME | BENEFITS | PACKAGE | ITEM # | IDH # |
| OIL SEEPAGE | Porosity sealing | LOCTITE® Nordbak® Chemical Resistant Coating | LOCTITE® PC 7218 WEAR RESISTANT | Protective coating | 5.4 kg kit | 209816 | 661992 |
| | | LOCTITE® 290 Threadlocker | LOCTITE® 290 BO50MLAU | Wicking for sealing porosities | 50 ml | 45076 | 1496855 |
| CORROSION | Corrosion | LOCTITE® Nordbak® Chemical Resistant Coating | LOCTITE® PC 7319 CHEM RESIS COAT | Protection against chemical attack | 5443 g kit | 209816 | 661982 |
| CASING/IMPELLER WEAR | Wear | LOCTITE® Nordbak® Brushable Ceramic | LOCTITE® PC 7227 KT2KGEN | Smooth, corrosion resistant coating | 0.9 kg kit grey | 42076 | 978758 |
| | | LOCTITE® Nordbak® Brushable Ceramic | LOCTITE® PC 7228 KTIKGEN/CH | Smooth, corrosion resistant coating | 0.9 kg kit white | 42372 | 1050263 |
| | | LOCTITE® Nordbak® High Temperature Brushable Ceramic | LOCTITE® PC 7335 KTIKGEN | Protection up to 550°F | 0.9 kg kit red | 42088 | 978760 |
| | | LOCTITE® Nordbak® Wearing Compound | LOCTITE® PC 7218 KT10KGEN/CH | Trowelable, large ceramic beads | 2.27 kg kit | 41782 | 912251 |
| | | LOCTITE® Nordbak® Chemical Resistant Coating | LOCTITE® PC 7319 CHEM RESIS COAT | Protection against chemical attack | 5.4 kg kit | 209816 | 661982 |
| | | LOCTITE® Fixmaster® Superior Metal | LOCTITE® EA 3478 KT1LBML | Ferro-silicon-filled repair epoxy | 454 g kit | 97473 | 209822 |
| | | LOCTITE® Fixmaster® Wear Resistant Putty | LOCTITE® PC 7218 WEAR RESISTANT | Ceramic fiber-filled epoxy | 454 g kit | 209827 | 661992 |
| SHAFT WEAR | Wear | LOCTITE® Fixmaster® Superior Metal | LOCTITE® EA 3478 KT1LBML | Ferro-silicon-filled repair epoxy | 454 g kit | 97473 | 209822 |
| | | LOCTITE® Fixmaster® Steel Putty | LOCTITE® PC 3471 454G | Steel-filled repair epoxy | 454 g kit | 219292 | 473172 |
| KEYWAY WALLOW | Wallow | LOCTITE® 660 Retaining compound | LOCTITE® 660 TB50MLEN | Press fit repair | 50ml | 66040 | 473166 |

| OTHER PRODUCTS | | | | | | | |
|-----------------------|--|--|------------------------------|---|-------------------|---------|---------|
| PRODUCT TYPE | | LOCTITE® SOLUTIONS | NEW NAME | BENEFITS | PACKAGE | ITEM # | IDH # |
| PRIMER | | LOCTITE® 7649 Primer N | LOCTITE® SF 7649 AE133MLAU | Anaerobic primer/cleaner | 133 ml aerosol | 209715 | 1646890 |
| CLEANERS | | LOCTITE® ODC-Free Cleaner & Degreaser | LOCTITE® SF 7070 CT473MLEN | General-purpose cleaner | 444 ml aerosol | 135310 | 661976 |
| | | LOCTITE® Chisel Paint Stripper | LOCTITE® SF 790 AE510GEN | Aggressive gasket remover | 532 ml aerosol | 135544 | 642664 |
| | | LOCTITE® Natural Blue® Biodegradable Cleaner & Degreaser | LOCTITE® SF 7840 BO240ZEN | General purpose, environmentally friendly | 710 ml pump spray | 82249 | 235502 |
| | | LOCTITE® Industrial Hand Wipes | LOCTITE® SF 7617 CTEAEN | Premoistened hand cleaning wipes | 75 count | 34943 | 337637 |
| PENETRANTS/LUBRICANTS | | LOCTITE® Maintain Lubricant Penetrant | LOCTITE® LB ML-11 AE360MLEN | Moisture displacer, rust preventer | 473 ml aerosol | 41106 | 1827849 |
| | | LOCTITE® Solvo-Rust Super Penetrating Oil | LOCTITE® LB 8713 368G | Frees rusted parts | 362 ml aerosol | 1865406 | 473164 |
| | | LOCTITE® Dielectric Grease | LOCTITE® LB 8423 TB85GMEN/SP | Protects electrical equipment | 10 ml tube | 495549 | 495549 |

Product Index

| PRODUCT INDEX | | | | | |
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| LOCTITE® SOLUTIONS | NEW NAME | BENEFITS | PACKAGE | ITEM # | IDH # |
| LOCTITE® 243 Threadlocker | LOCTITE® 243 B050MLAU | Medium strength, oil resistant, primerless | 50 ml | 44092 | 1311321 |
| LOCTITE® 263 Threadlocker | LOCTITE® 263 B050MLEN | High strength, oil resistant, primerless | 50 ml | 44130 | 1331618 |
| LOCTITE® 290 Threadlocker | LOCTITE® 290 B050MLAU | Wicking for post-assembly | 50 ml | 45076 | 1496855 |
| LOCTITE® 515 Flange Sealant | LOCTITE® 515 TB50MLAU | General purpose, up to 0.050" | 50 ml | 51531A | 473169 |
| LOCTITE® 518 Flange Sealant | LOCTITE® 518 TB50MLAU | General purpose, up to 0.050" | 50 ml | 25583A | 472904 |
| LOCTITE® 565 Thread Sealant | LOCTITE® 565 PST SEALANT 50ML | Controlled strength | 50 ml | 56531 | 88551 |
| LOCTITE® 567 Thread Sealant with PTFE | LOCTITE® 567 TB50MLAU | High temperature, solvent resistant | 50 ml | 56747A | 473168 |
| LOCTITE® 609 Retaining Compound | LOCTITE® 609 B050MLAU | Press fit, general purpose | 50 ml | 30015 | 234551 |
| LOCTITE® 620 Retaining Compound | LOCTITE® 620 B050MLAU | Slip fit, high temperature | 50 ml | 62050 | 234776 |
| LOCTITE® 641 Retaining Compound | LOCTITE® 641 B050MLAU | Press & slip fits, low strength | 50 ml | 45079 | 1496859 |
| LOCTITE® 660 Retaining Compound | LOCTITE® 660 TB50MLEN | Press fit repair | 50 ml | 66040 | 473166 |
| LOCTITE® 7649 Primer N | LOCTITE® SF 7471 CANIGALEN | LOCTITE® 7649 Primer N | 133 ml aerosol | 24062A | 990061 |
| LOCTITE® C5-A Copper Based Anti-Seize Lubricant | LOCTITE® LB 8008 C5-A 1LBEN | General purpose, up to 1800°F | 454 g brush top | 51007 | 160796 |
| LOCTITE® Chisel Paint Stripper | LOCTITE® SF 790 AE510GEN | Aggressive gasket remover | 532 ml aerosol | 135544 | 642664 |
| LOCTITE® Dielectric Grease | LOCTITE® LB 8423 TB85GMEN/SP | Protects electrical equipment | 10 ml tube | 495549 | 495549 |
| LOCTITE® Fixmaster® Steel Putty | LOCTITE® PC 3471 454G | Steel-filled repair epoxy | 454 g kit | 219292 | 473172 |
| LOCTITE® Fixmaster® Superior Metal | LOCTITE® EA 3478 KTLBML | Ferro-silicon-filled repair epoxy | 454 g kit | 97473 | 209822 |
| LOCTITE® Fixmaster® Wear Resistant Putty | LOCTITE® PC 7218 WEAR RESISTANT | Ceramic fiber-filled epoxy | 454 g kit | 209827 | 661992 |
| LOCTITE® Food Grade Anti-Seize | LOCTITE® LB 8014 B08OZAU | NSF approved, up to 750°F | 0.9 kg can | 1167237 | 1198200 |
| LOCTITE® Heavy Duty Anti-Seize | LOCTITE® LB 8009 B018OZEN | Metal-free, high lubricity | 544 g brush top | 51606 | 209758 |
| LOCTITE® Industrial Hand Wipes | LOCTITE® SF 7617 CTEAEN | Premoistened hand cleaning wipes | 75 count | 34943 | 337637 |
| LOCTITE® Instant Gasket | LOCTITE® SI 5900 AE190ML | High adhesion, up to 0.250" | 190 ml power can | 743913 | 899129 |
| LOCTITE® Maintain Lubricant Penetrant | LOCTITE® LB ML-11 AE360MLEN | Moisture displacer, rust preventer | 473 ml aerosol | 41106 | 1827849 |
| LOCTITE® Natural Blue® Biodegradable Cleaner & Degreaser | LOCTITE® SF 7840 B024OZEN | General purpose, environmentally friendly | 710 ml pump spray | 82249 | 235502 |
| LOCTITE® Nordbak® Brushable Ceramic | LOCTITE® PC 7228 KTIKGEN/CH | Smooth, corrosion-resistant coating | 0.9 kg kit white | 42372 | 1050263 |
| LOCTITE® Nordbak® Brushable Ceramic | LOCTITE® PC 7227 KT2KGEN | Smooth, corrosion-resistant coating | 0.9 kg kit grey | 42076 | 978758 |
| LOCTITE® Nordbak® Chemical Resistant Coating | LOCTITE® PC 7319 CHEM RESIS COAT | Protection against chemical attack | 5.44 kg kit | 209816 | 661982 |
| LOCTITE® Nordbak® High Temperature Brushable Ceramic | LOCTITE® PC 7335 KTIKGEN | Protection up to 550°F | 0.9 kg kit red | 42088 | 978760 |
| LOCTITE® Nordbak® Wearing Compound | LOCTITE® PC 7218 KT10KGEN/CH | Trowelable, large ceramic beads | 2.27 kg kit | 41782 | 912251 |
| LOCTITE® ODC-Free Cleaner & Degreaser | LOCTITE® SF 7070 CT473MLEN | General-purpose cleaner | 444 ml aerosol | 135310 | 661976 |
| LOCTITE® 248 Threadlocker Stick | LOCTITE® 248 ST19GAU | Semisolid, medium strength | 19 g | 933728 | 933728 |
| LOCTITE® 561 Pipe Sealant Stick with PTFE | LOCTITE® 561 ST19GAU | Semisolid, controlled strength | 19 g | 943428 | 943428 |
| LOCTITE® Silver Anti-Seize Stick | LOCTITE® LB 8060 ST20EN AU | Semisolid, general purpose | 20 g | 944870 | 944870 |
| LOCTITE® Silver Grade Anti-Seize | LOCTITE® LB 767 B0500GEN | General purpose, up to 1600°F | 454 g brush top | 76769 | 552091 |
| LOCTITE® Solvo-Rust Super Penetrating Oil | LOCTITE® LB 8713 368G | Frees rusted parts | 362 ml aerosol | 1865406 | 473164 |



Henkel Australia Pty Ltd

135-141 Canterbury Road
Kilsyth, Victoria 3137,
Australia

Tel: +61 3 9724 6444

Fax: +61 3 9761 4539

www.loctite.com.au

Henkel New Zealand Ltd

2 Allens Road, East Tamaki
PO Box 58 493, Greenmount 1730
Auckland, New Zealand

Tel: +64 9 272 6710

Fax: +64 9 272 6735

www.loctite.co.nz