Introduction

This guide has been designed to provide quick and easy assistance to the professionals who service industrial gearboxes and look for reliability, longevity and cost reduction. With the help of this guide, you can:

- Easily select the right Loctite® products to help you service the wide variety of gearbox assemblies
- Prevent wear proactively
- Pinpoint the most suitable solution for servicing worn parts

Loctite® products are used in gearbox manufacturing worldwide to enhance quality and extend end-product life. The same high quality Loctite® technologies and products are also available to the people who maintain, repair and service gearboxes. There is a comprehensive range of Loctite® products to:

- Repair and prevent gearbox failures – on site, to minimize downtime
- Reclaim worn or damaged assemblies to avoid scrap and replacement costs
- Assist in assembly, installation and disassembly
- Ensure reliability and smooth running by restoring performance to “as new” condition

THE INDUSTRIAL GEARBOX SERVICE MANUAL SOLVES REAL PROBLEMS
The applications described in the Industrial Gearbox Service Manual are based on a bevel helical gearbox configuration. They apply equally for helical gearboxes, worm gear units and geared motors. The Industrial Gearbox Service Manual is designed as a practical guide to provide information covering key gearbox assembly groups.

FEASIBILITY CONFIRMED
The recommendations given in this Industrial Gearbox Service Manual are based on collaboration with customers, institutes and universities to establish their validity and confirm that these methods are operable, practical and indeed the best solutions for servicing and repairing gearbox assemblies.

PROFIT FROM RELIABILITY
Henkel provides products for cost-efficient, easy and effective gearbox maintenance and repair. When gearboxes and ancillary equipment fails, the greatest concern is getting it running again, but spare parts may not always be readily available. Loctite® products not only provide reliable on-site repair capability, but emergency repair and service solutions that last or even extend the lifetime of equipment.

To speak with someone in our technical service department or to contact your local sales representative call 1-800-LOCTITE (562-8483) or 1-800-263-5043 in Canada.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>i</td>
</tr>
<tr>
<td>Gearbox Application Diagram</td>
<td>2</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td></td>
</tr>
<tr>
<td>Repair housings and covers: Damaged surfaces and porosities</td>
<td>4</td>
</tr>
<tr>
<td>Prevent bearing spin, corrosion and housing damage</td>
<td>5</td>
</tr>
<tr>
<td>Repair and rebuild worn bearing housing</td>
<td>6</td>
</tr>
<tr>
<td><strong>Housing and Cover Assembly</strong></td>
<td></td>
</tr>
<tr>
<td>Prevent gasket failure between the upper and lower housing of a split gearbox</td>
<td>8</td>
</tr>
<tr>
<td>Prevent loosening and corrosion of the cover fasteners</td>
<td>10</td>
</tr>
<tr>
<td><strong>Lubrication and Cooling System</strong></td>
<td></td>
</tr>
<tr>
<td>Prevent leaks from threaded fittings for the lubrication and cooling system</td>
<td>12</td>
</tr>
<tr>
<td><strong>Shaft Seals</strong></td>
<td></td>
</tr>
<tr>
<td>Prevent leaks between the gearbox housing and oil seal</td>
<td>14</td>
</tr>
<tr>
<td><strong>Shaft Mounted Components: Bearings</strong></td>
<td></td>
</tr>
<tr>
<td>Prevent bearing spin</td>
<td>16</td>
</tr>
<tr>
<td>Repair worn cylindrical shaft</td>
<td>18</td>
</tr>
<tr>
<td><strong>Shaft Mounted Components: Gear Sets</strong></td>
<td></td>
</tr>
<tr>
<td>Increase reliability and strength of a gear wheel mounted on a shaft</td>
<td>19</td>
</tr>
<tr>
<td>Prevent and repair keyway wear</td>
<td>20</td>
</tr>
<tr>
<td>Repair badly worn keyways</td>
<td>21</td>
</tr>
<tr>
<td>Repair worn shafts</td>
<td>22</td>
</tr>
<tr>
<td><strong>Couplings</strong></td>
<td></td>
</tr>
<tr>
<td>Protect the spline assembly to prevent unnecessary fretting</td>
<td>24</td>
</tr>
<tr>
<td>Repair spline backlash</td>
<td>25</td>
</tr>
<tr>
<td>Prevent couplings moving due to loose set screws</td>
<td>26</td>
</tr>
<tr>
<td>Increase the load capacity for flange couplings</td>
<td>27</td>
</tr>
<tr>
<td><strong>Mounting Gearbox to Motor</strong></td>
<td></td>
</tr>
<tr>
<td>Prevent loosening of gearbox and motor mounting bolts</td>
<td>28</td>
</tr>
<tr>
<td><strong>Gearbox Application Product Table</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>
Rebuild and repair the bearing housing seat with Loctite® Fixmaster® Superior Metal
See page 6

Remove baked-on gaskets with Loctite® Chisel® Gasket Remover. Clean and degrease surfaces with Loctite® ODC-Free Cleaner & Degreaser
See page 8

Prevent bearing spin and fretting with Loctite® 603™ or Loctite® 641™ Retaining Compound
See pages 5 and 16

Secure and prevent leakage between oil seal and housing with Loctite® QuickStix™ 248™ Threadlocker, Loctite® 480™ or Loctite® 435™ Instant Adhesive
See page 14

Prevent corrosion, seizure and bolt loosening with Loctite® 2440™ or Loctite® 248™ QuickStix™ Medium Strength Threadlocker
See page 10

Seal and lock fittings at any angle with Loctite® 567™ or Loctite® QuickStix™ 561™ Thread Sealants
See page 12

Seal rigid parts without gasket shimming using Loctite® 518™ Gasket Eliminator®
See page 8
Prevent mounting bolts from loosening or corroding with Loctite® 2760™ High Strength Threadlocker
See page 28

Prevent pinion and all other gear movement with Loctite® 620™ Retaining Compound
See page 19

Prevent keyway wear with Loctite® 2440™ Threadlocker or repair keyway wear with Loctite® 660™ Quick Metal® Retaining Compound
See page 20

Increase the torque capacity of the flange coupling with Loctite® 680™ Retaining Compound
See page 27

Repair housing cracks, porosities and defects with Loctite® Fixmaster® Steel Putty Metal-Filled Epoxy
See page 4

Make any size or shape gasket – for flexible covers and covers with large bolt spacing use Loctite® Instant Gasket; for rigid assemblies use Loctite® 518™ Gasket Eliminator® Flange Sealant
See page 8

Prevent corrosion and seizure of dowel pins with Loctite® Heavy Duty Anti-seize
See page 10
Challenge

- Repair housing and cover defects
- Seal oil leaks due to damaged housing

**CAUSE**
- Gearbox housings may be porous
- Service or repair work may cause damage to gearbox housings and covers

**Solution #1**
- Seal porosities (up to 0.05 mm) using Loctite® 290™ Threadlocker, medium strength wicking

**STEPS**
1. Thoroughly clean and dry the components with Loctite® ODC-Free Cleaner & Degreaser, ensuring the porosity is oil free.
2. Brush Loctite® 290™ Threadlocker into the porosities.
3. Allow to cure, typically for 3 hours.
4. Clean off excess product.

**Solution #2**
- Filling damaged areas with Loctite® Fixmaster® Steel Putty, metal-filled epoxy

**STEPS**
1. Thoroughly clean and dry the components with Loctite® ODC-Free Cleaner & Degreaser, ensuring the repair area is oil free.
2. Mix and apply Loctite® Fixmaster® Steel Putty onto the area to be repaired.
3. Allow to cure, typically for 12 hours to achieve functional strength.
4. Machine to original size if required.

**Results**
- Quick return to service
- Reduce scrap by salvaging and extending the life of gearbox housing and cover
Challenge

• Prevent bearing spin, corrosion and housing damage

CAUSE

• Bearing outer races are prone to spinning within their housings, resulting in damage to the housing (regardless of whether or not they have been pressed or shrink-fitted in place)
• The air space between a bearing and housing is an area susceptible to rust and fretting corrosion, thus causing damage to the parts

Solution

• Loctite® 641™ Retaining Compound is medium strength, allowing for easy disassembly during future overhauls
• Alternatively, use Loctite® 603™ Retaining Compound for a high strength joint

STEPS

1. Clean the mating surfaces with Loctite® ODC-Free Cleaner & Degreaser.  
   Note: Loctite® 603™ is oil tolerant and cleaning is less critical.
2. Apply a film of Loctite® Retaining Compound to the outside diameter of the bearing.
3. Assemble using normal techniques.
4. Functional cure in 6 hours at room temperature.

Results

• Bearing movement is eliminated
• Bearing can be easily removed with standard tools
• Corrosion is eliminated because the air space between the bearing and the housing is sealed
Challenge

- Repair and rebuild worn bearing housing

**CAUSE**

- Worn components lead to micro movement and additional wear
- Load produces axial forces that are higher than original calculations
- Spun bearing caused by seizure or inappropriate loads
**Solution**

- Rebuild worn housing surface with Loctite® Fixmaster® Superior Metal

**STEPS**

1. Machine the housing by undercutting in the bore by 1.5 mm in the worn area, leaving the surface rough.
2. Clean parts with Loctite® ODC-Free Cleaner and Degreaser.
3. Mix and apply a layer of Loctite® Fixmaster® Superior Metal and force it into the rough surface finish. Build the surface above the final desired level.
4. Allow the adhesive to cure for 12 hours at room temperature.
5. Machine the repair to the required dimensions (typically a press fit) using diamond cutting inserts.
6. Clean the rebuilt surface and the outer bearing ring with Loctite® ODC-Free Cleaner & Degreaser.
7. Retain the joint between the housing and the outer bearing race with Loctite® 2760™ Threadlocker.

**Results**

- Assembly is restored, unitized, and ready for service without a major overhaul
- Easy and fast repair method, compared to alternative repair methods
- Joint between housing and bearing outer race is strengthened by using Loctite® adhesive
Challenge

- Prevent gasket failure between the upper and lower housing of a split gearbox
- Prevent leaks between the inspection cover / bearing cover / input-output flange and housing
- Ensure close tolerance control of the assembly
- Sealing of damaged surfaces

CAUSE

- The use of cut gaskets is associated with several inherent problems, such as gasket relaxation, shrinkage, extrusion, and breakage that can lead to leaks

Solution #1

- Use Loctite® 518™ Flange Sealant
- Use Locite® Instant Gasket for flexible flanges such as inspection covers

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. Apply a continuous bead of Loctite® 518™ Flange Sealant or Locite® Instant Gasket. Circle bolt holes with sealant if appropriate.
4. Assemble parts and tighten as required.
5. Allow to cure.
Solution #2

- When the existing gasket needs to be used as a shim, use Loctite® QuickStix™ 534™ Hi-Tack Gasket Dressing

STEPS

1. Remove old gasket material with Loctite® Chisel® Gasket Remover.
2. Clean both flanges with Loctite® ODC-Free Cleaner & Degreaser.
3. Coat flange face on both sides (cover and housing) with Loctite® QuickStix™ 534™ Hi-Tack Gasket Dressing.
4. Position the pre-cut gasket.
5. Assemble and tighten as required.

Note: Accurate repositioning, component assembly, and tightening should be handled in a continuous workflow without interruptions.

Results

- Elimination of common cut gasket failures such as compression set, shrinkage, relaxation, and breaks
- Constant clamp load is ensured
- Elimination of oil leaks between the bearing frame and frame adapter, along with associated cleanup costs and hazards
- Reduced oil consumption and risk of running low on oil
- Eliminate corrosion on the flange surface
- Ensures all potential leak paths are filled and sealed
Challenge

- Prevent loosening and corrosion of the housing and cover fasteners to ensure gasket reliability
- Prevent corrosion and seizure of split gearbox alignment pins

CAUSE

- Cover fasteners that are rusted and seized make gearbox maintenance difficult and create additional labor associated with drilling and tapping the fastener hole
- Fasteners can work loose when subjected to torque, vibration, thermal expansion and shock loads
- Once the fasteners become loose, the preload for the gasket will be lost and the gasket will fail
- Dowel pins can rust and seize into component, making disassembly very difficult
Housing and Cover Assembly

Solution

- Apply Loctite® 243™ or QuickStix™ 248™ Medium Strength Threadlocker to the housing fasteners
- Use Loctite® 2760™ Threadlocker for high strength or on stainless steel and plated fasteners
- If locking of the fasteners is not required, use Loctite® Heavy Duty Anti-Seize

STEPS

1. Clean the threads and pins with Loctite® ODC-Free Cleaner and Degreaser.
2. Apply Loctite® 243™ or 248™ Medium Strength Threadlocker to the housing fasteners. Apply Loctite® 2760™ High Strength Threadlocker if stainless steel or plated fasteners are in use.
3. Apply Loctite® Heavy Duty Anti-Seize onto the dowel pin. **Note:** If a liquid gasket is in use, ensure only a very thin layer of Loctite® Heavy Duty Anti-Seize is applied.
4. Assemble and tighten.

Results

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

- Prevent leaks from threaded fittings of lubrication and cooling systems

Lubrication System

Prevent oil leaks on oil drain plug, oil inlet, housing ventilation, oil pump, oil filter and gauge

Cooling System

Prevent leakage on the coolant pump, pressure and temperature control unit, and all pipe work

CAUSE

- Traditional thread sealants are susceptible to leaks
- Pressure and temperature changes within a gearbox system can aggrevate any leak
- Vibration between the gearbox and lubrication / cooling system leads to stress on the pipe work
Solution

- Seal threaded assemblies with Loctite® 567™ PST® or QuickStix™ 561™ PST® Thread Sealants

STEPS

1. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply a bead of Loctite® Thread Sealant to the leading threads of the male fitting.
3. Assemble parts and allow to cure.

Results

- Less oil consumption, thereby reducing the risk of the gearbox running low on lubricant
- When cured, Loctite® Thread Sealants are resistant to oil and water/glycol and ensure zero leakage
- Thread sealants prevent fittings from loosening, yet allow easy disassembly with normal hand tools
- 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
- Reduced coolant consumption
Challenge

- Prevent leaks between the gearbox housing and oil seal
- Prevent movement of oil seal in housing

CAUSE

- As with any press fit, there are small air spaces between the housing and the oil seal; and this air space can create a leak path
- In the case of a split gearbox housing, T-joints are potential leakage points

Solution #1

For elastomer oil seals:

- Fill the air spaces by applying Loctite® 435™ Prism® Instant Adhesive to the outside diameter of the oil seal
- For longer positioning time and oil seal diameter larger than 60 mm, use Loctite® 480™ Prism Instant Adhesive
- In the case of a cassette seal, also bond the inside diameter to the shaft using Loctite® 435™ Prism® Instant Adhesive
Shaft Seals

Solution #2
For metallic oil seals:
- Fill the air spaces by applying Loctite® 243™ or QuickStix™ 248™ Medium Strength Threadlocker to the outside diameter of the oil seal.

STEPS
1. Clean the bonding surfaces of the oil seal and the gearbox with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply the adhesive recommended for the different kinds of oil seals to the outside diameter of the oil seal. **Note:** In the case of a cassette seal, apply adhesive onto the cleaned shaft as well.
3. Press the oil seal into position using normal techniques and wipe off any excess.

Results
- A sealed assembly eliminates leaks, contamination and corrosion
- Movement of oil seal during running is eliminated
- The oil seal can still be easily removed with a screwdriver during the next overhaul
Challenge

- Prevent bearing spin
- Prevent downtime and scrap costs

**CAUSE**

- Bearings are prone to spinning on their shaft; this results in damage
- Load produces axial forces that are higher than original calculations

**Solution #1**

For gaps up to 0.005" (0.1 mm):

- Retain joint using Loctite® 603™ (oil tolerant, high strength) or Loctite® 641™ (medium strength, easy to dismantle) Retaining Compound

**STEPS**

1. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply a bead of Loctite® 603™ or Loctite® 641™ to the circumference of the shaft.
3. Mount the bearing onto the shaft using normal techniques.
4. Wipe off excess material.
Solution #2

For gaps up to 0.020" (0.5 mm):
- Bond using Loctite® 660™ Quick Metal® Retaining Compound and Loctite® 7649™ Primer N™

**STEPS**
1. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply Loctite® 7649™ Primer N™ to the inner bearing race.
3. Apply a bead of Loctite® 660™ Quick Metal® to the circumference of the shaft.
4. Assemble the components.
5. Wipe off excess.

**Results**
- Cylindrical joint is strengthened by using a Loctite® Retaining Compound
- Shaft is repaired to provide full surface contact
- Quick return to service
- Extended shaft life
- Reduce component consumption
Shaft Mounted Components: Bearings

**Challenge**

- Repair worn cylindrical shafts or gaps exceeding 0.020" (0.5 mm)

**CAUSE**

- Spun bearing caused by insufficient interference or inappropriate loads

**Solution**

- Rebuild with Loctite® Fixmaster® Superior Metal to the original diameter and bond the bearing onto the rebuilt shaft with Loctite® 603™ Retaining Compound

**STEPS**

1. Using a lathe, undercut the shaft in the worn area 1.5 mm deep.
2. Dovetail the ends of the worn area to lock the application into place and leave a rough surface.
3. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
4. Apply a layer of Loctite® Fixmaster® Superior Metal, and build the surface above the final desired level.
5. Allow the adhesive to cure for 6 hours at room temperature.
6. Machine the repair with a diamond-tipped tool to the required dimensions.
7. Apply Loctite® 7649™ Primer N™ to the rebuilt area of the shaft.
8. Apply Loctite® 603™ to the inner bearing race.

**Results**

- Cylindrical joint is strengthened by using a Loctite® Retaining Compound
- Shaft is repaired to provide full surface contact
- Quick return to service
- Extended shaft life
- Reduce component consumption
Shaft Mounted Components: Gear Sets

Challenge

• Increase reliability and strength of a gear mounted on a shaft

CAUSE

• Incorrect reassembly during maintenance, leading to micro movements
• Overload conditions and elevated operating temperatures

Solution

• Bond gear wheels directly onto the shaft with Loctite® 620™ High Strength Retaining Compound

STEPS

1. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply a bead of Loctite® 620™ to the circumference of the shaft.
3. Press the gear onto the shaft using normal techniques.
4. Wipe off excess material.

Results

• Assembly is strengthened by using a Loctite® Retaining Compound
Challenge

- Secure the key in the keyway on new equipment
- Prevent micro movements that lead to wear
- Repair worn keyways

CAUSE

- Alternating loads and combined loading result in micro movement wear and loose parts
- Over time, wear can cause keys to loosen – leading to damage of the keyway

Solution #1

New components:

- Proactively apply a Loctite® Medium Strength Threadlocker to eliminate any future wear of the key or keyway

STEPS

1. Clean the keyway and key stock with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply several drops of Loctite® 2440™ 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.

Solution #2

Slightly worn keyways:

- Loctite® 660™ Quick Metal® 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™ Quick Metal® 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™ Quick Metal® Retaining Compound.

Results

- Eliminate micro movement, which leads to fretting
- Prevent keyway wallow
- Prevent corrosion
- A unitized assembly
Shaft Mounted Components: Gear Sets

Challenge

• Repair badly worn keyways

CAUSE

• Alternating loads and combined loading results in micro movement wear and loose parts
• Over time, wear can cause keys to loosen – leading to damage of the keyway

Solution

New keyway in existing shaft and gear:

• If parts are badly worn it may be necessary to cut new keyways; in this case the old keyway should be filled with metal-filled epoxy

STEPS

1. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
2. Mix and apply Loctite® Fixmaster® Superior Metal into the keyway of both the shaft and gear.
3. Allow to cure.
4. Machine the cured adhesive to the original dimensions of the shaft and bore of the gear.
5. Machine a new keyway in the shaft and gear, opposite the original keyway.
6. Clean again with Loctite® ODC-Free Cleaner & Degreaser.
7. Apply several drops of Loctite® 2440™ Threadlocker directly into new keyway and insert key.
8. Wipe off excess.
9. Assemble the components.
10. Allow to cure.

Results

• The assembly is restored and ready for service without a major overhaul
• The key is secured into the keyway
Challenge

• Repair worn shafts

CAUSE
• Incorrect reassembly during maintenance leading to micro movements
• Overload conditions and elevated operating temperatures

Solution #1

• Bonding a sleeve on the worn shaft with Loctite® 620™ Retaining Compound

STEPS
1. Determine an appropriate size of sleeve and machine the shaft to match.
2. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
3. Apply a bead of Loctite® 620™ to the circumference of the shaft.
4. Assemble sleeve onto the shaft.
5. Wipe off excess.
6. Apply the same product between the sleeve and the gear wheel.
Shaft Mounted Components: Gear Sets

Solution #2

- Rebuilding the worn shaft with Loctite® Fixmaster® Superior Metal and bonding the gear wheel onto the shaft with Loctite® 603™ Retaining Compound

STEPS

1. Using a lathe, undercut the shaft in the worn area 1.5 mm deep and leave a rough surface over the entire machined surface.
2. Dovetail the ends of the worn area to lock the application into place.
3. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
4. Apply a layer of Loctite® Fixmaster® Superior Metal, building the surface above the final desired level.
5. Allow the adhesive to cure for 12 hours at room temperature.
6. Machine the repair with a diamond-tipped tool to the original dimensions.
7. Apply Loctite® 603™ Retaining Compound to the components.
8. Assemble using normal procedures.

Results

- Assembly is strengthened by using a Loctite® Retaining Compound
- Assembly is restored and ready for service without a major overhaul
Challenge

- Protecting the spline assembly to prevent unnecessary fretting

CAUSE

- Wear will occur where there is friction and movement in the spline

Solution

- Use Loctite® Moly Paste proactively to reduce friction and wear

STEPS

1. Clean mating surface with Loctite® ODC-Free Cleaner & Degreaser.
2. Coat mating surface with Loctite® Moly Paste.
3. Assemble parts.

Results

- Prevention of wear caused by friction
- Prevention of corrosion
- Loctite® Moly Paste provides very high lubricity and heavy load capacity
**Challenge**

- Repair splines damaged by backlash
- Stop spline wear and failure
- Salvage worn components

**CAUSE**

- Alternating loads and combined loading can cause micro movement
- Incorrectly specified spline drive, producing overload during operation

**Solution**

- For repair of a non-sliding spline with backlash

**STEPS**

1. If possible, abrasive blast the surface of the spline shaft and socket.
2. Clean parts with Loctite® ODC-Free Cleaner & Degreaser.
3. Check the spline area for uniformity.
4. Apply Loctite® Fixmaster® Superior Metal to the spline shaft and disperse the product uniformly over the spline circumference.
   **Note:** For wear between socket and shaft below 0.25 mm, use Loctite® 660™ Retaining Compound in combination with Loctite® 7649™ Primer N™.
5. Immediately push the spline shaft into the socket and remove excess adhesive.
6. Allow the adhesive to cure before putting the equipment back into service.

**Results**

- Assembly is restored and ready for service without a major overhaul
Challenge

- Prevent couplings from moving due to loose setscrews
- Ensure optimum assembly life in on-site conditions

CAUSE

- Couplings are commonly held in place by a key and a setscrew
- Coupling assemblies are subjected to vibration and high loads, which can cause threaded fasteners to loosen
- Typically, couplings are assembled on site; for this reason it is difficult to ensure that tightening specifications are followed

Solution

- Secure all threaded fasteners on couplings using Loctite® 243™ or QuickStix™ 248™ Medium Strength Threadlocker

STEPS

1. Clean the components with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply Loctite® 243™ or QuickStix™ 248™ Medium Strength Threadlocker to all threaded fasteners.
3. Align the coupling and assemble.
4. Tighten each fastener within 5 minutes of assembly.

Results

- All fasteners are secured in place
- Prevention of misalignment and coupling failure
**Challenge**

- Upgrade the load capacity of existing flange drive couplings
- Reuse worn flange couplings

**CAUSE**

- The transmittable torque of a flange drive coupling is limited by the friction of the surfaces
- Overloading causes slippage and wear of the coupling surface

**Solution**

- Use Loctite® 680™ High Strength Retaining Compound on the flange face to increase the torque capacity
- Increase torque capacity without any mechanical changes

**STEPS**

1. Clean the surfaces with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply a thin film of Loctite® 680™ High Strength Retaining Compound on the entire surface of the coupling flange.
3. Once you start to assemble, torque bolts within 10 minutes.
4. Allow to cure before applying full load.

**Results**

- Improved torque capacity without mechanical changes
-Eliminates micro movement and loss of joint tension
- Eliminates corrosion
**Challenge**

- Secure motor and gearbox to the bedplate system
- Prevent misalignment caused by loosening under high loads and vibration

**CAUSE**

- Vibration and shock load can loosen fasteners and mounting bolts
- Loose bolts result in movement, which in turn causes misalignment

**Solution #1**

- Apply Loctite® 2760™ High Strength Threadlocker to the mounting bolts

**STEPS**

1. Clean threads with Loctite® ODC-Free Cleaner & Degreaser.
2. Apply several drops of Loctite® 2760™ High Strength Threadlocker to the mounting bolts.
3. Assemble and tighten as usual.
Mounting Gearbox to Motor

Solution #2

- Apply Loctite® 290™ Wicking Grade Threadlocker to the mounting bolts after the gearbox has been leveled and aligned.

STEPS

1. Clean the parts with Loctite® ODC-Free Cleaner & Degreaser.
2. Align the gearbox.
3. Tighten the nuts on the mounting studs.
4. Apply several drops of Loctite® 290™ Wicking Grade Threadlocker to the mounting bolts.

Results

- Mounting bolts and fasteners are secured in place
- Eliminate vibration loosening
- Eliminate bolt corrosion
- Prevent misalignment
<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>LOCTITE® SOLUTION</th>
<th>BENEFITS</th>
<th>PACKAGE SIZE</th>
<th>PART NO.</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defects and porosities</td>
<td>Loctite® Fixmaster® Steel Putty</td>
<td>Steel-filled repair epoxy</td>
<td>1 lb. kit</td>
<td>99913</td>
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<td>Loctite® 290™ Threadlocker</td>
<td>Wicking for post-assembly</td>
<td>50 ml</td>
<td>29031</td>
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<tr>
<td>Prevent bearing spin</td>
<td>Loctite® 603™ Retaining Compound</td>
<td>High strength, oil tolerant</td>
<td>50 ml</td>
<td>21441</td>
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<td>Loctite® 640™ Retaining Compound</td>
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<td>Loctite® 641™ Retaining Compound</td>
<td>Medium strength</td>
<td>50 ml</td>
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<tr>
<td>Repair and rebuild worn bearing housing</td>
<td>Loctite® Fixmaster® Superior Metal</td>
<td>Ferro-silicone-based epoxy, with outstanding compressive strength</td>
<td>1 lb. kit</td>
<td>97473</td>
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<tr>
<td></td>
<td>Loctite® 2760™ Threadlocker</td>
<td>High strength, primerless</td>
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<tr>
<td>Housing and Cover Assembly</td>
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<tr>
<td>Prevent gasket failure between upper and lower housing (split gearbox), prevent leaks</td>
<td>Loctite® 518™ Gasket Eliminator®</td>
<td>General purpose, up to 0.25 mm gap fill</td>
<td>300 ml kit</td>
<td>22424</td>
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<td>Loctite® QuickStix™ 534™ Hi-Tack Gasket Dressing</td>
<td>Increase the reliability of cut gasket seals</td>
<td>19 g stick</td>
<td>39156</td>
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<tr>
<td>Removal of cured chemical gasket</td>
<td>Loctite® Chisel® Gasket Remover</td>
<td>Aggressive gasket remover</td>
<td>18 oz.</td>
<td>79040</td>
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<td>Housing and cover fasteners, alignment pins</td>
<td>Loctite® 243™ Threadlocker</td>
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<tr>
<td></td>
<td>Loctite® QuickStix™ 248™ Medium Strength Threadlocker</td>
<td>Semisolid stick, medium strength</td>
<td>19 g stick</td>
<td>37087</td>
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<td>Loctite® 2760™ Threadlocker</td>
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<td>50 ml</td>
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<td>Loctite® Heavy Duty Anti-Seize</td>
<td>Metal-free, high lubricity</td>
<td>1.2 lb.</td>
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<td>Lubrication and Cooling System</td>
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<td>Threaded fittings for lubrication and cooling system</td>
<td>Loctite® 567™ PST® Thread Sealant</td>
<td>General purpose</td>
<td>50 ml</td>
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<td>Loctite® QuickStix™ 561™ PST® Thread Sealant</td>
<td>Semisolid stick, controlled strength</td>
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<td>Shaft Seals</td>
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<td>Prevent leaks between oil seal and housing</td>
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<td>Loctite® 435™ Prism® Instant Adhesive</td>
<td>Transparent, toughened, fast cure</td>
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<td>Loctite® 243™ Medium Strength Threadlocker</td>
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# Gearbox Application Product Table

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>LOCTITE® SOLUTION</th>
<th>BENEFITS</th>
<th>PACKAGE</th>
<th>PART NO.</th>
<th>PAGE</th>
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<tbody>
<tr>
<td><strong>Shaft Mounted Component: Bearings</strong></td>
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<td>Loctite® 660™ Quick Metal® Retaining Compound</td>
<td>High strength, gap filling up to 0.020&quot;</td>
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<tr>
<td>Repair worn shafts</td>
<td>Loctite® Fixmaster® Superior Metal</td>
<td>Ferro-silicone-based epoxy, with</td>
<td>1 lb. kit</td>
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<td>Loctite® 603™ Retaining Compound</td>
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<td><strong>Shaft Mounted Component: Gear Sets</strong></td>
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<td>Gear mounted on a shaft</td>
<td>Loctite® 620™ Retaining Compound</td>
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<tr>
<td>Secure keys and repair</td>
<td>Loctite® 2440™ Threadlocker</td>
<td>Medium strength, primerless</td>
<td>50 ml</td>
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<td>slightly worn keyways</td>
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<td>Repair worn shafts</td>
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<td><strong>Couplings</strong></td>
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<td>Protecting the spline assembly</td>
<td>Loctite® Moly Paste</td>
<td>High lubricity, heavy load capacity</td>
<td>1 lb.</td>
<td>51049</td>
<td>24</td>
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<td></td>
<td>moly paste, brush top</td>
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<td>Repair spline</td>
<td>Loctite® 660™ Quick Metal® Retaining Compound</td>
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<tr>
<td></td>
<td>Retaining Compound</td>
<td>outstanding compressive strength</td>
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<td></td>
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<tr>
<td>Prevent coupling movement: Setscrews</td>
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<td>Loctite® QuickStix™ 248™ Medium Strength Threadlocker</td>
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<td>Upgrade load capacity, reuse worn</td>
<td>Loctite® 680™ Retaining Compound</td>
<td>High strength</td>
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<td>flange couplings</td>
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<td><strong>Mounting Gearbox to Motor</strong></td>
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<td>Mounting fasteners</td>
<td>Loctite® 290™ Threadlocker</td>
<td>Wicking for post-assembly</td>
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<td>Loctite® 2760™ Threadlocker</td>
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</table>
# Gearbox Application Product Table

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>LOCTITE® SOLUTION</th>
<th>BENEFITS</th>
<th>PACKAGE SIZE</th>
<th>PART NO.</th>
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<tbody>
<tr>
<td><strong>Maintenance – Lubrication</strong></td>
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<tr>
<td>To free rusted, corroded and seized parts during dismantling</td>
<td>Loctite® Freeze &amp; Release</td>
<td>Freezing action plus penetrating oil</td>
<td>13.52 fl. oz aerosol</td>
<td>996456</td>
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</table>
| Assembly aid for all assembly works | Loctite® ViperLube® High Performance Synthetic Grease  
Loctite® Moly Paste | High performance grease  
High lubricity, heavy load capacity moly paste, brush top | 14 oz. cartridge  
1 lb. | 36782  
51049 |
| Protection for fasteners and alignment pins | Loctite® C5-A® Copper Anti-Seize  
Loctite® Silver Grade Anti-Seize  
Loctite® Heavy Duty Anti-Seize | Copper-based, general purpose use up to 1800°F  
General purpose for use up to 1600°F  
Metal-free anti-seize for use up to 2400°F | 20 g stick  
20 g stick  
20 g stick | 37229  
37230  
41205 |
| **Maintenance – Cleaners** | | | | |
| General cleaning of external surfaces | Loctite® Natural Blue® Biodegradable Cleaner & Degreaser | Large parts cleaner, water-based | 24 fl. oz. | 82249 |
| Cleaning and degreasing of machined parts | Loctite® Pro Strength Degreaser | Solvent cleaner | 15 oz. aerosol | 30521 |
| Cleaning and degreasing of surfaces prior to bonding | Loctite® ODC-Free Cleaner & Degreaser | General parts cleaner prior to bonding, solvent-based | 15 oz. aerosol  
16 fl. oz. pump spray  
1 gallon | 22355  
20162  
20260 |
| **Surface Protection** | | | | |
| Rust treatment | Loctite® Extend® Rust Treatment | Rust treatment coating | 10.25 oz. aerosol | 30539 |
| Corrosion protection | Loctite® Maxi-Coat™ | Long-term corrosion protection | 12 oz. aerosol | 51211 |
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