Maintenance - Standard Units

Your Grove Gear reducer has been tested and adjusted at the factory. Dismantling or replacement of components must be done by Grove Gear to maintain the warranty.

Frequently check the oil level of the reducer. If oil level is low, refer to reducer vent and level position chart and add proper lubrication through the filler plug and oil level plug.

Inspect vent plug often to ensure it is clean and operating.

Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

Seals: The Grove Gear line of speed reducers utilize premium quality seals which are the state-of-the-art in sealing technology. Seals are, however, a wear item and eventually need to be replaced. Replacement can be readily accomplished by following the steps below:

1. Remove the worn seal without damaging the shaft surface or the seal bore. This can be done by drilling a .062 diameter hole in the seal casing (being careful not to drill into the bearing behind the seal). Screw a #10 sheet metal screw into the hole and pry out the seal.
2. Clean the seal bore of sealant.
3. Before installing the new seal, use electrical tape to cover any keyways on the shaft to prevent seal lip damage.
4. Grease the seal lips with bearing grease and apply a sealant to the seal bore.
5. Slide the seal into the shaft being careful not to fold the inner lip over on any shaft steps.
6. Press the seal into its bore with a sleeve that presses on the seal casing, being careful to keep the seal square in its bore.

CAUTION

Inspect the stem of the pressure compensating system often to ensure it is clean and operating properly.

Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

Class of Service

All capacity ratings are based on American Gear Manufacturers Association (AGMA) Standards. Load conditions must be within cataloged ratings published in the current Grove Gear Catalog (available upon request).

Parts List

Units with an internal pressure compensation system
**General Operation**

1. Use the motor which drives the reducer and check the direction of reducer output rotation. Consult motor nameplate for specification of how to reverse the direction of rotation.

2. Mount the unit to a rigid flat surface using grade 5 or higher fasteners. The mounting fasteners should be the largest standard size associated with the driven mechanism. Any brakes that are used in conjunction with a reducer must be sized or positioned in such a way as to not subject the reducer to load beyond the catalog rating.

3. For lubrication of worm reducers (secondaries of helical worm reducers), contact factory.

4. Connect motor to speed reducer.

5. Check to make certain application does not exceed the allowable load capacities published in the current catalog.

6. Important Information: In the event of the needs of the goods, in whatever form, Reader/Buyer will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sales:

   - For lubrication of worm reducers (secondaries of helical worm reducers), contact factory.

   - Do not mix different oils in the reducer. Grove Gear reducers are shipped standard with PAG oil – this lubricant is not compatible with conventional mineral or PAO synthetic oils. Do not overfill. Oil should rise to bottom edge of level hole. Always check for proper oil level after filling. Capacities vary somewhat with model and mounting position.

   - Change intervals: Standard compounded lubricants (non-synthetic) should be changed every six months or 2500 operating hours, whichever comes first. In the Food and Drug Industry (including animal food), consult the lubrication supplier for recommendation of lubricant. In these applications, PAG oil is acceptable for incidental food contact (NSF H1) for use in and around food processing areas.

   - Test run unit to verify operation. If the test run is not carried out on a prototype, that unit must be of current production configuration.

   - Check to make certain application does not exceed the allowable load capacities published in the current catalog.

   - The system of connected rotating parts must be free from initial torsional or other type vibration, or the reducer may not function properly. The responsibility for this output condition lies with the purchaser of the reducer.

   - All standard reducers are ordered from the factory and filled with Mobil Glygoyl Polyglycol (PAG) lubricant to operate within a -10° to 170° F ambient temperature range. Prior to shipping, each reducer is drained and recharged with oil. The change intervals: Standard compounded lubricants (non-synthetic) should be changed every six months or 2000 operating hours, whichever comes first. Factory installed synthetic lubricants should be changed only when performing maintenance that requires grease chute disassembly.

   - If a unit cannot be used as an integral part of a machine superstructure which would impose additional vibration, no matter how induced. The responsibility for this system analysis lies with the purchaser of the reducer.

   - The precision-made gears and bearings in Grove Gear Speed Reducers require high-grade lubricants of the proper viscosity to maintain proper lubrication and prevent pint损失. In the Food and Drug Industry (including animal food), consult the lubrication supplier for recommendation of lubricant. In these applications, PAG oil is acceptable for incidental food contact (NSF H1) for use in and around food processing areas.

   - Stand clear, and start machine slowly to be sure all components are secure and operating properly.

   - Special consideration should be given to high inertia loads connected to the reducer. Consult the factory for further details.

   - Do not operate the reducer without making sure it contains the correct amount of oil. Do not overhaul, underfill, or overfill reducer, or injure personnel, reducer or other equipment may result. Units with an internal pressure compensation system do not use vents. The PAG oil is lubricated and sealed for life, so in most applications it will not be necessary to change the oil.

   - A unit cannot be used as a part of a machine superstructure which would impose additional vibration, no matter how induced. The precision-made gears and bearings in Grove Gear Speed Reducers require high-grade lubricants of the proper viscosity to maintain proper lubrication and prevent pint loss. In the Food and Drug Industry (including animal food), consult the lubrication supplier for recommendation of lubricant. In these applications, PAG oil is acceptable for incidental food contact (NSF H1) for use in and around food processing areas.

   - All reducers are shipped with the speed reducer and associated attachment. In other than shafts, bearings, or gears.

   - Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to shafts, bearings, or gears.

   - Always check for proper oil level after filling. Capacities vary somewhat with model and mounting position.

   - In the event of the needs of the goods, in whatever form, Reader/Buyer will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sales:

   - The reducer is designed and built to meet the requirements of the buyer for the purpose expressed, and in no event will the manufacturer be liable for consequential or other damages. Even if the units are purchased in accordance with specifications or directions furnished, the manufacturer shall not be liable for consequential loss or damage to anyone for any reason whatsoever arising out of the operation of same, or in the event of breakage or failure of the reducer through no fault of the manufacturer.

   - The reducer is designed and built to meet the requirements of the buyer for the purpose expressed, and in no event will the manufacturer be liable for consequential or other damages. Even if the units are purchased in accordance with specifications or directions furnished, the manufacturer shall not be liable for consequential loss or damage to anyone for any reason whatsoever arising out of the operation of same, or in the event of breakage or failure of the reducer through no fault of the manufacturer.

   - Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to shafts, bearings, or gears.

   - Always check for proper oil level after filling. Capacities vary somewhat with model and mounting position.

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   - Always check for proper oil level after filling. Capacities vary somewhat with model and mounting position.
In the event of the resale of any of the goods, in whatever form, Resellers/Buyers will include the following language in a conspicuous manner in writing to instruct users on the safe usage of the product.

Resellers/Buyers agree to also include this entire document including the warnings above in a conspicuous place and in a manner that will ensure that it is brought to the attention of the end user. Failure to do so may result in liability and/or damage to equipment.

The system of connected rotating parts must be free from initial torsional or other type vibration, no matter how induced. The responsibility for the final output speed lies with the purchaser of the speed reducer.

Installation

1. Mount the unit to a flat surface using grade 5 or higher fasteners. The mounting surface should be of sufficient size to support the total unit weight. Adequate provision must be made to prevent movement of the unit in service.

2. Attaching the load: On direct coupled installations, check mounting alignment between speed reducer and loading apparatus mounted on the unit. The user is responsible for checking all applicable safety codes in his area and providing suitable guards. Failure to do so may result in liability and/or damage to equipment.

3. Special consideration should be given to high inertia loads connected to the output shaft. Consult the manufacturer for further details.

4. Do not change mounting positions without contacting the factory for further details.

Maintenance

1. For shipment of standard units, pipe plugs are installed in the unit and a vent plug is packed separately. After mounting the unit in position, remove the appropriate plug and fill the unit. Special consideration should be given to high inertia loads connected to the output shaft. Consult the factory for further details.

Safety Alert

CAUTION

For safe operation and to maintain the unit warranty, when changing a factory installed fastener for any reason, it becomes the responsibility of the person making the change to properly account for fastener loading and to verify that the system of connected rotating parts will be free from initial torsional or other type vibration, no matter how induced. The responsibility for this system analysis lies with the purchaser of the speed reducer.

For safe operation and to maintain the unit warranty, when changing a factory installed fastener for any reason, it becomes the responsibility of the person making the change to properly account for fastener loading and to verify that the system of connected rotating parts will be free from initial torsional or other type vibration, no matter how induced. The responsibility for this system analysis lies with the purchaser of the speed reducer.

WARNING

A unit cannot be used as an integral part of a machine superstructure which would impose additional loads on the unit other than those imposed by the torque being transmitted either through a shaft-transmission or gear coupling.

Do not use different fasteners and lubricants for reducer components with the optional internal pressure compensating system as it will result in impeded oil circulation and system failure. Units with an internal pressure compensating system do not use vents. See internal pressure compensating section under lubrication for further information.

The system of connected rotating parts must be free from initial torsional or other type vibration, no matter how induced. The responsibility for the final output speed lies with the purchaser of the speed reducer.

Change Intervals:

Standard compounded lubricants (non-synthetic) should be changed every six months or 2500 operating hours, whichever comes first. Factory installed synthetic lubricants should be changed only when performing maintenance that requires gearbox disassembly or when the oil must be changed. The precision-made gears and bearings in Grove Gear Speed Reducers require high-grade lubricants of the proper viscosity to maintain trouble-free performance.

Phone: (262) 878-1221 Fax: (262) 878-1968

TX3 (Cast Iron) 1 PINT 45 LBS

TX 3/4 PINT 11 LBS

ctor!!

For safe operation and to maintain the unit warranty, when changing a factory installed fastener for any reason, it becomes the responsibility of the person making the change to properly account for fastener loading and to verify that the system of connected rotating parts will be free from initial torsional or other type vibration, no matter how induced. The responsibility for this system analysis lies with the purchaser of the speed reducer.

Do not change mounting positions without contacting the factory for further details.

Make sure that all fast and other components are in standard positions. Units with an internal pressure compensating system do not use vents. See internal pressure compensating section under lubrication for further information.

Maintenance

1. Run the motor which drives the reducer and check the direction of reducer output rotation. Consult motor nameplate for motor rpm and speed reducer input rpm. Adjustment is required if necessary to assure that the speed reducer is mounted in the correct position. Change intervals:

2. For safe operation and to maintain the unit warranty, when changing a factory installed fastener for any reason, it becomes the responsibility of the person making the change to properly account for fastener loading and to verify that the system of connected rotating parts will be free from initial torsional or other type vibration, no matter how induced. The responsibility for this system analysis lies with the purchaser of the speed reducer.

3. Overhung loads subject shaft bearings and shafts to stress which may cause premature bearing failure and/or shaft breakage from bending fatigue, if not sized properly.

For safe operation and to maintain the unit warranty, when changing a factory installed fastener for any reason, it becomes the responsibility of the person making the change to properly account for fastener loading and to verify that the system of connected rotating parts will be free from initial torsional or other type vibration, no matter how induced. The responsibility for this system analysis lies with the purchaser of the speed reducer.

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**Warning**

For safety, purchaser or user should provide protective shields over all shaft extensions and any moving members. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to the system of connected rotating parts. The responsibility for this system analysis lies with the purchaser of the machine superstructure, and any shaft mounted power transmitting device. It is permissible to drain or re-fill the unit.

A unit cannot be used as an integral part of a machine superstructure which would impose additional loads on the unit other than those imposed by the torque being transmitted either through a shaft-mounted arrangement, and any shaft mounted power transmitting device.

Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

Lubrication for further information.

Lubrication

For lubrication of worm reducers (secondaries of helical worm reducers), contact factory.

Change Intervals:

Standard compounded lubricants (non-synthetic) should be changed every six months or 2500 operating hours, whichever comes first. Factory installed synthetic lubricants should be changed only when performing maintenance that requires gearbox disassembly. The system of connected rotating parts must be free from excessive internal, excessive or other type vibration, no matter how induced. The responsibility for the final output speed lies with the buyer of the speed reducer.

The system of connected rotating parts must be free from excessive internal, excessive or other type vibration, no matter how induced. The responsibility for the final output speed lies with the buyer of the speed reducer.

Installation

1. Mount the unit to a flat surface using grade 5 or higher fasteners. The mounting fasteners should be the largest standard size that will fit in the base mounting holes. Use only grade 5 or higher nuts and bolts or Phillips screws or other fasteners that will keep the reducer in place. Do not over-tighten fasteners. Three conditions are not covered by warranty. Check for correct oil level. Contact the factory for level and vent recommendations on non-standard mounting positions.

2. Check to verify that the overhung load does not exceed specifications published in the catalog. These conditions are not covered by warranty. Check for correct oil level. Contact the factory for level and vent recommendations on non-standard mounting positions.

3. Run the motor which drives the reducer and check the direction of reducer output rotation. Consult motor nameplate for further information.

4. Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation. Before and after adjustment, to detect any misalignment problems.

5. Any brakes that are used in conjunction with a reducer must be sized or positioned in such a way as to not subject the reducer to load beyond the catalog rating.

6. Special consideration should be given to be sure that the final output speed lies with the buyer of the speed reducer.

Test run unit to verify operation. If the test results in a prototype, that unit must be of current production.

1. Run the motor which drives the reducer and check the direction of reducer output rotation. Consult motor nameplate for further information.

2. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

3. Always check for proper oil level after filling. Capacities vary somewhat with model and mounting position.

4. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to the system of connected rotating parts. The responsibility for this system analysis lies with the purchaser of the machine superstructure, and any shaft mounted power transmitting device. It is permissible to drain or re-fill the unit.

5. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

6. Laminated iron and reducers can cause severe burns. Use extreme care when removing lubrication plugs and vents.

7. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

8. Test run unit to verify operation. If the test results in a prototype, that unit must be of current production.

9. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

10. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to the system of connected rotating parts. The responsibility for this system analysis lies with the purchaser of the machine superstructure, and any shaft mounted power transmitting device. It is permissible to drain or re-fill the unit.

11. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

12. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to the system of connected rotating parts. The responsibility for this system analysis lies with the purchaser of the machine superstructure, and any shaft mounted power transmitting device. It is permissible to drain or re-fill the unit.

13. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

14. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to the system of connected rotating parts. The responsibility for this system analysis lies with the purchaser of the machine superstructure, and any shaft mounted power transmitting device. It is permissible to drain or re-fill the unit.

15. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

16. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to the system of connected rotating parts. The responsibility for this system analysis lies with the purchaser of the machine superstructure, and any shaft mounted power transmitting device. It is permissible to drain or re-fill the unit.

17. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

18. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to the system of connected rotating parts. The responsibility for this system analysis lies with the purchaser of the machine superstructure, and any shaft mounted power transmitting device. It is permissible to drain or re-fill the unit.

19. Do not operate the reducer without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, reducer or other equipment may result. Units with an internal pressure compensation system are lubed and sealed for life, so in most applications it will not be necessary to drain or re-fill the unit.

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TX3 Mounting Positions & Vent Plug, Level and Drain Locations

Stainless & TX non-vent and universal oil fill

Maintenance - Standard Units

Your Grove Gear reducer has been tested and adjusted at the factory. Dismantling or replacement of components must be done by Grove Gear to maintain the warranty.

Frequently check the oil level of the reducer. If oil level is low, refer to reducer vent and level position chart and add proper lubrication through the filler plug until it comes out the oil level plug. Remove vent plug after it is clear and operating.

Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

Seals: The Grove Gear line of speed reducers utilize premium quality seals which are the state-of-the-art in sealing technology. Seals are, however, a wear item and eventually need to be replaced. Replacement can be easily accomplished by following the steps below:

1. Remove the worn seal without damaging the shaft surface or the seal bore. This can be done by drilling a .062 diameter hole in the seal casing (being careful not to drill into the bearing behind the seal). Screw a #10 sheet metal screw into the hole and pry out the seal.
2. Clean the seal bore of sealant.
3. Before installing the new seal, use electrical tape to cover any keyways on the shaft to prevent seal lip damage.
4. Grease the seal lip with bearing grease and apply sealant to the seal bore.
5. Slide the seal into the shaft being careful not to fold the inner lip over on any shaft steps.
6. Press the seal into its bore with a sleeve that presses on the seal casing, being careful to keep the seal square in its bore.

CAUTION

Inspect the stem of the pressure compensating system often to ensure it is clean and operating properly.

Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

CAUTION

Parts List

All capacity ratings are based on American Gear Manufacturers Association (AGMA) Standards. Load conditions must be within cataloged ratings published in the current Grove Gear Catalog (available upon request).

Class of Service

A Regal Brand
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Union Grove, WI 53182 U.S.A.
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www.grovegear.com
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Instruction Manual

GROVE GEAR

TX3 Mounting Positions & Vent Plug, Level and Drain Locations

Maintenance - Standard Units

Your Grove Gear reducer has been tested and adjusted at the factory. Dismantling or replacement of components must be done by Grove Gear to maintain the warranty.

Frequently check the oil level of the reducer. If oil level is low, refer to reducer vent and level position chart and add proper lubrication through the filler plug and it comes out the oil level plug.

Inspect vent plug often to insure it is clean and operating.

Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

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2. Clean the seal bore of sealant.

3. Before installing the new seal, use electrical tape to cover any keyways on the shaft to prevent seal lip damage.

4. Grease the seal lips with bearing grease and apply a sealant to the seal bore.

5. Slide the seal into the shaft being careful not to fold the inner lip over on any shaft steps.

6. Press the seal into its bore with a sleeve that presses on the seal casing, being careful to keep the seal square in its bore.

CAUTION

Inspect the stem of the pressure compensating system often to ensure it is clean and operating properly.

Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

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