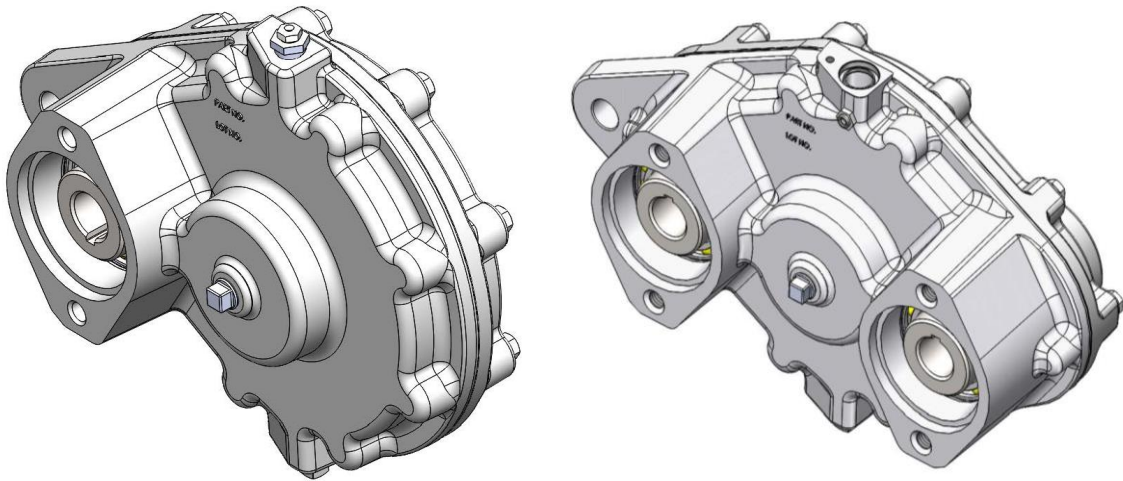


IP39 SERIES
SINGLE & DOUBLE INPUT

SERVICE MANUAL



SUPERIOR GEARBOX COMPANY

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SAFETY PRECAUTIONS

CAUTION

Please read this entire document prior to operating the gear drive. Gear drive failure and / or injury to operators may be caused by improper installation, operation or maintenance.

The buyer shall be responsible to:

- Determine if the gear drive selected is mechanically adequate for the chosen application and to verify that published catalog capacities are not exceeded.
- Ensure that all connected rotating parts in the system are free from critical torsional or any other type vibration.
- Eliminate any obstruction to cooling airflow when mounting the gear drive. Also consider any accumulation of external debris which could reduce cooling airflow over the unit during operation.

INSTALLATION

Gear drives mount directly on the shaft to be driven, see the installation illustration. As required, one or two keys are installed into the gearbox prior to sliding the gearbox onto the equipment's shaft. Caution should be taken to protect the seal while sliding the gearbox onto the shaft. Gearbox is secured to the shaft with a socket head capscrew, which installs through the side plug hole. The gearbox is secured at the torque arm to prevent rotation.

WARNING

When mounting the gear drive, the buyer is responsible to properly determine the quality or grade of fastener, thread engagement, load carrying capacity, and torque requirements.

WARNING

The buyer is responsible to provide protective shields over all external rotating parts. Eye shields and protective clothing must be worn when installing or maintaining the gear drive and operating system.

Before applying power to the gear drive installation, review the following:

- Check tightness of hardware.
- Check for proper oil level in gear drive.
- Be certain that tools, debris, etc., are clear from rotating parts.

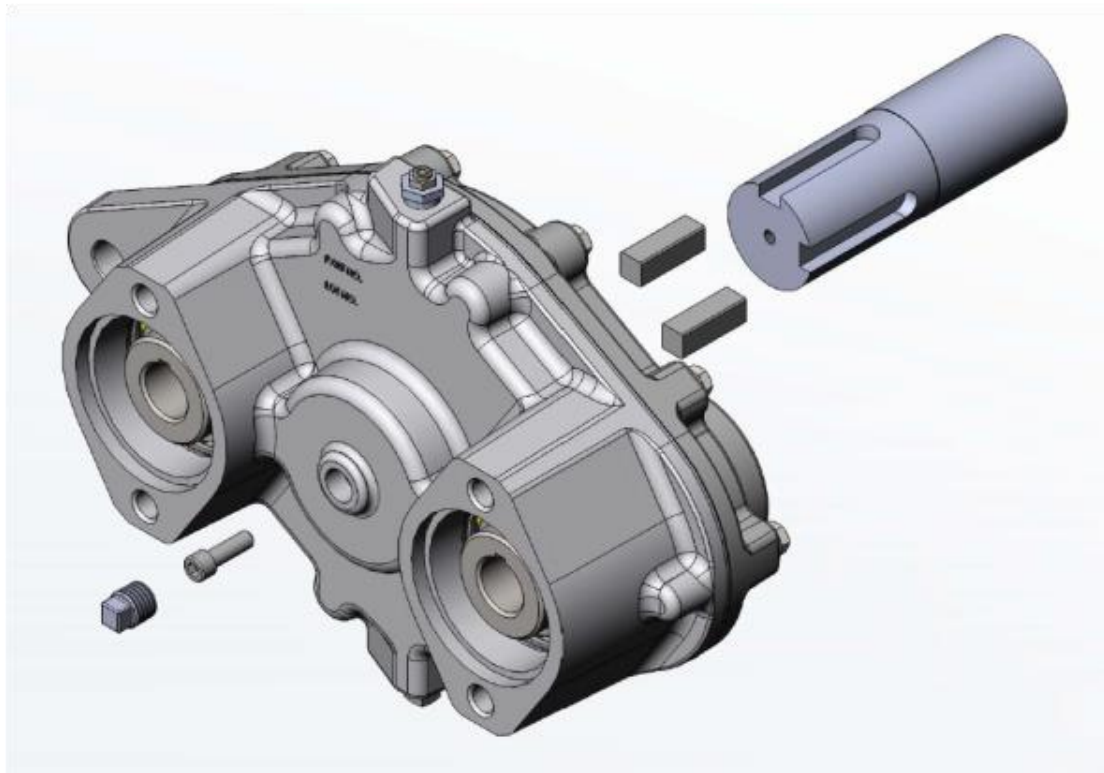


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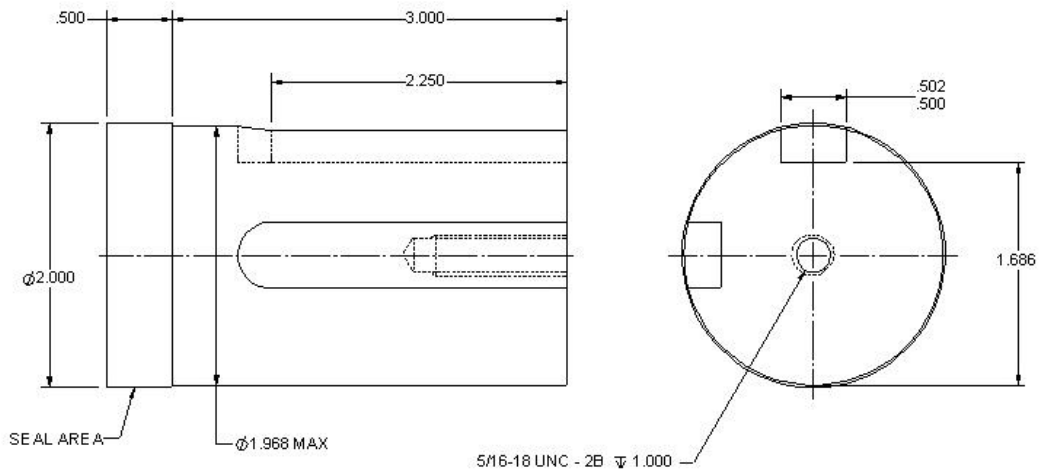
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INSTALLATION ILLUSTRATION

GENERIC OUTPUT SHAFT



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LUBRICATION

All gear drives are shipped without lubricant, so buyer is responsible to add oil prior to operation.

Approved Lubricants:

- For gear drives operating in an ambient temp of 15° to 125° F, and oil temperatures to 200° F, Mobilube HD 80W-90 (or equivalent) is recommended.
- For gear drives requiring start-up in an ambient temp below 15° F or operating continuously above 200° F, Mobilube synthetic SHC 75W-90 (or equivalent) is recommended.

CAUTION

Do not combine synthetic with non-synthetic oils in the gear drive.

MAINTENANCE

 **WARNING**

Disconnect power prior to any maintenance and do not bypass or inactivate any safety or protective device. Lock out and tag the power supply to prevent unexpected application of power.

Routinely inspect hardware and surrounding equipment to ensure all parts are firmly anchored. Keep shafts and vent plugs (when included) clean to prevent foreign particles from entering seals or housing. Inspect daily for any oil leaks and any unusual noises.

Check the oil level every 24 hours of operation. Change the oil when the gear drive has been in service for 50 hours. Routine oil change intervals will vary for each particular installation depending on the severity of the environment. Normal changes should occur between 250 and 1000 hours of operation. The longest life at continuous service will be realized when the oil temperature does not exceed 200° F. For oil substitutions, or for high input speeds, contact Superior Gearbox.

 **WARNING**

Do not change or add oil while the gear drive is running. Damage to the gear drive or injury to personnel may result. The gear drive housing, oil, plugs, and associated components may reach high temperatures and cause severe burns. Use *extreme* care when servicing the gear drive.



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LONG TERM STORAGE or INACTIVITY

If the gear drive is stored, prior to initial installation or following removal from service, it should be stored in a temperature and humidity controlled area.

GEAR DRIVE DISASSEMBLY

Gear drive disassembly should be accomplished in a clean, dry, and well lighted area. For a general representation of gear drive parts, see the generic gear drive illustration on page 7. For specific model or assembly information, contact Superior Gearbox.

WARNING

During operation, the gear drive housing, plugs, and oil may reach high temperatures. To avoid severe burns after removing from operation, allow sufficient time for the gear drive to cool to ambient temperature prior to disassembly.

1. Drain the oil by removing a bottom drain plug (refer to the assembly drawing).
2. Remove hydraulic motor(s).
3. Unsecure the gearbox from the torque arm.
4. Remove side plug to allow access to the socket head cap screw.
5. Remove the socket head cap screw.
6. Gearbox should slide off the equipment's shaft.
7. The output seal can be removed and replaced without disassembling the gearbox. Pry old seal from housing. Install new seal flush with housing.
8. If the bearings or gears must be replaced, disassemble the gearbox. Remove all hardware and pry apart the two housings. Bearings may have light interference fit to the housings and input gears.



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GEAR DRIVE REASSEMBLY

CAUTION

The reassembly area should be clean, dry, well lighted and free from oil, grease, or any debris which could contaminate the gear drive oil, bearings or seals.

1. Prior to assembly, all mating surfaces must be clean and free from oil or debris.
2. Install ball bearings onto the input gear(s). Bearings install flush against the shoulders.
3. Install the remaining ball bearings into the housings. Remember to insert the washer into the housing cavity prior to installing ball bearing.
4. With the use of a rubber mallet, assemble bearings and gears into one housing half.
5. Position the gasket onto the housing surface, and align the second housing half to bearings and gears.
6. With rubber mallet, tap housing halves together.
7. Install all bolts and washers. Torque 5/16-18 bolts to 17-21 ft-lbs.
8. Install the output seal flush to the housing.
9. Re-install gearbox onto equipment as previously described in this manual.

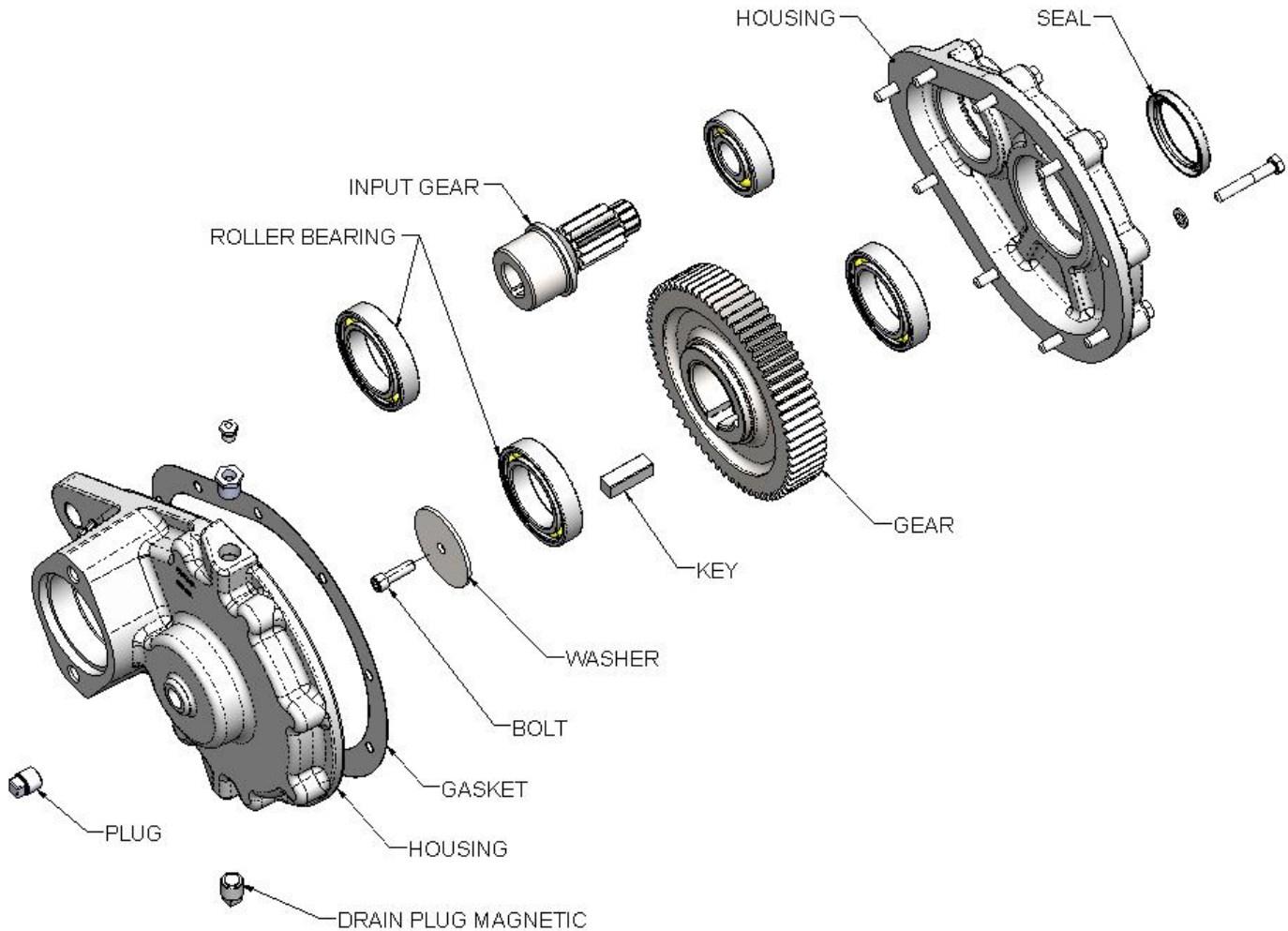


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GENERIC IP39 SINGLE INPUT ILLUSTRATION



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TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REMEDY
Breather leaking	Incorrect oil level RPM too high Unit running hot	Check oil level Reduce RPM Provide additional cooling
Unit running hot	Incorrect oil level Inadequate air flow Excessive RPM or load Contaminated oil Failing bearings	Check oil level Provide additional cooling Change to synthetic oil Replace oil Replace bearings
Unusual noise	Gear mesh changed Excessive external load Failing bearings or gears	Inspect adjacent devices Inspect output shaft Replace bearings or gears
Oil leaking	Failing seal Mating surface gaps	Replace seal Replace gasket
Vibration	Loose hardware Failing bearings or gears Shaft or Motor misalignment	Inspect / tighten Replace bearings or gears Correct misalignment



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