



HUB CITY

CONGRATULATIONS...Your decision to purchase a Bevel Gear Drive from HUB CITY will provide you with many years of trouble free service if the following lubrication and installation instructions are adhered to.

IMPORTANT SELECTION INFORMATION

Read **ALL** instructions and safety precautions prior to operating unit. Injury to personnel or unit failure may be caused by improper installation, maintenance, or operation.

Check to verify that the application does not exceed the capacities published in the current catalog.

Written authorization from HUB CITY is required to operate or use gear units in man lift or people moving devices.

The system of connected rotating parts must be free from critical speed, torsional, or other type vibration, regardless of how induced. The responsibility for this system analysis lies with the purchaser of the gear unit.

Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which the buyer shall apply the product. The application by buyer shall not be subject to any implied warranties of merchantability or fitness for a particular purpose.

General Note — These instructions contain information common to more than one model of Bevel Gear Drive. To simplify reading, similar models have been grouped as follows:

GROUP 1 — Models 11, 150, 165, 66, 88, 600, 800, 810, 1000, 1010 and 1200.

GROUP 2 — Models 790, 920, 950, 1050 and 1250.

GROUP 3 — Models M2 and M3.

GROUP 4 — Models AD1, AD2, AD3, AD4 & AD5.

LUBRICATION

CAUTION

Group 1, 2, and 3 Drives

ALL BEVEL GEAR DRIVES EXCEPT GROUP 4 ARE SHIPPED DRY. OIL MUST BE ADDED PRIOR TO OPERATION.

All HUB CITY Bevel Gear Drives are splash lubricated. Typical mounting positions with all shafts in horizontal position are shown in Figures 1 & 2. Fill/breather, level and drain plugs have been provided to meet most mounting requirements. Group 4 Drives may be mounted in any position and are prefilled with lifetime lubricant (Lubriplate #5555) at factory.

CAUTION

Review the approved mounting positions and lubrication levels identified in Figures 1 and 2 on this sheet. Do not deviate from the mounting positions or lubrication levels shown without contacting the factory.

BEFORE OPERATING — Remove Breather and/or Fill Plug (1, Figures 1 & 2) and Oil Level Plug (2, Figures 1 & 2). Fill gear box with an approved lubricant (see chart on next page) until lubricant starts coming out oil level plug hole. Clean thread on the removed plugs and the plug holes with degreaser. Install plugs securely in gear case. **Note** — Breather and/or Fill Plug (1, Fig. 1 & 2) must always be installed in the top of gear case, opposite Drain Plug (3, Fig. 1 & 2). **Note** — Models 790, 920 and 950 have the breather (4, Fig. 2) installed in the pinion housing.

CAUTION

Do not operate the unit without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, unit, or other equipment may result.

CHANGING LUBRICANT — After the first 100 hours of operation, drain out initial oil, flush out the gear case with an approved nonflammable, non-toxic solvent, such as Whitmore's Flushing Oil (#06802030) or Medallion™ Flushing Oil Koshier (#06812010), and refill. Thereafter, oil should be changed at least every 2500 operating hours or every 6 months — whichever occurs first.

CAUTION

Oil should be changed with greater frequency if unit is used in a severe environment such as dusty or humid.



WARNING

Oil, housings, and other components can reach high temperatures during operation, and can cause severe burns. Use extreme care when removing lubrication plugs and vents while servicing the unit.

Do not change lubricants in Group 4 Drives unless they are disassembled for service.

VARIATIONS FROM NORMAL CONDITIONS — Input speeds that exceed the maximum speeds recommended for a given ratio, which are listed in the general catalog specifications, may require an adjustment in the oil level. Consult HUB CITY for special lubricant recommendations when operating at higher speeds.

All HUB CITY Bevel Gear Drives (except Group 4 Drives) are designed for installation with all shafts in a horizontal position.

If either shaft is in a vertical position or mounted on an incline (except Group 4 Drives) zerk fittings may be required to lubricate upper bearings. It may also be necessary to make some oil plug modification. Consult HUB CITY Service Department.

APPROXIMATE LUBRICANT CAPACITIES HUB CITY BEVEL GEAR DRIVES

MODEL	LUBE QUANTITY	MODEL	LUBE QUAN.
AD1	.5 oz. prelubed at factory	800	5.0 pints
AD2	1.5 oz. prelubed at factory	810	5.0 pints
AD3	8.0 oz. prelubed at factory	1000	10.0 pints
AD4	.5 oz. prelubed at factory	1010	10.0 pints
AD5	1.5 oz. prelubed at factory	1050	10.0 pints
M2	.25 pints	1200	20.0 pints
M3	.75 pints	1250	18.0 pints
11	.40 pints	790	2.75 pints
150	.75 pints	920	5.0 pints
165	.75 pints	950	10.0 pints
66	1.5 pints	1700	10 gallons
600	1.5 pints	2200	14 gallons
88	5.0 pints		



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APPROVED LUBRICANTS

For Groups 1, 2, and 3 Drives

HUB CITY GEAR LUBRICANT GL-90

Part No. 8-58-00-01-009

HUB CITY LUBRICANT	AGMA NUMBER	ISO-ASTM VISCOSITY GRADE
GL-90	5 EP	220

For Bevel Gear Drives with ambient temperature of 15-125°F (-9 to 52°C) and operating temperature to 185°F (85°C).

HUB CITY GL-90 LUBRICANT is a heavy duty industrial gear lubricant containing sulfur phosphorous antiwear additives. Lubricants of this general type and meeting the above specifications may be substituted where HUB CITY LUBRICANTS are recommended. Lubricant selected must be compatible with nitrile rubber seals. For ambient temperature above 125°F (52°C) or operating temperature above 185°F (85°C) consult the factory.

HUB CITY ALL TEMPERATURE SYNTHETIC LUBRICANT

Part No. 8-58-00-01-011

HUB CITY SYNTHETIC LUBRICANT is a premium gear box lubricant which is recommended for Bevel Gear Drives in most applications, especially those subject to low start up temperature and/or high operating temperature. This lubricant is a synthesized hydrocarbon based material which provides longer lubrication intervals because of its increased resistance to thermal and oxidative degradation. This decreases maintenance costs. Further economy is realized because of the increased efficiency of units lubricated with HUB CITY SYNTHETIC LUBRICANT. This lubricant can be operated at temperatures considerably above 185°F (85°C). However, the factory should always be contacted prior to operating at high temperatures as damage may occur to seals or other components. Lubricant manufacturer and HUB CITY should be contacted when substituting a premium lubricant where HUB CITY SYNTHETIC is recommended.

CAUTION

Do not mix nonsynthetic and synthetic oil in the unit.

CAUTION

If unit is used in the food or drug industry (including animal food) consult the petroleum supplier or HUB CITY for recommendation of lubricants which meet the specifications of FDA, USDA and/or other authoritative bodies having jurisdiction. Standard lubricants are not suitable for these applications or these industries.

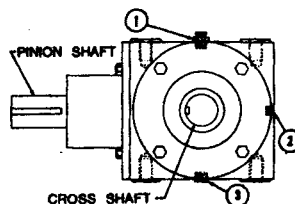


FIGURE 1
Mounting Position, Group 1 & 3

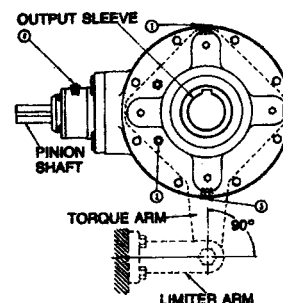


FIGURE 2 — Mounting Position, Group 2



WARNING

SHIELD ALL ROTATING PARTS

For safety, purchaser or user should provide protective shields over all shaft extensions and any moving 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 bodily injury and/or damage to equipment.



WARNING

Wear protective clothing and eye shields when installing or maintaining unit and machine.



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, or by any shaft mounted power transmitting device such as sprockets, pulleys, or couplings.



WARNING

Units **ARE NOT** to be considered fail safe or self locking devices. If these features are required, a properly sized, independent holding device must be utilized. Reducers are not to be used as a brake.



WARNING

Any brakes that are used in conjunction with a unit must be sized or positioned in such a way so as to not subject the unit to loads beyond the capacities published in the current catalog.



WARNING

Make certain that all tools and other items are clear from rotating parts before starting machine. Stand clear, and start machine slowly to be sure all components are secure and operating properly.



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WARNING

Make certain that the power supply is disconnected before attempting to service or install the unit, or remove or install any components. Lock out the power supply, and tag it to prevent unexpected application of power.

INSTALLATION

Groups 1, 2 and 3 Drives

Power may be applied (drive shaft) to either the cross or pinion shaft providing that the gear reduction does not exceed 3:1. On models that have greater than 3:1 gear ratio, the input must be on the pinion shaft such as Models 790, 920 and 950. Also, input rotation on these models should be clockwise.



WARNING

For safe operation and to continue the unit warranty, when installing, reinstalling, or replacing a factory installed fastener for servicing purpose, or to accommodate the mounting of guards, shields or other light load imposing devices, or for mounting the unit, it becomes the responsibility of the purchaser or user to properly determine the quality, grade of fastener, thread engagement, load carrying capacity, tightening, torque, and the means of torque retention.

COUPLINGS — Flexible couplings to pinion and cross shafts are recommended because they minimize bearing and gear wear caused by slight misalignment. Follow coupling manufacturer's installation directions.

SHAFT MOUNTED MODELS, Group 2 Drives — Driven shaft should be supported independently with pillow block bearings, located as close to Bevel Gear Drive as possible. A suitable Torque Arm, shown in dotted line (Figure 2) must be provided (not supplied) to keep unit from rotating. A rigid torque arm will cause bearings to "load up" and cause excessive wear. To prevent this, provide a slight amount of "float" at the pivot point. Note that torque arm must be fastened to all mounting pads.

SHEAVES AND SPROCKETS — When mounting sheaves or sprockets, the center of the load should be located as close to the Bevel Gear Drive as possible. Excessive overhung loading could result in early failures of bearings or shaft. Refer to the general catalog or contact your local distributor for overhung load ratings.

CAUTION

The exterior threaded or through holes on this drive are for mounting the drive or drive accessories (couplings, sprockets, etc.). They are not to be used for lifting the drive or any drives/driven equipment. Any lifting rings or eyebolts included on the drive are to be used to vertically lift the drive only and no other associated attachments or motors.

CAUTION

Drives Configured with the Hub City "Counter Flow" lubrication system, Models 1010, 101M, 1050, 105M 1200, 120M, 1250, 125M, 790, 920 and 950, may require the pinion housing and/or the end caps to be rotated as part of the installation, depending on the drives mounting position. With the drive in it's required mounting position, the word "TOP" that appears on the pinion housing and/or end caps must be in a vertically up position, to maintain proper bearing lubrication.

To reposition the pinion housing and/or end cap, remove all capscrews, rotate the housing or cap without removing it from the main housing. Apply Loctite® to the capscrews, re-install and torque to proper specifications. Units are assembled at the factory with pinion housings and/or end caps positioned for style "A", "C" and "E" units mounted with all shafts in a horizontal plane.

CAUTION

Test run unit to verify operation. If the unit being tested is a prototype, that unit must be of current production configuration.

CAUTION

Inspect shafts and components for paint, burrs, or other imperfections before installing components. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to shafts, bearings, or gears.

PREVENTATIVE MAINTENANCE

Keep shafts and vent plug clean to prevent foreign particles from entering seals or gear case. Inspect periodically for oil leaks.

CAUTION

Mounting bolts, coupling fasteners, and other power transmitting devices should be routinely checked to ensure that all parts of the unit are firmly anchored to provide proper operation. (Loose fasteners can cause alignment problems and excessive wear). Check end play in shafts. Noticeable movement might indicate service or parts replacement.

CAUTION

If the unit cannot be located in a clear and dry area with access to an adequate cooling air supply, then precautions must be taken to avoid ingestion of contaminants such as water, and to avoid a reduction of cooling ability due to exterior contaminants.

HUB CITY has Sales Offices and a network of Industrial Power Transmission Distributors that can serve your needs world wide. Check the Yellow Pages for one near you or contact the factory sales office.

IMPORTANT INFORMATION

In the event of the resale of any of the goods, in whatever form, resellers/buyers will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sale:

The manufacturer makes no warranty or representations, express or implied, by operation of law or otherwise, as to the merchantability or fitness for a particular purpose of the goods sold hereunder. Buyer acknowledges that it alone has determined that the goods purchased hereunder will suitably meet the requirements of their intended use. In no event will manufacturer be liable for consequential, incidental, or other damages.

Resellers/buyers agree to include this entire document, including the warnings and cautions listed herein, in a conspicuous place and in a conspicuous manner to instruct users on the safe usage of the product.



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Gear Drives

ELECTRIC MOTOR AND HYDRAULIC MOTOR AND PUMP INSTALLATION INSTRUCTIONS **For "C" Flange and Hydraulic Flange Units**

1. Be sure all of the paint and masking have been removed from the face and pilot of the flange. Check the bore (input or output) to be sure it contains an adequate amount of anti-sieze compound, which is normally installed at the factory. This compound will inhibit fretting corrosion between the motor or pump shaft and the unit bore.
2. Install the key (if round bore) to the maximum depth of the keyway provided in the bore.
3. Align keyways or splines of motor or pump and bore of unit and install motor or pump into frame.
4. **CAUTION:** HUB CITY "C" flange reducers and Hydraulic Flange Reducers are designed to accept motors with shafts that do not exceed the maximum specified by the N.E.M.A. or SAE standards. If the motor or pump shaft bottoms out before the motor or pump flange seats against the reducer flange face, the motor or pump shaft length must be adjusted to N.E.M.A. or SAE standards.
5. Secure the motor or pump to the unit. Capscrews and lockwashers are provided with "C" flange units.
6. Tightening torques for mounting bolts are provided in the chart below.

CAPSCREW TIGHTENING TORQUE

Grade 5 Capscrews (dry, without lubricant)

Capscrew Size	Tightening Torque (Ft. - Lbs.)
1/4 NC	8
5/16 NC	16
3/8 NC	29
1/2 NC	71
5/8 NC	143
3/4 NC	251

A Parts List and Print for your Drive is available upon request. To obtain the proper Parts List and Print, you must accurately furnish the Assembly Number, Model Number, Ratio, Style and Shipping Code as shown on the metal tag attached to the Gear Drive. For assistance, phone or write your Industrial Power Transmission Distributor, or the Factory Sales Office.



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