

STERLING

ELECTRIC, INC.

K-SERIES YOU-BUILD-IT PROGRAM HELICAL BEVEL GEAR REDUCERS

September 10, 2024

Sterling Electric offers a simplistic approach to Plant Maintenance of Stainless-Steel Helical Bevel Gear Reducers to reduce your stores inventory. Our U-Build-It Program provides your maintenance department the ability to build “What You Need”, instead of keeping multiple Bevel Reducers in stores to support your facilities drive requirements.

By keeping four basic components our company provides the ability to build a complete reducer in a short period of time to keep your facility operating. The advanced engineering design of our Bevel product allows you to purchase one gearhead to provide eighteen ratio’s combinations by maintaining an inventory of Primary Gear Kits, Input Adapters, and C-Face Input Kits to build “What You Need”.



YOU-BUILD-IT ASSEMBLY INSTRUCTIONS

SELECTION INFORMATION

Read ALL instructions prior to assembling the unit. Improper assembly may cause injury to personnel or reducer failure.

Written authorization from Sterling Electric is required to operate or use these units in man lift or people moving devices.

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

Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which buyer shall apply the product. The application by buyer shall not be subject to any implied warranty of fitness for a particular purpose. Information contained in this program is considered correct at the time of publication and is subject to change without notice.

SAFETY ALERT

WARNING: For safety, purchaser should follow good practice safety procedures as outlined by OSHA or other governing authority and provide a safe and clean environment for assembly and testing of finished units. The purchaser or Distributor is responsible for checking all applicable safety codes in his area and providing a suitable working environment. Failure to do so may result in bodily injury and/or damage to equipment.

GENERAL INFORMATION

The working area has to be kept clean at all times.

The force to press gears into position should be noted and compared to ensure that it is above the minimum specified. (Values given Table 2).

Alteration of component parts using files, slip stones, hand grinders, etc. is strictly forbidden. Such tools are to be excluded totally from the assembly area.

Care should be taken when fitting snap rings to ensure these are not over strained.

Liquid gasket material must be applied to clean faces, any doubt then the face must be cleaned with a suitable solvent (See Appendix 1).

The liquid gasket material must be applied to faces in an area outside of any possible leakage path in a continuous bead circling the fastener holes (see Fig 1).

NOTE: The lip

GEARHEAD
ASSEMBLY

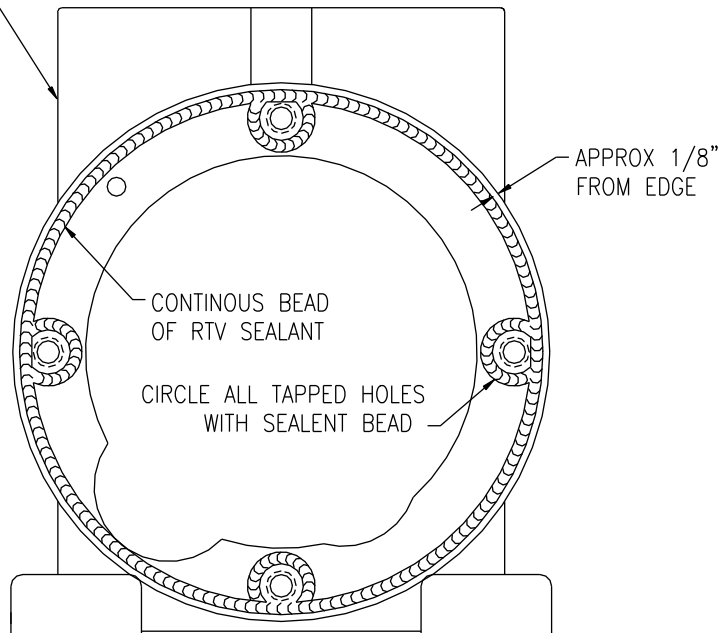


Figure 1

Throughout the following instruction the sealants, adhesives, etc. in current use at the time of writing are specified. However, alternative materials are available; these are specified in Appendix 1.

FINAL STAGE ASSEMBLY – FITTING PRIMARY GEAR TO GEARHEAD ASSEMBLY KIT

Position the gearhead on the assembly bench (Figure 2).

NOTE: A clearance hole in the assembly bench will allow the gearhead assembly to lay flat with the open end up easing the assembly process.

For sizes K04/ K06 or SSK33/SSK34/SSK36 for all ratio combinations and sizes SSK37/K07 2.2 ratio and above, the primary gear kit will consist of the primary pinion (23), primary gear (20), small metric key (22) and small snap ring (21).

For sizes SSK37/K07 ratios 1.1 through 2.0, the primary gear kit will consist of the primary pinion (23), primary gear (20), metric key (22) and snap ring (21), large snap ring (23A), and large metric key (23B).

1. Fit metric key (22) supplied with primary gear kit to final pinion shaft (18).
2. Fit primary gear onto final pinion shaft (18).

3. Fit snap ring (21) to secure primary gear (20) to final pinion shaft (18).

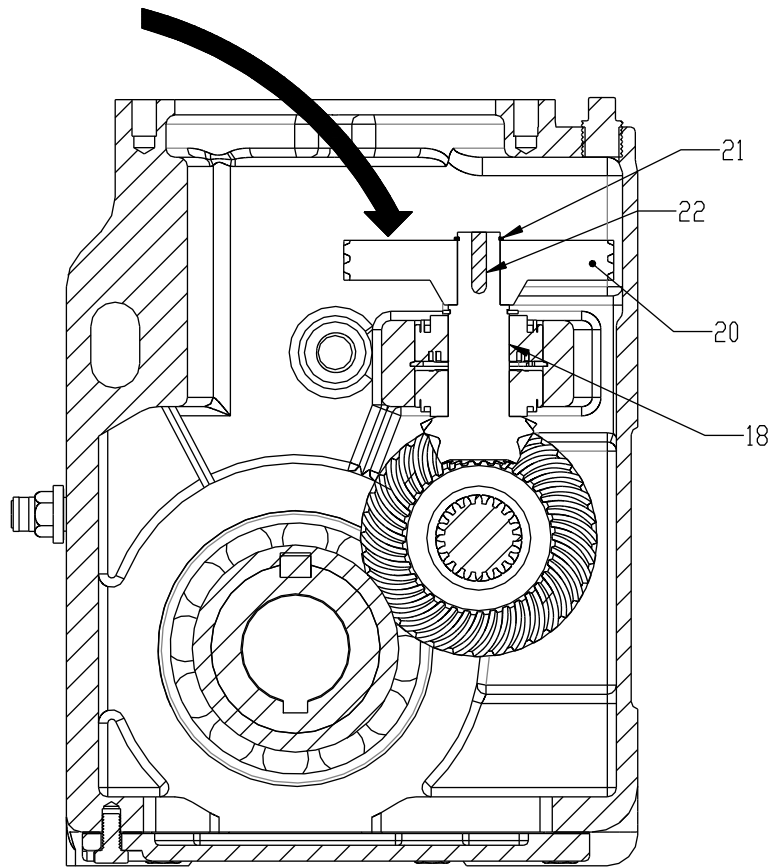


Figure 2

FINAL STAGE ASSEMBLY – FITTING PRIMARY PINOIN TO INPUT ASSEMBLY KIT

NOTE: The following applies to motor adaptor input assembly kits for sizes K04/ K06 or SSK33/SSK34/SSK36, all ratio combinations, and SSK37/K07, 2.2 ratio and above.

Position motor adaptor kit as shown on the press bench, ensuring that a suitable pressing plate is used to position the input adapter making sure it is sitting flat and the pinion will be pressed straight.

CAUTION: The pressing plate must be located under the input shaft as shown in Figure 3 to ensure the press force is through the shaft and not the housing or bearings. If the press force is taken through the housing or bearings, the input assembly will be damaged resulting in premature failure of the unit.

1. Degrease the primary pinion shank with a cleaning solvent (Appendix 1).

2. Add a thin film of thread locking compound (Appendix 1) to the pinion shank to act as both a lubricant for assembly and sealer/adhesive for the shank once pressed into place.
3. Fit primary pinion (23) to input adapter shaft as shown, press pinion fully into plug-in shaft.
4. For pinions where the gear is larger than the shank OD (Figure 3), press to the pinion shank shoulder and verify that the pinion is fully seated by checking the Dimension A per Table 1.
5. For pinions where the gear is smaller than the shank OD (Figure 4), press to Dimension A listed in the Table 1.

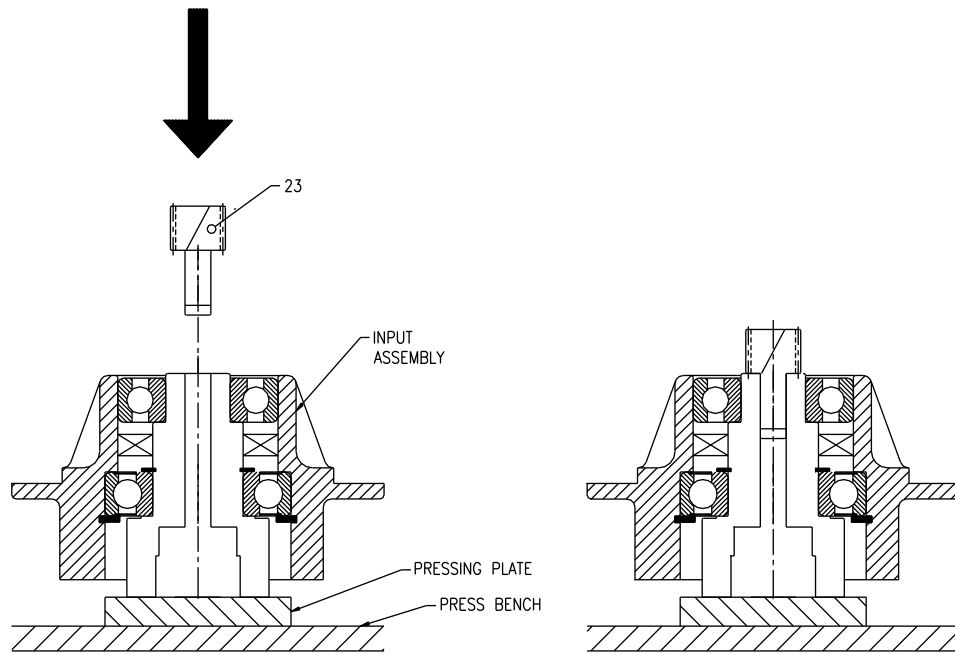


Figure 3

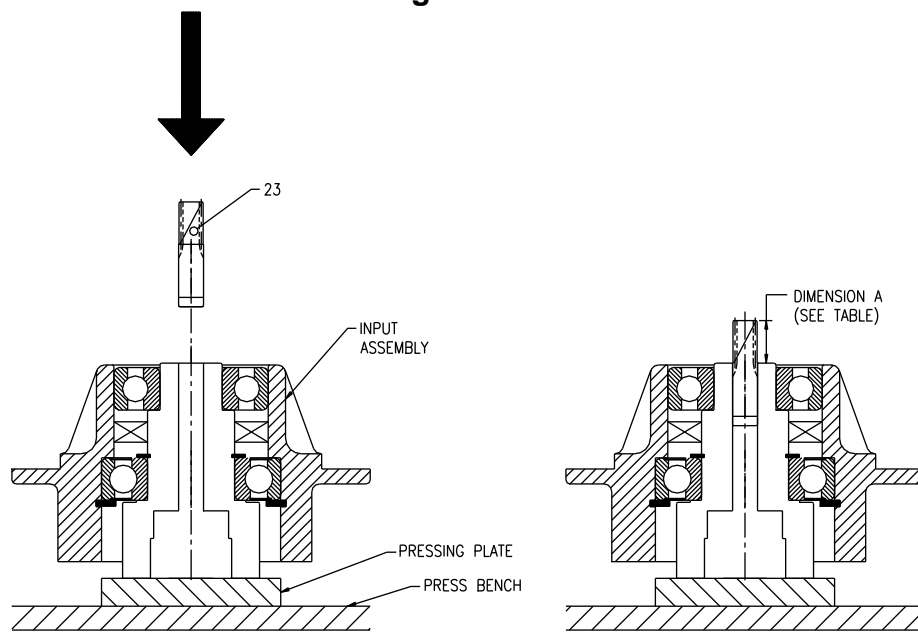


Figure 4

Table 1

Unit Size	Dimension A (in)	Unit Size	Dimension A (in)
SSK33/SSK34/K04	0.67	SSK37/K07	1.18
SSK36/K06	0.95		

The minimum pressing force required to insert the pinion shank into the input assembly kit must be listed in Table 2 and must be achieved in order for the unit to carry the catalog rated horsepower. If the minimum pressing force is not achieved, the parts must be rejected.

Table 2

Unit Size	Minimum Pressing Force (lbs.)	Unit Size	Minimum Pressing Force (lbs.)
SSK33/SSK34/K04	2000	SSK37/K07	2300
K06/SSK36	2300		

NOTE: The following applies to motor adapter input assembly kit for size K07, 1.1 to 2.0 ratios.

The primary pinion (23) is a slip-on type and is held in place on the input assembly stub shaft with a key (23B) and snap ring (23A).

1. Degrease the shaft on the input assembly with a cleaning solvent (Appendix 1).
2. Referring to Figure 5, install the key (23B)
3. Align and install the primary pinion (23). Tap into place if necessary.
4. Install the snap ring (23A).

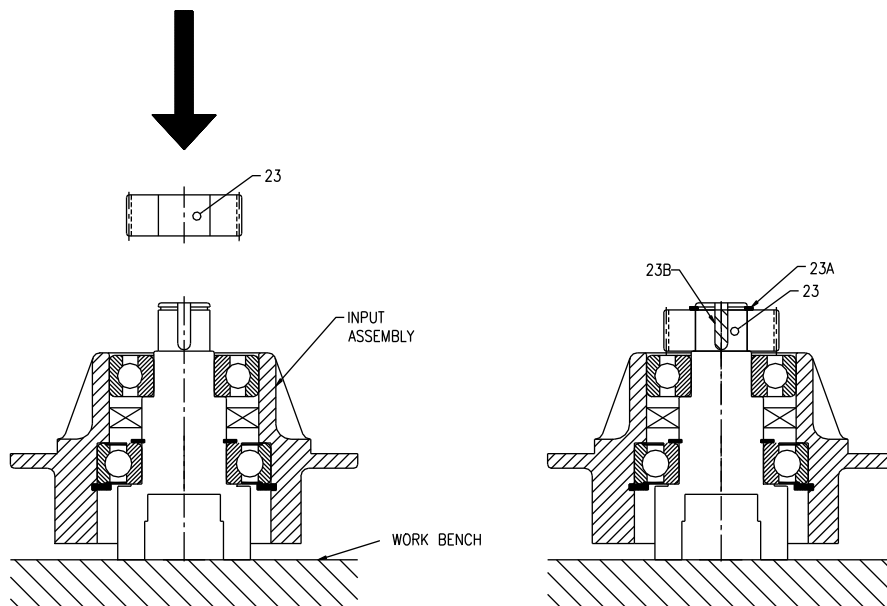


Figure 5

NOTE: The following applies to solid shaft input assembly kit for sizes K04/K06 or SSK33/SSK34/SSK36, all ratios, and SSK37/K07, 2.2 ratio and above. For slip on pinion ratios on K07, refer to above for the installation of the primary pinion.

Position solid shaft input assembly kit as shown on the press bench, ensuring that a suitable pressing fixture (refer Appendix 2 for proper pressing fixture number) is used position the solid shaft input adapter making sure it is sitting flat and the pinion will be pressed straight.

CAUTION: A suitable pressing fixture must be used to locate on the input shaft shoulder as shown in Figure 6. This will ensure the press force is through the shaft and not the housing or bearings while protecting the shaft extension from forces that may cause permanent distortion. If the press force is taken through the end of the input shaft, housing, or bearings, the input assembly will be damaged resulting in premature failure of the unit.

The installation of the primary pinion is the same for the solid shaft input assemblies as the motor adapter type previously outlined. Refer to the appropriate section for details regarding the actual pinion installation procedure.

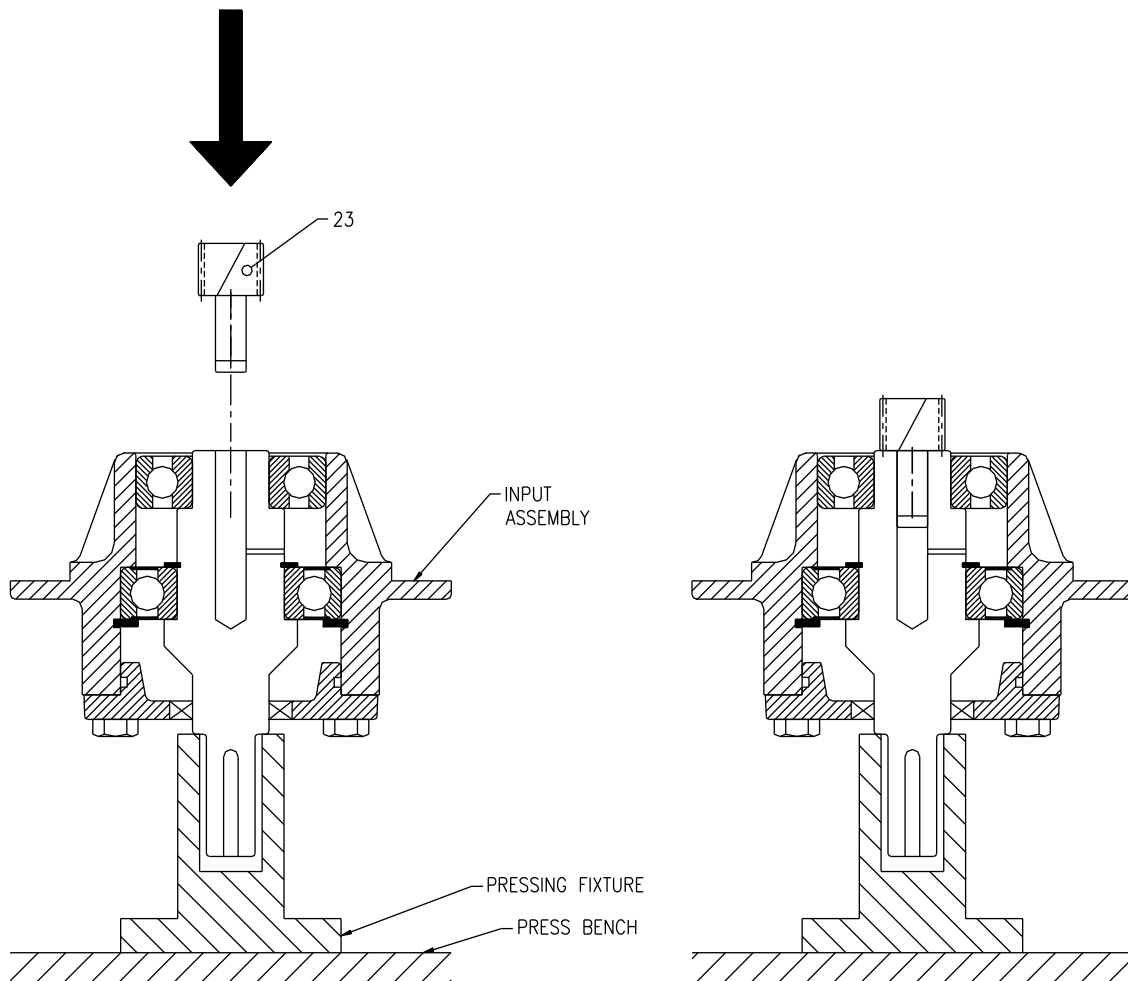


Figure 6

ASSEMBLY INSTRUCTION FOR FITTING OF INPUT SUB-ASSEMBLIES TO THE GEARHEAD

LUBRICATION

Stainless steel gear reducers ordered from the factory are shipped with ISO 320 PAO synthetic NSF H1 Food Grade lubricant and is good for ambient temperature ranges of -10° F to 104° F. Position M1 is considered standard.

NOTE: UNLESS OTHERWISE SPECIFIED BY THE END USER, THE UNIT IS TO BE FILLED FOR M1 MOUNTING. A level plug is provided for this position only so the unit can be checked for proper oil level prior to installation and start-up. All other mounting positions will require the oil level to be measured out prior to filling the unit based on the values in the table labeled **OIL CAPACITIES**.

CAUTION: Use of PAG synthetics can cause problems if they are not compatible with the seals or the conventional lubes they replace.

CAUTION: If the ambient temperature will be outside the range for the lubricant installed at the factory, drain and refill the reducer with the proper viscosity lubricant prior to use.

Table 3

RECOMMENDED H1 FOOD GRADE LUBRICATION OILS

<u>PAO Synthetic Oils</u>			
Manufacturer	ISO Viscosity / AGMA No.		
	220 / 5EP	320 / 6EP	460 / 7EP
	Ambient Temperature Range		
	-5 to 25 °C (23 to 77 °F)	0 to 40 °C (32 to 104 °F)	10 to 50 °C (50 to 122 °F)
American Synthol	SFGL 220	SFGL 320	SFGL 460
Anderol Inc.	6220	6320	6460
Citgo Petroleum Corp.	Clarion Synthetic Gear Fluid 220	Clarion Synthetic Gear Fluid 320	Clarion Synthetic Gear Fluid 460
ExxonMobil - Mobil	Mobil Cibus 220	Mobil Cibus 320	Mobil Cibus 460
Jax, Inc.	Flow Guard Syn Fluid 220	Flow Guard Syn Fluid 320	Flow Guard Syn Fluid 460
Kluber Lubrication	4UH1-220	4UH1-320	4UH1-460
Lubriplate	SFGO Ultra 220	SFGO Ultra 320	SFGO Ultra 460
Royal Purple	Polyguard FDA 220	Polyguard FDA 320	Polyguard FDA 460
Shell Oil Co.	Cassida GL220	Cassida GL320	Cassida GL460
Summit Industrial Products	Syngear FG-220	Syngear FG-320	Syngear FG-460
Ultrachem Inc.	Omni Lube FGG1220	Omni Lube FGG1320	Omni Lube FGG1460

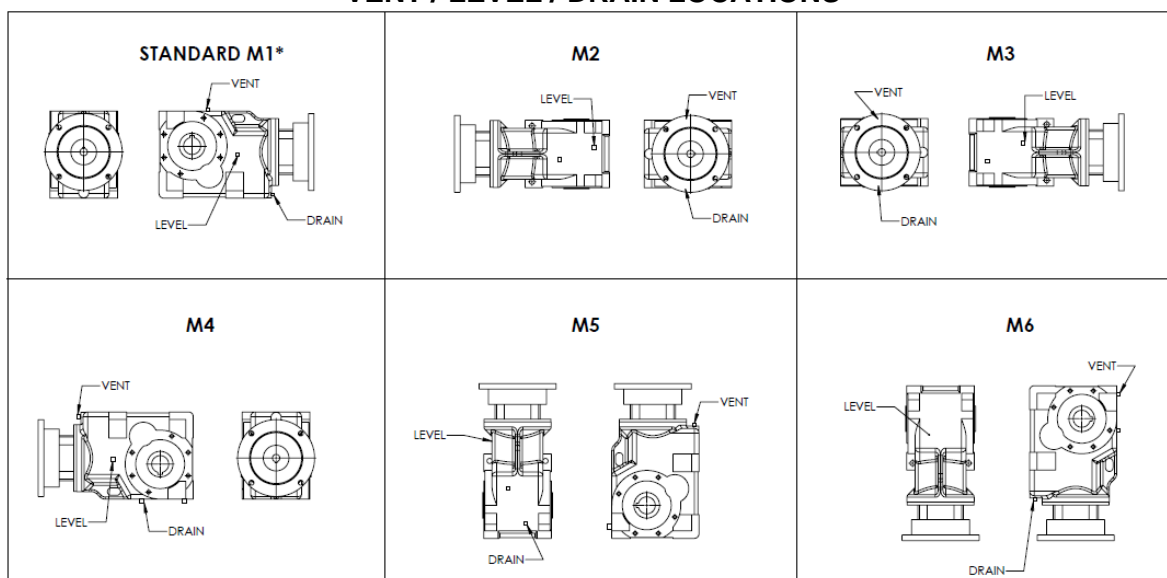
1. Position the gearhead on the assembly bench as previously shown in Figure 2.
2. Fill the gearhead with the correct amount of lubricant (see Table 4), through the open face.

Table 4
OIL CAPACITIES (FLUID OUNCE)

Mounting Position	Unit Size			
	SSK33	SSK34/K04	SSK36/K06	SSK37/K07
M1	31	34	58	118
M2	34	44	95	196
M3	34	44	95	196
M4	44	58	112	230
M5	58	75	142	294
M6	41	44	98	196

16 fl-oz = 1 pint
2 pints = 1 quart
4 quarts = 1 US gallon

VENT / LEVEL / DRAIN LOCATIONS



NOTE: The unit is filled at the factory with the proper amount of oil for the **STANDARD** mounting position. A level plug is provided for this position only so the unit can be checked for proper oil level prior to installation and start-up. All other mounting positions will require the oil level to be measured out prior to filling the unit based on the values in the table labeled **OIL CAPACITIES** above.

3. Apply liquid gasket material (Appendix 1) to the upturned face of the gearhead referring to Figure 1.
4. Place the input kit sub-assembly in position, taking care when engaging the primary pinion (23) with the primary gear (20).
5. Add thread locking compound (Appendix 1) to the threads of the supplied metric hex head screws.
6. Secure the input housing to the gearhead and tighten the hex head screws to the torque value listed in Table 5 below.

Table 5

Unit Size	Screw Size	Torque (Ft-Lb)
SSK33/SSK34/K04	M8	5
SSK36/K06	M10	27
SSK37/K07	M12	47

7. For units with solid shaft input or integrated motor C-face, assembly is complete. Proceed to section regarding nameplate. For units with input assembly kits that require the installation of the motor adapter flange, proceed for assembly of the C-face input kit.

ASSEMBLY OF THE MOTOR C-FACE KIT TO GEARHEAD ASSEMBLY

NOTE: This section only applies to SSK33/SSK34/K04 or SSK36/K06 units. SSK37/K07 units have integrated C-face mounting flanges with the input assembly.

1. Position the reducer assembly on the assembly bench as previously shown in Figure 2.
2. Place the motor C-face input flange onto the reducer assembly.
3. Add thread locking compound (Appendix 1) to the threads of the supplied metric socket head cap screws.
4. Secure the C-face motor input flange to the reducer assembly and tighten the socket head screws to the torque value listed in Table 6 below.

Table 6

Unit Size	Screw Size	Torque (Ft-Lb)
SSK33/SSK34/K04	M8	5
SSK36/K06	M10	27

FINAL INSPECTION – LEAK TEST

NOTE: The input assembly and gearhead assembly are checked at the factory for leaks before shipping.

Once the unit is complete, it will be necessary to check to make sure there is no leaking between the input assembly and the gearhead assembly. This can be confirmed by pressurizing the unit to 5-7 psig and holding without a pressure drop for 20-30 seconds. If the unit fails this test, it will be necessary to locate the source of the leak and repair or replace components as needed.

NAMEPLATE – COMPLETION OF INFORMATION

NOTE: The gearhead assembly kit will be supplied to with a blank Stainless-Steel nameplate on Cast Iron Unit Sizes K04/K06/K07 fitted (as shown below) with the part number of the gearhead assembly kit already stamped in the box. Stainless Steel Units Sizes DF-SSK34/SSK36 with be provided with an Etched Nameplate. The ratio is the overall unit ratio as an assemble gear reducer.

STERLING
ELECTRIC, INC.

800-866-7973
INDIANAPOLIS, IN

MODEL NO.: SSK34-10-UTB SERIAL NO.:
INPUT RPM: 1750 INPUT HP: RATIO: TO 1
WWW.STERLINGELECTRIC.COM

Using a hand engraving tool or a hand stamp, maintenance will stamp the overall ratio in the blank area next to RATIO:

MOTOR INSTALLATION

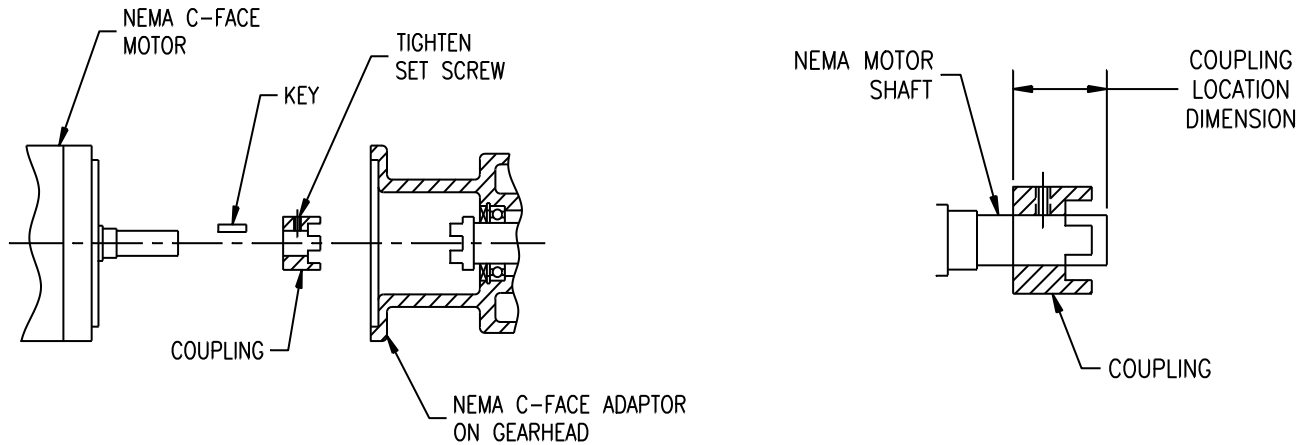
1. Mount the motor using the hardware supplied in the kit assemblies.

NOTE: With every C-face Input Kit, Sterling Electric supplies the motor coupling half, a key, flexible coupling spider, and a cardboard coupling set gauge. To aid removal at a later date, anti-seize compound (not supplied) can be applied to the motor shaft and C-face pilot diameter.

2. Remove any dirt or adhesive residue from the motor shaft.
3. The supplied key is to be placed in the motor keyway and should be located under the motor coupling.
NOTE: the key is not to extend beyond the coupling bore on EITHER side.
4. The motor coupling is to be mounted on the motor shaft and is to be located accordingly to the dimension specified in **NEMA ADAPTER COUPLING LOCATION OR USE THE SUPPLIED COUPLING SET GAUGE.**
5. Tighten the setscrew located on the motor coupling.

6. Place the flexible motor spider between the jaws of the motor coupling. Align the motor coupling so that the jaws on the reducer coupling mesh with the motor coupling. The motor shaft will extend into the bore of the reducer coupling. Secure the flanged motor to the C-face adapter with the supplied hardware unless otherwise specified by the motor manufacturer.

NEMA ADAPTER COUPLING LOCATION



NEMA Frame Size	*Coupling location Dimension (in)		
	SSK33/SSK34/K04	SSK36/K06	K0702
56C	1.79	1.90	
143TC / 145TC	1.85	1.97	1.79
182TC / 184TC	2.31	2.03	2.29
213TC / 215TC		N/A**	2.79
254TC / 256TC			N/A**

*Coupling Location Dimension Tolerance is $-0.0/+0.031$

** Quill style input, only special key required.

WARRANTY (LIMITED)

The warranty will cover defects in workmanship and materials of the kit assemblies only for 36 months from the date of installation or shipment. The kit assembler accepts all liability and warranty for finished assembled units for defects that are found due to assembly and beyond the control of Sterling Electric, Inc.

The warranty is only for parts and labor. In no event shall our liability exceed the original price of the unit, nor does it cover cost of on site repair, installation, or freight.

All dimensions designs and specifications are subject to change without notice

2000HG U-BUILD-IT KIT SELECTION

Unit Size	Gearhead Ratio	
	Output Ratio	
	11.0-125.0	
K04/SSK34	10.0	
K06/SSK36	10.0	
K07	10.0	

Motor Frame	Input Adapter					
	Output Ratio					
	K04		K06		K07	
	11.0-32.0	40-125.0	11.0-32.0	40-125.0	11.0-125.0	
56C	A	B	E	F	K	
143/145TC	A	B	E	F	K	
182/184TC	A	B	E	F	K	
213/215TC	-	-	-	G	K	
254/256TC	-	-	-	-	M	

Motor Frame	K04	K06	K07
	56C	R0456C	R0656C
143/145TC	R04140	R06140	R07140
182/184TC	R04180	R06180	R07180
213/215TC	-	R06210	R07210
254/256TC	-	-	R07250

Unit Size	Primary Gear Kit									
	Output Ratio									
	11.0	12.0	14.0	16.0	18.0	20.0	22.0	25.0	28.0	
K04	1.1	1.2	1.4	1.6	1.8	2.0	2.2	2.5	2.8	
K06	1.1	1.2	1.4	1.6	1.8	2.0	2.2	2.5	2.8	
K07	1.1	1.2	1.4	1.6	1.8	2.0	2.2	2.5	2.8	

Unit Size	Primary Gear Kit									
	Output Ratio									
	32.0	40.0	50.0	60.0	71.0	80.0	100.0	112.0	125.0	
K04	3.2	3.9	5.0	5.9	7.1	8.0	9.4	11.0	12.0	
K06	3.2	3.9	5.0	5.9	7.1	8.0	9.4	11.0	12.0	
K07	3.2	3.9	5.0	5.9	7.1	8.0	9.3	11.0	12.0	

APPENDIX 1

ITEM	MATERIAL	
	CURRENT	ALTERNATIVE
Liquid Gasket Material	Permatex RTV	Dow Corning 732 Loctite Superflex Blue
Thread Locking Compound	Loctite 262 (Blue)	3M TL42 Permatex 24010
Cleaning Solvent	LPS Precision Cleaner	Loctite 7061 Super Clean EnviroSan Solution 2000
Bearing Grease	Shell Alvania #2	Mobilux EP 2 Esso Beacon 2 Kluber Centoplex 2
Lubricating Oil	Mobil Cibus 320 H1 Food Grade	Bel-Ray No-Tox EP320

Indianapolis, Indiana (800) 866-7973

**e-mail: sales@sterlingelectric.com
www.sterlingelectric.com**