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# INTRODUCTION AND IMPORTANT SAFETY NOTICE

This publication should give the operation and maintenance personnel the needed information to operate our clutch. If there is any information not covered in this publication, please call your dealer or engineering department.

GENERAL INFORMATION:      Decoding of Model Number

Example:                      CO1-11-3A or CN2-11-3A

CO -                      Clutch that uses a sliding sleeve with a brass throwout collar.

CN -                      Clutch that uses a sliding sleeve with camrollers. The only exception is in the CN1-06 and CN1-07 which uses two tapered roller bearings on the main shaft (instead of one ball bearing), but still uses the sliding sleeve with a brass throwout collar.

1, 2, or 3 - following CO or CN will give the number of drive plates in the clutch.

06, 07, 08, 10, 11, 14 = Nominal diameter of clutch drive plate in inches.

0,1, 2, 3, 4, 5 = SAE size of clutch housing.

A through Z = Will indicate clutch options (i.e. pilot bearing change or shaft size or plate configuration).

[PLEASE READ THE FOLLOWING WARNING AND SAFETY NOTICE]

## IMPORTANT SAFETY NOTICE:

The possible danger which may result from the use of manufactured products to person(s) or property, make it very important to follow correct procedures. Proper guards and other suitable safety devices or procedures that may be desirable or specified in safety codes should be provided. These devices are neither provided by PEC Manufacturing nor are they the responsibility of PEC Manufacturing.

### CAUTION:

WHILE CLEANING BEARINGS, NEVER SPIN DRY WITH COMPRESSED AIR. THIS CAN CAUSE INJURY.

### CAUTION:

WHEN A SEALED PILOT BEARING IS BEING USED, DO NOT LUBRICATE DURING SERVICE. THIS COULD DAMAGE THE ENGINE CRANKSHAFT DUE TO PRESSURE BUILDUP FROM TRAPPED GREASE.

### CAUTION:

EXCESSIVE SIDE LOADING CAN DAMAGE CLUTCH PARTS AND ENGINE. DEFLECTION SHOULD BE CHECKED BEFORE OPERATION OF CLUTCH.

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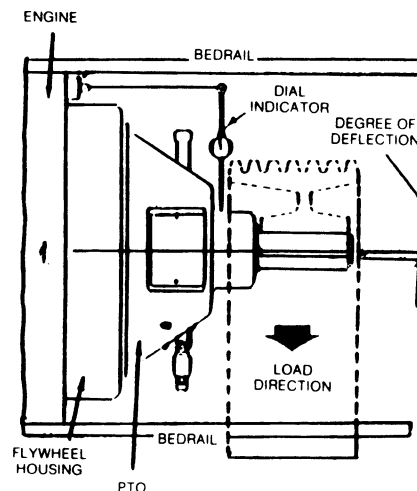
# INSTALLATION

Caution: PEC clutches are made to be mounted directly to the engine flywheel. It is possible, due to mismatched components or many other reasons, to have interference between the engine and clutch. Due to this possibility, engine crankshaft endplay must be measured before the pto is installed. This endplay must again be measured after installation. The second measurement should be the same as the first. If it is not then interference is indicated and the pto should be removed so the source of the interference can be located. **This procedure is considered mandatory.** PEC Manufacturing will NOT be responsible for any damage caused by component interference regardless of the cause.

To avoid wear of clutch due to misalignment, the following checks should be made: (See page 7 of Table and Tolerance)

1. Check flywheel housing face
2. Flywheel housing bore
3. Driving ring surface of flywheel
4. Driving ring pilot bore of flywheel
5. Pilot bearing bore of flywheel
6. After all alignments have been checked, install driving ring onto flywheel and tighten bolts. (See Chart on pg. 15)
7. Install Pilot Bearing on PTO shaft.  
Note: Unit is supplied with sealed pilot bearings. If lubrication is desired, remove the forward seal (engine side). If no lubrication is desired, leave seals intact and remove Grease Fitting from shaft and install plug.
8. Install guide studs (if needed) in the flywheel housing to help in alignment and installation of PTO.
9. Slide PTO into place making sure that the drive plate teeth are not in a bind. Bolt the PTO to the housing and tighten all bolts. After tightening the bolts, use a soft hammer and rap the end of the shaft to unload any pressure on the bearings that may result from installation of the clutch.
10. Check installation of PTO for side load deflection. To check side load deflection, attach a dial indicator to a rigid part of the engine with the plunger resting on the housing at the main bearing area. This reading should be taken directly opposite the known load direction (see Figure (A) below; if the load direction is unknown you may have to use two indicators. Zero the dial indicator and attach the drive belts. In no case should the indicated deflection exceed .010 inch at the clutch housing.

Figure A



11. After installation, operator should check to make sure clutch is properly adjusted and lubricated before starting unit.

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## LUBRICATION OF CLUTCH

The Anti-Friction Bearing(s) located in the housing hub and unsealed pilot bearings need grease approximately every 100 hours. Use a small amount of high grade, high temperature, lithium base gun lubricant for anti-friction bearing with operating temperature of 200 degrees Fahrenheit.

**NOTE:** If you have installed a sealed pilot bearing, remove grease fitting and install pipe plug in shaft. These bearings are sealed for life; inspect every two years.

**Throwout Collar:** Lubricate the brass collar daily with a small amount of grease. Care should be taken that the grease hose is in good condition.

**Operating Shaft:** Lubricate as needed to maintain a freely moving shaft.

**Clutch levers and linkage:** Lubricate with engine oil after every 500 hours of operation.

**CAUTION:** Lubricate sparingly to avoid oil on clutch facings.

## CLUTCH ADJUSTMENT

**WARNING:** DO NOT ADJUST CLUTCH WHILE ENGINE IS IN OPERATION!

**WARNING:** DO NOT ADJUST THE CLUTCH ABOVE THE MAXIMUM RECOMMENDED TORQUE. THIS MAY CAUSE CLUTCH COMPONENT FAILURE. (See page 8)

A new clutch may need several adjustments during its first run-in period. If the PTO heats or does not pull a load or the operating shaft lever disengages, the clutch needs adjusting. To adjust the clutch, the following steps should be followed:

1. Make sure the engine or power source is off.
2. Remove the inspection plate cover and turn the clutch until you locate the adjusting lock pin.
3. Pull the pin out and you will find a small hole in the side. Install a piece of wire or cotter pin in the hole to hold the pin out.
4. Turn the adjusting ring clockwise until the clutch engages at the proper torque shown on the chart found on page 8 in the Table and Tolerance section of the manual. This chart is a method of measuring clutch adjustments from operating shaft or hand lever.

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## REMOVAL AND DISASSEMBLY

1. Remove everything from the output end of the clutch shaft and remove the instruction cover plate.
2. Remove cap screws that secure the clutch housing to the flywheel housing. There are two 3/8 cap screw holes in the housing to be used for pusher bolts to assist in removing clutch from engine.
3. Remove pilot bearing from end of shaft using a standard bearing puller.
4. Remove the jam nut and lock washer from the grease hose fitting, located on the side of the housing. Push the grease hose and fitting into the clutch housing.
5. Remove the shaft nut and lock washer.
6. Place prybars on opposite sides over the housing and under the front of the clutch floating plate. Hold pressure on both bars and rap the shaft end with soft hammer to release the hub and back plate from tapered shaft. Another method is to fit a protective cap on the pilot bearing end of the shaft. While applying pressure on the operating lever in the engaged direction, rap the protective cap to free the hub and back plate from the shaft taper.
7. Remove clutch pack assembly. Place clutch pack with sliding sleeve up. Pull adjusting lock pin out and insert a small piece of wire in hole. Screw the adjusting sliding sleeve assembly counterclockwise and remove.
8. After removing the sliding sleeve and adjusting yoke remove the floating plate and the drive plate from the hub and back plate.
9. To replace any damaged part, straighten and remove all cotter pins and links connected to the damaged part.
10. (CO1-06, CO1-07) Remove the four cap screws and lock washers from the bearing retainer and tap or press the shaft from the clutch housing.  
Remove the bearing retainer lock and unscrew the bearing retainer and press or tap the shaft from housing.
11. Remove the cap screws from the throwout yoke, tap the operating shaft to expose the woodruff keys, remove the woodruff keys, then remove the operating shaft from yoke.
12. Place housing face down, remove the two small plugs, and carefully drive the bearing cup out of the housing with a small punch.

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# ASSEMBLY

1. Prepare housing by replacing grease fittings if damaged or removed during disassembly.
2. Install operating shaft and throwout yoke. Install operating shaft halfway into the clutch housing, then slip the throwout yoke onto the operating shaft. Slide the operating shaft through the housing and install woodruff keys, then tighten the two 3/8 capscrews. The head of the capscrew in the throwout yoke should be on the pilot bearing side or flange side of the clutch.
3. Install rear bearing cup into housing.
4. Install bearings onto the shaft using arbor press, if possible. (Note: Using torch to heat bearings can cause damage. Bearings can be heated in oven or oil bath.) Recommend bearing temperature of 248 Fahrenheit.
5. Install clutch shaft in housing, and press the upper cup into place. Install bearing retainer and tighten until 60 lbs. of pressure is required to turn the shaft. After you have seated the bearing, use a soft hammer and rap the pilot bearing end of shaft. Check to assure 60 lbs. of pressure is still required to rotate the shaft. Adjust as necessary.
6. Back off the bearing retainer 3 1/4 - 4 1/4 notches. Rap the output end of shaft to equalize bearings. Check shaft end play (See chart on page 8).
7. Place housing and shaft assembly on table and set up your dial indicator as shown in Figure (B). Bolt housing to table and hook up chain and eyebolt using a hanging scale between the hoist and eyebolt.
8. Apply 200 lbs. of force to the shaft and rotate it twice in each direction.
9. The indicator reading is the endplay. Using the chart, adjust the bearing retainer by loosening or tightening to achieve the recommended endplay.
10. After adjustments have been made, position the bearing retainer lock, then bolt and tighten.
11. Assemble the sliding sleeve assembly by putting split brass collar and shims on sleeve with two 3/8 x 2 1/4 capscrews and tighten. Using four lever link pins and new cotter pins, install lever links to ears on sleeve. Install four finger levers to the adjusting yoke with lever pins and cotter pins. Join the sliding sleeve assembly with the adjusting yoke assembly using lever link pins and cotter pins.
12. Install the adjusting lock pin and spring into the adjusting yoke by inserting a small wire in hole of the adjusting lock pin.
13. Set the hub and back plate on flat surface with threads up. Insert release springs in holes on hub and back plate, then set drive plate and floating plate in position on hub and back plate.

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14. Install the adjusting yoke and sliding sleeve assembly on the hub and back plate. Tighten the yoke until you can push the sliding sleeve downward and snap the clutch in. Final clutch adjustment will be made on installation.
  15. Slide clutch pack assembly onto the clutch shaft aligning the hub and shaft keyways. Install hub key into shaft and hub about 2/3 way. Tap the clutch pack into place making sure that the ears on the brass collar slip into the throwout yoke. Then tap hub key into position.
  16. Install new shaft lock washer and nut. Tighten nut to 30 lbs. ft. torque and then turn nut an additional 60-90 degrees. Bend lock washer in place to lock nut.
  17. Install hand lever and disengage clutch. With clutch set up, use drive ring and align plates in center. Engage clutch.
  18. While rotating shaft, fill main bearing cavity with a lithium base #2 grease. Grease brass collar and operating shaft.
  19. Install pilot bearing.
  20. If all assembly instructions have been followed precisely, the clutch is ready to install.

## **CAMROL BEARING ADJUSTMENT**

If unit is equipped with a Brass or Ball Bearing Collar, disregard this section.

1. With clutch properly adjusted for engagement pressure and engaged.
2. Position Shift Fork into center of Sliding Sleeve and install both Stop Collars on operating shaft to prevent side movement of Shift Fork.
3. With the Detent Roller in the forward groove, position the Detent Lever to allow a minimum clearance of .100 in. between the Camrol Bearing and the front side of the Sliding Sleeve.
4. Position Detent Lever to provide a clearance of .120 in. between the detent pin snap-ring and Detent Lever.

#### CHECKING FLYWHEEL HOUSING FACE

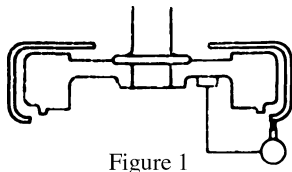


Figure 1

Bolt the indicator to the flywheel so that the indicator is vertical to the housing face and the indicator stem rides on the housing face. (See Fig. 1). Runout should not exceed tolerance listed in table No. 1.

#### CHECKING FLYWHEEL HOUSING BORE

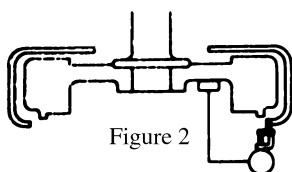


Figure 2

Readjust indicator so that the stem rides on the bore of the flywheel housing. (See Fig. 2). Runout should not exceed tolerances listed in table No. 1.

#### CHECKING DRIVING RING SURFACE OF FLYWHEEL

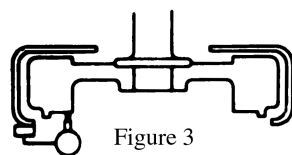


Figure 3

Remove indicator base from flywheel, and bolt indicator to flywheel housing proper, and check flywheel (See Fig. 3).

The variation of the face runout of the surface to which the driving ring or clutch plate is bolted, should not exceed .0005 maximum total indicator reading per inch of diameter.

#### CHECKING DRIVING RING PILOT BORE OF FLYWHEEL

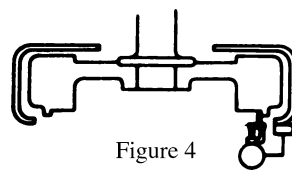


Figure 4

Readjust indicator so that the stem will ride on the driving ring pilot bore. The eccentricity of the driving ring pilot bore should not exceed .005 maximum total indicator reading. Eccentricity between driving ring pilot bore and pilot bearing bore should not exceed .008 total indicator reading.

#### CHECKING PILOT BEARING BORE OF FLYWHEEL

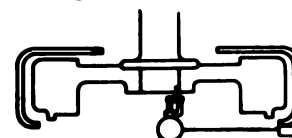


Figure 5

Readjust the indicator so stem rides on the pilot bearing bore cavity. The eccentricity of the pilot bearing bore should not exceed .005 maximum total indicator reading.

### TABLE 1

#### MAXIMUM FLYWHEEL HSG. DEVIATION

| HOUSING SIZE<br>S.A.E. NO. | A<br>FACE<br>DEVIATION<br>TIR INCHES | B<br>BORE<br>ECCEN.<br>TIR INCHES |
|----------------------------|--------------------------------------|-----------------------------------|
| 00                         | .012                                 | .012                              |
| 0 - 1/2                    | .010                                 | .010                              |
| 1 - 2 - 3                  | .008                                 | .008                              |
| 4 - 5 - 6                  | .006                                 | .006                              |

### TABLE 2

#### MAXIMUM FLYWHEEL DEVIATION

| NORMAL CLUTCH<br>DIA. INCHES | A<br>FACE<br>DEVIATION<br>TIR INCHES | B<br>DRIVING RING<br>PILOT & PILOT BRG. BORE<br>TIR INCHES |
|------------------------------|--------------------------------------|------------------------------------------------------------|
| 8                            | .005                                 | .005                                                       |
| 10                           | .006                                 | .005                                                       |
| 12 - 1/2                     | .009                                 | .005                                                       |
| 14 (18 - 3/4 Bore)           | .009                                 | .005                                                       |
| 14 (22 - 1/2 Bore)           | .011                                 | .005                                                       |
| 18                           | .011                                 | .005                                                       |

# CHART A

| CLUTCH<br>MODEL | OPERATING SHAFT TORQUE<br>(POUNDS/FEET) |     | HAND LEVER EFFORT<br>(POUNDS) |     | HAND LEVER<br>LENGTH (A)<br>(INCHES) |
|-----------------|-----------------------------------------|-----|-------------------------------|-----|--------------------------------------|
|                 | MIN                                     | MAX | MIN                           | MAX |                                      |
| C01-06          | 66                                      | 86  | 58                            | 76  | 13.6                                 |
| CN1-06          | 66                                      | 86  | 58                            | 76  | 13.6                                 |
| C01-07          | 66                                      | 86  | 58                            | 76  | 13.6                                 |
| CN1-07          | 66                                      | 86  | 58                            | 76  | 13.6                                 |
| C01-08          | 71                                      | 94  | 63                            | 83  | 13.6                                 |
| C01-10          | 88                                      | 117 | 78                            | 103 | 13.6                                 |
| C01-11          | 108                                     | 142 | 95                            | 125 | 13.6                                 |
| C02-11          | 134                                     | 177 | 118                           | 156 | 13.6                                 |
| CN2-11          | 134                                     | 177 | 118                           | 156 | 13.6                                 |
| C01-14          | 218                                     | 289 | 123                           | 163 | 21.3                                 |
| CN1-14          | 218                                     | 289 | 123                           | 163 | 21.3                                 |
| C02-14          | 218                                     | 289 | 123                           | 163 | 21.3                                 |
| CN2-14          | 218                                     | 289 | 123                           | 163 | 21.3                                 |
| C03-14          | 218                                     | 289 | 123                           | 163 | 21.3                                 |
| CN3-14          | 218                                     | 289 | 123                           | 163 | 21.3                                 |

NOTE

THE HAND LEVERS HAVE A CASTED HEX NUT WHICH A SOCKET AND **TORQUE** WRENCH CAN BE USED TO CHECK THE OPERATING SHAFT TORQUE.

FIGURE A

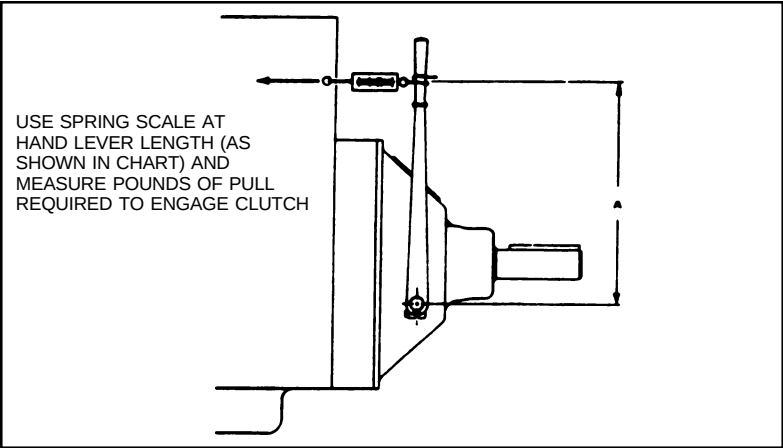
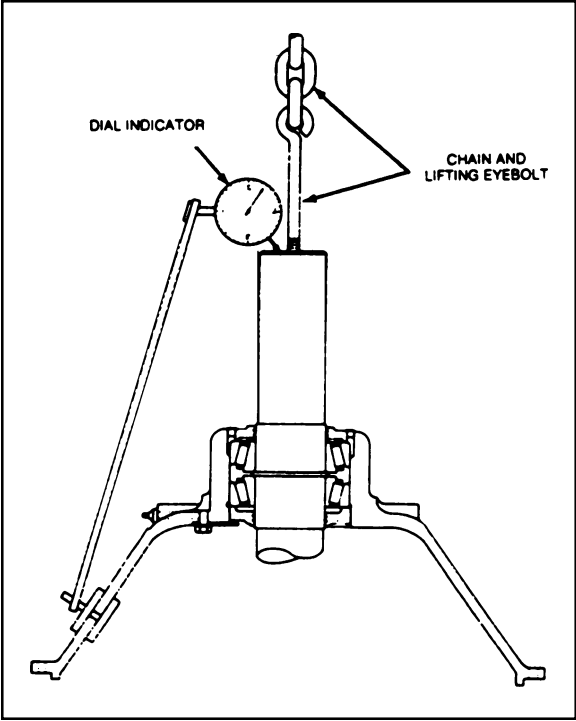


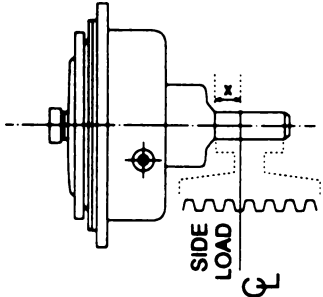
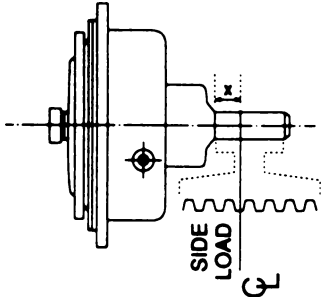
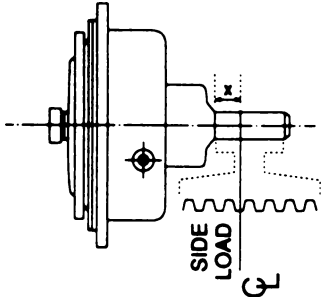
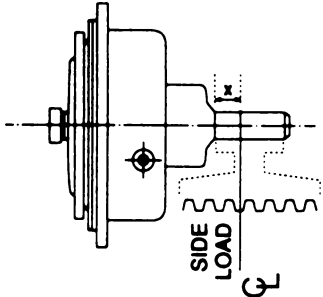
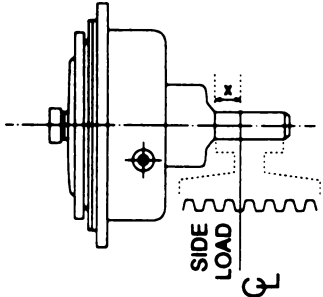
FIGURE B



# CHART B

| SHAFT END PLAY          |                           |
|-------------------------|---------------------------|
| STANDARD CHART          |                           |
| CLUTCH SIZE             | REC. END PLAY             |
| C01-06<br>C01-07        | NOT REC. FOR<br>SIDE LOAD |
| ALL 6", 7", 8" CLUTCHES | .004 – .006               |
| ALL 10", 11" CLUTCHES   | .004 – .007               |
| ALL 14" CLUTCHES        | .006 – .010               |

# Allowable Side-Pull Loads For POWER TAKE-OFFS

| PTO                      | RPM  | "X" DISTANCE, INCHES / MM (See Sketch) |      |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|--------------------------|------|----------------------------------------|------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                          |      | 1/25                                   | 2/50 | 3/75 | 4/100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5/125 | 6/150                                                                                | 7/175                                                                                | 8/200 | 9/225                                                                                |                                                                                      |
| <b>CO1-06</b>            | 1000 | 835                                    | 625  | 475  | <p>For determination of actual applied load, the following formula should be used.</p> $L \text{ (lbs.)} = \frac{126000 \times \text{H.P.}}{N \times D \text{ (inch)}} \times F$ $L \text{ (kgs.)} = \frac{1430000 \times \text{H.P. (Metric)}}{N.D. \text{ (mm)}} \times F$ <p>WHERE:</p> <p>L = Actual load applied<br/> N = Shaft speed in RPM<br/> D = Pitch dia. of sheave<br/> F = Load factor</p> <p>★ 1.0 for chain or gear drive<br/> ★ 1.5 for timing belts<br/> ★ 2.5 for all V belts<br/> ★ 3.5 for flat belts</p> <p>For all the severe shock drives, multiply above factors by 2.1 for added safety.</p> |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CO1-07</b>            | 2000 | 380                                    | 284  | 215  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 3000 | 665                                    | 595  | 475  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 302                                    | 270  | 215  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 585                                    | 525  | 475  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 265                                    | 238  | 215  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CN1-06</b>            | 1000 | 1075                                   | 795  | 635  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 488                                    | 360  | 288  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CN1-07</b>            | 2000 | 1075                                   | 795  | 635  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 3000 | 488                                    | 360  | 288  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1075                                   | 795  | 635  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 488                                    | 360  | 288  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CN1-08</b>            | 1000 | 1495                                   | 1110 | 885  | 735                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 630   |  |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 680                                    | 505  | 403  | 334                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 286   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 2000 | 1495                                   | 1110 | 885  | 735                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 630   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 680                                    | 505  | 403  | 334                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 286   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 3000 | 1495                                   | 1110 | 885  | 735                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 630   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 680                                    | 505  | 403  | 334                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 286   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CO1-10</b>            | 1000 | 2740                                   | 2190 | 1730 | 1430                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1216  |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1245                                   | 995  | 786  | 650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 552   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 1500 | 2420                                   | 2190 | 1730 | 1430                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1216  |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1098                                   | 995  | 786  | 650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 552   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 2000 | 2230                                   | 2070 | 1730 | 1430                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1216  |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1100                                   | 940  | 786  | 650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 552   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 2600 | 2050                                   | 1910 | 1730 | 1430                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1216  |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1013                                   | 868  | 786  | 650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 552   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CO1-11</b>            | 1000 | 2790                                   | 2600 | 2240 | 1840                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1570  |  |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1268                                   | 1182 | 1018 | 836                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 713   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 1500 | 2630                                   | 2450 | 2240 | 1840                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1570  |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1195                                   | 1113 | 1018 | 836                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 713   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 2000 | 2330                                   | 2170 | 2030 | 1840                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1570  |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1059                                   | 986  | 922  | 836                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 713   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 2400 | 2140                                   | 1990 | 1865 | 1750                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1570  |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 972                                    | 904  | 847  | 795                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 713   |                                                                                      |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CO2-11</b>            | 1000 | 5450                                   | 3395 | 2710 | 2255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1930  | 1690                                                                                 |  |       |                                                                                      |                                                                                      |
|                          |      | 2063                                   | 1543 | 1231 | 1025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 877   | 768                                                                                  |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CN2-11</b>            | 1500 | 4370                                   | 3395 | 2710 | 2255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1930  | 1690                                                                                 |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1986                                   | 1543 | 1231 | 1025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 877   | 768                                                                                  |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 2000 | 3900                                   | 3395 | 2710 | 2255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1930  | 1690                                                                                 |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1772                                   | 1543 | 1231 | 1025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 877   | 768                                                                                  |                                                                                      |       |                                                                                      |                                                                                      |
|                          | 2400 | 3550                                   | 3330 | 2710 | 2255                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1930  | 1690                                                                                 |                                                                                      |       |                                                                                      |                                                                                      |
|                          |      | 1613                                   | 1513 | 1231 | 1025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 877   | 768                                                                                  |                                                                                      |       |                                                                                      |                                                                                      |
| <b>CO1-14</b>            | 1000 | 3390                                   | 2600 | 2120 | 1780                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1535  | 1350                                                                                 | 1210                                                                                 | 1090  |  |                                                                                      |
|                          |      | 1540                                   | 1181 | 963  | 809                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 697   | 613                                                                                  | 505                                                                                  | 495   |                                                                                      |                                                                                      |
| <b>CN1-14</b>            | 1500 | 3390                                   | 2600 | 2120 | 1780                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1535  | 1350                                                                                 | 1210                                                                                 | 1090  |                                                                                      |                                                                                      |
|                          |      | 1540                                   | 1181 | 963  | 809                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 697   | 613                                                                                  | 505                                                                                  | 495   |                                                                                      |                                                                                      |
|                          | 2000 | 3390                                   | 2600 | 2120 | 1780                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1535  | 1350                                                                                 | 1210                                                                                 | 1090  |                                                                                      |                                                                                      |
|                          |      | 1540                                   | 1181 | 963  | 809                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 697   | 613                                                                                  | 505                                                                                  | 495   |                                                                                      |                                                                                      |
|                          | 2200 | 3390                                   | 2600 | 2120 | 1780                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1535  | 1350                                                                                 | 1210                                                                                 | 1090  |                                                                                      |                                                                                      |
|                          |      | 1540                                   | 1181 | 963  | 809                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 697   | 613                                                                                  | 505                                                                                  | 495   |                                                                                      |                                                                                      |
| <b>CO2-14</b>            | 1000 | 5980                                   | 4700 | 3880 | 3290                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2870  | 2540                                                                                 | 2270                                                                                 | 2060  |                                                                                      |                                                                                      |
|                          |      | 2718                                   | 2137 | 1763 | 1495                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1304  | 1154                                                                                 | 1031                                                                                 | 936   |                                                                                      |                                                                                      |
| <b>CN2-14</b>            | 1500 | 5980                                   | 4700 | 3880 | 3290                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2870  | 2540                                                                                 | 2270                                                                                 | 2060  |                                                                                      |                                                                                      |
|                          |      | 2718                                   | 2137 | 1763 | 1495                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1304  | 1154                                                                                 | 1031                                                                                 | 936   |                                                                                      |                                                                                      |
|                          | 2000 | 5980                                   | 4700 | 3880 | 3290                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2870  | 2540                                                                                 | 2270                                                                                 | 2060  |                                                                                      |                                                                                      |
|                          |      | 2718                                   | 2137 | 1763 | 1495                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1304  | 1154                                                                                 | 1031                                                                                 | 936   |                                                                                      |                                                                                      |
|                          | 2200 | 5980                                   | 4700 | 3880 | 3290                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2870  | 2540                                                                                 | 2270                                                                                 | 2060  |                                                                                      |                                                                                      |
|                          |      | 2718                                   | 2137 | 1763 | 1495                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1304  | 1154                                                                                 | 1031                                                                                 | 936   |                                                                                      |                                                                                      |
| <b>CO3-14</b>            | 1000 | 6170                                   | 5120 | 4200 | 3570                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3100  | 2740                                                                                 | 2460                                                                                 | 2220  | 2035                                                                                 |  |
|                          |      | 2804                                   | 2327 | 1909 | 1622                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1409  | 1245                                                                                 | 1118                                                                                 | 1009  | 925                                                                                  |                                                                                      |
| <b>CN3-14</b>            | 1500 | 5350                                   | 5120 | 4200 | 3570                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3100  | 2740                                                                                 | 2460                                                                                 | 2220  | 2035                                                                                 |                                                                                      |
|                          |      | 2431                                   | 2327 | 1909 | 1622                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1409  | 1245                                                                                 | 1118                                                                                 | 1009  | 925                                                                                  |                                                                                      |
|                          | 2000 | 5025                                   | 4750 | 4200 | 3570                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3100  | 2740                                                                                 | 2460                                                                                 | 2220  | 2035                                                                                 |                                                                                      |
|                          |      | 2284                                   | 2159 | 1909 | 1622                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1409  | 1245                                                                                 | 1118                                                                                 | 1009  | 925                                                                                  |                                                                                      |
| With 80mm Pilot Bearing  | 2200 | 4850                                   | 4650 | 4200 | 3570                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 3100  | 2740                                                                                 | 2460                                                                                 | 2220  | 2035                                                                                 |                                                                                      |
|                          |      | 2204                                   | 2113 | 1909 | 1622                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1409  | 1245                                                                                 | 1118                                                                                 | 1009  | 925                                                                                  |                                                                                      |
| <b>CO3-14</b>            | 1000 | 6170                                   | 5850 | 5580 | 4720                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4110  | 3630                                                                                 | 3260                                                                                 | 2945  | 2690                                                                                 |                                                                                      |
|                          |      | 2804                                   | 2659 | 2536 | 2146                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1868  | 1650                                                                                 | 1431                                                                                 | 1338  | 1222                                                                                 |                                                                                      |
| <b>CN3-14</b>            | 1500 | 5350                                   | 5120 | 4850 | 4650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4110  | 3630                                                                                 | 3260                                                                                 | 2945  | 2690                                                                                 |                                                                                      |
|                          |      | 2431                                   | 2327 | 2204 | 2113                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1868  | 1650                                                                                 | 1431                                                                                 | 1338  | 1222                                                                                 |                                                                                      |
|                          | 2000 | 5025                                   | 4750 | 4450 | 4650                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4110  | 3630                                                                                 | 3260                                                                                 | 2945  | 2690                                                                                 |                                                                                      |
|                          |      | 2284                                   | 2159 | 2022 | 2113                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1868  | 1650                                                                                 | 1431                                                                                 | 1338  | 1222                                                                                 |                                                                                      |
| With 100mm Pilot Bearing | 2200 | 4850                                   | 4650 | 4350 | 4150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 4000  | 3630                                                                                 | 3260                                                                                 | 2945  | 2690                                                                                 |                                                                                      |
|                          |      | 2204                                   | 2113 | 1977 | 1886                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1818  | 1650                                                                                 | 1431                                                                                 | 1338  | 1222                                                                                 |                                                                                      |

Note: Shaded areas are metric.

# PTO SPECIFICATIONS

| PEC<br>PTO<br>Model<br>Number | Available<br>SAE<br>Housing<br>Number | Clutch<br>Diameter<br>ins/mm | Max. Torque<br>Recom-<br>mended<br>lb-ft/kg | Max. engine H.P./M.H.P.<br>Recommended |                |               | Max. safe operating<br>speed (RPM) |                | Approx.<br>Net<br>Weight<br>lb/kg |
|-------------------------------|---------------------------------------|------------------------------|---------------------------------------------|----------------------------------------|----------------|---------------|------------------------------------|----------------|-----------------------------------|
|                               |                                       |                              |                                             | Light<br>Duty                          | Normal<br>Duty | Heavy<br>Duty | Solid<br>Plate                     | Split<br>Plate |                                   |
| CO1-06<br>CN1-06              | 4, 5, 6                               | 6 1/2<br>165.10              | 178<br>21.91                                | 40<br>40.15                            | 27<br>27.25    | 20<br>20.28   | 3500                               | 3500           | 53<br>24.00                       |
| CO1-07<br>CN1-07              | 4, 5, 6                               | 7 1/2<br>190.50              | 234<br>26.12                                | 53<br>53.05                            | 35<br>35.06    | 27<br>27.41   | 3200                               | 3200           | 55<br>24.92                       |
| CO1-08                        | 3, 4, 5                               | 8<br>203.20                  | 282<br>29.38                                | 64<br>63.57                            | 43<br>43.60    | 32<br>32.24   | 3100                               | 3050           | 72<br>32.62                       |
| CO1-10                        | 2, 3, 4                               | 10<br>254.0                  | 427<br>48.50                                | 97<br>96.79                            | 65<br>65.90    | 49<br>49.56   | 3100                               | 2650           | 115<br>52.10                      |
| CO1-11                        | 2, 3                                  | 11<br>279.4                  | 553<br>65.16                                | 126<br>126.05                          | 84<br>84.69    | 63<br>63.70   | 2850                               | 2200           | 141<br>63.88                      |
| CO2-11<br>CN2-11              | 2, 3                                  | 11<br>279.4                  | 1090<br>129.39                              | 239<br>236.71                          | 159<br>155.65  | 120<br>107.88 | 2850                               | 2200           | 155<br>70.23                      |
| CO1-14<br>CN1-14              | 1                                     | 14<br>355.6                  | 900<br>123.39                               | 204<br>217.50                          | 136<br>138.13  | 102<br>102.61 | 2400                               | 1950           | 260<br>117.80                     |
| CO2-14<br>CN2-14              | 0, 1                                  | 14<br>355.6                  | 1710<br>235.16                              | 389<br>378.13                          | 259<br>246.43  | 195<br>169.48 | 2500                               | 1950           | 328<br>148.61                     |
| CO3-14<br>CN3-14              | 0, 1                                  | 14<br>355.6                  | 2565<br>353.38                              | 583<br>557.50                          | 389<br>351.98  | 292<br>226.60 | 2500                               | 1920           | 408<br>184.86                     |

Note: Figures in gray are in mm

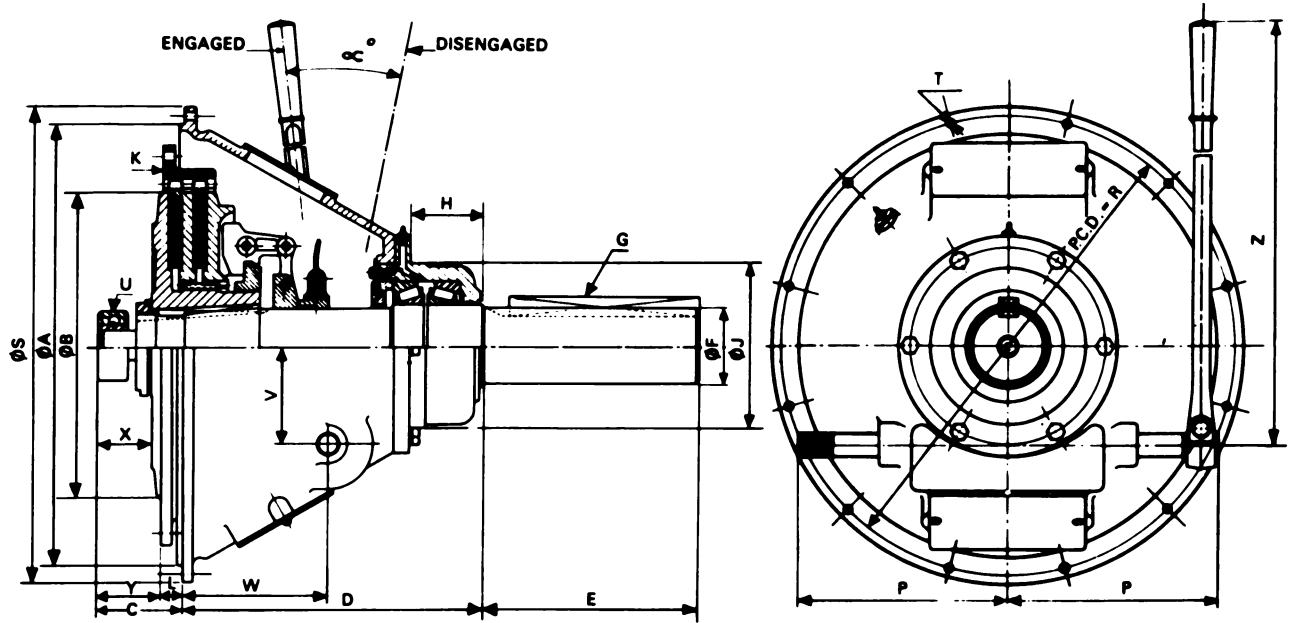
## Maximum Speed

For Proper Release of Clutches with Split Plates

| Size   | RPM  | Size           | RPM  | Size       | RPM  |
|--------|------|----------------|------|------------|------|
| 6 1/2" | 3250 | 10"            | 2375 | 14" single | 1240 |
| 7 1/2" | 3050 | 11 1/2" single | 2100 | 14" double | 940  |
| 8"     | 2900 | 11 1/2" double | 1625 | 14" triple | 800  |

| LIGHT DUTY                                                                                                                                                                                                                                                                                                                                                                                                                              | NORMAL DUTY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | HEAVY DUTY                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AGITATORS</b> , pure liquids.<br><b>BLOWERS</b> , centrifugal, vane.<br><b>CONVEYORS</b> , uniformly loaded or fed, all types except reciprocating and vibrating.<br><b>GENERATORS</b><br><b>ELEVATORS, BUCKET</b> , uniformly loaded or fed, all types.<br><b>FEEDERS</b> , disc type.<br><b>PUMPS</b> , centrifugal.<br><b>SCREENS</b> , rotary, uniformly fed.<br><b>MACHINES</b> of all types with uniform loads, non-reversing. | <b>AGITATORS</b> , (solids or semi solids).<br><b>COMPRESSORS</b> , centrifugal, reciprocating (3 or more cylinders).<br><b>CONVEYORS</b> , not uniformly loaded or fed, all types except reciprocating and vibrating.<br><b>ELEVATORS, BUCKET</b> , not uniformly loaded or fed.<br><b>FEEDERS</b> , (under bins, hoppers, etc.) apron, belt, screw rotary vane.<br><b>HOISTS</b><br><b>KILNS, DRYERS</b> , rotary.<br><b>MILLS</b> , ball pebble tube.<br><b>PUMPS</b> , reciprocating (3 or more cylinders).<br><b>MACHINES</b> of all types with moderate pulsating loads, non-reversing. | <b>COMPRESSORS</b> , reciprocating (single or 2 cylinder).<br><b>CONVEYORS</b> , reciprocating and vibrating (natural frequency).<br><b>CRUSHERS</b><br><b>FEEDERS</b> , reciprocating.<br><b>MILLS</b> , hammer, rolling.<br><b>PAPER MACHINERY</b> , chipper and debarkers.<br><b>MACHINES</b> of all types with severe impact loads or speed vibration and reversing type. |

# PTO ASSEMBLY DRAWING



## HOUSING SPECIFICATIONS

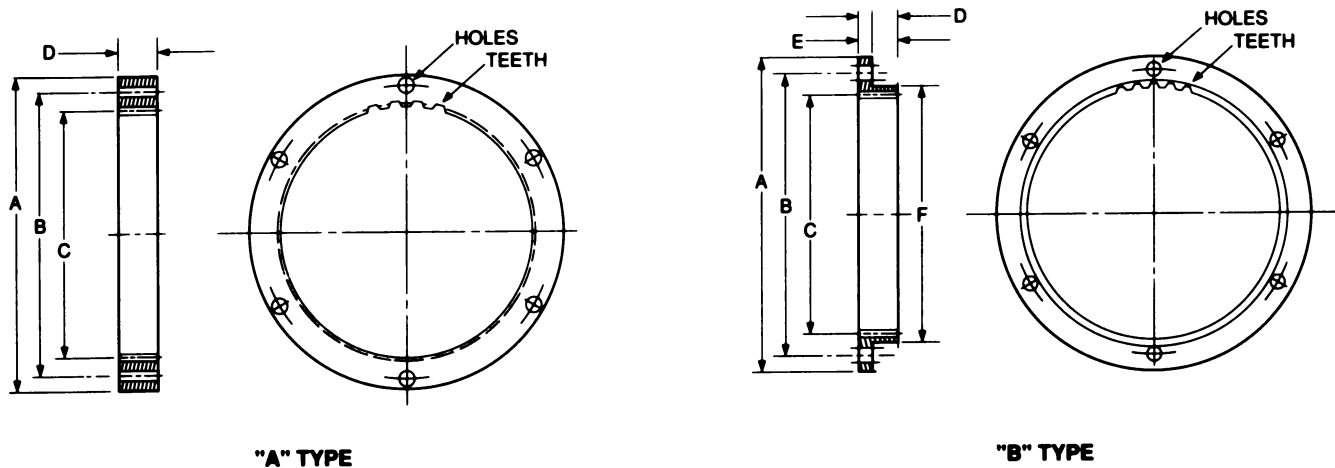
| SAE Housing Number | A               | R               | S               | T   |               | P              |
|--------------------|-----------------|-----------------|-----------------|-----|---------------|----------------|
|                    |                 |                 |                 | No. | Dia.          |                |
| 6                  | 10-1/2<br>266.7 | 11-1/4<br>285.7 | 12-1/8<br>307.9 | 8   | 13/32<br>10.3 | 7-3/4<br>196.8 |
| 5                  | 12-3/8<br>314.3 | 13-1/8<br>333.3 | 14<br>355.6     | 8   | 13/32<br>10.3 | 7-3/4<br>196.8 |
| 4                  | 14-1/4<br>361.9 | 15<br>381       | 15-7/8<br>403.2 | 12  | 13/32<br>10.3 | 7-3/4<br>196.8 |
| 3                  | 16-1/8<br>409.5 | 16-7/8<br>428.6 | 17-3/4<br>450.8 | 12  | 13/32<br>10.3 | 9-3/4<br>247.6 |

| SAE Housing Number | A               | R               | S               | T   |               | P               |
|--------------------|-----------------|-----------------|-----------------|-----|---------------|-----------------|
|                    |                 |                 |                 | No. | Dia.          |                 |
| 2                  | 17-5/8<br>447.6 | 18-3/8<br>466.7 | 19-1/4<br>488.9 | 12  | 13/32<br>10.3 | 9-3/4<br>247.6  |
| 1                  | 20-1/8<br>511.2 | 20-7/8<br>530.2 | 21-3/4<br>552.4 | 12  | 15/32<br>11.9 | 9-3/4<br>247.6  |
| 0                  | 25-1/2<br>647.7 | 26-3/4<br>679.4 | 28<br>711.2     | 16  | 17/32<br>13.5 | 12-3/4<br>323.8 |

## INSTALLATION DETAILS

| PTO Model        | Housing Length D | Shaft                                            |                 |                             | Clutch de.       | C                 | H                | J                 | Pilot Bearing U                                         |                                               |          | V               | W                | X                | Y                | L               | Hand Lever Travel oc | Z                | Driving Ring Number K |
|------------------|------------------|--------------------------------------------------|-----------------|-----------------------------|------------------|-------------------|------------------|-------------------|---------------------------------------------------------|-----------------------------------------------|----------|-----------------|------------------|------------------|------------------|-----------------|----------------------|------------------|-----------------------|
|                  |                  | Dia. - F<br>+0.000<br>-0.001<br>+0.000<br>-0.026 | Length E        | Keyway G                    |                  |                   |                  |                   | $\emptyset$<br>+0.0000<br>+0.0005<br>+0.0000<br>+0.0125 | Width<br>+0.000<br>+0.005<br>+0.000<br>+0.125 | Type     |                 |                  |                  |                  |                 |                      |                  |                       |
| C01-06           | 5-9/16<br>141.30 | 1-7/16<br>36.50                                  | 3-1/2<br>88.9   | 3/8 x 3/16<br>9.52 x 4.76   | 6-1/2<br>165.1   | 2-13/16<br>71.44  | 7/8<br>22.22     | 4-1/2<br>114.3    | 2.0472<br>51.99                                         | 0.5856<br>14.87                               | 205 SF   | 3<br>76.20      | 2-1/8<br>53.97   | 1-5/16<br>33.33  | 1-5/8<br>41.27   | 1-3/16<br>30.16 | 13°                  | 15-3/8<br>390.52 | 6X-325                |
| C01-07           | 5-9/16<br>141.30 | 1-7/16<br>36.50                                  | 3-1/2<br>88.9   | 3/8 x 3/16<br>9.52 x 4.76   | 7-1/2<br>190.5   | 2-13/16<br>71.44  | 7/8<br>22.22     | 4-1/2<br>114.3    | 2.0472<br>51.99                                         | 0.5856<br>14.87                               | 205 SF   | 3<br>76.20      | 2-1/8<br>53.97   | 1-5/16<br>33.33  | 1-5/8<br>41.27   | 1-3/16<br>30.16 | 13°                  | 15-3/8<br>390.52 | 7X-312                |
| C01-08           | 7-1/16<br>179.40 | 1-3/4<br>4.45                                    | 6<br>152.40     | 1/2 x 1/4<br>12.7 x 6.35    | 8<br>203.20      | 3-15/16<br>100.0  | 2-11/32<br>59.53 | 5<br>127.0        | 2.4409<br>61.99                                         | 0.6643<br>18.87                               | 305 SF   | 3<br>76.20      | 1-7/8<br>47.62   | 1-1/4<br>31.75   | 1-1/2<br>38.10   | 2-7/16<br>60.90 | 17°                  | 15-3/8<br>390.52 | 8X-298                |
| C01-10           | 8-5/8<br>219.07  | 2-1/4<br>57.15                                   | 5-1/2<br>139.70 | 5/8 x 5/16<br>15.87 x 7.94  | 10<br>254.0      | 3-15/16<br>100.0  | 3-3/4<br>95.25   | 5-3/4<br>146.05   | 2.8346<br>71.99                                         | 1.1825<br>30.03                               | 306 SFFC | 3<br>76.20      | 2<br>50.80       | 1-9/16<br>39.70  | 1-13/16<br>46.04 | 2-1/8<br>53.97  | 15°                  | 15-3/8<br>390.52 | 10X-149               |
| C01-11           | 9-1/4<br>234.95  | 2-1/4<br>57.15                                   | 6-1/2<br>165.10 | 5/8 x 5/16<br>15.87 x 7.94  | 11-3/8<br>288.92 | 3-15/16<br>100.0  | 3-3/4<br>95.25   | 5-3/4<br>146.05   | 2.8346<br>71.99                                         | 1.1825<br>30.03                               | 306 SFFC | 3<br>76.20      | 3-3/16<br>80.96  | 1-15/16<br>49.20 | 2-3/8<br>60.32   | 1-9/16<br>39.70 | 15-1/2°              | 15-3/8<br>390.52 | 11X-150               |
| C02-11<br>CN2-11 | 9-5/8<br>244.47  | 2-1/2<br>63.50                                   | 6-1/2<br>165.10 | 5/8 x 5/16<br>15.87 x 7.94  | 11-3/8<br>288.92 | 3-15/16<br>100.0  | 3<br>76.20       | 6-1/2<br>165.10   | 2.8346<br>71.99                                         | 1.1825<br>30.03                               | 306 SFFC | 3-3/4<br>95.25  | 4-1/16<br>103.20 | 2<br>50.80       | 2-3/8<br>60.32   | 1-9/16<br>39.70 | 15-1/2°              | 15-3/8<br>390.52 | 11X-151               |
| C01-14<br>CN1-14 | 12-1/8<br>307.97 | 3<br>76.20                                       | 8-1/2<br>215.90 | 3/4 x 3/8<br>19.05 x 9.52   | 14<br>355.6      | 3-15/16<br>100.0  | 3-7/16<br>87.31  | 6-21/32<br>169.00 | 3.1496<br>79.99                                         | 1.370<br>34.80                                | 307 SFFC | 4-1/2<br>114.30 | 5-7/16<br>138.11 | 2-9/16<br>85.10  | 2-15/16<br>74.60 | 1<br>25.40      | 18°                  | 23-3/8<br>593.72 | 14X-152               |
| C02-14<br>CN2-14 | 13-3/4<br>349.25 | 3-1/2<br>88.90                                   | 10<br>254.00    | 7/8 x 7/16<br>22.22 x 11.11 | 14<br>355.6      | 3-15/16<br>100.00 | 3-3/8<br>85.72   | 7-1/2<br>190.50   | 3.1496<br>79.99                                         | 1.370<br>34.80                                | 307 SFFC | 4-1/2<br>114.30 | 6-5/8<br>168.27  | 2-7/16<br>61.90  | 2-15/16<br>74.60 | 1<br>25.40      | 18°                  | 23-3/8<br>593.72 | 14X-153               |
| CN3-14           | 14-1/2<br>368.30 | 3-15/16<br>100.00                                | 10<br>254.00    | 1 x 1/2<br>25.4 x 12.7      | 14<br>355.6      | 3-15/16<br>100.0  | 3-3/8<br>85.72   | 7-1/2<br>190.50   | 3.1496<br>79.99                                         | 1.370<br>34.80                                | 307 SFFC | 4-1/2<br>114.30 | 7-3/4<br>196.85  | 2-1/2<br>63.50   | 2-15/16<br>74.80 | 1<br>25.40      | 18°                  | 23-3/8<br>593.72 | 14X-154               |

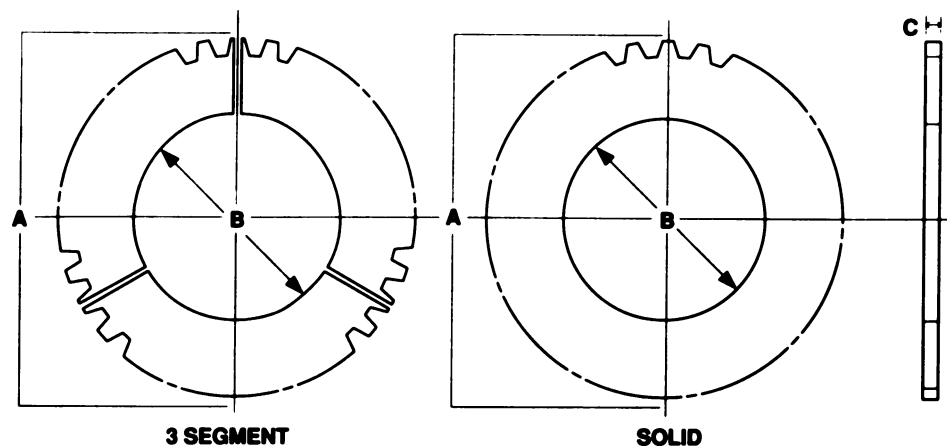
Note: Figures in gray are in mm



## DRIVING RING DETAILS

| PEC Driving Ring # | Driving Ring Type | A               | B               | C<br>(Nominal)   | D              | E           | F           | Holes  |               | Teeth No. | Approx. Net Weight lb/kg |
|--------------------|-------------------|-----------------|-----------------|------------------|----------------|-------------|-------------|--------|---------------|-----------|--------------------------|
|                    |                   |                 |                 |                  |                |             |             | No.    | Size          |           |                          |
| 6X-325             | A                 | 8-1/2<br>215.9  | 7-7/8<br>200.0  | 7<br>177.8       | 5/8<br>15.8    | —           | —           | 6      | 21/64<br>8.33 | 42        | 2-3/4<br>1.25            |
| 7X-312             | A                 | 9-1/2<br>241.3  | 8-3/4<br>222.25 | 7-13/16<br>198.4 | 5/8<br>15.8    | —           | —           | 8      | 21/64<br>8.33 | 47        | 3-3/8<br>1.53            |
| 8X-298             | A                 | 10-3/8<br>263.5 | 9-5/8<br>244.5  | 8-1/2<br>215.9   | 5/8<br>15.8    | —           | —           | 6      | 13/32<br>10.3 | 51        | 4-1/4<br>1.93            |
| 10X-149            | A                 | 12-3/8<br>314.3 | 11-5/8<br>295.3 | 10-1/2<br>266.7  | 7/8<br>22.2    | —           | —           | 8      | 13/32<br>10.3 | 63        | 7<br>3.17                |
| 11X-150            | A                 | 13-7/8<br>352.4 | 13-1/8<br>333.4 | 12<br>304.8      | 7/8<br>22.2    | —           | —           | 8      | 13/32<br>10.3 | 72        | 8<br>3.62                |
| 11X-151            | A                 | 13-7/8<br>352.4 | 13-1/8<br>333.4 | 12<br>304.8      | 1-7/8<br>47.6  | —           | —           | 8      | 13/32<br>10.3 | 72        | 18<br>8.16               |
| 14X-152            | B                 | 18-3/8<br>466.7 | 17-1/4<br>438.1 | 14-3/4<br>374.6  | 1-1/8<br>28.6  | 1/2<br>12.7 | 16<br>406.4 | 8<br>8 | 17/32<br>13.5 | 59        | 16-1/2<br>7.48           |
| 14X-153            | B                 | 18-3/8<br>466.7 | 17-1/4<br>438.1 | 14-3/4<br>374.6  | 2-3/8<br>60.33 | 1/2<br>12.7 | 16<br>406.4 | 8<br>8 | 17/32<br>13.5 | 59        | 25-3/4<br>11.67          |
| 14X-154            | B                 | 18-3/8<br>466.7 | 17-1/4<br>438.1 | 14-3/4<br>374.6  | 3-3/8<br>85.73 | 1/2<br>12.7 | 16<br>406.4 | 8<br>8 | 17/32<br>13.5 | 59        | 32-5/8<br>14.78          |

Note: Figures in gray are in mm



## DRIVE PLATE SPECIFICATIONS

| PEC #    | T.D. #   | Outside Diameter Dim. A | Inside Diameter Dim. B | # Teeth | Thickness Dim. C | # Segments | Drive Ring #                              |
|----------|----------|-------------------------|------------------------|---------|------------------|------------|-------------------------------------------|
| 6X-099   | A-3507-E | 7-1/4                   | 3-5/8                  | 42      | 7/16             | 3          | 6X-325                                    |
| 6X-099A  | A-3507-D | 7-1/4                   | 3-5/8                  | 42      | 7/16             | 1          | 6X-325                                    |
| 7X-100   | A5436-A  | 8-1/4                   | 4-1/2                  | 47      | 7/16             | 3          | 7X-312                                    |
| 7X-100A  | A5436    | 8-1/4                   | 4-1/2                  | 47      | 7/16             | 1          | 7X-312                                    |
| 8X-290   | 6479-S   | 8-3/4                   | 5-1/2                  | 51      | 7/16             | 3          | 8X-298                                    |
| 8X-290A  | 6479     | 8-3/4                   | 5-1/2                  | 51      | 7/16             | 1          | 8X-298                                    |
| 10X-131  | 5878-S   | 10-3/4                  | 5-1/2                  | 63      | 7/16             | 3          | 10X-149                                   |
| 10X-131A | 5878     | 10-3/4                  | 5-1/2                  | 63      | 7/16             | 1          | 10X-149                                   |
| 10X-131B | 06314-F  | 10-3/4                  | 5-1/2                  | 63      | 7/16             | 1          | 10X-149                                   |
| 11X-132  | A-5579-A | 12-1/4                  | 6-1/4                  | 72      | 7/16             | 3          | (1) 11X-150<br>(2) 11X-151                |
| 11X-132A | A-5579   | 12-1/4                  | 6-1/4                  | 72      | 7/16             | 1          | (1) 11X-150<br>(2) 11X-151                |
| 11X-132B | 06310-L  | 12-1/4                  | 6-1/4                  | 72      | 7/16             | 1          | (1) 11X-150<br>(2) 11X-151                |
| 14X-133  | 5659-L   | 15-5/32                 | 7                      | 59      | 5/8              | 3          | (1) 14X-152<br>(2) 14X-153<br>(3) 14X-154 |
| 14X-133A | 5659-K   | 15-5/32                 | 7                      | 59      | 5/8              | 1          | (1) 14X-152<br>(2) 14X-153<br>(3) 14X-154 |
| 14X-134  | 5659-N   | 15-5/32                 | 9-1/4                  | 59      | 5/8              | 3          | (1) 14X-152<br>(2) 14X-153<br>(3) 14X-154 |
| 14X-134A | 5659-M   | 15-5/32                 | 9-1/4                  | 59      | 5/8              | 1          | (1) 14X-152<br>(2) 14X-153<br>(3) 14X-154 |
| 14X-134B | 05499-E  | 15-5/32                 | 9-1/4                  | 59      | 5/8              | 1          | (1) 14X-152<br>(2) 14X-153<br>(3) 14X-154 |
| 18X-135  | 5658-H   | 19-1/8                  | 12-1/2                 | 75      | 5/8              | 3          |                                           |

# BEARING INTERCHANGE

| PEC     | TWIN DISC | NTN         | SKF         | MRC      | N.D.    | FAFNIR   | IKO       | McGILL    | TORRINGTON |
|---------|-----------|-------------|-------------|----------|---------|----------|-----------|-----------|------------|
| 7X-281  | M-177     | 6308-LL     | 6308-2RS    | 308-SZZ  | Z-99308 | 308-NPP  | —         | —         | —          |
| 7X-282  | M-141-B   | 6205-LL     | 6205-2RS    | 205-SZZ  | Z-99505 | 205-KPP  | —         | —         | —          |
| 7X-326  | M-141     | 6205-Z      | 6205-Z      | 205-SF   | 7507    | 205-KD   | —         | —         | —          |
| 8X-284  | M-163-A   | 6305-LL     | 6305-2RS    | 305-SFF  | Z-99605 | 305-KDD  | —         | —         | —          |
| 8X-285  | M-1590    | 25521/25584 | 25521/25584 | —        | —       | —        | —         | —         | —          |
| 10-216  | M-224-A   | 63306LLBC   | 462306      | 306-SFFC | —       | W-306-PP | —         | —         | —          |
| 10-221  | M-207     | 395/394-A   | 394A/395    | —        | —       | —        | —         | —         | —          |
| 10X-277 | M-167     | 6306LL      | 6306-2RS    | —        | —       | —        | —         | —         | —          |
| 10X-278 | M2262-A   | 63206LL     | 462206      | 206-SFFC | —       | W-206-PP | —         | —         | —          |
| 10X-331 | M-1687    | 5206CZZ     | —           | —        | —       | —        | —         | —         | —          |
| 11X-218 | M-2467    | RA1562EBL   | —           | —        | —       | —        | —         | —         | —          |
| 11X-222 | M-2196    | 3920/3984   | 3920/3984   | —        | —       | —        | —         | —         | —          |
| 11X-225 | M-2292    | —           | —           | —        | —       | —        | CR-12-UU  | CF-3/R-SB | CRS-12     |
| 11X-330 | M-224     | 5306AZZ     | —           | —        | —       | —        | —         | —         | —          |
| 14X-217 | M-1985    | 63307LLBC   | 462307      | 307-SFFC | —       | W-307-PP | —         | —         | —          |
| 14X-219 | M-2529    | RA1567EBL   | —           | —        | —       | —        | —         | —         | —          |
| 14X-220 | M-2713    | RA1572EBL   | —           | —        | —       | —        | —         | —         | —          |
| 14X-223 | M-282     | 563/568     | 563/568     | —        | —       | —        | —         | —         | —          |
| 14X-224 | M-215     | 592-A/594   | 592-A/594   | —        | —       | —        | —         | —         | —          |
| 14X-226 | M-2241    | —           | —           | —        | —       | —        | CR-14-VUU | CF-7/8-SB | CRS-14     |
| 14X-328 | M-214     | 592-A/593   | 592-A/593   | —        | —       | —        | —         | —         | —          |

# TORQUE VALUES

FOR TIGHTENING CAPSCREWS, BOLTS, NUTS,  
TUBE FITTINGS AND PLUGS

## CAP SCREWS, BOLTS & NUTS

| TORQUE (LB. FT.) FOR COARSE AND FINE THREADS (1)                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                     |                    |                     |                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------|--------------------|---------------------|--------------------------------------------------|
| NOMINAL<br>THREAD<br>DIAMETER                                                                                                                                                                                                                                                                                                                                                                                                                                     | SAE GRADE 5        |                     | SAE GRADE 8        |                     | Screws for<br>Universal<br>Joint<br>Bearing Caps |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | AS (2)<br>RECEIVED | LUBRI- (3)<br>CATED | AS (2)<br>RECEIVED | LUBRI- (3)<br>CATED | LUBRI- (3)<br>CATED                              |
| 1/4                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 9 ± 1              | 7 ± 1               | 14 ± 1             | 11 ± 1              | .....                                            |
| 5/16                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 19 ± 2             | 15 ± 2              | 27 ± 2             | 22 ± 2              | .....                                            |
| 3/8                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 33 ± 3             | 27 ± 2              | 46 ± 4             | 38 ± 3              | .....                                            |
| 7/16                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 52 ± 4             | 40 ± 3              | 73 ± 6             | 60 ± 5              | 64 ± 4                                           |
| 1/2                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 80 ± 6             | 65 ± 5              | 112 ± 8            | 90 ± 7              | 100 ± 7                                          |
| 9/16                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 112 ± 8            | 90 ± 8              | 158 ± 12           | 130 ± 10            | .....                                            |
| 5/8                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 158 ± 12           | 130 ± 10            | 224 ± 16           | 180 ± 15            | 190 ± 10                                         |
| 3/4                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 280 ± 20           | 225 ± 20            | 390 ± 30           | 320 ± 25            | 330 ± 17                                         |
| 7/8                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 448 ± 32           | 360 ± 30            | 630 ± 50           | 510 ± 40            | 510 ± 40                                         |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 680 ± 50           | 540 ± 45            | 960 ± 70           | 775 ± 60            | .....                                            |
| 1 1/8                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 850 ± 60           | 675 ± 60            | 1360 ± 100         | 1100 ± 85           | .....                                            |
| 1 1/4                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1175 ± 85          | 925 ± 75            | 1850 ± 150         | 1500 ± 125          | .....                                            |
| <div> <div> 3 DASHES<br/>120° APART<br/></div> <div> 6 DASHES<br/>60° APART<br/> </div> </div> <div>  </div> <div> (4)<br/>SAE STANDARD HEX BOLT HEAD MARKINGS<br/>12 Pt. Head and Undercut Body </div> |                    |                     |                    |                     |                                                  |

## TAPERED PIPE PLUGS

| RECOMMENDED TORQUE (LB. FT.) |                          |             |
|------------------------------|--------------------------|-------------|
| NPTF<br>SIZE                 | LUBRICATED (a)           |             |
|                              | In Cast Iron<br>or Steel | In Aluminum |
| 1/16-27                      | 8.5 ± 1.0                | 5.5 ± 0.7   |
| 1/8-27                       | 10.5 ± 1.3               | 6.5 ± 0.8   |
| 1/4-18                       | 25 ± 3                   | 16 ± 2      |
| 3/8-18                       | 27 ± 3                   | 17 ± 2      |
| 1/2-14                       | 50 ± 6                   | 30 ± 4      |
| 3/4-14                       | 54 ± 7                   | 34 ± 4      |
| 1 -11 1/2                    | 80 ± 10                  | 50 ± 6      |
| 1 1/4-11 1/2                 | 85 ± 10                  | 55 ± 7      |
| 1 1/2-11 1/2                 | 85 ± 10                  | 55 ± 7      |

(a) THE LUBRICANT IS TO BE JOHN CRANE INSOLUBLE PLASTIC LEAD SEAL NO. 2 OR EQUIVALENT OR LOCTITE NO. 92 OR EQUIVALENT AND PLUGS ARE TO BE CAPABLE OF REMOVAL WITHOUT DAMAGE. OVERTIGHTENING MAY CAUSE INITIAL LEAKAGE PLUS POTENTIAL REMOVAL DAMAGE. AN OPTION OF A MAX. OF TWO FULL TURNS AFTER FINGER TIGHTENING THE PLUG MAY BE USED IF REQUIRED AND IF REMOVAL CONDITIONS ARE MET.

### (1) THESE TORQUE VALUES APPLY TO USE OF IRONS, STEELS AND ALUMINUM TAPPED HOLES.

THE THREAD ENGAGEMENT LENGTH IN ALUMINUM IS TO BE TWICE THE NOMINAL THREAD DIAMETER AND ENGAGEMENT LENGTH RATIO IS TO BE 1.5 FOR IRONS AND SOFT STEEL WHEN ZINC PLATING IS USED. LUBRICATE THE ZINC PLATED SURFACES OF THE SCREWS AND/OR NUTS AND USE SPECIAL TORQUE VALUES.

### (2) USE FOR ALL CAPSCREWS, BOLTS AND NUTS COATED ONLY WITH THE FASTENER MANUFACTURER'S RUST PREVENTATIVE OIL AND USE FOR PARTS WIPED OR WASHED NEARLY FREE OF OIL. DO NOT USE FOR PLATED PARTS.

### (3) USE FOR ALL CAPSCREWS AND NUTS WHOSE THREADS AND WASHER FACE ARE LUBRICATED, ALSO FOR SCREWS OR NUTS WHOSE WASHER FACE IS ASSEMBLED AGAINST A HARDENED WASHER OR SMOOTH FINISHED HARD PART. (R.40 OR ABOVE AND 40AA MAX.). ALSO USE FOR PLATED SCREWS (EXCEPT ZINC PLATED). LUBRICATING THE THREADS AND SCREW OR NUT FACE WITH SAE 20 OR 30 OIL IS RECOMMENDED FOR BEST RESULTS FOR ALL THE GRADE 8 SCREWS AND IS REQUIRED FOR ALL THE UNIVERSAL JOINT BEARING CAPSCREWS.

DO NOT USE MOLY-DISULFIDE, WHITE LEAD, COPPER FILLED OR OTHER SUCH FILLED LUBRICANTS WITH THESE TORQUE VALUES. SUCH LUBRICANTS REQUIRE SPECIAL TORQUE VALUES.

### (4) SOCKET HEAD SCREWS AND 12 POINT HEAD SCREWS WITH FULL BODY ARE GRADE 8 OR BETTER QUALITY AND ARE TO BE ASSEMBLED WITH THE ABOVE TORQUE VALUES.



## WARRANTY

PEC Manufacturing guarantees all parts and assembled products against defective materials and workmanship for a period of 1 year or 2000 hours from the date such part or product is put into service.

PEC Manufacturing reserves the right to repair, replace or issue credit for any parts or products found by PEC to be defective in material or workmanship.

This warranty is void if the part or product failure is found by PEC to be the result of an accident, neglect, abuse or improper installation.

All parts or products for which warranty is claimed, must be returned to PEC Manufacturing within the warranty period, with transportation charges prepaid.

This warranty does not provide for labor or other costs incurred by buyer for removal and reinstallation of part or product covered by this warranty. Buyer assumes full responsibility for such labor and other costs.

Buyer agrees to indemnify and hold PEC Manufacturing harmless from and against any loss, liability, damages or expenses resulting from injury to persons or property, without limitation, due to acts or omissions of the buyer, its agents and employees in the installation, use and operation of products of PEC Manufacturing origin, and shall assert no claim against PEC Manufacturing for consequential damages.

PEC Manufacturing reserves the right to improve its products through changes in material or design without being obligated to incorporate such changes in products for prior manufacture. Any such changes in material or design cannot be used by buyer as proof of insufficiency or inadequacy of prior material or design.

This written warranty is the only warranty provided by PEC Manufacturing and supersedes all other warranties, express or implied.