**INSTRUCTION MANUAL 499983** 

# $MASTER^{^{(\!R\!)}} APG^{^{^{\rm TM}}}$ C-FACE AND SEPARATE REDUCERS

# INSTALLATION AND PARTS FOR APG SIZE 1

# For APG Sizes 2 through 8, refer to manual 499972



WARNING: Because of the possible danger to person(s) or property which may result from improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the Engineering information specified in the catalog. Proper installation, operation and maintenance procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Master Power Transmission nor are the responsibility of Master Power Transmission. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all the equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a failsafe device must be an integral part of the driven equipment beyond the speed reducer output shaft.



3300 Tenth St. / Columbus, IN 47201 / (888) 616-1094 www.master-pt.com

#### DANGER

HIGH VOLTAGE AND ROTATING PARTS CAN CAUSE SERIOUS OR FATAL PERSONAL INJURY AND PROPERTY DAMAGE. THE USE OF ELECTRICAL MACHINERY, LIKE ALL OTHER UTILIZATION OF CONCENTRATED POWER AND ROTATING EQUIPMENT, CAN BE HAZARDOUS. INSTALLATION, OPERATION AND MAINTENANCE OF ELECTRIC MACHINERY SHOULD BE PERFORMED ONLY BY QUALIFIED ELECTRICAL AND MECHANICAL MAINTENANCE PERSONNEL FAMILIAR WITH NEMA SAFETY STANDARDS, THE NATIONAL ELECTRICAL CODE AND SOUND LOCAL PRACTICES.

ROTATING PARTS SUCH AS COUPLINGS, SPROCKETS, PULLEYS, FANS AND UNUSED SHAFT EXTENSIONS MUST BE PERMANENTLY GUARDED AGAINST ACCIDENTAL CONTACT.

GEARCASE AND MOTOR SURFACE TEMPERATURES MAY BECOME HIGH ENOUGH TO CAUSE INJURY AND SHOULD BE SHIELDED FROMACCIDENTAL CONTACT.

THE MANUAL IS TO BE STUDIED THOROUGHLY BY PERSONNEL RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF THIS EQUIPMENT BEFORE INSTALLATION IS BEGUN. PERSONNEL MUST BE FAMILIAR WITH THE POTENTIAL HAZARDS INVOLVED. IF THIS WARNING IS NOT OBSERVED, PERSONAL INJURY AND/OR PROPERTY DAMAGE MAY RESULT. KEEP THIS MANUAL FOR FUTURE REFERENCE.

#### WARRANTY

NOTE: SERVICE AND REPAIR UNDER WARRANTY SHOULD BE PERFORMED ONLY BY A MASTER AUTHORIZED SERVICE SHOP. CALL WARRANTY ADMINISTRATION AT 888-616-1094 FOR THE NEARESTLOCATION.

The MASTER APG is warranted under the MASTER "Standard Terms and Conditions of Sale." Warranty claims on any such apparatus must be submitted to the company within one year from date of installation or within three years from date of manufacture, whichever comes first. The Seller's Warranty applies insofar as the equipment is operated within the rating and service conditions for which it was specifically sold. The warranty does not extend to failures induced by misuse, improper storage or handling, abuse or misapplication. Time in storage is considered time in service for warranty purposes.

For warranty service, contact the nearest MASTER Sales Office or Authorized Distributor or call Warranty Administration at 888-616-1094.

#### INSTALLATION AND OPERATION

Review the data plates on the reducer and drive motor to verify that the drive is correct for the intended loads, speeds and electric power supply.

The gear reducer should be installed in a location that meets the following requirements:

Ambient temperatures below 100°F (40°C).

Free flow of air around the motor.

Good access to gear reducer and motor for maintenance.

A flat, level, rigid steel mounting surface.

All four feet of the foot mounted unit must be evenly supported.

The flange mounted unit must have even support at the flange face.

Units supported by both flange and feet must be shimmed to avoid housing stress.

Good alignment to both input and output devices.

#### LUBRICATION

Install the oil level plug and breather plug in the correct location for the appropriate mounting position using the mounting position diagrams. Add or drain oil to get to the correct oil level for the mounting position used.

MASTER APG 1 is factory-filled with Mobil SHC-634 lubricant, which is suitable for use in ambient temperatures from -10 °F to +100 °F. The standard factory fill is good for one year of normal industrial operation. Oil changes at 10,000 hour intervals are recommended. Severe environments require more frequent oil changes.

For operation from +35 °F to +60 °F, Mobil SHC-632 is recommended.

For operation at -30 °F to +10 °F, Mobil SHC-629 is recommended.

Lubricants are available from MASTER in quart and gallon quantities.

#### LONG TERM STORAGE

If the drive is not installed immediately, it should be stored in a clean, dry, protected area. During periods of long term storage (six months or longer), the gearbox should be filled to the highest oil level hole with an approved lubricant blended with 2%, by volume, of Daubert Chemical Co. Nox-Rust VCI-105 oil. Apply a thick coating of rust preventative on all unpainted surfaces including threads, bores, keyways, and shafts. Apply a thick coating of chassistype grease to all exposed shaft seals. If the unit is to be stored outdoors or in a damp, unheated area indoors, cover the entire exterior with a rust preventative. Seal the unit in a moisture proof container or wrapping with a desiccant inside. Shade the enclosure from direct sunlight. Rotate the input shaft at least 60 revolutions once a month to redistribute the lubricant and prevent brinnelling of bearings and drying of seals.

Upon removal from storage, remove all protective coatings applied for protection during storage. Check all hardware for proper tightness. Drain and refill the gear reducer with a recommended lubricant. If the gear reducer has been stored for more than three years or in an area with high ambient temperatures, replace the oil seals. If unit was fitted with a motor, have motor insulation tested by a motor repair shop.

#### INSTALLATION OF COMPONENTS ON GEAR REDUCER SHAFTS

Use care when installing couplings, sprockets and sheaves (pulleys) on the MASTER APG Size 1 input and output shafts. Such components should not be hammered into place. Damage to shafts and bearings may result. If parts do not slip into place easily, check for dirt or burrs that may be binding the assembly. Very tightly fitted parts may need to be heated to get them onto the shafts. Kevs should be located for maximum engagement between the shaft and the associated part. Sprockets and sheaves should be mounted as close to the gearcase as possible to minimize overhung loads. Retaining hardware (setscrews, etc.) for couplings, sprockets and sheaves should be tightened as recommended by the component manufacturer. Chain and belt drives must be aligned to run true. Tighten chains and belts according to the chain or belt manufacturer's instructions. Excessive tension results in rapid chain and belt wear and reduces the bearing life of the MASTER APG Size 1.

#### MAINTENANCE

Check oil levels and oil quality regularly. Change oil at specified intervals. Check alignment of drive components. Check chain/belt tension and hardware tightness periodically.

For renewal parts and assistance, contact MASTER at (888) 616-1094.

#### MOUNTING MOTORS TO C-FACE REDUCERS

| FOR 3-PIECE 0  | OUPLED INPUT F  | REDUCERS   | FOR CLAM  | IP COLLAR INPUT R  | REDUCERS  |
|--|---|--|---|--|---|
| Prepare the motor by ch<br>dirt or damage. Remove<br>the shaft.  | ecking the motor sl<br>any anti-rust coatir   | naft extension for<br>ng that may be on  | Prepare the motor by<br>dirt or damage. Remo<br>the shaft.  | checking the motor sove any anti-rust coat   | shaft extension for<br>ing that may be on   |
| Insert the coupling key in<br>motor coupling half onto<br>shaft extends the compl<br>Tighten the coupling set<br>half in this position durin<br>procedure.   | the motor shaft<br>the motor shaft suc<br>ete length of the co<br>screw enough to ho<br>og the remainder of               | keyway. Slip the<br>ch that the motor<br>upling bore.<br>old the coupling<br>the motor mounting  | Check the input bore  | for dirt or damage.  |   |
| Check that the reducer of<br>mounted on the reducer<br>Make sure this coupling<br>such that the shaft exter<br>bore. Insert the coupling   | coupling half, with it<br>input shaft inside the<br>half is mounted on<br>nds the complete lead<br>spider properly inter- | s key in place, is<br>he C-face adapter.<br>the reducer shaft<br>ngth of the coupling<br>o the coupling jaws.  |   |  |   |
| The MASTER APG Size 1 C-Face reducer should be firmly<br>anchored to prevent sliding as the motor is mounted. The<br>motor should be rotated on its axis so the motor flange holes<br>line up with the C-Face adapter holes. Check to be sure the<br>motor conduit box, grease fittings and condensate drains<br>(where fitted) will be oriented as needed by the reducer<br>mounting position. Motor end shields may have to be removed<br>and rotated in some installations to permit proper positioning.                    |   |  | The MASTER APG#<br>anchored to prevent a<br>motor should be rotat<br>line up with the reduct<br>sure the motor condu-<br>drains (where fitted) w<br>mounting position. M<br>and rotated in some i | 1 C-Face reducer sho<br>sliding as the motor is<br>ted on its axis so the<br>cer input flange (bell)<br>hit box, grease fittings<br>will be oriented as ne-<br>otor end shields may<br>installations to permit | build be firmly<br>s mounted. The<br>motor flange holes<br>holes. Check to be<br>and condensate<br>eded by the reducer<br>have to be removed<br>proper positioning. |
| Hoist motor level and in line with reducer input shaft.  |   |  | Hoist motor level and   | in line with reducer i   | nput shaft.   |
| Align the motor coupling half such that its jaws are aligned with<br>the gaps between the spider and the reducer coupling half<br>jaws. Push the motor into place. Motor flange to C-face adapter<br>clearances must be tight and good alignment is essential.   |   | Align the motor shaft with the gear reducer input bore making<br>sure that the motor shaft keyway is in line with the input bore<br>key. Push the motor into place. Motor shaft to input bore<br>clearances must be tight and good alignment is essential. |   |  |   |
| Insert and tighten the me<br>correct torque value liste  | otor retaining bolts.<br>ed below:  | Tighten to the   | Insert and tighten the motor retaining bolts. Tighten to the correct torque value listed below:   |  |   |
| Motor  | Motor Bolt  | Torque   | Motor   | Motor Bolt   | Torque  |
| 56-140 Frame   | <sup>3</sup> /8 - 16  | 276 INCH-LB.   | 56-140 Frame  | <sup>3</sup> /8 - 16   | 276 INCH-LB.  |
| 180 Frame1/2 - 13660 INCH-LB.View the coupling assembly through the access holes in the<br>C-face adapter. Make sure the motor coupling half jaws fully<br>engage the spider. If they do not, loosen the setscrew in the<br>motor coupling half and slide it forward until full jaw engage-<br>ment is achieved. Reaching through the access holes in the<br>C-face adapter with a hex key, tighten the coupling setscrews<br>on both the motor coupling and reducer coupling halves to the<br>recommended torque given below. |   |  | View the clamp colla<br>adapter. Reaching t<br>adapter with a hex k<br>correct torque value   | '/2 - 13<br>ar through the access<br>hrough the access ho<br>key, tighten the clamp<br>given below.  | boo INCH-LB.<br>holes in the C-face<br>oles in the C-face<br>collar bolt to the   |
| Replace the access hole  | e plugs in the C-face   | e adapter.   | Replace the access h  | nole plugs in the C-fac  | ce adapter.   |
| NOTE: A TEE handle hex key wrench is not stiff enough to<br>properly tighten the coupling set screws. A large diameter<br>socket wrench extension with a short hex key insert must<br>be used in conjunction with a torque wrench. Failure to<br>tighten the set screws to the proper torque may result in<br>movement between shafts and coupling components and<br>cause premature wear on the shafts, coupling and keys.  |   | NOTE: A TEE handle<br>properly tighten the<br>socket wrench exte<br>be used in conjunct<br>tighten the clamp co<br>movement between<br>premature wear on   | e hex key wrench is<br>clamp collar bolt. A<br>nsion with a short h<br>tion with a torque w<br>ollar to the proper to<br>motor and reducer<br>the shafts and key.                                 | not stiff enough to<br>A large diameter<br>ex key insert must<br>rench. Failure to<br>orque may result in<br>shafts and cause  |   |
| Shaft  | Set Screw   | Torque   | Motor   | Clamping Bolt  | Torque  |
| 56-140 Frame Motor Shat  | ft 1/4-20 x .31"  | 78-87 INCH-LB.   | 56-140 Frame  | 1/4 - 28   | 168 INCH-LB.  |
| 19 mm Reducer Input Shaft  | aft M6 x 8 mm   | 59-62 INCH-LB.   | 180 Frame   | 5/10 - 24  | 324 INCH-LB.  |
| Note: The M6 x 1 sets<br>half requires a 3 mm h  | crew in the reduce<br>ex key.   | r shaft coupling   |   |  |   |

#### MOUNTING POSITIONS AND LUBRICATION CHART



Note: On all triple reduction units shown above, vent, oil level and drain positions are for the triple module only. Triple reduction units also have vent, oil level and drain plugs in the main gear case as shown in the double reduction views.



#### MOUNTING POSITIONS AND LUBRICATION CHART

Note: There is only one oil sump for the triple reduction units shown above. Please remove the oil seal in the triple module before mounting. This will allow oil to flow from the main gear case through the triple module during operation or maintenance.

# **BASIC PARTS**

# DOUBLE REDUCTION SIZE 1



| Ref. No.   | Description      | Qty. | Part Number    |  |  |
|--|------------------|------|----------------|--|--|
| 1  | Gearcase         | 1    | 335271         |  |  |
| 2  | 2nd Stage Gear   | 1    | See Gear Chart |  |  |
| 3  | Spring Washer    | 4    | 304602         |  |  |
| 4  | Hex Hd Cap Screw | 4    | 304518         |  |  |
| 5  | Output Cover     | 1    | 335272         |  |  |
| 6#   | Shim Kit         | 1    | 41164246CL     |  |  |
| 7#   | Output Seal      | 1    | 278920         |  |  |
| 8  | O/S Key          | 1    | 338036         |  |  |
| 9  | Output Shaft     | 1    | 334672         |  |  |
| 10#  | Bearing          | 1    | 07914702AB     |  |  |
| 11   | Snap Ring        | 1    | 338318         |  |  |
| 12#  | Shim Kit         | 1    | 41164246D      |  |  |
| 14,16, 23#                                       | Bearing          | 3    | 07914702H      |  |  |
| 15   | 2nd Stage Pinion | 1    | See Gear Chart |  |  |
| 17   | Y-Gear Spacer    | 1    | 338007         |  |  |
| 18   | Pipe Plug        | 2    | 278898         |  |  |
| 19   | Soc Hd Cap Screw | 1    | 60245202F      |  |  |
| 20   | Retaining Washer | 1    | 338033         |  |  |
| 21   | Gear Key         | 1    | 338079         |  |  |
| 22   | 1st Stage Pinion | 1    | See Gear Chart |  |  |
| 24   | Vent Plug        | 1    | 338081         |  |  |
| 25   | Output Gear Key  | 1    | 338050         |  |  |
| 26   | Snap Ring        | 1    | 278712         |  |  |
| 27   | Snap Ring        | 1    | 338323         |  |  |
| # Pasammandad anara parta far minimum protection |                  |      |                |  |  |

# Recommended spare parts for minimum protection.

# MASTER APG REDUCER

# **TRIPLE ADAPTER ASSEMBLY**

SIZE 1



| Ref. No. | Description           | Qty. | Part Number    |
|----------|-----------------------|------|----------------|
| 1        | Triple Adapter        | 1    | 335224         |
| 2#       | Bearing, Roller Assm. | 1    | 41162601C      |
| 3        | Support Washer        | 1    | 338003         |
| 4#       | Seal                  | 1    | 338221         |
| 5        | Head Shaft            | 1    | 334663         |
| 6        | Snap Ring             | 1    | 278709         |
| 7#       | Shim Kit              | 1    | 41164246CM     |
| 8#       | Bearing, Roller Assm. | 1    | 41162601E      |
| 9        | Gear Spacer           | 1    | 338007         |
| 10       | Retaining Washer      | 1    | 338033         |
| 11       | Soc Hd Cap Screw      | 1    | 60245202F      |
| 12       | Gear Key              | 1    | 338079         |
| 13       | Gear Set              | 1    | See Gear Chart |
| 14       | Hex Nut               | 4    | 304586         |
| 15       | Spring Washer         | 4    | 304602         |
| 16       | Stud                  | 4    | 338265         |
| 17       | Vent Plug             | 1    | 338081         |
| 18       | Hex Soc Pipe Plug     | 3    | 278898         |

# Recommended spare parts for minimum protection.

# C-FACE CLAMP COLLAR INPUT ASSEMBLY

SIZE 1



| Ref. No. | Description          | Qty.   | Part Number            |
|----------|----------------------|--------|------------------------|
| 1        | 56/140 Motor Adapter | 1      | 335225                 |
| 2        | Snap Ring            | 1      | 278711                 |
| 3        | Snap Ring            | 1      | 278712                 |
| 4 (1)    | Oil Slinger          | 1 or 0 | 338001                 |
| 5 (1)    | Snap Ring            | 1 or 0 | 338321                 |
| 6 (1)    | Key, Shell Pinion    | 1 or 0 | 338079                 |
| 7        | Input Shaft 56C      | 1 or 0 | 334675 (1.00 - 2.76:1) |
|          | Input Shaft 140TC    | 1 or 0 | 334677 (1.00 - 2.76:1) |
|          | Input Shaft 56C      | 1 or 0 | 334674 (3.38 - 7.59:1) |
|          | Input Shaft 140TC    | 1 or 0 | 334676 (3.38 - 7.59:1) |
| 8#       | Seal                 | 1      | 278917                 |
| 9#       | Bearing              | 1      | 07914703DD             |
| 10       | Hex Hd Cap Screw     | 4      | 60245207C              |
| 11       | Spring Washer        | 4      | 50253                  |
| 12       | Hex Hd Cap Screw     | 4      | 51929                  |
| 13       | Hole Plug Cap        | 1      | 41170965N              |
|          | Hole Plug            | 1      | 41170965H              |
| 14       | Key, Motor Shaft     | 1      | 41510437J              |
| 15       | Clamp collar         | 1      | 41510116P              |
| 16#      | Felt Seal            | 1      | 338000                 |
| 17#      | Shim Kit             | 1      | 41164246CP             |
| 18 (2)   | Shim .004"           | AS     | 338110                 |
|          | Shim .008"           | REQ'D  | 338111                 |
|          | Shim .012"           |        | 338112                 |

# Recommended spare parts for minimum protection.

(1) Used with Shell Pinion 1st stage ratios 1.00 through 2.76 only.

or ratios 3.38 through 7.59.

(2) Used for reversing duty applications only.

#### **C-FACE INPUT MODULE**

# **3-PIECE COUPLED**

#### SIZE 1

**NOTE:** Motor adapter bracket and couplings not shown. See C-Face adapter drawing for these items.



| Ref. No. | Description           | Qty.   | Part Number |
|----------|-----------------------|--------|-------------|
| 1        | Adapter, Reducer      | 1      | 335222      |
| 2#       | Bearing, Roller Assm. | 1      | 41162601A   |
| 3#       | Seal (Internal)       | 1      | 338223      |
| 4 (1)    | Oil Slinger           | 1 or 0 | 338001      |
| 5 (1)    | Snap Ring             | 1 or 0 | 338321      |
| 6 (1)    | Shell Pinion Key      | 1 or 0 | 338079      |
| 7        | Input Shaft (1)       | 1 or 0 | 334502      |
|          | Input Shaft (2)       | 1 or 0 | 334501      |
| 8#       | Shim Kit              | 1      | 41164246CN  |
| 9        | Snap Ring             | 1      | 338324      |
| 10       | Support Washer        | 1      | 338006      |
| 11       | Spring Washer         | 4      | 50253       |
| 12       | Hex Hd Cap Screw      | 4      | 60245207C   |
| 13       | Metric Key            | 1      | 338032      |
| 14#      | Seal (External)       | 1      | 338220      |
| 15#      | Bearing, Roller Assm. | 1      | 41162601B   |
| 16       | Pipe Plug             | 2      | 278898      |

# Recommended spare parts for minimum protection.

(1) Used with Shell Pinion 1st stage ratios 1.00 through 2.76 only.

(2) For use with Shank Style Pinions, ratios 3.38 through 7.59 only.

# **3-PIECE COUPLED**

SIZE 1



# **56C MOTOR FRAME**

| Kit Part No. | Consists of: |                       |      |             |  |  |
|--------------|--------------|-----------------------|------|-------------|--|--|
|              | Ref. No.     | Description           | Qty. | Part Number |  |  |
| 41164251A    | 1            | 56/140 Adapter        | 1    | 335300      |  |  |
|              | 2            | Hole Plug Cap         | 1    | 41170965N   |  |  |
|              |              | Hole Plug             | 1    | 41170965H   |  |  |
|              | 3            | Sckt Hd Cap Screw     | 4    | 60245202A   |  |  |
|              | 4            | Hex Hd Cap Screw      | 4    | 51929       |  |  |
|              | 5            | Cpling Hub Red 19MM   | 1    | 278903      |  |  |
|              |              | Cpling Hub Motor 5/8" | 1    | 278900      |  |  |
|              |              | Coupling Spider       | 1    | 278911      |  |  |

# **180TC MOTOR FRAME**

| Kit Part No. | Consists of: |                       |      |             |  |  |  |
|--------------|--------------|-----------------------|------|-------------|--|--|--|
|              | Ref. No.     | Description           | Qty. | Part Number |  |  |  |
| 41164251B    | 1            | 56/140 Adapter        | 1    | 335300      |  |  |  |
|              | 2            | Hole Plug Cap         | 1    | 41170965N   |  |  |  |
|              |              | Hole Plug             | 1    | 41170965H   |  |  |  |
|              | 3            | Sckt Hd Cap Screw     | 4    | 60245202A   |  |  |  |
|              | 4            | Hex Hd Cap Screw      | 4    | 51929       |  |  |  |
|              | 5            | Cpling Hub Red 19MM   | 1    | 278903      |  |  |  |
|              |              | Cpling Hub Motor 7/8" | 1    | 278901      |  |  |  |
|              |              | Coupling Spider       | 1    | 278911      |  |  |  |

# SEPARATE INPUT ASSEMBLY

# APG SIZE 1



| Ref. No. | Description           | Qty.   | Part Number            |
|----------|-----------------------|--------|------------------------|
| 1        | Adapter               | 1      | 335222                 |
| 2#       | Bearing, Roller Assm. | 1      | 41162601A              |
| 3#       | Seal                  | 1      | 338223                 |
| 4 (1)    | Oil Slinger           | 1 or 0 | 338001                 |
| 5 (1)    | Snap Ring             | 1 or 0 | 338321                 |
| 6 (1)    | Shell Pinion Key      | 1 or 0 | 338079                 |
| 7        | Input Shaft Metric    | 1 or 0 | 334592 (1.00 - 2.76:1) |
|          | Input Shaft Inch      | 1 or 0 | 334547 (1.00 - 2.76:1) |
|          | Input Shaft Metric    | 1 or 0 | 334591 (3.38 - 7.59:1) |
|          | Input Shaft Inch      | 1 or 0 | 334546 (3.38 - 7.59:1) |
| 8#       | Shim Kit              | 1      | 41164246CN             |
| 9        | Snap Ring             | 1      | 338324                 |
| 10       | Support Washer        | 1      | 338006                 |
| 11       | Spring Washer         | 4      | 50253                  |
| 12       | Hex Hd Cap Screw      | 4      | 60245207C              |
| 13       | Metric Key            | 1 or 0 | 338040                 |
|          | Inch Key              | 1 or 0 | 338053                 |
| 14#      | Seal                  | 1      | 338220                 |
| 15#      | Bearing, Roller Assm. | 1      | 41162601B              |
| 16       | Pipe Plug             | 2      | 278898                 |

Recommended spare parts for minimum protection.

(1) Used with Shell Pinion 1st stage ratios 1.00 through 2.76 only.

Not used for ratios 3.38 through 7.59.

# **180TC MOTOR FRAME**

| Kit Part No. | Consists of: |                         |      |             |  |  |
|--------------|--------------|-------------------------|------|-------------|--|--|
|              | Ref. No.     | Description             | Qty. | Part Number |  |  |
| 41164251C    | 1            | 180 Motor Adapter       | 1    | 335301      |  |  |
|              | 2            | Hole Plug Cap           | 1    | 41170965N   |  |  |
|              |              | Hole Plug               | 1    | 41170965H   |  |  |
|              | 3            | Sckt Hd Cap Screw       | 4    | 60245202A   |  |  |
|              | 4            | Hex Hd Cap Screw        | 4    | 54230       |  |  |
|              | 5            | Cpling Hub Red 19MM     | 1    | 278906      |  |  |
|              |              | Cpling Hub Motor 1-1/8" | 1    | 278905      |  |  |
|              |              | Coupling Spider         | 1    | 278912      |  |  |

# **IEC 71 MOTOR FRAME**

| Kit Part No. | Consists of: |                       |      |             |  |  |
|--------------|--------------|-----------------------|------|-------------|--|--|
|              | Ref. No.     | Description           | Qty. | Part Number |  |  |
| 41164251D    | 1            | IEC 71 Motor Adapter  | 1    | 335307      |  |  |
|              | 2            | Hole Plug Cap         | 1    | 41170965M   |  |  |
|              |              | Hole Plug             | 1    | 41170965J   |  |  |
|              | 3            | Sckt Hd Cap Screw     | 4    | 60245202A   |  |  |
|              | 4            | Hex Hd Cap Screw      | 4    | 304518      |  |  |
|              |              | Spring Washer         | 4    | 304602      |  |  |
|              |              | Hex Nut               | 4    | 304586      |  |  |
|              | 5            | Cpling Hub Red 19MM   | 1    | 278903      |  |  |
|              |              | Cpling Hub Motor 14MM | 1    | 338300      |  |  |
|              |              | Coupling Spider       | 1    | 278911      |  |  |

# GEAR CHART APG 1

|                |                  |                  |                |                  | -                |
|----------------|------------------|------------------|----------------|------------------|------------------|
| Total<br>Ratio | Ratio<br>Y-Stage | Ratio<br>Z-Stage | Description    | Y-Stage          | Z-Stage          |
| 2.25           | 1.00             | 2.25             | Pinion<br>Gear | 334000<br>334012 | 334216<br>334217 |
| 2.76           | 1.23             | 2.25             | Pinion<br>Gear | 334001<br>334013 | 334216<br>334217 |
| 3.38           | 1.50             | 2.25             | Pinion<br>Gear | 334002<br>334014 | 334216<br>334217 |
| 4.13           | 1.84             | 2.25             | Pinion<br>Gear | 334003<br>334015 | 334216<br>334217 |
| 5.06           | 1.23             | 4.13             | Pinion<br>Gear | 334001<br>334013 | 334218<br>334219 |
| 6.20           | 1.50             | 4.13             | Pinion<br>Gear | 334002<br>334014 | 334218<br>334219 |
| 7.59           | 1.84             | 4.13             | Pinion<br>Gear | 334003<br>334015 | 334218<br>334219 |
| 9.30           | 2.25             | 4.13             | Pinion<br>Gear | 334004<br>334016 | 334218<br>334219 |
| 11.4           | 2.76             | 4.13             | Pinion<br>Gear | 334005<br>334017 | 334218<br>334219 |
| 14.0           | 3.38             | 4.13             | Pinion<br>Gear | 334006<br>334018 | 334218<br>334219 |
| 17.1           | 4.13             | 4.13             | Pinion<br>Gear | 334007<br>334019 | 334218<br>334219 |
| 20.9           | 5.06             | 4.13             | Pinion<br>Gear | 334008<br>334020 | 334218<br>334219 |
| 25.6           | 6.20             | 4.13             | Pinion<br>Gear | 334009<br>334021 | 334218<br>334219 |
| 31.4           | 7.59             | 4.13             | Pinion<br>Gear | 334220<br>334221 | 334218<br>334219 |

# **DOUBLE REDUCTION**

# **TRIPLE REDUCTION**

| Total | Ratio   | Ratio   | Ratio   |                |                  |                  |                  |
|-------|---------|---------|---------|----------------|------------------|------------------|------------------|
| Ratio | X-Stage | Y-Stage | Z-Stage | Description    | X-Stage          | Y-Stage          | Z-Stage          |
| 31.4  | 1.23    | 6.20    | 4.13    | Pinion<br>Gear | 334001<br>334013 | 334009<br>334021 | 334218<br>334219 |
| 38.4  | 1.50    | 6.20    | 4.13    | Pinion<br>Gear | 334002<br>334014 | 334009<br>334021 | 334218<br>334219 |
| 47.1  | 1.84    | 6.20    | 4.13    | Pinion<br>Gear | 334003<br>334015 | 334009<br>334021 | 334218<br>334219 |
| 57.7  | 2.25    | 6.20    | 4.13    | Pinion<br>Gear | 334004<br>334016 | 334009<br>334021 | 334218<br>334219 |
| 70.6  | 2.76    | 6.20    | 4.13    | Pinion<br>Gear | 334005<br>334017 | 334009<br>334021 | 334218<br>334219 |
| 86.5  | 3.38    | 6.20    | 4.13    | Pinion<br>Gear | 334006<br>334018 | 334009<br>334021 | 334218<br>334219 |
| 106   | 4.13    | 6.20    | 4.13    | Pinion<br>Gear | 334007<br>334019 | 334009<br>334021 | 334218<br>334219 |
| 130   | 5.06    | 6.20    | 4.13    | Pinion<br>Gear | 334008<br>334020 | 334009<br>334021 | 334218<br>334219 |
| 159   | 6.20    | 6.20    | 4.13    | Pinion<br>Gear | 334009<br>334021 | 334009<br>334021 | 334218<br>334219 |
| 195   | 7.59    | 6.20    | 4.13    | Pinion<br>Gear | 334220<br>334221 | 334009<br>334021 | 334218<br>334219 |
| 238   | 7.59    | 7.59    | 4.13    | Pinion<br>Gear | 334220<br>334221 | 334220<br>334221 | 334218<br>334219 |

# **BEARING KITS**

A kit consists of a complete set of reducer bearings.

| Description                             | Kit Part Number |
|---|-----------------|
| Double Reduction – Clamp Collar Style   | 41164245BB      |
| Triple Reduction – Clamp Collar Style   | 41164245BC      |
| Double Reduction – 3 PC CPLD & SEPERATE | 41164245BD      |
| Triple Reduction – 3 PC CPLD & SEPERATE | 41164245BE      |

# SEAL KITS

A kit consists of required lip seals, felt seal and liquid gasket.

| Description   | Kit Part Number |
|---|-----------------|
| Double Reduction – C-Face Clamp Collar Style            | 41164246CJ      |
| Double Reduction – C-Face 3-Piece Cpld & Separate Style | 41164246CK      |
| Triple Reduction – C-Face Clamp Collar Style            | 41164246CR      |
| Triple Reduction – C-Face 3-Piece Cpld & Separate Style | 41164246CS      |

#### LUBRICANTS

MASTER APG Reducers are factory-filled with a MOBIL SHC-634 lubricant. Use of non-approved gear oil may affect performance and compromise warranty.

| SHC-634 (Standard) |            |  |  |
|--------------------|------------|--|--|
| 12 oz.             | 41170966AB |  |  |
| 1 Qt.              | 41170966AE |  |  |
| 1 Gal.             | 41170966AF |  |  |
| SHC-629 (Low Temp) |            |  |  |
| 1 Qt.              | 41170966AG |  |  |
| 1 Gal.             | 41170966AH |  |  |

#### LUBRICANTS AVAILABLE FROM MASTER

#### **GEARBOX LUBRICANT CAPACITY**

#### **DOUBLE REDUCTION**

|               | Lube Capacity |        |                    |          |
|---------------|---------------|--------|--------------------|----------|
| Mtg. Position | Oz.           | Quarts | Part Number (Qts.) | Quantity |
| A1            | 13            | .41    | 41170966AE         | 1        |
| A2            | 21            | .66    | 41170966AE         | 1        |
| A3            | 30            | .94    | 41170966AE         | 1        |
| A4            | 21            | .66    | 41170966AE         | 1        |

#### TRIPLE REDUCTION

| Lube Capacity |          |     |        |                    |          |
|---------------|----------|-----|--------|--------------------|----------|
| Mtg. Po       | osition* | Oz. | Quarts | Part Number (Qts.) | Quantity |
| 12:00         | A1       | 20  | .63    | 41170966AE         | 1        |
| 3:00          | A1       | 24  | .75    | 41170966AE         | 1        |
| 6:00          | A1       | 30  | .94    | 41170966AE         | 1        |
| 9:00          | A1       | 24  | .75    | 41170966AE         | 1        |
| 12:00         | A2       | 28  | .88    | 41170966AE         | 1        |
| 3:00          | A2       | 32  | 1.0    | 41170966AE         | 1        |
| 6:00          | A2       | 38  | 1.2    | 41170966AE         | 2        |
| 9:00          | A2       | 32  | 1.0    | 41170966AE         | 1        |
| 12:00         | A3       | 37  | 1.2    | 41170966AE         | 2        |
| 3:00          | A3       | 41  | 1.3    | 41170966AE         | 2        |
| 6:00          | A3       | 47  | 1.5    | 41170966AE         | 2        |
| 9:00          | A3       | 41  | 1.3    | 41170966AE         | 2        |
| 12:00         | A4       | 28  | .88    | 41170966AE         | 1        |
| 3:00          | A4       | 32  | 1.0    | 41170966AE         | 1        |
| 6:00          | A4       | 38  | 1.2    | 41170966AE         | 2        |
| 9:00          | A4       | 32  | 1.0    | 41170966AE         | 1        |

\*Position of Triple Adapter indicated in clock references.