

Parts Replacement Manual
For
HYDROIL™
TORQUE-ARM™
Speed Reducers
Taper Bushed
For Char-Lynn H, S, T and 2000 Series
6B Spline Motors

SIZES: HXT625
HXT725

WARNING: Because of the possible danger to persons(s) or property from accidents which may result from the 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, maintenance and operation 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 Baldor Electric Company nor are the responsibility of Baldor Electric Company. 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 equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

BALDOR

World Headquarters
P.O. Box 2400, Fort Smith, AR 72902-2400 U.S.A., Ph: (1) 479.646.4711, Fax (1) 479.648.5792, International Fax (1) 479.648.5895
Dodge Product Support
6040 Ponders Court, Greenville, SC 29615-4617 U.S.A., Ph: (1) 864.297.4800, Fax: (1) 864.281.2433
www.baldor.com

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MN1665
(Replaces 499830)



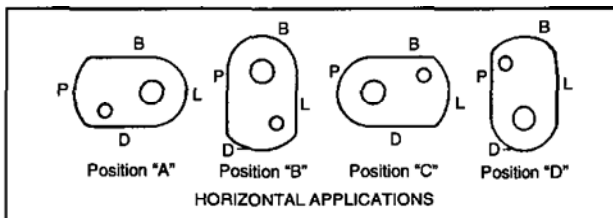
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REDUCER INSTALLATION

1. Replace the plastic plug that protects the threaded hole in the reducer housing with the eyebolt supplied with the reducer.
2. Determine the running positions of the reducer (see Fig. 1). Note that the reducer is supplied with either 4 or 7 plugs; 4 around the sides for horizontal installations and 1 on each face for vertical installations. These plugs must be arranged relative to the running positions as follows:

Horizontal Installations—Install the magnetic drain plug in the hole closest to the bottom of the reducer. Throw away the tape that covers the filler/ventilation plug in shipment and install plug in topmost hole. Of the 3 remaining plugs on the sides of the reducer, the lowest one is the minimum oil level plug.



B: Breather; D: Drain; L: Oil Level Plug; P: Plug

Fig. 1 — Mounting Positions

The running position of the reducer in a horizontal application is not limited to the four positions shown in Figure 1. However, if running position is over 20° either way from sketches, the oil level plug cannot be safely used to check the oil level, unless during the checking the torque arm is disconnected and the reducer is swung to within 20° in positions “B” and “D” or 5° in positions “A” and “C” of the positions shown in Figure 1. Because of the many possible positions of the reducer, it may be necessary or desirable to make special adaptations using the lubrication fitting holes furnished along with other standard pipe fittings, stand pipes and oil level gages as required.

3. Mount Taper Bushed reducer on driven shaft per instruction sheet No. 499629 packed with tapered bushings.
4. Install torque arm and adapter plates using the long reducer bolts. The bolts may be shifted to any of the holes on the input end of the reducer.
5. Install torque arm fulcrum on a rigid support so that the torque arm will be approximately at right angles to the center line through the driven shaft and the torque arm anchor screw.

CHAR-LYNN H, S, T AND 2000 SERIES 6B SPLINE MOTOR INSTALLATION

Consult the local Char-Lynn Motor dealer for hydraulic motor information.

REDUCER LUBRICATION

Important: Because reducer is shipped without oil, it is necessary to add the proper amount of oil before running. Use a high grade petroleum base, rust and oxidation inhibited (R & O) gear oil—see tables. Follow instructions on reducer nameplate, warning tags, and in the installation manual.

Under average industrial operating conditions, the lubricant should be changed every 2500 hours of operation or every 6 months, whichever occurs first. Drain reducer and flush with kerosene, clean magnetic drain plug and refill to proper level with new lubricant.

CAUTION

Too much oil will cause overheating and too little will result in gear failure. Check oil level regularly. Failure to observe this precaution could result in damage to or destruction of the equipment.

Under extreme operating conditions, such as rapid rise and fall of temperature, dust, dirt, chemical particles, chemical fumes, or oil sump temperatures above 200°F, the oil should be changed every 1 to 3 months depending on severity of conditions.

Table 1 – Oil Volumes

| Reducer Size | Volume of Oil Required to Fill Reducer to Oil Level Plug | | | | | | | | | | | |
|------------------|--|-------------------|-----------------|-----------------------|-------------------|-----------------|-----------------------|-------------------|-----------------|-----------------------|-------------------|-----------------|
| | † Position A | | | † Position B | | | † Position C | | | † Position D | | |
| | Fluid Ounces (Approx) | ▲ Quarts (Approx) | Liters (Approx) | Fluid Ounces (Approx) | ▲ Quarts (Approx) | Liters (Approx) | Fluid Ounces (Approx) | ▲ Quarts (Approx) | Liters (Approx) | Fluid Ounces (Approx) | ▲ Quarts (Approx) | Liters (Approx) |
| HXT615 HXT625 | 136 | 4¼ | 4.0 | 160 | 5 | 4.7 | 136 | 4¼ | 4.0 | 160 | 5 | 4.7 |
| HXT715 HXT725 | 208 | 6½ | 6.1 | 256 | 8 | 7.6 | 232 | 7¼ | 6.9 | 296 | 9¼ | 8.7 |

† Refer to Fig. 1 on page 2 for mounting positions.
 ▲ U.S. Measure: 1 quart = 32 fluid ounces = .94646 liters.

Note: If reducer position is to vary from those shown in Figure 1 either more or less oil may be required. Consult factory.

Minimum Oil Recommendations for Average Operating Conditions

Table 2 — Lubrication Recommendations —
ISO Grades for Ambient Temperatures of 15° to 60°

| Output RPM | Reducer Size | | | | | | | | | | | | | | |
|------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | |
| 301-400 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | |
| 201-300 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | |
| 151-200 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | |
| 126-150 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | |
| 101-125 | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | |
| 81-100 | 220 | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | |
| 41-80 | 220 | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | |
| 11-40 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | |
| 1-10 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |

Below - 23°F call application engineering.
20°F to -22°F use Mobil SHC 627.
Above 125°F use Mobil SHC 634.

NOTE:

Pour point of lubricant selected should be at least 10°F lower than expected minimum ambient starting temperature.

See page 8 for lubricant viscosity classification equivalents.

CAUTION

Extreme pressure (EP) lubricants are not recommended for average operating conditions. Failure to observe these precautions could result in damage to, or destruction of, the equipment.

Table 3 — Lubrication Recommendations —
ISO Grades for Ambient Temperatures of 15° to 125°

| Output RPM | Reducer Size | | | | | | | | | | | | | | |
|------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | |
| 301-400 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |
| 201-300 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |
| 151-200 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |
| 126-150 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |
| 101-125 | 320 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |
| 81-100 | 320 | 320 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |
| 41-80 | 320 | 320 | 320 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | |
| 11-40 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | |
| 1-10 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | |

Special lubricants may be required for food and drug industry applications where contact with the product being manufactured may occur. Consult a lubrication manufacturer's representative for his recommendation.

CAUTION

Do not use EP oils or oils containing slippery additives such as graphite or molybdenum disulphide in the reducer when backstop is used. These additives will destroy sprag action. Failure to observe these precautions could result in damage to, or destruction of, the equipment.

GUIDELINES FOR TORQUE-ARM REDUCER LONG-TERM STORAGE

During periods of long storage, or when waiting for delivery or installation of other equipment, special care should be taken to protect a gear reducer to have it ready to be in the best condition when placed into service.

By taking special precautions, problems such as seal leakage and reducer failure due to the lack of lubrication, improper lubrication quantity, or contamination can be avoided. The following precautions will protect gear reducers during periods of extended storage:

Preparation

1. Drain the oil from the unit. Add a vapor phase corrosion inhibiting oil (VCI-105 oil by Daubert Chemical Co.) in accordance with Table 4.
2. Seal the unit air tight. Replace the vent plug with a standard pipe plug and wire the vent to the unit.
3. Cover the shaft extension with a waxy rust preventative compound that will keep oxygen away from the bare metal. (Non-Rust X-110 by Daubert Chemical Co.)
4. The instruction manuals and lubrication tags are paper and must be kept dry. Either remove these documents and store them inside or cover the unit with a durable waterproof cover which can keep moisture away.

5. Protect the reducer from dust, moisture, and other contaminants by storing the unit in a dry area.
6. In damp environments, the reducer should be packed inside a moisture-proof container or an envelope of polyethylene containing a desiccant material. If the reducer is to be stored outdoors, cover the entire exterior with a rust preventative.

When Placing the Reducer into Service

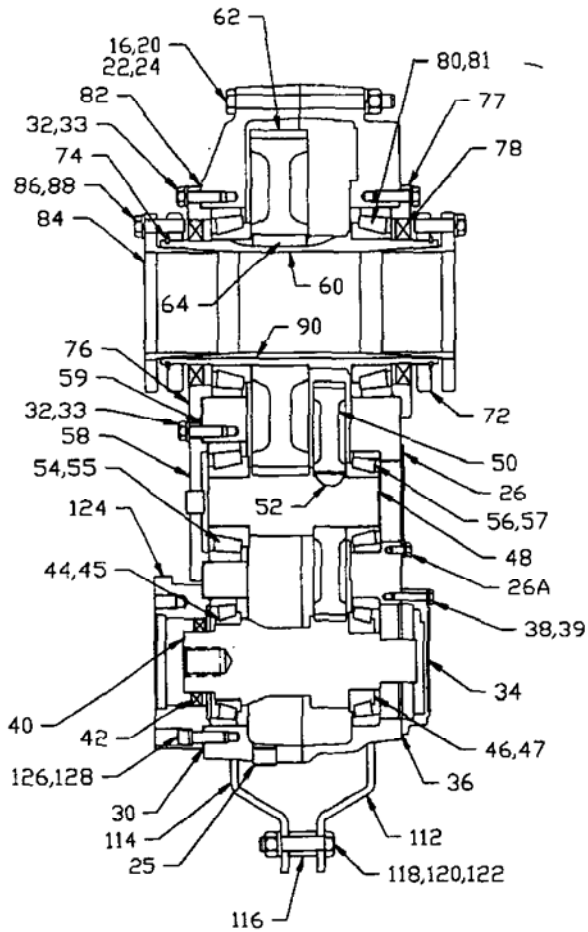
1. Assemble the vent plug into the proper hole.
2. Clean the shaft extensions with petroleum solvents.
3. Fill the unit to the proper oil level using a recommended lubricant. The VCI oil will not affect the new lubricant.
4. Follow the installation instructions provided in this manual.

Table 4 – Quantities of VCI #105 Oil

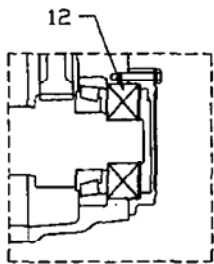
| Case Size | Quarts or Liters |
|-----------|------------------|
| HXT625 | .4 |
| HXT725 | .5 |

VCI #105 & #10 are interchangeable.
VCI #105 is more readily available.

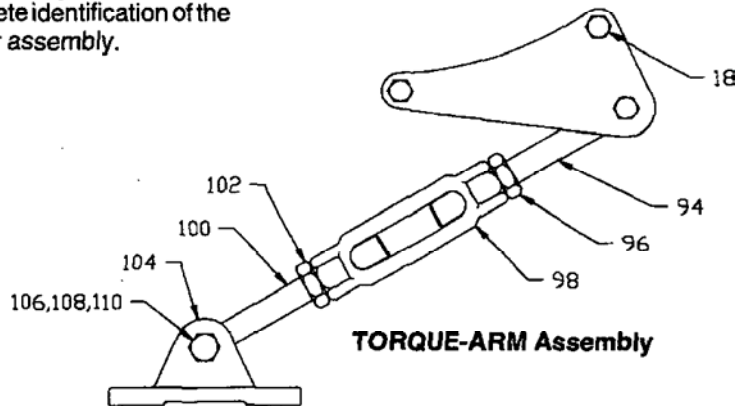
**PARTS FOR HXT6 6B & HXT7 6B TAPER BUSHED
HYDROIL SPEED REDUCERS**



Note: The two-digit numbers are for reference only. Order parts by the six-digit numbers in the Parts List. Each six-digit number is a complete identification of the part or assembly.



Backstop Assembly



TORQUE-ARM Assembly

| Reference | Name of Part | No. Req'd. | HXT6 Part No. | HXT7 Part No. | Reference | Name of Part | No. Req'd. | HXT6 Part No. | HXT7 Part No. |
|-----------|--|------------|---------------|---------------|-----------|---|------------|---------------|---------------|
| 12 | Backstop Assembly | 1 | 246092 | 247260 | 82* | Output Hub Bearing Shim Pack | ‡ | 391187 | 390444 |
| 14 | HOUSING | 1 | 246170 | 247180 | | .002" Thick | † | 427470 | 427525 |
| 15 | | | | | | .005" Thick | † | 427471 | 427527 |
| 16 | Air Vent | 1 | 245237 | 390061 | | .010" Thick | † | 427472 | 427528 |
| 18 | Housing Bolt | 6 | 411466 | 411498 | | .025" Thick | † | 427473 | 427558 |
| 20 | Adapter Housing Bolt | 2 | 411468 | 411499 | | 2 ³ / ₁₆ " Bore | 1 | 246261 | ..... |
| 22 | Lockwasher | 8 | 419013 | 419016 | | 2 ¹ / ₄ " Bore | 1 | 246262 | ..... |
| 24 | Hex Nut | 8 | 407091 | 407095 | | 2 ⁷ / ₁₆ " Bore | 1 | 246263 | 272125 |
| 24 | Dowel Pin | 2 | 420112 | 420128 | 84 | BUSHING | 1 | 246264 | 272149 |
| 25 | Pipe Plug | 2 | 430033 | 430035 | | 2 ¹ / ₂ " Bore | 1 | 246265 | 272147 |
| 25 | Magnetic Plug | 1 | 430062 | 430064 | | 2 ¹³ / ₁₆ " Bore | 1 | ..... | 272130 |
| 26 | Countershaft Brg. Cover (Backstop Side) | 1 | 246015 | 247011 | | 2 ⁷ / ₈ " Bore | 1 | 246266 | 272131 |
| 26A | Countershaft Cover Screws | 6 | 411394 | 411394 | | 2 ¹⁵ / ₁₆ " Bore | 1 | 246267 | 272132 |
| | Countershaft Cover Washers | 6 | 419009 | 419009 | | 3" Bore | 1 | 246283 | 272133 |
| 30 | Input Shaft Bearing Shim Pack | ‡ | 391164 | 390420 | | 3 ³ / ₁₆ " Bore | 1 | ..... | 272134 |
| | .D02" Thick | † | 427478 | 427578 | 86 | ▲ Bushing Screw | 6 | 411435 | 411456 |
| | .D05" Thick | † | 427479 | 427584 | 88 | ▲ Lockwasher | 6 | 419012 | 419013 |
| | .D10" Thick | † | 427480 | 427604 | | 2 ³ / ₁₆ " Bore | 1 | 443211 | ..... |
| | .D25" Thick | † | 427481 | 427618 | | 2 ¹ / ₄ " Bore | 1 | 443211 | ..... |
| 32 | Carner and Cover Screws | ■ | 411408 | 411433 | | 2 ⁷ / ₁₆ " Bore | 1 | 443214 | 443248 |
| 33 | Lockwasher | ■ | 419011 | 419012 | | 2 ¹ / ₂ " Bore | 1 | 443214 | 443248 |
| 34 | Backstop Cover | 1 | 246221 | 247221 | 90 | ▲ Key | 1 | 443238 | 443248 |
| 36 | Backstop Cover Gasket | 1 | 246220 | 246220 | | Bushing | 1 | ..... | 443199 |
| 38 | Backstop Cover Screw | 6 | 411404 | 411402 | | to Shaft | 1 | 443236 | 443199 |
| 39 | Lockwasher | 6 | 419009 | 419009 | | 2 ¹⁵ / ₁₆ " Bore | 1 | 443237 | 443199 |
| 40* | Input Shaft with Pinion 25:1 Ratio | 1 | 246521 | 247521 | | 3" Bore | 1 | 443252 | 243216 |
| 42* | Input Shaft Seal | 1 | 246524 | 246524 | | 3 ³ / ₁₆ " Bore | 1 | ..... | 443235 |
| 44* | Input Shaft Brg. Cone | 1 | 402196 | 402150 | | 3 ⁷ / ₁₆ " Bore | 1 | 443213 | 443217 |
| 45* | (Input Side) Cup | 1 | 403091 | 403106 | | 3 ¹⁵ / ₁₆ " Bore | 1 | ..... | 443218 |
| 46* | Input Shaft Brg. Cone | 1 | 402197 | 402088 | 92 | ▲ Key, Bushing to Output Hub | 1 | 443212 | ..... |
| 47* | (Backstop Side) Cup | 1 | 403091 | 403047 | | 2 ³ / ₁₆ " through 2 ¹ / ₂ " Bore | 1 | ..... | 443198 |
| | | | | | | 2 ⁷ / ₁₆ " through 3" Bore | 1 | ..... | 443198 |
| 48 | COUNTERSHAFT ASSEMBLY* 25:1 Ratio | 1 | 391186 | 391197 | | TORQUE-ARM ASSEMBLY* | 1 | 246097 | 247098 |
| 50* | Countershaft with Pinion | 1 | 246294 | 247002 | 94 | ▲ Rod End | 1 | 245245 | 247239 |
| 50* | First Reduction Gear | 1 | 246293 | 247005 | 96 | ▲ Hex Nut | 1 | 407097 | 407099 |
| 52* | Key | 2 | 245218 | 247218 | 98 | ▲ Tumbuckle | 1 | 245246 | 247246 |
| 54* | Countershaft Brg. Cone | 1 | 402054 | 402256 | 100 | ▲ Extension | 1 | 245247 | 247240 |
| 55* | (Input Side) Cup | 1 | 403159 | 403053 | 102 | ▲ L.H. Hex Nut | 1 | 407246 | 407248 |
| 56* | Countershaft Brg. Cone | 1 | 402052 | 402256 | 104 | ▲ Fulcrum | 1 | 247248 | 247239 |
| 57* | (Backstop Side) Cup | 1 | 403142 | 403053 | 106 | ▲ Fulcrum Screw | 1 | 411489 | 411489 |
| 58 | Countershaft Brg. Cover (Input Side) | 1 | 246185 | 247194 | 108 | ▲ Lockwasher | 1 | 419014 | 409014 |
| 59* | Countershaft Brg. Shim Pack | ‡ | 391165 | 390429 | 110 | ▲ Hex Nut | 1 | 407093 | 407093 |
| | .002" Thick | † | 427474 | 427690 | | ADAPTER ASSEMBLY* | 1 | ..... | ..... |
| | .005" Thick | † | 427475 | 427691 | 112 | ▲ R.H. Adapter Plate | 1 | 246242 | 247242 |
| | .010" Thick | † | 427476 | 427692 | 114 | ▲ L.H. Adapter Plate | 1 | 246241 | 247241 |
| | .025" Thick | † | 427477 | 427693 | 116 | ▲ Adapter Bushing | 1 | 245243 | 247244 |
| 60* | OUTPUT HUB ASSEMBLY* Taper Bushed Output Hub | 1 | 390935 | 390941 | 118 | ▲ Adapter Bolt | 1 | 411460 | 411485 |
| 62* | Taper Bushed Output Gear | 1 | 246269 | 272137 | 120 | ▲ Lockwasher | 1 | 419013 | 419014 |
| 64* | Output Gear Key | 2 | 241217 | 245217 | 122 | ▲ Hex Nut | 1 | 407091 | 407093 |
| 66* | Output Hub Snap Ring | 1 | 421033 | 421038 | 124 | Motor Adapter 25:1 Ratio | 1 | 246522 | 247522 |
| 72 | Bushing Back-up Plate | 2 | 246270 | 272138 | 126 | Adapter Screw | 6 | 417108 | 417141 |
| 74 | Retaining Ring | 4 | 421055 | 421099 | 128 | Lockwasher | 6 | 419047 | 419048 |
| 76 | Output Hub Seal Carrier (Input Side) | 1 | 246186 | 247315 | | | | | |
| 77 | Output Hub Seal Carrier (Backstop side) | 1 | 246186 | 247315 | | | | | |
| 78* | Output Hub Seal | 2 | 246302 | 247302 | | | | | |
| 80* | Output Hub Cone | 2 | 402050 | 402058 | | | | | |
| 81* | Bearing Cup | 2 | 403140 | 403111 | | | | | |

* Includes parts listed immediately below marked "#tu" HXT 6 & 7 housing assembly also includes a two-piece housing. Bushing assembly includes 2 bushings.
▲ Parts marked "#tu" make up the assemblies under which they are listed.
c Not shown on drawing.
• 1 set req'd. on size HXT6; 2 sets req'd. on size HXT7.
‡ One set consists of one each of the shims listed immediately below marked "†".
† See last paragraph under "ORDERING PARTS."
24 req'd. on HXT6; 28 req'd. on HXT7.
* Recommended spare parts

REPLACEMENT OF PARTS

IMPORTANT:

Using tools normally found in a maintenance department, a HYDROIL TORQUE-ARM speed reducer can be disassembled and reassembled by careful attention to the instructions following.

Cleanliness is very important to prevent the introduction of dirt into the bearings and other parts of the reducer. A tank of clean solvent, an arbor press, and equipment for heating bearings and gears should be available for shrinking these parts on shafts.

Our factory is prepared to repair reducers for customers who do not have proper facilities or who for any reason desire factory service.

The oil seals are of the rubbing type, and considerable care should be used during disassembly and reassembly to avoid damage to the surface on which the seals rub.

ORDERING PARTS:

When ordering parts for reducer, specify reducer size number, part name, part number and quantity.

It is strongly recommended that when a pinion or gear is replaced, the mating gear or pinion be replaced also.

If the large gear on the output hub must be replaced, it is recommended that an output hub assembly of a gear assembled on a hub be ordered to secure undamaged surfaces on the output hub where the oil seals rub. However, if it is desired to use the old output hub, press the gear and bearing off and carefully examine the rubbing surface under the oil seal for possible scratching or other damage resulting from the pressing operation. To prevent oil leakage at the shaft oil seals, the smooth surface of the output hub must not be damaged.

If any parts must be pressed from a shaft or from the output hub, this should be done before ordering parts to make sure that none of the bearings or other parts are damaged in removal.

Because old oil seals may be damaged in disassembly, it is advisable to order replacements for these parts.

If replacing a bearing or a shaft, it is advisable to order a set of shims for adjustment of bearings on the shaft assembly. If replacing a housing, a set of shims should be ordered for each shaft assembly because the adjustment of the bearings on each shaft assembly is affected.

REMOVING TAPER BUSHED REDUCER FROM SHAFT:

WARNING

External loads may cause machine movement. Block machine before removing any drive train components. Failure to observe these precautions could result in bodily injury.

WARNING

To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Failure to observe this precaution could result in bodily injury.

1. Remove bushing screws.
2. Place the screws in the threaded holes provided in the bushing flanges. Tighten the screws alternately and evenly until the bushings are free on the shaft. For ease of tightening screws, make sure screw threads and threaded holes in bushing flanges are clean.
3. Remove the outside bushing, the reducer and then the inboard bushing.

DISASSEMBLY:

1. Remove all bolts from housing. Remove back-up plates and snap rings on the output hub of taper-bushed reducers. Open housing evenly to prevent damage to parts inside.
2. Lift shaft, gear and bearing assemblies from housing.
3. Remove seals, seal carriers and bearing cups from housing.

REASSEMBLY:

1. **Output Hub Assembly:** Heat gear to 325° to 350°F to shrink on output hub. Heat bearing cones to 270° to 290°F to shrink on hub.
2. **Countershaft Assembly:** Heat gear to 325° to 350°F and bearing cones to 270° to 290°F to shrink on shaft.
3. **Input Shaft Assembly:** Heat bearing cones to 270° to 290°F to shrink on shaft.
4. Place a .010" shim on output hub seal carrier for right hand half of housing (as viewed in drawing). Place a 1/8" dia. bead on Dow Corning RTV732 sealant on the face around the I.D. of the shim (seal is to be between reducer housing and shim). Caution: If too much sealant is used it will run into bearing and too little sealant will result in an ineffective seal. Install output hub seal carrier and countershaft bearing cover in right hand housing half and tighten screws to recommended torque in Table 5. Place bearing cups in right hand housing half. Make certain the cups are properly seated in housing. Place housing half on blocks to allow for protruding end of output hub.
5. Mesh output hub and countershaft assembly together and place in housing half. Place input shaft in position. Make sure rollers are properly seated in bearing cups.
6. Clean housing flange surfaces on both halves, making sure not to nick or scratch flange face. Place

a new bead of gasket replacer on flange face and spread evenly over entire flange leaving no bare spots. Place other housing half into position and tap with a soft hammer (rawhide, not lead hammer) until housing bolts can be used or draw housing halves together. Torque housing bolts per torque values listed below.

7. Place the output hub seal carrier in position without shims and install two cap screws diametrically opposed. Torque each screw to 25 lb.-in. Rotate the shaft to roll in the bearings and then torque each screw once to 50 lb.-in. **Do not retorquing the screws.** Turn shaft again to roll in the bearings. With a feeler gauge, check the gap between carrier and housing, clockwise from and next to each screw. To determine required shim thickness, add the average of the two feeler gauge readings to .013". Remove the carrier and install the required shims. Note: Total shim thickness per carrier or cover should not include more than .009" plastic shims. All other shims should be metal and each plastic shim should be inserted between two metal shims. Place a 1/8" dia. bead of Dow Corning RTV732 sealant on the face around the I.D. of the last shim and install output hub carrier in reducer housing. Tighten carrier bolts to recommended torque in Table 5. Output hub should have an axial end play of .001" to .003".
8. Adjust the countershaft bearings using the same method as in step 7, except to determine shim thickness required add the average of the feeler gauge readings to .013" and the axial end play should be .001" to .003".

9. Again using the same procedure as in step 7, adjust the input shaft bearings, except add the average of the feeler gauge readings to 0.16" to determine required shim thickness and the axial end play should be .002" to .004.
10. Apply sealant to backstop cover gasket and install backstop cover. Extreme care should be used in installing seals to avoid damage due to contact with sharp edges of the keyseat in the input shaft and holes in the output hub. This danger of damage and consequent oil leakage can be decreased by covering the keyseat and the holes with paper or tape which can be removed after seals are in place. Chamfer or burr housing bore if end of bore is sharp or rough. Fill cavity between lips of seal with grease. Seals should be pressed or tapped with a soft hammer (rawhide, not lead hammer) evenly into place in the housing, applying force only on the outer corner of the seals. A slight oil leakage at the seal may be evident during initial running in, but will disappear unless the seals have been damaged.
11. Install bushing back-up plate and snap rings.

Table 5 – Torque Values

| Reducer Size | Recommended Torque (lb.-ins.) | | | |
|--------------|-------------------------------|----------------------------|--------------------------------|-------------------------|
| | Housing Bolts | Ctrshft. Brg. Cover Screws | Output Hub Seal Carrier Screws | Input Brg. Cover Screws |
| HXT6 | 900 | 360 | 360 | 120 |
| HXT7 | 1620 | 600 | 600 | 120 |

Table 6 – Manufacturers’ Part Numbers For Replacement Output Hub Bearings

| TORQUE-ARM Reducer Size | Output Hub Bearing | |
|-------------------------|--------------------|--------------------|
| | DODGE Part Number | Timken Part Number |
| HXT6 | 402050 | JM822049 |
| | 403140 | JM822010 |
| HXT7 | 402058 | 48290 |
| | 403111 | 48220 |

Table 7 – Manufacturers’ Part Numbers For Replacement Countershaft Bearings

| TORQUE-ARM Reducer Size | Countershaft Bearing Input Side | | Countershaft Bearing Backstop Side | |
|-------------------------|---------------------------------|-----------------|------------------------------------|-----------------|
| | DODGE Part No. | Timken Part No. | DODGE Part No. | Timken Part No. |
| HXT6 | 402054 | HM807040 | 402052 | HM803149 |
| | 403159 | HM807010 | 403142 | HM803110 |
| HXT7 | 402256 | JHM807045 | 402256 | JHM807045 |
| | 403053 | JHM807012 | 403053 | JHM807012 |

Table 8 – Manufacturers’ Part Numbers For Replacement Input Shaft Bearings

| TORQUE-ARM Reducer Size | Input Bearing Input Side | | Input Bearing Backstop Side | |
|-------------------------|--------------------------|-----------------|-----------------------------|-----------------|
| | DODGE Part No. | Timken Part No. | DODGE Part No. | Timken Part No. |
| HXT6 | 402196 | 395A | 402197 | 396 |
| | 403091 | 3920 | 403091 | 3920 |
| HXT7 | 402150 | 39590 | 402088 | 455 |
| | 403106 | 39520 | 403047 | 452 |

Viscosity Classification Equivalents

