Torque-Arm® II Speed Reducers
Ratios 5, 9, 15, 25, and 40:1
Instruction Manual

TA0107L	**TA3203H**	**TA6307H**	**TA9415H**
TA1107H	**TA4207H**	**TA7315H**	**TA10507H**
TA2115H	**TA5215H**	**TA8407H**	**TA12608H**

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see **dodgeindustrial.com** for updated instruction manuals.

WARNING: To ensure the drive is not unexpectedly started, turn off and lock-out or tag power source before proceeding. Failure to observe these precautions could result in bodily injury.

WARNING: All products over 25 kg (55 lb) are noted on the shipping package. Proper lifting practices are required for these products.

WARNING: Torque-Arm II product exceeding 13.5 kg (30 lb) should be lifted using lift-assist equipment rated for the weight of the product. Weight values for all Torque-Arm II products are listing in the Gearing Engineering Catalog. Lifting brackets provided on the Torque-Arm II should be used when connecting to the lift-assist equipment.

WARNING: Depending on operating conditions, sound levels for Torque-Arm II products may exceed 70 dB. Protective measures such as hearing protection may be needed when in close proximity to a Torque-Arm II.

WARNING: Because of the possible danger to person(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 Dodge® nor are the responsibility of Dodge. 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.

INSTALLATION

1. Use lifting bracket to lift reducer.
2. Determine the running positions of the reducer (see Figure 1). Note that the reducer is supplied with six plugs—four around the sides for horizontal installations and one 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 filter/ventilation plug in shipment and install plug in topmost hole. Refer to Table 1 to determine the correct minimum oil level plug location for the application output speed.

   Vertical Installations–Install the filter/ventilation plug in the hole provided in the upper face of the reducer housing as installed. If space is restricted on the upper face, install the vent in the highest hole on the side of the reducer per Figure 1. Install a plug in the hole in the bottom face of the reducer. Do not use this hole for the magnetic drain plug. Refer to Table 1 to determine the correct minimum oil level plug location.

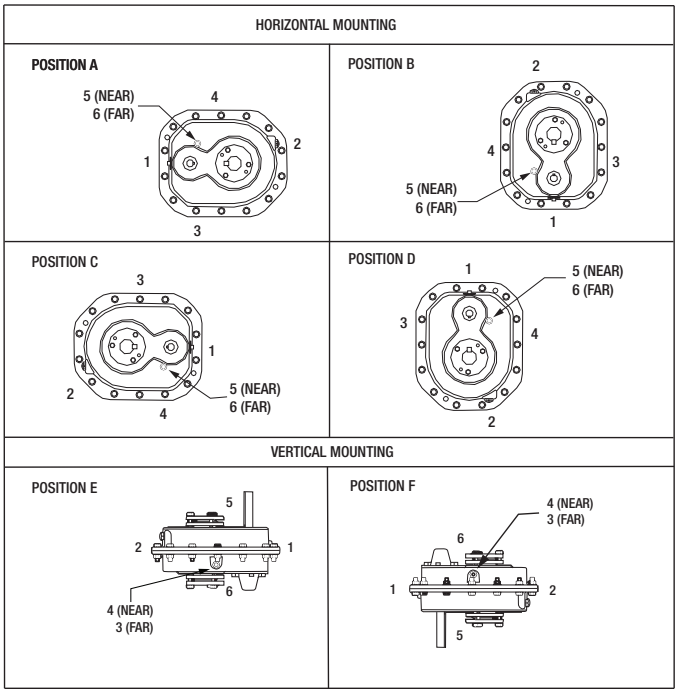


Figure 1 - Mounting Positions

If the running position varies from the horizontal positions shown in Figure 1 by more than 20° for position B and D or more than 5° for position A and C the oil level plug cannot be used safely to check the oil level. Refer to White Paper WP0278 or contact Product Support for more information on the proper oil level. Because of the many possible positions of the reducer, it may be necessary to make special adaptations using standard pipe fittings, stand pipes and oil level gauges

Table 1–Output Speeds

Output Speeds Above 15 RPM (See Note 1)						
Mounting Position	Vent and Plug Locations					
	1	2	3	4	5	6
Position A	Level	Plug	Drain	Vent	Plug	Plug
Position B	Drain	Vent	Level	Plug	Plug	Plug
Position C	Plug	Level	Vent	Drain	Plug	Plug
Position D	Vent	Drain	Level	Plug	Plug	Plug
Position E	Level	Plug	Plug	Drain	Vent	Plug
Position F	Plug	Drain	Level	Plug	Plug	Vent
Output Speeds Below 15 RPM (See Note 1)						
Mounting Position	Vent and Plug Locations					
	1	2	3	4	5	6
Position A	Plug	Level	Drain	Vent	Plug	Plug
Position B	Drain	Vent	Plug	Level	Plug	Plug
Position C	Level	Plug	Vent	Drain	Plug	Plug
Position D	Vent	Drain	Level	Plug	Plug	Plug
Position E	Level	Plug	Plug	Drain	Vent	Plug
Position F	Plug	Drain	Level	Plug	Plug	Vent

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

This reducer is compatible with the Dodge Smart Sensor that can be installed in the adapter plug labelled "smart sensor." The plug and sensor can be moved to different locations as required by mounting position.

3. Mount reducer on driven shaft as follows:

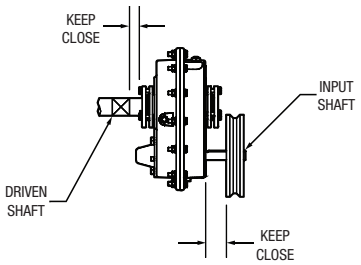


Figure 2 - Reducer and Sheave Installation

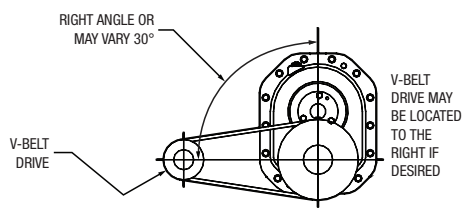


Figure 3 - Angle of V-Drive

For Taper Bushed Reducer: Mount reducer on driven shaft per instruction in Torque-Arm II Bushing Installation section of this manual.

4. Install sheave on input shaft as close to reducer as practical (Figure 2).
5. If a Dodge Torque-Arm II motor mount is not being used, install motor and V-belt drive so belt will approximately be at right angles to the center line between driven and input shaft (Figure 3).
   This will permit tightening the V-belt with the torque arm.
6. Install torque arm and adapter plates reusing the reducer bolts. The adapter plates will fit in any position around the reducer.
7. Install torque arm fulcrum on a flat and rigid support using Grade 5 bolts and washers (not included in tie rod kit). Refer to Table 2 for fulcrum bolt sizes and recommended torque settings.
8. If using a plate steel fulcrum, the sides may pull together when tightening the provided bolt connecting the fulcrum and tie rod. Be sure to leave at least a 0.005 inch gap on both sides between the tie rod eye and the fulcrum. This is not a concern with a cast iron fulcrum. Install the fulcrum so that the torque arm will be approximately at right angles to the center line through the driven shaft and the torque arm fulcrum screw (Figure 4). Make sure that there is sufficient take-up in the turnbuckle for belt tension adjustment when using V-belt drive.

   CAUTION: Unit is shipped without oil. Add proper amount of recommended lubricant before operating. Failure to observe this precaution could result in damage to or destruction of the equipment.
9. Fill gear reducer with recommended lubricant (Table 4).

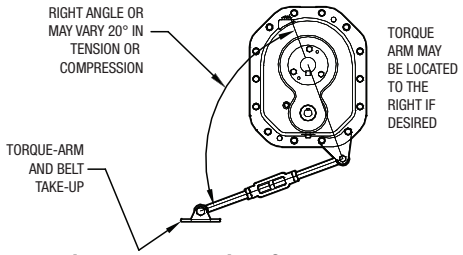


Figure 4 - Angle of Torque-Arm

Table 2 - Tie Rod Fulcrum Hardware Information

Reducer Size	Grade 5 Bolt and Washer Size (in)	Torque (lb-ft)
TA0107L	3/8	30
TA1107H	3/8	30
TA2115H	7/16	50
TA3203H	7/16	50
TA4207H	1/2	75
TA5215H	1/2	75
TA6307H	5/8	150
TA7315H	3/4	265
TA8407H	3/4	265
TA9415H	1	645
TA10507H	1	645
TA12608H	1	645

TORQUE-ARM II BUSHING INSTALLATION

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or

servicing drive or accessories. Failure to observe these precautions could result in bodily injury.
CAUTION: DO NOT USE LUBRICANTS OR ANTI-SEIZE WHEN INSTALLING TWIN TAPERED BUSHINGS. The use of lubricants or anti-seize could result in over tightening of the bushing assembly. This may result in bushing assembly damage or future bushing removal issues.

The Torque-Arm II reducer is designed to fit both standard and short length driven shafts. The Standard Taper Bushings series is designed where shaft length is not a concern. The Short Shaft Bushing series is to be used where the driven shaft does not

Standard Taper Bushings

1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of two tapered bushings, bushing screws and washers, two bushing backup plates and retaining rings, and necessary shaft key or keys. The driven shaft must extend through the full length of the reducer. If the driven shaft does not extend through the reducer do not use the standard tapered bushings; instead use the short shaft bushings as described in the Short Shaft Bushings section that follows. The minimum shaft length, as measured from the end of the shaft to the outer edge of the bushing flange (Figure 6), is given in Table 3.
2. Install one bushing backup plate on the end of the hub and secure with the supplied retaining ring. Repeat procedure for other side.
3. Place one bushing, flange end first, onto the driven shaft and position per dimension A as shown in Table 3. This will allow the bolts to be threaded into the bushing for future bushing and reducer removal.
4. Insert the output key in the shaft and bushing. For ease of installation, rotate the driven shaft so that the shaft keyseat is at the top position.

   NOTE: In most cases the keys that are supplied with the bushing kit are NOT square keys and the orientation of the key is important. Install the key so that it fits snugly in the width of the keyseat. The keys are marked with a part number and some keys are also etched with "THIS SIDE UP"—these markings should be showing on the top of the key when it is installed in the shaft keyseat. See Figure 5 below.

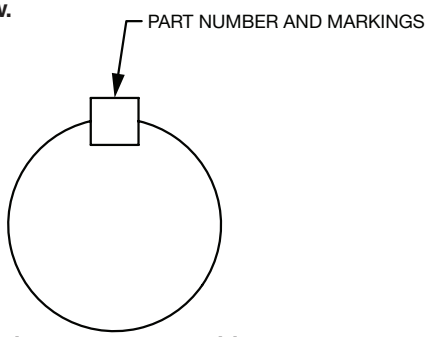


Figure 5 - Key Marking

5. Mount the reducer on the driven shaft and align the shaft key with the reducer hub keyway. Maintain the recommended minimum distance A from the shaft bearing.
6. Insert the screws, with washers installed, in the unthreaded holes in the bushing flange and align with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing screws. Tighten the screws lightly. If the reducer must be positioned closer than dimension A, place the screws with washers installed in the unthreaded holes in the bushing before positioning reducer making sure to maintain at least ⅛" between the screw heads and the bearing.
7. Place the second tapered bushing in position on the shaft and align the bushing keyway with the shaft key. Align the unthreaded holes in the bushing with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing holes. Insert bushing screws, with washers installed in the unthreaded holes in the bushing. Tighten screws lightly.
8. Alternately and evenly tighten the screws in the bushing nearest the equipment to the recommended torque given in Table 3. Repeat procedure on outer bushing.

Short Shaft Bushings

1. One bushing assembly is required to mount the reducer on the driven shaft. An assembly consists of one long tapered bushing, one short tapered bushing, one tapered bushing wedge, bushing screws and washers, two bushing backup plates and retaining rings, and necessary shaft key or keys. The driven shaft does not need to extend through the reducer for the short shaft bushing to operate properly. The minimum shaft length, as measured from the end of the shaft to the outer edge of the bushing flange (see Figure 6), is given in Table 3.

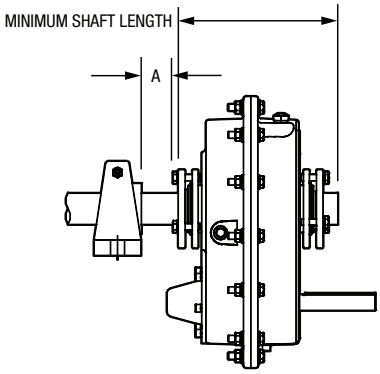


Figure 6 - Minimum Recommended Dimensions

Table 3 –Minimum Mounting Dimensions and Bolt Torques

Minimum Required Shaft Length		
Reducer Size	**Standard Taper Bushing (in)**	**Short Shaft Bushing (in)**
TA0107L	6.83	4.32
TA0107L	6.83	4.32
TA1107H	6.95	4.43
TA2115H	7.80	4.80
TA3203H	8.55	5.46
TA4207H	8.94	5.66
TA5215H	10.33	6.35
TA6307H	10.82	6.72
TA7315H	11.87	7.62
TA8407H	12.82	8.10
TA9415H	13.74	8.56
TA10507H	15.46	9.67
TA12608H	18.32	11.60

Bushing Screw Information and Minimum Clearance for Removal			
Reducer Size	**Fastener Size**	**Torque (lb-ft)**	**A (in)**
TA0107L	5/16-18	20-17	1.08
TA1107H	5/16-18	20-17	1.20
TA2115H	3/8-16	20-17	1.20
TA3203H	3/8-16	20-17	1.20
TA4207H	3/8-16	26-23	1.48

TA5215H	1/2-13	77-67	1.81
TA6307H	1/2-13	77-67	1.81
TA7315H	1/2-13	77-67	2.06
TA8407H	1/2-13	77-67	2.06
TA9415H	5/8-11	86-75	2.39
TA10507H	5/8-11	86-75	2.39
TA12608H	5/8-11	86-75	2.39

2. The long bushing is designed to be installed from the side of the reducer opposite the driven equipment as shown in Figure 7. The long bushing, when properly installed, is designed to capture the end of the customer shaft that does not extend through the reducer. Normally the reducer would be mounted such that the input shaft extends from the side of the reducer opposite the driven equipment however the reducer design allows installation of the reducer to be mounted in the opposite direction.
3. Install the tapered bushing wedge into the hollow bore of the reducer from the same side as the long bushing will be installed. When installing the tapered bushing wedge into the reducer hub, install the flange end first so that the thin taper is pointing outwards towards the long bushing as shown in Figure 7. The wedge is properly installed when it snaps into place in the reducer hub.

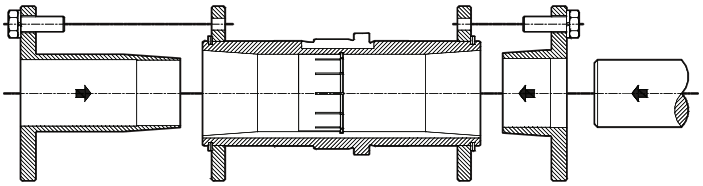


Figure 7 - Short Shaft Bushing and Output Hub Assembly

4. Align the tapered bushing wedge keyway with the reducer hub keyway. The keyway in the wedge is slightly wider than the keyway in the reducer hub allowing for easier installation.
5. Install one bushing backup plate on the end of the hub and secure with the supplied retaining ring. Repeat procedure for other side.
6. Install the short bushing, flange first, on the driven shaft and position per dimension A as shown in Table 3. This will allow the bolts to be threaded into the bushing for future bushing and reducer removal.
7. Insert the output key in the shaft and bushing. For easy of installation, rotate the driven shaft so that the shaft keyseat is at the top position.

   NOTE: In most cases the keys that are supplied with the bushing kit are NOT square keys and the orientation of the key is important. Install the key so that it fits snugly in the width of the keyseat. The keys are marked with a part number and some keys are also etched with "THIS SIDE UP"—these markings should be showing on the top of the key when it is installed in the shaft keyseat. See Figure 8 below.

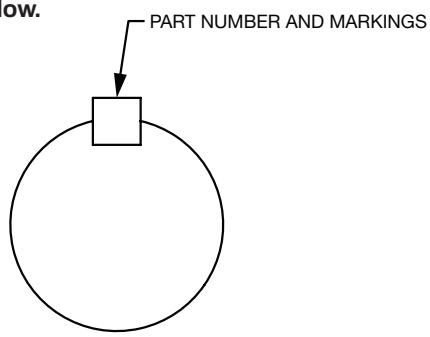


Figure 8 - Key Marking

8. Mount the reducer on the driven shaft and align the shaft key with the reducer hub keyway. Maintain the recommended minimum distance A from the shaft bearing.
9. Insert the screws, with washers installed, in the unthreaded holes in the bushing flange and align with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing screws. Tighten the screws lightly. If the reducer must be positioned closer than dimension A, place the screws with washers installed in the unthreaded holes in the bushing before positioning reducer making sure to maintain at least ⅛" between the screw heads and the bearing.
10. Place the long bushing in position on the shaft and align the bushing keyway with the shaft key. Use care to locate the long bushing with the tapered bushing wedge installed earlier. Align the unthreaded holes in the bushing with the threaded holes in the bushing backup plate. If necessary, rotate the bushing backup plate to align with the bushing holes. Insert bushing screws, with washers installed in the unthreaded holes in the bushing. Tighten screws lightly.
11. Alternately and evenly tighten the screws in the bushing nearest the equipment to the recommended torque given in Table 3. Repeat procedure on outer bushing.

BUSHING REMOVAL FOR STANDARD TAPER OR SHORT SHAFT BUSHINGS

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 the bushing flanges are clean. If the reducer was positioned closer than the recommended minimum distance "A" as shown in Table 3, loosen the inboard bushing screws until they are clear of the bushing flange by 1/8". Locate two (2) wedges at 180 degrees between the bushing flange and the bushing backup plate. Drive the wedges alternately and evenly until the bushing is free on the shaft.
3. Remove the outside bushing, the reducer, and then the inboard bushing.

LUBRICATION

NOTE: Because reducer is shipped without oil, it is necessary to add the proper amount of oil before operating reducer. Use a high-grade petroleum base rust and oxidation inhibited (R&O) gear oil (Tables 4 and 5). Follow instructions on reducer warning tags, and in the installation manual.

After an initial operation of about two weeks, the oil should be changed. If desired, this oil may be filtered and reused. After the initial break in period, under average operating conditions using mineral oil the oil should be changed every 2500 hours of operation or every 6 months, whichever comes first. If using synthetic oil, the change interval can be increased to 8000 hours of operation or 18 months of service, whichever occurs first. At every oil change, 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 bodily injury.

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 one to three months, depending on severity of conditions.

Table 4–Oil Volumes

Approximate Reducer Size		Approximate Volume of Oil to Fill Reducer to Oil Level Plug ① ② ④ ⑤											
		② Position A		② Position B		② Position C		② Position D		② Position E		② Position F	
		③ Quart	Liter	③ Quart	Liter	③ Quart	Liter	③ Quart	Liter	③ Quart	Liter	③ Quart	Liter
TA0107L	Single ⑥	0.7	0.6	0.5	0.5	0.7	0.6	1.4	1.3	1.3	1.2	1.5	1.4
	Double	0.7	0.6	0.5	0.5	0.6	0.6	1.3	1.3	1.2	1.2	1.4	1.3
TA1107H	Single	1.3	1.3	0.7	0.7	0.7	0.6	1.7	1.6	1.5	1.4	1.9	1.8
	Double	1.3	1.3	0.7	0.7	0.6	0.6	1.7	1.6	1.5	1.4	1.9	1.8
TA2115H	Single	2.1	2.0	1.2	1.2	1.1	1.0	2.7	2.5	2.3	2.2	3.1	2.8
	Double	2.1	2.0	1.1	1.1	1.0	1.0	2.6	2.5	2.4	2.3	3.0	2.9
TA3203H	Single	2.8	2.7	1.6	1.6	1.8	1.7	4.1	3.9	3.3	3.1	4.4	4.2
	Double	2.8	2.7	1.5	1.4	1.7	1.6	4.0	3.8	3.4	3.3	4.2	4.0
TA4207H	Single	4.4	4.2	2.6	2.5	2.9	2.8	7.4	7.0	6.3	6.0	7.8	7.3
	Double	4.4	4.2	2.5	2.4	2.8	2.6	7.3	6.9	6.4	6.0	7.5	7.1
TA5215H	Single	7.4	7.0	4.9	4.7	5.8	5.5	13.2	12.5	11.6	11.0	13.1	12.4
	Double	7.4	7.0	4.7	4.4	5.5	5.2	12.9	12.2	11.4	10.8	12.6	11.9
TA6307H	Single	8.8	8.4	5.8	5.5	6.6	6.2	16.1	15.3	13.2	12.5	16.1	15.3
	Double	8.8	8.4	5.5	5.2	6.2	5.9	15.8	15.0	13.9	13.1	15.3	14.5
TA7315H	Single	8.4	8.0	11.8	11.1	13.9	13.2	22.5	21.3	22.1	20.9	25.1	23.7
	Double	8.4	8.0	10.8	10.3	13.2	12.5	22.0	20.9	22.4	21.2	23.1	21.8
TA8407H	Single	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Double	7.7	7.3	11.7	11.1	13.7	12.9	25.1	23.8	24.0	22.7	25.8	24.4
TA9415H	Single	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Double	17.0	16.1	16.8	15.9	18.1	17.1	33.2	31.4	33.2	31.4	38.6	36.5
TA10507H	Single	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Double	38.0	36.0	27.6	26.1	25.8	24.4	53.5	50.6	53.8	50.9	56.1	53.0
TA12608H	Single	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Double	53.0	50.2	41.5	39.3	37.1	35.1	70.7	66.9	72.2	68.3	80.4	76.1

① Oil quantity is approximate. Service with lubricant until oil runs out of oil level hole.
② Refer to Figure 1 for mounting positions and correct oil fill level plug location based on output speed.
③ US measure: 1 quart = 32 fluid ounces = 0.95 liters.
④ Below 15 rpm output speed, oil level must be adjusted to reach the highest oil level plug..
⑤ If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult Product Support in Simpsonville, SC.
⑥ Reducers with a 5:1 ratio are single-reduction. All other ratios are double-reduction.

Table 5–Oil Recommendations

Output RPM	ISO Grades For Ambient Temperatures of 50˚F to 125˚F * (10˚C to 51˚C)											
	Torque-Arm II Reducer Size											
	TA0107L	TA1107H	TA2115H	TA3203H	TA4207H	TA5215H	TA6307H	TA7315H	TA8407H	TA9415H	TA10507H	TA12608H
301–400	320	320	320	220	220	220	220	220	220	220	220	220
201–300	320	320	320	220	220	220	220	220	220	220	220	220
151–200	320	320	320	220	220	220	220	220	220	220	220	220
126–150	320	320	320	220	220	220	220	220	220	220	220	220
101–125	320	320	320	320	220	220	220	220	220	220	220	220
81–100	320	320	320	320	320	220	220	220	220	220	220	220
41–80	320	320	320	320	320	220	220	220	220	220	220	220
11–40	320	320	320	320	320	320	320	320	320	320	220	220
1–10	320	320	320	320	320	320	320	320	320	320	320	320
Output RPM	ISO Grades For Ambient Temperatures of 15˚F to 60˚F * (-9.4˚C to 15˚C)											
	Torque-Arm II Reducer Size											
	TA0107L	TA1107H	TA2115H	TA3203H	TA4207H	TA5215H	TA6307H	TA7315H	TA8407H	TA9415H	TA10507H	TA12608H
301–400	220	220	220	150	150	150	150	150	150	150	150	150
201–300	220	220	220	150	150	150	150	150	150	150	150	150
151–200	220	220	220	150	150	150	150	150	150	150	150	150
126–150	220	220	220	150	150	150	150	150	150	150	150	150
101–125	220	220	220	220	150	150	150	150	150	150	150	150
81–100	220	220	220	220	220	150	150	150	150	150	150	150
41–80	220	220	220	220	220	150	150	150	150	150	150	150
11–40	220	220	220	220	220	220	220	220	220	220	150	150
1–10	220	220	220	220	220	220	220	220	220	220	220	220

Notes:
1. Assumes auxiliary cooling where recommended in the catalog.
2. Pour point of lubricant selected should be at least 10°F lower than expected minimum ambient starting temperature.
3. Torque-Arm II backstops are suitable for use with Extreme Pressure (EP) lubricants.
4. 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 recommendations.
5. For reducers operating in ambient temperatures between -22°F (-30°C) and 20°F (–6.6°C) use a synthetic hydrocarbon lubricant, 100 ISO grade or AGMA 3 grade (for example, Mobil SHC627).
6. Mobil SHC630 Series oil is recommended for high ambient temperatures.
7. For reducers operating in ambient temperatures above 125°F (51°C) consult Product Support in Simpsonville, SC for lubrication recommendation.

GUIDELINES FOR TORQUE-ARM II 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 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 oil from the unit. Add a vapor phase corrosion inhibiting oil (Nox-Rust 1100 oil by Daubert Chemical Co.) in accordance with Table 6.
2. Seal the unit airtight. Replace the vent plug with a standard pipe plug and wire the vent to the unit.
3. Cover all unpainted exterior parts with a waxy rust preventative compound that will keep oxygen away from the bare metal. (Non-Rust X-110 by Daubert Chemical Co. or equivalent).
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 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. Fill the unit to the proper oil level using a recommended lubricant. The vapor phase corrosion inhibiting oil will not affect the new lubricant.
2. Clean the shaft extensions with petroleum solvents.
3. Assemble the vent plug into the proper hole.

Follow the installation instructions provided in this manual.

Table 6–Quantities of Nox-Rust 1100 Oil

Reducer Size	Quantity (ounces / milliliters)
TA0107L	1 / 30
TA1107H	1 / 30
TA2115H	1 / 30
TA3203H	1 / 30
TA4207H	1 / 30
TA5215H	2 / 59
TA6307H	2 / 59
TA7315H	3 / 89
TA8407H	4 / 118
TA9415H	6 / 177
TA10507H	8 / 237
TA12608H	12 / 355

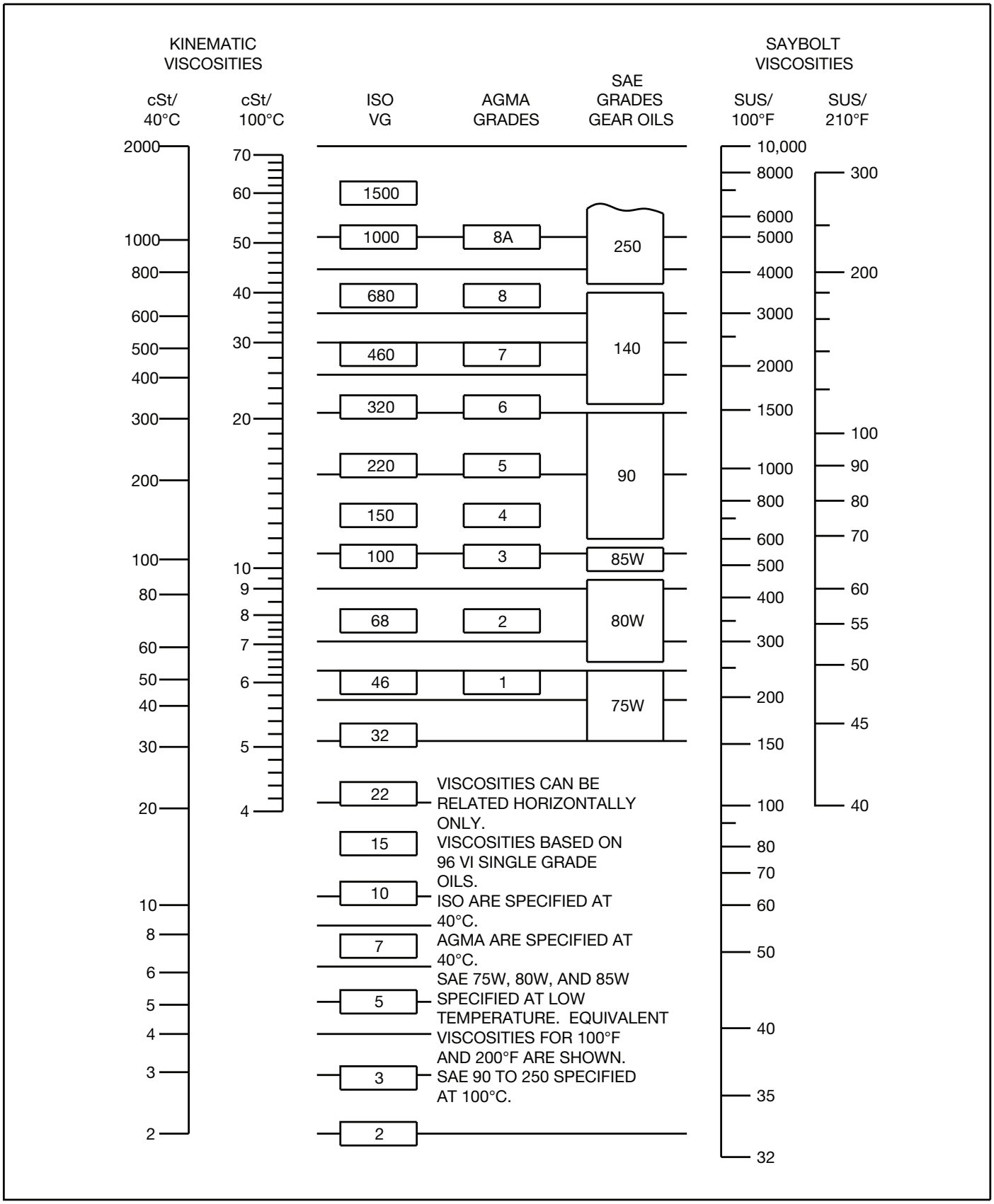


Figure 9 - Oil Viscosity Equivalency Chart

COOLING FAN INSTALLATION

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Unpack all components and inspect for shipping damage. See Table 8 for cooling fan components. Do not use any component that has been damaged or modified. Make sure all components are clean and free of any foreign material prior to assembly. Cooling fan assembly is designed to fit onto the input shaft before placement of sheaves or belt guard assembly.

Installation for TA4207CF and TA5215CF

1. Referring to Figure 11, install tapered bushing (9) into bore of fan blade assembly (2) and loosely install the three set screws provided with fan. Snug set screws but do not tighten at this time.
2. Slide fan assembly onto input shaft and install input shaft key.

   NOTE: Key is supplied with the TAII reducer. Locate fan blade edge distance A (Figure 10) from end of shaft per Table 7. Make sure fan assembly rotates without interference when input shaft is rotated.

3. Alternately tighten the set screws until fan assembly is securely installed on the input shaft.
4. Recheck fan assembly for proper location and clearance. Loosen set screws and repeat steps 2 and 3 above if not properly located.

Installation for TA6307CF through TA12608CF

1. Referring to Figure 11, install fan guard back plate assembly (1) using the four bolts (4) provided. Note that the screen is mounted towards the reducer. Tighten to recommended torque in Table 2.

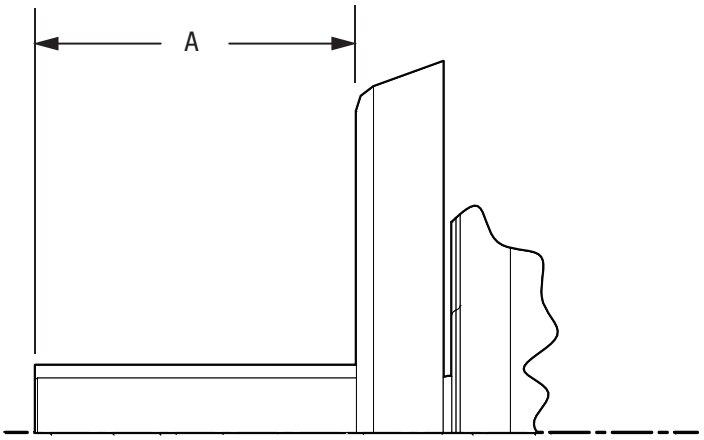
   CAUTION: Fan guard screen has sharp edges. Use caution when installing to avoid lacerations.
2. Slide fan blade assembly (2) onto input shaft and install key and set screws (5).

   NOTE: Key is supplied with the TAII reducer. Locate fan blade edge distance A (Figure 10) from end of shaft per Table 7. Make sure fan assembly rotates without interference when input shaft is rotated.

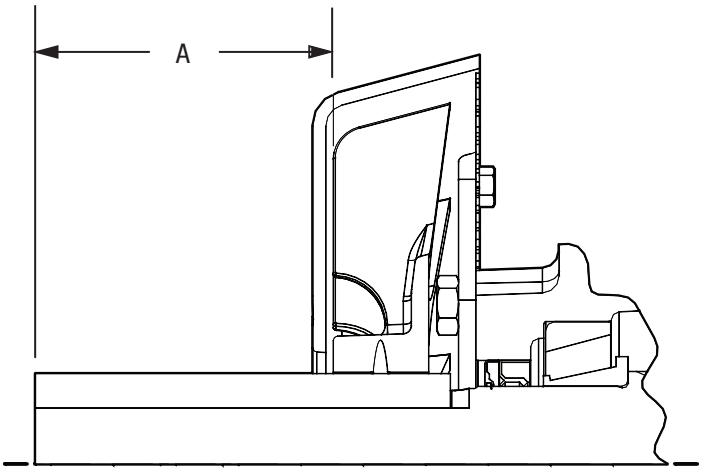
3. Tighten the two fan blade set screws (5) securely.
4. Install fan guard cover (3) with four bolts (6), lockwashers (7), and hex nuts (8). Tighten securely.
5. Verify fan blade rotates freely and does not interfere with fan guard back plate (1) or fan guard cover (3). Adjust fan blade if necessary.

Table 7– Cooling Fan Dimensions and Bolt Torque

Reducer Size	"A" (inches)	Torque (lb-ft)
TA4207H	3-3/4	N/A
TA5215H	4-5/8	N/A
TA6307H	4-1/4	33 - 30
TA7315H	4-3/8	33 - 30
TA8407H	5-1/16	33 - 30
TA9415H	6-1/4	33 - 30
TA10507H	6-7/16	33 - 30
TA12608H	6-7/16	33 - 30

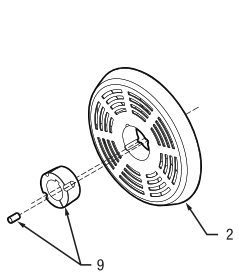


TYPICAL FOR REDUCER SIZES 4 AND 5

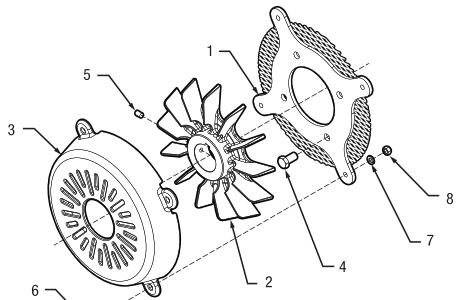


TYPICAL FOR REDUCER SIZES 6 - 12

Figure 10 - Fan Blade Placement



TYPICAL COOLING FAN ASSEMBLY
FOR REDUCER SIZES 4 AND 5



TYPICAL COOLING FAN ASSEMBLY
FOR REDUCER SIZES 6 THROUGH 12

Figure 11 - Parts Indentification

Table 8–Cooling Fan Part Numbers

Description	Ref. Number	Quantity	TA4207	TA5215	TA6307	TA7315	TA8407	TA9415	TA10507	TA12608
Cooling Fan Assembly ①	------	1	904106	905106	906106	907106	907106	909106	910106	912106
Fan Guard Plate Assembly ②	1	1	------	------	906519	906519	906519	909519	909519	912519
Fan Blade ②	2	1	904517	905517	906517	907517	907517	909517	910517	910517
Fan Guard Cover ②	3	1	------	------	906521	906521	906521	909521	909521	909521
Mounting Bolt ②	4	4	------	------	411294	411294	411294	411294	411294	411294
Fan Set Screw ②	5	2	------	------	400086	400086	400086	400086	400086	400086
Cover Bolt ②	6	4	------	------	411390	411390	411390	411390	411390	411390
Lockwasher ②	7	4	------	------	419010	419010	419010	419010	419010	419010
Hex Nut ②	8	4	------	------	407085	407085	407085	407085	407085	407085
Taper Bushing Assembly ② ③	9	1	117162	117092	------	------	------	------	------	------

① Assembly includes parts listed below marked ②
③ Set screws are included with taper bushing assembly.

BACKSTOPS

WARNING: To ensure that the drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

1. Remove backstop shaft cover and gasket, shown in Figure 12. These parts will not be reused. This cover is directly opposite the extended end of the input shaft.
2. Clean the face of the gearbox to remove any gasket material or contamination from the cover mounting surface. It is important that contamination not get into the gearbox or the backstop during the backstop installation/servicing process.
3. Face reducer looking at the side from which the cover was removed. Determine carefully the desired direction of free rotation. It is important that the direction be correctly determined because to reverse the direction after the backstop is installed, it is necessary to remove the backstop, turn it end-for-end and then reinstall it.
4. Match the arrow on the backstop inner race to the direction of free rotation for the desired shaft. Note that reversing the backstop end-for end changes the direction of the arrow. The shaft will rotate in the same direction as the arrow on the backstop.
5. If the backstop kit has a spacer ring included, install it onto the shaft first, adjacent to the bearing inner ring.
6. Install the backstop inner race and sprag cage assembly onto the shaft. DO NOT remove the cage from the inner race or the shipping strap from the sprag set at this time. Insert the key into the inner race and mating shaft keyway. These parts should slip onto the shaft easily, a light coating of oil may assist in assembly. Do not use a hammer to force the installation, damage can occur to the shaft and/or the backstop. Slide the race against the spacer or the shaft shoulder and install the retaining ring into the groove in the shaft. Only use the supplied key, as it is specifically designed for each backstop.
7. Apply a thin coating of RTV silicone onto the gearbox mating surface for the outer race (same as the cover area). It is important to apply the sealant around the fastener holes to prevent leakage. Do not allow excessive amounts of silicone to enter the gearbox or to be applied to other parts.
8. Install the outer race by gently rotating it opposite the shaft rotation while pressing lightly inwards. Do not force the outer race into position as backstop damage may occur. Once the outer race is well piloted onto the sprag set, remove the shipping strap from the sprag set by cutting it, being careful not to let the outer race back off the sprags. The outer race should slide easily into position with a slight turning motion. A light coating of oil on the race inner diameter may ease installation.
9. Align the fastener holes in the outer race with the mating holes in the gearbox. Use the supplied grade 5 fasteners and lock washers only. Torque the fasteners in an alternating pattern per Table 9.

Table 9 – Backstop Fastener Torque Values

Reducer Size	Fastener Size	Torque (lb-ft)
TA0107L	1/4-20	8 – 7
TA1107H	1/4-20	8 – 7
TA2115H	1/4-20	8 – 7
TA3203H	1/4-20	8 – 7
TA4207H	1/4-20	8 – 7
TA5215H	5/16-18	17 – 15
TA6307H	5/16-18	17 – 15
TA7315H	3/8-16	30 – 27
TA8407H	5/16-18	17 – 15
TA9415H	3/8-16	30 – 27
TA10507H	3/8-16	30 – 27
TA12608H	3/8-16	30 – 27

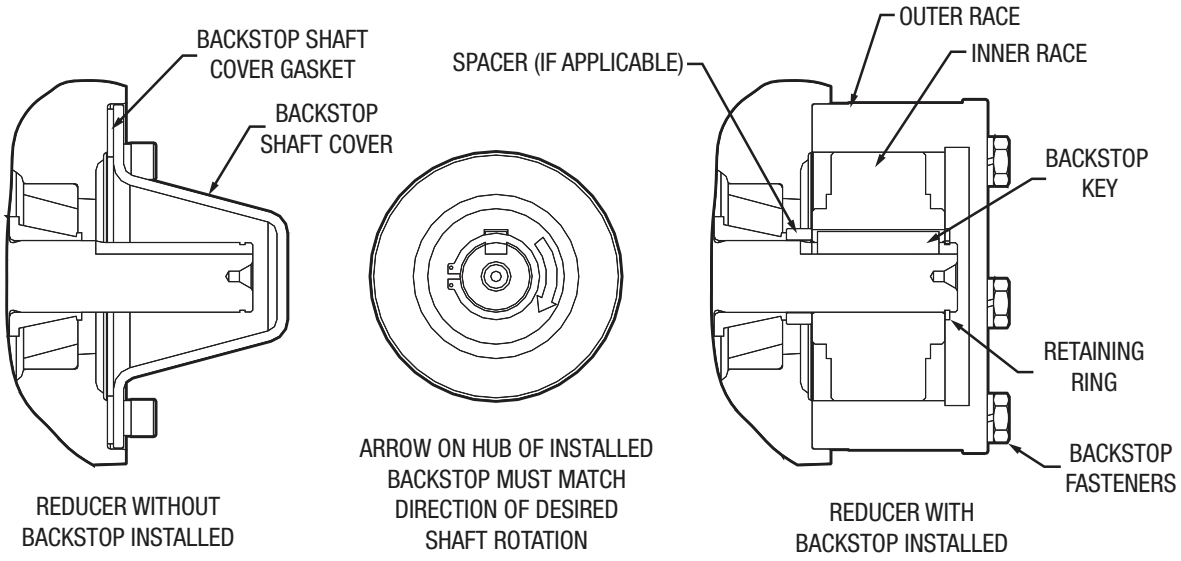


Figure 12 - Backstop Assembly

MOTOR MOUNTS

Motor Mount Assembly

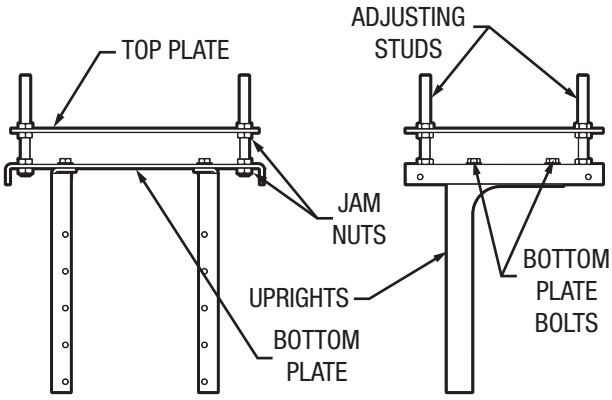


Figure 13 - Motor Mount Components

Refer to Figure 13 for descriptions of component parts. Using the hardware provided, assemble uprights (the angled parts to which the reducer is fastened) to the u-shaped, rectangular bottom plate. Notice that there are eight slots cut into the plate. If the reducer is to be mounted in Positions A or C, as illustrated in Figure 14, assemble the uprights in the outermost slots. If the reducer is to be mounted in Positions B or D, assemble the uprights in the innermost slots. The bottom plate may be mounted with the vertical flanges up or down (as shown in Figure 13). Snug bolts only, do not torque bolts at this time.

Fasten long threaded studs to the four corners of bottom plate using jam nuts, one on each side of the plate. Securely tighten these nuts, as they will not require any further adjustment. Add one additional jam nut to each stud and thread approximately to the middle of the stud. Assemble top motor plate (the flat rectangular plate with many holes) on top of the jam nuts. Assemble the remaining jam nuts on studs to secure top motor plate. Do not fully tighten these nuts yet.

The motor mount may be installed in any of the four positions (A, B, C or D) and in any of the mounting levels (M1, M2, M3 or M4) shown in Figure 14. Note that the motor mount uprights attach to the input side of the reducer when mounted in either the B or D positions.

Motor Mount Installation

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Remove four or six (as required) housing bolts from the reducer. Place the motor mount in position and reinstall the bolts through the motor mount uprights and reducer housing. Where reducer is shaft mounted in positions A or C, the torque-arm adapter plate must be mounted between the reducer housing and the motor mount upright. Tighten bolts to the torque specified in Table 13 - Housing Bolt Recommended Torque Values.

Mount the motor onto the top plate and bolt securely. Install the motor sheave and reducer sheave as close to the motor and reducer housings as practical. Loosen the bottom plate bolts and slide the motor and mounting plate to accurately align the motor and reducer sheave. Securely tighten the bottom plate bolts. Install the required number of V-belts and tension belts by alternately adjusting the jam nuts on the four adjusting studs provided on the motor mount. See Table 10 for V-belt center distances and motor shaft offset dimensions. Check all bolts to see that they are securely tightened. Verify that the V-belt drive is properly aligned before operating the reducer.

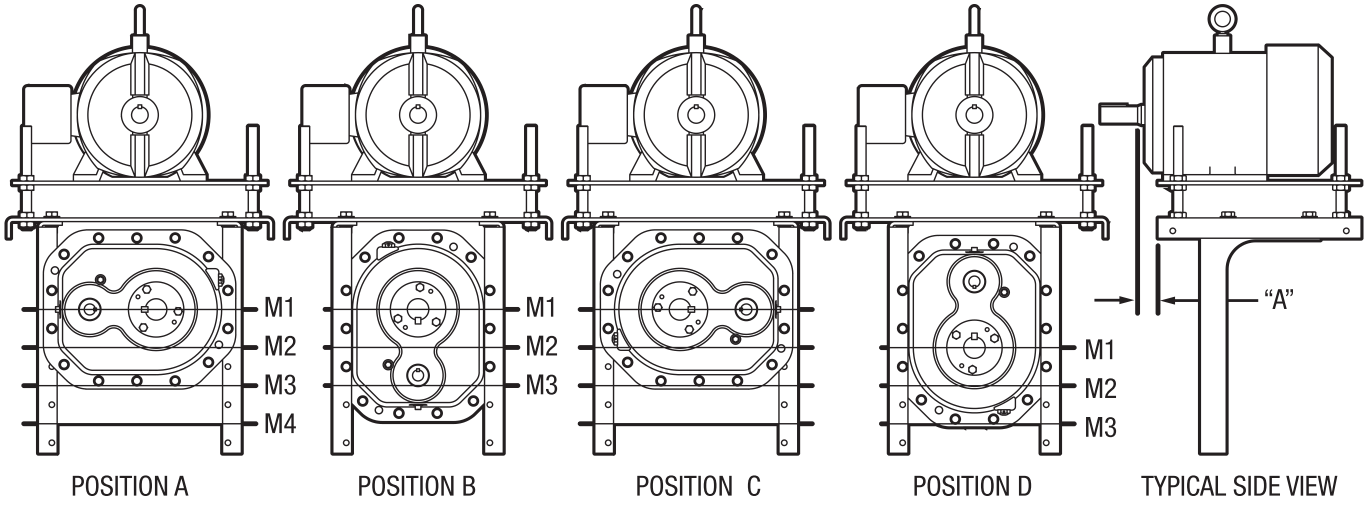


Figure 14 - Motor Mount Positions

Table 10–V-Drive Center Distances

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimensions "A" (inches)						
			56T / A=0.78	140T / A=1.22	180T / A=1.37	210T / A=1.55	250T	280T	320T
TA0107L Reducer	A	M1	14.4 – 18.2	14.4 – 18.2	15.4 – 19.2	16.2 – 19.9	----	----	----
		M2	16.8 – 20.5	16.8 – 20.5	17.8 – 21.5	18.5 – 22.3	----	----	----
		M3	19.1 – 22.9	19.1 – 22.9	20.1 – 23.9	20.8 – 24.6	----	----	----
		M4	21.5 – 25.2	21.5 – 25.2	22.5 – 26.2	23.2 – 27.0	----	----	----
	B	M1	17.2 – 21.0	17.2 – 21.0	18.2 – 22.0	19.0 – 22.8	----	----	----
		M2	19.6 – 23.4	19.6 – 23.4	20.6 – 24.4	21.3 – 25.1	----	----	----
		M3	22.0 – 25.8	22.0 – 25.8	23.0 – 26.8	23.7 – 27.5	----	----	----
	C	M1	12.6 – 16.4	12.6 – 16.4	13.6 – 17.4	14.3 – 18.1	----	----	----
		M2	14.9 – 18.7	14.9 – 18.7	15.9 – 19.7	16.7 – 20.4	----	----	----
		M3	17.3 – 21.1	17.3 – 21.1	18.3 – 22.1	19.0 – 22.8	----	----	----
		M4	19.6 – 23.4	19.6 – 23.4	20.6 – 24.4	21.4 – 25.2	----	----	----
	D	M1	11.8 – 15.6	11.8 – 15.6	12.8 – 16.6	13.5 – 17.3	----	----	----
		M2	14.1 – 17.9	14.1 – 17.9	15.1 – 18.9	15.9 – 19.7	----	----	----
		M3	16.5 – 20.3	16.5 – 20.3	17.5 – 21.3	18.3 – 22.1	----	----	----

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimensions "A" (inches)						
			56T / A=0.78	140T / A=1.22	180T / A=1.37	210T / A=1.55	250T / A=1.56	280T	320T
TA1107L Reducer	A	M1	13.8 – 17.9	13.8 – 17.9	14.7 – 18.9	15.4 – 19.6	16.4-20.6	----	----
		M2	16.2 – 20.5	16.2 – 20.5	17.2 – 21.4	17.9 – 22.2	18.9-23.2	----	----
		M3	18.8 – 23.0	18.8 – 23.0	19.7 – 24.0	20.5 – 24.7	21.5-25.7	----	----
		M4	21.3 – 25.6	21.3 – 25.6	22.3 – 26.6	23.0 – 27.3	24.0-28.3	----	----
	B	M1	17.7 – 22.0	17.7 – 22.0	18.7 – 23.0	19.5 – 23.8	20.5-24.7	----	
		M2	20.3 – 24.6	20.3 – 24.6	21.3 – 25.6	22.1 – 26.4	23.1-27.4	----	----
		M3	22.9 – 27.2	22.9 – 27.2	23.9 – 28.2	24.6 – 29.0	25.6-30.0	----	----
	C	M1	13.8 – 17.9	13.8 – 17.9	14.7 – 18.9	15.4 – 19.6	16.4-20.6	----	
		M2	16.2 – 20.5	16.2 – 20.5	17.2 – 21.4	17.9 – 22.2	18.9-23.2	----	----
		M3	18.8 – 23.0	18.8 – 23.0	19.7 – 24.0	20.5 – 24.7	21.5-25.7	----	----
		M4	21.3 – 25.6	21.3 – 25.6	22.3 – 26.6	23.0 – 27.3	24.0-28.3	----	----
	D	M1	11.3 – 15.7	11.3 – 15.7	12.3 – 16.7	13.1 – 17.4	14.1-18.4	----	
		M2	13.9 – 18.2	13.9 – 18.2	14.9 – 19.2	15.7 – 20.0	16.7-21.0	----	----
		M3	16.5 – 20.8	16.5 – 20.8	17.5 – 21.8	18.3 – 22.6	19.3-23.	----	----

Table 10–V-Drive Center Distances

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimensions "A" (inches)						
			56T / A=0.78	140T / A=1.22	180T / A=1.37	210T / A=1.55	250T / A=1.56	280T	320T
TA2115H Reducer	A	M1	13.6 – 17.2	13.6 – 17.2	14.6 – 18.1	15.3 – 18.9	16.3 – 19.8	----	----
		M2	16.6 – 20.1	16.6 – 20.1	17.5 – 21.1	18.3 – 21.9	19.2 – 22.8	----	----
		M3	19.5 – 23.1	19.5 – 23.1	20.5 – 24.1	21.2 – 24.9	22.2 – 25.9	----	----
		M4	22.5 – 26.2	22.5 – 26.2	23.5 – 27.1	24.2 – 27.9	25.2 – 28.9	----	----
	B	M1	18.5 – 22.2	18.5 – 22.2	19.5 – 23.2	20.3 – 24.0	21.3 – 25.0	----	----
		M2	21.6 – 25.3	21.6 – 25.3	22.6 – 26.3	23.3 – 27.0	24.3 – 28.0	----	----
		M3	24.6 – 28.3	24.6 – 28.3	25.6 – 29.3	26.4 – 30.1	27.4 – 31.1	----	----
	C	M1	13.6 – 17.2	13.6 – 17.2	14.6 – 18.1	15.3 – 18.9	16.3 – 19.8	----	----
		M2	16.6 – 20.1	16.6 – 20.1	17.5 – 21.1	18.3 – 21.9	19.2 – 22.8	----	----
		M3	19.5 – 23.1	19.5 – 23.1	20.5 – 24.1	21.2 – 24.9	22.2 – 25.9	----	----
		M4	22.5 – 26.2	22.5 – 26.2	23.5 – 27.1	24.2 – 27.9	25.2 – 28.9	----	----
	D	M1	10.4 – 14.1	10.4 – 14.1	11.4 – 15.1	12.2 – 15.9	13.2 – 16.9	----	----
		M2	13.5 – 17.2	13.5 – 17.2	14.5 – 18.2	15.3 – 19.0	16.3 – 20.0	----	----
		M3	16.6 – 20.3	16.6 – 20.3	17.6 – 21.3	18.3 – 22.0	22.0 – 23.0	----	----

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			140T / A=1.22	180T / A=1.37	210T / A=1.55	250T / A=1.56	280T / A=1.16	320T	360T
TA3203H Reducer	A	M1	14.6 – 18.4	15.5 – 19.4	16.2 – 20.1	17.2 – 21.1	17.9 – 21.8	----	----
		M2	17.9 – 21.8	18.9 – 22.8	19.6 – 23.5	20.5 – 24.5	21.3 – 25.2	----	----
		M3	21.2 – 25.2	22.2 – 26.2	22.9 – 26.9	23.9 – 27.9	24.7 – 28.6	----	----
		M4	24.6 – 28.6	25.6 – 29.6	26.3 – 30.3	27.3 – 31.3	28.1 – 32.1	----	----
	B	M1	19.8 – 23.9	20.8 – 24.9	21.6 – 25.6	22.6 – 26.6	23.3 – 27.4	----	----
		M2	23.3 – 27.3	24.3 – 28.3	25.0 – 29.1	26.0 – 30.1	26.8 – 30.8	----	----
		M3	26.7 – 30.8	27.7 – 31.8	28.5 – 32.5	29.5 – 33.5	30.2 – 34.3	----	----
	C	M1	13.6 – 17.4	14.5 – 18.4	15.2 – 19.1	16.2 – 20.1	16.9 – 20.8	----	----
		M2	16.9 – 20.8	17.8 – 21.7	18.6 – 22.5	19.5 – 23.5	20.2 – 24.2	----	----
		M3	20.2 – 24.2	21.2 – 25.1	21.9 – 25.9	22.9 – 26.9	23.6 – 27.6	----	----
		M4	23.6 – 27.6	24.6 – 28.5	25.3 – 29.3	26.3 – 30.3	27.0 – 31.0	----	----
	D	M1	10.2 – 14.2	11.2 – 15.2	11.9 – 16.0	12.9 – 17.0	13.7 – 17.7	----	----
		M2	13.6 – 17.7	14.6 – 18.7	15.4 – 19.4	16.4 – 20.4	17.1 – 21.2	----	----
		M3	17.1 – 21.1	18.1 – 22.1	18.8 – 22.9	19.8 – 23.9	20.6 – 24.6	----	----

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			140T / A=1.22	180T / A=1.37	210T / A=1.55	250T / A=1.56	280T / A=1.16	320T / A=.38	360T
TA4207H Reducer	A	M1	17.3 – 21.1	18.3 – 22.1	19.0 – 22.8	19.9 – 23.8	20.6 – 24.5	21.6 – 25.5	----
		M2	21.2 – 25.1	22.2 – 26.1	22.9 – 26.8	23.9 – 27.8	24.6 – 28.6	25.6 – 29.5	----
		M3	25.2 – 29.2	26.2 – 30.2	26.9 – 30.9	27.9 – 31.9	28.7 – 32.6	29.6 – 33.6	----
		M4	29.3 – 33.2	30.2 – 34.2	31.0 – 34.9	32.0 – 35.9	32.7 – 36.7	33.7 – 37.7	----
	B	M1	22.6 – 26.7	23.6 – 27.7	24.4 – 28.4	25.4 – 29.4	26.1 – 30.2	27.1 – 31.2	----
		M2	26.8 – 30.8	27.8 – 31.8	28.5 – 32.5	29.5 – 33.5	30.3 – 34.3	31.3 – 35.3	----
		M3	30.9 – 34.9	31.9 – 35.9	32.6 – 36.7	33.6 – 37.7	34.4 – 38.4	35.4 – 39.4	----
	C	M1	15.4 – 19.2	16.3 – 20.1	17.0 – 20.8	18.0 – 21.8	18.7 – 22.5	19.6 – 23.5	----
		M2	19.3 – 23.1	20.2 – 24.1	20.9 – 24.8	21.9 – 25.8	22.6 – 26.5	23.6 – 27.5	----
		M3	23.2 – 27.2	24.2 – 28.1	24.9 – 28.9	25.9 – 29.9	26.6 – 30.6	27.6 – 31.6	----
		M4	27.3 – 31.2	28.2 – 32.2	29.0 – 32.9	29.9 – 33.9	30.7 – 34.6	31.7 – 35.6	----
	D	M1	12.2 – 16.2	13.2 – 17.2	14.0 – 18.0	15.0 – 19.0	15.7 – 19.7	16.7 – 20.7	----
		M2	16.3 – 20.4	17.3 – 21.4	18.1 – 22.1	19.1 – 23.1	19.8 – 23.9	20.8 – 24.9	----
		M3	20.4 – 24.5	21.4 – 25.5	22.2 – 26.2	23.2 – 27.2	23.9 – 28.0	24.9 – 29.0	----

Table 10–V-Drive Center Distances

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			180T / A=1.37	210T / A=1.55	250T / A=1.56	280T / A=1.16	320T / A=.38	360T / A=1.01	400T
TA5215H Reducer	A	M1	19.5 – 23.4	20.2 – 24.1	21.1 – 25.1	21.8 – 25.8	22.8 – 26.8	23.8 – 27.8	----
		M2	24.2 – 28.3	25.0 – 29.0	25.9 – 30.0	26.7 – 30.7	27.6 – 31.7	28.6 – 32.7	----
		M3	29.1 – 33.2	29.8 – 33.9	30.8 – 34.9	31.5 – 35.6	32.5 – 36.6	33.5 – 37.6	----
		M4	34.0 – 38.1	34.7 – 38.8	35.7 – 39.8	36.5 – 40.6	37.4 – 41.5	38.4 – 42.5	----
	B	M1	26.2 – 30.3	26.9 – 31.1	27.9 – 32.1	28.7 – 32.8	29.7 – 33.8	30.7 – 34.8	----
		M2	31.2 – 35.3	31.9 – 36.1	32.9 – 37.1	33.7 – 37.8	34.7 – 38.8	35.7 – 39.8	----
		M3	36.2 – 40.3	36.9 – 41.1	37.9 – 42.1	38.7 – 42.8	39.7 – 43.8	40.7 – 44.8	----
	C	M1	16.4 – 20.3	17.1 – 21.0	18.0 – 21.9	18.7 – 22.6	19.7 – 23.6	20.6 – 24.6	----
		M2	21.1 – 25.1	21.8 – 25.8	22.8 – 26.8	23.5 – 27.5	24.4 – 28.5	25.4 – 29.4	----
		M3	25.9 – 29.9	26.6 – 30.7	27.6 – 31.6	28.3 – 32.4	29.3 – 33.4	30.3 – 34.3	----
		M4	30.8 – 34.8	31.5 – 35.6	32.5 – 36.6	32.2 – 37.3	34.2 – 38.3	35.2 – 39.3	----
	D	M1	17.7 – 21.8	18.4 – 22.6	19.4 – 23.6	20.2 – 24.3	21.2 – 25.3	22.2 – 26.3	----
		M2	22.7 – 26.8	23.4 – 27.6	24.4 – 28.6	25.2 – 29.3	26.2 – 30.3	27.2 – 31.3	----
		M3	N/A	N/A	N/A	N/A	N/A	N/A	----

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			180T / A=1.37	210T / A=1.55	250T / A=1.56	280T / A=1.16	320T / A=.38	360T / A=1.01	400T / A=.75
TA6307H Reducer	A	M1	21.2 – 25.0	21.9 – 25.8	22.9 – 26.7	23.6 – 27.4	24.5 – 28.4	25.5 – 29.4	26.5 – 30.4
		M2	26.2 – 30.1	26.9 – 30.8	27.9 – 31.8	28.6 – 32.5	29.6 – 33.5	30.5 – 34.5	31.5 – 35.4
		M3	31.2 – 35.1	32.0 – 35.9	32.9 – 36.9	33.7 – 37.6	34.6 – 38.6	35.6 – 39.6	36.6 – 40.6
		M4	36.3 – 40.3	37.0 – 41.0	38.0 – 42.0	38.8 – 42.7	39.7 – 43.7	40.7 – 44.7	41.7 – 45.7
	B	M1	27.5 – 31.5	28.2 – 32.3	29.2 – 33.3	30.0 – 34.0	31.0 – 35.0	32.0 – 36.0	33.0 – 37.0
		M2	32.7 – 36.7	33.4 – 37.5	34.4 – 38.5	35.2 – 39.2	36.2 – 40.2	37.2 – 41.2	38.2 – 42.2
		M3	37.9 – 41.9	38.6 – 42.7	39.6 – 43.7	40.4 – 44.4	41.4 – 45.4	42.4 – 46.4	43.4 – 47.4
	C	M1	17.9 – 21.6	18.6 – 22.3	19.5 – 23.3	20.2 – 24.0	21.1 – 25.0	22.1 – 25.9	23.0 – 26.9
		M2	22.8 – 26.6	23.5 – 27.3	24.4 – 28.3	25.2 – 29.0	26.1 – 30.0	27.1 – 31.0	28.0 – 32.0
		M3	27.8 – 31.7	28.5 – 32.4	29.5 – 33.4	30.2 – 34.1	31.2 – 35.1	32.1 – 36.1	33.1 – 37.1
		M4	32.8 – 36.8	33.5 – 37.5	34.5 – 38.5	35.3 – 39.2	36.2 – 40.2	37.2 – 41.2	38.2 – 42.2
	D	M1	14.4 – 18.4	15.2 – 19.2	16.1 – 20.2	16.9 – 20.9	17.9 – 21.9	18.9 – 22.9	19.9 – 23.9
		M2	19.6 – 23.6	20.3 – 24.3	21.3 – 25.3	22.1 – 26.1	23.1 – 27.1	24.1 – 28.1	25.1 – 29.1
		M3	24.8 – 28.8	25.5 – 29.5	26.5 – 30.5	27.3 – 31.3	28.3 – 32.3	29.3 – 33.3	30.2 – 34.3

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			210T / A=1.55	250T / A=1.56	280T / A=1.16	320T / A=.38	360T / A=1.01	400T / A=.75	440T
TA7315H Reducer	A	M1	27.4 – 31.4	28.4 – 32.4	29.1 – 33.1	30.1 – 34.1	31.1 – 35.1	32.1 – 36.1	----
		M2	33.3 – 37.3	34.3 – 38.3	35.0 – 39.0	36.0 – 40.0	37.0 – 41.0	38.0 – 42.0	----
		M3	39.2 – 43.2	40.2 – 44.2	41.0 – 45.0	42.0 – 46.0	43.0 – 47.0	44.0 – 48.0	----
		M4	45.2 – 49.2	46.2 – 50.2	46.9 – 50.9	47.9 – 51.9	48.9 – 52.9	49.9 – 53.9	----
	B	M1	30.0 – 34.0	31.0 – 35.0	31.8 – 35.7	32.8 – 36.7	33.7 – 37.7	34.7 – 38.7	----
		M2	36.0 – 40.0	37.0 – 40.9	37.7 – 41.7	38.7 – 42.7	39.7 – 43.7	40.7 – 44.7	----
		M3	41.9 – 45.9	42.9 – 46.9	43.6 – 47.6	44.6 – 48.6	45.6 – 49.6	46.6 – 50.6	----
	C	M1	17.4 – 21.3	18.4 – 22.4	19.1 – 23.0	20.0 – 23.9	21.0 – 24.9	22.0 – 25.9	----
		M2	23.2 – 27.1	24.2 – 28.1	24.9 – 28.8	25.9 – 29.8	26.9 – 30.8	27.8 – 31.8	----
		M3	29.1 – 33.0	30.0 – 34.0	30.8 – 34.7	31.8 – 35.7	32.8 – 36.7	33.7 – 37.7	----
		M4	35.0 – 39.0	36.0 – 39.9	36.7 – 40.7	37.7 – 41.7	38.7 – 42.7	39.7 – 43.7	----
	D	M1	20.5 – 24.4	21.5 – 25.4	22.2 – 26.1	23.2 – 27.1	24.2 – 28.1	25.1 – 29.1	----
		M2	26.4 – 30.3	27.4 – 31.3	28.1 – 32.0	29.1 – 33.0	30.1 – 34.0	31.0 – 35.0	----
		M3	32.3 – 36.3	33.3 – 37.2	34.0 – 38.0	35.0 – 39.0	36.0 – 40.0	37.0 – 41.0	----

Table 10–V-Drive Center Distances

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			210T / A=1.55	250T / A=1.56	280T / A=1.16	320T / A=.38	360T / A=1.01	400T / A=.75	440T
TA8407H Reducer	A	M1	27.4 – 31.3	28.3 – 32.3	29.1 – 33.0	30.1 – 34.0	31.0 – 35.0	32.0 – 36.0	----
		M2	33.2 – 37.2	34.2 – 38.2	35.0 – 39.0	36.0 – 39.9	37.0 – 40.9	37.9 – 41.9	----
		M3	39.2 – 43.2	40.2 – 44.2	40.9 – 44.9	41.9 – 45.9	42.9 – 46.9	43.9 – 47.9	----
		M4	45.1 – 49.1	46.1 – 50.1	46.9 – 50.9	47.9 – 51.9	48.8 – 52.8	49.8 – 53.8	----
	B	M1	30.2 – 34.2	31.2 – 35.2	32.0 – 35.9	32.9 – 36.9	33.9 – 37.9	34.9 – 38.9	
		M2	36.2 – 40.1	37.1 – 41.1	37.9 – 41.9	38.9 – 42.9	39.9 – 43.9	40.9 – 44.9	----
		M3	42.1 – 46.1	43.1 – 47.1	43.8 – 47.8	44.8 – 48.8	45.8 – 49.8	46.8 – 50.8	----
	C	M1	17.6 – 21.4	18.5 – 22.4	19.2 – 23.1	20.2 – 24.1	21.2 – 25.1	22.1 – 26.0	----
		M2	23.3 – 27.3	24.3 – 28.2	25.0 – 29.0	26.0 – 30.0	27.0 – 30.9	28.0 – 31.9	----
		M3	29.2 – 33.2	30.2 – 34.1	30.9 – 34.9	31.9 – 35.9	32.9 – 36.9	33.9 – 37.8	----
		M4	35.1 – 39.1	36.1 – 40.1	36.8 – 40.8	37.8 – 41.8	38.8 – 42.8	39.8 – 43.8	----
	D	M1	20.3 – 24.2	21.3 – 25.2	22.0 – 25.9	23.0 – 26.9	23.9 – 27.9	24.9 – 28.9	----
		M2	26.1 – 30.1	27.1 – 31.1	27.9 – 31.8	28.8 – 32.8	29.8 – 33.8	30.8 – 34.8	----
		M3	32.1 – 36.0	33.0 – 37.0	33.8 – 37.8	34.8 – 38.8	35.8 – 39.7	36.7 – 40.7	----

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			250T / A=1.56	280T / A=1.16	320T / A=.38	360T / A=1.01	400T / A=.75	440T / A=1.62	440T
TA9415H Reducer	A	M1	N/A	N/A	N/A	N/A	N/A	N/A	----
		M2	N/A	N/A	N/A	N/A	N/A	N/A	----
		M3	N/A	N/A	N/A	N/A	N/A	N/A	----
		M4	N/A	N/A	N/A	N/A	N/A	N/A	----
	B	M1	35.5 – 39.2	36.2 – 40.0	37.2 – 41.0	38.2 – 42.0	39.2 – 43.0	40.2 – 44.0	----
		M2	40.5 – 44.2	41.2 – 45.0	42.2 – 46.0	43.2 – 47.0	44.2 – 47.9	45.2 – 48.9	----
		M3	N/A	N/A	N/A	N/A	N/A	N/A	----
	C	M1	N/A	N/A	N/A	N/A	N/A	N/A	----
		M2	N/A	N/A	N/A	N/A	N/A	N/A	----
		M3	N/A	N/A	N/A	N/A	N/A	N/A	----
		M4	N/A	N/A	N/A	N/A	N/A	N/A	----
	D	M1	21.3 – 25.0	22.0 – 25.7	23.0 – 26.7	24.0 – 27.7	25.0 – 28.7	25.9 – 29.7	----
		M2	26.2 – 29.9	26.9 – 30.6	27.9 – 31.6	28.9 – 32.6	29.9 – 33.6	30.9 – 34.6	----
		M3	N/A	N/A	N/A	N/A	N/A	N/A	----

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			250T / A=1.56	280T / A=1.16	320T / A=.38	360T / A=1.01	400T / A=.75	440T / A=1.62	
TA10507H Reducer	A	M1	N/A	N/A	N/A	N/A	N/A	N/A	
		M2	N/A	N/A	N/A	N/A	N/A	N/A	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	
		M4	N/A	N/A	N/A	N/A	N/A	N/A	
	B	M1	46.7 – 50.5	47.5 – 51.2	48.5 – 52.2	49.5 – 53.2	50.5 – 54.2	51.5 – 55.2	
		M2	52.1 – 55.9	52.8 – 56.6	53.8 – 57.6	54.8 – 58.6	55.8 – 59.6	56.8 – 60.6	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	
	C	M1	N/A	N/A	N/A	N/A	N/A	N/A	
		M2	N/A	N/A	N/A	N/A	N/A	N/A	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	
		M4	N/A	N/A	N/A	N/A	N/A	N/A	
	D	M1	17.7 – 21.4	18.4 – 22.2	19.4 – 23.2	20.4 – 24.2	21.4 – 25.2	22.4 – 26.2	
		M2	23.0 – 26.8	23.8 – 27.5	24.8 – 28.5	25.8 –29.5	26.8 – 30.5	27.8 – 31.5	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	

Table 10–V-Drive Center Distances

	Position	Mounting	Motor Frame / Motor Shaft Offset Dimension "A" (inches)						
			250T / A=1.56	280T / A=1.16	320T / A=.38	360T / A=1.01	400T / A=.75	440T / A=1.62	
TA12608H Reducer	A	M1	N/A	N/A	N/A	N/A	N/A	N/A	
		M2	N/A	N/A	N/A	N/A	N/A	N/A	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	
		M4	N/A	N/A	N/A	N/A	N/A	N/A	
	B	M1	48.9 – 52.7	49.7 – 53.5	50.7 – 54.5	51.7 – 55.5	52.7 – 56.5	53.7 – 57.5	
		M2	54.5 – 58.3	55.3 – 59.1	56.3 – 60.1	57.3 – 61.1	58.3 – 62.1	59.3 – 63.1	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	
	C	M1	N/A	N/A	N/A	N/A	N/A	N/A	
		M2	N/A	N/A	N/A	N/A	N/A	N/A	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	
		M4	N/A	N/A	N/A	N/A	N/A	N/A	
	D	M1	22.0 – 25.8	22.8 – 26.6	23.8 – 27.6	24.8 – 28.6	25.8 – 29.6	26.8 – 30.6	
		M2	N/A	N/A	N/A	N/A	N/A	N/A	
		M3	N/A	N/A	N/A	N/A	N/A	N/A	

TORQUE-ARM II BELT GUARD INSTALLATION

Two different belt guards are available for the Torque-Arm II speed reducer. One belt guard assembly is designed for mounting in position B and the other belt guard assembly is designed for mounting in position C as shown in Figure 15. It is important that the mounting position of the Torque-Arm II motor mount be determined prior to purchase of the belt guard as these two guards do not interchange and will be attached to the motor mount uprights.

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

WARNING: Ensure that all guards are properly installed before proceeding. Exercise extreme care to avoid contacting rotating parts. Failure to observe these precautions could result in bodily injury.

Vertical Installation (Position B)

1. Move belt guard and hardware from box and verify all parts are available. The belt guard assembly consists of one back cover, one front cover, two brackets, and necessary hardware.
2. Using the hardware provided, assemble the two brackets to the back cover as shown in Figure 16. Note that the brackets are mounted so that the angles of the brackets are mounted to the inside. Do not fully tighten these bolts.
3. Position back cover over the motor shaft and reducer input shaft. The long slot in the back cover fits over the motor shaft.
4. Align the back cover assembly to the Torque-Arm II motor mount and attach using four cap screws, washers, and nuts. Securely tighten the brackets to the motor mount and back cover.
5. Install motor and reducer sheaves. Install belts and adjust accordingly.
6. Position and install the front cover onto the back cover.
   NOTE: The front cover is designed with an extended lip at the top of the cover and installs over the top of the back cover.
7. Secure the front cover with four cap screws and washers.
8. Check machine for proper operation.

Horizontal Installation (Position C)

1. Remove belt guard and hardware from box and verify all parts are available. The belt guard assembly consists of one back cover, one front cover, two brackets, and necessary hardware.
2. Using the hardware provided, assemble the two brackets to the back cover as shown in Figure 17. Note that the brackets are mounted so that the angles of the brackets are mounted in the same direction. Do not fully tighten these bolts.
3. Position back cover over the motor shaft and reducer input shaft. The long slot in the back cover fits over the motor shaft.
4. Align the back cover assembly to the Torque-Arm II motor mount and attach using four cap screws, washers, and nuts. Securely tighten the brackets to the motor mount and back cover.
5. Install motor and reducer sheaves. Install belts and adjust accordingly.
6. Position and install the front cover onto the back cover.
   NOTE: The front cover is designed with an extended lip at the top of the cover and installs over the top of the back cover. Close cover and secure with two cap screws and washers.
7. Secure the front cover with four cap screws and washers.
8. Check machine for proper operation.

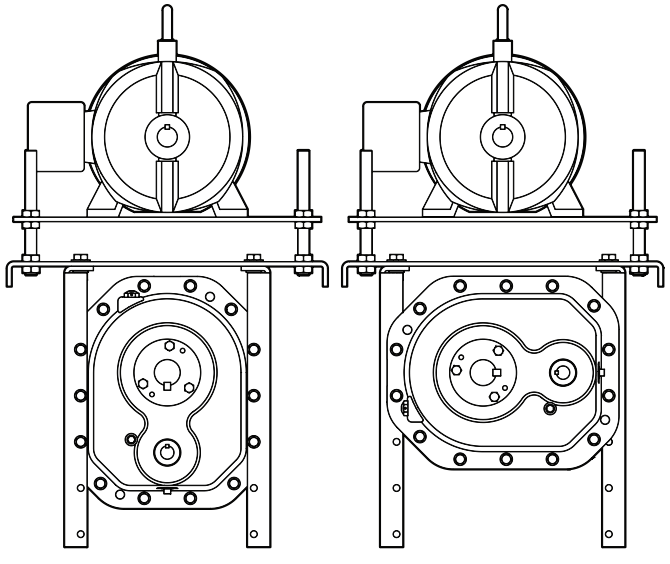


Figure 15 - Belt Guard Mounting Positions

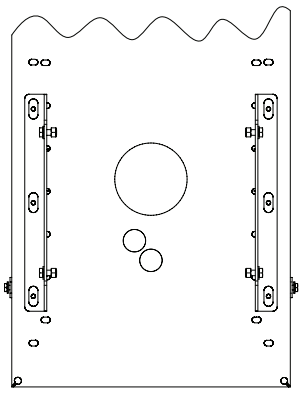


Figure 16 - Mounting Brackets in Position B

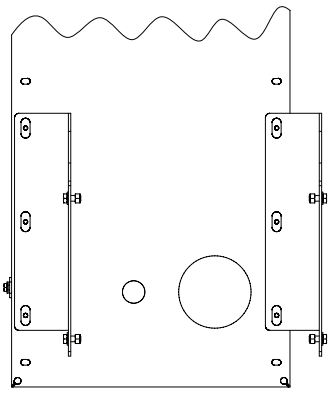


Figure 17 - Mounting Brackets in Position C

SCREW CONVEYOR ADAPTER ASSEMBLY

1. Install seals (408) into adapter housing as shown in Figure 18. If the optional packing adapter is to be used, install only one seal in the small end of the adapter. Use extreme care when installing seals to avoid damage to the seals. Press or tap seals into place by applying pressure only on the outer edge of the seal. Make sure seals are install evenly and are not tilted.
2. If using the optional packing adapter, install the two studs (413), retaining ring (412), and two nuts (414). Thread the nuts onto the studs about 4-5 threads. Install the three braided type seals (415) in a circular direction into the adapter cavity. Shoulder the braided seals against the adjustable retaining ring (412). To aid in installation of the driveshaft in step 7, the braided seals can be flattened out slightly with a soft hammer prior to installation. When installing the braided seals offset the joints from each other.
3. Lightly tap the large washer (407) into the counterbore on the large end of the adapter to seal the braided material installed in Step 2 or the seal installed in Step 1.
4. Place reducer on blocks so that it lays flat with the input shaft down.
5. Position screw conveyor adapter (400) on the reducer output hub so that the small end (end with four drilled holes) rests on reducer. The approximate 1/8" piloting projection should locate in the output seal bore next to the auxiliary seal. Adapter projection should not touch the face of the gear case casting.
6. Place four adapter screws (409) and lock washers (410) through the adapter and thread into the reducer. Tighten the four cap screws (409) to the torque specified in Table 13 - Screw Conveyor Adapter Bolt Recommended Torque Setting Values.
7. Turn reducer onto its side. Use caution not to damage either type seals and install drive shaft through the adapter housing into the reducer. Line up the keyway in the drive shaft with the keyway in the reducer hub bore. Slide or gently tap key into reducer through the input shaft side of the output hub.
8. Install the retaining ring (411) into the screw conveyor wedge (402). Making sure the drive shaft is fully seated into the reducer, slide the wedge onto drive shaft.
9. Install keeper plate (401), drive shaft cap screw (404), and lockwasher (405). Torque to specifications in Table 13 - Screw Conveyor Drive Shaft Retainer Bolt Recommended Torque Values.

DRIVE SHAFT REMOVAL

To remove the driveshaft from the reducer the following steps are required.

1. Remove the drive shaft retaining bolt (404) and lock washer (405), the keeper plate (401), and the retaining ring (411).
2. Referring to Table 10, install the correct size hex head set screw into the end of the drive shaft until flush. Note TA6307H and TA7315H does not require a set screw.
3. Position the keeper plate (401) flush against the end of the drive shaft and with the small end facing out. Next install the retaining ring (411). When properly installed, the retaining ring holds the keeper plate (401) in place.
4. Screw removal bolt(s) into the keeper plate (401) and tighten until the drive shaft wedge (402) is dislodged. Once the drive shaft wedge (402) is dislodged, pull the assembly free from the reducer. If installed, remove the hex head set screw from the end of the drive shaft. The drive shaft can now be easily removed from the reducer by pulling the drive shaft straight out of the reducer.

   NOTE: The removal bolt is not the same bolt as the retaining bolt. Refer to Table 11 for the correct bolt to be used for removal.

Table 11–Removal Hardware

Reducer Size	Removal Bolt	Hex Head Set Screw
TA0107L	3/4-10 x 2	5/8-11 x 3/4
TA1107H	3/4-10 x 2	5/8-11 x 3/4
TA2115H	3/4-10 x 2	5/8-11 x 3/4
TA3203H	7/8-9 x 2	3/4-10 x 3/4
TA4207H	7/8-9 x 2	3/4-10 x 3/4
TA5215H	7/8-9 x 2	3/4-10 x 3/4
TA6307H	3/8-16 x 2 (4 required)	N/A
TA7315H	½-13 x 2 (4 required)	N/A

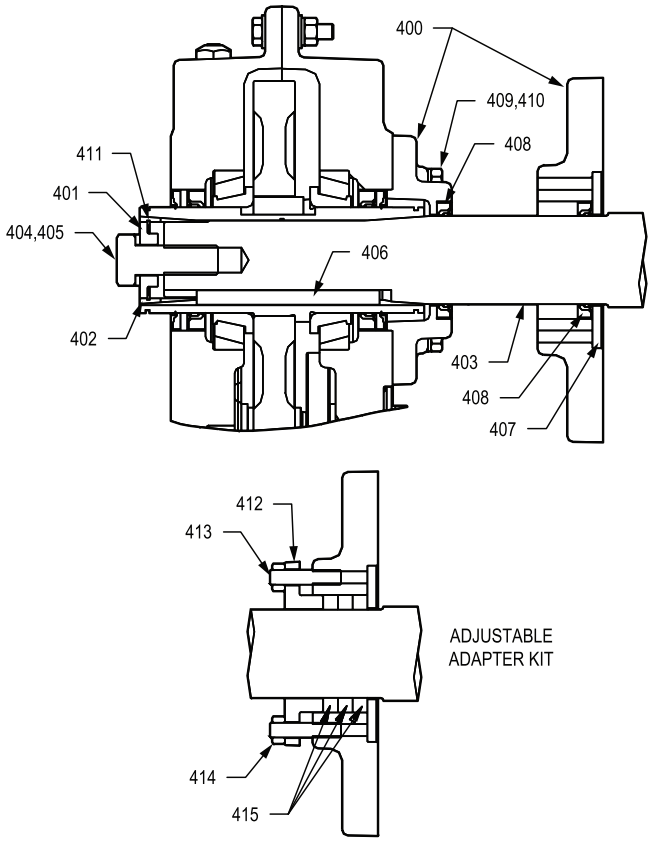


Figure 18 - Screw Conveyor Adapter Assembly

REPLACEMENT OF PARTS

NOTE: Using tools normally found in a maintenance department, a Dodge Torque-Arm II 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 (for shrinking these parts on shafts) should be available.

The oil seals are contact lip seals. Considerable care should be used during disassembly and reassembly to avoid damage to the surface on which the seals rub.

The keyseat in the input shaft, as well as any sharp edges on the output hub should be covered with tape or paper before disassembly or reassembly. Also, be careful to remove any burrs or nicks on surfaces of the input shaft or output hub before disassembly or reassembly.

Ordering Parts: When ordering parts for reducer, specify reducer size number, reducer model number, part name, part number, and quantity.

It is strongly recommended that, when a pinion or gear is replaced, the mating pinion or gear is replaced also. If the large gear on the output hub must be replaced, it is recommended that an output hub assembly consisting of a gear assembled on a hub be ordered to ensure undamaged surfaces on the output hub where the output seals rub. However, if it is desired to use the old output hub, press the gear and bearing off and examine the rubbing surface under the oil seal carefully 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. Do not press against rollers or cage of any bearing.

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

Removing Reducer from Shaft

WARNING: To ensure that drive is not unexpectedly started, turn off and lock out or tag power source before proceeding. Remove all external loads from drive before removing or servicing drive or accessories. Failure to observe these precautions could result in bodily injury.

Taper Bushed:

1. Disconnect and remove belt guard, v-drive, and motor mount as required. Disconnect torque arm rod from reducer adapter.
2. Remove bushing screws.
3. 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. A tap can be used to clean out the threads. Use caution to use the proper size tap to prevent damage to the threads.
4. Remove the outside bushing, the reducer, and then the inboard bushing.

Disassembly:

1. Drain all oil from the reducer.
2. Position the reducer on its side and remove all housing bolts. Drive dowel pins from housing. Using the three pry slots around the periphery of the flange, gently separate the housing halves. Open housing evenly to prevent damage to the parts inside.
3. Lift input shaft, all gear assemblies, and bearing assemblies from housing.
4. Remove seals from housing.
5. Remove bearings from shafts and hubs. Be careful not to scratch or damage any assembly or seal area during bearing removal. The hub assembly can be disassembled for gear replacement but if scratching or grooving occurs on the hub, seal leakage will occur and the hub will need to be replaced.

Reassembly:

1. **Output Hub Assembly:** Heat gear to 325°F to 350°F to shrink onto hub. Heat bearings to 270°F to 290°F to shrink onto hub. Any injury to the hub surfaces where the oil seals rub will cause leakage, making it necessary to use a new hub.
2. **Countershaft Assembly:** Shaft and pinion are integral. Press gear and bearings on shaft. Press against inner race (not cage or rollers) of bearings.
3. **Input Shaft Assembly:** Shaft and pinion are integral. Press bearings on shaft. Press against inner race (not cage or rollers) of bearings.
4. Drive the two dowel pins into place in the right-hand housing half.
5. Place R.H. housing half on blocks to allow for protruding end of output hub.
6. Install bearing cups in right-hand housing half, making sure they are properly seated. The output hub assembly has one bearing pressed against the gear and the other bearing pressed against a shoulder on the hub. For double reduction reducers, install the output hub assembly so that the end where the bearing is pressed against the gear is up. For single reduction reducers, install the output hub assembly so that the end where the bearing is pressed against the gear is down.
7. Mesh output hub gear and small countershaft gear together and set in place in housing. Set input shaft assembly in place in the housing. Make sure bearing rollers (cones) are properly seated in their cups. Set bearing cups for left-hand housing half in place on their rollers.
8. Making sure both housing halves are clean, set left-hand housing half into position and tap with a soft hammer (rawhide, not lead hammer) until housing bolts can be used to draw housing halves together. Make sure reducer shafts do not bind while tightening housing bolts.
9. Rotate the input shaft and seat all bearings with a soft hammer. Using a magnetic base and indicator, measure and record the end play of the input shaft, countershaft, and output hub. Remove left housing half and shim behind the bearing cup as required to achieve the correct bearing end play or preload per Table 12. Repeat this process and check end play until proper end play is obtained. Note that the output shaft is preloaded. After end play is determined, add the correct shim thickness to the end play reading to obtain the correct preload.
10. Remove left housing half and clean housing flange surfaces on both halves, making sure not to nick or scratch flange face. Place a 1/8" bead of Dow RTV732 sealant or equivalent on flange face (make sure RTV is placed around bolt holes and inside of flange face). Place left housing half into position and tap with a soft hammer (rawhide, not lead hammer) until housing bolts can be used to draw housing halves together. Torque housing bolts per torque values listed in Table 13 - Housing Bolt Recommended Torque Values.

11. Install input seal, output seals, and auxiliary seals. Extreme care should be used when installing seals to avoid damage due to contact with sharp edges on the input shaft or output hub. The possibility of damage and consequent oil leakage can be decreased by covering all sharp edges with tape prior to seal installation. Lightly coat the seal lips with Mobilith AW2 All-Purpose grease or equivalent. Seals should be pressed or tapped with a soft hammer evenly into place in the reducer housing, applying pressure only on the outer edge of the seals. A slight oil leakage at the seals may be evident during initial running, but should disappear unless seals have been damaged.
12. Install bushing backup plates and snap rings on Taper Bushed reducers or hub collars on straight bore reducers.

Table 12–Bearing Adjustment Tolerances

Reducer Size	Bearing Endplay Values		
	Input	Countershaft	Output
TA0107L	.002-.004 Loose	.0005-.003 Loose	.002-.004 Preload
TA1107H	.002-.004 Loose	.0005-.003 Loose	.002-.004 Preload
TA2115H	.002-.004 Loose	.0005-.003 Loose	.002-.004 Preload
TA3203H	.002-.004 Loose	.0005-.003 Loose	.002-.004 Preload
TA4207H	.002-.004 Loose	.0005-.003 Loose	.002-.004 Preload
TA5215H	.002-.004 Loose	.0005-.003 Loose	.003-.005 Preload
TA6307H	.002-.004 Loose	.0005-.003 Loose	.006-.008 Preload
TA7315H	.002-.004 Loose	.0005-.003 Loose	.006-.008 Preload
TA8407H	.002-.004 Loose	.0005-.003 Loose	.004-.006 Preload
TA9415H	.002-.004 Loose	.0005-.003 Loose	.004-.006 Preload
TA10507H	.002-.004 Loose	.0005-.003 Loose	.006-.008 Preload
TA12608H	.002-.004 Loose	.0005-.003 Loose	.006-.008 Preload

Table 13–Recommended Bolt Torque Values

Housing Bolt Recommended Torque Values		
Reducer Size	Fastener Size	Torque (lb-ft)
TA0107L	5/16-18	17 – 15
TA1107H	5/16-18	17 – 15
TA2115H	3/8-16	30 – 27
TA3203H	3/8-16	30 – 27
TA4207H	1/2-13	75 – 70
TA5215H	1/2-13	75 – 70
TA6307H	1/2-13	75 – 70
TA7315H	5/8-11	90 – 82
TA8407H	5/8-11	90 – 82
TA9415H	5/8-11	90 – 82
TA10507H	¾-10	148 – 138
TA12608H	¾-10	148 – 138

Table 13–Recommended Bolt Torque Values

Screw Conveyor Adapter Bolt Recommended Torque Values		
Reducer Size	Fastener Size	Torque (lb-ft)
TA0107L	3/8-16	30 – 27
TA1107H	3/8-16	30 – 27
TA2115H	7/16-14	50 – 45
TA3203H	1/2-13	75 – 70
TA4207H	1/2-13	75 – 70
TA5215H	5/8-11	90 – 82
TA6307H	¾-10	148 – 138
TA7315H	¾-10	148 – 138
Screw Conveyor Drive Shaft Retainer Bolt Recommended Torque Values		
Reducer Size	Fastener Size	Torque (lb-ft)
TA0107L	5/8-11	90 – 82
TA1107H	5/8-11	90 – 82
TA2115H	5/8-11	90 – 82
TA3203H	3/4-10	148 – 138
TA4207H	3/4-10	148 – 138
TA5215H	3/4-10	148 – 138
TA6307H	1-8	210 –190
TA7315H	1-8	210 – 190

REPLACEMENT PART AND KIT NUMBERS

Table 14 – Part Numbers for Replacement Bearings, Single and Double Reduction Reducers

Reducer Size	Output Hub Bearing – LH and RH Sides Part Number
TA0107L	900250/900251
TA1107H	901250/901251
TA2115H	403003/402003
TA3203H	903252/402268
TA4207H	403016/402193
TA5215H	403140/402050
TA6307H	906250/906251
TA7315H	403105/402147
TA8407H	403105/402147
TA9415H	403110/402160
TA10507H	910250/910251
TA12608H	912250/912251
Reducer Size	**Countershaft Bearing – LH Side Part Number**
TA0107L	304833/304740
TA1107H	403165/402265
TA2115H	304836/411626-05-B
TA3203H	403101/402271
TA4207H	304809/304710
TA5215H	403005/402001
TA6307H	403026/906257
TA7315H	403159/907260
TA8407H	411626-06-BE/411626-05-BM
TA9415H	403036/304701
TA10507H	403087/402023
TA12608H	402233/912253
Reducer Size	**Countershaft Bearing – Backstop (RH) Side Part Number**
TA0107L	304833/304740
TA1107H	403165/402265
TA2115H	304836/411626-05-B
TA3203H	403101/402271
TA4207H	304809/304710
TA5215H	403005/402001
TA6307H	403026/906257
TA7315H	403159/907260
TA8407H	411626-06-BE/908253
TA9415H	403036/304701
TA10507H	403087/402023
TA12608H	402233/912253

Note:
LH is input side of reducer, and RH is backstop or output side of reducer. Bearing part numbers refer to Cup/Cone combinations, respectively, and apply to all ratios unless otherwise specified. For actual reducer ratios, refer to Table 18.

Table 14–Part Numbers for Replacement Bearings, Single and Double Reduction Reducers (Cont.)

Reducer Size	Ratio	Input Shaft Bearing – LH Side Part Number
TA0107L	5:1	403166/402284
	9:1	
	15:1	
	25:1	
	40:1	
TA1107H	5:1	402169/402294
	9:1	
	15:1	
	25:1	
	40:1	
TA2115H	5:1	403094/304753
	9:1	
	15:1	
	25:1	
	40:1	403094/304707
TA3203H	5:1	304809/411626-05-K
	9:1	
	15:1	
	25:1	
	40:1	403101/402271
TA4207H	5:1	304809/411626-05-K
	9:1	
	15:1	
	25:1	
	40:1	
TA5215H	5:1	403005/402001
	9:1	
	15:1	
	25:1	403005/304717
	40:1	
TA6307H	5:1	403026/906260
	9:1	
	15:1	
	25:1	
	40:1	
TA7315H	5:1	304802/402041
	9:1	
	15:1	
	25:1	
	40:1	
TA8407H	15:1	908259/908260
	25:1	
	40:1	
TA9415H	15:1	403036/304701
	25:1	
	40:1	
TA10507H	15:1	402231/402232
	25:1	
	40:1	
TA12608H	15:1	402231/402232
	25:1	
	40:1	

Table 14–Part Numbers for Replacement Bearings, Single and Double Reduction Reducers (Cont.)

Reducer Size	Ratio	Input Shaft Bearing – LH Side Part Number
TA0107L	5:1	403165/402265
	9:1	
	15:1	
	25:1	
	40:1	
TA1107H	5:1	403063/402108
	9:1	
	15:1	
	25:1	
	40:1	403094/304753
TA2115H	5:1	403094/304707
	9:1	
	15:1	
	25:1	403094/304707
	40:1	304809/411626-05-K
TA3203H	5:1	403101/402271
	9:1	
	15:1	
	25:1	403101/402271
	40:1	304809/411626-05-K
TA4207H	5:1	904256/904257
	9:1	
	15:1	
	25:1	
	40:1	904256/904258
TA5215H	5:1	403005/402001
	9:1	
	15:1	
	25:1	403005/304717
	40:1	403005/411626-05-V
TA6307H	5:1	403026/906260
	9:1	
	15:1	
	25:1	403026/906257
	40:1	
TA7315H	5:1	403159/907260
	9:1	
	15:1	
	25:1	
	40:1	403159/402054
TA8407H	15:1	908256/908257
	25:1	
	40:1	304804/908258
TA9415H	15:1	411626-06-BE/411626-05-BM
	25:1	
	40:1	304804/908258
TA10507H	15:1	411626-06-BE/411626-05-BM
	25:1	
	40:1	304804/908258
TA12608H	15:1	403036/304701
	25:1	
	40:1	403036/912258

Table 15–Replacement Parts Kit Numbers

Reducer Size	Ratio	Seal Kit ①	Output Hub Assembly ②	Countershaft Assembly ③	Bearing Kit ④	Shim Kit
TA0107L	5:1	900126	900120	---	900128	900180
	9:1			900122	900129	
	15:1			900123		
	25:1			900124		
	40:1			900125		
TA1107H	5:1	901126	901120	---	901128	901180
	9:1			901122	901129	
	15:1			901123		
	25:1			901124		
	40:1			901125		
TA2115H	5:1	902126	902120	---	902128	902180
	9:1			902122	902129	
	15:1			902123		
	25:1			902124		
	40:1	902127		901125	902130	
TA3203H	5:1	903126	903120	---	903128	903180
	9:1			903122	903129	
	15:1			903123		
	25:1			903124		
	40:1	903127		903125	903130	
TA4207H	5:1	904126	904120	---	904128	904180
	9:1			904122	904129	
	15:1			904123		
	25:1			904124		
	40:1			904125	904130	
TA5215H	5:1	905126	905120	---	905128	905180
	9:1			905122	905129	
	15:1			905123		
	25:1			905124	905130	
	40:1			905125	905131	
TA6307H	5:1	906126	906120	---	906128	906180
	9:1			906122	906129	
	15:1			906123		
	25:1			906124	906130	
	40:1			906125		
TA7315H	5:1	907126	907120	---	907128	907180
	9:1			907122	907129	
	15:1			907123		
	25:1			907124		
	40:1			907125	907130	
TA8407H	15:1	908126	908120	908123	908129	908180
	25:1			908124		
	40:1			908125	908130	
TA9415H	15:1	909126	909120	909123	909129	909180
	25:1			909124		
	40:1			909125	909130	
TA10507H	15:1	910126	910120	910123	910129	910180
	25:1			910124		
	40:1			910125	910130	
TA12608H	15:1	912126	912120	912123	912129	912180
	25:1			912124		
	40:1			919125	912130	

① Seal Kit consists of Input Seal, Output Seals, and Backstop Cover Gasket
② Output Hub Assembly consists of Output Hub, Output Gear and Gear Key.
③ Countershaft Assembly consists of Countershaft Pinion, Countershaft Gear and Gear Key.
④ Bearing Kit consists of LH and RH Output Bearing Cup/Cone, LH and RH Countershaft Bearing Cup/Cone (double reduction only) and LH and RH Input Bearing Cup/Cone.

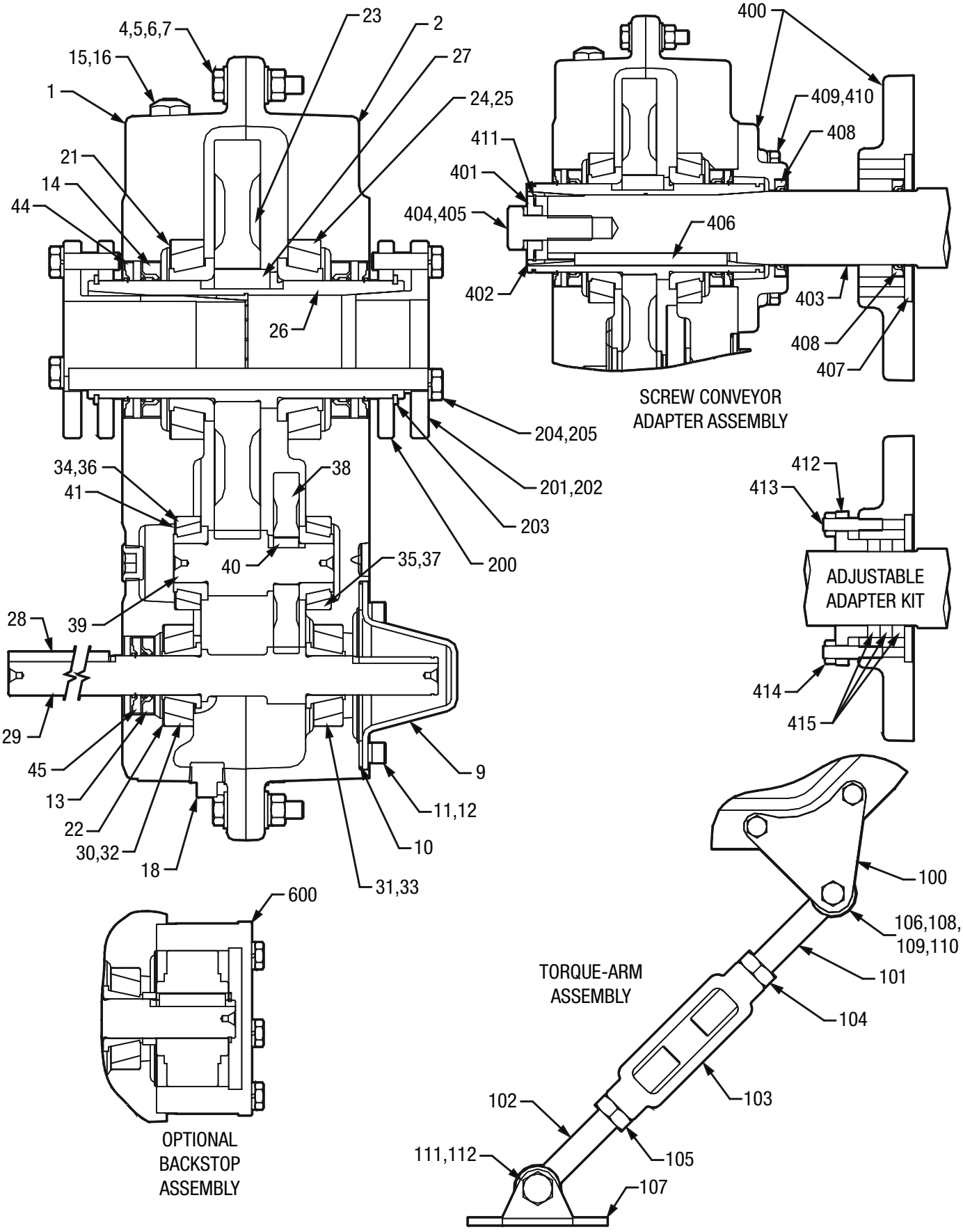


Figure 19 - Parts for TA0107L through TA12608H Taper Bushed Double Reduction Reducers

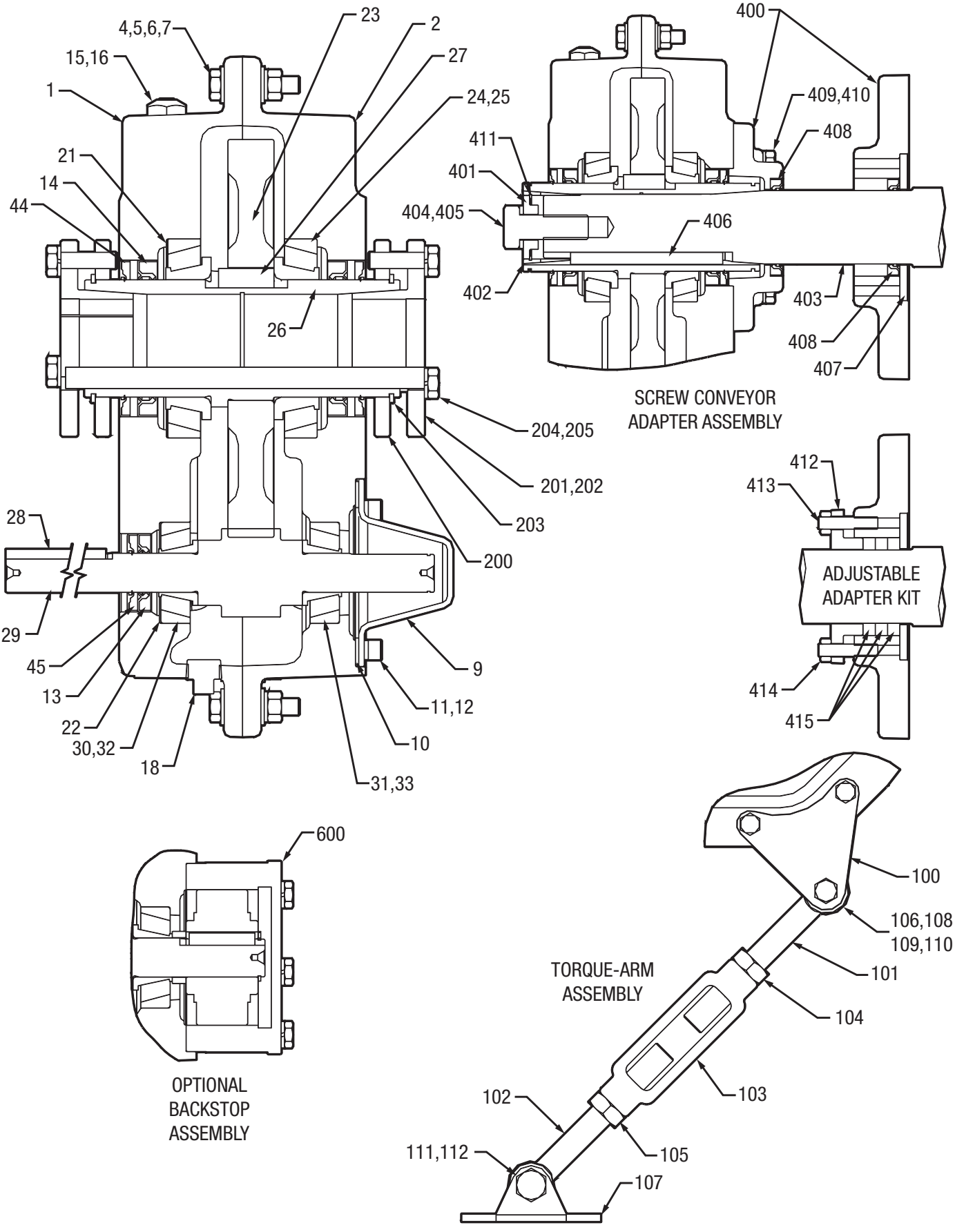


Figure 20 - Parts for TA0107L through TA7315H Taper Bushed Single Reduction Reducers

Table 16–Parts for TA0107L through TA5215H Taper Bushed and Single Reduction Reducers

Ref.	Description		Quantity	TA0107L	TA1107H	TA2115H	TA3203H	TA4207H	TA5215H
1	Housing-LH		1	900202A	901202A	902202	903202	904202	905202
2	Housing-RH		1	900203	901203	902203	903203	904203	905203
①	RTV Sealant, Tube		1	915112-80-H	915112-80-H	915112-80-H	915112-80-H	915112-80-H	915112-80-H
4	Housing Bolt		14	032018012BJ	032018012BJ	411412	411412	411460	411460
5	Flat Washer		28	900241	900241	902241	902241	904241	904241
6	Nut		14	407085	407085	407087	407087	407091	407091
7	Lockwasher		14	419010	419010	419011	419011	419013	419013
8①	Dowel Pin		2	901248	901248	304624	901248	304624	304624
9	Backstop Shaft Cover		1	901279P	901279P	901279P	903279P	904279P	905279P
10	Backstop Cover Gasket		1	901280	901280	901280	903280	904280	905280
11	Backstop Cover Screw		6②	417038	417038	417038	417038	417038	417074
12	Lockwasher		6②	419045	419045	419045	419045	419045	419046
13	Input Oil Seal	5:1, 9:1, 15:1③ 25:1 Ratio③ 40:1 Ratio③	1 1 1	276173 276173 276173	276173 276173 276173	276285 276285 276173	276280 276280 242281	A73108 A73108 A73108	905266 905266 905266
14	Output Oil Seal		2	900286	901286	902286	A73109	904286	905286
15	Air Vent		1	900287	900287	900287	900287	904287	904287
16	Bushing		1	N/A	N/A	N/A	N/A	430079	430079
17①	Oil Plug		3	430031	430031	430031	430031	430035	430035
17	Smart Sensor Adapter		1	966905	966905	966905	966905	966907	966907
18	Magnetic Oil Plug		1	430060	430060	430060	430060	430064	430064
21	Output Bearing Shim-As Required	.015" Shim .007" Shim .005" Shim		900263 900265 900264	901263 901265 901264	902263 902265 902264	903263 903265 903264	904263 904265 904264	905263 905265 905264
22	Input Bearing Shim-As Required	.015" Shim .007" Shim .005" Shim		900271 900273 900272	901271 901273 901272	902271 902273 902272	903267 903269 903268	903267 903269 903268	905271 905273 905272
23	Output Gear		1	900208	901208	902208	903208	904208	905208
24	Output Bearing Cup		2	900250	901250	403003	903252	403016	403140
25	Output Bearing Cone		2	900251	901251	402003	402268	402193	402050
26	Output Hub		1	900230	901230	902230	903230	904230	905230
27	Output Gear Key		1	900275	901275	901275	903275	904275	905275
28	Input Pinion Key	5:1, 9:1, 15:1, 25:1 Ratio③ 40:1 Ratio③	1 1	443634 443634	443634 443634	902277 902277	903277 903298	904277 904277	905277 905277
29	Input Pinion	5:1 Ratio③ 9:1 Ratio③ 15:1 Ratio③ 25:1 Ratio③ 40:1 Ratio③	1 1 1 1 1	900222A 900221A 900220A 900219A 900218A	901222A 901221A 901220A 901219A 901218A	902222 902221 902220 902219 902218	903222 903221 903220 903219 903218	904222 904221 904220 904219 904218	905222 905221 905220 905219 905218
30	Input Bearing Cup-LH	5:1 Ratio③ 9:1 Ratio③ 15:1 Ratio③ 25:1 Ratio③ 40:1 Ratio③	1 1 1 1 1	403166 403166 403166 403166 403166	402169 402169 402169 402169 402169	403094 403094 403094 403094 403094	304809 304809 304809 304809 403101	304809 304809 304809 304809 304809	403005 403005 403005 403005 403005
31	Input Bearing Cup-RH	5:1 Ratio③ 9:1 Ratio③ 15:1 Ratio③ 25:1 Ratio③ 40:1 Ratio③	1 1 1 1 1	403165 403165 403165 403165 403165	403063 403063 403063 403063 403063	403094 403094 403094 403094 403094	403101 403101 403101 403101 403101	904256 904256 904256 904256 904256	403005 403005 403005 403005 403005
32	Input Bearing Cone-LH	5:1 Ratio③ 9:1 Ratio③ 15:1 Ratio③ 25:1 Ratio③ 40:1 Ratio③	1 1 1 1 1	402284 402284 402284 402284 402284	402294 402294 402294 402294 402294	304753 304753 304753 304753 304707	411626-05-K 411626-05-K 411626-05-K 411626-05-K 402271	411626-05-K 411626-05-K 411626-05-K 411626-05-K 411626-05-K	402001 402001 402001 304717 304717
33	Input Bearing Cone-RH	5:1 Ratio③ 9:1 Ratio③ 15:1 Ratio③ 25:1 Ratio③ 40:1 Ratio③	1 1 1 1 1	402265 402265 402265 402265 402265	402108 402108 402108 402108 402108	304707 304707 304707 304707 304707	402271 402271 402271 402271 402271	904257 904257 904257 904257 904258	402001 402001 402001 402001 411626-05-V
34	Countershaft Bearing Cup-LH		1	304833	403165	304836	403101	304809	403005
35	Countershaft Bearing Cup-RH		1	304833	403165	304836	403101	304809	403005
36	Countershaft Bearing Cone-LH		1	304740	402265	411626-05-B	402271	304710	402001
37	Countershaft Bearing Cone-RH		1	304740	402265	411626-05-B	402271	304710	402001
38	First Stage Gear	9:1 Ratio③ 15:1 Ratio③ 25:1 Ratio③ 40:1 Ratio③	1 1 1 1	900217 900215 900213 900211	901217 901215 901213 901211	902217 902215 902213 902211	903217 903215 903213 903211	904217 904215 904213 904211	905217 905215 905213 905211
39	Countershaft Pinion		1	900209	901209	902209	903209	904209	905209
40	First Stage Gear Key		1	900276	901276	902276	903276	904276	905276
41	Countershaft Bearing Shim-As Required	.015" Shim .007" Shim .005" Shim		900271 900273 900278	901271A 901273A 901272A	901271 901273 901272	903267 903269 903268	903267 903269 903268	905271 905272 905273

Table 16–Parts for TA0107L through TA5215H Taper Bushed and Single Reduction Reducers

Ref.	Description		Quantity	TA0107L	TA1107H	TA2115H	TA3203H	TA4207H	TA5215H
44	Auxiliary Output Seal		2	900236	901236	902236	903236	904236	905236
45	Auxiliary Input Seal	5:1, 9:1, 15:1, 25:1 Ratio ③	1	442023	442023	902238	903238	904238	905238
		40:1 Ratio ③	1	442023	442023	442023	N/A	904238	905238
100	Torque-Arm Adapter Bracket		2	900500P	901500P	902500P	903500P	904500P	905500P
	Torque-Arm Rod Kit ④		1	964263	964263	A73091	A73091	964268	964268
101	⑤ Torque-Arm Rod End ⑥		1	A73092	A73092	A73087	A73087	A73146	A73146
102	⑤ Torque-Arm Extension ⑥		1	A73085	A73092	A73088	A73088	A73092	A73092
103	⑤ Torque-Arm Turnbuckle ⑥		1	A73086	A73086	A73089	A73089	A73148	A73148
104	⑤ RH Nut ⑥		1	407122	407122	407095	407095	033102022AB	033102022AB
105	⑤ LH Nut ⑥		1	A73261	A73261	407244	407244	A73263	A73263
106	Torque-Arm Bushing		1	242243	242243	243243	243243	245243	245243
107	Torque-Arm Fulcrum		1	241249	241249	243249	243249	246249	246249
108	Torque-Arm Bolt		1	411412	411412	411437	411437	411460	411460
109	Torque-Arm Lockwasher		1	419011	419011	419012	419012	419013	419013
110	Torque-Arm Nut		1	407087	407087	407089	407089	407091	407091
111	Torque-Arm Bolt		1	411456	411456	032018016EJ	032018016EJ	032018016EJ	032018016EJ
112	Torque-Arm Nut		1	407091	407091	407093	407093	407093	407093
113	Lockwasher		1	N/A	N/A	N/A	N/A	N/A	N/A
200	Bushing Back-Up Plate		2	241266	901301	243308	903301	904301	905301
203	Retaining Ring		2	421111	901304	421109	903304	421107	421055
204	Bushing Cap Screw		6	411405	411390	902306	032018010CJ	032018010CJ	411456
205	Bushing Lockwasher		6	419010	419010	419011	419011	419011	419013
	④ Adapter & Hardware Kit		1	900070	901070	902070	903070	904070	905070
400	⑤ Screw Conveyor Adapter		1	900401	901401	902401	903401	904401	905401
401	⑤ Screw Conveyor Keeper Plate		1	900402	901402	902402	903402	904402	905402
402	⑤ Screw Conveyor Wedge		1	900403	901403	902403	903403	904403	905403
403	Screw Conveyor Drive Shaft	1-1/2" Shaft	1	900072	901072	902072	N/A	N/A	N/A
		1-1/2" Shaft, Stainless Steel	1	900080	901080	902080	N/A	N/A	N/A
		2" Shaft	1	900073	901073	902073	903073	904073	9050732
		2" Shaft, Stainless Steel	1	900081	901081	902081	903081	904081	905081
		2-7/16" Shaft	1	900074	901074	902074	903074	904074	905074
		2-7/16" Shaft, Stainless Steel	1	900082	901082	902082	903082	904082	905082
		3" Shaft	1	900075	901075	902075	903075	904075	905075
		3" Shaft, Stainless Steel	1	900083	901083	902083	903083	904083	905083
		3-7/16" Shaft	1	N/A	N/A	902076	903076	904073	905076
		3-7/16" Shaft, Stainless Steel	1	N/A	N/A	902084	903084	904084	905084
404	⑤ Retaining Bolt		1	411549	411549	411549	411551	411551	411551
405	⑤ Lockwasher		1	034017018AB	034017018AB	034017018AB	034017020AB	034017020AB	034017020AB
406	⑤ Drive Shaft Key		1	900405	901405	902405	903405	904405	905405
407	⑤ Drive Shaft Washer		1	900404	901404	902404	903404	904404	905404
408	⑤ Seal		2	900411	901411	902411	353085	904411	905411
409	⑤ Bolt		4	032018012CJ	032018012CJ	411435	411456	411456	411483
410	⑤ Lockwasher		4	419011	419011	419012	419013	419013	034017018AB
411	⑤ Retaining Ring		1	900446	901446	902446	903446	904446	905446
412	Adjustable Packing Retainer		1	900413	901413	902413	903413	904413	905413
413	Adjustable Packing Gland Stud		2	400404	400404	400404	400404	400404	400404
414	Adjustable Packing Gland Nut		2	407202	407202	407202	407202	407202	407202
415	Sealing Rings		3	900416	901416	902416	903416	904416	905416
600	Backstop Assembly	5:1, 9:1, 15:1, 25:1 Ratio ③	1	901102	901102	902102	903102	904102	905102
		40:1 Ratio ③	1	901102	901102	902102	903102	904103	905103

Notes:
① Not shown on drawing.
② 8 required on TA5215H
③ See Table 18 for actual ratio
④ Includes parts listed immediately below marked ⑤
⑤ Makes up assembly under which it is listed marked ④
⑥ Zinc plated as of 2016.

Table 17–Parts for TA6307H through TA12608H Taper Bushed and Single Reduction Reducers

Ref.	Description		Quantity	TA6307H	TA7315H	TA8407H	TA9415H	TA10507	TA12608
1	Housing-LH		1	906202	907202	908202	909202	910202	912202
2	Housing-RH		1	906203	907203	908203	909203	910203	912203
①	RTV Sealant, Tube		1	415112-80-H	415112-80-H	415112-80-H	415112-80-H	415112-80-H	415112-80-H
4	Housing Bolt		14 ③	411460	411488	411488	411488	411494	411494
5	Flat Washer		28 ④	904241	907241	907241	907241	910241	910241
6	Nut		14 ③	407091	407093	407093	407093	407095	407095
7	Lockwasher		14 ③	419013	419014	419014	419014	034017020AB	034017020AB
8 ①	Dowel Pin		2	304624	304624	304624	304624	304624	304624
9	Backstop Shaft Cover		1	906279P	907279P	908279P	907279P	910279P	912279P
10	Backstop Cover Gasket		1	906280	907280	908280	907280	910280	912280
11	Backstop Cover Screw		6 ②	417074	907281	417074	907281	907281	907281
12	Lockwasher		6 ②	419046	419047	419046	419047	419047	419047
13	Input Oil Seal	5:1, 9:1 ⑥ 15:1 ⑥ 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1 1	901286 901286 901286 901286	907266 907266 907266 907266	N/A 907266 907266 907266	N/A 907266 907266 907266	N/A 902286 902286 902286	N/A 902286 902286 902286
14	Output Oil Seal		2	906286	907286	907286	909286	910286	912286
15	Air Vent		1	904287	904287	904287	904287	904287	904287
16	Bushing		1	430079	430079	430079	430079	430079	430079
17 ①	Oil Plug		3	430035	430035	430035	430035	430035	430035
17	Smart Sensor Adapter		1	966907	966907	966907	966907	966907	966907
18	Magnetic Oil Plug		1	430064	430064	430064	430064	430064	430064
21	Output Bearing Shim-As Required	.015" Shim .007" Shim .005" Shim		906263 906265 906264	907263 907265 907264	907263 907265 907264	909263 909265 909264	910263 910265 910264	912263 912265 912264
22	Input Bearing Shim-As Required	.015" Shim .007" Shim .005" Shim	 	906271 906273 906272	907271 907273 907272	903263 903265 903264	909267 909269 909268	910267 910269 910268	910267 910269 910268
23	Output Gear		1	906208	907208	908208	909208	910208	912208
24	Output Bearing Cup		2	906250	403105	403105	403110	910250	912250
25	Output Bearing Cone		2	906251	402147	402147	402160	910251	912251
26	Output Hub		1	906230	907230	908230	909230	910230	912230
27	Output Gear Key		1 ⑤	906275	907275	908275	909275	910275	912275
28	Input Pinion Key	5:1, 9:1 ⑥ 15:1, 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1	906277 906277 906277	907277 907277 907277	N/A 908277 908277	N/A 909277 909277	N/A 909277 909277	N/A 909277 909277
29	Input Pinion	5:1 Ratio ⑥ 9:1 Ratio ⑥ 15:1 Ratio ⑥ 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1 1 1	906222 906221 906220 906219 906218	907222 907221 907220 907219 907218	N/A N/A 908220 908219 908218	N/A N/A 909220 909219 909218	N/A N/A 910220 910219 910218	N/A N/A 912220 912219 912218
30	Input Bearing Cup-LH	5:1 Ratio ⑥ 9:1 Ratio ⑥ 15:1 Ratio ⑥ 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1 1 1	403026 403026 403026 403026 403026	304802 304802 304802 304802 304802	N/A N/A 908259 908259 908259	N/A N/A 403036 403036 403036	N/A N/A 402231 402231 402231	N/A N/A 402231 402231 402231
31	Input Bearing Cup-RH	5:1 Ratio ⑥ 9:1 Ratio ⑥ 15:1 Ratio ⑥ 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1 1 1	403026 403026 403026 403026 403026	403159 403159 403159 403159 403159	N/A N/A 908256 908256 304804	N/A N/A 411626-06-BE 411626-06-BE 304804	N/A N/A 411626-06-BE 411626-06-BE 304804	N/A N/A 403036 403036 403036
32	Input Bearing Cone-LH	5:1 Ratio ⑥ 9:1 Ratio ⑥ 15:1 Ratio ⑥ 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1 1 1	906260 906260 906260 906260 906260	402041 402041 402041 402041 402041	N/A N/A 908260 908260 908260	N/A N/A 304701 304701 304701	N/A N/A 402232 402232 402232	N/A N/A 402232 402232 402232
33	Input Bearing Cone-RH	5:1 Ratio ⑥ 9:1 Ratio ⑥ 15:1 Ratio ⑥ 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1 1 1	906260 906260 906260 906257 906257	907260 907260 907260 907260 402054	N/A N/A 908257 908257 908258	N/A N/A 411626-05-BM 411626-05-BM 908258	N/A N/A 411626-05-BM 411626-05-BM 908258	N/A N/A 304701 304701 912258
34	Counter-Shaft Bearing Cup-LH		1	403026	403159	411626-06-BE	403036	403087	402233
35	Counter-Shaft Bearing Cup-RH		1	403026	403159	411626-06-BE	403036	403087	402233
36	Counter-Shaft Bearing Cone-LH		1	906257	907260	411626-05-BM	304701	402023	912253
37	Counter-Shaft Bearing Cone-RH		1	906257	907260	908253	304701	402023	912253
38	First Stage Gear	9:1 Ratio ⑥ 15:1 Ratio ⑥ 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1 1	906217 906215 906213 906211	907217 907215 907213 907211	N/A 908215 908213 908211	N/A 909215 909213 909211	N/A 910215 910213 910211	N/A 912215 912213 912211
39	Counter-Shaft Pinion		1	906209	907209	908209	909209	910209	912209
40	First Stage Gear Key		1	906276	907276	908276	909276	910276	912276

Table 17–Parts for TA6307H through TA12608H Taper Bushed and Single Reduction Reducers

Ref.	Description		Quantity	TA6307H	TA7315H	TA8407H	TA9415H	TA10507	TA12608
41	Countershaft Bearing Shim-As Required	.015" Shim .007" Shim .005" Shim		906271 906273 906272	906271 906273 906272	908267 908269 908268	909267 909269 909268	904263 909265 904264	912267 912269 912268
44	Auxiliary Output Seal		2	906236	907236	907236	909236	910236	912236
45	Auxiliary Input Seal	5:1, 9:1 Ratio ⑥ 15:1, 25:1 Ratio ⑥ 40:1 Ratio ⑥	1 1 1	901236 901236 901236	907238 907238 907238	N/A 907238 907238	N/A 907238 907238	N/A 902236 902236	N/A 902236 902236
100	Torque-Arm Adapter Bracket		2	906500P	907500P	907500P	909500P	910500P	912500P
	Torque-Arm Rod Kit ⑦		1	964269	964275	964275	965682	965682	965683
101	⑧ Torque-Arm Rod End ⑩		1	A73269	A73101	A73101	964278	964278	964284
102	⑧ Torque-Arm Extension ⑩		1	A73265	963479	963479	964280	964280	964286
103	⑧ Torque-Arm Turnbuckle ⑩		1	A73267	A73102	A73102	964279	964279	964285
104	⑧ RH Nut ⑩		1	A73268	407103	407103	407107	407107	964290
105	⑧ LH Nut ⑩		1	A73266	A73270	A73270	965051	965051	964289
106	Torque-Arm Bushing		1	247244	271046	271046	272046	272046	272187
107	Torque-Arm Fulcrum		1	247248	271054	271054	272054	272054	272154
108	Torque-Arm Bolt		1	411489	411510	411510	411520	411520	411527
109	Torque-Arm Lockwasher		1	034017018AB	419020	419020	419024	419024	419025
110	Torque-Arm Nut		1	407093	407099	407099	407104	407104	407108
111	Torque-Arm Bolt		1	411489	411516	411516	419524	411524	411528
112	Torque-Arm Nut		1	407093	407099	407099	407104	407104	407108
113	Lockwasher		1	034017018AB	419020	419020	419024	419024	419025
200	Bushing Back-Up Plate		2	906301	272037	908301	909301	910301	912301
203	Retaining Ring		2	906304	421098	908304	909304	910304	912304
204	Bushing Cap Screw		6 ⑨	411456	411457	411457	032018016EJ	032018016EJ	032018016EJ
205	Bushing Lockwasher		6 ⑨	419013	419013	419013	032018016EJ	032018016EJ	032018016EJ
400	Screw Conveyor Adapter		1	906401	907401	N/A	N/A	N/A	N/A
401	Screw Conveyor Keeper Plate		1	906402	907402	N/A	N/A	N/A	N/A
402	Screw Conveyor Wedge		1	906403	907403	N/A	N/A	N/A	N/A
403	Screw Conveyor Drive Shaft	2-7/16" Shaft 2-7/16" Shaft, Stainless Steel 3" Shaft 3" Shaft, Stainless Steel 3-7/16" Shaft 3-7/16" Shaft, Stainless Steel	1 1 1 1 1 1	906074 906082 906075 906083 906076 906084	907074 907082 907075 907083 907076 907084	N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A
404	Retaining Bolt		1	966138	966138	N/A	N/A	N/A	N/A
405	Lockwasher		1	419020	419020	N/A	N/A	N/A	N/A
406	Drive Shaft Key		1	906405	907405	N/A	N/A	N/A	N/A
407	Drive Shaft Washer		1	906404	907404	N/A	N/A	N/A	N/A
408	Seal		2	906411	907411	N/A	N/A	N/A	N/A
409	Bolt		4	411983	411493	N/A	N/A	N/A	N/A
410	Lockwasher		4	034017020AB	034017020AB	N/A	N/A	N/A	N/A
411	Retaining Ring		1	906446	907446	N/A	N/A	N/A	N/A
412	Adjustable Packing Retainer		1	906413	907413	N/A	N/A	N/A	N/A
413	Adjustable Packing Gland Stud		2	400404	400404	N/A	N/A	N/A	N/A
414	Adjustable Packing Gland Nut		2	407202	407202	N/A	N/A	N/A	N/A
415	Sealing Rings		3	906416	907416	N/A	N/A	N/A	N/A
600	Backstop Assembly	5:1, 9:1 ⑥	1	906102	907102	N/A	N/A	N/A	N/A
		15:1 Ratio ⑥	1	906102	907102	908102	909102	910102	912102
		25:1 Ratio ⑥	1	906103	907102	908102	909102	910102	912102
		40:1 Ratio ⑥	1	906103	907103	908103	907103	910103	912103

Notes:
① Not shown on drawing.
② 8 required on TA6307H, TA7315H, TA8407H and TA9415H; 12 required on TA10507H and TA12608H.
③ 18 required on TA9415H; 20 required on T10507H; 22 required on TA12608H.
④ 36 required on TA9415H; 40 required on TA10507H; 44 required on TA12608H.
⑤ 2 required on TA7315H, TA8407H, TA9415H, and TA10507H.
⑥ See Table 18 for actual ratio.
⑦ Includes parts listed immediately below marked ⑧.
⑧ Makes up assembly under which it is listed marked ⑦✎.
⑨ 8 required on TA12608H.
⑩ Zinc plated as of 2016.

Table 18–Actual Ratios

Reducer Size	Nominal Ratios				
	5:1	9:1	15:1	25:1	40:1
TA0107L	5.200	9.000	14.928	25.091	30.942
TA1107H	5.000	8.990	14.912	25.064	30.909
TA2115H	5.200	9.103	15.619	25.067	33.333
TA3203H	4.913	9.234	15.067	24.954	32.451
TA4207H	5.000	9.231	15.000	25.125	39.107
TA5215H	5.105	9.183	14.923	24.996	38.907
TA6307H	4.944	9.215	15.451	24.868	38.319
TA7315H	5.188	9.716	14.914	24.837	39.656
TA8407H	N/A	N/A	15.120	24.965	39.667
TA9415H	N/A	N/A	15.103	25.435	39.406
TA10507H	N/A	N/A	15.092	25.184	39.676
TA12608H	N/A	N/A	14.788	25.025	38.188

Supplemental Instructions for the Installation, Operation, and Maintenance of

ATEX Certified Torque-Arm II Shaft Mount Reducers (Zone 1) Sizes TA0107–TA12608

PREFACE

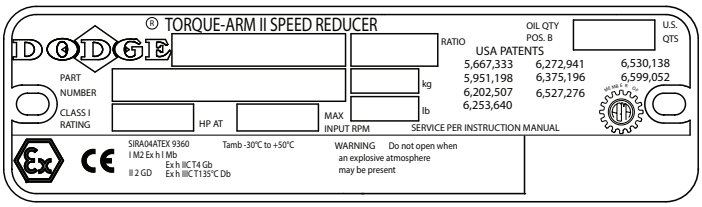
The products described in this manual are manufactured by Dodge Industrial, a member of RBC Bearings Incorporated, Simpsonville, SC 29681 USA.

This manual is intended to provide basic information on the safe operation and maintenance of ATEX approved Torque-Arm II shaft mount reducers. These instructions do not cover all details or variations in equipment nor provide every possible contingency or hazard to be met in connection with installation, operation, and maintenance. Should further information be desired or should particular problems arise which are not covered in the manual, the matter should be referred to your local Dodge representative.

The reducer was manufactured under the guidelines of the ATEX directive 2014/34/EU.

Torque-Arm II reducers are suitable for ATEX Category M2 for Group I and Category 2 for Group II, both gas and dust atsmospheres where the ignition temperature exceeds +135°C (T4) or +275°F.

Typical reducer marking is contained on a certification plate similar to the following:



ATTENTION - HAZARDOUS AREA USE

For hazardous area use, the following potential ignition hazards have been identified:

- Impact to outer enclosure
- Heat generation
- Contact of rotating parts with stationery parts

The installation should be in accordance with the conditions in the following sections.

The reducer is designed to operate with a surface temperature at or below 200°F. Failure to operate the reducer properly can cause this maximum surface temperature to be exceeded. If applied in a Division 1 or Zone 1 environment this excessive temperature may cause ignition of hazardous materials.

The use of supplemental cooling devices such as a shaft-mounted cooling fan or heat exchanger may be required to ensure operating temperature below 200°F if indicated by catalog selection tables or if the reducer is operated at ambient temperatures above 80°F. Proper use of supplemental cooling, if provided, and avoidance of undesirable operating conditions is required.

ABNORMAL CONDITIONS

Operating the reducer under any of the following conditions can cause higher than normal operating temperatures:

- Reducer load exceeding nameplate ratings
- Ambient temperatures above nameplate rating
- Inadequate cooling
- Operation above maximum nameplate speed
- Insufficient amount or improper type of lubricant

ADDITIONAL INSTRUCTIONS FOR SAFE INSTALLATION AND USE

- Do not open reducer when an explosive atmosphere may be present.
- All rotating parts should be guarded to prevent contact with foreign objects which could result in sparks and ignition.
- The reducer should be periodically inspected for proper oil level, signs of oil leakage, and dust or dirt buildup that would impede heat dissipation.
- Follow lubrication instructions and service schedule in this manual. Use gear lubricant with flash point temperature 300°F or higher.
- Increasing levels of vibration and noise could indicate the need for repair or replacement of the reducer, including replacement of bearings.
- Electrical sparks are a source of ignition. To reduce this risk, proper electrical bonding and grounding are recommended. Under standard operating conditions, the reducer is electrically bonded to the driven equipment through the output shaft connection.

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* 1 6 0 1 – 0 7 2 6 *

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