Torque-Arm™ Speed Reducers
Taper Bushed WSCXT 115 & 125
Instruction Manual

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 lbs) are noted on the shipping package. Proper lifting practices are required for these products.

INSTALLATION

1. Use eyebolts to lift reducer.
2. Determine the running positions of the reducer. (See Fig. 1)

   NOTE: The reducer is supplied with either 4 or 7 plugs; 4 around the sides for horizontal installations and 1 on each face for vertical installations. These plugs must be arranged relative to the running positions as follows:

   Horizontal Installations—Install the magnetic drain plug in the hole closest to the bottom of the reducer. Install filter/breather in topmost hole. Of the 3 remaining plugs on the sides of the reducer, the lowest one is the minimum oil level plug.

   Vertical Installations—Install the filler/ventilation plug in the hole provided in the top face of the reducer housing. Use the hole in the bottom face for the magnetic drain plug. Of the 5 remaining holes on the sides of the reducer, use a plug in the upper housing half for the minimum oil level plug.

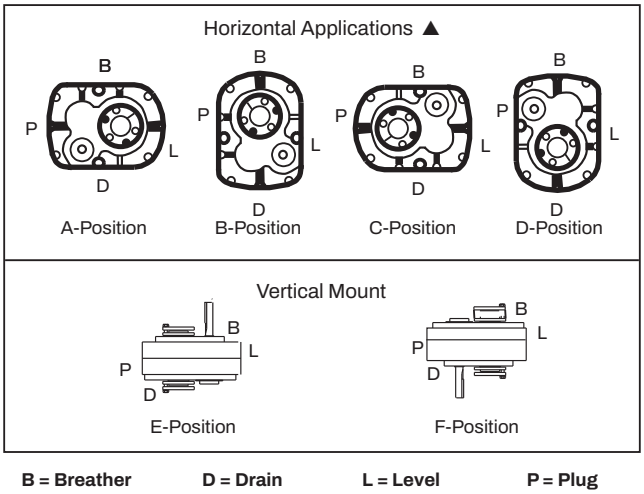


Figure 1 - Mounting Positions

The running position of the reducer in a horizontal application is not limited to the four positions shown in Figure 1. However, if running position is over 20° either way from sketches, the oil level plug cannot be safely used to check the oil level, unless during the checking the Torque-Arm is disconnected and the reducer is swung to within 20° in positions “B” and “D” or 5° in positions “A” and “C” of the positions shown in Figure 1.

Because of the many possible positions of the reducer, it may be necessary or desirable to make special adapations using the lubrication fitting holes furnished along with other standard pipe fittings, stand pipes and oil level gages as required.

3. Mount reducer on driven shaft as follows:
   For Taper Bushed: Mount reducer on driven shaft per instructions for tapered bushings.
4. Install sheave on input shaft as close to reducer as practical. (See Fig. 2.)

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.

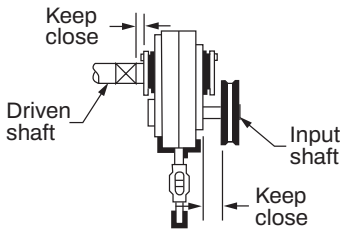


Figure 2 - Installation of Sheave

5. Install motor and V-belt drive so belt will approximately be at right angles to the center line between driven and input shaft. (See Fig. 3.) This will permit tightening the V-belt with the Torque-Arm screw. (See Fig. 4.) Make sure that there is sufficient take-up in the turnbuckle for belt tension adjustment when using V-belt drive

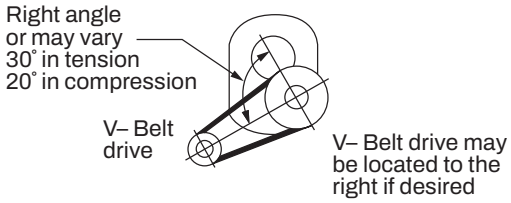


Figure 3 - Installation of Motor and V-Belt Drive

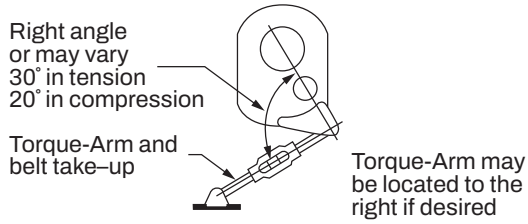


Figure 4 - Tighten Belt with Torque-Arm Screw

6. Install Torque-Arm and adaptor plates using the long reducer bolts. The bolts may be shifted to any of the holes on the input end of the reducer. Fig. 3

7. Install Torque-Arm fulcrum on a rigid support so that the Torque-Arm will be approximately at right angles to the center line through the driven shaft and the Torque-Arm anchor.

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.

8. Fill gear reducer with recommended lubricant.

LUBRICATION

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

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

CAUTION: Extreme pressure (EP) lubricants are not recommended for average operating conditions. Failure to observe these precautions could result in bodily injury.

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 ºF., the oil should be changed every 1 to 3 months depending on severity of conditions.

CAUTION: Do not use EP oils or oils containing slippery additives such as graphite or molybdenum disulphide in the reducer when backstop is used. These additives will destroy sprag action.

Table 1 - Oil Levels

Reducer Size	Volume of Oil Required to Fill Reducer to Oil Level Plug																	
	① Position A			① Position B			① Position C			① Position D			① Position E			① Position F		
	Fluid Ounces (Approx)	② Quarts (Approx)	Liters (Approx)	Fluid Ounces (Approx)	② Quantis (Approx)	Liters (Approx)	Fluid Ounces (Approx)	② Quantis (Approx)	Liters (Approx)	Fluid Ounces (Approx)	② Quantis (Approx)	Liters (Approx)	Fluid Ounces (Approx)	② Quantis (Approx)	Liters (Approx)	Fluid Ounces (Approx)	② Quantis (Approx)	Liters (Approx)
WSCXT115 WSCXT125	16	1/2	.48	16	1/2	.48	20	5/8	.59	24	3/4	.71	32	1	.95	32	1	.95

① Refer to Fig. 1 on page 2 for mounting positions.
② U.S. Measure: 1 quart = 32 fluid ounces = .94646 liters.
Note: If reducer position is to vary from those shown in Figure 1, either more or less oil may be required. Consult Mechanical Power Transmission Support.

Table 2 - Minimum Oil Recommendations to Average Operating Conditions

Lubrication Recommendations – ISO Grades for Ambient Temperatures of 15º to 60º															Lubrication Recommendations – ISO Grades for Ambient Temperatures of 50º to 125º													
Output RPM	Reducer Size														Output RPM	Reducer Size												
	1	2	3	4	5	6	7	8	9	10	12	13	14	15		1	2	3	4	5	6	7	8	9	10	12	13	14	15
301-400	220	220	150	150	150	150	150	150	150	150	150	150	150	150	301-400	320	320	220	220	220	220	220	220	220	220	220	220	220	220
201-300	220	220	150	150	150	150	150	150	150	150	150	150	150	150	201-300	320	320	220	220	220	220	220	220	220	220	220	220	220	220
151-200	220	220	150	150	150	150	150	150	150	150	150	150	150	150	151-200	320	320	220	220	220	220	220	220	220	220	220	220	220	220
126-150	220	220	220	150	150	150	150	150	150	150	150	150	150	150	126-150	320	320	320	220	220	220	220	220	220	220	220	220	220	220
101-125	220	220	220	220	150	150	150	150	150	150	150	150	150	150	101-125	320	320	320	320	220	220	220	220	220	220	220	220	220	220
81-100	220	220	220	220	220	150	150	150	150	150	150	150	150	150	81-100	320	320	320	320	320	220	220	220	220	220	220	220	220	220
41-80	220	220	220	220	220	150	150	150	150	150	150	150	150	150	41-80	320	320	320	320	320	220	220	220	220	220	220	220	220	220
11-40	220	220	220	220	220	220	220	220	220	220	15	150	150	150	11-40	320	320	320	320	320	320	320	320	320	320	220	220	220	220
1-10	220	220	220	220	220	220	220	220	220	220	220	220	220	220	1-10	320	320	320	320	320	320	320	320	320	320	320	320	320	320

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

NOTES:
Pour point of lubricant selected should be at least 10 ºF lower than expected minimum ambient starting temperature.
Extreme pressure (EP) lubricants are not recommended for average operating conditions
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 recommendation.
Do not use oils containing slippery additives such as graphite or molybdenum disulphide in the reducer when backstop is used. These additives will destroy sprag action.

MOTOR MOUNTS

The motor mount must be installed on output end of reducer as shown in Figure 5.

Remove two housing bolts on output end of reducer. Place the motor mount in position and install the longer housing bolts supplied with the motor mount. Tighten bolts to torque specified in Table 6.

Install motor, drive sheave and drive sheave so that driven sheave is as close to the reducer housing as practical. Install V-belt and tension with the four adjusting screws provided on T-A M motor mount. Check all bolts to see that they are securely tightened.

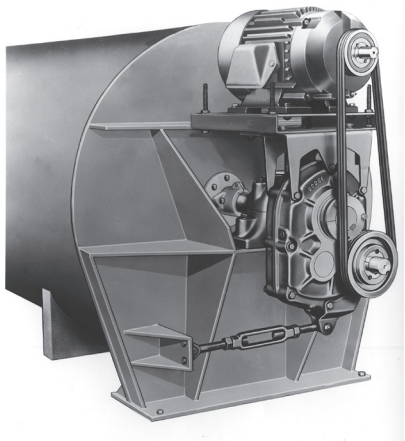


Figure 5 - Motor Mount on Output End of Reducer

NOTE: Belt guard removed for photographic purposes.
WARNING: Do not operate if belt guard is not in place.

REPLACEMENT OF PARTS

Using tools normally found in a maintenance department, a Torque-Arm Speed Reducer can be disassembled and reassembled by careful attention to the instructions of following.

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

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

The keyseat in the input shaft as well as any sharp edges on the output hub should be covered with scotch 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 serial number, part name, part number and quantity. It is strongly recommended that when a pinion or gear is replaced, the mating gear or pinion be replaced also.

If the large gear on the output hub must be replaced it is recommended that an output hub assembly of a gear assembled on a hub be ordered to secure undamaged surfaces on the output hub where the oil seals rub.

However, if it is desired to use the old output hub, press the gear and bearing off and 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 outer race 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 TAPER BUSHED

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

DISASSEMBLY

1. Position reducer on its side and remove all bolts. Gently tap the output hub and input shaft with a soft hammer (rawhide, not a lead hammer) to separate the housing halves. Open housing evenly to prevent damage to the parts inside.
2. Lift shaft, gear, and bearing assemblies from housing.
3. Remove seals from housing.

REASSEMBLY

1. Output Hub Assembly: Heat gear to 325 ºF to 350 ºF to shrink onto hub. Heat bearings to 270 ºF to 290 ºF 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 (not outer) race of bearings.
3. Input Shaft Assembly: Shaft and pinion are integral. Press bearings on shaft. Press against inner (not outer) race of bearings.
4. Drive the two dowel pins into place in the right hand housing half. Position right half of housing (as shown in drawing) on blocks to allow clearance for protruding end of output hub.
5. Mesh output hub and countershaft together and place in housing half. Place input shaft assembly in housing half. Tap lightly with a soft hammer (rawhide, not lead hammer) until bearings are properly seated in housing. Make sure that the snap rings on the O.D. of the bearings come into contact with the housing.
6. Clean housing flange surfaces on both halves, making sure not to nick or scratch flange face. Place a new bead of gasket eliminator on flange face and spread evenly over the entire flange leaving no bare spots.
7. Place output hub bearing cup in other housing half. Make sure cup is properly seated in housing. Place housing half in position over dowel pins and tap with a soft hammer (rawhide, not lead hammer) until housing halves are together. Install housing bolts and tighten evenly. The final wrench torque for housing bolts is 360 lb.-ins.
8. Install the output hub seal carrier and the shims removed at disassembly. Tighten carrier cap screws while rotating the output hub to make sure the bearings do not bind. If the bearings start to bind, add more shims. Torque the carrier bolts to the value shown in table 3. Attach an indicator to the housing and set the gage on the top end of the output hub. Insert a pry bar under the other end of the hub and force it upward. The axial end play of the output hub will be given by the indicator reading. Add or remove shim stock to attain a reading of from .001" to .003". Remove seal carrier and place a 1/8" diameter bead of Dow Corning RTV732 sealant on the face around the I.D. of the last shim (sealant is to be between shim and reducer housing). Reinstall output hub seal carrier and tighten carrier screws to torque shown in Table 6.
9. Install oil seals. Extreme care must be observed when installing seals on input shaft and output hub to avoid contact with any sharp edges. This danger of damage and consequent oil leakage can be decreased by covering all sharp edges with adhesive tape or paper before installing seals. Chamfer or deburr housing bore if end of bore is sharp or rough. Fill cavity between lips of seal with grease. Seals should be pressed or tapped evenly into place with a soft hammer (rawhide, not lead hammer) applying force only on the outer edge of the seals. A slight oil leakage may be evident at the seals during initial running in, but will disappear unless seals have been damaged.

Table 3 - Manufacturer's Part Number For Replacement Output Hub Bearings

Torque-Arm Reducer Drive Size	Output Hub Bearing	
	Part Number	
	Cone	Cup
WSCXT 115 WSCXT 125	402246 (JLM506849)	403149 (JLM506810)

Table 4 – Manufacturers' Part Numbers For Replacement Countershaft Bearings

Torque-Arm Reducer Drive Size	Countershaft Bearing Input Side		Countershaft Bearing Adapter Side	
	Part No.	Part No.	Part No.	Part No.
WSCXT 115 WSCXT 125	424006	304SG	424006	304SG

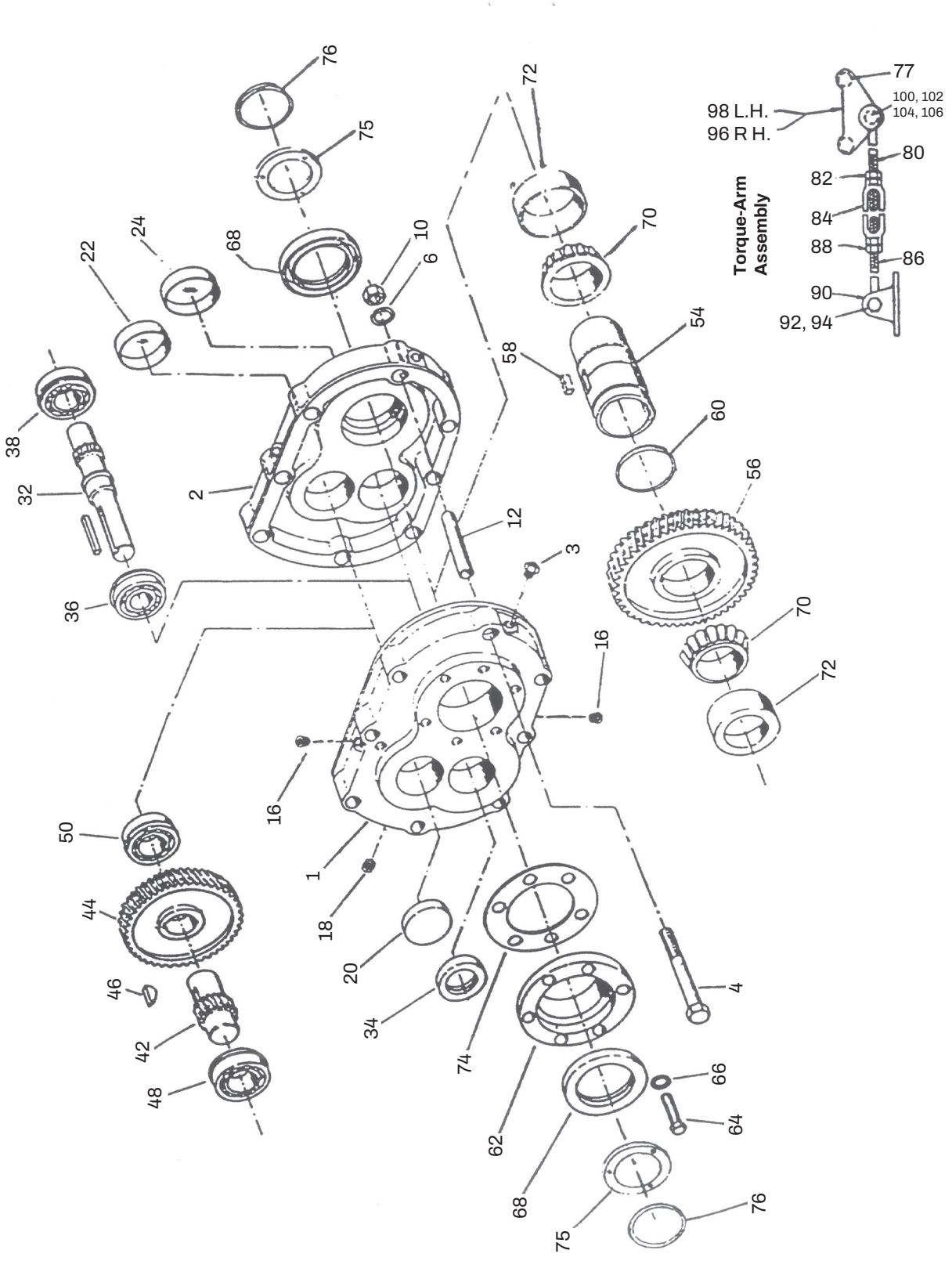
Table 5 – Manufacturers' Part Numbers For Replacement Input Shaft Bearings

Torque-Arm Reducer Drive Size	Input Shaft Bearing Input Side		Input Shaft Bearing Adapter Side	
	Part No.	Part No.	Part No.	Part No.
WSCXT 115 WSCXT 125	424112	205SG	424111	204MG

Table 6 – Bolt Tightening Torque Values

Torque-Arm Reducer Drive Size	Housing Bolts (in.-lbs.)	Adapter Bolts (in.-lbs.)	Shaft Retainer Bolt (in.-lbs.)	Output Hub Seal Carrier Bolts (in.-lbs.)
WSCXT 115 WSCXT 125	360	360	1800	200

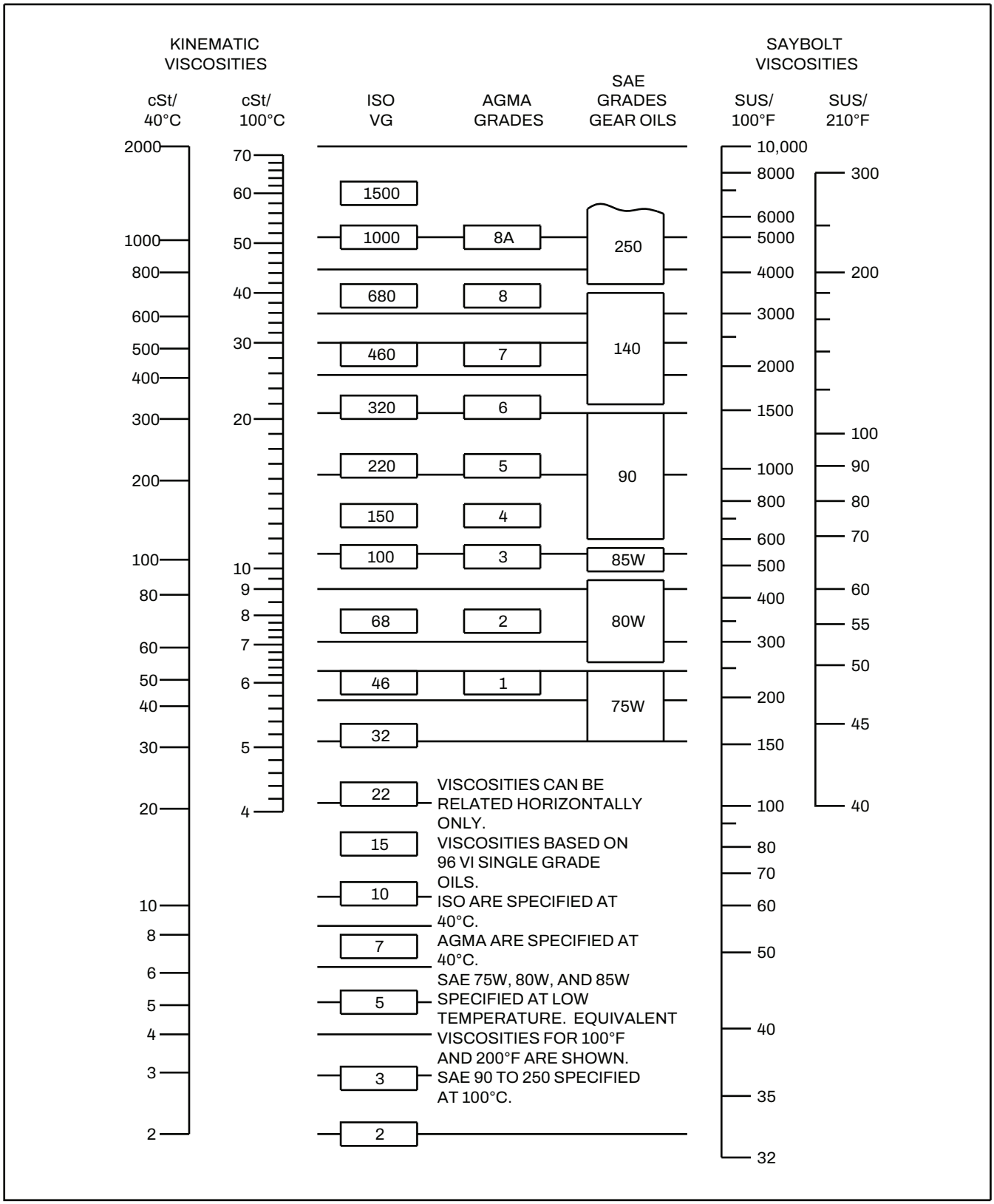
Replacement Parts WSCXT 115 & 125



Replacement Parts WSCXT 115 & 125			
Reference	Description	No. Req'd.	WSCXT115 & WSCXT125 Part No.
	Housing		351225
3	Air Vent	1	A55233
4	Housing Bolt	⑦	411418
6	Lockwasher	⑦	419011
①	Washer	1	419092
10	Hex Nut	⑦	407087
12	Dowel Pin	2	420092
16	Pipe Plug	5	430031
18	Magnetic Drain Plug	1	430060
20	Countershaft Bearing Cover – Input Side Countershaft	1	242224
22	Bearing Cover – Adapter Side Input Shaft Bearing Cover –	1	242224
24	Adapter Side	1	361062
32	Input Shaft 15:1 Ratio	1	241302
	Input Shaft Key 25:1 Ratio	1	241200
②		1	443008
34*	Input Shaft Seal	1	241457
36*	Input Shaft Bearing – Input Side	1	424112
38*	Input Shaft Bearing – Adapter Side	1	424111
	Coutershaft Assembly⑧ 15:1 Ratio	1	392090
	③ Countershaft and Pinion 25:1 Ratio	1	392091
42	③ First Reduction	1	241216
44*	Gear 15:1 Ratio	1	241170
	③ Gear Key 25:1 Ratio	1	241171
46*		1	241309
48*	Countershaft Bearing—Input Side ④	1	424006
50*	Countershaft Bearing—Adapter Side ④	1	424006
	Output Hub Assembly②	1	391029
54*	③ Output Hub	1	241233
56*	③ Output Hub Gear	1	241007
58*	③ Output Hub Gear Key	1	241217
60*	③ Snap Ring	1	421013
62	Output Hub Seal Carrier	1	351114
64	Carrier Screw	6	411405
66	Lockwasher	6	419010
68*	Output Hub Seal	2	351111
70*	Output Hub Bearing – Cone ④	2	402246
72*	Output Hub Bearing – Cup ④	2	403149
74*	Output Hub Shim Pack	1 Set ⑤	391056
①	.002" Thick	⑥	427424
①	.005" Thick	⑥	427425
①	.010" Thick	⑥	427426
①	.025" Thick	⑥	427427
75	Bushing Back-Up Plate	2	241266
76	Retainer Ring	2	421111
77	Adapter, Housing Bolts	2	411420
	Torque-Arm Assembly②	1	241097
80	③ Rod End	1	241245
82	③ Hex Nut	1	407093
84	③ Turnbuckle	1	241246
86	③ Extension	1	241247
88	③ L.H. Hex Nut	1	407242
90	③ Fulcrum	1	241249
92	③ Fulcrum Screw	1	411456
94	③ Hex Nut	1	407091
	Adapter Assembly②	1	259151
96	③ R.H. Adapter Plate	1	241242
98	③ L.H. Adapter Plate	1	241241
100	③ Adapter Bushing	1	242243
102	③ Adapter Bolt	1	411412
104	③ Lockwasher	1	419011
106	③ Hex Nut	1	407067

①Not shown on drawing.
② Includes parts listed immediately below. Housing Assembly also includes two-piece housing and adapter.
③These parts make up the assemblies under which they are listed. Assembly also includes two-piece housing.
④ For manufacturer's part number see tables 3, 4 and 5 on page 5.
⑤ One set consists of one each of the shims listed immediately below.
⑥ See last paragraph under "ORDERING PARTS."
⑦ 6 required for SCXT1 Series.

OIL VISCOSITY EQUIVALENCY CHART



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