

## Parts Replacement Manual for Torque-Arm™ Speed Reducers

TD115	TD215	TD315	TD415	TD515	TD615
TD125	TD225	TD325	TD425	TD525	TD625

### 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](http://dodgeindustrial.com) for updated instruction manuals.

## REPLACEMENT OF PARTS

### IMPORTANT

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

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 the six holes in 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 input shaft and output hub before disassembly or reassembly.

### ORDERING PARTS

When ordering parts for reducer specify Reducer Size No., Reducer Serial No., 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

**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.

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 and housing gasket may be damaged in disassembly it is advisable to order replacements for these parts.

### REMOVING REDUCER FROM SHAFT

Loosen screws in both output hub collars. Remove the collar next to end of shaft. This exposes three puller holes in output hub to permit use of wheel puller. In removing reducer from shaft be careful not to damage ends of hub.

### 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 °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 (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 assembly and countershaft assembly together and place in housing half. Place input shaft assembly in housing half. Tap lightly with a soft hammer (rawhide not a lead hammer, until bearings are properly seated in the housing. Make sure that the snap rings on the O.D. of the bearings come into contact with the housing.
6. Place a small bead of RTV on the housing half. Place other half of housing into position and tap with a soft hammer until the housing bolts can be used to draw the halves together. Draw halves together evenly to prevent damage to parts. The final wrench torque should be 360 pound-inches on

TD115, TD125, TD215 and TD225 sizes; 600 pound-inches on TD315, TD325, TD415 and TD425; 900 pound-inches on TD515, TD525, TD615 and TD625. When a torque wrench is not available it is possible to approximate these values by using an ordinary wrench and piece of pipe on wrench. For example, to obtain 600 pound-inches wrench torque, pull 60 pounds at 10" distance from center of pull to center of screw or pull 30 pounds at a 20" distance, etc.

7. Extreme care should be used in installing seals on input shaft and output hub to avoid damage to seals due to contact with sharp edges of the keyseat in the input shaft

or the holes in the output hub. This danger of damage and consequent oil leakage can be decreased by covering the keyseat and holes with scotch tape or paper which can be removed subsequently. Chamfer or burr housing bore if end of bore is sharp or rough. Fill cavity between lips of seal with grease. Seals should be pressed or tapped with a soft hammer evenly into place in the housing, applying force only on outer corner of seals. A slight oil leakage at the seals may be evident during initial running in, but will disappear unless the seals have been damaged.

Torque-Arm Speed Reducer Parts									
Ref	Name of Part		No. Req	TD115 & TD125 Reducers	TD215 & TD225 Reducers	TD315 & TD325 Reducers	TD415 & TD425 Reducers	TD515 & TD525 Reducers	TD615 & TD625 Reducers
				Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
12	Backstop Assembly		1	241101	242101	243101	244092	245101	246092
14	Housing Assembly		1	241197	242197	243197	244197	245197	246197
16	Air Vent		1	241237	241237	241237	241237	245237	245237
18	Housing Bolt		2	411418	411418	411440	411442	411464	411466
20	Adapter-Housing Bolt			411420	411420	411442	411444	411466	411468
	Lockwasher			419011	419011	419012	419012	419013	419013
22	Hex Nut			407087	407087	407089	407089	407091	407091
24	Plain Washer		2	419092	419092	419094	419094	419096	419096
26	Dowel Pin		2	420089	420089	420103	420103	420110	420112
28	Housing Gasket		1	241219	241219	243219	244219	245219	246219
	Pipe Plug		2	430031	430031	430031	430031	430033	430033
	Magnetic Plug		1	430060	430040	430060	430060	430062	430062
30	Countershaft Bearing Cover		2	241224	242224	243224	244224	245224	246224
32	Backstop Cover		1	241221	242221	243221	243221	245221	246221
34	Backstop Cover Screw			415022	415022	415022	415022	416532	411406
36	Lockwasher			.....	.....	.... llli ...	.....	419007	419009
38	Backstop Cover Gasket		1	241220	242220	243220	243220	245220	246220
40	Input Shaft with Pinion	for 15 to 1 Ratio	1	241268	242174	243009	244009	245009	246009
		for 25 to 1 Ratio	1	241269	242175	243004	244004	245005	246004
42	Input Shaft Seal		1	241203	242203	243203	244203	245203	246211
46	Input Shaft Bearing-Input End		1	390277	390282	390287	390293	424013	390305
48	Input Shaft Bearing-Backstop End		1	390278	390277	390288	390288	390299	390306
	Countershaft Assembly	for 15 to 1 Ratio	1	390116	390117	390118	390119	390120	390121
		for 25 to 1 Ratio	1	390131	390132	390133	390134	390135	390136
50	Countershaft with Pinion		1	241006	242006	243006	244006	245006	246006
50	First Reduction Gear	for 15 to 1 Ratio	1	241008	242008	243008	244008	245008	246008
		for 25 to 1 Ratio	1	241005	242005	243005	244005	245005	246005
54	Key		1	241218	242218	243218	244218	245218	245218
56	Countershaft Bearing		2	390278	390283	390288	424002	390299	390306
58	Output Hub Assembly		1	390151	390152	390153	390154	390155	390156
60	Output Hub		1	241208	242208	243208	244208	245208	246208
62	Output Gear		1	241007	242007	243007	244007	245007	246007
64	Key		1	241217	242217	243217	244217	245217	245217
	Output Hub Snap Ring		2	421013	421017	421021	421025	421030	421033
66	Output Hub Collar with Screws		2	241209	242209	243209	244209	245209	246209
68	Output Hub Collar Screw		4	400062	400094	400098	400150	400154	400154
70	Output Hub Seal		2	241202	242202	243202	244202	245202	246210
72	Output Hub Bearing		2	390279	390284	390289	390296	390300	390307
	Torque-Arm Assembly		1	241097	241097	243097	243097	245097	245097
74	Rod End		1	241245	241245	243245	243245	245245	245245
76	Hex Nut		1	407093	407093	407095	407095	407097	407097
78	Turnbuckle		1	241246	241246	243246	243246	245246	245246
80	Extension		1	241247	241247	243247	243247	245247	245247

82	L.H. Hex Nut	1	407242	407242	407244	407244	407246	407246
84	Flucrum	1	241249	241249	243249	243249	246249	246249
86	Flucrum Bolt	1	411456	411456	411484	411484	411484	411484
88	Hex Nut	1	407091	407091	407093	407093	407093	407093
90	L.H. Adapter Plate	1	241241	242241	243241	244241	245241	246241
92	R.H. Adapter Plate	1	241242	242242	243242	244242	245242	246242
94	Adapter Bushing	1	242243	242243	243243	243243	245243	245243
96	Adapter Bolt	1	411412	411412	411437	411437	411460	411460
98	Lockwasher	1	419011	419011	419012	419012	419013	419013
99	Hex Nut	1	407087	407087	407089	407089	407091	407091

Not shown on drawing.

Includes parts listed immediately below marked "A". Housing Assembly also includes two-piece housing.

The parts marked "" make up the assemblies under which they are listed. Housing Assembly also includes two-piece housing.

4 required for TD115 and TD125; 5 required for TD215 and TD225; 6 required for larger sizes.

6 required for TD115 and TD125; 7 required for TD215 and TD225; 8 required for larger sizes.

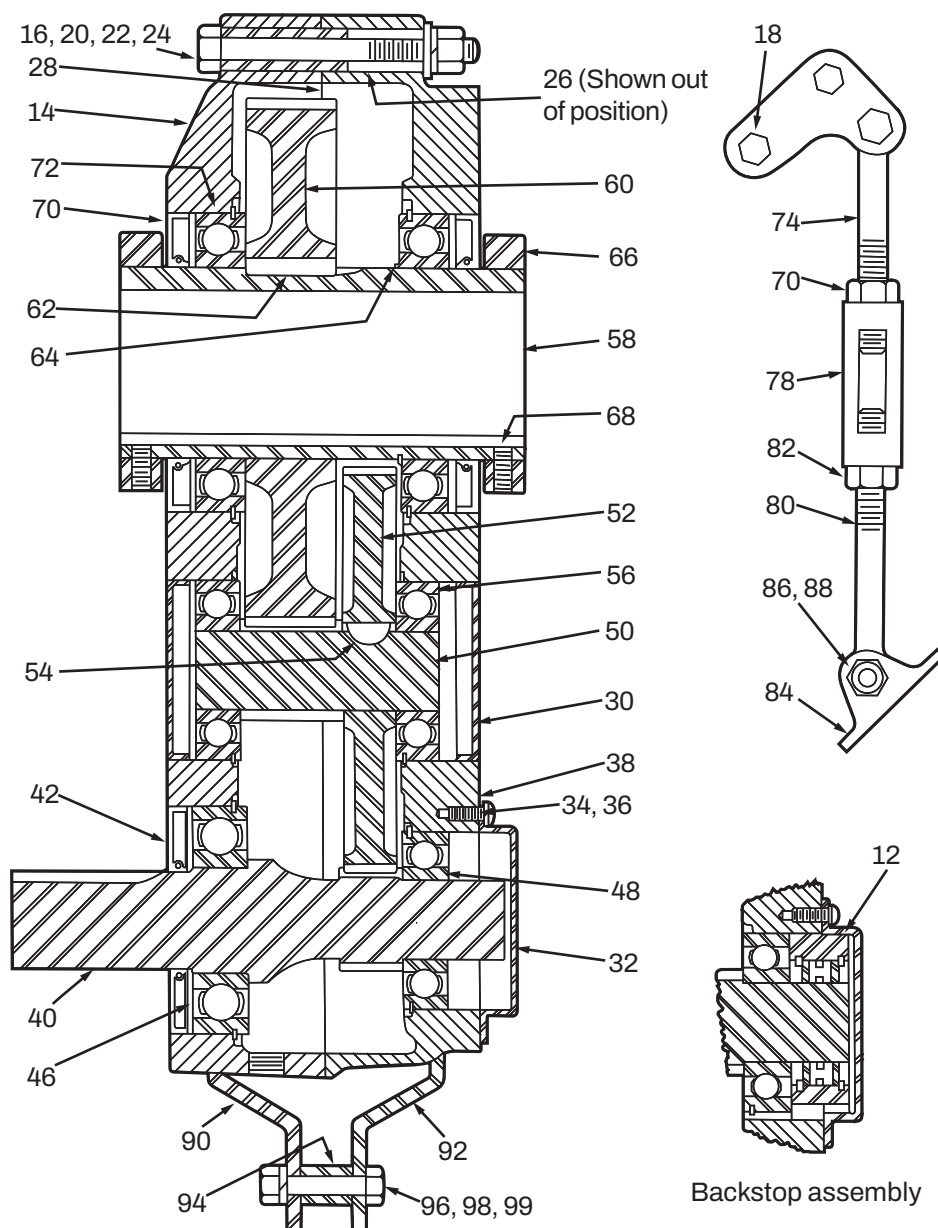
6 required for TD615 and TD625; 4 required for smaller sizes.

4 required for TD515 and TD525; 6 required for TD615 and TD625.

1 required for TD425, TD525 and TD625 sizes only.

Approximate ratio of TD115, TD215, TD315, TD415, TD515 and TD615.

## PARTS REFERENCE



Backstop assembly

**Table of Bearing Numbers**

Bearing	Reducer Size	No. Req'd	Bearing Number
Input Shaft Bearing - Input End	TD115 & TD125 TD215 & TD225 TD315 & TD325 TD415 & TD425 TD515 & TDS25 TD615 & TD625	1 1 1 1 1 1 1	390277 390282 390287 390293 424013 390305
Input Shaft Bearing - Backstop End	TD115 & TD125 TD215 & TD225 TD315 & TD325 TD4 15 & TD425 TD515 & TD525 TD615 & TD625	1 1 1 1 1 1	390278 390277 390288 390288 390299 390306
Countershaft Bearing	TD115 & TD125 TD215 & TD225 TD315 & TD325 TD415 & TD425 TD515 & TD525 TD615 & TD625	2 2 2 2 2 2	390278 390283 390288 424002 390299 390306
Output Hub	TD115 & TD125 TD215 & TD225 TD315 & TD325 TD415 & TD425 TD515 & TD525 TD615 & TD625	2 2 2 2 2 2	390279 390284 390289 390296 390300 390307

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