

## **Parts Replacement Manual for Torque-Arm® Speed Reducers With Ball Bearings TD715, TD725, TD815 and TD825 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**

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

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 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

**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.

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 and housing gasket may be damaged in disassembly it is advisable to order replacement 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 the output hub to permit use of wheel puller. In removing reducer from shaft be careful not to damage ends of hub.

### **DISSASSEMBLY**

1. Remove all bolts from housing. Open housing evenly to prevent damage to 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. Place 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 rawhide hammer (not 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 new housing gasket 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.  
Torque housing bolts to 3120 in-lbs.

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 hole 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 each seal with grease. Seals should be pressed or tapped with a soft hammer evenly into place in the housing, applying force only on the 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.

#### Replacement Parts TD715, TD725, TD815, TD825

Ref	Name of Part	Number Required	TD715 & TD725 Reducers Part Number	TD815 & TD825 Reducers Part Number
12	Backstop Assembly	1	247092	248101
14	Housing Assembly	1	390107	390108
*	Air Vent With Bushing	1	390061	390061
16	Housing Bolt		411498	411499
18	Adapter Housing Bolt	2	411499	411502
20	Lockwasher		419016	419016
22	Plain Washer	2	419082	419082
24	Hex Nut		407095	407095
26	Dowel Pin	2	420128	420128
28	Housing Gasket	1	247219	248219
*	Pipe Plug	2	430035	430035
*	Magnetic Plug	1	430064	430064
30	Countershaft Bearing Cover	2	247224	248224
31	Input Shaft Seal Carrier	1	247220	248212
32	Carrier Cap Screw		411412	411408
33	Lockwasher		419011	419011
34	Carrier Gasket	2	247223	248216
35	Backstop Carrier	1	247222	248222
36	Carrier Cap Screw		411408	411408
37	Lockwasher		419011	419011
38	Backstop Cover	1	247221	248221
39	Backstop Cover Gasket	1	246220	248220
40	Cover Cap Screw	6	411402	411402
41	Lockwasher	6	419009	419009
42	Input Shaft with Pinion	15 to 1 Ratio 1 25 to 1 Ratio	247009 247004	248009 248004
43	Input Shaft Seal	1	242202	248203
44	Input Shaft Snap Ring		421017	421019
46	Input Shaft Bearing - Input End	1	390311	390314
48	Input Shaft Bearing - Backstop End	1	390305	390315
	Countershaft Assembly	for 15 to 1 Ratio 1 for 25 to 1 Ratio	390122 390137	390123 390138
50	Countershaft with Pinion	1	247006	248006
52	First Reduction Gear	for 15 to 1 Ratio 1 for 25 to 1 Ratio	247008 247005	248213 248214
54	Key	1	247218	248218
56	Countershaft Bearing	2	390312	390315
58	Output Hub Assembly	1	390208	390158
60	Output Hub	1	247208	248208
62	Output Gear	1	247215	248007
64	Key	1	245217	390112
	Output Hub Snap Ring	2	421038	.....
66	Output Hub Collar With Screws	2	247209	248209
68	Collar Screws	4	400190	400190
70	Output Seal	2	247210	248210
72	Output Hub Bearing	2	390313	390316

#### Replacement Parts TD715, TD725, TD815, TD825

Ref	Name of Part	Number Required	TD715 & TD725 Reducers Part Number	TD815 & TD825 Reducers Part Number
74	Torque-Arm Assembly	1	247098	247098
76	Rod End	1	247239	247239
78	Hex Nut	1	407099	407099
80	Turnbuckle	1	247246	247246
	Extension	1	247240	247240
82	L.H. Hex Nut	1	407248	407248
84	Fulcrum	1	247248	247248
86	Fulcrum Bolt	1	411489	411489
*	Lockwasher	1	419014	419014
*	Hex Nut	1	407093	407093
90	L.H. Adapter Plate	1	247241	248241
92	R.H. Adapter Plate	1	247242	248241
94	Adapter Bushing	1	247244	247244
96	Adapter Bolt	1	411485	411487
98	Lockwasher	1	419014	419014
99	Hex Nut	1	407093	407093

\* Not shown on drawing.

Includes parts listed immediately below. 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.

6 required for TD715 and TD725; 9 required for TD615 and TD825

8 required for TD715 and TD725; 11 required for TD816 and TD825

6 required for TD715 and TD725; 8 required for TD815 and TD825

Approximate ratio of TD715 and TD815 reducers

Approximate ratio of TD725 and TD825 reducers

1 required for 25 to 1 ratio. None required for 15 to 1 ratio as shaft is shouldered

For TD715 reducers with serial numbers 2658 and lower and TD725 reducers with serial numbers 1590 and lower. Output hub snap rings must be ordered with output hub.

For TD715 reducer with serial numbers 2658 and lower and TD725 reducers with serial numbers 1590 and lower, if new output hub is not ordered. Specify output hub snap ring part number 390188 for use with original hub

#### Table of Bearing Numbers

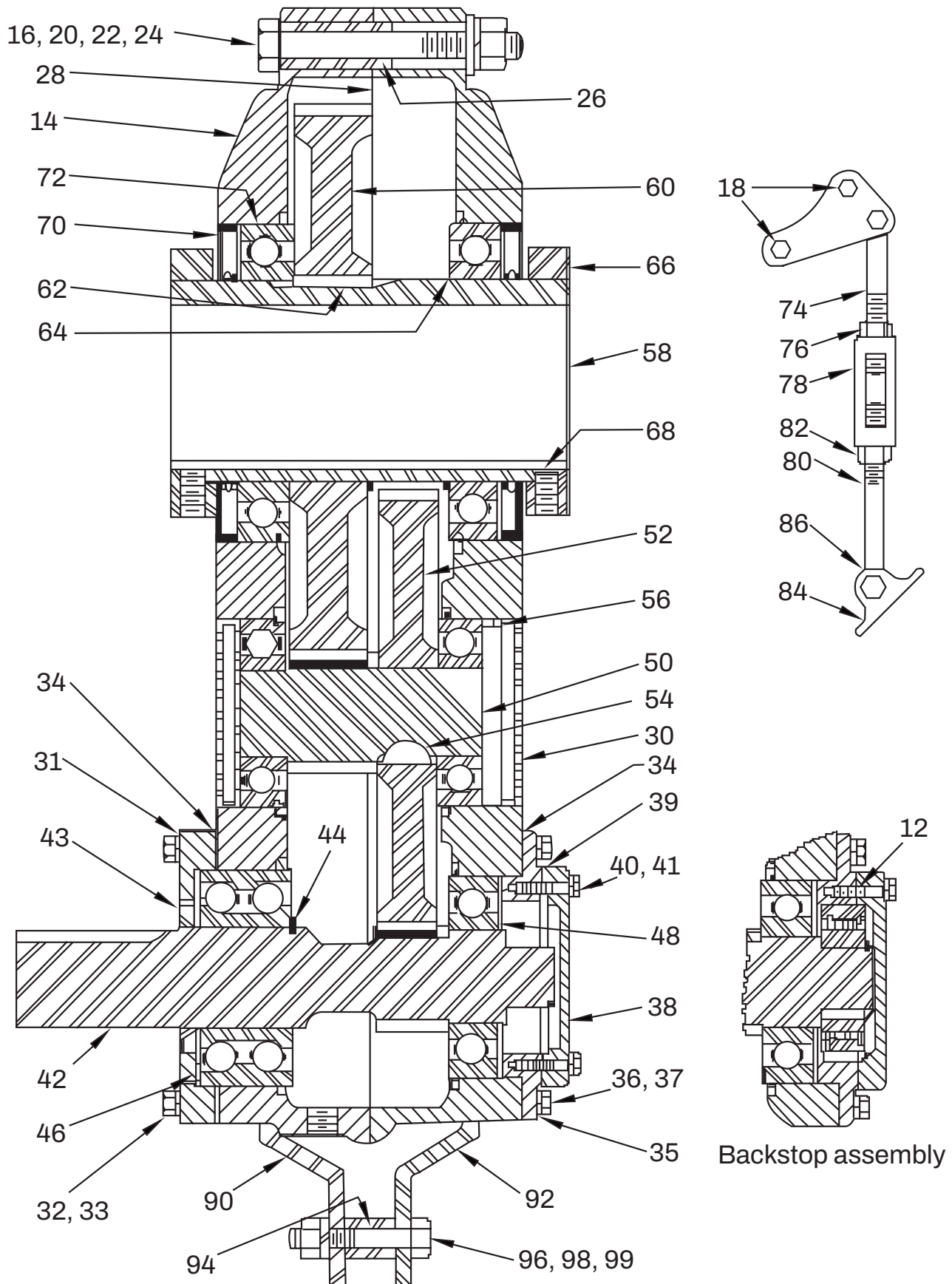
Bearing	No. Required	Company	TD715 and TD725	TD815 and TD825
Input Shaft Bearing - Input End	1	Dodge New Departure	390311 45313X1A	390314 45314X1A
Input Shaft Bearing - Backstop End	1	Dodge New Departure	390305 43312X1A	390315 43313X1A
Countershaft Bearing	2	Dodge New Departure	390312 43311X1A	390315 43313X1A
Output Hub Bearing	2	Dodge New Departure	390313 43L26X1A	390316 43L28X1A

Bearing Numbers:

The bearing numbers given in the parts list are Dodge Parts Numbers.

This table provides the corresponding New Departure numbers to permit the purchase, if desired, of New Departure or equivalent bearings made by other bearing manufacturers.

# Replacement Parts TD715, TD725, TD815, TD825



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