

# Instruction Manual for Dodge® Torque-Arm™ Speed Reducer Backstops

These instructions must be read thoroughly before installation or operation. This instruction manual was accurate at the time of printing. Please see [baldor.com](http://baldor.com) for updated instruction manuals.

**Note!** The manufacturer of these products, Baldor Electric Company, became ABB Motors and Mechanical Inc. on March 1, 2018. Nameplates, Declaration of Conformity and other collateral material may contain the company name of Baldor Electric Company and the brand names of Baldor-Dodge and Baldor-Reliance until such time as all materials have been updated to reflect our new corporate identity.

**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.

**WARNING:** Do not use Dodge backstops in any reducers other than Dodge brand reducers.

**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.

## INSTALLATION OF BACKSTOP

1. Remove backstop cover plate. This plate is directly opposite the extended end of the input shaft.
2. Face reducer looking at the side from which the cover plate was removed. Determine carefully the direction of rotation desired. The directions of rotation of input and output shafts are identical in double reduction reducers (Nos. TXT115 thru TXT1225 and TDT1325 thru TDT1530) and opposite in single reduction reducers (Nos. TXT105 to TXT905). 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 reinstall it.

**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 ABB nor are the responsibility of ABB. 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.

3. Match arrow on backstop to direction of rotation desired for input shaft. Note that reversing backstop end for end changes direction of arrow. The input shaft will rotate in the same direction as the arrow on the backstop.
4. Proceed as follows:  
**Nos. TXT1A to TXT5C and Nos. TXT105 to TXT505A Reducers**—For ease of installation, a light coating of oil on the O.D. of backstop will help to rotate backstop for key installation. Slowly rotate input shaft in same direction as arrow on backstop. Without removing cardboard retainer from backstop, push backstop into reducer. When pushing backstop into reducer, it is very important not to hammer on backstop although it can be tapped gently if necessary. Cardboard retainer will be pushed out automatically as backstop is pushed into reducer. If backstop has to be removed for any reason, pull backstop from bore and insert cardboard retainer into I.D. of backstop to retain position of sprag. After rotation is verified, discard cardboard retainer. Ensure backstop cover does not bind backstop.

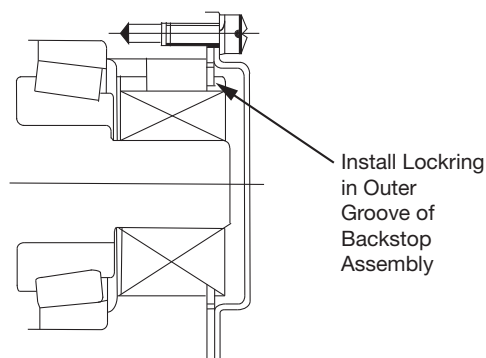
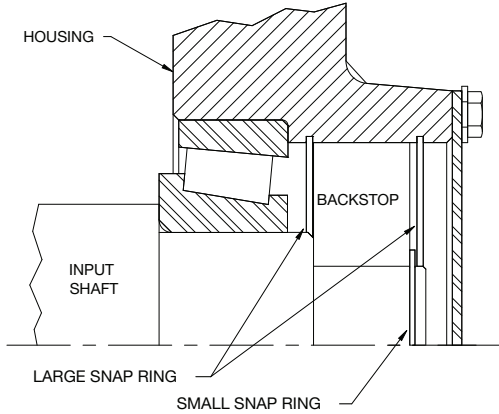


Figure 1 - TXT3B

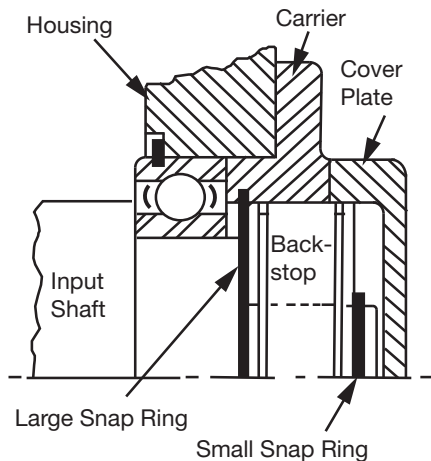
**NOTE:** A locking ring is required on TXT3B to position backstop in housing.

**Nos. TXT6A, TXT7A and No. TXT605 Reducers**—For ease of installation, a light coating of oil on the O.D. of backstop will help to rotate backstop for key installation. Some of the backstops have keys of different lengths. Place the longer key in the input shaft keyseat. For ease of installation, backstop complete with inner race must be pushed into reducer as a unit. When pushing backstop into reducer, it is very important not to hammer on backstop although it can be tapped gently if necessary. Place small snap ring in snap ring groove on input shaft, and place large snap ring in groove in housing outboard of backstop.

**Nos. TXT8 to TXT12, TDT13 thru TDT15, TXT705 to TXT905 Reducers** — Place large snap ring in I.D. of housing or backstop carrier. For ease of installation, a light coating of oil on the O.D. of backstop will help to rotate backstop for key installation. Backstop complete with inner race must be pushed into reducer as a unit. When pushing backstop into Reducer, it is very important not to hammer on backstop although it can be tapped gently if necessary. Place the small snap ring in snap ring groove on input shaft, and place second large snap ring in housing outboard of backstop for sizes TXT8A, TXT9A and TXT10A.



**Figure 2 - TXT8A, 9A, 10A**



**Figure 3 - TXT12, TDT 13-15, TXT805-905**

Some of the backstops require two keys on the input pinion. Dispose of extra key with units that require only one key. Line up keyways between backstop and input pinion. Install key(s).

5. Insert key between housing and backstop O.D. and replace gasket, cover plate and screws. When input shaft will be located higher than output shaft, put some non-EP grease in cover plate for the purpose of lubricating backstop. Use a high grade non-EP grease made especially for roller bearing service.

**NOTE: Some backstops have keys that are rectangular in cross section. Keys should fit freely into respective keyways. Forcing keys into place could result in premature failure of backstop.**

## TO REMOVE BACKSTOP

**WARNING: Removal of backstop may cause unexpected machine movement. Remove or block all external loads before servicing unit. Failure to observe these precautions could result in bodily injury.**

1. Remove backstop cover plate.
2. Remove snap ring from end of shaft (snap ring is used only on Nos. TXT609 to TXT1225 and TDT1325 thru TDT1530 and Nos. TXT605 to TXT905 reducers).
3. Insert tool, such as a screwdriver, in groove around O.D. of backstop and pry backstop from retainer housing. If backstop has tapped holes in outer race, install two #10-24 machine screws in holes and use them to pry backstop from housing.

## DIMENSIONAL CHECKS FOR REPLACEMENT UNITS IN REDUCERS WITH TAPERED ROLLER BEARINGS

**Shaft Endplay:** While the backstop is removed check the amount of endplay in the shaft if tapered roller bearings are used. It is possible that bearing wear or looseness might have increased the amount of endplay to an unacceptable level. Shaft endplay should not exceed .003". Endplay is measured with a dial indicator at the end of the backstop shaft. The base of the indicator is attached to the reducer housing. From the other end of the shaft, an axial force must be applied in both directions. While rotating shaft, push and pull.

### CONCENTRICITY:

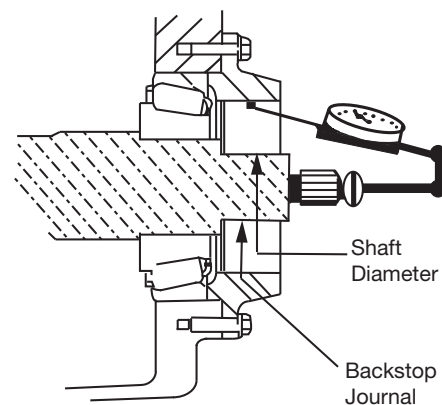
The amount of Total Indicated Run Out (T.I.R.) between the inner race (shaft) and the backstop bore in the housing is a critical measurement. It takes into consideration the effects of bearing endplay as well as machining eccentricities. The T.I.R. should not exceed .003" on TXT309B to TXT1225 and .004" T.I.R. on TDT1325 to TDT1530. The base of the dial indicator can be mounted on the end of the shaft as shown, with the needle at the backstop bore in the housing. Rotate the shaft, sweeping the bore 360° which will give T.I.R.

### DIMENSIONS:

Verify input shaft diameter at the backstop journal. See chart for correct dimensions.

### NOTES:

1. TXT1 thru TXT6 — When replacing failed backstop, inspect shaft end for condition. Journal should be smooth and free of damage. See Fig. 1.
2. On older TXT12 thru TDT15, it is suggested that external backstop carrier be doweled to housing after concentricity is verified.
3. If reducer must be positioned with backstop above static level of oil, contact factory for lubrication recommendations before placing reducer in service.



**Figure 4**

| TORQUE-ARM SPEED REDUCER BACKSTOP |  |                                  |   |  |  |                          |                  |
|-----------------------------------|--|----------------------------------|---|--|--|--------------------------|------------------|
| PART NUMBER                       | CURRENT TXT SERIES HOUSING REDESIGN 2005 | TXT SERIES BEARING REDESIGN 1991 | TXT SERIES INTRO 1985                                   | TDT SERIES   | TD SERIES  | NUMBER SERIES            | SHAFT DIMENSIONS |
| 241101                            |  |                                  |   | TDT 115<br>TDT 125   | TDT 115<br>TDT 125   | No. 1                    | .6315/.6310      |
| 242101                            | TXT109A<br>TXT115A<br>TXT125A            |                                  | TXT 105<br>TXT 109<br>TXT 115<br>TXT 125                | TDT 215<br>TDT 225<br>T 11                                       | TDT 215<br>TDT 225   | No. 2<br>No. 3<br>No. 11 | .7383/.7378      |
| 243101                            |  |                                  |   | TDT 315<br>TDT 325   | TDT 315<br>TDT 325   |                          | .9706/.9696      |
| 243102                            |  |                                  | TXT 309<br>TXT 315<br>TXT 325                           |  |  |                          | .8891/.8881      |
| 243106                            | TXT309B<br>TXT315B<br>TXT325B            | TXT 309A<br>TXT 315A<br>TXT 325A |   |  |  |                          | .7383/.7378      |
| 244092                            |  |                                  |   | TDT 415<br>TDT 425   | TDT 415<br>TDT 425   |                          | .9706/.9696      |
| 244101                            |  |                                  |   |  |  | No. 4<br>No. 5           | 1.1355/1.1325    |
| 244106                            | TXT409B<br>TXT415B<br>TXT425B            | TXT 409A<br>TXT 415A<br>TXT 425A |   |  |  |                          | .8891/.8881      |
| 244148                            |  |                                  | TXT 405<br>TXT 409<br>TXT 415<br>TXT 425                |  |  |                          | 1.0521/1.0511    |
| 245101                            |  |                                  |   | TDT 515<br>TDT 525   | TDT 515<br>TDT 525   |                          | 1.2965/1.2955    |
| 245154                            | TXT509C<br>TXT515C<br>TXT525C            | TXT 509B<br>TXT 515B<br>TXT 525B | TXT 509, 509A<br>TXT 515, 515A<br>TXT 525, 525A         |  |  |                          | 1.2150/1.2140    |
| 246092                            | TXT609A<br>TXT615A<br>TXT625A            |                                  | TXT 605<br>TXT 609<br>TXT 615<br>TXT 625                | TDT 615<br>TDT 625<br>T 16                                       | TDT 615<br>TDT 625<br>TDT 615A<br>TDT 625A                             | No. 16A                  | 1.5005/1.5000    |
| 246101                            |  | TXT 505A                         | TXT 505   | T 15   |  | No. 6                    | 1.2965/1.2955    |
| 247092                            |  |                                  |   | Use Part Number 247260   |  |                          |                  |
| 247101                            |  |                                  |   |  |  | No. 7A                   | 1.5405/1.5400    |
| 247260                            | TXT709A<br>TXT715A<br>TXT725A            |                                  | TXT 705<br>TXT 709<br>TXT 715<br>TXT 725                | TDT 715<br>TDT 725<br>T 17                                       | TDT 715<br>TDT 725<br>TDT 715A<br>TDT 725A                             | No. 17A                  | 1.5005/1.5000    |
| 248101                            |  |                                  |   | Use Part Number 249260   |  |                          |                  |
| 249260                            | TXT815A<br>TXT825A<br>TXT15A<br>TXT926A  |                                  | TXT 815<br>TXT 825<br>TXT 915<br>TXT 926                | TXT 815<br>TXT 825<br>TXT 915<br>TXT 926<br>TDT 1115<br>TDT 1125 | TD 815<br>TD 825<br>TD 815A<br>TD 825A<br>TD 915<br>TD 1115<br>TD 1125 | No. 8<br>No. 9<br>No. 18 | 1.7505/1.7500    |
| 250101                            |  |                                  |   | Use Part Number 249260   |  |                          |                  |
| 250260                            | TXT1015A<br>TXT1024A                     |                                  | TXT 805<br>TXT 1015<br>TXT 1024<br>TXT 1215<br>TXT 1225 | TD 1015<br>TDT 1024<br>T 18<br>TDT 1215<br>TDT 1225              | TD 1015<br>TD 1024<br>TD 1215<br>TD 1225                               |                          | 1.7505/1.7500    |
| 252101                            | TXT209A<br>TXT215A<br>TXT225A            | TXT 305A                         | TXT 205<br>TXT 209<br>TXT 215<br>TXT 225<br>TXT 305     | T 12<br>T 13   |  | No. 13                   | .9706/.9696      |
| 254101                            |  |                                  |   | T 14   |  | No. 14                   | 1.1335/1.1325    |
| 255101                            |  |                                  |   |  |  | No. 15                   | 1.5405/1.5400    |
| 256101                            |  |                                  |   |  |  | No. 16                   | 1.7505/1.7500    |
| 257101                            |  |                                  |   |  |  | No. 17                   | 1.7505/1.7500    |
| 272259                            |  |                                  | TXT 905   | TDT 1325; T 19   |  |                          | 1.9370/1.9360    |
| 272293                            |  |                                  |   | TDT 1425<br>TDT 1530   |  |                          | 2.7495/2.7490    |

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MN1606 (Replaces 499838)



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