



Installation and Maintenance Manual

WorldWide Electric Corporation
"WSMR" Series Backstop Assemblies

*Suitable for use in WWE "Ultimate" series Shaft Mount Reducers only.

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WARNING: Because of the possible danger to person(s) or property from accidents which may result from 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 WorldWide Electric Corporation Gear Reducers Stock Products catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in this installation and maintenance manual 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 WorldWide Electric Corporation, nor the responsibility of WorldWide Electric Corporation. 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 risks 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.

Backstop Installation

WARNING: Failure to install a backstop assembly correctly can result in injury to personnel and/or destruction of the backstop assembly, the speed reducer and other property. Read all backstop installation instructions completely before installing a backstop assembly. Certain size speed reducers require the installation of a circlip (snap ring) on the input shaft for the purposes of keeping the backstop assembly from moving in an axial direction on the input shaft during speed reducer operation. Failure to install this circlip (snap ring) may result in backstop failure and can destroy the speed reducer.

WARNING TO ELECTRICIANS: Before powering up equipment that contains a shaft mount reducer containing an installed backstop assembly, disconnect the v-belts from the motor sheave and confirm the rotation direction of the motor. Applying power to the motor in a reverse direction against the free wheel direction of the backstop assembly will destroy the backstop assembly and possibly destroy the shaft mount reducer as well. Failure to comply with this instruction will void the manufacturer's warranty of the speed reducer and the backstop assembly and may result in injury to personnel or property.

WARNING: Use only WorldWide Electric Corporation WSMR#BSK style backstop assemblies in the "Ultimate" series shaft mount reducers. Do not use any other brand or style of backstop assemblies in these speed reducers. Using other brands or styles of backstop assemblies may result in backstop assembly failure and may result in injury to personnel or property. Using another manufacturer or style of backstop assembly in the "Ultimate" series shaft mount reducer will void the manufacturer's warranty of the speed reducer and the backstop assembly.

CAUTION: To avoid premature failure of the backstop or possible machine malfunction, installation of the backstop should be carried out by suitably qualified personnel and according to the following instructions:

Backstop Description

1. The main components of WSMR#BSK units are: Inner race (if applicable), outer race, a number of energized sprags and side plate.
2. The maximum permissible overrunning speed must not be exceeded.
3. When used in dual drive applications, the maximum driving speed must not be exceeded.
4. Backstops (cam clutches) are shaft mounted, so the shaft on which the clutch is mounted must be hardened to HRC 56-60 and 1.5 mm case depth after grinding. Grind to 1.5S (16 micro-inch) finish. The taper of this shaft should not exceed 0.01 mm per 50 mm.

Prior to Installation

1. The units should be unpacked and installed in a clean dry working environment.
2. For units dispatched 'dry', corrosion inhibitor should be removed using flushing oil prior to Installation.
3. The inner race should be fitted to a shaft of (-0.01mm to -0.025mm) tolerance if the unit is supplied with a metric bore. Details for each type are shown in the dimension tables on page 7.
4. The mounting register for the outer race should be within the housing bore (0mm to +0.03mm) tolerance. Details for each type are shown in the dimension tables on pages 7.
5. The freewheeling direction should be checked prior to installation (see Backstop Assembly Type and Rotation Illustrations below).
6. If reversal of the freewheeling direction is required, turn the backstop through 180 degrees.

Installation

1. The backstop (clutch) should be installed as an assembly. For backstops with an inner and outer race way, do not separate the two parts.
2. The inner race should be pulled on to the shaft. The key should be the full length of the hub.
3. **Warning:** Drain off the oil before opening the backstop mounting compartment.
4. Refer to Figures 1 – 3 for appropriate reducer size installation components.

Figure 1: For sizes WSMR2, WSMR3, WSMR4, WSMR5

1. Bolts
2. End cover
3. Backstop
4. Key
5. Gasket

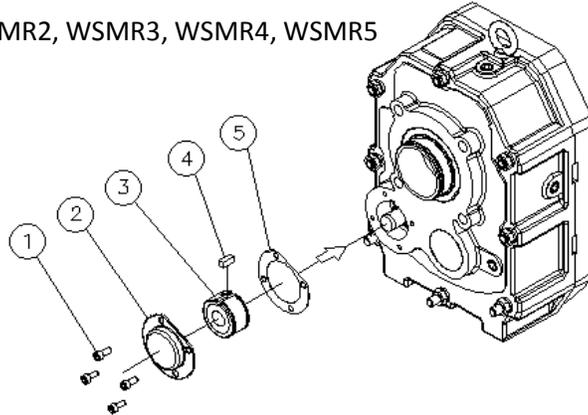


Figure 2: For sizes WSMR6, WSMR7, WSMR8

1. Bolts
2. Spring washer
3. End cover
4. C-clip (for #6 only)
5. Backstop
6. Key (inner)
7. Key (outer)
8. Gasket

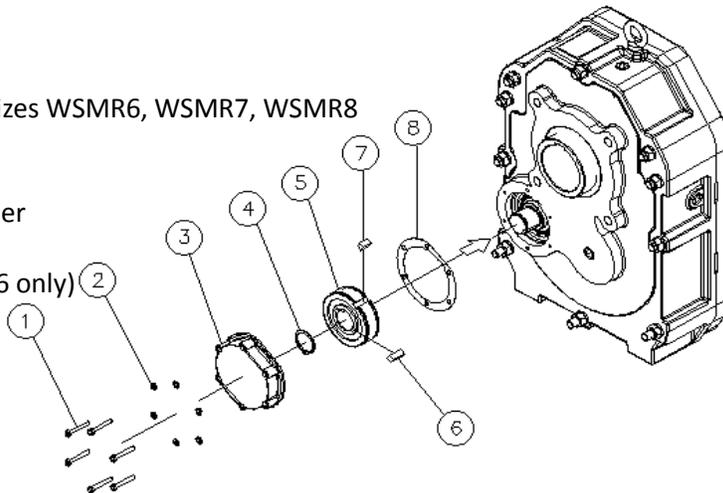
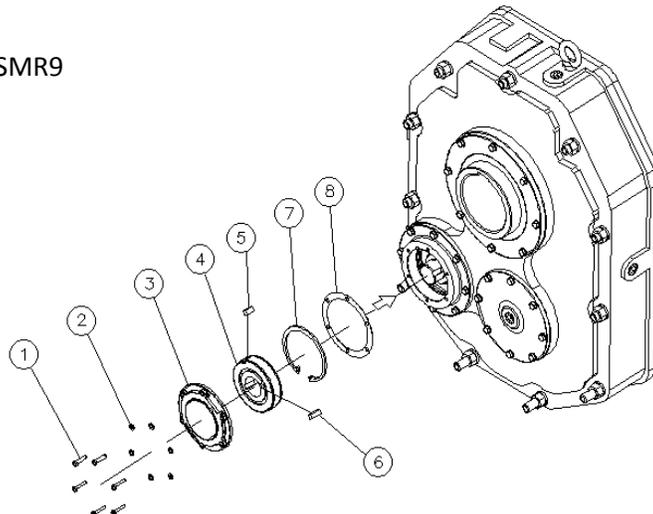
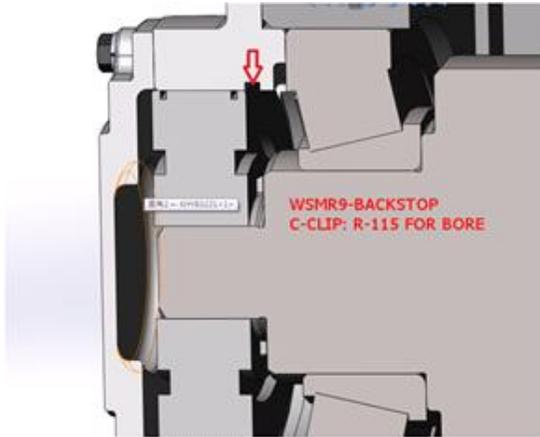


Figure 3: For size WSMR9

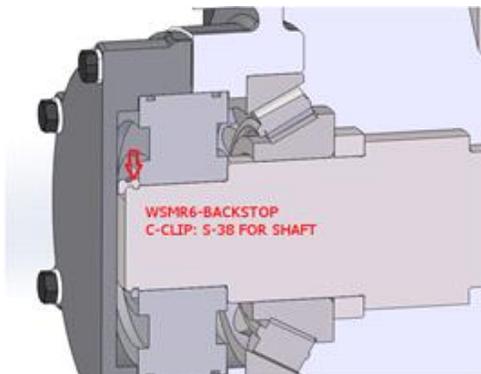
1. Bolts
2. Spring washer
3. End cover
4. Backstop
5. Key (outer)
6. Key (inner)
7. C-clip
8. Gasket



5. Remove end cover and gasket from gearbox.
6. For size 9 only WSMR's (WSMR9), put c-clip (snap ring) into the housing groove (see diagram below) before backstop insertion. The correct c-clip is supplied in the WSMR9BSK package. Be careful not to lose it when discarding WSMR9BSK packaging.



7. Determine the desired shaft rotation.
(WSMR#2~#5 backstops don't have an inner race. The rotation arrow is marked on the outer race, meaning the outer race's free direction; the shaft direction is opposite in other words. WSMR#6~#9 backstops have an inner race and the rotation arrow is marked on the inner race; meaning the inner race's free direction as well as the input shaft's free direction.) See Backstop Assembly Type and Rotation Illustrations below for further clarification on rotation directions.
8. The backstop should be mounted on the shaft by rotating it in the direction marked by the arrow shown on the backstop race. Do not apply shock to the backstop by hammering. The backstop may be tapped gently if necessary with a soft hammer (rawhide, not lead hammer).
9. For size 6 only WSMR's (WSMR6), to prevent axial movement of the WSMR6BSK after installation, a circlip (snap ring) must be placed onto the WSMR backstop mounting shaft after backstop insertion. A small groove is located on the backstop mounting shaft for insertion of the circlip. This groove is easily seen on the WSMR6 backstop mounting shaft after removal of the backstop cover. The correct c-clip is supplied in the WSMR6BSK package. Be careful not to lose it when discarding WSMR6BSK packaging.



10. Re-install the end cover and gasket.
11. Refill the gearbox with oil taking note of proper oil fill level based on gearbox mounting position.

After Installation

1. After installation, ensure smooth rotation of the units in the freewheeling direction by manually turning the input shaft of the reducer to confirm the desired direction of rotation.
2. Ensure the unit contains the correct volume of the lubricant prior to use.
3. The expected drag torque produced when freewheeling is about 1/1000 of the nominal torque.

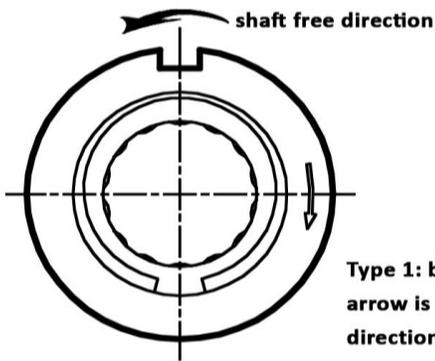
Dismantling

1. To dismantle the units, please follow the Installation section in reverse sequence.

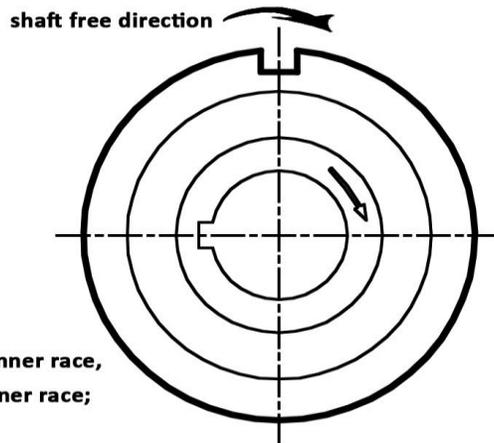
Lubrication and Maintenance of the Backstop Assembly

1. Type WSMR#BSK backstops are factory lubricated with oil.
2. The work temperature is between minus 20 degrees Celsius to plus 70 degrees Celsius.
3. The backstop can operate without maintenance.
4. If arduous conditions exist (i.e. high temperature/dusty conditions), the backstop should be re-lubricated very 3 to 6 months.
5. Do not use slip additives such as graphite, Molykote or similar agents in the oil and grease as they will shorten service life of the clutches.

Backstop Assembly Type and Rotation Illustration



Type 1: backstop with outer race, the rotation arrow is marked on the outer race; shaft free direction is opposite.



Type 2: backstop with outer race and inner race, the rotation arrow is marked on the inner race; shaft free direction is identical.

Model	Type	Outer Race	Inner Race	Input Shaft Free Direction	Output Shaft Direction
WSMR2BSK	1	with arrow mark	×	opposite to arrow mark	same as input shaft free direction
WSMR3BSK	1	with arrow mark	×	opposite to arrow mark	
WSMR4BSK	1	with arrow mark	×	opposite to arrow mark	
WSMR5BSK	1	with arrow mark	×	opposite to arrow mark	
WSMR6BSK	2	✓	with arrow mark	identical to arrow mark	
WSMR7BSK	2	✓	with arrow mark	identical to arrow mark	
WSMR8BSK	2	✓	with arrow mark	identical to arrow mark	
WSMR9BSK	2	✓	with arrow mark	identical to arrow mark	

Backstop Dimensions

					(mm)			
					Backstop			
Model	Housing	Tolerance	Input Shaft Diameter	Tolerance	Inner Diameter	Tolerance	Outer Diameter	Tolerance
WSMR2	φ62	+0.06 +0.03	24.65	0 -0.013	24.65	---	62	0, -0.019
WSMR3	φ47	+0.05 +0.03	18.8	0 -0.013	18.796	---	47	0, -0.016
WSMR4	φ62	+0.06 +0.03	22.57	0 -0.013	22.57	---	62	0, -0.019
WSMR5	φ80	+0.06 +0.03	30.8	0 -0.016	30.862	---	80	0, -0.019
WSMR6	φ100	+0.07 +0.04	38.1	0 -0.016	38.1	+0.021 +0	100	0, -0.03
WSMR7	φ100	+0.07 +0.04						
WSMR8	φ114.3	+0.07 +0.04	44.45	0 -0.02	44.45	+0.025 +0	114.3	0, -0.035
WSMR9	φ114.3	+0.07 +0.04						

Backstop Maximum Driving Speeds

Model #	Overrunning Limiting Speeds (rev/min)
WSMR2BSK	1260
WSMR3BSK	1370
WSMR4BSK	1310
WSMR5BSK	1130
WSMR6BSK	910
WSMR7BSK	910
WSMR8BSK	820
WSMR9BSK	820

Limited Warranty

Limited Warranty:

WorldWide Electric Corporation (The Company) warrants its products to be free from defect in materials or workmanship to the original purchaser for a period of one (1) year from the date of sale (invoice) for the "Ultimate" series shaft mount reducer. For this warranty to be effective, this product must be installed, used and maintained by the original purchaser in the accordance with good industry standards. The warranty does not cover normal wear, tear and erosion from use, misuse, abuse or corrosion.

In the event of failure, it shall be the responsibility of the original purchaser to notify The Company either in writing or by telephone to make arrangements for the correction of the problem. The purchaser shall be responsible for transportation charges connected with the return, exchange or repair of parts. Returns found defective upon inspection by our warranty department or authorized warranty service agent will be replaced free of charge.

The Company shall not be liable for any labor cost connected with the replacement of the equipment, the replacement of the parts or adjustments to the equipment by the purchaser or their contractor without The Company's prior written approval.

The Company, as the exclusive remedy under this warranty, shall at it's option, repair or replace defective items or, if agreed upon, refund the purchase price less reasonable allowance for depreciation in exchange for product.

THE COMPANY MAKES NO OTHER WARRANTIES AND ALL IMPLIED OR EXPRESSED WARRANTIES AND REPRESENTATIONS, EXCEPT THAT OF TITLE, ARE DISCLAIMED. ALL IMPLIED WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR USE BUT NOT LIMITED TO JUST THOSE THAT ARE DISCLAIMED. LIABILITY FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES AND LOSSES UNDER ANY AND ALL WARRANTIES WHETHER IN CONTACT, TORT OR OTHERWISE ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW.