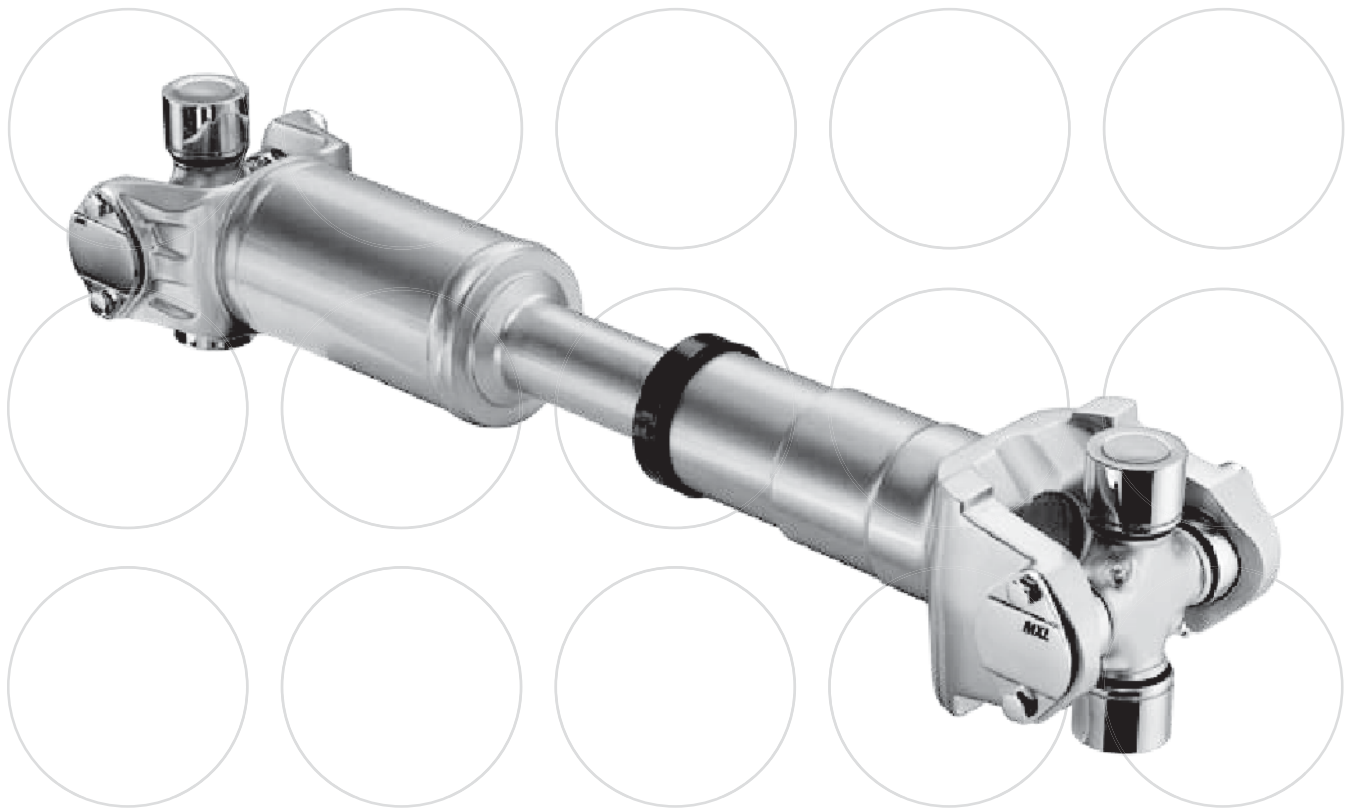


Maintenance Manual MM-0998

Meritor Xtended Lube MXL™ 17N, 176N and 18N Series Drivelines

Revised 07-10



Service Notes

About This Manual

This manual provides service and repair procedures for Meritor Xtended Lube MXL™ 17N, 176N and 18N Series drivelines.

Before You Begin

1. Read and understand all instructions and procedures before you begin to service components.
2. Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.
3. Follow your company's maintenance and service, installation, and diagnostics guidelines.
4. Use special tools when required to help avoid serious personal injury and damage to components.


Hazard Alert Messages and Torque Symbols

WARNING

A Warning alerts you to an instruction or procedure that you must follow exactly to avoid serious personal injury and damage to components.

CAUTION

A Caution alerts you to an instruction or procedure that you must follow exactly to avoid damage to components.

 This symbol alerts you to tighten fasteners to a specified torque value.

How to Obtain Additional Maintenance and Service Information for Meritor MXL™ 17N, 176N and 18N Series Easy Service™ and Full-Round Drivelines

Refer to Maintenance Manual MM-96147, Drivelines; and Maintenance Manual 1, Preventive Maintenance and Lubrication. To obtain these publications, visit Literature on Demand at arvinmeritor.com.

Literature on Demand DVD (LODonDVD)

The LODonDVD contains product, service and warranty information for ArvinMeritor components. To order the DVD, visit Literature on Demand at arvinmeritor.com and specify TP-0742.

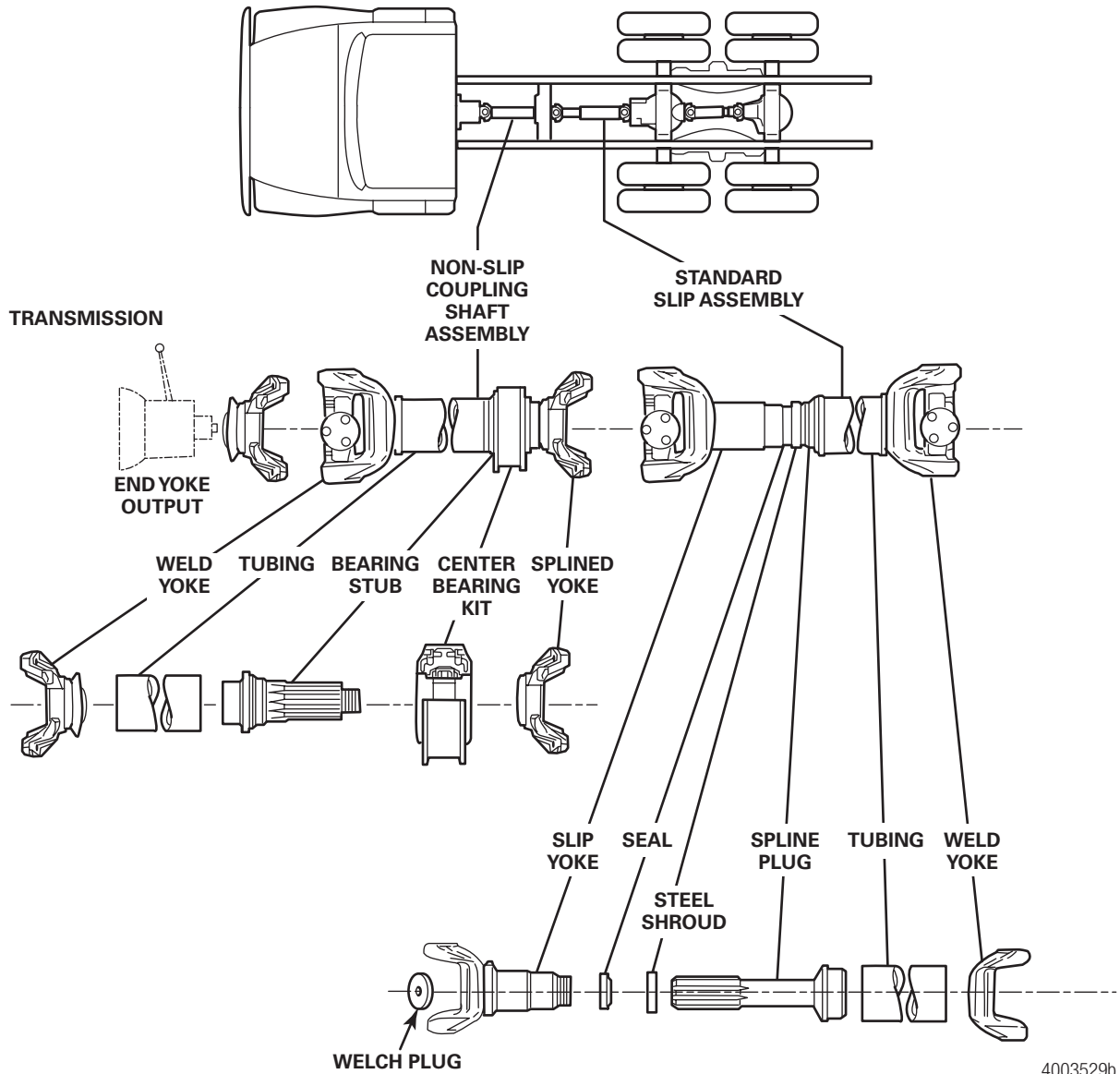
Information contained in this publication was in effect at the time the publication was approved for printing and is subject to change without notice or liability. Meritor Heavy Vehicle Systems, LLC, reserves the right to revise the information presented or to discontinue the production of parts described at any time.

pg. 1	Section 1: Drivelines Components
3	Section 2: Introduction Description Meritor Xtended Lube MXL™ 17N, 176N and 18N Series Drivelines Meritor Full-Round and Easy Service™ (Greaseable)
4	Section 3: Removal and Disassembly Removal Driveline Universal Joint Disassembly Slip Yoke
6	Section 4: Assembly and Installation Assembly Slip Yoke
7	Installation Universal Joint Driveline
9	Section 5: Lubrication Universal Joint Slip Yoke Splines
10	For Removal, Installation and Lubrication Procedures for Meritor Easy Service™ and Full-Round 17N, 176N and 18N Series Drivelines Lubrication Intervals for Meritor Easy Service™ and Full-Round RN Series and Xtended Lube MXL™ Series Drivelines

Components

TYPICAL DRIVE LINE SYSTEM

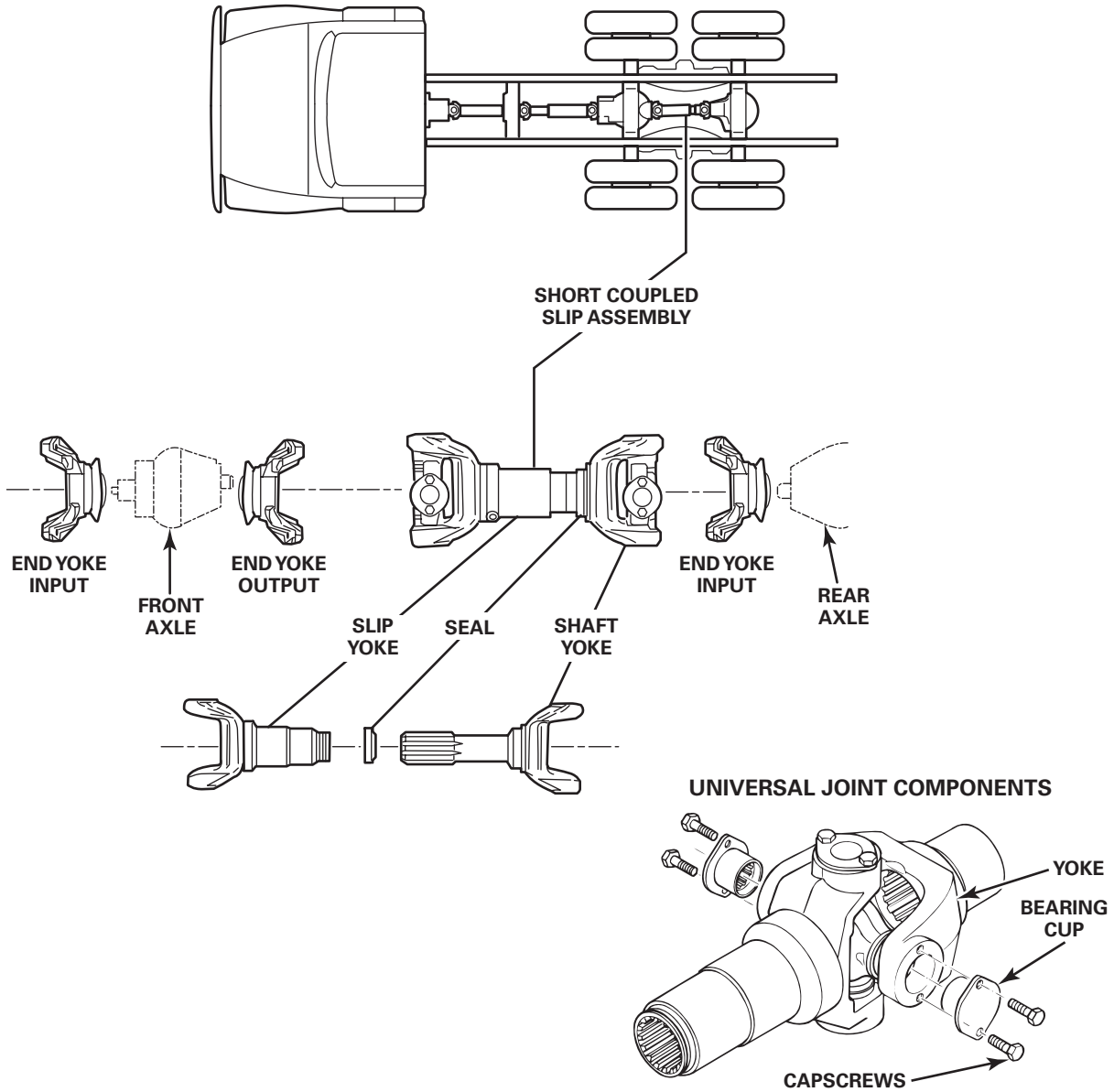
NOTE: Series shown are for illustration only.



1 Drivelines

TYPICAL DRIVELINE SYSTEM

NOTE: Series shown are for illustration only.



4007952a

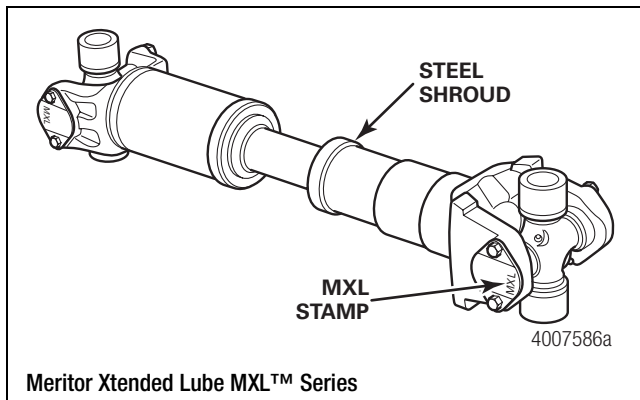
Description

Meritor Xtended Lube MXL™ 17N, 176N and 18N Series Drivelines

The Meritor Xtended Lube MXL™ 17N, 176N and 18N Series drivelines have extended lubrication intervals for both the slip sections and universal joints at 100,000 miles (160 000 km) for linehaul applications.

How to Identify an Xtended Lube MXL™ Series Driveline

- The slip yoke seal includes a protective steel shroud to improve sealing and retain seals securely in place. Figure 2.1.
- The universal joint cover plates are stamped “MXL.” Figure 2.1.



Meritor Xtended Lube MXL™ Series

Figure 2.1

Meritor Full-Round and Easy Service™ (Greaseable)

The Full-Round, Figure 2.2, and Easy Service™, Figure 2.3, greaseable drivelines require periodic lubrication of the universal joints and slip yoke splines.

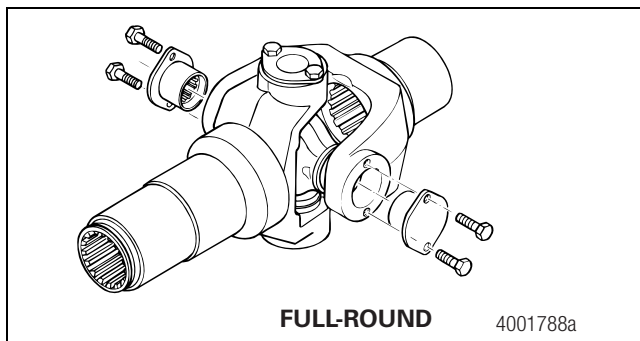


Figure 2.2

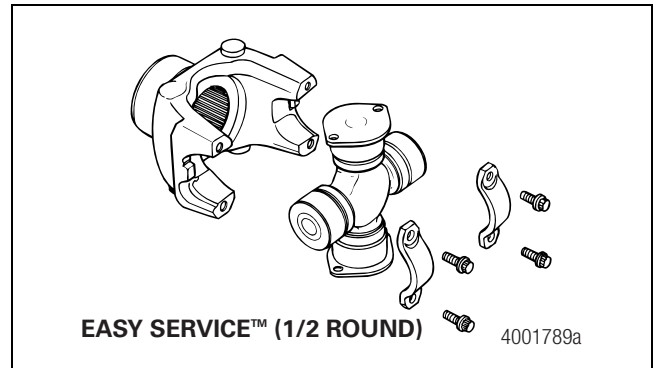


Figure 2.3

3 Removal and Disassembly

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠ WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

Removal

Driveline

1. Park the vehicle on a level surface. Block the wheels to keep the vehicle from moving. Raise the vehicle so that the area you will service is off the ground. Support the vehicle with safety stands.
2. Loosen and remove the capscrews from the end yoke bearing cups.
3. Remove the first bearing cup. If necessary, use a bearing puller to remove the bearing cup from the yoke bore. Figure 3.1.

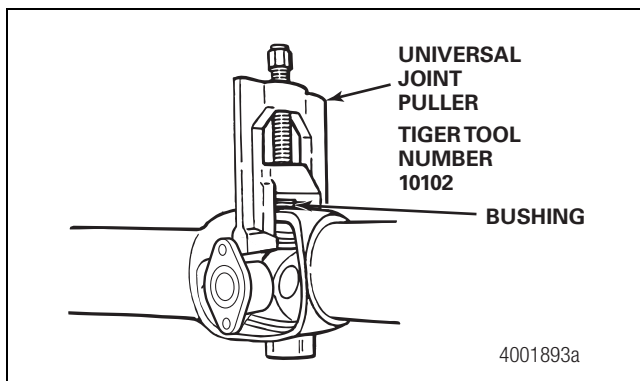


Figure 3.1

4. Remove the second bearing cup. Figure 3.2.

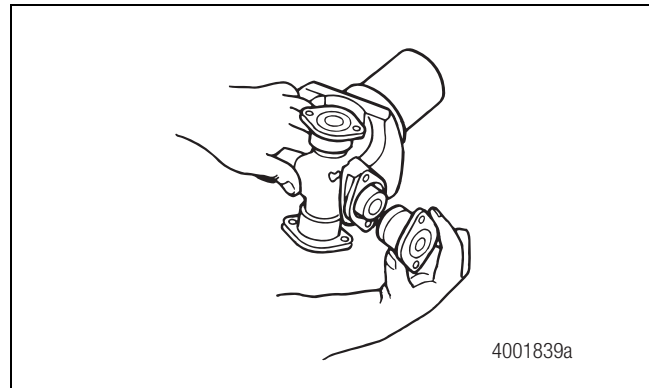


Figure 3.2

NOTE: Support the driveline when you remove it from the end yoke.

5. Slide the yoke to one side until you can work a trunnion free from the yoke bore.
6. Slide the yoke in the OPPOSITE direction while removing the universal joint from the end yoke.
7. Repeat Step 2 to Step 6 to separate the slip yoke end of the driveline.

Universal Joint

1. Loosen and remove the capscrews from the two remaining bearing cups on the yoke end of the driveline.
2. Remove the bearing cups. If necessary, use a commercial bearing puller to remove the bearing cups from the yoke bores.
3. Work the trunnions free of the yoke bores. Remove the universal joint cross from the weld yoke.
4. Repeat Step 1 to Step 3 to remove the universal joint cross from the slip yoke.

Disassembly

Slip Yoke

⚠ WARNING

Use a brass or synthetic mallet for assembly and disassembly procedures. Do not hit steel parts with a steel hammer. Pieces of a part can break off. Serious personal injury and damage to components can result.

1. Use a brass or copper hammer and a drift to tap the shroud off the slip seal. Be careful not to damage the shroud. Figure 3.3.

3 Removal and Disassembly

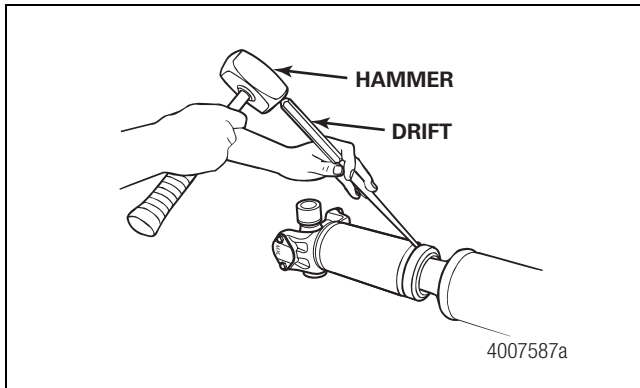


Figure 3.3

2. Use a screwdriver to pry the seal out of the groove in the slip yoke. Figure 3.4.

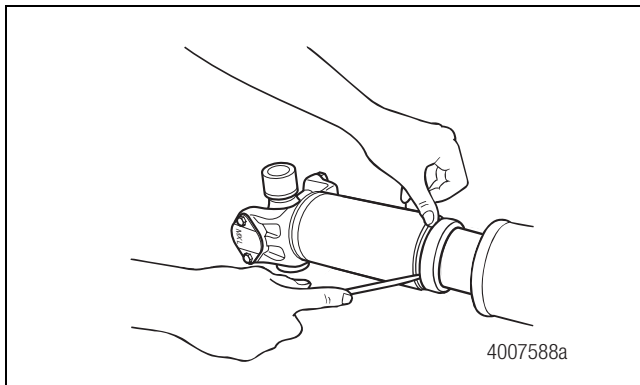


Figure 3.4

3. Mark the slip yoke and slip shaft sections to ensure that you reassemble them into their original positions. Figure 3.5.

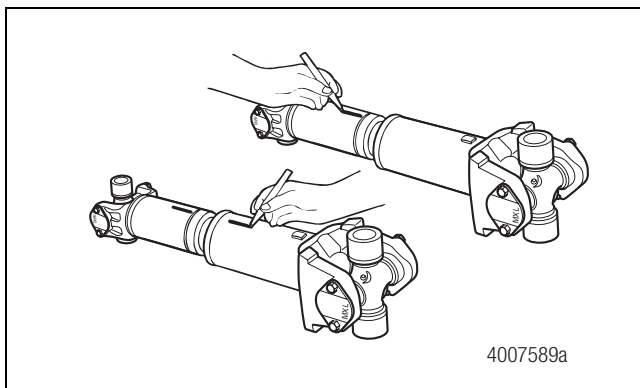


Figure 3.5

4. Pull the slip yoke and slip shaft sections apart. Figure 3.6.

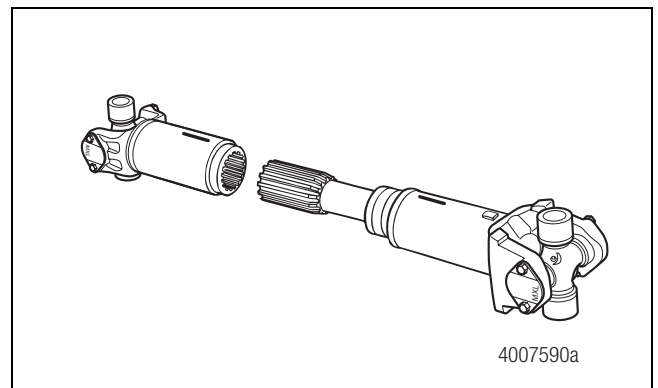


Figure 3.6

5. Remove the seal. Figure 3.7. Remove the shroud. Figure 3.8.

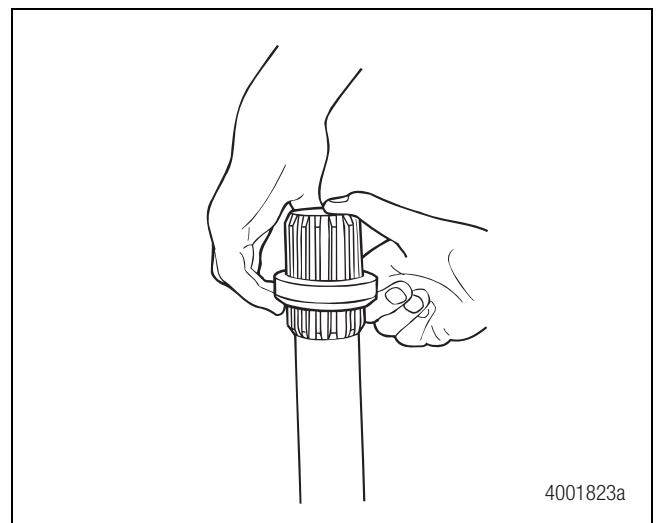


Figure 3.7

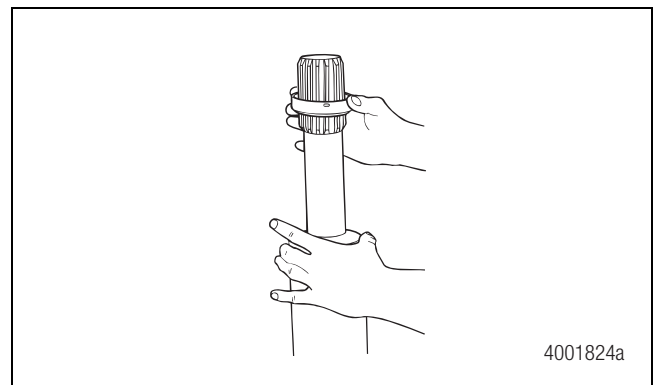


Figure 3.8

4 Assembly and Installation

Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠ WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

Assembly

Slip Yoke

1. Install the new shroud. Figure 4.1.

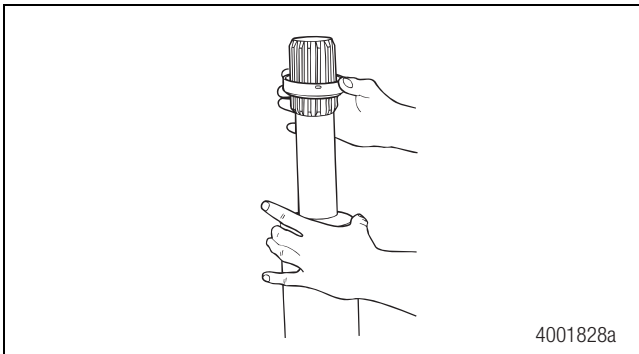


Figure 4.1

2. Install the new seal onto the spline shaft neck. Ensure that the seal is installed with the SMALL diameter side facing DOWN for correct installation. Figure 4.2.

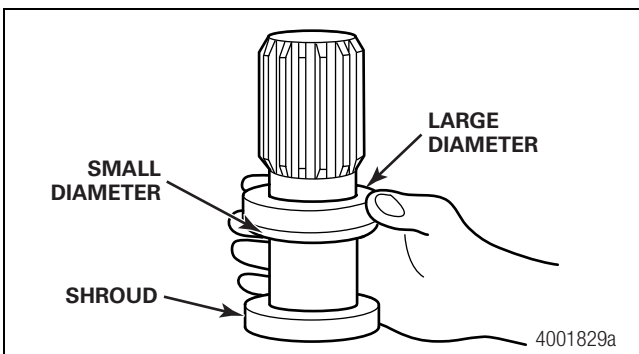


Figure 4.2

3. Align the slip yoke and spline shaft sections with the phasing marks you made on these sections during disassembly. Figure 4.3.

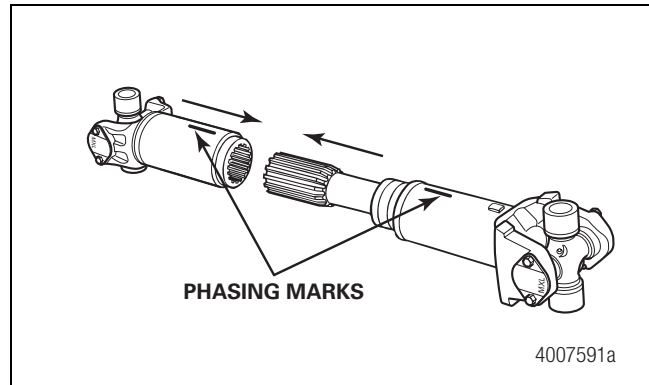


Figure 4.3

4. Install the spline shaft into the slip yoke until the splines fully engage. Figure 4.3.
5. Snap the seal into the groove. Figure 4.4.

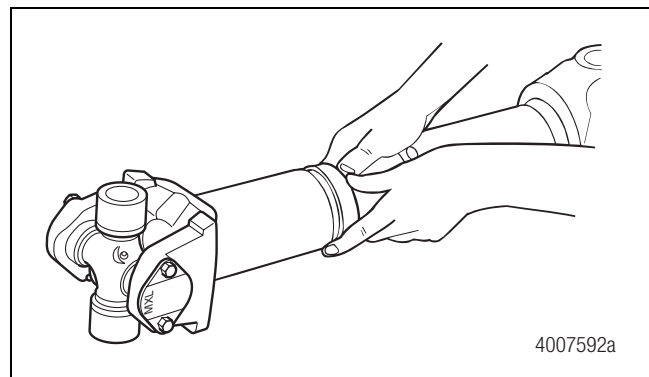


Figure 4.4

6. Verify that the seal has been correctly installed on the slip yoke by rotating the seal. When the seal is installed correctly, the seal will rotate easily.
 - **If the seal does not rotate easily:** Remove the seal and reinstall it.
7. Install the steel shroud over the seal by hand. Figure 4.5.
 - **If it appears that a mallet is needed to install the shroud:** It is likely the seal has not been installed correctly. Repeat Step 6.

4 Assembly and Installation

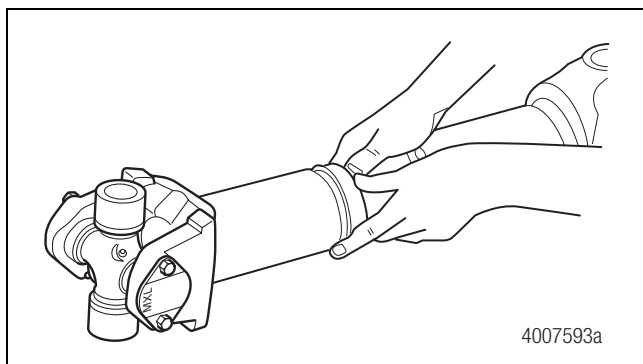


Figure 4.5

8. Push together the driveline sections. Figure 4.6.

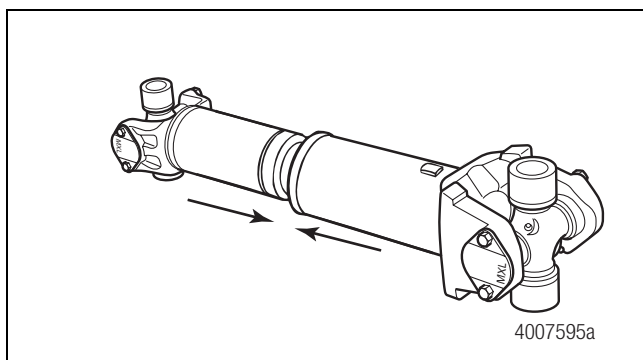


Figure 4.6

Installation

Universal Joint

⚠ WARNING

Use a brass or synthetic mallet for assembly and disassembly procedures. Do not hit steel parts with a steel hammer. Pieces of a part can break off. Serious personal injury and damage to components can result.

1. Install the universal joint cross into the yoke.
2. Install the two bearing cups through the yoke bores and onto the universal joint cross trunnions. If necessary, use a copper or brass hammer to tap the bearing caps until they are fully seated.
3. Hand-tighten the capscrews through the bearing cover plate and into the slip yoke.
4. Use a torque wrench to alternately tighten the capscrews to the correct specifications. Refer to Table A.

5. Repeat Step 1 to Step 3 to install the universal joint cross into the weld yoke.

Driveline

1. Wipe off the end yoke bearing bores. Insert the trunnion through the yoke bore.
2. Check the bearing cup to ensure that the needle bearings are in place. Replace the bearing cup when the needle bearings are missing or out of place.
3. Hold the cross. Use a copper or brass hammer to lightly tap the bearing cup completely into the yoke bore. Figure 4.7.

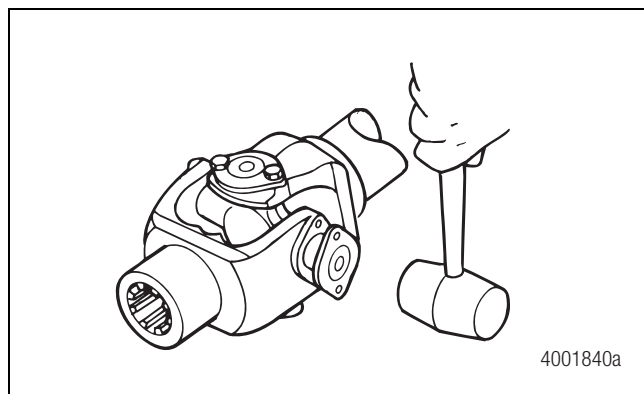


Figure 4.7

4. Align the cover plate holes and the yoke ear. Figure 4.8. Install the bearing cover plate flush against the milled surface of the yoke.

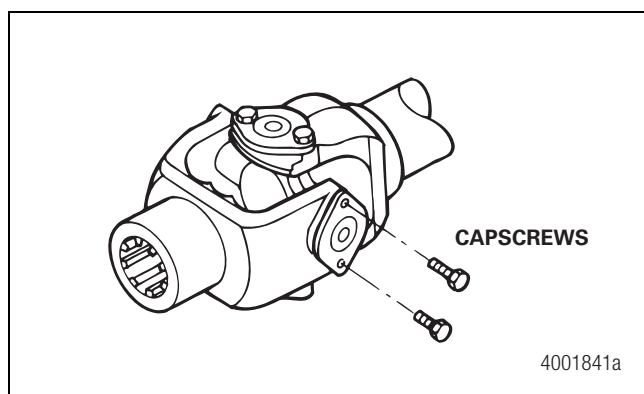


Figure 4.8

5. Install new capscrews and hand-tighten them through the bearing cover plate and into the yoke.

4 Assembly and Installation

6. Repeat Step 2 to Step 5 to install the second bearing cup.
 - **If the cover plate will not seat flush against the yoke surface:** Remove each bearing cup from the yoke bore. Check the bottom of each bearing cup. If you find a needle bearing, replace the bearing cup.
7. Use a torque wrench to alternately tighten the capscrews to correct specifications. Refer to Table A. Figure 4.9.

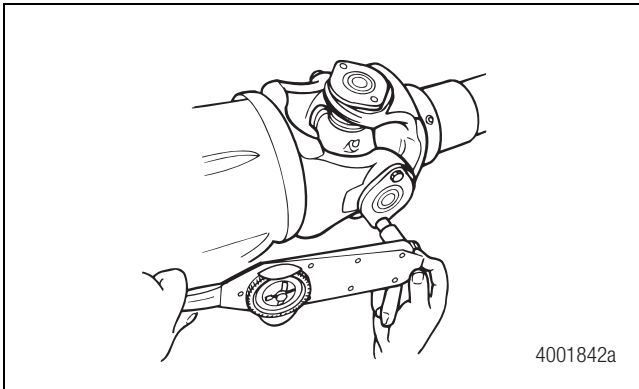
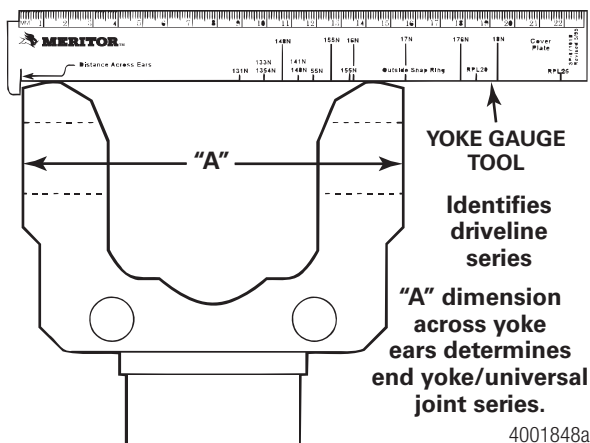


Figure 4.9

Table A: Torque Specifications — Full-Round

Driveline Series	"A" Inches (mm)	Thread Size Inches	Torque Specs lb-ft (N•m)
16N	5.31 (134.87)	5/16-24	26-35 (35-47)
17N	6.09 (154.69)	3/8-24	38-48 (51-65)
176N	7.00 (177.8)	3/8-24	38-48 (51-65)
18N	7.55 (191.77)	3/8-24	38-48 (51-65)



Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

⚠ WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

Universal Joint

After installation into the end yokes, lubricate the universal joints at the grease fitting until grease flows from the bearing cup seals on all four trunnions. Use Meritor grease specification O-634-B, NLGI Grade 2 with EP additive. Figure 5.1.

- **If grease does not purge from the seals:** Follow the steps below.

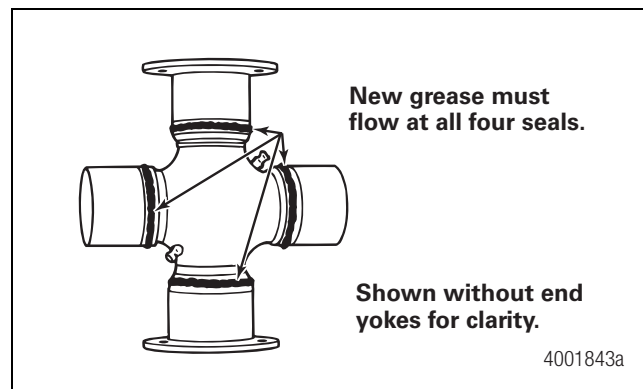


Figure 5.1

1. Move the assembly UP-AND-DOWN or SIDE-TO-SIDE while you apply grease gun pressure. Figure 5.2.

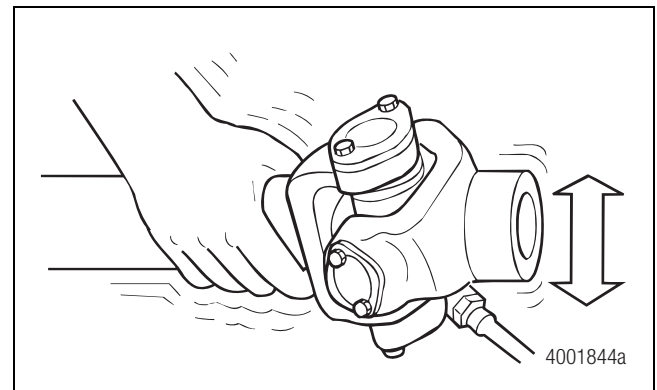


Figure 5.2

2. Loosen the bearing cup capscrews. Add grease until grease purges from the seals.
 - **If grease still does not purge from all four trunnion seals:** Remove the universal joint and correct the problem.
 - **If you cannot determine the problem:** Replace the universal joint.
3. Tighten the capscrews. Refer to Table A. ⚠

Slip Yoke Splines

NOTE: To ensure correct and adequate lubrication of the splines, the slip assembly should be fully collapsed or nearly fully collapsed before applying grease.

Add Meritor specification O-634-B, NLGI Grade 2 with EP additive to the slip yoke grease fitting as shown in Figure 5.3.

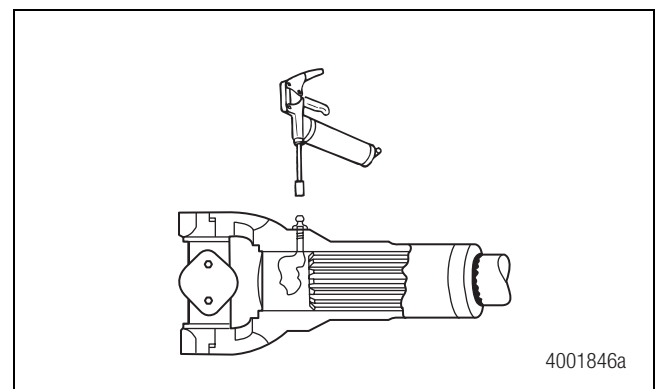


Figure 5.3

The amount of grease will vary with the driveline series. To avoid purging excess grease through the slip yoke Welch plug when the assembly is fully collapsed, follow the recommendations in Table B.

5 Lubrication

Table B

Driveline Series	Grease Volume	Number of Pumps
17N	0.7 oz (20 grams)	4-6
176N	0.7 oz (20 grams)	4-6
18N	1.1 oz (30 grams)	6-8

For Removal, Installation and Lubrication Procedures for Meritor Easy Service™ and Full-Round 17N, 176N and 18N Series Drivelines

Refer to Maintenance Manual MM-96147, Drivelines. To obtain this publication, refer to the Service Notes page on the front inside cover of this manual.

Lubrication Intervals for Meritor Easy Service™ and Full-Round RN Series and Xtended Lube MXL™ Series Drivelines

Table C: Lubrication Intervals

Application	MXL* 17N-18N	RN 155N-18N
City	25,000 miles (40 000 km) or 6 months	6,500 miles (10 400 km)
On Highway	100,000 miles (160 000 km)	16,000 miles (25 000 km)
Linehaul	100,000 miles (160 000 km)	50,000 miles (80 000 km)
Construction	The greasing interval depends on the individual conditions, speed and loads. To determine the interval, inspect for the presence of grease at all positions until an interval can be determined. Grease the assembly as necessary.	

*Xtended Lube MXL™ Series drivelines are identifiable from RN drivelines in the following two ways. (1) The slip yoke seal includes a protective steel shroud. (2) The universal joint cover plates are stamped with MXL™.

Meritor RPL25/20 Series drivelines are permanently lubricated. No greasing is required.

Table D: Approved Lubricants

Lubricant	Recommendation
Universal Joint Grease	Must meet Meritor Specification O-634-B (NLGI Grade 2, Lithium 12-Hydroxy Stearate with Molybdenum Disulfide)
	Amalie All Purpose Grease with Moly-L1-2M
	Exxon 5160
	Shell Super Duty Special FF
	Marathon Maralube Molycode 529
	Phillips Petroleum Philube MW-EP2 Grease
	Shell Moly Poly Grease
	Kendall L424 Grease
	Amoco Super Chassis Grease
	Ford Specification M1C-75B or part number PN-C1AZ 19590

Meritor Heavy Vehicle Systems, LLC

2135 West Maple Road

Troy, MI 48084 USA

866-OnTrac1 (668-7221)

arvinmeritor.com

Copyright 2010
ArvinMeritor, Inc.

Printed in USA

Revised 07-10
Maintenance Manual MM-0998 (16579)

ArvinMeritorTM