Reliability Driven™

Service Bulletin No. 427

MODEL	TYPE	SECTION/GROUP	DATE
D / J4500 Series	Field Change Program	1/2-Axle	Aug. 25, 2015

SUBJECT

ZF LOWER SEAL CARRIER ON KING PIN MOUNT

CONDITIONS

Customer Complaint:

ZF Friedrichshafen AG ("ZF") has notified Motor Coach Industries ("MCI") that as a result of ZF field inspections, the lower die-cast aluminum seal carrier of the front and trailing (tag) axle king pin mount has exhibited signs of premature wear.

Replacing the die-cast aluminum seal carrier with a steel carrier will improve the wear resistance of the installation.

Cause:

Vendor installation.

Corrective Action:

MCI strongly encourages owners of the D / J4500 coaches listed in the table to implement the steps in this procedure as soon as possible:

12920	13151	13293	13311	13357
66554	66748	66796 to 66798	66823 to 66824	66826
66841 to 66842	66844	66960	67000 to 67311	

Service Inspection

ZF recommends that your affected coach(es) be inspected until the die-cast aluminum seal carriers have been replaced.

ZF strongly recommends that your company immediately conduct visual inspections for potential damage to the lower seal carrier. **Inspections should be conducted every 3 months / 12,000 miles** on each affected coach until the lower seal carriers have been replaced. Replacement seal carriers will be made available as promptly as possible.

Parts

Qty.	Old P/N	New P/N	Description
4		4474 298 368	Seal Carrier Kit, Lower
a/r		23-01-0045	Grease
a/r		0501-213-690	Shear Adapter
a/r		0501-324-804	ABS Sensor Bush
a/r		0501-321-356	Cable Clip, Speed Sensor Harness

Service Procedure:

WARNING

Read this entire procedure before beginning work.

Use Safe Shop Practices At All Times.

1. Turn the main battery disconnect switch to the OFF position.
2. Remove and retain the front and tag axle hub cover and lug nut covers from both sides of the front and tag axle wheels (as applicable per coach series). Carefully place aside to be re-installed at a later step in this procedure.
3. Position the lift to the coach as shown in Figures 1 and 2 on Pages 4 or 5 of this document.
4. Before the tire is completely off the ground, partially loosen the flanged wheel nuts.
5. Lift the coach to desired work height. Position safety stands underneath the coach in only the specified locations shown in Section 3F in the MCI J4500 Maintenance Manual and Sections 3F and 3G in the MCI D Series Maintenance Manual (as shown in Figures 1 and 2 on Pages 4 or 5 of this document).

WARNING

To avoid personal injury, use caution when loosening the wheel nuts and when lifting the wheel off the hub as wheel and tire assemblies weigh more than 200 lbs.

WARNING

DO NOT place safety stands in any other location than shown in this procedure and Section 3F in the MCI J4500 Maintenance Manual and Sections 3F and 3G in the MCI D Series Maintenance Manual.

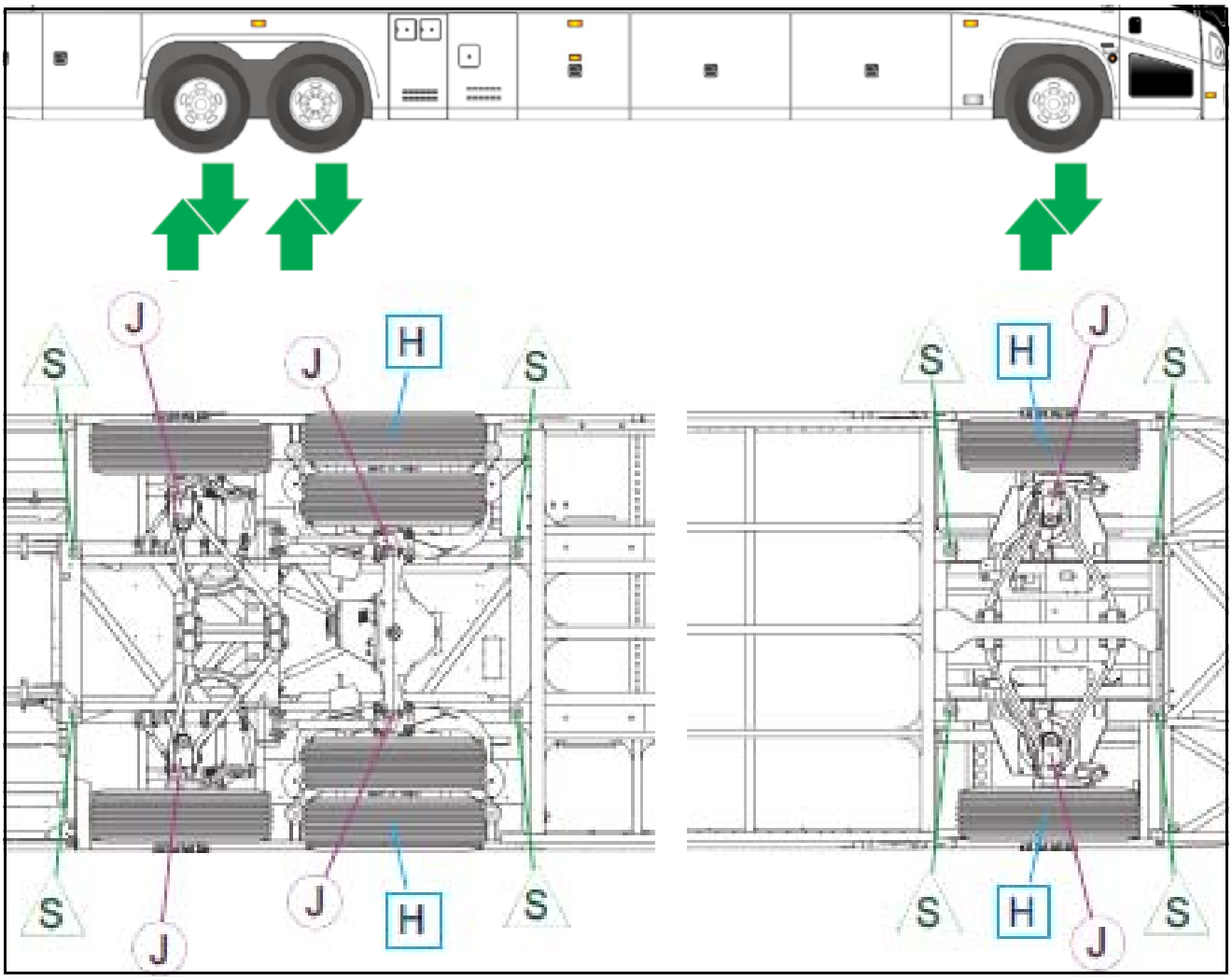


Figure 1. J4500 coach hoisting and safety stands location.

Item	Figure 1 Description
S	Safety Stand (Primary locations)
J	Jacking Point
H	Hoisting Point

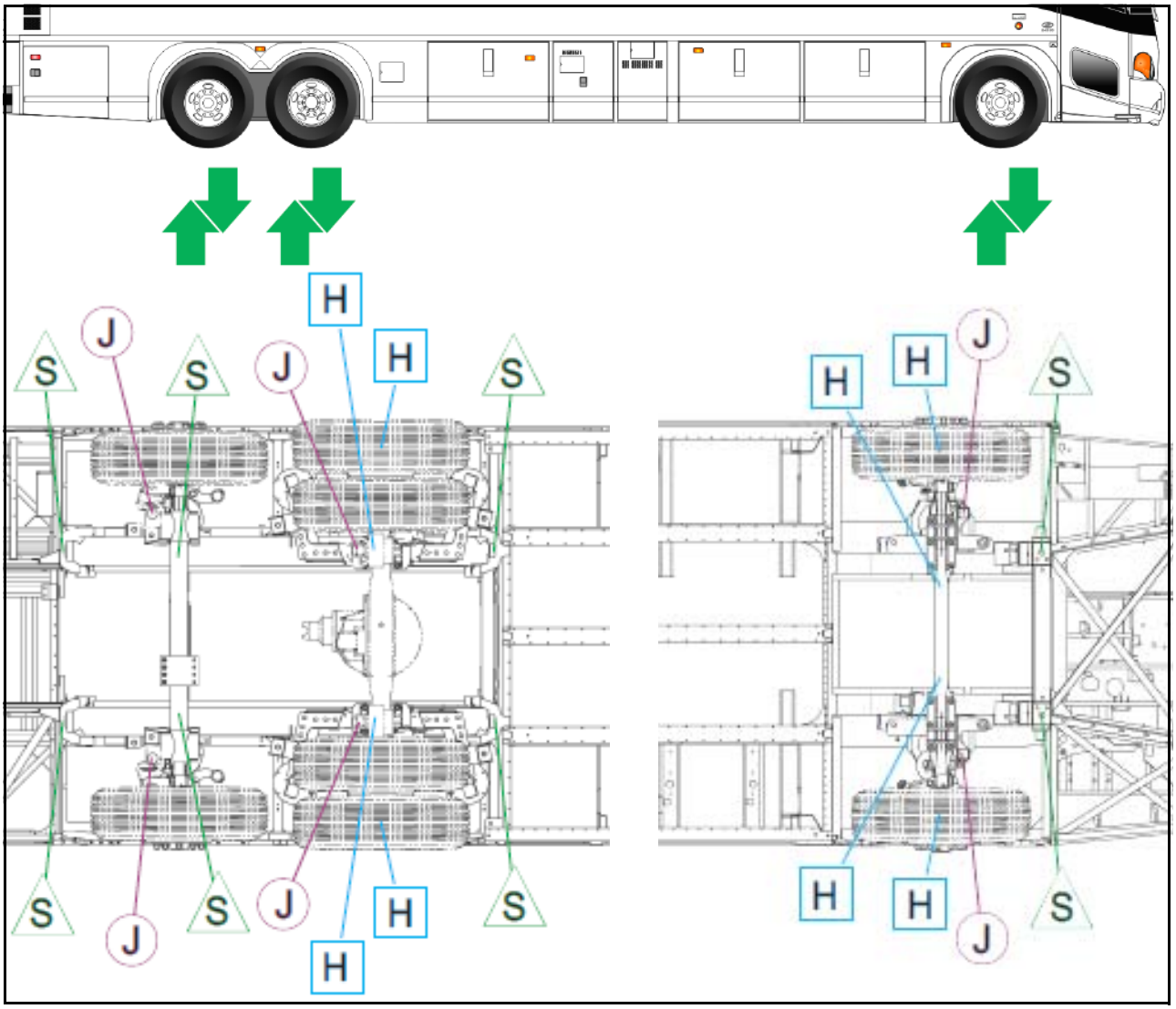


Figure 2. D Series coach hoisting and safety stands location.

Item	Figure 2 Description
S	Safety Stand (Primary locations)
J	Jacking Point
H	Hoisting Point

6. Proceed with Step 1 of the attached ZF Replacement of Lower Seal Carrier on Kingpin Mounting Procedure, following all warnings and cautions therein.
7. Upon completion of the attached ZF ZF Replacement of Lower Seal Carrier on Kingpin Mounting Procedure, position the front and tag axle wheels to their original installation location beside the coach.

NOTICE

Ensure that the wheel is squarely mounted against the hub prior to fully tightening the wheel nuts.

WARNING

To avoid personal injury, use caution when lifting the wheel on the hub as wheel and tire assemblies weigh more than 200 lbs.

8. Re-install the front and tag axle wheels. Using a calibrated torque wrench, torque wheel nuts to 450-500 ft-lbs. using a criss-cross sequence.
9. Re-install the front and tag axle hub cover and lug nut covers (as applicable per coach series).
10. Perform a road test on the coach.
11. Using a calibrated torque wrench, re-torque wheel nuts to 450-500 ft-lbs. using a criss-cross sequence.

Procedure Complete.

Mail or fax the completed limited warranty claim form and verification form to MCI's warranty department, or photo-copy and mail to:

MCI Fleet Support
Attn: Warranty Department
7001 Universal Coach Drive
Louisville, KY 40258
Fax Number 1-800-360-8886

to receive credit for the hours used to complete this task. Contact the MCI Fleet Support Technical Center at 1-800-241-2947 for any further information.

Field Change Program Conditions:

The parts required for this change will be supplied without charge.

Specialized equipment may be required to perform this campaign.

A labor allowance of 1.0 hour per side per axle, total of 4.0 hours per coach, will be granted for the procedure of replacing the front and tag axle lower die-cast aluminum seal carrier on affected D Series and J4500 Series coaches.

This labor allowance will be credited to your MCI Fleet Support Parts Account on receipt of the attached "MCI Field Change Program Verification Form" and a "Warranty Claim Form" as detailed in your Owner Warranty manual to MCI's Warranty department. A "MCI Field Change Program Verification Form" needs to be submitted for each VIN affected. Photocopy the attached "MCI Field Change Program Verification Form" as required for the number of affected coaches in your fleet.

Motor Coach apologizes for any inconvenience resulting from this campaign, but urges you to implement this change as soon as possible.

Sincerely,

Motor Coach Industries

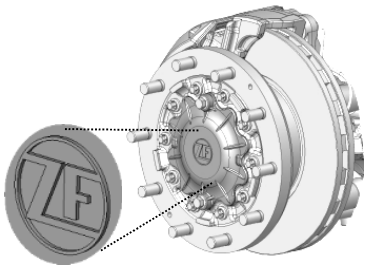
File	7
Type:	RL allgemein
Consecutive no.:	40/15e
Date:	3.8.2015

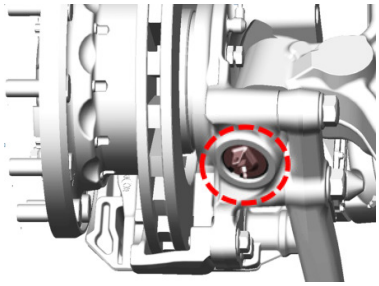
Service Information

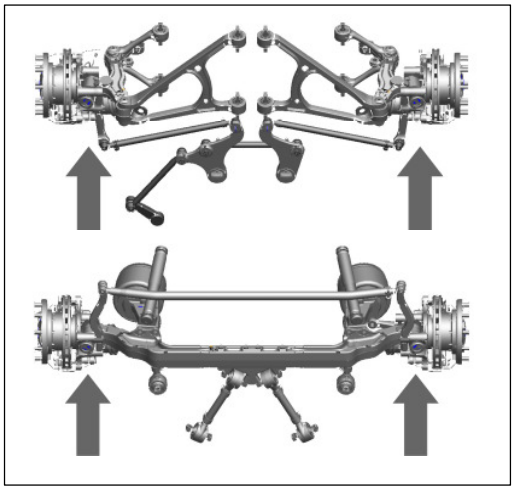
Important field retrofitting action:
Replacement of lower seal carrier on kingpin mounting in ZF steering knuckle with ZF wheel head of the series RL 80 A/E/EM by steel version

During the course of field inspections ZF became aware of signs of wear on the lower seal carrier of the kingpin mount which could lead to a potential seal carrier failure, if the instructions below are not observed. For this reason we consider it necessary to replace the lower die cast seal carrier with a steel seal carrier within **3 months / 12,000 Miles** (whatever occurs first) at a service in the workshop (see paragraph 1).
A delay in implementing requires the lower seal carrier to be cleaned and checked for possible damages at least every **3 months / 12,000 Miles** (see paragraph 2).
After the modification to steel seal carrier, an inspection shall be made within the specified service intervals according to TE-ML 12. Service interval: 1 year / maximum 50,000 Miles whatever occurs first (see paragraph 2). Affected are all axles with ZF wheel head, visible due to ZF-Logo on hub cover (see picture below), until assembly week 26/2015. Parts lists involved see page 4!

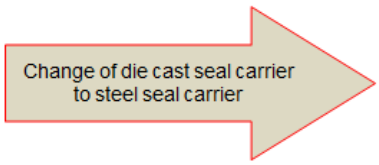
1. Replacement of lower sealing holder







The originally installed lower seal carrier must be replaced by a steel seal carrier (ZF repair kit: 4474.298.368).

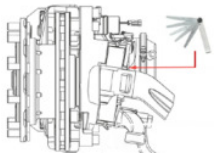


Grease fitting tightening torque: 15 Nm

ZF Friedrichshafen AG
ZF Services
Donaustr. 71
D- 94034 Passau
Germany
Phone +49 851 494-0
Fax +49 851 494905000

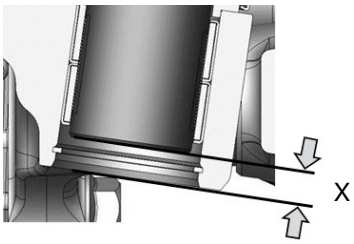
Service Information

Should the mounting not be possible due to insufficient clearance between kingpin and seal carrier, the axial play should be checked acc. to ZF Service Information SI 85/11 first.

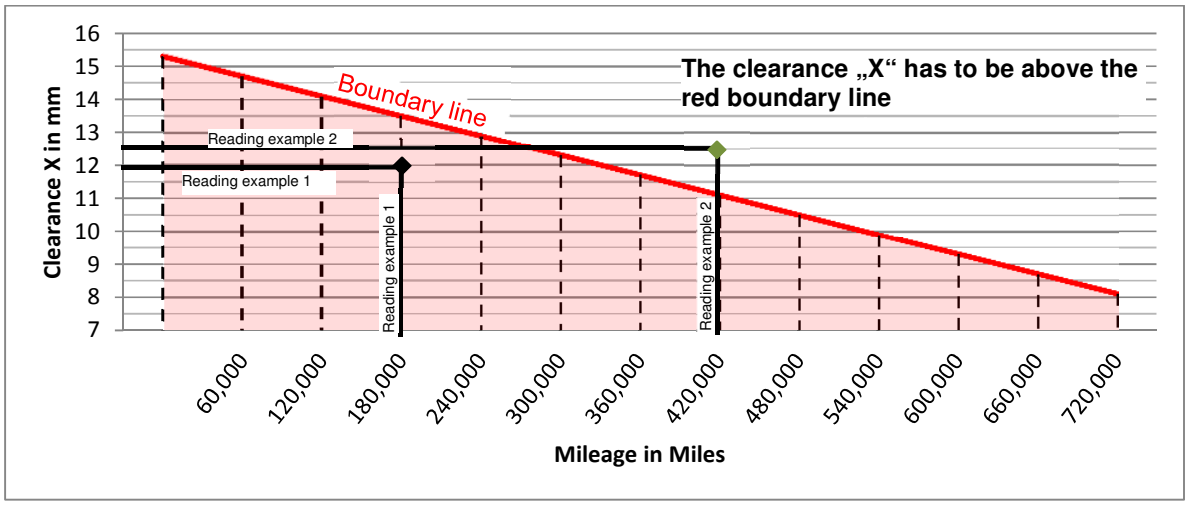


Specified value:
≤ 1,3 mm

If no irregularities are found, the clearance „X“ between kingpin and bottom knuckle edge has to be checked.



The measured clearance „X” has to be above the red boundary line according following diagram.



<u>Reading example 1</u>: Vehicle mileage 180.000 Miles / Clearance “X” 12,0 mm

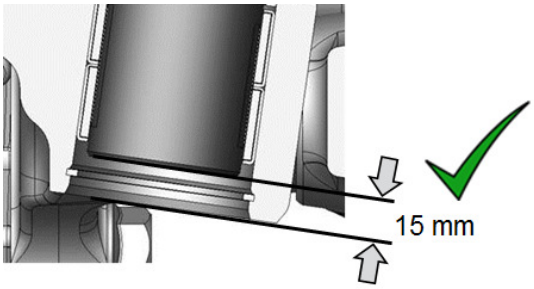
If the measured clearance “X” is below the red boundary line (acc. Reading example 1) the kingpin has to be exchanged using ZF repair kit No. 4474.298.384. It has to be assured that the axial play is below 1,3 mm (acc. RS 85/11).
In case of non-availability of ZF repair kit No. 4474.298.384, ZF repair kit 4474.298.368 has to be installed. After availability of 4474.298.384 the king pin has to be changed in a second repair.

<u>Reading example 2</u>: Vehicle mileage 420.000 Miles / Clearance “X” 12,5 mm

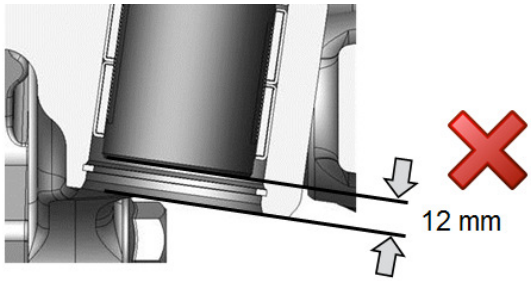
If the measured clearance “X” is above the red boundary line (acc. Reading example 2), however the steel seal carrier cannot be mounted, the kingpin shall be pressed back into the specified position of X = 16,0 – 20,0 mm. It has to be assured that the axial play is below 1,3 mm (acc. RS 85/11).

Service Information

Example clearance "X" at vehicle mileage of 180.000 Miles, validation according above diagram:



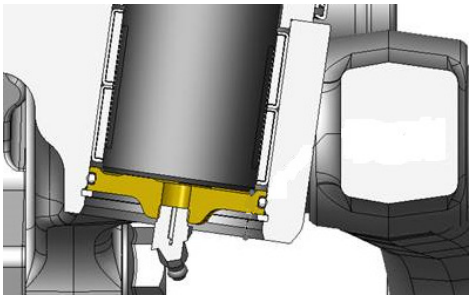
Clearance „X" OK
Mount steel seal carrier



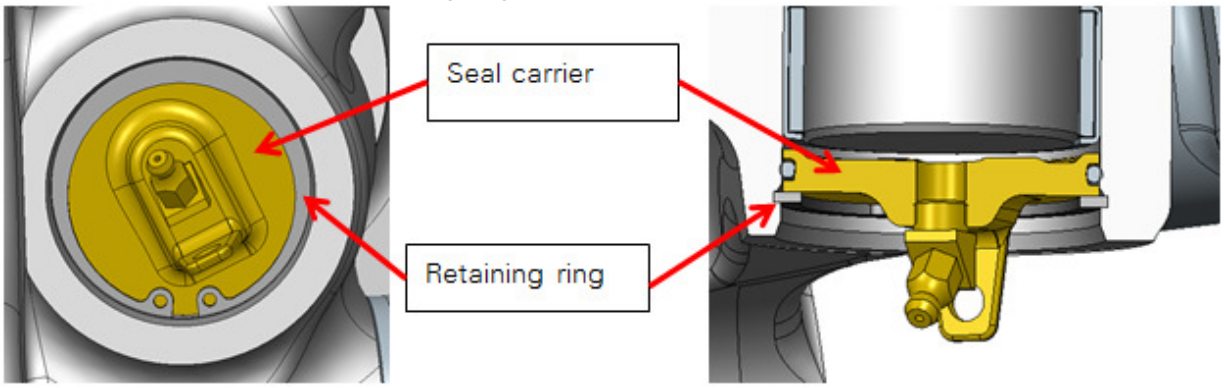
Clearance „X" not OK
Kingpin has to be exchanged

2. Visual and manual inspection of both axle sides (every 3 months / 12.000 Miles, as long as the steel seal carrier is not installed; annually / maximum 50.000 Miles after installation of steel seal carrier)

- Checking by hand whether seal carrier and grease fitting is still in position
- Cleaning of lower seal carrier and retaining ring
- Checking of lower seal carrier for damages
- Inspect seat and position of retaining ring



Inspection of seal carrier and retaining ring



Service Information

Handling:

Retrofitting of following variants will be covered by ZF. For each repair the complete vehicle and axle data must be collected.

Flat rate and coding in warranty claim:

Variant 1 – **Seal carrier retrofitting**

Flat rate: 1 h (per axle side, including all extra work)

Description	Defective part	Coding	Type		Location		Cause	
Seal carrier retrofitting action	4474 250 001	70	424	modernized	781	Cover	083	Preventive retrofitting

Variant 2a - **Press the kingpin back into its specified position and seal carrier retrofitting**

Flat rate: 2 h (per axle side, including all extra work)

Description	Defective part	Coding	Type		Location		Cause	
Kingpin position not correct	4474 375 112	70	485	migrated	037	Pin	083	Preventive retrofitting

Variant 2b - **Replace kingpin and seal carrier retrofitting**

Flat rate: 4 h (per axle side, including all extra work)

Description	Defective part	Coding	Type		Location		Cause	
Kingpin retrofitting	4474 375 112	70	424	modernized	037	Pin	083	Preventive retrofitting

ZF reserves the right to make changes to the hereby described practices and handling methods if there are new findings during the running field action.

Parts lists involved:

RL 80 A/E 4474.075.209/236/237/304/305/308/350/351

RL 80 EM 4474.077.007/019/021/023/025/027/029/034/035/036/037/038/040/041/042/043/045

Reliability Driven™

MCI FIELD CHANGE PROGRAM (FCP) VERIFICATION

CONTACT INFORMATION

CUSTOMER NAME:

_____

(PLEASE PRINT

FCP INFORMATION – ONE FORM PER UNIT

FCP#: _____ **Coach Model _____** **Model Year _____**

COACH SERIAL #: (At least the last 5 digits)	**DATE COMPLETED ___ / ___ /___**
MILEAGE:	

IMPORTANT: TO RECEIVE CREDIT FOR ANY ALLOWABLE LABOR CHARGES, THIS VERIFICATION FORM MUST BE RETURNED TO MCI UPON COMPLETION OF THE FCP.

SUBMITTED BY: (Please Print)

_____ **DATE ___ / ___ /___**

TITLE: (Please Print) _____

SIGNATURE:

_____

COMMENTS:

FAX TO: 800-360-8886

MAILING ADDRESS:

MOTOR COACH INDUSTRIES
ATTN: WARRANTY DEPT.
7001 UNIVERSAL COACH DRIVE
LOUISVILLE, KY 40258

MCI part # 03-15-7738C