



# SHUTTLE BUS CHASSIS

## Maintenance Manual



# SHUTTLE BUS CHASSIS MAINTENANCE MANUAL

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**Models: MBC  
XBP  
XBR  
XBS**

## Foreword

Scheduled maintenance provides a key element for safe operation of your vehicle. A proper maintenance program also helps to minimize downtime and to safeguard warranties. This maintenance manual provides information necessary for years of safe, reliable, and cost-efficient vehicle operation.

**IMPORTANT:** The maintenance operations in this manual are **not all-inclusive**. Also refer to other component and body manufacturers' instructions for specific inspection and maintenance instructions.

Perform daily pre-trip inspection and maintenance as outlined in the vehicle operator's manual. Perform the operations in this maintenance manual at scheduled intervals based upon distance traveled or months of operation. Your authorized servicing dealer has the qualified technicians and equipment to perform this maintenance for you. Your dealership can also set up a scheduled maintenance program tailored specifically to your needs. Optionally, your dealership can assist you in learning how to perform the maintenance procedures in this manual.

**IMPORTANT:** Descriptions and specifications in this manual were in effect at the time of printing. Freightliner Custom Chassis Corporation (FCCC) reserves the right to discontinue models, and to change specifications or design at any time without notice and without incurring obligation. Descriptions and specifications contained in this publication provide no warranty, expressed or implied, and are subject to revision and editions without notice.

Refer to [www.Daimler-TrucksNorthAmerica.com](http://www.Daimler-TrucksNorthAmerica.com) and [www.FreightlinerChassis.com](http://www.FreightlinerChassis.com) for more information, or contact Daimler Trucks North America LLC at the address below.

## Environmental Concerns and Recommendations

Whenever you see instructions in this manual to discard materials, you should attempt to reclaim and recycle them. To preserve our environment, follow appropriate environmental rules and regulations when disposing of materials.

## NOTICE: Parts Replacement Considerations

Do not replace suspension, axle, or steering parts (such as springs, wheels, hubs, and steering gears) with used parts. Used parts may have been subjected to collisions or improper use and have undetected structural damage.

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## Descriptions of Service Publications

Daimler Trucks North America LLC distributes the following major service publications in paper and electronic (via ServicePro®) formats.

<b>Workshop/Service Manual</b>	Workshop/service manuals contain service and repair information for all vehicle systems and components, except for major components such as engines, transmissions, and rear axles. Each workshop/service manual section is divided into subjects that can include general information, principles of operation, removal, disassembly, assembly, installation, and specifications.
<b>Maintenance Manual</b>	Maintenance manuals contain routine maintenance procedures and intervals for vehicle components and systems. They have information such as lubrication procedures and tables, fluid replacement procedures, fluid capacities, specifications, and procedures for adjustments and for checking the tightness of fasteners. Maintenance manuals do not contain detailed repair or service information.
<b>Driver's/Operator's Manual</b>	Driver's/operator's manuals contain information needed to enhance the driver's understanding of how to operate and care for the vehicle and its components. Each manual contains a chapter that covers pre-trip and post-trip inspections, and daily, weekly, and monthly maintenance of vehicle components. Driver's/operator's manuals do not contain detailed repair or service information.
<b>Service Bulletins</b>	Service bulletins provide the latest service tips, field repairs, product improvements, and related information. Some service bulletins are updates to information in the workshop/service manual. These bulletins take precedence over workshop/service manual information, until the latter is updated; at that time, the bulletin is usually canceled. The service bulletins manual is available only to dealers. When doing service work on a vehicle system or part, check for a valid service bulletin for the latest information on the subject.  <b>IMPORTANT:</b> Before using a particular service bulletin, check the current service bulletin validity list to be sure the bulletin is valid.
<b>Parts Technical Bulletins</b>	Parts technical bulletins provide information on parts. These bulletins contain lists of parts and BOMs needed to do replacement and upgrade procedures.
Web-based repair, service, and parts documentation can be accessed using the following applications on the AccessFreightliner.com website.	
<b>ServicePro</b>	ServicePro® provides Web-based access to the most up-to-date versions of the publications listed above. In addition, the Service Solutions feature provides diagnostic assistance with Symptoms Search, by connecting to a large knowledge base gathered from technicians and service personnel. Search results for both documents and service solutions can be narrowed by initially entering vehicle identification data.
<b>PartsPro</b>	PartsPro® is an electronic parts catalog system, showing the specified vehicle's build record.
<b>EZWiring</b>	EZWiring™ makes Freightliner Custom Chassis Corporation, Freightliner, Sterling, Western Star, and Thomas Built Buses products' wiring drawings and floating pin lists available online for viewing and printing. EZWiring can also be accessed from within PartsPro.

## Descriptions of Service Publications

Warranty-related service information available on the AccessFreightliner.com website includes the following documentation.

### **Recall Campaigns**

Recall campaigns cover situations that involve service work or replacement of parts in connection with a recall notice. These campaigns pertain to matters of vehicle safety. All recall campaigns are distributed to dealers; customers receive notices that apply to their vehicles.

### **Field Service Campaigns**

Field service campaigns are concerned with non-safety-related service work or replacement of parts. All field service campaigns are distributed to dealers; customers receive notices that apply to their vehicles.

Page Description

For a page example of the printed manual, see Fig. 1.

A

B

C

**Suspension** **32**

**32-01 Suspension Inspecting, Freightliner Spring**

**FRONT AND REAR SUSPENSION SPRING ASSEMBLIES**

Inspect the front and rear suspension spring assemblies for pitted, cracked, broken, or abnormally bent leaves and extreme rust. If any of these conditions exist, replace the spring assembly. See Group 32 of the vehicle workshop manual for instructions.

**WARNING:** Do not replace individual leaves of a damaged leaf spring assembly; replace the complete spring assembly. Visible damage (cracks or breaks) to one leaf causes hidden damage to other leaves. Replacement of only the visibly damaged part(s) is no assurance that the spring is safe. On front spring assemblies, if cracks or breaks exist in the two top leaves, a loss of vehicle control could occur. Failure to replace a damaged spring assembly could cause an accident resulting in serious personal injury or property damage.

**IMPORTANT:** On multi-leaf suspensions, closely inspect each component of the leaf spring assemblies, including the brackets, U-bolts, and related parts.

**REAR SUSPENSION SPRING BRACKETS**

Inspect the forward and rear spring brackets and the wear pads for wear, cracks, and other damage. If any of these conditions exist, replace the damaged bracket(s) and wear pad(s). See Group 32 of the vehicle workshop manual for instructions.

**WARNING:** Replace worn, cracked, or damaged spring brackets. Failure to do so could result in bracket breakage, possibly leading to loss of vehicle control and resulting in personal injury or property damage.

**32-02 Suspension Lubricating, Freightliner Spring**

**FRONT SUSPENSION**

Wipe all dirt from the grease fittings at the forward spring pin and the spring shackles pins, then apply multipurpose chassis grease with a pressure gun until the old grease is forced out.

**REAR SUSPENSION**

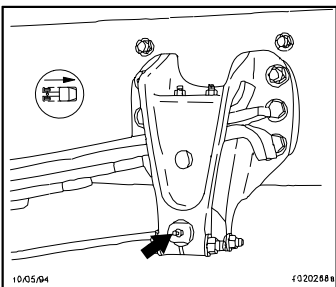
Lubricate the spring pin by applying multipurpose chassis grease at the grease fitting. See Fig. 1. Lubricate with a grease gun until grease appears at the base of the fitting.

**32-01 U-Bolt Torque Checking, Freightliner Spring Suspension**

Check the U-bolt torque of both the front and rear axles.

**CAUTION:** Failure to retorque the U-bolt nuts could result in spring breakage and abnormal tire wear.

In a diagonal pattern, tighten all 5/8-18 U-bolt nuts 205 lbf ft (278 N.m), tighten all 3/4-16 U-bolt nuts 300 lbf ft (407 N.m), and tighten all 7/8-14 U-bolt nuts 460 lbf ft (624 N.m).



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Fig. 1, Forward Spring Bracket Spring Pin Grease Fitting

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E

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A. Maintenance Operation Number consists of the Group Number followed by the Sequence Number  
 B. Group Title  
 C. Group Number  
 D. Release Date  
 E. Group Number/Page Number

Fig. 1, Page Example of the Printed Manual

<b>Group No.</b>	<b>Group Title</b>
00 .....	General Information
01 .....	Engine
09 .....	Air Intake
13 .....	Air Compressor
15 .....	Alternators and Starters
20 .....	Engine Cooling/Radiator
26 .....	Transmission
31 .....	Frame and Frame Components
32 .....	Suspension
33 .....	Front Axle
35 .....	Rear Axle
40 .....	Wheels and Tires
41 .....	Driveline
42 .....	Brakes
46 .....	Steering
47 .....	Fuel
49 .....	Exhaust
54 .....	Electrical, Instruments, and Controls
83 .....	Heater and Air Conditioner

Title of Maintenance Operation (MOP)	MOP Number
Determining Scheduled Maintenance Intervals. . . . .	00-01
Maintenance Interval Table. . . . .	00-03
Maintenance Operation Sets. . . . .	00-04
Noise Emission Controls Maintenance. . . . .	00-05
Vehicle Maintenance Schedule Table . . . . .	00-02
Verification of Inspections Log. . . . .	00-06



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**Determining Scheduled Maintenance Intervals: 00–01**

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**Description**

**Category I** (urban transport) applies to vehicles that annually travel *up to* 20,000 miles (32 000 kilometers).

**Category II** (rural transport) applies to vehicles that annually travel *over* 20,000 miles (32 000 kilometers).

The table under *Vehicle Maintenance Schedule Table* shows the two categories of vehicle usage. For each category, the appropriate distance and time intervals are given for performing initial maintenance and for repeating each maintenance operation set (M1 through M3).

The table under *Maintenance Interval Table* shows which maintenance operation set must be performed at the actual distances (miles and kilometers) or actual months of operation for each maintenance category. The schedule of actual distances (and months) is based on the intervals given in the *Vehicle Maintenance Schedule Table*.

The table under *Maintenance Operation Sets* lists, in numerical order, the text reference numbers and descriptions of *all* maintenance operations, and indicates all maintenance operation sets at which each operation must be performed.

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**Use**

Before placing your new vehicle in service, determine the maintenance category (Category I or II) that applies to your intended use of the vehicle. See the *Vehicle Maintenance Schedule Table* to determine the distance (or time) interval at which each maintenance operation set must be performed for your category of vehicle.

When the vehicle reaches the actual distance (or months) given for an interval, see the *Maintenance Interval Table* to find the maintenance operation set that applies to that interval. Then perform the maintenance operations listed in the applicable *Maintenance Interval Operations table*. Use the maintenance operation reference numbers to find instructions in the manual for completion of each operation.

Complete each maintenance operation set at the required interval. Then, when you have completed maintenance operation set M3 under the 12th Maintenance Number listed in the *Maintenance Interval*

*Table*, repeat the pattern. The 13th Maintenance Number will begin at maintenance operation set M1, under the 1st Maintenance Number listed in the *Maintenance Interval Table*.

**NOTE:** When performing operations for the 13th Maintenance Number, complete the M1 operations only, not the Initial Maintenance operations.

To determine the distance/months for the 13th Maintenance Number, add your category's distance/months for the 1st Maintenance Number to the distance/months for the 12th Maintenance Number, then perform the operations listed in the applicable table in the *Maintenance Interval Operations tables*. For the 14th Maintenance Number, add the distance/months for the 2nd to the distance/months for the 12th; continue this pattern for each successive Maintenance Number.

# 00

## General Information

### Vehicle Maintenance Schedule Table: 00–02

Vehicle Maintenance Schedule Table

Vehicle Maintenance Schedule Table					
Description	Maintenance Operation Set	Maintenance Intervals			
		Frequency	Miles	km	Months
<b>CATEGORY I</b> (Urban Transport) vehicles that annually travel up to 20,000 miles (32 000 km)	Initial Maintenance (IM)	first	2500	4000	3
	Maintenance 1 (M1)	every	2500	4000	3
	Maintenance 2 (M2)	every	10,000	16 000	12
	Maintenance 3 (M3)	every	30,000	48 000	36
<b>CATEGORY II</b> (Rural Transport) vehicles that annually travel over 20,000 miles (32 000 km)	Initial Maintenance (IM)	first	5000	8000	3
	Maintenance 1 (M1)	every	5000	8000	3
	Maintenance 2 (M2)	every	20,000	32 000	12
	Maintenance 3 (M3)	every	60,000	96 500	36