



*Run Smart™*

# COLUMBIA®



## Maintenance Manual



*Run Smart™*

# COLUMBIA MAINTENANCE MANUAL

---

**Models: CL112  
CL120**

## Foreword

Scheduled maintenance provides a key element for the 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 the operations in this maintenance manual at scheduled intervals. Perform the pretrip and post-trip inspections, and daily/weekly/monthly maintenance, as outlined in the vehicle driver's manual. Major components, such as engines, transmissions, and rear axles, are covered in their own maintenance and operation manuals, that are provided with the vehicle. Perform any maintenance operations listed at the intervals scheduled in those manuals. Your Freightliner Dealership has the qualified technicians and equipment to perform this maintenance for you. They can also set up a scheduled maintenance program tailored specifically to your needs. Optionally, they can assist you in learning how to perform these maintenance procedures.

**IMPORTANT:** Descriptions and specifications in this manual were in effect at the time of printing. Freightliner Trucks 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.FreightlinerTrucks.com](http://www.FreightlinerTrucks.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.

© 2001–2012 Daimler Trucks North America LLC

All rights reserved. No part of this publication, in whole or in part, may be translated, reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Daimler Trucks North America LLC. Daimler Trucks North America LLC is a Daimler company.

**Daimler Trucks North America LLC**  
**Service Systems and Documentation (POC-SSD)**  
**P.O. Box 3849**  
**Portland, OR 97208–3849**

---

## 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 pretrip 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.  IMPORTANT: 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, Sterling, Western Star, Thomas Built Buses, and Freightliner Custom Chassis Corporation 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 an example of a *Columbia Maintenance Manual* page, see Fig. 1.

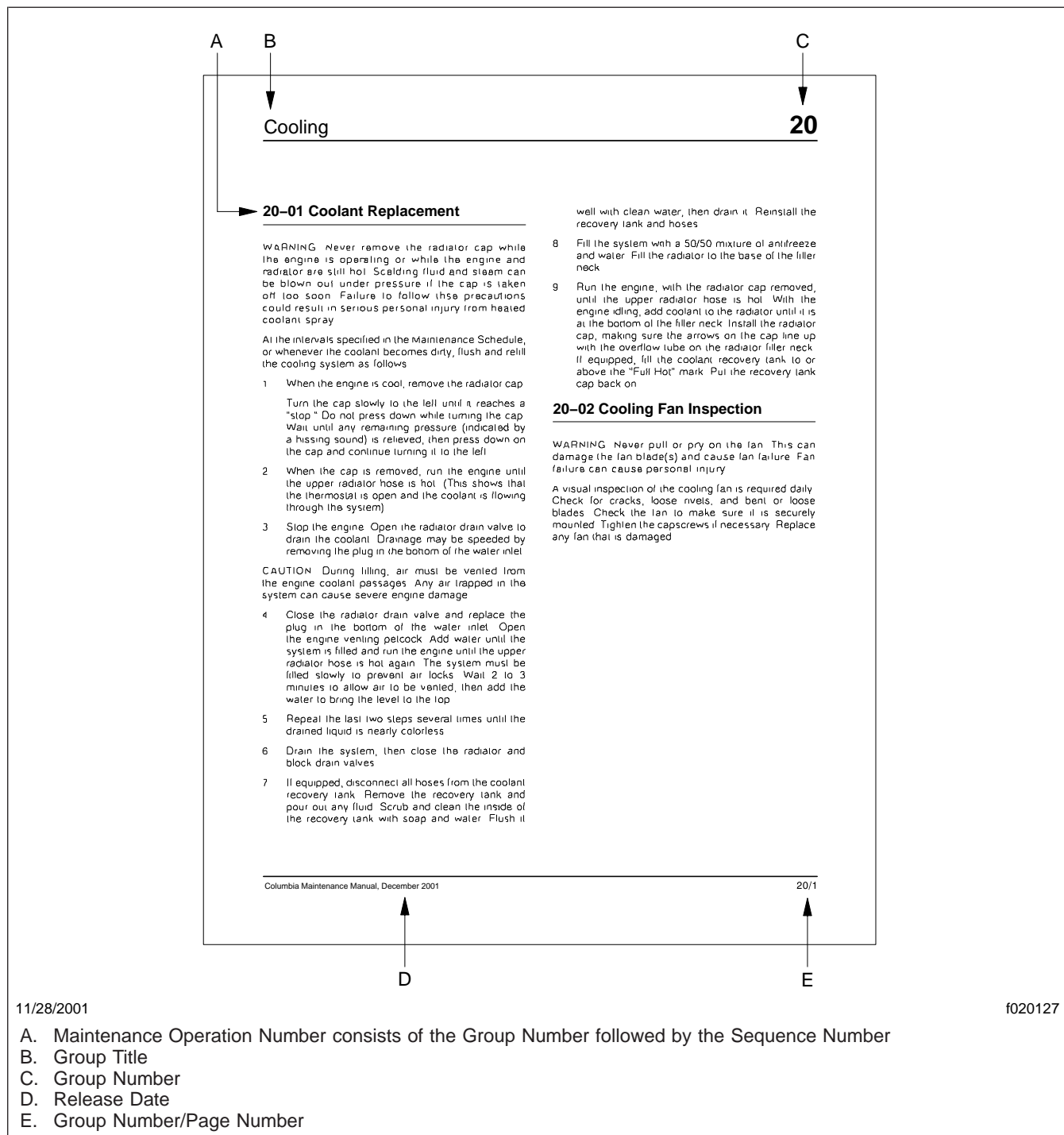


Fig. 1, Example of a Columbia Maintenance Manual Page

<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
25 .....	Clutch
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
60 .....	Cab
72 .....	Doors
83 .....	Heater and Air Conditioner
88 .....	Hood, Grille, and Cab Fenders

<b>Title of Maintenance Operation (MOP)</b>	<b>MOP Number</b>
Determining Scheduled Maintenance Intervals. . . . .	00-01
Initial Maintenance (IM) Operations. . . . .	00-05
Lubrication and Fluid Level Check . . . . .	00-04
M1 Maintenance Interval Operations. . . . .	00-06
M2 Maintenance Interval Operations. . . . .	00-07
M3 Maintenance Interval Operations. . . . .	00-08
Maintenance Operation Sets Table . . . . .	00-09
Metric/U.S. Customary Conversion Tables. . . . .	00-12
Noise Emission Controls Maintenance. . . . .	00-10
Service Schedule Table . . . . .	00-02
Torque Specifications Tables. . . . .	00-13
Vehicle Maintenance Schedule Tables. . . . .	00-03
Verification of Inspections Log. . . . .	00-11



## Determining Scheduled Maintenance Intervals: 00–01

### Determining Scheduled Maintenance Intervals

Performing regular maintenance on your Freightliner will help ensure that your Freightliner delivers safe reliable service and optimum performance for years to come. Failure to follow a regular maintenance program can result in inefficient operation and unscheduled down time.

To determine the correct maintenance intervals for your vehicle you must first determine the type of service or conditions the vehicle will be operating in. Generally, most vehicles operate under conditions that fall within one of the four types of service described. Before placing your new vehicle in service, determine the type of service (Service Schedule I, II, III, or IV) that applies to the intended use of the vehicle. After determining the vehicle's type of service, refer to the service schedule table or the vehicle maintenance schedule table, to determine how often maintenance should be performed.

When the vehicle reaches the distance given for a maintenance interval, see the Maintenance Interval Operation Table for a list of the maintenance operations to be performed at that maintenance interval. Use the maintenance operation reference numbers to find detailed instructions in the manual on each operation.

### Types of Service

**Service Schedule I** (severe service) applies to vehicles that annually travel less than 6000 miles (10 000 kilometers) *or* that operate under severe conditions. Examples of severe service, Schedule I usage include: operation on extremely poor roads or where there is heavy dust accumulation; constant exposure to extreme hot, cold, salt-air, or other extreme climates; frequent short-distance travel; construction-site operation; city operation (fire truck); or farm operation.

**Service Schedule II** (short-haul transport) applies to vehicles that annually travel less than 60,000 miles (100 000 kilometers) and operate under normal conditions. Examples of Schedule II usage are: operation primarily in cities and densely populated areas; local transport with infrequent freeway travel; or high percentage of stop-and-go travel.

**Service Schedule III** (long-haul transport) is for vehicles that annually travel *more than* 60,000 miles

(100 000 kilometers) with minimal city or stop-and-go operation. Examples of Schedule III usage are: regional delivery that is mostly freeway miles; interstate transport; or any road operation with high annual mileage.

**Service Schedule IV** (long haul transport for Optimized Vehicle Configuration) is for vehicles that annually travel **over** 60,000 miles (100 000 km) **and** meet the following qualifications:

- Meritor 15-1/2 inch dampened/ceramic Lite Pedal LTD clutch with sealed release bearing.
- Synthetic transmission fluid used in transmission.
- Meritor FF-961 or FF-981 front axle (12,000 lb. capacity) with synthetic lubricant.
- Front suspension with maintenance-free rubber bushings for 12,000 lb. capacity suspension.
- Meritor RPL series, or Dana Spicer SPL series driveline U-joints.
- Synthetic lubricant used in rear axle.
- Equipped with any Freightliner AirLiner suspension.
- Equipped with Meritor Q-Plus extended-lube cam brakes and automatic slack adjusters, front and rear.
- Standard brake system package including Bendix AD-9 air dryer—mounted on the right-hand frame rail, located directly behind the front bumper—with heater, and a Bendix air compressor.
- TRW TAS65 power steering.

**NOTE:** Maintenance instructions in this manual are based on average vehicle use and normal operating conditions. Unusual vehicle operating conditions may require service at more frequent intervals.

Service Schedule Table: 00–02

Service Schedule	Maintenance Interval Operation	Maintenance Interval			
		Frequency	Miles	km	Hours
<b>Schedule I*</b> (Severe Service) vehicles that annually travel less than 6000 miles (10 000 km)	Initial Maintenance (IM)	first	1000	1600	50
	Maintenance 1 (M1)	every	1000	1600	50
	Maintenance 2 (M2)	every	5000	8000	500
	Maintenance 3 (M3)	every	15,000	24 000	1500
<b>Schedule II†</b> (Short-Haul Transport) vehicles that annually travel less than 60,000 miles (100 000 km)	Initial Maintenance (IM)	first	10,000	16 000	—
	Maintenance 1 (M1)	every	10,000	16 000	
	Maintenance 2 (M2)	every	50,000	80 000	
	Maintenance 3 (M3)	every	150,000	240 000	
<b>Schedule III†</b> (Long-Haul Transport) vehicles that annually travel over 60,000 miles (100 000 km)	Initial Maintenance (IM)	first	25,000	40 000	—
	Maintenance 1 (M1)	every	25,000	40 000	
	Maintenance 2 (M2)	every	100,000	161 000	
	Maintenance 3 (M3)	every	300,000	483 000	
<b>Schedule IV†</b> (Long-Haul Transport for Optimized Vehicle Configuration) vehicles that annually travel over 60,000 miles (100 000 km)	Initial Maintenance (IM)	first	25,000	40 000	—
	Maintenance 1 (M1)	every	25,000	40 000	
	Maintenance 2 (M2)	every	100,000	161 000	
	Maintenance 3 (M3)	every	300,000	483 000	

\* For Schedule I (severe service) vehicles equipped with an hourmeter, use maintenance intervals based on hours of operation rather than distance traveled.

† Use Schedule I (severe service) maintenance intervals for vehicles that operate under severe conditions, such as extremely poor roads, heavy dust accumulation, extreme climate, frequent short distance travel, construction-site operation, city operation (garbage truck), or farm operation.

Table 1, Service Schedule