



108SD AND 114SD WORKSHOP MANUAL

**Models: 108SD
114SD**

Foreword

The purpose of this manual is to assist the service technician when the vehicle is serviced. Major drivetrain component service information is not included in this manual, but is located in each manufacturer's service manual. For service and repair information of major components, refer to the OEM's website. A listing of many OEM websites can be found in **Section 00.02**. The list also includes OEM websites for a number of other vehicle component or system providers.

Instructions and procedures are those recommended by Freightliner Trucks or the component manufacturer.

Maintenance schedules and additional service information are included in the *108SD and 114SD Maintenance Manual*.

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 and 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.

IMPORTANT: 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.

Workshop/Service Manual	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. For service and repair information of major components, refer to the OEM's website. A listing of many OEM websites can be found in Section 00.02 . Each workshop/service manual section is divided into subjects that can include general information, principles of operation, removal, disassembly, assembly, installation, and specifications.
Maintenance Manual	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.
Driver's/Operator's Manual	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.
Service Bulletins	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.
Parts Technical Bulletins	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.	
ServicePro	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.
PartsPro	PartsPro® is an electronic parts catalog system, showing the specified vehicle's build record.
EZWiring	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 108SD and 114SD Workshop Manual page, see Fig. 1.

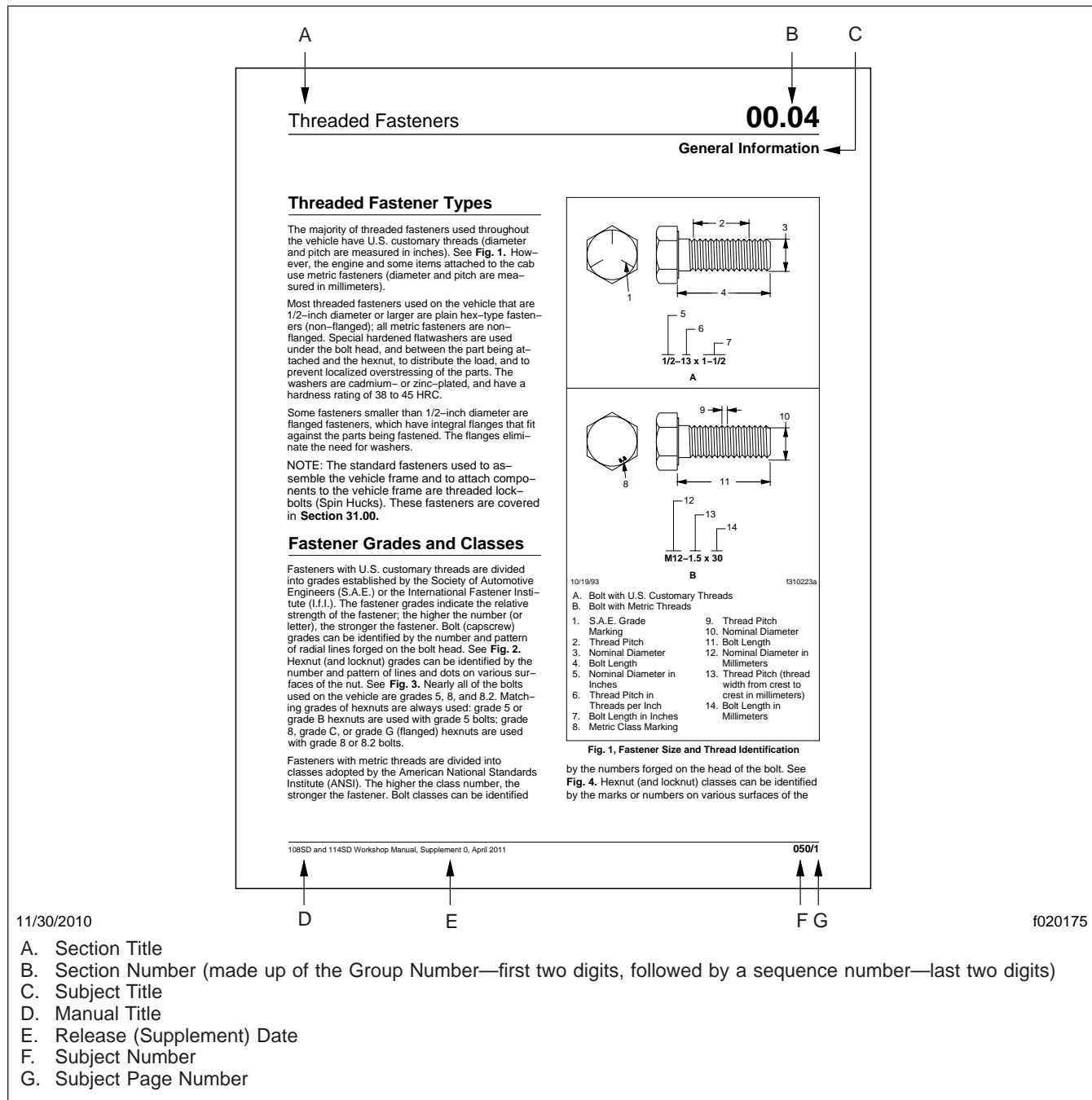


Fig. 1, Example of a 108SD and 114SD Workshop Manual Page

Group No.	Group Title
00	General Information
01	Engine
09	Air Intake
13	Air Compressor
15	Alternators and Starters
20	Engine Cooling/Radiator
25	Clutch
26	Transmission
30	Throttle Control
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
60	Cab
72	Doors
82	Windshield Wipers and Washer
83	Heater and Air Conditioner
88	Hood, Grille, and Cab Fenders
91	Seats and Restraint Systems
98	Paint

Federal Motor Vehicle Safety Standard 115 specifies that all vehicles sold in the U.S. be assigned a 17-character Vehicle Identification Number (VIN). Using a combination of letters and numerals, the VIN defines the manufacturer, model, and major characteristics of the vehicle. See [Table 1](#) for the character positions of a typical Freightliner VIN, 1FUPABAV11PA12345.

The VIN can be found on the Vehicle Specification Decal (see the vehicle driver's manual for decal location), and the last six digits (designating the chassis serial number) are stamped into the metal frame.

Each product line has its own model list; that is, positions 5 and 6 are product-specific. For example, the

code AB in positions 5 and 6 for a Freightliner vehicle indicates an FLD112 conventional truck. Code AB in the same position for a FCCC chassis vehicle represents an MB45 chassis.

For all vehicles, a check digit (9th character) is determined by assignment of weighted values to the other 16 characters. These weighted values are processed through a series of equations designed to check validity of the VIN and to detect VIN alteration.

NOTE: Always specify the VIN when ordering parts.

Seventeen-Character Vehicle Identification Number (VIN)								
Typical VIN	1 F U	P	A B	A V	1	1	P	A 1 2 3 4 5
Character Position	1, 2, 3	4	5, 6	7, 8	9	10	11	12–17
Code Description	World Manufacturer Identification	Chassis Configuration	Model, Cab, GVWR	Engine, Brakes	Check Digit Calculation	Model Year	Build Location	Production Serial Number
Decoding Table*	Table 2	Table 3	Table 4	Table 5	—	Table 6	Table 7	—

* For corresponding decoding information, see the applicable tables in this subject.

Table 1, Seventeen-Character Vehicle Identification Number (VIN)

VIN Positions 1, 2, and 3 (World Manufacturer Identification)			
Code	Vehicle Manufacturer	Vehicle Make	Vehicle Type
1FU	Freightliner, U.S.A.	Freightliner	Truck-Tractor
1FV	Freightliner, U.S.A.	Freightliner	Incomplete Vehicle
3AK	Daimler AG, Mexico	Freightliner	Truck-Tractor
3AL	Daimler AG, Mexico	Freightliner	Incomplete Vehicle
RSA	NAI, Saudi Arabia	Freightliner	Incomplete Vehicle
RSB	NAI, Saudi Arabia	Freightliner	Truck-Tractor

Table 2, VIN Positions 1, 2, and 3 (World Manufacturer Identification)

VIN Position 4 (Chassis Configuration)	
Code	Chassis
A	4 x 2 Truck
B	4 x 2 Truck-Tractor
C	8 x 8 Truck
D	4 x 4 Truck
E	4 x 4 Truck-Tractor

VIN Position 4 (Chassis Configuration)	
Code	Chassis
F	6 x 2 Truck
G	6 x 2 Truck-Tractor
H	6 x 4 Truck
J	6 x 4 Truck-Tractor
K	6 x 6 Truck

00.01

Vehicle Identification Numbering System

VIN Information

VIN Position 4 (Chassis Configuration)	
Code	Chassis
L	6 x 6 Truck-Tractor
M	8 x 4 Truck
N	8 x 4 Truck-Tractor
P	8 x 6 Truck
R	8 x 6 Truck-Tractor
S	10 x 4 Truck
T	10 x 4 Truck-Tractor
U	10 x 6 Truck

VIN Position 4 (Chassis Configuration)	
Code	Chassis
V	10 x 6 Truck-Tractor
W	12 x 4 Truck
X	Glider
Y	8 x 2 Truck
Z	14 x 4 Truck
1	12 x 6 Truck

Table 3, VIN Position 4 (Chassis Configuration)

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	Model	Cab	GVWR
AA	FLB Glider	COE	Glider
AB	FLD112	Conventional	Class 7
AC	FLD112	Conventional	Class 8
AD	FLD112 Glider	Conventional	Glider
AE	FLD112 SD	Conventional	Class 8
AF	FLD112 SD Glider	Conventional	Glider
AG	FLD120	Conventional	Class 7
AH	FLD120	Conventional	Class 8
AJ	FLD120 Glider	Conventional	Glider
AK	FLD120 SD	Conventional	Class 7
AL	FLD120 SD	Conventional	Class 8
AM	FLD120 SD Glider	Conventional	Glider
AN	FLD132 XL Classic	Conventional	Class 7
AP	FLD132 XL Classic	Conventional	Class 8
AR	FLD132 XL Glider	Conventional	Glider
AS	FLD120 Military	Conventional	Class 7
AT	FLD120 Military	Conventional	Class 8
AU	FLD120 Military Glider	Conventional	Glider
AV	Argosy	COE	Class 7
AW	Argosy	COE	Class 8
AX	Argosy Glider	COE	Glider
AY	C112	Conventional	Class 7
AZ	C112	Conventional	Class 8
A1	C112 Glider	Conventional	Glider
A2	C120	Conventional	Class 7

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	Model	Cab	GVWR
A3	C120	Conventional	Class 8
A4	C120 Glider	Conventional	Glider
A5	Columbia 120	Conventional	Class 7
A6	Columbia 120	Conventional	Class 8
A7	Columbia 120 Glider	Conventional	Glider
A8	CST112	Conventional	Class 7
A9	CST112	Conventional	Class 8
A0	CST112 Glider	Conventional	Glider
BA	CST120	Conventional	Class 7
BB	CST120	Conventional	Class 8
BC	CST120 Glider	Conventional	Glider
BD	FLD120 Classic Legacy	Conventional	Class 8
BE	FLS112 Legacy	Conventional	Class 8
BF	FL112	Conventional	Class 7
BG	FL112	Conventional	Class 8
BH	FL112 Glider	Conventional	Glider
BJ	FL50	Conventional	Class 4
BK	FL50	Conventional	Class 5
BL	FL50	Conventional	Class 6
BM	FL50	Conventional	Class 7
BN	FL60	Conventional	Class 5
BP	FL60	Conventional	Class 6
BR	FL60	Conventional	Class 7
BS	FL70	Conventional	Class 6
BT	FL70	Conventional	Class 7
BU	FL70	Conventional	Class 8
BV	FL80	Conventional	Class 6
BW	FL80	Conventional	Class 7
BX	FL80	Conventional	Class 8
BY	FL106	Conventional	Class 6
BZ	FL106	Conventional	Class 7
B1	FL106	Conventional	Class 8
B2	FC70 Cargo	COE	Class 6
B3	FC70 Cargo	COE	Class 7
B4	FC70 Cargo	COE	Class 8
B5	FC80 Cargo	COE	Class 6

00.01

Vehicle Identification Numbering System

VIN Information

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	Model	Cab	GVWR
B6	FC80 Cargo	COE	Class 7
B7	FC80 Cargo	COE	Class 8
B8	RIV	None	Class 8
B9	Sport Chassis	Conventional	Class 6
B0	Sport Chassis	Conventional	Class 7
CA	FL106 Glider	Conventional	Glider
CB	FL60 Glider	Conventional	Glider
CC	FL70 Glider	Conventional	Glider
CD	FL80 Glider	Conventional	Glider
CE	Condor	COE	Class 7
CF	Condor	COE	Class 8
CG	FLD120/84" Sleeper MY2001	Conventional	Class 7
CH	FLD120/84" Sleeper MY2001	Conventional	Class 8
CJ	FLD120 Glider/84" Sleeper MY2001	Conventional	Glider
CK	FLD132 XL Classic/84" Sleeper MY2001	Conventional	Class 7
CL	FLD132 XL Classic/84" Sleeper MY2001	Conventional	Class 8
CM	FLD 132 XL Glider/84" Sleeper	Conventional	Glider
CN	FL112	Conventional	Class 6
CP	FLD120 Military Reman	Conventional	Class 8
CR	Coronado CC132	Conventional	Class 8
CS	M2 100	Conventional	Class 4
CT	M2 100	Conventional	Class 5
CU	M2 100	Conventional	Class 6
CV	M2 106 Medium Duty	Conventional	Class 5
CW	M2 106 Medium Duty	Conventional	Class 6
CX	M2 106 Medium Duty	Conventional	Class 7
CY	M2 106 Medium Duty	Conventional	Class 8
CZ	M2 106V Heavy Duty	Conventional	Class 5
C1	M2 106V Heavy Duty	Conventional	Class 6
C2	M2 106V Heavy Duty	Conventional	Class 7
C3	M2 106V Heavy Duty	Conventional	Class 8
C4	M2 112 Medium Duty	Conventional	Class 7
C5	M2 112 Medium Duty	Conventional	Class 8
C6	M2 112V Heavy Duty	Conventional	Class 7
C7	M2 112V Heavy Duty	Conventional	Class 8
C8	M2 106 Medium Duty	Conventional	Class 4

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	Model	Cab	GVWR
C9	Sport Chassis	Conventional	Class 5
F1	Sport Chassis 112	Conventional	Class 6
F2	FLB High COE	COE	Class 8
F3	Sport Chassis 112	Conventional	Class 7
F4	Coronado CC132	Conventional	Class 7
F5	Classic 120	Conventional	Class 7
F6	Classic 120	Conventional	Class 8
F7	Condor Glider	Conventional	Glider
F8	M2 106 Medium Glider	Conventional	Glider
F9	Columbia 112	Conventional	Class 7
F0	Columbia 112	Conventional	Class 8
FA	Columbia 112	Conventional	Glider
FB	Coronado CC132 Glider	Conventional	Glider
FC	M2 106 Sport Chassis	Conventional	Class 5
FD	M2 106 Sport Chassis	Conventional	Class 6
FE	M2 106 Sport Chassis	Conventional	Class 7
FF	M2 112 Sport Chassis	Conventional	Class 5
FG	M2 112 Sport Chassis	Conventional	Class 6
FH	M2 112 Sport Chassis	Conventional	Class 7
FJ	Classic 120	Conventional	Glider
GA	Cascadia 113 Day Cab	Conventional	Class 7
GB	Cascadia 113 Day Cab	Conventional	Class 8
GC	Cascadia 113 Sleeper Cab	Conventional	Glider
GD	Cascadia 125 Day Cab	Conventional	Class 7
GE	Cascadia 125 Day Cab	Conventional	Class 8
GF	Cascadia 125 Sleeper Cab	Conventional	Glider
GG	Cascadia 113 Sleeper Cab	Conventional	Class 7
GH	Cascadia 113 Sleeper Cab	Conventional	Class 8
GJ	Cascadia 132	Conventional	Glider
GK	Cascadia 125 Sleeper Cab	Conventional	Class 7
GL	Cascadia 125 Sleeper Cab	Conventional	Class 8
GM	Coronado 132	Conventional	Class 8
GN	Coronado SD 122	Conventional	Class 8
GP	Coronado 122	Conventional	Class 8
GR	Coronado 122	Conventional	Glider
GS	Coronado SD 122 Glider	Conventional	Glider

VIN Information

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	Model	Cab	GVWR
GT	Coronado 132	Conventional	Glider
GU	M2 106V Glider	Conventional	Glider
GV	Coronado 122 RHD	Conventional	Class 8
GW	Coronado 122 RHD Glider	Conventional	Glider
GX	Coronado 132	Conventional	Class 7
GY	Coronado SD 122	Conventional	Class 7
GZ	Coronado 122	Conventional	Class 7
G1	M2 112 Glider	Conventional	Glider
G2	MD109 Military	Conventional	Class 8
G3	114SD	Conventional	Class 8
G4	114SD	Conventional	Glider
G5	108SD	Conventional	Class 8
G6	108SD	Conventional	Glider
G7	Coronado 114 RHD	Conventional	Class 8
G8	Coronado 114 RHD	Conventional	Glider
G9	114SD	Conventional	Class 7
G0	108SD	Conventional	Class 7
HA	Cascadia 113 Day Cab	Conventional	Glider
HB	Cascadia 125 Day Cab	Conventional	Glider
HC	108SD	Conventional	Class 6
HD	M2 100	Conventional	Class 7

Table 4, VIN Positions 5 and 6 (Model, Cab, Class/GVWR)

VIN Positions 7 and 8 (Engine, Brakes)					
Code	Engine	Fuel	Displacement	Configuration	Brakes
AA	Caterpillar 3176	Diesel	10.3 Liter	I-6	Air
AB	Caterpillar 3176	Diesel	10.3 Liter	I-6	Hydraulic
AC	Caterpillar 3176	Diesel	10.3 Liter	I-6	Air/Hydraulic
AD	Caterpillar 3406	Diesel	14.6 Liter	I-6	Air
AE	Caterpillar 3406	Diesel	14.6 Liter	I-6	Hydraulic
AF	Caterpillar 3406	Diesel	14.6 Liter	I-6	Air/Hydraulic
AG	Caterpillar 3406 E	Diesel	15.8 Liter	I-6	Air
AH	Caterpillar 3406 E	Diesel	15.8 Liter	I-6	Hydraulic
AJ	Caterpillar 3406 E	Diesel	15.8 Liter	I-6	Air/Hydraulic
AK	Caterpillar 3126/CFE	Diesel	7.2 Liter	I-6	Air
AL	Caterpillar 3126/CFE	Diesel	7.2 Liter	I-6	Hydraulic

VIN Positions 7 and 8 (Engine, Brakes)					
Code	Engine	Fuel	Displacement	Configuration	Brakes
AM	Caterpillar 3126/CFE	Diesel	7.2 Liter	I-6	Air/Hydraulic
AN	Caterpillar C10	Diesel	10.3 Liter	I-6	Air
AP	Caterpillar C10	Diesel	10.3 Liter	I-6	Hydraulic
AR	Caterpillar C10	Diesel	10.3 Liter	I-6	Air/Hydraulic
AS	Caterpillar C12	Diesel	12.0 Liter	I-6	Air
AT	Caterpillar C12	Diesel	12.0 Liter	I-6	Hydraulic
AU	Caterpillar C12	Diesel	12.0 Liter	I-6	Air/Hydraulic
AV	Caterpillar C15	Diesel	14.6 Liter pre 2008/15.2 Liter	I-6	Air
AW	Caterpillar C15	Diesel	14.6 Liter pre 2008/15.2 Liter	I-6	Hydraulic
AX	Caterpillar C15	Diesel	14.6 Liter pre 2008/15.2 Liter	I-6	Air/Hydraulic
AY	Caterpillar C16	Diesel	15.8 Liter	I-6	Air
AZ	Caterpillar C16	Diesel	15.8 Liter	I-6	Hydraulic
A1	Caterpillar C16	Diesel	15.8 Liter	I-6	Air/Hydraulic
A2	Cummins L10	Diesel	10.8 Liter	I-6	Air
A3	Cummins L10	Diesel	10.8 Liter	I-6	Hydraulic
A4	Cummins L10	Diesel	10.8 Liter	I-6	Air/Hydraulic
A5	Cummins M11	Diesel	10.8 Liter	I-6	Air
A6	Cummins M11	Diesel	10.8 Liter	I-6	Hydraulic
A7	Cummins M11	Diesel	10.8 Liter	I-6	Air/Hydraulic
A8	Cummins ISM	Diesel	10.8 Liter	I-6	Air
A9	Cummins ISM	Diesel	10.8 Liter	I-6	Hydraulic
A0	Cummins ISM	Diesel	10.8 Liter	I-6	Air/Hydraulic
BA	Cummins NTC	Diesel	14 Liter	I-6	Air
BB	Cummins NTC	Diesel	14 Liter	I-6	Hydraulic
BC	Cummins NTC	Diesel	14 Liter	I-6	Air/Hydraulic
BD	Cummins N14	Diesel	14 Liter	I-6	Air
BE	Cummins N14	Diesel	14 Liter	I-6	Hydraulic
BF	Cummins N14	Diesel	14 Liter	I-6	Air/Hydraulic
BG	Cummins ISX	Diesel	14.9 Liter	I-6	Air
BH	Cummins ISX	Diesel	14.9 Liter	I-6	Hydraulic
BJ	Cummins ISX	Diesel	14.9 Liter	I-6	Air/Hydraulic
BK	Cummins C 8.3	Diesel	8.3 Liter	I-6	Air
BL	Cummins C 8.3	Diesel	8.3 Liter	I-6	Hydraulic
BM	Cummins C 8.3	Diesel	8.3 Liter	I-6	Air/Hydraulic

VIN Information

VIN Positions 7 and 8 (Engine, Brakes)					
Code	Engine	Fuel	Displacement	Configuration	Brakes
BN	Cummins B5.9	Diesel	5.9 Liter	I-6	Air
BP	Cummins B5.9	Diesel	5.9 Liter	I-6	Hydraulic
BR	Cummins B5.9	Diesel	5.9 Liter	I-6	Air/Hydraulic
BS	Cummins ISC	Diesel	8.3 Liter	I-6	Air
BT	Cummins ISC	Diesel	8.3 Liter	I-6	Hydraulic
BU	Cummins ISC	Diesel	8.3 Liter	I-6	Air/Hydraulic
BV	Cummins ISB	Diesel	5.9 Liter	I-6	Air
BW	Cummins ISB	Diesel	5.9 Liter	I-6	Hydraulic
BX	Cummins ISB	Diesel	5.9 Liter	I-6	Air/Hydraulic
BY	Cummins B5.9	Propane	5.9 Liter	I-6	Air
BZ	Cummins B5.9	Propane	5.9 Liter	I-6	Hydraulic
B1	Cummins B5.9	Propane	5.9 Liter	I-6	Air/Hydraulic
B2	Cummins B5.9	Natural Gas	5.9 Liter	I-6	Air
B3	Cummins B5.9	Natural Gas	5.9 Liter	I-6	Hydraulic
B4	Cummins B5.9	Natural Gas	5.9 Liter	I-6	Air/Hydraulic
B5	Cummins C8.3	Natural Gas	8.3 liter	I-6	Air
B6	Cummins C8.3	Natural Gas	8.3 liter	I-6	Hydraulic
B7	Cummins C8.3	Natural Gas	8.3 liter	I-6	Air/Hydraulic
B8	Detroit Series 50	Diesel	8.5 liter	I-4	Air
B9	Detroit Series 50	Diesel	8.5 liter	I-4	Hydraulic
B0	Detroit Series 50	Diesel	8.5 liter	I-4	Air/Hydraulic
CA	Detroit Series 55	Diesel	12.Liter	I-6	Air
CB	Detroit Series 55	Diesel	12.Liter	I-6	Hydraulic
CC	Detroit Series 55	Diesel	12.Liter	I-6	Air/Hydraulic
CD	Detroit Series 60	Diesel	11.1 Liter	I-6	Air
CE	Detroit Series 60	Diesel	11.1 Liter	I-6	Hydraulic
CF	Detroit Series 60	Diesel	11.1 Liter	I-6	Air/Hydraulic
CG	Detroit Series 60	Diesel	12.7 Liter	I-6	Air
CH	Detroit Series 60	Diesel	12.7 Liter	I-6	Hydraulic
CJ	Detroit Series 60	Diesel	12.7 Liter	I-6	Air/Hydraulic
CK	Detroit Series 60	Diesel	14.0 Liter	I-6	Air
CL	Detroit Series 60	Diesel	14.0 Liter	I-6	Hydraulic
CN	Mercedes-Benz MBE-900	Diesel	4.3 liter	I-4	Air
CP	Mercedes-Benz MBE-900	Diesel	4.3 liter	I-4	Hydraulic
CR	Mercedes-Benz MBE-900	Diesel	4.3 liter	I-4	Air/Hydraulic
CS	Mercedes-Benz MBE-900	Diesel	6.4 liter	I-6	Air

VIN Positions 7 and 8 (Engine, Brakes)					
Code	Engine	Fuel	Displacement	Configuration	Brakes
CT	Mercedes-Benz MBE-900	Diesel	6.4 liter	I-6	Hydraulic
CU	Mercedes-Benz MBE-900	Diesel	6.4 liter	I-6	Air/Hydraulic
CV	Mercedes-Benz MBE4000	Diesel	12.8 Liter	I-6	Air
CW	Mercedes-Benz MBE4000	Diesel	12.8 Liter	I-6	Hydraulic
CX	Mercedes-Benz MBE4000	Diesel	12.8 Liter	I-6	Air/Hydraulic
CY	Cummins ISL	Diesel	8.9 Liter	I-6	Air
CZ	Cummins ISL	Diesel	8.9 Liter	I-6	Hydraulic
C1	Cummins ISL	Diesel	8.9 Liter	I-6	Air/Hydraulic
C2	Cummins B 3.9	Diesel	3.9 Liter	I-4	Air
C3	Cummins B 3.9	Diesel	3.9 Liter	I-4	Hydraulic
C4	Cummins B 3.9	Diesel	3.9 Liter	I-4	Air/Hydraulic
C5	Cummins ISB 3.9	Diesel	3.9 Liter	I-4	Air
C6	Cummins ISB 3.9	Diesel	3.9 Liter	I-4	Hydraulic
C7	Cummins ISB 3.9	Diesel	3.9 Liter	I-4	Air/Hydraulic
C8	John Deere 6081H	CNG	8.1 Liter	I-6	Air
C9	John Deere 6081H	CNG	8.1 Liter	I-6	Hydraulic
DA	Caterpillar C9	Diesel	8.8 Liter	I-6	Air
DB	Caterpillar C9	Diesel	8.8 Liter	I-6	Hydraulic
DC	Caterpillar C7	Diesel	7.2 Liter	I-6	Air
DD	Caterpillar C7	Diesel	7.2 Liter	I-6	Hydraulic
DE	Caterpillar C13	Diesel	12.5 Liter	I-6	Air
DF	Caterpillar C13	Diesel	12.5 Liter	I-6	Hydraulic
DG	Mercedes-Benz MBE-900	Diesel	4.8 Liter	I-4	Air
DH	Mercedes-Benz MBE-900	Diesel	4.8 Liter	I-4	Hydraulic
DJ	Mercedes-Benz MBE-900	Diesel	7.2 Liter	I-6	Air
DK	Mercedes-Benz MBE-900	Diesel	7.2 Liter	I-6	Hydraulic
DL	Caterpillar C11	Diesel	11.1 Liter	I-6	Air
DM	Caterpillar C11	Diesel	11.1 Liter	I-6	Hydraulic
DN	Cummins L Gas Plus	Natural Gas	8.9 Liter	I-6	Air
DP	Cummins L Gas Plus	Natural Gas	8.9 Liter	I-6	Hydraulic
DR	Detroit DD15	Diesel	14.8 Liter	I-6	Air
DS	Detroit DD15	Diesel	14.8 Liter	I-6	Hydraulic
DT	Cummins ISB	Diesel	6.7 Liter	I-6	Air
DU	Cummins ISB	Diesel	6.7 Liter	I-6	Hydraulic
DV	Detroit DD13	Diesel	12.8 Liter	I-6	Air
DW	Detroit DD13	Diesel	12.8 Liter	I-6	Hydraulic

VIN Information

VIN Positions 7 and 8 (Engine, Brakes)					
Code	Engine	Fuel	Displacement	Configuration	Brakes
DX	Cummins ISL G	Natural Gas	8.9 Liter	I-6	Air
DY	Cummins ISL G	Natural Gas	8.9 Liter	I-6	Hydraulic
D1	Detroit DD16	Diesel	15.6 Liter	I-6	Air
D2	MDEG 7.7	Diesel	7.7 Liter	I-6	Air
D3	MDEG 7.7	Diesel	7.7 Liter	I-6	Hydraulic
D4	Cummins ISX12	Diesel	11.9 Liter	I-6	Air
D5	Detroit DD15 EV	Diesel	14.8 Liter	I-6	Air
D6	Detroit DD15 STD	Diesel	14.8 Liter	I-6	Air
D7	Detroit DD15 EV	Diesel	14.8 Liter	I-6	Hydraulic
D8	Detroit DD15 STD	Diesel	14.8 Liter	I-6	Hydraulic
D9	Cummins ISX12	Natural Gas	11.9 Liter	I-6	Air
00	NO ENGINE				

Table 5, VIN Positions 7 and 8 (Engine and Brakes)

VIN Position 10 (Model Year)	
Code	Model Year
Y	2000
1	2001
2	2002
3	2003
4	2004
5	2005
6	2006
7	2007
8	2008
9	2009
A	2010
B	2011
C	2012
D	2013

Table 6, VIN Position 10 (Model Year)

VIN Position 11 (Build Location)	
Code	Plant of Manufacture
L	Cleveland, North Carolina
P	Portland, Oregon
D	Daimler AG, Santiago, Mexico
S	Daimler AG, Saltillo, Coahuila Mexico
H	Mt. Holly, North Carolina

Table 7, VIN Position 11 (Build Location)

General Information

Daimler Trucks North America LLC distributes service and repair information for all vehicle systems, except major components such as engines, transmissions, and rear axles. Information on major components can often be found on the original equipment manufacturers' (OEM) website, many of which are listed below. The list also includes OEM websites for a number of other vehicle component or system providers, but is not comprehensive, and does not include websites for all OEMs.

OEM Websites

Click on the website address.

AC Delco www.acdelco.com

Accuride Corp. www accuride.com

Aisin Transmission www.aisin.com

Allied Signal Inc. www.honeywell.com

Allison Transmission www.allisontransmission.com

Arctic Fox www.arctic-fox.com

Arvin Meritor www.arvinmeritor.com

Bendix www.bendix.com

Borg Warner www.borgwarner.com

Bosch www.bosch.com

Bostrom www.bostromseating.com

Caterpillar Inc. www.ohe.cat.com

Chicago Rawhide www.skf.com

ConMet www.conmet.com

Cummins Engine www.cummins.com

Dana Corp. www.dana.com

DAVCO www.davcotec.com

Delco Remy www.delcoremy.com

Denso Corp. www.densocorp-na.com

Detroit Diesel www.detroitdiesel.com

Dometic-Tundra Refrigerators www.dometic.com

Donaldson Company www.donaldson.com

Eaton Corp. www.eaton.com

Enviromech Industries www.emifuel.com

Espar Heating Systems www.espar.com

Fleetguard www.cumminsfiltration.com

Fontaine www.fontaineintl.com

Grote www.grote.com

Haldex Brake Systems www.haldex.com

Hendrickson www.hendrickson-intl.com

Holland Fifth Wheels www.theholland-groupinc.com

Horton, Inc. www.hortonww.com

Jost Fifth Wheels www.jostinternational.com

Lang Mekra www.lang-mekra.com

Marmon Group www.marmon-herrington.com

Meritor-WABCO www.meritorwabco.com

MGM Brakes www.mgmbrakes.com

National Seating www.cvgrp.com

Nexgen Fueling www.nexgenfueling.com

Parker (Racor) www.parker.com

RoadRanger www.roadranger.com

R. A. Miller Antenna www.rami.com

Sears Seating www.searsseating.com

Simplex Fifth Wheels www.theholland-groupinc.com

Truck-Lite www.truck-lite.com

TRW Inc. www.trucksteering.com

Visteon www.visteon.com

ZF www.zf.com

List of Abbreviations

The following is a list of definitions for abbreviations and symbols used in Freightliner publications.

A	amperes	BBC	bumper-to-back-of-cab	CUM	Cummins
AAVA	auxiliary air valve assembly	BHM	bulkhead module	CVSA	Commercial Vehicle Safety Alliance
ABS	antilock braking system	BOC	back-of-cab	CWS	collision warning system
ABS	acrylonitrile-butadiene-styrene	BOM	bill of material	DC	direct current
A/C	air conditioner	BTDC	before top dead center	DCA	diesel coolant additive
AC	alternating current	Btu(s)	British thermal unit(s)	DCDL	driver-controlled differential lock
acc	accessories	C	common (terminal)	DDA	Detroit Diesel Allison (obs)
ACM	aftertreatment control module	CAC	charge air cooler	DDC	Detroit Diesel Corporation
ACPU	air conditioning protection unit	CAN	controller area network	DDDL	Detroit Diesel Diagnostic Link
ADLO	auto-disengagement lockout	CARB	California Air Resources Board	DDE	Detroit Diesel Engines
AGM	absorbed glass mat	CAT	Caterpillar	DDEC	Detroit Diesel Electronic (engine) Control
AGS	automated gear shift	CB	circuit breaker	DDR	diagnostic data reader
AG2	Aluminum Generation 2	CB	citizens' band	DDU	driver display unit
a.m.	<i>ante meridiem</i> (midnight to noon)	CBE	cab behind engine	def	defrost
AM	amplitude modulation	CCA	cold cranking amperes	DEF	diesel exhaust fluid
amp(s)	ampere(s)	CCR	California Code of Regulations	DFI	direct fuel injection
AMT	automated mechanical transmission	CD-ROM ..	compact-disc/read-only memory	DGPS	differential global positioning system
AMU	air management unit	CDTC	constant discharge temperature control	DHD	dealer help desk
ANSI	American National Standards Institute	CEL	check-engine light	dia.	diameter
API	American Petroleum Institute	CFC	chlorofluorocarbons (refrigerant-12)	DIAG	diagnosis
API	application programming interface	cfm	cubic feet per minute	DIP	dual inline package (switch)
ARI	Air Conditioning and Refrigeration Institute	CFR	Code of Federal Regulations	DIU	driver interface unit
ASA	American Standards Association	CGI	clean gas induction	DLA	datalink adaptor
ASF	American Steel Foundries	CGW	central gateway	DLM	datalink monitor
ASR	automatic spin regulator	CHM	chassis module	DLU	data logging unit
assy.	assembly	CIP	cold inflation pressure	DMM	digital multimeter
ASTM	American Society for Testing and Materials	CLDS	cab load disconnect switch	DOC	diesel oxidation catalyst
ATC	automatic temperature control	CLS	coolant level sensor	DOT	Department of Transportation
ATC	automatic traction control	cm	centimeters	DPF	diesel particulate filter
ATC	automatic transmission control	cm³	cubic centimeters	DRL	daytime running lights
ATD	aftertreatment device	CMVSS	Canadian Motor Vehicle Safety Standard	DRM	dryer reservoir module
ATF	automatic transmission fluid	Co.	company	DSM	district service manager
ATS	aftertreatment system	COE	cab over engine	DTC	diagnostic trouble code
attn	attention	Corp.	corporation	DTC	discharge temperature control
aux.	auxiliary	CPC	common powertrain controller	DTNA	Daimler Trucks North America
av	<i>avoirdupois</i> (British weight system)	CPU	central processing unit	DVOM	digital volt/ohm meter
AWD	all-wheel drive	CRT	cathode ray tube	ea.	each
AWG	American wire gauge	cSt	centistokes (unit of measurement for describing the viscosity of general liquids)	EBS	electronic braking system
AWS	American Welding Society	cu ft	cubic feet	ECA	electric clutch actuator
BAT	battery	cu in	cubic inches	ECAP	electronic control analyzer programmer
				ECAS	electronically controlled air suspension

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List of Abbreviations

List of Abbreviations

ECI	electronically controlled injection	FM	frequency modulation	HVLP	high velocity, low pressure
ECL	engine coolant level	FMCSA	Federal Motor Carrier Safety Administration	H/W	hardware
ECM	electronic control module	FMEA	failure mode effects analysis	Hz	hertz
ECT	engine coolant temperature	FMI	failure mode indicator	IAD	interaxle differential
ECU	electronic control unit	FMSI	Friction Materials Standards Institute	ICS	integrated child seat
EDM	electronic data monitor	FMVSS	Federal Motor Vehicle Safety Standard	ICU	instrumentation control unit
EEPROM ..	electrically erasable programmable read-only memory	FRP	fiberglass reinforced plastic	i.d.	inside diameter
EFG	electric fuel gauge	FSA	field service authorization	ID	identification
EFPA	electronic foot pedal assembly	FSM	fleet service manager	IFI	Industrial Fasteners Institute
EGR	exhaust gas recirculation	ft	feet	IFS	independent front suspension
ELC	extended-life coolant	ft³	cubic feet	IGN	ignition
EMC	electromagnetic compatibility	ft³/min	cubic feet per minute	ILB	intelligent lightbar
EMI	electromagnetic interference	FTL	Freightliner	ILO	<i>in lieu of</i> (in the place of)
EOA	electric over air	F.U.E.L.	fuel usage efficiency level	in	inches
EP	extreme pressure (describes an antiwear agent added to some lubricants)	g	grams	in³	cubic inches
EPA	Environmental Protection Agency	gal	gallons	Inc.	incorporated
EPS	engine position sensor	GAWR	gross axle weight rating	inH₂O	inches of water
ESC	electronic stability control	GHG	greenhouse gas	inHg	inches of mercury
ESC	enhanced stability control	GHG14	greenhouse gas and fuel efficiency regulations	I/O	input/output
ESD	electrostatic discharge	GL	gear lubricant	IP	instrument panel
ESS	engine syncro shift (transmission)	GND	ground	ISO	International Organization for Standardization
etc.	<i>et cetera</i> (and so forth)	gpm	gallons per minute	IVS	idle validation switch
ETEC	electronic truck engine control	GPS	global positioning system	k	kilo (1000)
EUI	electronic unit (fuel) injectors	GVWR	gross vehicle weight rating	kg	kilograms
EVA	electronic vibration analyzer	HBED	hard-braking event data	km	kilometers
EXM	(chassis) expansion module	HCM	hybrid control module	km/h	kilometers per hour
E85	85% ethanol fuel	HCOE	high cab over engine	kPa	kilopascals
FAS	Freightliner air suspension	HCU	hydraulic control unit	kW	kilowatts
FCCC	Freightliner Custom Chassis Corporation	HD	heavy-duty	L	liters
FCU	forward control unit	HCU	hydraulic control unit	lb	pounds
FET	field effect transistor	HDU	hybrid drive unit	LBCU	lightbar control unit
Fig.	figure	HEPA	high-efficiency particulate air (filter)	lbf-ft	pounds force feet
fl oz	fluid ounces	HEST	high exhaust system temperature	lbf-in	pounds force inches
FLA	post-1984 advancements Freightliner COE	HEV	hybrid electric vehicle	LCD	liquid crystal display
FLB	enhanced Freightliner FLA COE	HFC	hydrogenated fluorocarbons (refrigerant-134a)	LCOE	low cab over engine
FLC	steel-cab Freightliner 112 Conventional	hp	horsepower	LED	light-emitting diode
FLD	post-1984 advancements Freightliner 112/120 aluminum-cab Conventional	hp	high pressure	LFL	lower flammability limit
FLR	forward-looking radar	HRC	Rockwell "C" hardness	LH	left-hand
		hr(s)	hour(s)	LHD	left-hand drive
		HSA	hill start aid	LH DR	left-hand-drive
		HSD	high-side driver	LHK	liters per hundred kilometers
		htr.	heater	LHS	low-hydrogen steel
		HVAC	heating, ventilating, and air conditioning	LIN	Local Interconnect Network
				LLC	limited liability company
				L/min	liters per minute
				LNG	liquefied natural gas
				LPG	liquefied petroleum gas