FREIGHTLINER
Run Smart

BUSINESS CLASS TRUCKS SERVICE MANUAL

Models: FL50
FL60
FL70
FL80
FL106
FL112
MB50
MB60
MB70
MB80

STI-267, S34 (1/08P)

Published by
Daimler Trucks North America LLC
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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.

Instructions and procedures are those recommended by Daimler Trucks North America LLC or the component manufacturer.

Maintenance schedules and additional service information are included in the *Business Class® Trucks Maintenance Manual*.

IMPORTANT: Descriptions and specifications in this manual were in effect at the time of printing. Daimler Trucks North America LLC reserves the right to discontinue models at any time, or change specifications and design without notice and without incurring obligation.

For additional information, please contact Daimler Trucks North America LLC, Service Systems and Documentation, P.O. Box 3849, Portland, OR 97208-3849, U.S.A. or refer to www.Daimler-TrucksNorthAmerica.com and www.FreightlinerTrucks.com.

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.

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.

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. Each workshop/service manual section is divided into subjects that can include general information, principles of operation, removal, disassembly, assembly, installation, specifications, and troubleshooting.

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, 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 pretrip inspection and daily maintenance of vehicle components. Driver's/operator's manuals do not contain detailed repair or service information.

Parts Technical Manual

Daimler Trucks North America LLC publishes this manual to aid in the identification of serviceable replacement vehicle parts. This manual is used in conjunction with the parts book and the service parts catalog microfiche.

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.

Recall Bulletins

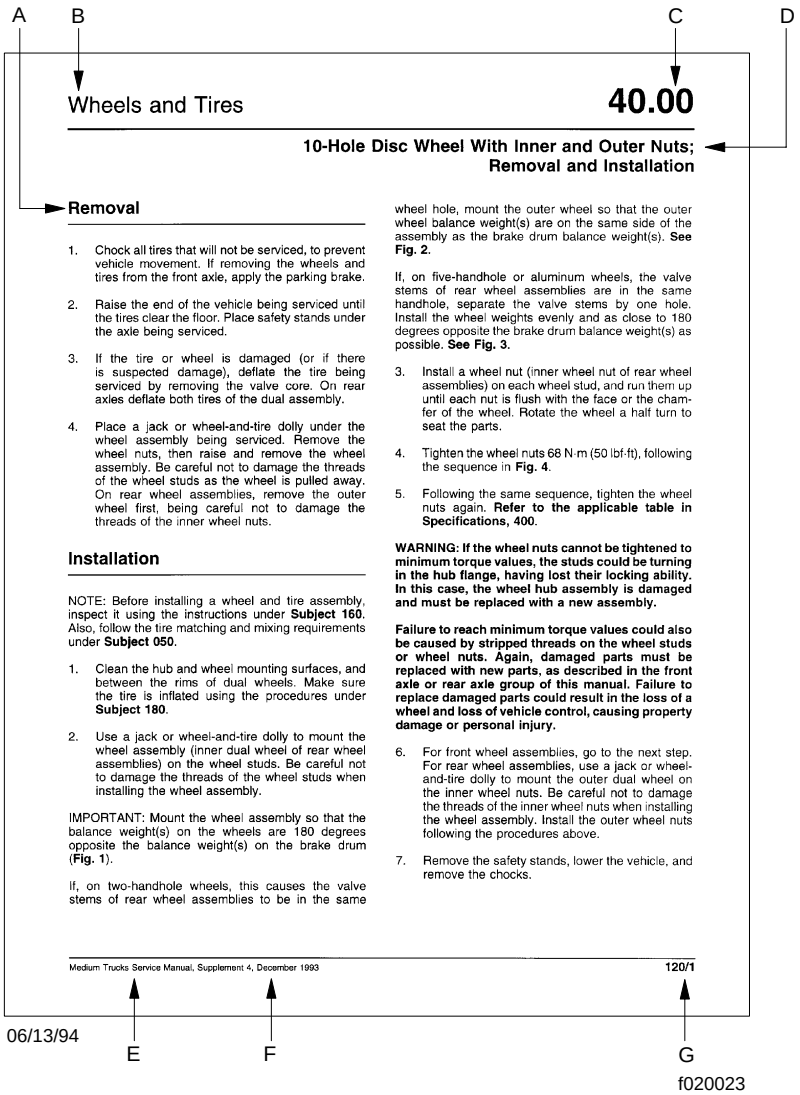
These bulletins pertain to special situations that involve service work or replacement of parts in connection with a recall notice. Recall bulletins pertain to matters of vehicle safety. All bulletins are distributed to dealers; customers receive notices that apply to their vehicles.

Field Service Modifications

This publication is concerned with non-safety-related service work or replacement of parts. All field service modifications 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. Subject Topic
B. Section Title
C. Section Number; made up of the Group Number (first two digits) followed by a sequence number (last two digits)
D. Subject Title
E. Manual Title
F. Supplement Number and Release (Supplement) Date
G. Subject Number/Subject Page Number

Fig. 1, Page Example of the Printed Manual

Service Manual Contents

Vehicle Receipt

Prior to signing for vehicle delivery from a transporter company, the dealer is responsible for checking for transporter-related shortages or damages, and noting these discrepancies on the transporter's delivery receipt.

The dealer is also responsible for ensuring that the vehicle was built according to the Truck Sales Order/ Invoice.

Refer to Section 3 of the Freightliner LLC *Warranty Manual* for details.

Vehicle Storage

There may be times when a vehicle is stored for long periods before customer delivery. To protect all vehicles from deterioration and weather, they must be properly maintained. Adequate protection and storage of new vehicles is the responsibility of the dealer.

Claims arising from loss and damage to improperly stored vehicles will not be reimbursed.

See Section 3 of the Freightliner LLC *Warranty Manual* for instructions on storage of new vehicles.

Pre-Delivery Information

All pre-delivery inspections and services must be performed at an authorized Freightliner LLC facility, assigned to fully qualified service personnel and recorded on the "New Vehicle Pre-Delivery Inspection" form.

Refer to Section 3 of the Freightliner LLC *Warranty Manual* for details.

It is recommended the pre-delivery inspection be performed within 30 days of vehicle receipt.

Hoses and Electrical Wiring Routing Standards

Cooling System

1. Cooling system hoses must clear all moving parts by a minimum of 1/4 inch (6 mm).
2. The 1-inch (25-mm) hose from the surge tank to the engine must be free of sumps and have allowance for engine torque.
3. Cooling system hoses should not be twisted or kinked.
4. Cooling system hoses must be routed at least six inches (152 mm) from a heat source if the heat source does not have a heat shield. If a heat shield is provided, the hose must be routed at least three inches (76 mm) from the heat source.

HVAC System

1. Cushion clamps are required to support all A/C lines. Butterfly or figure-8 clamps (two cushion clamps) may be used to prevent rubbing or chafing.
2. Tie straps may only be used to fasten together A/C lines that are parallel to each other.
3. Heater hoses that are protected with convoluted tubing may be fastened with tie straps. Otherwise, only cushion clamps or butterfly clamps may be used for heater hoses.
4. A/C lines cannot be secured to air lines, fuel lines, or electrical wires.
5. HVAC hoses should be protected from damage by routing them away from hazards of heat, wheel splash (water, gravel, ice), human traffic, and moving parts of the vehicle.
6. HVAC hoses should be routed away from sharp points and edges (such as nuts, bolts, brackets, and frame rail edges), moveable parts, and sources of abrasion, cutting, pinching, or crushing.

NOTE: If hoses are covered with convoluted tubing, they may touch any of the above.

7. Hoses that are protected with convoluted tubing may come in contact with the bends on frame rails and filters.
8. HVAC hoses must be routed at least six inches (152 mm) from a heat source if the heat source does not have a heat shield. If a heat shield is provided, the hose must be routed at least three inches (76 mm) from the heat source.
9. HVAC hoses should be clamped every 12 to 18 inches (305 to 457 mm).
10. All HVAC hoses must be routed so that regularly serviced components, such as fuel filters, fuel/water separators, oil filters, air filters, belts, and fill and drain plugs, are readily accessible for adjustment or replacement without the need to relocate or remove the hoses.

Engine Plumbing

The engine oil pressure line should not rub or chafe against the Teflon® discharge line.

Electrical Wiring

1. Wires that are bundled together should be fastened at 8- to 12-inch (203- to 305-mm) intervals. If anchor clamps are more than 12 inches (305 mm) apart, a tie strap must be used between the anchor clamps.
2. Bundles of wires that are located in an exposed area, such as under the cab or outside the frame rail, need to be fastened with heavy-duty cable ties.
3. Any wiring that will be exposed to water or heat must be covered with either loom or convoluted tubing. Loom or convoluted tubing need not butt up against Weather Pack® connectors.
4. Any wiring routed across the vehicle, on the engine crossmember, or across the rear of the engine, must be secured with a clamp or tie strap, and covered with either convoluted tubing or a loom.
5. Any wiring that may come into contact with sharp points and edges (such as nuts, bolts, brackets, and frame rail edges), moveable parts, and sources of abrasion, cutting, pinching, or crushing, must be protected by either a loom or convoluted tubing.
6. Unprotected breakouts (individual wires) of up to eight inches (203 mm) are acceptable as long as these wires are routed safely away from sharp

points and edges, moveable parts, and sources of abrasion, cutting, pinching, or crushing.

7. Gray, flame-retardant convoluted tubing may be used to protect wiring in the cab or the chassis. Black nylon convoluted tubing may only be used in the chassis.
8. All wiring must be routed so that regularly serviced components, such as fuel filters, fuel/water separators, oil filters, air filters, belts, and fill and drain plugs, are readily accessible for adjustment or replacement without the need to relocate or remove any wiring.
9. In exposed locations, such as the road light harness near the headlights, loose loops of wire must be secured with tie straps.
10. All wiring should be routed a minimum of four inches (102 mm) from the exhaust. In situations where the wiring is less than four inches (102 mm) from the exhaust, a heat shield must be placed between the wiring and the exhaust.

Battery Cables

1. Battery cables must be routed along an unobstructed path from the starter to the battery box. The cables must **not** rub or chafe on brackets, tanks, air lines or fuel lines.
2. Battery cables and electrical wiring cannot be tied or secured to fuel lines, discharge lines, or air lines.
3. Battery cables must have support brackets no more than 30 inches (762 mm) apart. Tie straps must be within six inches (152 mm) of both sides of the support brackets, and every 12 inches (305 mm) between the brackets.
4. Battery cables must have convoluted tubing from the frame bracket to the batteries, and from the frame bracket to the starter.

Fuel Lines

1. Fuel lines must not be clamped to A/C lines, battery cables, jumper cables, or any other electrical wiring.
2. Stand-off brackets or clamps may be used to prevent fuel lines from rubbing against the frame.
3. Fuel lines must be routed at least six inches (152 mm) from a heat source. If a heat shield is provided, the fuel line must be at least three inches (76 mm) from the heat source.
4. Fuel lines that are parallel may be fastened together. Fuel lines that cross or that rub on metal, plastic, or electrical parts, need to be separated with butterfly clamps.

Chassis Air Lines and Brake Hoses

1. Hoses may come in contact with each other if they are parallel, or if they are bundled together.
2. If the hoses lie on the curve or flat surface of a bracket or crossmember, they do not need convoluted tubing.
3. Brake hoses may be clamped at the top of the axle housing, and touch or lie against the axle housing in its path to the brake chamber as this assembly moves together.
4. Brake hoses must have slack between the last clamping point on the rail and brake chamber to allow for full range of suspension travel.
5. Brake hoses should have butterfly clamps at breakout points.
6. Air lines and brake hoses that are bundled together should be fastened at 8- to 12-inch (203- to 305-mm) intervals. If anchor clamps are more than 12 inches (305 mm) apart, a tie strap must be used between the anchor clamps. Tie straps may be closer than 12 inches (305 mm) apart.
7. Hoses or lines that may come into contact with the sharp edge of a bracket or frame rail are to be protected by convoluted tubing.
8. Air lines and brake hoses that are parallel may be fastened together. Air lines and brake hoses that cross or that rub on metal, plastic, or electrical parts need to be separated with butterfly clamps.
9. Nylon or STX (wire braid) chassis air lines may be fastened together to prevent rubbing, as long as the lines are stationary.

Refer to tables in this subject for conversion factors.

U.S. Customary to Metric			Metric to U.S. Customary		
When You Know	**Multiply By**	**To Get**	**When You Know**	**Multiply By**	**To Get**
Length					
inches (in)	25.4	millimeters (mm)	0.03937		inches (in)
inches (in)	2.54	centimeters (cm)	0.3937		inches (in)
feet (ft)	0.3048	meters (m)	3.281		feet (ft)
yards (yd)	0.9144	meters (m)	1.094		yards (yd)
miles (mi)	1.609	kilometers (km)	0.6215		miles (mi)
Area					
square inches (in^2)	645.16	square millimeters (mm^2)	0.00155		square inches (in^2)
square inches (in^2)	6.452	square centimeters (cm^2)	0.15		square inches (in^2)
square feet (ft^2)	0.0929	square meters (m^2)	10.764		square feet (ft^2)
Volume					
cubic inches (in^3)	16387.0	cubic millimeters (mm^3)	0.000061		cubic inches (in^3)
cubic inches (in^3)	16.387	cubic centimeters (cm^3)	0.06102		cubic inches (in^3)
cubic inches (in^3)	0.01639	liters (L)	61.024		cubic inches (in^3)
fluid ounces (fl oz)	29.54	milliliters (mL)	0.03381		fluid ounces (fl oz)
pints (pt)	0.47318	liters (L)	2.1134		pints (pt)
quarts (qt)	0.94635	liters (L)	1.0567		quarts (qt)
gallons (gal)	3.7854	liters (L)	0.2642		gallons (gal)
cubic feet (ft^3)	28.317	liters (L)	0.03531		cubic feet (ft^3)
cubic feet (ft^3)	0.02832	cubic meters (m^3)	35.315		cubic feet (ft^3)
Weight/Force					
ounces (av) (oz)	28.35	grams (g)	0.03527		ounces (av) (oz)
pounds (av) (lb)	0.454	kilograms (kg)	2.205		pounds (av) (lb)
U.S. tons (t)	907.18	kilograms (kg)	0.001102		U.S. tons (t)
U.S. tons (t)	0.90718	metric tons (t)	1.1023		U.S. tons (t)
Torque/Work Force					
inch-pounds (lbf·in)	11.298	Newton-centimeters (N·cm)	0.08851		inch-pounds (lbf·in)
foot-pounds (lbf·ft)	1.3558	Newton-meters (N·m)	0.7376		foot-pounds (lbf·ft)
Pressure/Vacuum					
inches of mercury (inHg)	3.37685	kilo Pascals (kPa)	0.29613		inches of mercury (inHg)
pounds per square inch (psi)	6.895	kilo Pascals (kPa)	0.14503		pounds per square inch (psi)

General Information

When You Know	Subtract	Then Divide By	To Get	When You Know	Multiply By	Then Add	To Get
degrees Fahrenheit (°F)	32	1.8	degrees Celsius (°C)		1.8	32	degrees Fahrenheit (°F)

VIN for Vehicles Built through April 30, 2000

IMPORTANT: See **Subject 060** for the vehicle identification numbering system for vehicles built May 1, 2000, or later.

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, 1FUYSTEBXVPA99999.

The VIN can be found on the Vehicle Specification Decal (see the driver's manual for decal location) and stamped on the left frame rail over the front axle about 2 inches (50 mm) from the top of the web or on the top flange of the left frame rail at frame station 30.

NOTE: For Freightliner vehicles assembled and sold in Mexico, the VIN appears on a plate or label attached to the driver's door. Also, a data card placed in the glove box shows the Mexican VIN as the "CHASSIS" number. The "CABIN" number is part of the Freightliner VIN, the last six digits of which are the Freightliner serial number.

IMPORTANT: A new VIN-code structure will be used for all vehicles built after April 30, 2000. Character positions 1 through 4 and 9 through 17 are nearly the same in both versions, but positions 5 through 8 have been assigned slightly different parameters. As a result, the build date of a vehicle must be determined before the VIN can be decoded.

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**	**Y**	**S**	**T E**	**B**	**X**	**V**	**P**	**A 9 9 9 9 9**
Character Position	**1, 2, 3**	**4**	**5**	**6, 7**	**8**	**9**	**10**	**11**	**12 thru 17**
Decoding Table*	**Table 2**	**Table 3**	**Table 4**	**Table 5**	**Table 6**	**—**	**Table 7**	**Table 8**	**—**
Code Description									
Manufacturer, Make, Vehicle Type									
Chassis, Front Axle Position, Brakes									
Vehicle Model Series, Cab									
Engine Model, Horsepower Range									
Gross Vehicle Weight Rating (GVWR)									
Check Digit									
Vehicle Model Year									
Plant of Manufacture									
Production Number									

* 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 (Manufacturer, Make, Vehicle Type)			
Code	**Vehicle Manufacturer**	**Vehicle Make**	**Vehicle Type**
1FU	Freightliner, U.S.A.	Freightliner	Truck-Tractor

VIN for Vehicles Built through April 30, 2000

VIN Positions 1, 2, and 3 (Manufacturer, Make, Vehicle Type)			
Code	**Vehicle Manufacturer**	**Vehicle Make**	**Vehicle Type**
1FV	Freightliner, U.S.A.	Freightliner	Incomplete Vehicle
2FU	Freightliner, Canada	Freightliner	Truck-Tractor
2FV	Freightliner, Canada	Freightliner	Incomplete Vehicle
3FE	M-B, Mexico (before April 1996)	Freightliner	Truck-Tractor
3FF	M-B, Mexico (before April 1996)	Freightliner	Incomplete Vehicle
3AK	M-B, Mexico (after April 1996)	Freightliner	Truck-Tractor
3AL	M-B, Mexico (after April 1996)	Freightliner	Incomplete Vehicle
AFV	M-B, South Africa	Freightliner	Truck
KFB	AIL, Israel	Freightliner	Truck
RSA	NAI, Saudi Arabia	Freightliner	Incomplete Vehicle
RSB	NAI, Saudi Arabia	Freightliner	Truck-Tractor

Table 2, VIN Positions 1, 2, and 3 (Manufacturer, Make, Vehicle Type)

VIN Position 4 (Chassis, Front Axle Position, Brakes)			
Code	**Chassis**	**Front Axle Position**	**Brakes**
A	4 x 2 Truck	Forward	Hydraulic
B	8 x 4 Truck-Tractor	Setback	Air
C	6 x 6 Truck-Tractor	Setback	Air
D	4 x 4 Truck	Setback	Hydraulic
E	4 x 4 Truck	Setback	Air
F	8 x 4 Truck	Forward	Air
G	8 x 4 Truck-Tractor	Forward	Air
H	4 x 2 Truck	Forward	Air
J	10 x 4 Truck	All	Air
K	4 x 2 Truck-Tractor	Forward	Air
L	6 x 2 Truck	Forward	Air
M	6 x 2 Truck-Tractor	Forward	Air
N	6 x 4 Truck	Forward	Air
P	6 x 4 Truck-Tractor	Forward	Air
R	10 x 6 Truck	Forward	Air
S	10 x 6 Truck-Tractor	Forward	Air
T	6 x 6 Truck	Setback	Air
U	8 x 6 Truck	All	Air
V	8 x 6 Truck-Tractor	All	Air
W	4 x 2 Truck-Tractor	Setback	Air

VIN Position 4 (Chassis, Front Axle Position, Brakes)			
Code	**Chassis**	**Front Axle Position**	**Brakes**
X	6 x 4 Truck	Setback	Air
Y	6 x 4 Truck-Tractor	Setback	Air
Z	6 x 2 Truck	Setback	Air
1	4 x 2 Truck *	Forward	Air/Hydraulic
	10 x 6 Truck †	Setback	Air
2	4 x 4 Truck	Setback	Air
3	4 x 2 Truck	Setback	Hydraulic
4	8 x 4 Truck	Setback	Air
5	6 x 2 Truck-Tractor	Setback	Air
6	4 x 2 Truck	Setback	Air
7	Glider	Setback	Air
8	Glider	Forward	Air
9	4 x 2 Truck	Setback	Air/Hydraulic
0	Glider	Setback	Air

* Starting August 1998.
† Through July 1998; included in code R starting August 1998.

Table 3, VIN Position 4 (Chassis, Front Axle Position, Brakes), January 18,1988 through April 30, 2000

VIN for Vehicles Built through April 30, 2000

VIN Position 5 (Model Series, Cab)	
Code	**Vehicle Model, Cab**
A	FLA High COE
B	FLB High COE
C	120 Conventional XL
D	FLD120 Conventional, Highway
E	FL50 Short Conventional
F	FLD120SD Conventional, Construction
G	FL60 Short Conventional
H	FL70 Short Conventional
J	FL80 Short Conventional
L	112 Conv., Alum. Cab, Hwy., 48RR94MY *
	Argosy High COE
M	120 Conventional, Military
N	Century Class 112 Conventional
P	120 Conv., Alum. Cab, Hwy., 48RR94MY
	Columbia 120 Conventional
R	112 Conventional, Steel Cab, Hwy., RH Drive
S	Century Class 120 Conventional
T	High COE (through 88MY)
	FL112 Conventional
U	120 Conventional XL, 48RR94MY

VIN Position 5 (Model Series, Cab)	
Code	**Vehicle Model, Cab**
V	MB60 Short Conventional (to 95MY)
	Legacy FL112 (00MY)
W	FC80 Freightliner Cargo COE
X	MB70 Short Conventional (to 97MY)
	Legacy FLD120 (00MY)
Y	MB80 Short Conventional (through 98MY)
Z	112 Conventional, Steel Cab, Highway
1	FLC112 Conv., Steel Cab, Constr. (to 98MY)
2	FLC120 Conventional (to 91MY)
	FC60 Freightliner Cargo COE
3	FLD112 Conventional, Alum. Cab, Highway
4	Low COE, Aluminum Cab
5	MB50 Short Conventional
6	FLD112SD Conv., Alum. Cab, Construction
7	FLD120 Conventional, SilverAero (91MY)
	FC70 Freightliner Cargo COE
8	FL106 Short Conventional
9	RIV

* MY = Model Year

Table 4, VIN Position 5 (Model Series, Cab)

VIN Positions 6 and 7 (Engine Manufacturer, Model, Horsepower Range)			
Code	**Engine Manufacturer**	**Engine Model**	**HP Range**
AY	Cummins	NTC / N14	207–251
BD	Mercedes-Benz	MBE4000	353–407
BE	Mercedes-Benz	MBE4000	408–495
BX	Mercedes-Benz	MBE4000	288–352
BY	Cummins	NTC / N14	254–310
CX	Detroit Diesel	S-60, 11.1 L	331–402
CY	Cummins	N14	315–385
DY	Cummins	NTC / N14	389–475
DZ	Cummins	N14	476–580
EB	Caterpillar	C10 / 3176J	225–275
EC	Caterpillar	C10 / 3176J	276–335
ED	Caterpillar	C10 / 3176	336–407

VIN for Vehicles Built through April 30, 2000

VIN Positions 6 and 7 (Engine Manufacturer, Model, Horsepower Range)			
Code	**Engine Manufacturer**	**Engine Model**	**HP Range**
F4	Cummins	B5.9 (propane)	185–224
FA	Cummins	6BT 5.9 (diesel) / ISB	185–224
FB	Cummins	6BT 5.9 (diesel) / ISB	225–275
FF	Cummins	6BT 5.9 / ISB	153–184
FH	Cummins	6BT 5.9–195G (natural gas)	185–224
FV	Cummins	6BT 5.9–195G (natural gas)	126–152
GA	Mercedes-Benz	OM 366LA	185–224
GB	Mercedes-Benz	OM 366LA	225–275
GF	Mercedes-Benz	OM 366LA	153–184
HB	Detroit Diesel	S–50	225–275
HC	Detroit Diesel	S–50	276–335
HD	Detroit Diesel	S–50	336–407
JA	Caterpillar	CFE / 3126 (diesel)	185–224
JB	Caterpillar	CFE / 3126 (diesel)	225–275
JC	Caterpillar	CFE / 3126 (diesel)	276–335
JF	Caterpillar	CFE / 3126 (diesel)	153–184
KY	Cummins	L10	225–275
LA	Cummins	6C 8.3 (diesel) / ISC	185–224
LB	Cummins	6C 8.3 (diesel) / ISC	225–275
LC	Cummins	6C 8.3 (diesel) / ISC	276–335
LD	Cummins	L10	336–407
LE	Cummins	ISC	336–407
LL	Cummins	C 8.3 (natural gas) / ISC	225–276
LY	Cummins	L10	276–330
MC	Cummins	M11 / ISM	276–335
MD	Cummins	M11 / ISM	336–407
ME	Cummins	M11 / ISM	408–495
MW	Cummins	ISM	496–605
NT	Cummins	4B 3.9–130 hp (diesel)	126–152
PY	Detroit Diesel	S-60, 11.1 L	275–330
RY	Caterpillar	3406	270–330
SE	Detroit Diesel	S-60, 12.7 L	408–495
SM	Detroit Diesel	S-60, 12.7 L	276–335
SY	Caterpillar	3406	333–407
SZ	Detroit Diesel	S-60, 12.7 L	496–605

VIN for Vehicles Built through April 30, 2000

VIN Positions 6 and 7 (Engine Manufacturer, Model, Horsepower Range)			
Code	**Engine Manufacturer**	**Engine Model**	**HP Range**
TD	Detroit Diesel	S-55	336–407
TE	Detroit Diesel	S-55	408–495
TJ	Dodge	Magnum V8 (gasoline)	207–253
TR	Dodge	Magnum V10 (gasoline)	270–330
TY	Caterpillar	3408	383–467
UY	Caterpillar	3306	225–275
VY	Caterpillar	3406	225–269
WC	Caterpillar	C12	276–335
WD	Caterpillar	C12 / 3176L	336–407
WE	Caterpillar	C12 / 3176L	408–495
WY	Caterpillar	3306	276–335
XY	Caterpillar	3406	408–495
XZ	Caterpillar	3406	496–605
YY	Detroit Diesel	S-60, 11.1 L	225–274
ZY	Detroit Diesel	S-60, 12.7 L	333–407
1B	Detroit Diesel	6L–71	225–275
1C	Detroit Diesel	6L–71	276–335
2W	Detroit Diesel	S-60, 14.0L	496–605
3A	Mercedes-Benz	MB904	185–224
4Y	Detroit Diesel	6V–92	239–287
5Y	Detroit Diesel	6V–92	288–352
6A	Mercedes-Benz	MB906	185–224
6B	Mercedes-Benz	MB906	225–275
6C	Mercedes-Benz	MB906	276–335
6Y	Detroit Diesel	8V–92	365–446
7D	Cummins	ISX Signature	336–407
7E	Cummins	ISX Signature	408–495
7W	Cummins	ISX Signature	496–605
8Y	Detroit Diesel	8V–92	302–364
9Y	Detroit Diesel	8V–92	447–522
0Y	No Engine	—	—

Table 5, VIN Positions 6 and 7 (Engine Manufacturer, Model, Horsepower Range)

VIN for Vehicles Built through April 30, 2000

VIN Position 8 (Gross Vehicle Weight Rating)		
Code	**lb**	**kg**
A	26,001–33,000	11 794–14 968
B	33,001 or over	14 969 or over
C	19,501–26,000	8846–11 793
D	16,001–19,500	7258–8845
2	6001–10,000	2722–4536
3	10,001–14,000	4537–6350
4	14,001–16,000	6351–7257
9	N/A: Incomplete Vehicle or Glider	

Table 6, VIN Position 8 (Gross Vehicle Weight Rating)

VIN Position 10 (Vehicle Model Year)	
Code	**Model Year**
J	1988
K	1989
L	1990
M	1991
N	1992
P	1993
R	1994
S	1995
T	1996
V	1997
W	1998
X	1999
Y	2000
1	2001
2	2002

Table 7, VIN Position 10 (Vehicle Model Year)

VIN Position 11 (Plant of Manufacture)	
Code	**Plant of Manufacture**
A	St. Thomas, Ontario
B	Mercedes-Benz, South Africa
C	Gaffney, South Carolina
D	Mercedes-Benz, Mexico, Santiago
F	AIL, Israel

VIN Position 11 (Plant of Manufacture)	
Code	**Plant of Manufacture**
H	Mt. Holly, North Carolina
L	Cleveland, North Carolina
M	Mercedes-Benz, Monterrey
N	Mercedes-Benz, Australia
P	Portland, Oregon
R	American LaFrance, Cleveland, NC
V	Burnaby, British Columbia
W	NAI, Saudi Arabia

Table 8, VIN Position 11 (Plant of Manufacture)

VIN for Vehicles Built from May 1, 2000

IMPORTANT: See **Subject 050** for the vehicle identification numbering system for vehicles built before May 1, 2000.

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 driver's manual for decal location) and stamped on the left frame rail over the front axle about 2 inches (50 mm) from the top of the web or on the top flange of the left frame rail at frame station 30.

NOTE: For Freightliner vehicles assembled and sold in Mexico, the VIN appears on a plate or label attached to the driver's door. Also, a data card placed in the glove box shows the Mexican VIN as the "CHASSIS" number. The "CABIN" number is part of the Freightliner VIN, the last six digits of which are the Freightliner serial number.

IMPORTANT: A new VIN-code structure will be used for all vehicles built after April 30, 2000. As a result, the build date of a vehicle must be determined before the VIN can be decoded.

Character positions 1 through 4 and 9 through 17 are nearly the same in both versions, but positions 5 through 8 have been assigned slightly different parameters.

Another new feature is that each product line has its own model list; that is, positions 5 and 6 are will be product-specific in the new system. For example, the code AB in positions 5 and 6 for a Freightliner vehicle indicates an FLD112. Code AB in the same position for a Sterling vehicle represents an SC7000 Cargo.

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**	**AB**	**AV**	**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	M-B, Mexico (after April 1996)	Freightliner	Truck-Tractor
3AL	M-B, Mexico (after April 1996)	Freightliner	Incomplete Vehicle
RSA	NAI, Saudi Arabia	Freightliner	Incomplete Vehicle

VIN for Vehicles Built from May 1, 2000

VIN Positions 1, 2, and 3 (World Manufacturer Identification)			
Code	**Vehicle Manufacturer**	**Vehicle Make**	**Vehicle Type**
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
D	4 x 4 Truck
E	4 x 4 Truck-Tractor
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
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-Tractor
V	10 x 6 Truck-Tractor
X	Glider

Table 3, VIN Position 4 (Chassis Configuration)

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	**Model**	**Cab**	**Class (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

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	**Model**	**Cab**	**Class (GVWR)**
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 Classic Glider	Conventional	Glider
AS	FLD120 Military	Conventional	Class 7
AT	FLD120 Military	Conventional	Class 8
AU	FLD120 Mil Glider	Conventional	Glider
AV	Argosy	COE	Class 7
AW	Argosy	COE	Class 8
AX	Argosy Glider	COE	Glider
AY	C112 (Century Class)	Conventional	Class 7
AZ	C112	Conventional	Class 8
A1	C112 Glider	Conventional	Glider
A2	C120 (Century Class)	Conventional	Class 7
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	ST112 (Century Class)	Conventional	Class 7
A9	ST112	Conventional	Class 8
A0	ST112 Glider	Conventional	Glider

VIN for Vehicles Built from May 1, 2000

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	**Model**	**Cab**	**Class (GVWR)**
BA	ST120 (Century Class)	Conventional	Class 7
BB	ST120	Conventional	Class 8
BC	ST120 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	FC70	Conventional	Class 6
BT	FC70	Conventional	Class 7
BU	FC70	Conventional	Class 8
BV	FC80	Conventional	Class 6
BW	FC80	Conventional	Class 7
BX	FC80	Conventional	Class 8
BY	FL106	Conventional	Class 6
BZ	FL106	Conventional	Class 7
B1	FL106	Conventional	Class 8

VIN Positions 5 and 6 (Model, Cab, Class/GVWR)			
Code	**Model**	**Cab**	**Class (GVWR)**
B2	FC70 Cargo	COE	Class 6
B3	FC70 Cargo	COE	Class 7
B4	FC70 Cargo	COE	Class 8
B5	FC80 Cargo	COE	Class 6
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	T-2	COE	Class 7
CF	T-2	COE	Class 8

* Class 7 GVWR is 26,001–33,000 lb.
† Class 8 GVWR is 33,001 lb and over.
‡ Class 4 GVWR is 14,001–16,000 lb.
§ Class 5 GVWR is 16,001–19,500 lb.
¶ Class 6 GVWR is 19,501–26,000 lb.

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

VIN Positions 7 and 8 (Engine, Brakes)					
Code	**Engine**	**Fuel**	**Displace-ment (L)**	**Config-uration**	**Brakes**
AA	Caterpillar 3176	Diesel	10.3	I–6	Air
AB	Caterpillar 3176	Diesel	10.3	I–6	Hydraulic
AC	Caterpillar 3176	Diesel	10.3	I–6	Air/Hydraulic