

Ford Motor Company

DO NOT DESTROY: THIS MANUAL IS REQUIRED BY
LAW. KEEP UNTIL THE VEHICLE IS COMPLETED BY
THE FINAL STAGE MANUFACTURER.

2002 F-SUPER DUTY Class A Motorhome Chassis INCOMPLETE VEHICLE MANUAL

**Incomplete Vehicle Type
For This Manual**



F 53
Basic Stripped
Chassis

Update March 2001
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U.S. MOTOR VEHICLE SAFETY STANDARDS (APPLICATION BY VEHICLE TYPE)

FMVSS Number	Title of Standard -	Bus (Not School Bus)	MPV	(1) Equip.
101	Control Location, Identification and Illumination	X	X	
102	Transmission Shift Lever Sequence, Starter Interlock & Transmission Braking Effect	X	X	
103	Windshield Defrosting & Defogging Systems	X	X	
104	Windshield Wiping and Washing Systems	X		
105	Hydraulic Brake Systems	X	X	
106	Brake Hoses	X	X	X
108	Lamps Reflective Devices & Associated Equipment	X	X	X
111	Rearview Mirrors	X	X	
113	Hood Latch Systems	X	X	
116	Hydraulic Brake Fluids	X	X	X
119	New Pneumatic Tires for Vehicles Other Than Passenger Cars			X
120	Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars	X	X	X
121	Air Brake Systems	X	X	
124	Accelerator Control Systems	X	X	
125	Warning Devices			X
205	Glazing Materials			X
206	Door Locks and Door Retention Components		X	
207	Seating System	X	X	
208	Occupant Crash Protection	X	X(3) (4)	X
209	Seat Belt Assemblies			X
210	Seat Belt Assembly Anchorages	X	X	
213	Child Restraint Systems	X	X	X
217	Bus Window Retention and Release	X		
302	Flammability of Interior Materials	X	X	
PART 565	Vehicle Identification Number (Applicable to incomplete vehicles as well)	X	X	

FMVSS 107 and FMVSS 211 have been rescinded by NHTSA.

FMVSS 112 has been rescinded by NHTSA and the requirements transferred to FMVSS 108.

FMVSS 115 requirements transferred to Part 565.

(1) Applicable to Equipment for use on applicable vehicle types.

(2) Applicable to Equipment used on MPVs only.

(3) Injury criteria applicable to vehicles with a GVWR of 3855 kg [8,500 lb] or less and an unloaded vehicle weight of 2495 kg [5,500 lb] or /less.

(4) Injury criteria is optional on Walk-in Van-Type Trucks, Motor Homes, vehicles manufactured for operation by persons with disabilities etc. See 49 CFR, Part 571.208, S4.2.2.

INTRODUCTION

Information in this manual is furnished pursuant to United States and Canadian safety regulations or, in some cases where the information is not required by regulation, is furnished for the convenience of intermediate or final stage vehicle manufacturers. Incomplete vehicles manufactured for sale or importation into the U.S. are specially equipped for the United States. The descriptions and statements contained in the manual relate only to motor vehicle safety standards issued under the National Traffic and Motor Vehicle Safety Act of 1966 as amended.

An incomplete vehicle manufactured for sale or importation into Canada is specially equipped for Canada. This vehicle conforms to the applicable Canadian Motor Vehicle Safety Standards (CMVSS) on the date of manufacture printed on the cover of this manual, and as identified in a CMVSS list on the inside back cover. Requirements unique to vehicles for use in Canada are identified in the Statements of Conformity and the Canadian Vehicles section of the manual.

The "Emission Certification Information" section of this manual contains information regarding conformity to exhaust emission regulations of the United States, Canada, and the State of California and fuel economy regulations of the United States.

This manual should not be relied upon with respect to compliance with any regulation of the Federal Highway Administration or regulations issued pursuant to the Occupational Safety and Health Act (OSHA) or any other Federal, state, or local regulations governing the performance or construction of motor vehicles (except for those requirements shown under the heading "Warranty and Maintenance," page 16, "Emission Control Information Label," page 17 and "Unleaded Gasoline Label," page 16).

IMPORTANT:

UNITED STATES VEHICLES

Ford Motor Company has endeavored, whenever possible, to state the specific conditions under which an incomplete vehicle may be completed to conform with each applicable Federal Motor Vehicle Safety Standard. These specific statements are intended to aid subsequent stage manufacturers in avoiding instances of inadvertent noncompliance to particular standards.

Note that the final responsibility for the compliance of the completed vehicle rests with the final stage manufacturer who is required by law to certify, as prescribed by Section 567.5 of Title 49, Code of Federal Regulations, that the completed vehicle conforms to all applicable Federal Motor Vehicle Safety Standards.

IMPORTANT:

UNITED STATES AND CANADIAN VEHICLES

Alterations to a chassis cab or an incomplete vehicle manufactured by someone other than Ford Motor Company, or damage in transit, may affect compliance statements that are furnished in this manual, or representations that are printed on the label that may be affixed to a chassis cab vehicle.

TABLE OF CONTENTS

INTRODUCTION	1
GENERAL INFORMATION	3
VEHICLE DESCRIPTION	5
DEFINITIONS	6
STATEMENTS OF CONFORMITY	8
UNITED STATES VEHICLES	
Emission Certification Information	14
Emission Control Hardware	14
High Altitude Requirements.....	14
Unleaded Gasoline Label	14
Exterior Noise	14
Tampering With Noise Controls	14
Warranty and Maintenance.....	14
Evaporative Emissions.....	14
Check Engine -Warning Light.....	15
Vehicle Operating Temperatures.....	15
Ozone Depleting Substance (ODS).....	15
Emission Control Information Label.....	15
Calif. Fuel Vapor Recovery	15
Calif. Motor Vehicle Emission Control Label.....	15
Radio Frequency Interference (RFI).....	16
Fuel System.....	17
Brake System	18
CANADIAN VEHICLES	
General Information	19
CMVSS Statement of Compliance	19
Vehicle Identification	19
Daytime Running Lamp (DRL)	19
Canadian Radio Frequency Interference (RFI)	19

UNITED STATES VEHICLES

(Vehicles to be completed for sale or use in the United States)

GENERAL INFORMATION

Information in this section is provided pursuant to Part 568 of Title 49, Code of Federal Regulations. "Vehicles Manufactured in Two or More Stages". Part 568 specifies that final stage manufacturers must complete vehicles in compliance with all applicable Federal Motor Vehicle Safety Standards and affix a label to each Incomplete Vehicle that it completes in accordance with 567.5 of title 49.

DIRECTIONS

STATEMENTS OF CONFORMITY

The Statements of Conformity section, which begin on page 8 of this manual, lists the Federal Motor Vehicle Safety Standards in effect on the date of manufacture of this incomplete vehicle that are applicable to the type(s) of completed vehicles into which this incomplete vehicle may be manufactured. This date is shown on the label affixed to the cover of this manual. These statements, in most cases, apply to specific types of incomplete or completed vehicles and identify GVWR and UVW weight ranges.

The incomplete vehicle type is identified by the 5th, 6th & 7th digits of the Vehicle Identification Number (VIN). The completed vehicle types to which this incomplete vehicle may appropriately be completed is printed on the label, under the heading "May Be Completed As," that is affixed to the cover of this document.

Each statement of conformity is identified by a safety standard number located at the left margin. Because there may be multiple statements of conformity for each safety standard, use care to select the appropriate statement. Unique CMVSS requirements will be identified at the conclusion of the representations for a particular safety standard.

Compliance statements provided in this manual are of the three following types:

- Type I • A statement that the vehicle, when completed, will conform to the standard if no alterations are made in identified components of the incomplete vehicle.
- Type II • A statement of specific conditions of final manufacture under which the manufacturer specifies that the completed vehicle will conform to the standard.
- Type III • A statement of conformity with the standard is not substantially affected by the design of the incomplete vehicle, and that the incomplete vehicle manufacturer makes no representation as to conformity with the standard.

IMPORTANT:

UNITED STATES AND CANADIAN VEHICLES

COMPLIANCE REPRESENTATIONS IN THIS MANUAL ARE ACCURATE FOR INCOMPLETE VEHICLES AS MANUFACTURED BY OR FOR FORD MOTOR COMPANY. FURTHER MANUFACTURE, MODIFICATIONS, OR ALTERATIONS TO AN INCOMPLETE VEHICLE BY SOMEONE OTHER THAN FORD MOTOR COMPANY, OR DAMAGE IN TRANSIT, MAY AFFECT COMPLIANCE STATEMENTS THAT ARE REPRESENTED IN THIS MANUAL.

THE INCOMPLETE VEHICLE WITH WHICH THIS MANUAL IS INCLUDED IS SUITABLE FOR COMPLETION ONLY AS A MULTI-PURPOSE PASSENGER VEHICLE OR A BUS OTHER THAN A SCHOOL BUS HAVING THE GVWR SPECIFIED ON THE FRONT COVER OF THIS MANUAL. IT IS NOT SUITABLE FOR COMPLETION AS EITHER AN AMBULANCE OR A SCHOOL BUS.

IMPORTANT:

TO RELY ON THE COMPLIANCE REPRESENTATIONS IN THIS MANUAL, THE VEHICLE MUST BE COMPLETED AS ONE OF THE COMPLETED VEHICLE TYPES DESIGNATED ON THE LABEL AFFIXED TO THE COVER OF THIS MANUAL, AND MUST NOT EXCEED THE SPECIFIED GVWR, GAWRS OR THE UNLOADED VEHICLE WEIGHT LIMITS WHERE SPECIFIED IN THIS MANUAL.

FORD LIGHT TRUCK ASSISTANCE

Throughout this manual you will find references to information found in the *Ford Truck Body Builders Layout Book*. To obtain a copy of this book (first copy at no charge), please fax a written request and include the desired model year, along with your return address (NO P.O. BOX ADDRESS, PLEASE) to (313) 459-6861.

The F53 Customer Liaison may be contacted at 313/322-0596 regarding engineering questions related to the F-Super Duty Class A Motorhome chassis.

The Ford Light Truck Body Builder Advisory Service may be consulted regarding information contained in this manual. Call 1-800-635-5560 for assistance, or fax inquiries to (313) 337-2754 accompanied with a cover sheet indicating "Attention to: Body Builder Advisory Service", along with your name, address and telephone number.

VEHICLE DESCRIPTION

INCOMPLETE VEHICLE MANUAL COVER

The cover of this manual identifies the incomplete vehicle for which compliance representations are contained in this manual. Also, a label is affixed to the cover which includes the vehicle identification number (VIN) for the specific vehicle to which this manual belongs. The label identifies the following information which pertains only to the vehicle with the corresponding VIN.

- The GVWR
- The front and rear GAWRs
- Tire and wheel size
- Cold tire inflation pressure (PSI)
- Completed vehicle type(s) into which the incomplete vehicle may be manufactured.

INCOMPLETE VEHICLE LABEL

The incomplete vehicle label for the Basic (Stripped) Chassis is located inside the protective plastic bag for this manual. A detailed explanation of all label information is available in the Ford Source Book for the appropriate model year, at your local Ford Dealer. Federal law requires that an Incomplete Vehicle Label be affixed to the completed vehicle. Placement on the interior driver-door lock pillar near the driver's seat is recommended.

The 5th, 6th & 7th digits of the Vehicle Identification Number (VIN) will identify the incomplete vehicle type. Additional VIN information is available in the Ford Source Book for the appropriate model year.

California Air Resources Board (CARB), requires a Vehicle Emission Control Label with a vehicle identification number (VIN) having a non-contact, bar-code, reading wand capability. The bar-code directly below the VIN on the incomplete vehicle label will comply with this regulation.

DEFINITIONS

The following definitions are from Title 49, Code of Federal Regulations, Section 571.3 except where noted. Canadian definitions are from Canada Motor Vehicle Safety Regulations, Section 2(1), and are in italics. Ford Motor Company definitions are for the purpose of this manual only. Some terms are followed by an abbreviation that is used throughout this manual.

Ambulance- is a vehicle for emergency medical care which provides: A driver's compartment; a patient compartment to accommodate an Emergency Medical Technician (EMT/ Paramedic and two litter patients (one patient on the primary cot and secondary patient on folding litter located on the squad bench) so positioned that the primary patient can be given intensive life-support during transit; equipment and supplies for emergency care at the scene as well as during transport; two-way radio communication; and, when necessary, equipment for light rescue/extrication procedures. The Ambulance shall be designed and constructed to afford safety, comfort, and avoid aggravation of the patient's injury or illness. (From Federal Specification KKK-A-1 822-D). Ford Motor Company also includes within its definition of ambulance any vehicle that is used for transporting life-support equipment, for rescue operations, or for non-emergency patient transfer if the engine of the vehicle is equipped with a "throttle kicker" device, which enables an operator to increase engine speed over normal idle speed when the vehicle is not moving.

Bus- means a motor vehicle with motive power, except a trailer, designed for carrying more than 10 persons.

Bus (Canada)- *Means a vehicle having a designated seating capacity of more than 10, but does not include a trailer.*

Chassis Cab- means an incomplete vehicle, with completed occupant compartment, that requires only the addition of cargo-carrying, work performing or load-bearing components to perform its intended function. (From Title 49 Code of Federal Regulations, Section 567.3)

Chassis Cab (Canada)- *means a vehicle consisting of a chassis that is capable of being driven, drawn or self-propelled, upon which may be mounted a cab, and that is designed to receive:*

- (a) *a passenger-carrying or cargo-carrying body including a body that incorporates a prime mover, or*
- (b) *a work performing structure other than a fifth-wheel coupling.*

Critical Control Item- is a component or procedure which may affect compliance with a federal regulation or, which could directly affect the safe operation of the vehicle. ▽ is the identifying symbol. (source: Ford Motor Company)

Designated Seating Position- means any plan view location capable of accommodating a person at least as large as a 5th percentile adult female, if the overall seat configuration and design and vehicle design is such that the position is likely to be used as a seating position while the vehicle is in

motion, except for auxiliary seating accommodations such as temporary or folding jump seats. Any bench or split-bench seat in passenger car, truck or multipurpose passenger vehicle with a GVWR less than 10,000 pounds, having greater than 50 inches of hip room (measured in accordance with SAE Standard J11 00(a)) shall have not less than three designated seating positions, unless the seat design or vehicle design is such that the center position cannot be used for seating.

Designated Seating Position (Canada)- *means any plan view position capable of accommodating a person at least as large as a 5th percentile adult female, as defined in section 100 of Schedule IV, where the overall seat configuration and design and the vehicle design are such that the position is likely to be used as a seating position while the vehicle is in motion, but does not include any plan view position of temporary or folding jump seats or other auxiliary seating accommodation.*

Final Stage Manufacturer- means a person who performs such manufacturing operations on an incomplete vehicle that it becomes a completed vehicle. (49 CFR, Section 568.3)

Forward Control- means a vehicle configuration in which more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length.

Gross Axle Weight Rating (GAWR)- means the value specified by the vehicle manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces.

Gross Combination Weight Rating (GCWR)- means the value specified by the manufacturer as the loaded weight of a combination vehicle.

Gross Vehicle Weight Rating (GVWR)- means the value specified by the manufacturer as the loaded weight of a single vehicle.

H-Point- means the mechanically hinged hip point of a manikin which simulated the actual pivot center of the human torso and thigh, described in SAE Recommended Practice J826, "Manikins For Use in Defining Vehicle Seating Accommodation," November 1962.

Incomplete Vehicle Manufacturer- means a person who manufactures an incomplete vehicle by assembling components none of which, taken separately constitute an incomplete vehicle. (49 CFR, Section 568.3)

DEFINITIONS

Intermediate Manufacturer- means a person, other than the incomplete vehicle manufacturer or the final stage manufacturer, who performs manufacturing operations on an incomplete vehicle. (49 CFR, Section 568.3)

Multipurpose Passenger Vehicle (MPV)- means a motor vehicle with motive power, except a trailer, designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation.

Multipurpose Passenger Vehicle (MPV) (Canada)- means a vehicle having a designated seating capacity of 10 or less that is constructed either on a truck-chassis or with special features for occasional off-road operation, but does not include an air cushion vehicle, all-terrain vehicle, golf-cart, passenger car or truck

Seating Reference Point- means the manufacturer's design reference point which:

- (a) Establishes the rearmost normal design driving or riding position of each designated seating position in a vehicle;
- (b) Has coordinates established relative to the designed vehicle structure;
- (c) Simulates the position of the pivot center of the human torso and thigh; and
- (d) Is the reference point employed to position the two dimensional templates described in SAE Recommended Practice J826. "Manikins for Use in Defining Vehicle Seating Accommodation" November, 1962.

Second Unit Body (SUB)- consists of the body structure and/or all the cargo carrying, work performing, and/or load bearing components and/or equipment installed by a subsequent stage manufacturer on an incomplete vehicle, such that the incomplete vehicle becomes a completed vehicle. (source: Ford Motor Company)

School Bus- means a bus that is sold, or introduced in interstate commerce, for purposes that include carrying students to and from school or related events, but does not include a bus designed and sold for operation as a common carrier in urban transportation.

School Bus (Canada)- means a bus designed or equipped primarily to carry students to and from school.

Subsequent Stage Manufacturer- is a term which means either intermediate or final stage manufacturers or both. (source: Ford Motor Company)

Trimmed Seat- means a complete functional seat assembly including the seat pedestal, seat track, seat base frame, seat back, recliner mechanism, seat padding, all attaching hardware and the final trim material (i.e., cloth, leather or vinyl). (source: Ford Motor Company)

Truck- means a motor vehicle with motive power, except a trailer, designed primarily for the transportation of property or special purpose equipment.

Truck (Canada)- means a vehicle designed primarily for the transportation of property or equipment but does not include a chassis-cab, crawler-mounted vehicle, trailer, work vehicle or vehicle designed for operation exclusively off the public highway.

Truck-Tractor- means a truck designed primarily for drawing other motor vehicles and not so constructed as to carry a load other than a part of the weight of the vehicle and the load so drawn.

Truck Tractor (Canada)- means a truck designed primarily for drawing other vehicles and not constructed for carrying any load other than part of the weight of the vehicle designed to accept a fifth-wheel coupling but does not include a crane-equipped breakdown vehicle.

Unloaded Vehicle Weight- means the weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo, occupants, or accessories that are ordinarily removed from the vehicle when it is not in use.

Unloaded Vehicle Weight (Canada)- means the weight of a vehicle equipped with containers for the fluids necessary for the operation of the vehicle filled to their maximum capacity but without cargo or occupants.

STATEMENTS OF CONFORMITY

The following Statements of Conformity apply to vehicles that are produced for sale or importation into the United States or Canada. The term "Incomplete Vehicle Types" in these statements refers to the type of vehicle illustrated on this manual's cover and as defined in the Vehicle Description section on page 5.

The number preceding each Statement of Conformity refers to the number designation of a Federal Motor Vehicle Safety Standard. Canadian representations will be at the conclusion of each safety standard number.

101 Conformity with Standard 101, Controls and Displays is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

101 Canadian Requirements:

The preceding statements for FMVSS 101 are appropriate compliance representations for CMVSS 101, Location and Identification of Controls and Displays, if this incomplete vehicle (identified by the VIN on the front of the document) was manufactured by Ford Motor Company for sale or use in Canada

102 This vehicle, when completed, will conform to Standard 102, Transmission Shift Lever Sequence, Starter Interlock and Transmission Braking Effect if:

- No alterations or adjustments are made to the transmission, shift cable, transmission outer shift lever, shift cable bracket, the starter interlock system and wiring circuit from the interlock switch to the power source.
- The Basic (Stripped) Chassis is equipped with a temporary transmission gear selector indicator (PRND21) which must be replaced with the transmission gear selector indicator (PRND21) that is shipped with the vehicle in the dunnage box and installed and adjusted following the instructions and specifications shown in the figure below.

If an auxiliary transmission is added to this vehicle, it must conform to the requirements of this Standard.

102 Canadian Requirements:

The preceding statements for FMVSS 102 are appropriate compliance representations for CMVSS 102, Transmission Shift Control Sequence, if this incomplete vehicle was manufactured for sale or use in Canada.

103 Conformity with Standard 103, Windshield Defrosting and Defogging Systems, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

103 Canadian Requirements:

The preceding statements for FMVSS 103 are appropriate compliance representations for CMVSS 103, Windshield Defrosting and Defogging System, if this incomplete vehicle was manufactured by Ford Motor Company for sale or use in Canada.

104 Conformity with Standard 104, Windshield Wiping and Washing Systems, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

104 Canadian Requirements:

The preceding statements for FMVSS 104 are appropriate compliance representations for CMVSS 104, Windshield Wiping and Washing System, if this incomplete vehicle was manufactured by Ford Motor Company for sale or use in Canada

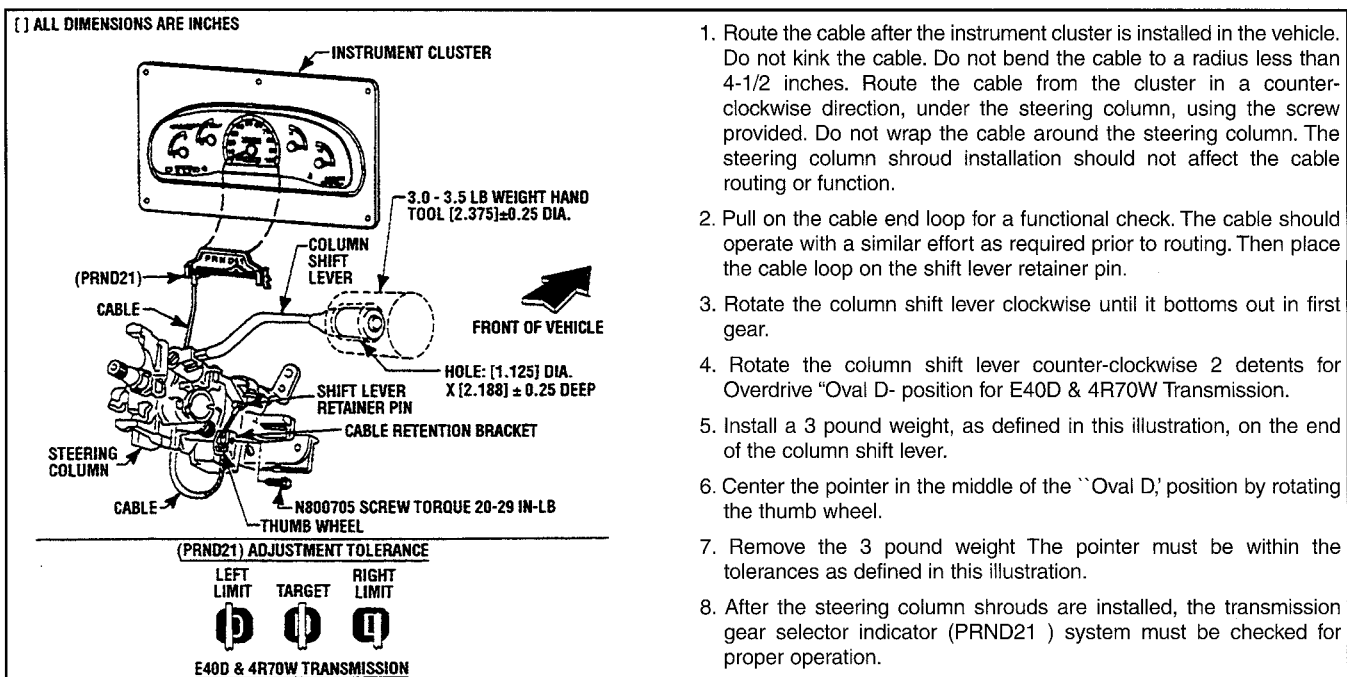


FIGURE A INSTALLATION OF GEAT SELECTOR INDICATOR (PRND21)

105 This vehicle when completed, will conform to Standard 105, Hydraulic Brake Systems, if:

- No alterations, modifications or replacements are made to the following:
 - Service or parking brake system
 - Anti-lock brake system
 - Wheels and tires
 - Brake system indicator lamp and wiring
 - Brake system reservoir labeling
 - Suspension ride height or spring rate
 - Hydro-boost or Hydro-max system
 - Power steering pump and lines
 - Engine Belt Drive System
- The Second Unit Body (SUB) weight is at least 889 kilograms (1960 lbs.)
- Vertical distance from the center of gravity of the completed vehicle to the ground is 1219 mm (48 inches) or less.
- The maximum GAWR and GVWR, as identified on the cover of this document, are not exceeded with the vehicle weight at Unloaded Vehicle Weight + Passenger Load.
- Refer to the Brake System section for further information.
- The service or parking brake pedal assembly operation is not restricted by any alteration or added components.

NOTE: Under no circumstances can individual GAWR's be exceeded or can the GVWR be exceeded.

2002 F-Super Duty Class A Motorhome Chassis rated at 22,000 lbs. (Available with 208" or 228" WB only):

GVWR = 22,000 lbs.

GAWR = 7,500 lbs. - Front

GAWR = 14,500 lbs. - Rear

2002 F-Super Duty Class A Motorhome Chassis rated at 20,500 lbs. (Available with 208" or 228" WB only):

GVWR = 20,500 lbs.

GAWR = 7,000 lbs. - Front

GAWR = 13,500 lbs. - Rear

2002 F-Super Duty Class A Motorhome Chassis rated at 18,000 lbs.:

GVWR= 18,000 lbs.

GAWR = 7,000 lbs. - Front

GAWR = 11,000 lbs. - Rear

2002 F-Super Duty Class A Motorhome Chassis rated at 15,700 lbs. (Available with 178" or 190" WB only):

GVWR= 15,700 lbs.

GAWR = 6,000 lbs. - Front

GAWR = 11,000 lbs. - Rear

CENTER OF GRAVITY

If the center of gravity of the SUB is not forward of the centerline of the rear axle and the SUB is not above the minimum weight, then the center of gravity location must be verified.

Center of gravity and weight of the second unit body (SUB) and/or added equipment (W_b) must be such that the completed vehicle center of gravity locations (as approximated in equations 1 and 2) fall within the appropriate region given below.

EQUATION (1)

$$CG_v = \frac{CG_{vb}W_b + CG_{vc}(W_c + W_l) 12,500}{GVWR}$$

EQUATION (2)

$$CG_h = \frac{(W_{rb} + W_{rc} + (\frac{500 \times CG_{hp}}{WB}) + W_{rl}) \times WB}{GVWR}$$

Using the CG_h of the vehicle (from equation 2), equations 3 and 4 below will determine the allowable range of CG_v. If the actual CG_v (from equation 1) is within the calculated range, then the center of gravity location is acceptable.

3) Upper Limit: CG_v=1.27 x CG_h - 97.03 (For 178" WB)

CG_v=1.27 x CG_h - 103.57 (For 190" WB)

CG_v=1.27 x CG_h - 113.34 (For 208" WB)

CG_v=1.27 x CG_h - 124.24 (For 228" WB)

4) Lower Limit: CG_v=1.27 x CG_h - 108.31 (For 178" WB)

CG_v=1.27 x CG_h - 115.61 (For 190" WB)

CG_v=1.27 x CG_h - 126.60 (For 208" WB)

CG_v=1.27 x CG_h - 138.77 (For 228n WB)

FMVSS 105 DEFINITIONS

- CG_v** = Vertical distance from the ground to the completed vehicle center of gravity [inches].
- CG_h** = Horizontal distance from \bar{C} of the front wheels to completed vehicle center of gravity [inches].
- CG_{vb}** = Vertical distance from the ground to the center of gravity of the SUB and/or permanently attached added equipment [inches]. (See the Calculation Suggestions Section on page 11.)
- CG_{vc}** = Vertical distance from the ground to the center of gravity of the chassis [24.85 inches].
- CG_{hp}** = Horizontal distance from the \bar{C} of the front wheels to the 500 pounds passenger weight.
- W_b** = Weight of the SUB and/or permanently attached added equipment [pounds].
- W_{rb}** = Weight on the rear wheels of the SUB and/or permanently attached added equipment [pounds].
- W_{rc}** = Weight on the rear wheels of the vehicle chassis (fuel tanks full) [pounds]. Including option weight.
- W_c** = Weight of the vehicle chassis (fuel tanks full) [pounds]. Including option weight.
- WB** = Vehicle wheelbase [178, 190, 208 or 228 inches].
- W_t** = Total unladen weight = (W_b + W_c + 500#) [pounds].
- GVWR** = Gross Vehicle Weight Rating of the vehicle [pounds].
- W_i** = Remaining cargo capacity [pounds].
Where: $W_i = GVWR - (W_b + W_c + 500\#)$
- W_{ri}** = Weight of the remaining cargo capacity on the rear wheels [pounds].
- CG_{hi}** = Horizontal distance from the \bar{C} of the front wheels to the cargo center of gravity [inches]. It may be estimated as the distance from the \bar{C} of the front wheel to the horizontal midpoint of the cargo area.
- SUB** = A Second Unit Body consists of all the cargo carrying, work performing, and/or load bearing components and/or equipment installed by a subsequent stage manufacturer on an incomplete vehicle, such that the incomplete vehicle becomes a completed vehicle.

105 Calculation Suggestions:

In the case where the rear weight of the SUB (and/or added equipment) must be reduced or the CG_V is found to be below the allowed minimum CG_V , then it may be possible to bring the vehicle into compliance by moving the CG_h forward. Forward movement of the CG_h can be accomplished by:

- Redistributing the weight of the SUB and/or added equipment.
- Adding **permanently** attached ballast forward of the CG_h . In order to reduce the rear weight, the ballast must be forward of the front axle. (Caution must be taken not to exceed the GVWR or front GAWR of the vehicle.)

The following general equations can be used to find the center of gravity of the SUB and/or added equipment when there are several elements making up the CG.

$$CG_{vb} = \frac{CG_{vb1}(W_{b1}) + CG_{vb2}(W_{b2}) + \dots + CG_{vbn}(W_{bn})}{W_{b1} + W_{b2} + \dots + W_{bn}}$$

and the horizontal CG locations of the combined SUB and/or added equipment is:

$$CG_{hb} = \frac{(W_{rb1} + W_{rb2} + \dots + W_{rbn}) WB}{W_{b1} + W_{b2} + \dots + W_{bn}}$$

The front/rear weight breakdown can be found with the use of the following equation.

$$W_{rb} = \frac{CG_{hb} (W_{b1} + W_{b2} + \dots + W_{bn})}{WB}$$

Conversely, the front weight component of the SUB and/or added equipment is:

$$W_{fb} = (W_{b1} + W_{b2} + \dots + W_{bn}) - W_{rb}$$

NOTICE—VEHICLE HANDLING INFORMATION

The weight of the body structure and its center of gravity location (both longitudinally and vertically), as well as the weight and positioning of the cargo load are important to the handling of the completed vehicle. Subsequent stage manufacturers should note that matching a body to a chassis in a manner appropriate for the intended use of the vehicle is the responsibility of the final stage manufacturer. Following the representations of this manual with respect to center of gravity locations and body weights for compliance with Federal Motor Vehicle Safety standards is only part of the task of producing a completed vehicle that handles comfortably in service.

105 Canadian Requirements:

The preceding statement for FMVSS 105 are appropriate compliance representations for CMVSS 105 Hydraulic Brake Systems, if this vehicle was manufactured for sale or use in Canada.

106 This vehicle, when completed, will conform to Standard 106, Brake Hoses, if the brake hose assemblies supplied by Ford Motor Company are not removed, altered or replaced and if no brake hose assemblies are added.

106 Canadian Requirements:

The preceding statement for FMVSS 106 is an appropriate compliance representation for CMVSS 106, Brake Hoses, if this vehicle is manufactured for sale or use in Canada.

108 Conformity with Standard 108, Lamps, Reflective Devices, and Associated Equipment, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this standard. However, Ford Motor Company does represent that the items of lighting equipment provided in the dunnage box attached to the chassis are designed to conform to the requirements of Standards 108.

108 Canadian Requirements:

The preceding statements for FMVSS 108 are appropriate compliance representations for CMVSS 108, Lighting, and CMVSS 108.1 Headlamps if this vehicle is manufactured for sale or use in Canada, provided:

- No component of the Daytime Running Lamp (DRL) system is removed, relocated, or modified.

111 Conformity with Standard 111, Rearview Mirrors, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

111 Canadian Requirements:

The preceding statements for FMVSS 111 are appropriate compliance representations for CMVSS 111, Rearview Mirrors, if this incomplete vehicle was manufactured for sale or use in Canada.

112 Canadian Requirements:

The statement below is applicable to all incomplete vehicle types:

Conformity with CMVSS 112, Headlamp Concealment Devices, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with CMVSS 112, if this incomplete vehicle was manufactured for sale or use in Canada.

113 Conformity with Standard 113, Hood Latch Systems, is not substantially affected by the design of this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

113 Canadian Requirements:

The preceding statements for FMVSS 113 are appropriate compliance representations for CMVSS 113, Hood Latch System, if this incomplete vehicle was manufactured for sale or use in Canada.

115 Canadian Requirements:

The statements for Part 565.4 are appropriate compliance representations for CMVSS 115, Vehicle Identification Number, if this incomplete vehicle was manufactured for sale or use in Canada.

116 This vehicle, when completed, will conform to Standard 116, Motor Vehicle Brake Fluids, so long as any brake fluid added or replaced conform to the DOT 3 specifications of the standard, and contaminants are not introduced into the hydraulic brake system.

116 Canadian Requirements:

The preceding statement for FMVSS 116 is an appropriate compliance representation for CMVSS 116, Hydraulic Brake Fluid, if this incomplete vehicle was manufactured for sale or use in Canada.

120 This vehicle, when completed, will conform to the tire and rim selection requirements of Standard 120, Tire Selection and Rims for Motor Vehicles Other Than Passenger Cars, if the tire or rim assemblies and the Incomplete Vehicle Label affixed to all vehicles, (except the Basic (Stripped) Chassis), are not removed, altered or replaced. For the Basic (Stripped) Chassis, the final stage manufacturer must, in accordance with the requirements of Standard 120 and Part 567 of Title 49 Code of Federal Regulations, either affix a label indicating tire size, rim size and cold inflation pressure information and gross axle weight ratings that are printed on the label affixed to the cover of this manual, or affix the Incomplete Vehicle Label included in the plastic bag along with this Incomplete Vehicle Manual.

120 Canadian Requirements:

The preceding statement for FMVSS 120 is an appropriate compliance representation for CMVSS 120, Tire Selection and Rims for Vehicles Other Than Passenger Cars, if this incomplete vehicle was manufactured for sale or use in Canada, except for the following:

- The label information requirements for CMVSS 120 are in Section 6 of the Canada Motor Vehicle Safety Regulations.

124 This vehicle, when completed, will conform to Standard 124, Accelerator Control Systems, if:

- No alterations are made to the accelerator control rod, bellcranks, cables, springs, guides, accelerator pedal, mounting hardware or other components of the accelerator control system as installed by Ford Motor Company.

- No equipment is added, or existing equipment is modified, which would restrict operation of the accelerator control system.
- Vehicles equipped with electronically controlled, 7.3L, DI Turbo Diesel have no alterations made to the Pedal Position Sensor and all associated hardware and wiring. See the figure below for component identification.

124 Canadian Requirements:

The preceding statement for FMVSS 124 is an appropriate compliance representation for CMVSS 124, Accelerator Control Systems, if this incomplete vehicle was manufactured for sale or use in Canada.

205 Conformity with Standard 205, Glazing Materials, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

205 Canadian Requirements:

The preceding statements for FMVSS 205 are appropriate compliance representations for CMVSS 205, Glazing Materials, if this incomplete vehicle was manufactured for sale or use in Canada.

206 Conformity with Standard 206, Door Locks and Door Retention Components, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

206 Canadian Requirements:

The preceding statements for FMVSS 206 are appropriate compliance representations for CMVSS 206, Door Latches, Hinges and Locks, if this incomplete vehicle was manufactured for sale or use in Canada.

207 Conformity with Standard 207, Seating Systems, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

207 Canadian Requirements:

The preceding statements for FMVSS 207 are appropriate compliance representations for CMVSS 207, Anchorage of Seats, if this incomplete vehicle was manufactured for sale or use in Canada.

208 Conformity with Standard 208, Occupant Crash Protection, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity of this vehicle. Any seat belt assemblies added to a vehicle must conform to the applicable requirements of this Standard.

208 Canadian Requirements:

The preceding statement for FMVSS 208 is an appropriate compliance representations for CMVSS 208, Seat Belt Installation, if this vehicle is manufactured for sale or use in Canada.

209 Conformity with Standard 209, Seat Belt Assemblies, is not substantially affected by the design of this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

209 Canadian Requirements:

The preceding statements for FMVSS 209 are appropriate compliance representations for CMVSS 209, Seat Belt Assemblies, if this incomplete vehicle was manufactured for sale or use in Canada. In such a case, CMVSS 209 paragraphs (2) and (3), (4) and (5), (14), (15) and (7) are substituted for the reference to FMVSS 209 Sections 4.1(b), (c), (e), (g), and (h), respectively.

210 Conformity with Standard 210, Seat Belt Assembly Anchorages, is not substantially affected by the design of this incomplete vehicle; accordingly, Ford Motor Company makes no representation as to conformity with this Standard.

210 Canadian Requirements:

The preceding statements for FMVSS 210 are appropriate compliance representations for CMVSS 210, Seat Belt Assembly Anchorages, if the incomplete vehicle was manufactured for sale or use in Canada.

211 Standard 211, Wheel Nuts, Wheel Discs and Hub Caps has been rescinded for vehicles manufactured for sale or use in the U.S. by the NHTSA effective June 5, 1996.

213 Conformity with Standard 213, Child restraint systems, is not substantially affected by the design of the incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard. Any child restraint system that is added or incorporated into the design of a designated seating position must conform to the requirements of this standard.

213 Canadian Requirements:

The preceding statement for FMVSS 213 is an appropriate compliance representation for CMVSS 213, Child Seating and Restraint Systems, if this incomplete vehicle was manufactured for sale or use in Canada.

217 Conformity with Standard 217, Bus Window Retention and Release, is not substantially affected by the design of this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

217 Canadian Requirements:

The preceding statements for FMVSS 217 are appropriate compliance representations for CMVSS 217, Bus Emergency Exit and Window Retention and Release, when a vehicle is completed as a Bus (not School Bus) and if this incomplete vehicle was manufactured for sale or use in Canada.

225 The statements below are applicable to all incomplete vehicle types:

Conformity with Standard 225, Child Restraint Anchorage Systems, is not substantially affected by the design of the incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

Any tether anchorage that is added to any vehicle must comply with the requirements of FMVSS 225

302 Conformity with Standard 302, Flammability of Interior Materials, is not substantially affected by the design of this incomplete vehicle; accordingly Ford Motor Company makes no representation as to conformity with this Standard.

302 Canadian Requirements:

The preceding statements for FMVSS 302 are appropriate compliance representations for CMVSS 302, Flammability, if the vehicle was manufactured for sale or use in Canada.

Part 565.4 This vehicle, when completed, will conform to Part 565.4 Vehicle Identification Number, if the vehicle identification number printed on the label affixed to the cover of this manual is mounted and displayed in accordance with the requirements of this standard.

EMISSION CERTIFICATION INFORMATION

IMPORTANT:

It is the responsibility of the body builder, installer or subsequent stage manufacturer to ensure that the maximum completed vehicle curb weight and frontal area specified by Ford are not exceeded. If these restrictions are exceeded, or if the vehicle is modified such that it will not comply with applicable emission standards throughout its useful life, the body builder, installer or subsequent stage manufacturer will be considered a manufacturer for purposes of complying with U.S. Federal, California or Canadian exhaust and evaporative emission requirements, and Federal fuel economy standards, labeling, and certain other requirements.

Emissions Control Hardware

Any body builder, installer or subsequent stage manufacturer must assure that all emission control hardware furnished with incomplete vehicles is on the vehicle and is operational and that applicable instructions for incorporating such hardware into the completed vehicle's electrical or mechanical systems are strictly followed.

High Altitude Requirements

United States Environmental Protection Agency regulations for the 2002 model year do not contain unique emission certification requirements for light duty trucks that will be sold or delivered to customers for principal use above 1,219m [4,000 ft.].

To avoid any question of certification coverage, approval of any modification that may render inoperative any of the emission control components must be obtained from the United States Environmental Protection Agency by the manufacturer making such modification prior to distribution, sale, offering for sale introduction, or delivery for introduction of the subject vehicle into U.S. commerce. Additionally, the manufacturer making such modification must obtain approval from the California Air Resources Board if the new vehicle will be delivered for sale or use in the State of California.

IMPORTANT:

For purposes of government regulations, a body builder, installer, or any subsequent manufacturer may be considered a manufacturer.

UNLEADED GASOLINE LABEL

Regulations no longer require the manufacturer to affix permanent labels reading "Unleaded Gasoline Only" or "Unleaded Fuel Only" to vehicles destined for sale in the United States or Canada. Such labels may, however, be required for vehicles sold into other markets. It is the responsibility of the body builder, installer or any subsequent manufacturer to properly label vehicles for the market in which they are sold.

EXTERIOR NOISE

New vehicles which have a gross vehicle weight rating in excess of 4536 kg [10,000 lb], include a partially or wholly enclosed operator's compartment, and are manufactured for use in the United States, must comply with U.S. Environmental Protection Agency's exterior noise emission regulations for medium and heavy trucks (40 CFR Part 205, Subpart B) which establish a noise emission limit of 80 dB (A).

However, the Basic (Stripped) Chassis as built by Ford is too incomplete to constitute a regulated vehicle, and Ford does not represent that it complies with those regulations. With respect to the Basic (Stripped) Chassis, it is the responsibility of the subsequent stage manufacturer of that vehicle at the time it first conforms to the regulatory definition of "vehicle" to comply with the requirements imposed upon manufacturers by these regulations.

TAMPERING WITH NOISE CONTROLS

Federal law prohibits the removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into such vehicle for the purpose of noise control, prior to its sale or delivery to the ultimate purchaser or while it is in use, or the use of such vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

- Removal of fender apron absorbers, fender apron barriers, underbody noise shields or acoustical absorptive material.
- Removal of or rendering inoperative the engine speed governor, so as to allow engine speed to exceed manufacturer's specifications.
- Removal of air duct, air intake choke or silencer, air cleaner or air cleaner element.
- Removal of, or rendering inoperative, exhaust system components including the catalyst inlet pipe, muffler, outlet pipe, resonator or diffuser.
- Removal of the fan shroud. Removal of or rendering inoperative the fan clutch.

New vehicles manufactured for sale in Canada must comply with applicable provisions of Canada Motor Vehicle Safety Standard 1106, Noise.

Additional noise emissions information is contained in the *2002 Ford Truck Body Builders Layout Book*.

WARRANTY AND MAINTENANCE

A copy of the appropriate *Ford Truck Owners Guide and Warranty Facts Booklet* must be installed in every vehicle prior to sale to the ultimate purchaser in order to provide emission systems warranty information and maintenance schedules. It also provides, where required by EPA noise control regulations for vehicles having GVWR over 4536 kg [10,000 lb], noise emissions warranty information, instructions for maintenance, use and repair of vehicle noise emission control systems, a maintenance record format, and list of prohibited tampering acts.

EVAPORATIVE EMISSIONS

All 2002 Federal light and heavy duty trucks and all California vehicles with gasoline engines are required to comply with evaporative emissions requirements established by the Environmental Protection Agency or the California Air Resources board. Production fuel systems supplied on incomplete 2002 model year trucks manufactured by Ford Motor Company comply with these requirements. **If the subsequent stage manufacturer adds to or modifies the fuel system in any manner, it becomes the responsibility of the modifier to assure compliance with the applicable regulations.**

SERVICE ENGINE SOON WARNING LIGHT

The "Service Engine Soon" warning light is used to indicate malfunctions of the Electronic Engine Control System and certain emissions-related components.

The Basic (Stripped) Chassis vehicles, have the warning light installed in the instrument cluster, which is shipped in the dunnage box. If an alternative instrument cluster is utilized, the final stage manufacturer must install an operational light in the instrument cluster. This light must glow amber and display the message "Service Engine Soon". This light is a requirement of emission certification.

WARNING - VEHICLE OPERATING TEMPERATURES

Certain exhaust system components, including exhaust, heat shielding systems, have been installed on some vehicles in our assembly plants in an effort to provide protection against engine compartment and exhaust system temperatures. Subsequent aftermarket installers/manufacturers are responsible for providing thermal protection (e.g. underbody heat shields) for any structure and/or equipment added to the vehicle and should not remove any components or exhaust heat shielding installed on the vehicle by Ford.

All exposed interior sheet metal of closed structures (e.g. floor pan of cab and/or secondary structure, tool boxes, etc.) should be covered with an insulating material capable of protecting vehicle occupants and contents from temperatures potentially up to 700°F:

OZONE DEPLETING SUBSTANCE (ODS)

The Clean Air Act of 1990, Section 611 requires that any product (i.e., completed vehicle) containing or manufactured with any Class I Ozone Depleting Substance on, or after May 15, 1993 must be identified with a "clearly and conspicuously attached label."

Ford Motor Company has eliminated Class I ODS from its manufacturing processes. All 2002 Ford Light Truck incomplete vehicles will not have Class I ODS content.

Manufacturers, including subsequent stage manufacturers, are required to label their products if the product, including any component (whether manufactured by that manufacturer or not), contains a Class I ODS or if the manufacturer used a Class I ODS in the manufacturing of the product. In the case where Ford provides a label saying the incomplete vehicle contains a Class I ODS that information must be placed on the product warning label. (See EPA regulation on wording, placement, size and combining labels.) In Canada consult the appropriate Provincial or Territorial Ministry of Environment.

EMISSION CONTROL INFORMATION LABEL

To meet United States Environmental Protection Agency regulations, the Important Vehicle Information (tune-up and fuel tank capacity) labels must be affixed in a location that is readily visible after installation and in such a manner that it cannot be removed without destroying or defacing the label. The label shall not be affixed to any equipment that is easily detached from such vehicle.

When emission control labels are supplied but not attached to the vehicle (i.e., tune-up label or fuel tank label), they must be permanently mounted in a readily visible location to meet the preceding requirements. In addition, whether the label is already affixed or to be affixed, no components shall be installed which visibly obscure the label in any way that fails to satisfy the visibility requirements described in the California Emission Control Label Specifications. For Canadian requirements consult Section 1100 8 (1) (d) (i), (ii), and (iii).

CALIFORNIA FUEL VAPOR RECOVERY

California regulations require that the vehicle fuel systems be designed to accommodate a vapor recovery fueling nozzle including unobstructed access to the fill pipe. Fuel filler pipes installed per figure B on page 16 will comply with the "Specifications For Fill Pipes and Openings of Motor Vehicle Fuel Tanks" referenced in Title 13 California Administrative Code provided no part of the aftermarket body, as installed, intrudes within a 254 mm [10 in.] radius cylinder which has its axis parallel to the ground, passing through point "Z" and extends outward from the Ford supplied fuel pipe housing component. The fuel pipe housing component is shown on the referenced figures and is attached to the aftermarket body via 4.76 mm [.188 in.] diameter rivets. Fuel filler pipes installed using the alternative bracket shown in Figure B, will comply with the above California vapor recovery regulations provided the aftermarket body does not interfere with the access zone as defined by the California Air Resources Board, and the areas adjacent to this opening cannot foreseeably damage the nozzle bellows or face plate of nozzles during insertion, latching, disposing or removal.

CALIFORNIA MOTOR VEHICLE EMISSION CONTROL LABEL

To meet California emission certification regulations, the Emission Control Information (tune-up) label must be welded, riveted or otherwise permanently attached to an area within the engine compartment or to the engine in such a way that it will be readily visible to the average person after installation of the engine in a vehicle. In selecting an acceptable location, the manufacturer shall consider the possibility of accidental damage (e.g., possibility of tools or sharp instruments coming in contact with the label). The label shall be affixed in such a manner that it cannot be removed without being destroyed or defaced, and shall not be affixed to any part which is likely to be replaced during the vehicle's useful life. As used in these specifications, readily visible to the average person shall mean that the label shall be readable from a distance of 46 cm [18 in.] without any obstructions from vehicle or engine parts (including all manufacturer available optional equipment), except for flexible parts, (e.g., vacuum hoses, ignition wires). Alternately, information required by these specifications to be printed on the label shall be no smaller than 8 point type size provided that no vehicle or engine parts, (including all manufacturer available optional equipment), except for flexible parts that can be moved out of the way without disconnection, obstruct the label.

Completed vehicles for retail sale in California require a machine-readable vehicle identification number (VIN) bar-code label made of paper, plastic, metal or other permanent material.

Conformity with CARB Motor Vehicle Emission Control Label specifications for VIN label is not substantially affected by the design of this incomplete vehicle. Accordingly, Ford Motor Company makes no representation as to conformity with this requirement. To assist a subsequent stage manufacturer with conforming to this specification Ford is providing a label which will accompany this manual inside the protective plastic bag.

For the VEC† and VIN labels, sufficient clearance shall be provided to use a non-contact bar-code Reading Wand. For the tune-up label and vacuum hose routing diagram label, the label and any adhesives used shall be designed to withstand for the vehicle's total expected life, typical vehicle environment conditions in the area where the label is attached. Typical vehicle environmental conditions shall include, but are not limited to, exposure to engine lubricants and coolants (e.g., gasoline, motor oil, brake fluids, water, ethylene glycol), underhood temperatures, steam cleaning, and paints or paint solvents.

† Vehicle Emission Control

RADIO FREQUENCY INTERFERENCE (RFI)

The ignition system on your F-Super Duty Class A Motorhome Chassis has been designed to be capable of compliance with RFI requirements established by the Canadian government. However, because Ford has no control over how an incomplete vehicle is completed by subsequent stage manufacturers, Ford does not represent that the completed vehicle incorporating the Ford-built components will comply with those requirements. Any ignition system component (i.e.: spark plugs, ignition wiring, coil suppressor assembly, etc.) that is replaced should be replaced by the same Ford Motor company part number or equivalent, to maintain RFI suppression.

While there are currently no RFI regulations in the United States specifically applicable to automotive ignition systems, all Ford Light Trucks are built with ignition system components the same or equivalent to those supplied on Canadian vehicles.

Ford Motor Company recommends that all ignition system service be performed at a Ford authorized service facility to help hold RFI emissions levels to a minimum.

Additional RFI information is contained on page 19 of this manual.

Devices that emit radio frequency (RF) energy such as AM/FM radios, mobile telecommunications systems (two-way radios, telephones) and radio controlled security systems are subject to the rules and regulations of the Federal Communications Communication (FCC), including 47 CFR Parts 2 and 15. Any such system installed in a vehicle should comply with those rules and should be installed only by a qualified technician. In addition, to ensure continued compliance with the FCC's regulations, RF devices must not be modified or changed in a manner not expressly approved by Ford Motor Company Mobile Communication Systems. RF devices particularly, if not properly installed, may adversely affect the operation of the vehicle. For example, such systems, when operated, may cause the engine to stumble or stall. In addition, such systems themselves may be damaged, or their operation affected by the operation of the vehicle. (Citizens Band [CB] transceivers, garage door openers, and other transmitters whose power output is 5 watts or less, ordinarily will NOT affect vehicle operation.)

Because Ford has no control over the operation or manufacture of such systems, or their installation, Ford cannot assume responsibility for any adverse effects or damage if this equipment is used.

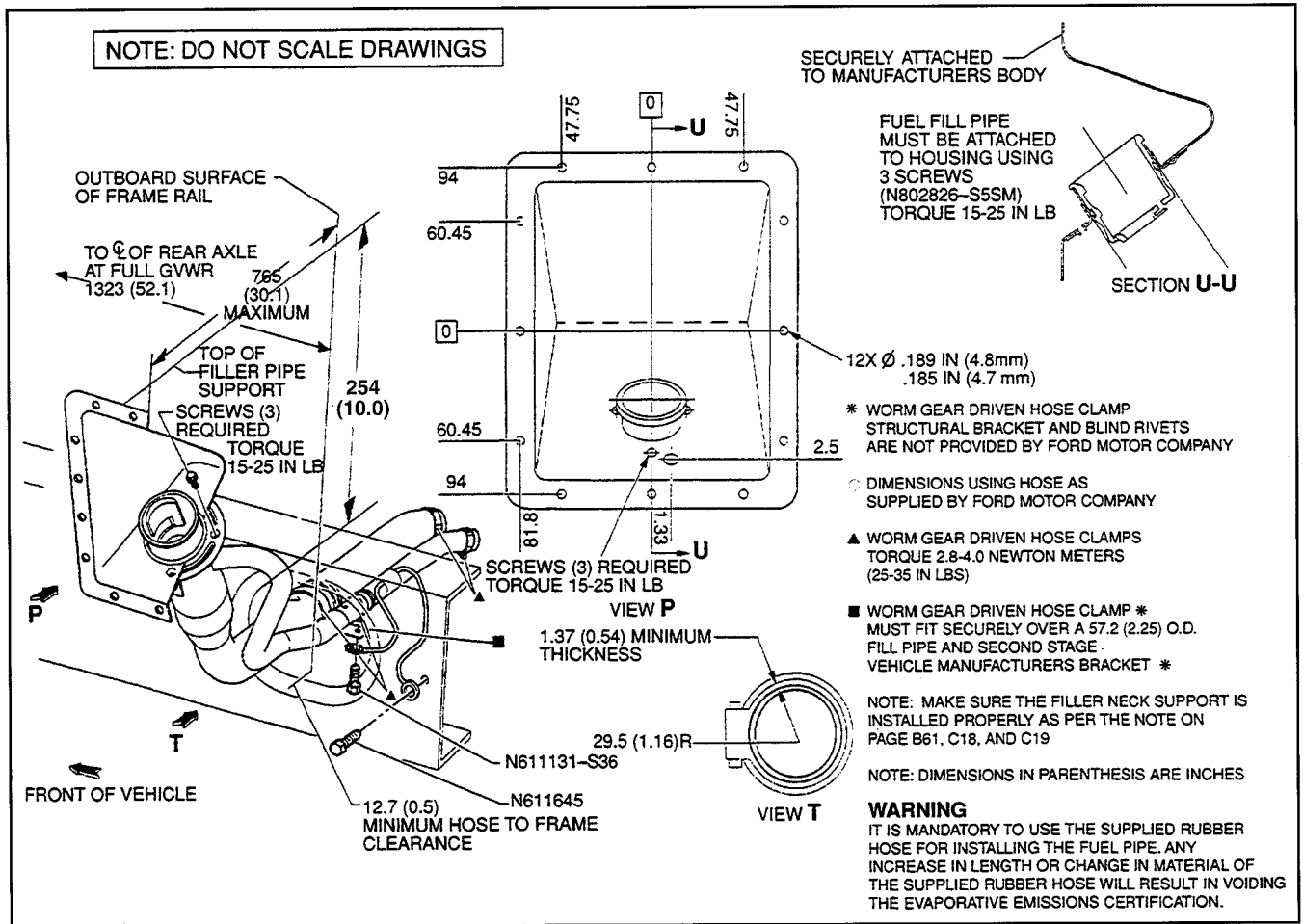


FIGURE B F-SUPER DUTY CLASS A MOTOR HOME CHASSIS (F53) FUEL FILLER PIPE INSTALLATION

FUEL SYSTEM DIAGRAM

FUEL SYSTEM

The push connectors on steel fuel lines must be connected by snapping them into position and installing the appropriate Retainer as shown in Figure C.

When welding near fuel system components, all metallic components must be adequately shielded and protected from heat or weld splatter. All non-metallic components must be removed.

For this Basic (Stripped) Chassis equipped with a temporary fuel tank, the fuel tank sending unit must be removed from the temporary tank and installed in the permanent tank. Prior to the installation of the sending unit, the temporary shipping cover must be removed from the fuel tank sender opening. The temporary fuel lines to the temporary tank are removed by snapping off the retention tabs on the push connect clips and sliding out the clips using the removal tool, available from Ford Customer Service Division, as shown in Figure C. **The temporary shipping lines are not to be reused.** The main fuel lines must be connected to the locations from which the temporary lines were removed. The sending unit is then installed in the permanent tank by using the ten new bolts and the new O-ring seal that is shipped with the vehicle in a separate package. The six bolts must be torqued to 9.6-13 Newton-meters (85-115 in.-lbs.). Special connecting fuel lines with female metal push connectors are used to connect the steel fuel lines to the fuel sender on the tank. The connectors must be snapped securely into place and the appropriate Retainer-Fuel Tube Push Connector is installed as shown in Figure C below.

The Basic (Stripped) Chassis, with an Electronic Fuel injection (EFI) type engine is equipped with a Fuel Shut Off Switch. The switch is located on the steering column support structure, and must not be relocated, altered or modified in any way.

FUEL FILLER PIPE INSTALLATION

Ford Motor Company tests the provided fuel filler kit in a representative Motorhome to verify that it is capable of providing adequate fuel filling function. However, Ford has no control over how the filler pipe and vent line is modified or installed by the Vehicle Modifier. Consequently, the Vehicle Modifier must ensure that the fuel filler pipe and any extensions added to the fill or vent lines are adequately supported to prevent sagging that could cause spray, spitback or premature shutoff during normal fueling operations. The Final Stage Manufacturer is responsible for verifying acceptable fuel fill function on the completed vehicle.

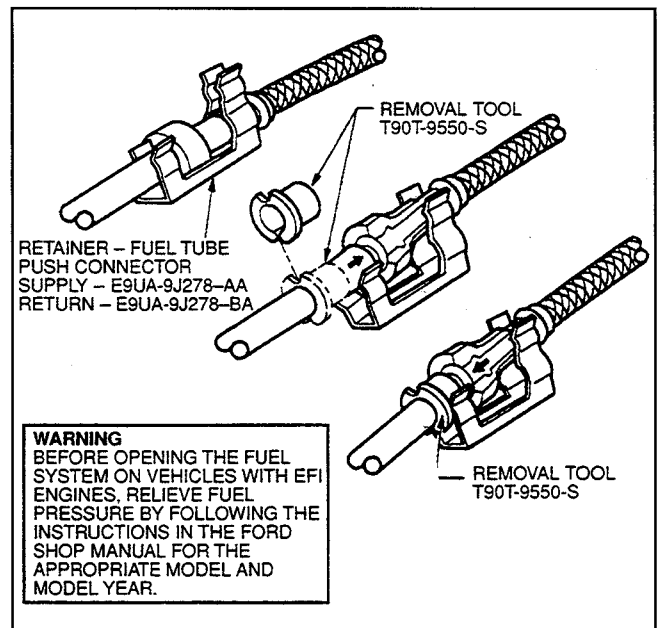


FIGURE C STEEL FUEL LINE PUSH-CONNECT

BRAKE SYSTEM

WARNING - Addition of Tag Axles

Manufacturers that add a tag axle must ensure that the tag axle braking system works in conjunction with Ford's anti-lock brake system. Failure to do so could result in braking, handling and stability concerns.

CANADIAN VEHICLES

(Vehicles to be completed for sale or use in Canada)

GENERAL INFORMATION

Section 6(4) (d) of the Canadian Motor Vehicle Safety Regulations requires a manufacturer of an incomplete motor vehicle to list the applicable Canadian Motor Vehicle Safety Standards (CMVSS) to which the incomplete motor vehicle conforms in full at the time of manufacture. The table on the inside back cover is provided for this purpose. The Statements of Conformity on pages 8 through 13 of this manual, are compliance representations based on United States Federal Motor Vehicle Safety Standards (FMVSS) requirements. However, Canada Motor Vehicle Safety Regulations (CMVSS) representations are provided at the conclusion of each safety standard section where appropriate. Because CMVSS requirements may differ from FMVSS requirements, Canadian Subsequent Stage Manufacturers should refer to the Canadian requirements for each safety standard to help determine compliance to a regulation.

CMVSS STATEMENT OF COMPLIANCE

The incomplete vehicle identified by the Vehicle Identification Number (VIN) on the cover of this manual and to which this manual was attached, conforms in full, as manufactured by Ford Motor Company to each Canadian Motor Vehicle Safety Standard designated by an "X" in the appropriate column of the table on the inside back cover. The appropriate column is the column headed by the illustrated description of the incomplete vehicle type that represents this particular incomplete vehicle. The table lists all safety standards in effect on the date of manufacture of this incomplete vehicle (shown on the front cover) applicable to "Chassis Cabs" which, as defined by Canadian Regulations, includes all the incomplete vehicles described. Compliance with those standards not identified by an "X" and possibly other standards not listed are the responsibility of the manufacturer who completes the vehicle, when those standards are applicable to the final configuration of the vehicle. Note: Canadian Regulations include vehicle emission standards in the 1100 series as shown.

VEHICLE IDENTIFICATION

Refer to the Vehicle Description section of this manual on page 5, for additional information.

DAYTIME RUNNING LAMP (DRL)

Compliance representations for CMVSS 108, Lighting and CMVSS 108.1, Headlamps, are on page 11. The following items are also required for CMVSS 108 and 108.1 compliance:

- The DRL module circuits are not to be altered.
- DRL module is not to be repositioned.
- Basic (Stripped) Chassis is not to be equipped with more than two headlamps when equipped with a DRL module as provided by Ford Motor Company.

CANADIAN RADIO FREQUENCY INTERFERENCE (RFI) INFORMATION

All vehicles powered by spark ignition engines (e.g.: gasoline or propane engines) and manufactured in Canada or for sale or use in Canada are subject to the Canadian "Regulations for the Control of Interference to Radio Reception" per interference-Causing Equipment Standard (ICES-002) and applicable test method according to "CAN/CSA-C108.40M92". Violation of these regulations is punishable by fine or imprisonment. This Ford-built incomplete vehicle (if other than a Basic (Stripped) Chassis) was designed and manufactured to be capable of meeting the regulatory requirements or such modifications thereof as may have been authorized by the Department of Communications. However, because Ford has no control over how this incomplete vehicle is completed by subsequent stage manufacturers, Ford does not represent that the completed vehicle incorporating the Ford-built components will comply with applicable requirements.

The following information is supplied to subsequent stage manufacturers to help them avoid increasing the RFI emissions of this vehicle in the course of completing it.

For any completed vehicle, additional measures may be needed to adequately suppress RFI emissions. Affected components could include spark plugs, ignition wires, ignition coil, ground straps, ignition component shields, distributor cap, distributor rotor, distributor assembly, accessory drive belts, instrument voltage regulator suppressor assembly and ignition coil suppressor assembly.


More specifically:

- All components required to suppress RFI emissions, which are removed during service, repair or completion of the vehicle, must be reinstalled in the manner in which they were installed by Ford.
- Shields on distributor or ignition coil must remain installed.
- Replacement spark plugs, ignition wires, ignition coil, distributor cap and distributor rotor must be equivalent in their RFI suppression properties to original equipment.
- The silicone coating on the distributor rotor tip must not be removed.
- Electrical grounds on all components must be retained.
- Metallic components installed on the body or chassis must be grounded to the chassis.
- Electrical circuits added to the vehicle must not be installed near the high voltage ignition components.
- Only "static conductive" accessory drive belts should be used. Fan, water pump, power steering and other belts should be of the OEM type or equivalent that will not build up a static electrical charge.
- Engine compartment wiring must not be rerouted in any manner.
- The Powertrain Control Module (PCM) must not be relocated from the position as installed by Ford Motor Company.

SUPPLEMENTS

CANADIAN MOTOR VEHICLE SAFETY STANDARD (CMVSS) TABLE

(Vehicles to which the Incomplete Motor Vehicle conforms in full at the time of manufacture are designated by X's)

CMVSS	CMVSS DESCRIPTION	INCOMPLETE VEHICLE TYPE  BASIC (STRIPPED) CHASSIS
101	Control Location and Identification	-
102	Transmission Shift Control	-
103	Sequence Windshield Defrosting and Defogging	-
104	Windshield Wiping and Washing System	-
106	Brake Hoses	X
108	Lighting Equipment	-
112	Headlamp Concealment Devices	-
113	Hood Latch System	-
115	Vehicle identification Number	-
116	Hydraulic Brake Fluid	X
120	Tire Selection and Rims for Vehicles other than Passenger Cars	X(1)
121	Air Brake System	-
124	Accelerator Control Systems	X
205	Glazing Materials	-
206	Door Latches, Hinges and Locks	-
207	Anchorage of Seats	-
209	Seat Belt Assemblies	-
210	Seat Belt Assembly Anchorages	-
301.1	LPG Fuel Systems	
301.2	CNG Fuel Systems	
302	Flammability	-
1100	Vehicle Emissions	X
<p><i>(1) The tire and rim information requirements of Standard 120 will be met when the Incomplete Vehicle Label is affixed to the driver-door. This label is shipped with this manual in the plastic bag.</i></p>		



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