WEST VIRGINIA DIVISION OF MOTOR VEHICLES

West Virginia dmv

Keeping West Virginia on the move.

COMMERCIAL DRIVER'S LICENSE MANUAL

Complete Laws, Rules and Regulations of the West Virginia Division of Motor Vehicles and the American Association of Motor Vehicle Administrators (AAMVA)

Rev. 11/2018

DEPARTMENT OF TRANSPORTATION
DIVISION OF MOTOR VEHICLES
PO Box 17010
5707 MacCorkle Avenue, SE
Charleston, WV 25317

Commercial Driver's License (CDL

Rules and Regulations Manual

Before you call, please have your license plate number, driver's license number, and/or your file number ready so that we can assist you as quickly as possible.

For Vehicle Titles, License Plates, Driver's License issues, or for General Information
Call (304) 926-3499 / (800) 642-9066 | Hearing-Impaired - (800) 742-6991

Commercial Driver's License	(304) 926-3801
Driver's License	(304) 926-3801
Point System	(304) 926-2505
Unpaid West Virginia Tickets	(304) 926-0702
Unpaid Out-of-State Tickets	(304) 926-0702
Driving Records	(304) 926-3952
Compulsory Insurance	(304) 926-3802
Driving Under the In uence	(304) 926-2506
Driving Under the In uence "Interlock"	(304) 926-2507

Applications and study manuals are available at any designated examination center, DMV regional o ce, or on the web at dmv.wv.gov .

WHERE TO APPLY FOR A COMMERCIAL DRIVER'S LICENSE

A WV resident can apply for a commercial driver's instruction permit, commercial driver's license (CDL) at any DMV regional office. All DMV regional offices are open Monday-Friday 8:30 am - 5:00 pm; with the exceptions of the Kanawha City regional office, which is open Monday - Friday 8:00 am - 6:00 pm and Saturday from 8 am - 12 pm, and the Martinsburg regional office is also open on Saturday from 8:00 am - 12:00 pm, to include testing times.

Please check the DMV website at dmv.wv.gov or call 1-800-642-9066 for further information.

DMV REGIONAL OFFICE LOCATIONS

Beckley
107 Pinecrest Drive
Beckley, WV 25801

Clarksburg
153 West Main Street
Clarksburg, WV 26301

Charles Town
24 Ruland Road
Kearneysville, WV 25430

Elkins
1029 N Randolph Avenue
Elkins, WV 26241

Flatwoods
295 Skidmore Lane
Sutton, WV 26601

Franklin
100 Thorn Creek Road, Suite 300
Franklin, WV 26807

Huntington
801 Madison Avenue
Huntington, WV 25701

Kanawha City
5707 MacCorkle Avenue, South East
Suite 400
Charleston, WV 25317

Lewisburg
148 Maplewood Avenue
Lewisburg, WV 24901

Logan
428 Main Street
Logan, WV 25601

Martinsburg
38 Severna Parkway
Martinsburg, WV 25404

Moorefield
410 South Main Street
Moore eld, WV 26836

Morgantown
1525 Deckers Creek Blvd.
Morgantown, WV 26505

Moundsville
400 Teletech Drive, Suite 100
Moundsville, WV 26041

Parkersburg
601 Lubeck Avenue
Parkersburg, WV 26101

Point Pleasant
1408 Kanawha Street
Point Pleasant, WV 25550

Princeton
198 Davis Street
Princeton, WV 24740

Romney
22278 Northwestern Pike
Romney, WV 25757

Spencer
115 Church Street
Spencer, WV 25276

Summersville
2 Armory Way
Summersville, WV 26651

Weirton
Municipal Plaza, Suite 100
Weirton, WV 26062

Welch
92 McDowell Street
Welch, WV 24801

Williamson
225 E 3rd Avenue
Williamson, WV 25661

Winfield
116 Liberty Square
Hurricane, WV 25526

ADDITIONAL EXAMINATION LOCATION

Fairmont Remote Testing Site
420 Marion Square, Suite 209
Fairmont, WV 26554

Table of Contents

De nitions VI

Chapter I - Rules Governing Commercial Driver's Licensing

- Who must have a WV Commercial Driver's License X
- Who is Exempt? X
- Who can be denied a commercial driver's license? XI
- Applicant Record Check XI
- Notification of License Issuance XI
- Drive for Five Program XI
- Medical Documentation Requirements XI
- Interstate or Intrastate Commerce XII
- Inter/Intrastate Commerce: Status Non-Excepted or Excepted? XII
- Interstate Commerce XII
- Intrastate Commerce XII
- Self-Certification Statements XIII
- Driver's License Advisory Board XIII
- Age and Fitness Requirements XIII
- Your Driving Record XIV

Chapter II – Required Documents for All Applicants XV

- New Driver's License and Identification Cards XV
- Acceptable Proof of Identity Documents XV
- Acceptable Proof of Social Security Number Documents XV
- Acceptable Proof of Legal Name Change Documents XVI
- Acceptable Proof of West Virginia Residency Documents XVI

Chapter III – Commercial Driver's Licenses and Procedures

- Commercial Driver's License Types/Classes XVII
- Class D License (Non-Commercial Motor Vehicles for Hire) XVII
- Commercial Driver Learner's Permit (CLP) XVII
- Third Party Examiners XVIII
- CDL Fee Chart XIX
- Commercial Driver's License Types, Endorsements, and Restrictions XIX
- A Valid DOT Physical is Required for Commercial Drivers XIX
- First Time CDL Applicants XXI
- Change Current Class of License (Upgrade) XXI
- To Add an Endorsement (After you have been issued your CDL) XXII
- ALL Hazardous Materials Endorsement Holders and Applicants XXII
- "FOR FEDERAL IDENTIFICATION" (REAL ID) Card Requirements XXII
- "NOT FOR FEDERAL IDENTIFICATION" Card Requirements XXIII
- Renewal of a WV CDL XXIII
- Out-of-State Transfers to WV XXIII
- Knowledge Test XXIV
- CDL Skills Test XXIV
- Expiration of CDL XXIV

Chapter IV – Laws and Rules for CDL Drivers
A Valid CDL is Required for Driving A CMV XXV
CMV Employment History Disclosure to Prospective Employers & Employer Responsibilities XXV
DMV Must Be Notified of Any Loss of Driving Privileges XXV
Basic Speed Laws XXV
Speed Limits XXVI
Crash Reports/Tickets XXVI
Compulsory Motor Vehicle Liability Insurance XXVI
Commercial Drivers are Prohibited from Operating with ANY Alcohol in System XXVII
Implied Consent Law XXVII
Point System XXVII
Driving in Other States XXVIII
Failure to Comply with In-State Citations XXVIII
Mandatory License Revocation XXVIII
Child Support Suspensions XXVIII
Driving While Revoked or Suspended XXIX
Re-examination of Drivers XXIX
Disqualification/Cancellation of a CDL XXIX
LIMITING THE USE OF WIRELESS COMMUNICATION DEVICES
§383.5 & 49 CFR §390.5 definitions XXXVII
49 CFR §390.3 (F) General Applicability XXXVII
PART 391 - QUALIFICATIONS OF DRIVERS AND LONGER COMBINATION VEHICLE (LCV) DRIVER INSTRUCTIONS
49 CFR §391.2 General Exceptions XXXVII
ADDENDUM | AVOIDING DROWSY DRIVING XXXVIII

De nitions

(Most De nitions are from WV State Code, §17E-1-3)

Alcohol means:

(a) Any substance containing any form of alcohol, including, but not limited to: ethanol, methanol, propenyl, and isopropanol;

(b) Beer, ale, port, or stout, and other similar fermented beverages (including sake or similar products) of any name or description containing 1/2 of 1% (.5%) or more alcohol by volume, brewed or produced from malt, wholly or in part, or from any substitute for malt;

(c) Distilled spirits or a substance known as ethyl alcohol, ethanol, or spirits of wine in any form (including all dilutions and mixtures thereof from whatever source or by whatever process produced); or

(d) Wine of not less than 1/2 of 1% (.5%) alcohol by volume.

Alcohol Concentration means:

(a) The number of grams of alcohol per 100 milliliters of blood;

(b) The number of grams of alcohol per 210 liters of breath;

(c) The number of grams of alcohol per 67 milliliters of urine; or

(d) The number of grams of alcohol per 86 milliliters of serum.

At Fault Tra c Accident means for the purposes of waiving the road test, a determination, by the official filing the accident report, of fault as evidenced by an indication of contributing circumstances in the accident report.

Commercial Driver's License or CDL means a license or an instruction permit issued in accordance with the requirements of § 17E-1-1 et seq. to an individual which authorizes the individual to drive a class of commercial motor vehicle.

Commercial Driver's License Information System is the information system established pursuant to the Federal Commercial Motor Vehicle Safety Act to serve as a clearinghouse for locating information related to the licensing and identification of commercial motor vehicle drivers.

Commercial Learner's Permit or CLP is a permit to drive a commercial motor vehicle (CMV) pursuant to § 17E-1-9.

Commercial Motor Vehicle or CMV means a motor vehicle designed or used to transport passengers or property:

(a) If the vehicle has a gross combination vehicle weight rating (GCWR)of 26,001 pounds or more inclusive of towed unit(s) with a gross vehicle weight rating (GVWR) of more than 10,000 pounds;

(b) If the vehicle has a GVWR of more than 26,001 pounds or more;

(c) If the vehicle is designed to transport sixteen or more passengers, including the driver; or

(d) If the vehicle is of any size transporting hazardous materials as defined in §17E-1-3.

Commissioner means the Commissioner of Motor Vehicles of this state.

Controlled Substance means any substance classified under the provisions of chapter 60 A of this code (Uniform Controlled Substances Act) and includes all substances listed on Schedules I through V, inclusive of article two of said chapter 60 A, as revised. The term "controlled substance" also has the meaning such term has under 21 U.S.C. §802.6 and includes all substances listed on Schedules I through V of 21 C.F.R §1308 as they may be amended by the United States Department of Justice.

Conviction means:

(a) An unvacated adjudication of guilt

(b) A determination that a person has violated or failed to comply with the law in a court of original state or jurisdiction or by an authorized administrative tribunal or proceeding;

(c) An unvacated forfeiture of bail or collateral deposited to secure the persons appearance in court

(d) A plea of guilty or nolo contendere accepted by the court or the payment of a fine or court cost; or

(e) Violation of a condition of release without bail regardless of whether or not the penalty is rebated, suspended, or probated.

Division means the Division of Motor Vehicles or DMV.

Disqualification means any of the following three actions:

(a) The suspension, revocation, or cancellation of a driver's license by the state or jurisdiction of issuance;

(b) Any withdrawal of a person's privilege to drive a CMV by a state or other jurisdiction as the result of a violation of state or local law relating to motor vehicle traffic control other than parking or vehicle weight except as to violations committed by a special permittee on the coal resource transportation system or vehicle defect violations; or

(c) A determination by the Federal Motor Carrier Safety Administration (FMCSA) that a person is not qualified to operate a CMV under 49 C.F.R. Part §391 (2004).

Drive means to drive, operate, or be in physical control of a motor vehicle in any place open to the general public for purposes of vehicular traffic, including the operation or physical control of a motor vehicle anywhere in this state.

Driver means any person who drives, operates or is physical control of a motor vehicle, in any place open to the general public for purposes of vehicle traffic or who is required to hold a commercial driver's license.

Driver's License means a license issued by a state or jurisdiction to an individual which authorizes the individual to drive a motor vehicle of a specific class.

Electronic Device includes, but is not limited to, a cellular telephone, personal digital assistant, pager or any other device used to input, write, send, receive, or read text.

Employee means any operator of a CMV, including:

(a) Full time, regularly employed drivers;

(b) Casual, intermittent, or occasional drivers; or

(c) Leased drivers and independent, owner-operator contractors (while in the course of operating a CMV) who are either directly employed by or under lease to drive a CMV for an employer.

Employer means any person (including the United States), state, jurisdiction, or political subdivision of a state, who owns or leases a CMV or assigns a person to drive a CMV.

Endorsement means an authorization to a person to operate certain types of commercial motor vehicles.

Farm Vehicle includes a motor vehicle or combination vehicle registered to a farm owner or entity operating the farm and used exclusively in the transportation of agricultural or horticultural products, livestock, poultry and dairy products from the farm or orchard on which they are raised or produced to markets, processing plants, packing houses, canneries, railway shipping points and cold storage plants and in the transportation of agricultural or horticultural supplies and machinery to the farms or orchards to be used on the farms or orchards.

Farmer includes an owner, tenant, lessee, occupant, or person in control of the premises used substantially for agricultural or horticultural pursuits who is at least 18 years of age with two (2) years licensed driving experience.

Farm Vehicle Driver means the person employed and designated by the "farmer" to drive a "farm vehicle" as long as driving is not his or her sole or principal function on the farm and who is at least eighteen years of age with two years licensed driving experience.

Felony means an offense under state or federal law that is punishable by death or imprisonment for a term exceeding one (1) year.

Gross Combination Weight Rating (GCWR) means the value specified by the manufacturer as the loaded weight of a combination, articulated vehicle. In the absence of a value specified by the manufacturer, GCWR will be determined by adding the gross vehicle weight rating (GVWR) of the power unit and the total weight of the towed unit and load, if any.

Gross Vehicle Weight Rating (GVWR) means the value specified by the manufacturer as the loaded weight of a single vehicle. In the absence of a value specified by the manufacturer, the GVWR will be determined by the total weight of the vehicle and load, if any.

Hazardous Materials (HAZMAT) means any material that has been designated as hazardous under 49 U.S.C. §5103 and is required to be placarded under Subpart F of 49 C.F.R. Part §172 or any quantity of a material listed as a select agent or toxin in 42 C.F.R. Part §73.

Imminent Hazard means existence of a condition that presents a substantial likelihood that death, serious illness, or severe personal injury, or a substantial endangerment to health, property, or the environment may occur before the reasonably foreseeable completion date of a formal proceeding begun to lessen the risk of that death, illness, injury, or endangerment.

Issuance of a License means the completion of a transaction signifying that the applicant has met all the requirements to qualify for, including, but not limited to: The initial issuance of a driver's license, the renewal of a driver's license, the issuance of a duplicate license as a replacement to a lost or stolen driver's license, the transfer of any level of driving privileges including the privilege of operating a commercial motor vehicle from another state or jurisdiction, the changing of driver's license class, restrictions or endorsements or the change of any other information pertaining to an applicant either appearing on the face of a driver's license or within the driver record of the licensee maintained by the division.

Motor Vehicle means every vehicle which is self-propelled and every vehicle which is propelled by electric power obtained from overhead trolley wires but not operated upon rails.

Non-Commercial Motor Vehicle means a motor vehicle or combination of motor vehicles not defined by the term "commercial motor vehicle".

Out-of-Service Order means a declaration by an authorized enforcement officer of a federal, state, Canadian, Mexican, county or local jurisdiction including any special agent of the Federal Motor Carrier Safety Administration that a driver, a commercial motor vehicle, or a motor carrier operation is out of service pursuant to 49 C.F.R. §§386.72, 392.5, 395.13, 396.9 or compatible laws or the North American uniform out-of-service criteria that an imminent hazard exists.

Violation of an Out-Of-Service order means:

(a) The operation of a commercial motor vehicle during the period the driver was placed out-of-service;

(b) The operation of a commercial motor vehicle by a driver after the vehicle was placed out-of-service and before the required repairs are made; or

(c) The operation of any commercial vehicle by a motor carrier operation after the carrier has been placed out of service.

School Bus means a CMV used to transport pre-primary, primary, or secondary school students from home to school, from school to home, or to and from school sponsored events. School bus does not include a bus used as common carrier.

Serious Tra c Violation means conviction for any of the following offenses when operating a commercial motor vehicle:

(a) Excessive speeding involving any single offense for any speed of fifteen miles per hour or more above the posted limits;

(b) Reckless driving as defined in section three, article five, chapter seventeen-c of this code and careless or negligent driving, including, but not limited to, the offenses of driving a commercial motor vehicle in willful or wanton disregard for the safety of persons or property;

(c) Erratic or improper traffic lane changes including, but not limited to, passing a school bus when prohibited, improper lane changes and other passing violations;

(d) Following the vehicle ahead too closely;

(e) Driving a commercial motor vehicle without obtaining a commercial driver's license;

(f) Driving a commercial motor vehicle without a commercial driver's license in the driver's possession. However, any person who provides proof to the law-enforcement agency that issued the citation, by the date the person must appear in court or pay any fine for such violation, that the person held a valid commercial driver's license on the date the citation was issued, shall not be guilty of this offense;

(g) Driving a commercial motor vehicle without the proper class of commercial driver's license or endorsements for the specific vehicle group being operated or for the passengers or type of cargo being transported;

(h) A violation of state or local law relating to motor vehicle traffic control, other than a parking violation, arising in connection with a fatal traffic accident; or

(i) Any other serious violations determined by the United States Secretary of Transportation.

(j) Vehicle defects are excluded as serious traffic violations except as to violations committed by a special permittee on the coal resource transportation road system.

State means a state of the United States and the District of Columbia or a province or territory of Canada or a state or federal agency of the United Mexican States.

State of Domicile means the state where a person has his or her true, fixed and permanent home and principle residence and to which he or she has the intention of returning whenever absent in accordance with §17A-3-1a.

Suspension, Revocation, or Cancellation of a Driver's License, or a CDL means the privilege to operate any type of motor vehicle on the roads and highways of this state is withdrawn.

Tank Vehicle means any CMV that is designed to transport any liquid or gaseous materials within a tank that is either permanently or temporarily attached to the vehicle or the chassis. These vehicles include, but are not limited to, cargo tanks and portable tanks, as defined in 49 C.F.R. Part 171 (1998). However, this definition does not include portable tanks having a rated capacity under 1,000 gallons.

Texting means manually entering alphanumeric text into or reading text from an electronic device.

(a) This action includes, but is not limited to, short messaging service, e-mailing, instant messaging and a command or request to access a World Wide Web page or engaging in any other form of electronic text retrieval or entry for present or future communication.

(b) Texting does not include:

(i) Reading, selecting or entering a telephone number, an extension number or voicemail retrieval codes and commands into an electronic device for the purpose of initiating or receiving a phone call or using voice commands to initiate or receive a telephone call;

(ii) Inputting, selecting or reading information on a global positioning system or navigation system; or

(iii) Using a device capable of performing multiple functions including, but not limited to, fleet management systems, dispatching devices, smart phones, citizen band radios or music players for a purpose that is not otherwise prohibited by this section.

Transportation Security Administration (TSA) means the United States Department of Homeland Security Transportation Security Administration.

United States means the fifty states and the District of Columbia.

Valid or Certi ed Medical Certi cation Status means that an applicant or driver has a current medical evaluation or determination by a licensed physician that the applicant or driver meets the minimum federal motor carrier safety administration physical qualifications within the prescribed time frames pursuant 49 CFR Part §391. Not-certified means that an applicant or driver does not have a current medical evaluation or has not been certified by a licensed physician as meeting the minimum federal motor carrier safety administration physical qualifications pursuant 49 CFR Part §391.

Vehicle Group means a class or type of vehicle with certain operating characteristics.

Chapter 1 RULES GOVERNING COMMERCIAL DRIVER'S LICENSING

The driving privilege carries with it many responsibilities. You, and only you, are responsible for your actions. There are a number of areas that a CDL holder must be aware of in order to maintain the privilege to drive. CDL holders may not have any other type of driver's license. Any West Virginia CDL holder who is convicted of a traffic offense (other than parking citations) in another state or jurisdiction must notify the West Virginia DMV within 30 days of the conviction.

Who must have a West Virginia Commercial Driver's License?

If you live in West Virginia and want to drive a CMV on public roads, you must have a West Virginia CDL, unless you are expressly exempt.

Who is exempt?

- A nonresident who is at least 21 years old and has a valid CDL from another state.
- A nonresident who is at least 21 years old and has a valid commercial driver learner's permit from another state and is accompanied by a holder of a valid CDL.
- A bona de farmer or farm vehicle driver operating a vehicle otherwise covered by CDL requirements may be exempt from holding a CDL if the vehicle is:
    1) Driven by a farmer, or farm vehicle driver;
    2) Used only to transport either agricultural products, farm machinery, or farm supplies to or from a farm;
    3) Not used in the operation of a common or contract motor carrier; or
    4) Used within 150 miles of a qualifying farm.

    * Farmers who wish to be exempted from CDL requirements must apply to the DMV for a certificate of exemption. An Application for Farm Vehicle/Driver Exemption (DMV-CDL-8) may be obtained at any DMV regional office, or by calling (304) 926-3801, 1-800-642-9066, or from the DMV website at dmv.wv.gov/forms. This form must be certified by a representative of your local county tax office.
- Military personnel may, within six (6) months of their honorable discharge, apply for a CDL and request a waiver to the skills test portion. For more information regarding this waiver, please contact the CDL office at (304) 926-3801. Active duty military personnel operating vehicles being used for military purposes are exempt from the provision of this article in accordance with the provisions of §383.3 (c) C.F.R. (2006).
- Fire ghters and rescue vehicle operators authorized to hold an authorized emergency vehicle permit for the use of red signal lights, are only exempt from CDL requirements while the authorized emergency vehicle permit is in force. Vehicles in this class include, but are not limited to, firefighting and rescue equipment owned and operated by:
    1) A state, county, or municipal fire department;
    2) A state, county, or municipal civil defense organization;
    3) A manufacturer engaged in a type of business that requires firefighting equipment to protect the safety of their plants and employees; or
    4) A volunteer fire department.
- Operators of o -road construction and mining equipment. Operators of equipment which, by its design, appearance and function, is not intended for use on a public road, including, without limitation, motor scrapers, backhoes, motor graders, compactors, excavators, tractors, trenches and bulldozers, are exempt from the provisions of this article: Provided, That the exemption recognized by this subsection shall not be construed to permit the operation of such equipment on any public road except such operation as may be required for a crossing of such road: Provided, however, That no such equipment may be operated on a public road for a distance exceeding five hundred feet from the place where such equipment entered upon the public road.

- Per the Federal Motor Carrier Safety Improvement Act of 1999 exempts vehicles used exclusively for personal use such as recreation vehicles and rental trucks used only to transport the driver's personal or household property.

Who can be denied a commercial driver's license?

- Any person who is a habitual user of alcoholic beverages or is addicted to the use of narcotic drugs;
- Any person whose license is under suspension, revocation, cancellation, expiration, disqualification or in violation of an out-of-service violation.
- Any person whom the Commissioner of Motor Vehicles has good cause to believe would be hazardous to public safety or welfare when operating a motor vehicle;
- Any person who is required to deposit proof of financial responsibility or proof of motor vehicle compulsory motor vehicle liability insurance, and who has not deposited such proof;
- Any person who is disqualified from operating a CMV in any state or jurisdiction, until the expiration of the disqualification period; or

Applicant Record Check

Before issuing a CDL or CLP, the Commissioner must obtain a driving record through the Commercial Driver's License Information System (CDLIS), the National Driver Register (NDR), the Problem Driver Pointer System (PDPS), and from each state or jurisdiction in which the person has been licensed.

In the event a driver is found to be under license suspension, revocation, disqualification, or cancellation at the time of the record check, DMV will not issue a driver's license until the driver has been reinstated by that state or jurisdiction, CDLIS, PDPS and NDR.

Noti cation of License Issuance

Within ten days after issuing a CDL, the Commissioner shall notify CDLIS of that fact, providing all information required to ensure identification of the licensee.

Drive for Five Program

Under the "Drive for Five" Program, all driver's licenses – including CDL's – will expire on your birthday at an age divisible by five (5). For example, age 25, 30, 35, 40, 45, etc.

Under this program your CDL will be valid for five (5) years, instead of four (4). However, before you begin the five (5) year cycle, we may need to phase you into the program. In order to do this, your initial license will be issued for a period ranging from three (3) to seven (7) years, depending on your age at the time of issuance. For instance, if you are or will be 34 in the year which your license expires, you will be issued a six (6) year license that will expire when you are 40.

Please note that license fees have not increased. The fees may be more or less for this renewal period, depending on the number of years for which the license will be valid. DMV will mail you a renewal notice before your CDL expires. Be sure to have the correct address on file with the DMV, as USPS does not forward renewal notices.

Medical Documentation Requirements

Starting January 30, 2012 and no later than January 30, 2014, if you are applying for a CDL Permit; or are renewing, upgrading, adding endorsements to a CDL; or transferring a CDL from another state, you are required to provide information to your State Driver's License Agency (SDLA) regarding the type of commercial motor vehicle operation you drive in or expect to drive in with your CDL. Drivers operating in certain types of commerce will be required to submit a current medical examiner's certificate and/or any medical variance documents that you have been issued (i.e. Vision, Skills Performance or Diabetic waivers, or other exemptions) to your SDLA to obtain a "certified" medical status as part of your driving record. You must contact your State Driver Licensing Agency (SDLA) to obtain information regarding the requirement for submitting these documents. If you're a West Virginia resident, your SDLA is the West Virginia Division of Motor Vehicles.

If you are required to have a "certified" medical status and fail to provide and keep up-to-date your medical examiner's certificate you become "not-certified" and may lose your CDL.

For the purpose of complying with the new requirements for medical certification, it is important to know how you are using the CMV. The following information will help you decide how to self-certify:

Interstate or Intrastate Commerce

Do you, or will you, use a CDL to operate a CMV in interstate or intrastate commerce?

Interstate commerce is when you drive a CMV:

- From one State to another State or to and from a foreign country;
- Between two places within a State, but during part of the trip, the CMV crosses into another State or foreign country; or
- Between two places within a State, but the cargo or passengers are part of a trip that began or will end in another State or foreign country.

Intrastate commerce is when you drive a CMV within a State and you do not meet any of the descriptions above for interstate commerce.

If operating in both intrastate commerce and interstate commerce, you must choose interstate commerce.

Inter/Intrastate Commerce: Status Non-Excepted or Excepted?

Once you decide whether you will operate in interstate commerce or intrastate commerce, you must decide whether you will operate (or expect to operate) in a non-excepted or excepted status. This decision will tell you to in which of the four types of commerce you must self-certify.

Interstate Commerce:

You operate in excepted interstate commerce when you drive a CMV in interstate commerce only for the following excepted activities:

- To transport school children and/or school staff between home and school;
- As Federal, State or local government employees;
- To transport human corpses or sick or injured persons;
- Fire truck or rescue vehicle drivers during emergencies and other related activities;
- Primarily in the transportation of propane winter heating fuel when responding to an emergency condition requiring immediate response such as damage to a propane gas system after a storm or flooding;
- In response to a pipeline emergency condition requiring immediate response such as a pipeline leak or rupture;
- In custom harvesting on a farm or to transport farm machinery and supplies used in the custom harvesting operation to and from a farm or to transport custom harvested crops to storage or to market;
- Beekeeper in the seasonal transportation of bees;
- Controlled and operated by a farmer, but is not a combination vehicle (power unit and towed unit), and is used to transport agricultural products, farm machinery or farm supplies (no placardable hazardous materials) to and from a farm and within 150 air-miles of the farm;
- As a private motor carrier of passengers for non-business purposes; or
- To transport migrant workers.

If you answered yes to one or more of the above activities as the only operation in which you drive, you operate in excepted interstate commerce and do not need a Federal medical examiner's certificate.

If you answered no to all of the above activities, you operate in non-excepted interstate commerce and are required to provide a current medical examiner's certificate (49 CFR 391.45), commonly referred to as a medical certificate or DOT card, to your State Driver Licensing Agency (SDLA). Most CDL holders who drive CMVs in interstate commerce are non-excepted interstate commerce drivers.

If you operate in both excepted interstate commerce and non-excepted interstate commerce, you must choose non-excepted interstate commerce to be qualified to operate in both types of interstate commerce.

Intrastate Commerce:

You operate in excepted Intrastate commerce when you drive a CMV only in intrastate commerce activities for which your State of licensure has determined do not require you to meet the State's medical certification requirements.

You operate in non-excepted intrastate commerce when you drive a CMV only in intrastate commerce and are required to meet your State of licensure's medical certification.

If you operate in both excepted intrastate commerce and non-excepted intrastate commerce , you must choose non-excepted intrastate commerce .

Self-Certi cation Statements

When completing an application for your CDL, you will be required to check the box next to the statement that describes your status. The actual statements on your application may vary from those shown below:

- Interstate non-excepted: I certify that I operate or expect to operate in interstate commerce, that I am subject to and meet the Federal DOT medical card requirements under 49 CFR part 391; and that I am required to obtain a medical examiner's certificate.
- Interstate excepted: I certify that I operate or expect to operate in interstate commerce, but engage exclusively in transportation or operations excepted under 49 CFR §§390.3(f), 391.2, 391.68 or 398.3 from all or parts of the qualification requirements of 49 CFR part 391; and that I am not required to obtain a medical examiner's certificate.
- Intrastate non-excepted: I certify that I operate or expect to operate entirely in intrastate commerce, that I am subject to and meet the medical requirements for my State; and that I am required to obtain a medical examiner's certificate.
- Intrastate excepted: I certify that I operate or expect to operate entirely in intrastate commerce, that I am not subject to the medical requirements for my State; and that I am not required to obtain a medical examiner's certificate.

Driver's License Advisory Board

The Driver's Licensing Advisory Board consist of five (5) members appointed by the Governor. One member of the Board is a a registered optometrist. The other four members are physicians licensed to pracitice medicine.

Upon request, the Board advises the Commissioner of Motor Vehicles on medical and vision standards to help determine one's fitness to safely operate a motor vehicle. Final licensing decisions are made by the Commissioner of Motor Vehicles.

Age and Fitness Requirements

You must be at least 18 years old and have at least two (2) years of licensed driving experience to qualify for a CDL or a CLP. Federal Motor Carrier Rules (49 C.F.R., Part 391.41) require that drivers subject to those rules meet specific physical qualification standards and carry evidence of such qualification in the form of a medical certificate.

At the time of application for a CDL you must submit a copy of your valid DOT Long Form Physical and Medical Card or provide proof that you are not subject to the Federal Motor Carrier Safety Regulation (FMCSR) guidelines. Should you become subject to FMCSR guidelines at a later date and fail to obtain the proper medical certification, your license may be subject to cancellation. Also, a false statement on your application will subject your CDL to cancellation.

Effective May 21, 2014 all new DOT Medical Examinations (DOT Medical Examination Report and DOT Medical Certificate), for all drivers who operate a CMV in NON-EXCEPTED INTERSTATE (NI) commerce are required to have a DOT physical completed by a certified medical examiner listed on the FMCSA's national registry web site, located at: https://nationalregistry.fmcsa.dot.gov.

The FMCSA defines INTERSTATE COMMERCE as: trade, traffic, or transportation involving the CROSSING of a state boundary. Either the vehicle, its passengers, or cargo must cross a state boundary, or there must be intent to cross a state boundary, to be considered an interstate carrier.

Non-compliant medical examinations completed for an INTERSTATE COMMERCE driver, by a medical examiner not listed on the national registry, can be accepted; however, their self-certification status must be changed to NON-EXCEPTED INTRASTATE (NA).

If you drive only in INTRASTATE COMMERCE (trade, traffic, or transportation within a single state) who require a medical certification to operate a commercial vehicle, you may obtain their certification from ANY medical professional. You are not required to obtain their certification from a certified medical examiner on the national registry.

NOTE: All CDL holders are subject to FMCSR requirements (DOT medical) except for city, county, state, or federal employe For this exemption you must provide current written veri cation of employment from a city, county, state, or federal government which states that your position requires a CDL along with the CDL application.

NOTE: If you cannot be medically certi ed in accordance with the FMCSR, you may be eligible for a medical waiver.

If you wish to be able to operate a CMV in all 50 states, you must apply and be granted a waiver from the FMCSA. Call (304) 347-5935 for further information.

If you cannot meet the FMCSA physical quali cations, you must submit the following to determine if you are eligible for a WV Intrastate Medical Waiver: a CDL application, your DOT Medical Certi cate, a letter from a physician stating the reason for the disquali cation and their opinion as to whether the condition would interfere with the safe operation of a CMV. Send all documents in with the correct fee (see chart on page XIX. Once received, the Medical Review Team will then review and m a decision. Please call (304) 926-3801 or 1-800-642-9066 for additional information on obtaining a medical waiver.

Your Driving Record

Any person may request a copy of their own driving record online at dmv.wv.gov by clicking on "Online Services", or at any DMV regional office. You must complete the form Request for Driving Record (DMV-101-PS-1) and provide your West Virginia driver's license or identification card for proof of identification at the DMV regional office.

All other requests must be sent to the address provided below. You may not obtain information about others without their signed written consent on the form Driving Record Release Authorization (DMV-101-PS-2). Each request form submitted must also include a copy of the requestor's government-issued photo driver's license or ID card. If you do not meet these requirements, your reason will be reviewed. If your request is accepted you will receive a driving record that excludes all personal information.

To obtain an employee's driving record, employers must complete the forms Request for Driving Record (DMV-101-PS-1) and Driving Record Release Authorization (DMV-101-PS-2), submit them with the appropriate fee(s) to the address provided below.

West Virginia Division of Motor Vehicles
Insurance Section/Driving Records
PO BOX 17020
Charleston, West Virginia 25317

Driving record request and written consent forms are available on the DMV website at dmv.wv.gov. You may also call 1-800-642-9066 or 1-304-926-3952 to have these forms mailed to you.

Chapter II REQUIRED DOCUMENTS FOR ALL APPLICANTS

New Secure Driver's Licenses and Identi cation Cards

The new driver's license and ID requirements are federally mandated by the REAL ID Act of 2005.

Effective January 3, 2012, all individuals renewing or making changes to their current West Virginia driver's license that wish to obtain a "FOR Federal Identification" driver's license or ID card are required to provide one (1) proof of their identity, one (1) proof of their Social Security number, and two (2) proofs of WV residency. While many of these documents were required to obtain an initial driver's license prior to the implementation of REAL ID, the new REAL ID is a re-enrollment program wherein not only does the driver's license applicant have to present all of the aforementioned documents, but they must also be scanned into the driver's license system. This is a REAL ID Act requirement that the state must follow.

Furthermore if the individual's name has changed from what is listed on the identifying document, then they must provide all legal name change documents that support the name change. A link must be established between the current name, back to the name listed on identifying documents.

ACCEPTABLE PROOF OF IDENTITY DOCUMENTS

An original or certified copy of a U.S. issued birth certificate
U.S. Department of State and U.S. Military birth certificates ARE acceptable, hospital birth certificates and Bureau of Census records are NOT acceptable

U.S. Passport or Passport Card
Must be valid and unexpired

If foreign born, valid, unexpired Permanent Resident Card or acceptable alternatives as out-lined below:

- Permanent Resident Card (Form I-551) issued by DHS (or INS)
- Certificate of Naturalization issued by DHS, Form N-550 or Form N-570
- Certificate of Citizenship, Form N-560 or Form N-561, issued by DHS
- Consular Report of Birth Abroad (CRBA) issued by the U.S. Department of State, Form FS-240, or DS-1350 or FS-545

ACCEPTABLE PROOF OF SOCIAL SECURITY NUMBER

Social Security card
Must be in your current legal name

Original Wage and Tax Statement (W-2)
Or payroll stub with the applicant's employer name and employer ID number, as well as the applicant's name, address, and Social Security number (a photocopy of a W-2 is not acceptable) (You may use the same W-2 as one (1) proof of WV residency, provided it is not more tha 18 months old)

1099 form - With applicant's full Social Security number and legal name

Paycheck stub - With applicant's full Social Security number and legal name

Please make sure your Social Security records reflect your full legal name, as reflected on your other documents. DMV must be able to establish a name connection between documents, therefore your full legal name must match your name on file with the Social Security Administration (SSA). If an applicant is not eligible for a social security number, then the applicant must submit a denial letter from the SSA. The DMV checks every social security number with the SSA. If you have a problem with the SSA, such as name or date of birth does not match with records of the DMV and SSA, then you must have the problem corrected before you can be issued an instruction permit, license, or identification card. Your documents will be scanned and returned to you, which will provide DMV with a historical record, and provide you with additional protection, per the Federal Real ID Act of 2005. Please visit the SSA website for information about obtaining a Social Security number.

If an applicant is not eligible for a Social Security card, the applicant must provide a letter from the Social Security Administration stating they are not eligible or provide a written self-certification statement of ineligibility.

ACCEPTABLE PROOF OF LEGAL NAME CHANGE DOCUMENTS

Certi ed marriage certi cate
For each marriage if married more than once, also souvenir documents and Minister's copies are not acceptable

Original or certi ed copy of a birth certi cate with amended legal name

Court Order with legal name/name change

Certi ed divorce decree(s) with legal name/name change

If you are age 50 or over
And have satisfied all other documentation requirements, hold a current WV driver's license or ID card in the name being verified, and hav gone through at least one (1) WV license renewal cycle, a signed statement may be submitted in lieu of the name change document such as the marriage certificate or divorce decree

ACCEPTABLE PROOF OF WEST VIRGINIA RESIDENCY

You will need two (2) documents from the lists below. Documents with a PO Box are not acceptable. Any recurring document cannot be more than 60 days old (ie utility bill). Married applicants may provide WV residency docu ments from LIST B or LIST C in their spouse's name when accompanied with a Certified Marriage Certificate.

WV utility bills Cannot be more than 60 days old, more than one bill from the same company, or a termination notice	College admissions letter That shows the applicant is an in-state resident
Tax records with a WV street address	911 letter
WV mortgage documents, WV homeowner insurance documents for a WV residence, or proof of WV home ownership	Pay check stub From any WV employer that shows a current physical address (cannot be hand written)
WV Homestead Tax Exemption	Social Security bene ts letter
WV Weapons Permit	WV professional license
Valid WV vehicle registration card	United States Selective Service card
WV Voter's Registration card	WV Dealer temporary registration card
WV W-2 form (That is not more than 18 months old) (you may use the same W-2 as your proof of Social Security number)	Letter from the applicant's employer Stating that all utility and house arrangements are provided by the employer
Proof of WV public assistance	WV hunting license
Residential rental or lease agreement	WV bank statement
WV DMV A davit of WV Residency	WV auto insurance card
Letter from the US Post O ce That shows a new, physical, WV address assigned by the Post Office for the applicant	Letter from a: WV homeless shelter, hotel, senior citizens home, rehabilitation center, nursing home, children's home, orphanage, shelter, battered women's shelter, or Job Corps, including the facility's physical address, that explains that the applicant is a resident at their facility (letterhead is preferred, but not required)
License plate or Driver's License Renewal form	

Chapter III COMMERCIAL DRIVER'S LICENSES AND PROCEDURES

An applicant for any WV driver's license or ID card must be a resident of the state of West Virginia. The DMV will not process an applicant who does not have a West Virginia physical address. Acceptable documents for proofs of residency are listed on page XVI.

Commercial Driver's License Types/Classes

There are three types of CDLs: CLASS A, B, and C. The holder of a valid CDL may drive all vehicles for which their license is issued, all lesser classes of vehicles, and any CMV which requires an endorsement that appears on the their CDL.

CLASS A – Combination of vehicles with a GCWR of 26,001 pounds or more, provided the GVWR of the unit being towed is 10,00 pounds or greater.

CLASS B – Single vehicles with a GVWR of 26,001 pounds or more and towing any such unit with a GVWR less than 10,001 pour

CLASS C – Vehicles with a GVWR or a GCWR less than 26,001 pounds and designed to transport 16 or more passengers including driver, or vehicles used in the transportation of hazardous materials which requires the vehicle to be placarded under 49 C.F

Class D License (Non-Commercial Motor Vehicles for Hire)

A CLASS D driver's license shall be issued to persons at least 18 years old with at least one (1) year of licensed driving experience, whose primary function or employment is the transportation of persons or property for compensation or wages, who have paid the required fee.

If you operate motor vehicles of less than 10,001 lbs. GVWR (CLASS A registration), you are not required to obtain a CLASS D license.

You may obtain a CLASS D license at any DMV regional office by completing an Application for Commercial Driver's License (CDL) and/or Endorsements (DMV-CDL-1) and paying the appropriate fee.

Operators with a CLASS D license are required to obtain a DOT Medical Certificate when operating a vehicle of 10,001 pounds GVWR or more.

Commercial Learner's Permit (CLP)

A commercial learner's permit (CLP) may be issued to any person that holds a valid driver's or CLASS D license, and has passed the vision and/or physical standards and knowledge tests required for issuance of a CDL. A CLP may only be issued to any person that is 18 years of age and has held a driver's license for a minimum of two (2) years.

The CLP may not be issued for a period to exceed 180 days. Only one (1) renewal or re-issuance may be granted within a two (2) year period. In the event you have been issued two (2) CLPs, you must reapply and re-test on all parts of the knowledge test before the you may obtain an additional CLP.

The holder of a CLP may drive a commercial motor vehicle on a highway only when accompanied by a driver, age 21 or older who holds a CDL valid for the type of vehicle driven, who occupies a seat beside the individual for the purpose of giving instruction or testing.

A CLP will allow you to take the road skills test to obtain the CDL License.

The CDL Skills Test is given by contracted third-party examiners. You are responsible for contacting the third party examiner to schedule your road skills test. Below is a list of authorized third party examiner's that offer the CDL skills test in WV. Examiner's and their contact information are subject to change. For the most current list of third party examiners visit the DMV website at dmv.wv.gov/commercial.

Third Party Examiners

County	Examiner	Contact Information		
Berkeley	Janet Nesselerodt		Cell (304) 279-5578	
	Bill Shoop	Home (304) 813-8887		
Boone	Dennis Moles Jr.	Home (304) 205-4639	Cell (304) 553-6114	
	Bob Richard	Home (304) 372-5432	Cell (304) 373-7220	
Braxton	Dennis Moles Jr.	Home (304) 205-4639	Cell (304) 553-6114	
Cabell	Je Beverly		Cell (304) 932-6622	
	George Colgrove	Home (304) 945-9552	Cell (304) 633-2613	
	Gary Lusher		Cell (304) 654-5319	
	Bill Nance	Home (304) 576-2004	Cell (304) 638-2509	
Greenbrier	Matthew Curry		Cell (304) 646-5305	Work (304) 536-1472
	Steve McCoy	Home (304) 653-4503	Cell (304) 651-4503	
	Randall Thomas	Home (304) 497-3741	Cell (304) 667-4704	
Hampshire	Robert Pritts		Cell (304) 790-3417	Work (304) 289-2256
	Bill Shoop	Home (304) 813-8887		
Hancock	Roseanna Finney		Cell (304) 650-0766	
Hardy	Robert Pritts		Cell (304) 790-3417	Work (304) 289-2256
	Bill Shoop	Home (304) 813-8887		
Harrison	Anthony Columbo Jr.		Cell (304) 677-8887	
	Charles Crouse	Home (304) 457-4964	Cell (304) 641-0961	
	JD Haller		Cell (304) 838-9016	Work (304) 495-4750
	Ed Rollins Jr.	Home (304) 842-8984	Cell (304) 669-2081	
Je erson	Janet Nesselerodt		Cell (304) 279-5578	
Kanawha	Je Beverly		Cell (304) 932-6622	
	Bob Richard	Home (304) 372-5432	Cell (304) 373-7220	
	Dennis Moles Jr.	Home (304) 205-4639	Cell (304) 553-6114	
	Bill Nance	Home (304) 576-2004	Cell (304) 638-2509	
	Ryan Powers		Cell (304) 205-3944	
	Gerald Smith	Home (304) 345-2595	Cell (304) 550-6346	Work (304) 558-3019
Lewis	Anthony Columbo Jr.		Cell (304) 677-8887	
	JD Haller		Cell (304) 838-9016	Work (304) 495-4750
Mason	Bill Nance	Home (304) 576-2004	Cell (304) 638-2509	
	Ryan Powers		Cell (304) 205-3944	
McDowell	Thomas Bell	Home (304) 436-6976	Cell (304) 888-1546	
Mercer	Jason Blevins	Home (304) 960-1655	Cell (304) 673-7556	
Mineral	Robert Pritts		Cell (304) 790-3417	Work (304) 289-2256
Monongalia	Robert Pritts		Cell (304) 790-3417	Work (304) 289-2256
Morgan	Janet Nesselerodt		Cell (304) 279-5578	
	Bill Shoop	Home (304) 813-8887		
Nicholas	Fred Hart		Cell (304) 640-1230	
	Steve McCoy	Home (304) 653-4503	Cell (304) 651-4503	
	Dennis Moles Jr.	Home (304) 205-4639	Cell (304) 553-6114	
Ohio	Arthur Lightner	Home (304) 639-1866		Work (304) 671-8136

County	Examiner	Contact Information		
Preston	Anthony Columbo Jr.		Cell (304) 677-8887	
Raleigh	Joe Bowman	Home (304) 763-7776	Cell (304) 237-8270	
	Fred Hart		Cell (304) 640-1230	
	Dennis Moles Jr.	Home (304) 205-4639	Cell (304) 553-6114	
Randolph	Tim Myers	Home (304) 478-4420	Cell (304) 642-4424	
Upshur	Anthony Columbo Jr.		Cell (304) 677-8887	
	JD Haller		Cell (304) 838-9016	Work (304) 495-4750
	Tim Myers	Home (304) 478-4420	Cell (304) 642-4424	
Wood	Daniel Taylor	Home (304) 863-8806	Cell (304) 494-2222	Work (304) 420-4659

CDL Fee Chart

Your fee is determined by your "calculated age". To figure out your calculated age, subtract your birth year from the current year. For example: If the current year is 2019, and you were born in 1994, your calculated age would be 25 (2019 -1994 = 25). Therefore, your fee would be $43.75 for five (5) years (to carry you to age 30). If your birthday is on or after December 1st, your fee will be calculated using the next calendar year.

Commercial Driver's License Types, Endorsements, and Restrictions

The DMV is authorized to impose license restrictions to assure the safe operation of motor vehicles. DMV may issue you a restricted license or may indicate restrictions on the form Application for Commercial Driver's License (CDL) and/or Endorsements (DMV-CDL-1). Operating a motor vehicle in violation of restrictions is a serious offense and could result in the suspension or revocation of your driving privileges.

A Valid DOT Physical is Required for Commercial Drivers

A licensee who lists their self-certification status as a Non-Excepted shall maintain a current FMCSA Medical Examiners Certificate (DOT Medical card) on file with DMV. Any certificate more than two (2) years old is not current. Any certificate that is valid less than 30 days cannot be accepted and the licensee will be required to obtain a new certificate. A licensee with a CLASS D driver's license who operates a CMV over 10,000 pounds but less than 26,001 pounds is required to comply with requirements related to submitting and maintaining a current FMCSA Medical Examiners Certificate. Applicants who list their Self-Certification status as "Excepted" are not required to meet the FMCSA requirements.

Last Digit of Calculated Age	License Will Be Valid For	The Fee Will Be
1 or 6	4 years	$35.00
2 or 7	3 years	$26.25
3 or 8	7 years	$61.25
4 or 9	6 years	$52.50
5 or 0	5 years	$43.75

UNDER 21 YEARS FEE CHART	
Under 21 Age in Current Year	The Fee Will Be
18	$26.25
19	$17.50
20	$8.75

Commercial Driver's License Classi cations	
A	Combination of vehicles with a gross combined weight rating (GCWR) of 26,001 pounds or more, provided the gross vehicl weight rating (GVWR) of the unit being towed is 10,001 pounds or greater.
B	Single vehicles with a GVWR of 26,001 pounds or more and towing any such unit with a GVWR less than 10,001 pounds.
C	Vehicles with a GVWR or a GCWR less than 26,001 pounds and designed to transport 16 or more passengers including the driver, or vehicles used in the transportation of hazardous materials which requires the vehicle to be placarded under 49 C.F.F
D	Non-Commercial vehicles for hire

Endorsements		
F	Motorcycle	$5.00
H	Hazardous Materials Requires TSA ngerprint and background check prior to testing	$10.00
N	Tank Vehicles	$10.00
P	Passengers Requires skills test	$10.00
T	Doubles/Triples - Trailers	$10.00
S	School Bus Requires skills test	$10.00
X	Hazardous Materials and Tank Requires TSA ngerprint and background check prior to testing	$20.00

Restrictions	
E	Restricts driver to NO manual transmission equipped CMVs
K	*Intrastate driving - driving in WV Only The "K" restriction is used when a driver is under age 21 or is required to possess a CDL Intrastate Medical Wai Refer to page XIII for information on the Medical Waiver Program or if their medical certi cation was completed by an examiner not on the National Registry.
L	Restricts the driver to vehicles not equipped with air brakes
M	Restricts the driver to class B or C buses only
N	Restricts driver to buses 26,000 pounds and under (Class C buses)
O	Restricts driver to NO tractor-trailer CMVs
P	No passengers in CMV bus
V	Driver quali ed with medical variance
X	No cargo in CMV tank vehicle
Z	Restricts driver to NO full air brake equipped CMVs

First Time CDL Applicants

1) Complete the form Application for Commercial Driver's License (CDL) and/or Endorsements (DMV-CDL-1)
2) Submit a copy of your current DOT Medical Examination Report (long form) and Medical Card, or you must provide written verification of employment with a city, county, state, or federal government and have Self-Certified that you operate in an "Excepted" status.
3) Submit proof of U.S. Citizenship or lawful permanent residency and proof of Social Security number.
4) Submit payment for the application fees and any endorsement fee(s) at the time of the application, plus a $7.50 duplicate license fees to:

DMV CDL Division
PO Box 17010
Charleston, WV 25317

Typical DMV Transaction Fees			
One Endorsement (Includes duplicate fee)	$17.50	Transfer	$5.00
Two Endorsements (Includes duplicate fee)	$27.50	Duplicate	$7.50
Three Endorsements (Includes duplicate fee)	$37.50	Knowledge Test For three (3) attempts and Includes general knowledge, air brakes and combination (includes duplicate fee)	$32.50
Four Endorsements (Includes duplicate fee)	$47.50		

Upon receipt of the application and fees, DMV will mail a letter to you that indicates DMV regional office locations and residency requirements.

Once all tests are successfully completed, a CLP may be issued. The permit will be valid for a period of 180 days and can be renewed one (1) time only, within two (2) years of the initial issuance. Applicant's must hold a CLP for a minimum of 14 days before they are eligible to take the road skills test. When you are ready to take the road skills test, you must contact a Third Party Examiner (see list beginning on page XIX) to schedule an appointment. Most skills tests are given on weekends and evenings. The cost of the skills test is $100.00, which must be paid to the Third Party Examiner at the time of the test. A $50.00 NO SHOW fee will be charged to an applicant who schedules a test and does not appear.

All applicants must provide the vehicle in which the test will be taken, furthermore the vehicle must be representative of the class of license for which the applicant is testing.

Upon successful completion of the road skills test, you must submit the test results, current license, CLP, DOT Medical Card, and one (1) proof of a WV residency (as shown on page XVI) to a designated exam center or a DMV regional office. At that time, you may be issued a CDL.

Change Current Class of License (Upgrade)

Complete the form Application for Commercial Driver's License (CDL) and/or Endorsements (DMV-CDL-1)

Indicate in the transaction area that you are applying for a license update The fee for updating your license is $32.50 if a knowledge test is required, or $7.50 if no knowledge tests are required. If a knowledge test is required, a CDL test card will be mailed to you. If no testing is required, a letter of approval for the issuance of a CLP will be sent to you. A skills test is required to upgrade from one (1) class to another and/or to remove an air brake restriction.

To Add an Endorsement(After you have been issued your CDL)

1) Complete the form Application for Commercial Driver's License (CDL) and/or Endorsements (DMV-CDL-1) both front and back.
2) Submit the application, your DOT Medical Certificate, and the required fees.
3) For a hazardous materials endorsement, see the following page.

ALL Hazardous Materials Endorsement (HAZMAT) Holders and Applicants

To apply for or retain an existing HAZMAT endorsement when upgrading or renewing your CDL, you must first complete a fingerprint and background check, from the Transportation Security Administration. You should contact the Universal Enrollment Services (UES) Help Desk at 1-855-347-8371, or visit their website at https://universalenroll.dhs.gov to pay the $86.50 fee to start the fingerprint and background check process. All fees are non-refundable. After contacting UES, you must call one of the fingerprinting locations listed on the website to schedule an appointment. When visiting the UES office you must provide proof of identity and citizenship. Visit the UES website for a complete list of acceptable documents. Once you have received your approval letter in the mail from UES stating you have passed the background check, take it to the nearest DMV Regional Office to test for a HAZMAT endorsement and renew your CDL.

A HAZMAT endorsement holder renewing their CDL will receive three (3) attempts to test and pass the HAZMAT endorsement on a valid non-expired license. If your CDL license is expired, then you must obtain a HAZMAT test card from the CDL office in Charleston before you can test for HAZMAT.

"FOR FEDERAL IDENTIFICATION" (REAL ID) Card Requirements

If you have not visited a DMV office since January 3, 2012, for any type of license transaction and have not presented all the required documents for proof of identity, Social Security number, and WV residency. You must bring the following documents to renew your CDL:

1) Your current WV CDL
2) One (1) proof of identity document
3) One (1) proof of your Social Security number document
4) Two (2) proofs of WV residency documents
5) If there has been a name change from what is listed on your identifying document, then legal name change documents supporting the legal name change must be provided
6) Your valid DOT Medical Certificate if you drive in a Non-Excepted Status. Individuals who self-certify their status as Excepted are exempt from having to meet federal medical requirements.
7) Your UES approval letter if you wish to obtain a HAZMAT endorsement

If you have visited the DMV since January 3, 2012, for any type of driver's license transaction and have presented all the required documents for your proof of identity, Social Security number, and WV residency, you must bring the following documents:

1) Your current WV CDL
2) One (1) proof of WV residency document unless you have had a change of address, in which case you will need to provide two (2) proofs of WV residency
3) If your name has changed since last issuance, any change of legal name requires proof of legal name change document(s)
4) Your valid DOT Medical Certificate if you drive in a Non-Excepted Status. Individuals who self-certify their status as Excepted are exempt from having to meet federal medial requirements.
5) Your UES approval letter if you wish to obtain a HAZMAT endorsement

"NOT FOR FEDERAL IDENTIFICATION" Card Requirements

If you wish to obtain a Not For Federal Identification license, you must bring the following documents:

1) Your current WV CDL
2) One (1) proof of WV residency
3) If your name has changed since your last issuance, any change of legal name requires proof of legal name change document(s).
4) Your valid DOT Medical Certificate if you drive in a Non-Excepted Status. Individuals who self-certify their status as Excepted are exempt from having to meet federal medical requirements.
5) Your UES approval letter if you wish to obtain a HAZMAT endorsement

If you did not receive a renewal notice in the mail, you must complete an Application for Commercial Driver's License (CDL) and/or Endorsements (DMV-cdl-1) at a DMV regional office. There is an additional fee of $5.00 for an expired CDL.

Renewal of a WV CDL

Once you have received your renewal notice from the DMV, you should visit a DMV regional office to start the renewal process. You have the choice between a "NOT FOR FEDERAL IDENTIFICATION" CDL, or a "FOR FEDERAL IDENTIFICATION" card that contains a gold star, indicating that the card meets full federal requirements for future use at airports and other designated federal facilities and/or uses nationwide.

Only one state-issued driver's license or ID card per person may be designated "FOR FEDERAL IDENTIFICATION". If you choose this type of card you will receive a temporary CDL for use until your permanent CDL arrives in approximately 10 -15 business days through USPS.

Out-of-State Transfers to WV

To drive a commercial vehicle in West Virginia, you must apply to transfer your CDL within 30 days of establishing residence. The DMV will obtain driving information through the CDLIS, NDR, PDPS, and from each state in which you have been licensed to drive. In some cases, the required records check may take up to 48 hours to complete. Until the records check is completed, your CDL will not be transferred. You must surrender your out-of-state CDL in order to obtain a WV CDL.

To obtain a HAZMAT endorsement on your WV CDL, see the instructions for All Hazardous Materials Endorsement Holders and Applicants on page XXI.

You must bring the following documents to be issued a WV CDL:

1) One (1) proof of identity document
2) One (1) proof of your Social Security number document
3) Two (2) proofs of WV residency documents
4) If there has been a name change from what is listed on your identifying document, then legal name change documents supporting the legal name change must be provided
5) Your valid DOT Medial Examiners Report and Medical Certificate if you drive in a Non-Excepted Status. Individuals who self-certify their status as Excepted are exempt from having to meet federal medical requirements.
6) Your out-of-state license or certified driving record
7) Your UES approval letter if you wish to obtain a HAZMAT endorsement

Knowledge Test

The knowledge test must be taken and passed, with at least an 80% score. Endorsement tests can be taken at the same time or at a later time. Please note: Only Passenger, School Bus or Tank endorsements can be added to a CLP. All other endorsements can only be added on a full CDL. If you fail any portion of the knowledge exam, you must wait seven (7) days before you may retest. You may test three (3) times per each $32.50 fee paid. No oral tests can be given on hazardous materials testing.

CDL Skills Test

The CDL skills tests are administered by the certified third party examiners as listed on page XVIII. The road skills test will not be given until you have passed all other parts of the examination and have, in your possession, a valid driver's license and a valid CLP for the type of vehicle for which you are testing. You must have held the CLP a minimum of 14 days before you are eligible to take the skills test. Each section of the skills test must be passed.

Note: The state does not supply CMVs for road skills testing. A $100.00 fee must be paid to the third party examiner at the time of the CDL skills test. A $50.00 NO SHOW fee will be charged to an applicant who schedules a test and does not appear.

The examiner cannot administer the skills test unless your CMV is in safe condition and is legally equipped. The CMV must first be checked to make sure it complies with registration, vehicle inspection, and equipment laws. The CLP holder/applicant must appear at the test location with a CDL driver who is properly endorsed to operate the tested vehicle.

Expiration of CDL

1) If your CDL was issued to you on or after your 21st birthday, your CDL expires on your birthday, in the years in which your age is evenly divisible by five (5). Your CDL must be renewed by the end of the month in which your birthday falls and is valid for a period of five (5) years from the date of your birthday.
2) If your CDL was issued to your before your 21st birthday, it will expire on your birthday in the year in which you reach 21 years of age.
3) If you hold a CDL, and are in the armed forces on active duty, your CDL will remain valid for 30 days from the date on which you reestablish residency in West Virginia.
4) If your CDL is more than six (6) months expired, you must pass the knowledge and road skills tests for both a CLASS E driver's license and a CDL before you can obtain a valid CDL.

No CDL may be issued for less than three (3) years nor more than eight (8) years.

Chapter IV LAWS AND RULES FOR CDL DRIVERS

A Valid CDL is Required for Driving a CMV

Be sure you have your CDL with you when you drive. You are required to display your CDL upon demand to any law enforcement officer, magistrate, or official of the DMV. Violation of this requirement is a misdemeanor; however, you will not be convicted if your CDL is valid at the time of arrest and you can produce it in court or in the office of the arresting officer.

No person may drive a CMV if their CDL is under disqualification, suspension, revocation, cancellation, or expiration, or who is subject to an out-of-service order.

The Commissioner of Motor Vehicles shall disqualify, for a period of 60 days, the driving privileges of any person who is convicted of operating a CMV without holding a valid CDL and the required applicable endorsements for the CMV they are driving. Any person not holding a CDL who is convicted of an offense that requires disqualification from operating a CMV shall also be disqualified from eligibility for a CDL for the same time periods as prescribed in federal law or rule, or Chapter §17E-1-7 of the West Virginia Motor Vehicle Code.

CMV Employment History Disclosure to Prospective Employers & Employer Responsibilities

If you are applying for employment as a CMV driver, you must provide your prospective employer, at the time of application, with the following information for the ten years proceeding the date of your application:

1) All names and addresses of your previous employers for which you were a driver of a CMV;
2) The dates between which you drove for each employer; and
3) Your reason for leaving each employer.

You must certify that all information furnished is true and complete. An employer may require that you provide additional information.

No employer may knowingly allow, permit, or authorize a driver to operate a CMV during any period in which the driver:

1) Has a driver's license suspended, revoked or canceled by a state; has lost the privilege to drive a commercial motor vehicle in a state or has been disqualified from driving a commercial motor vehicle;
2) Has more than one driver's license at one time;
3) Is driving a commercial motor vehicle or the motor carrier operation is subject to an out-of-service order;
4) Is in violation of federal, state or local law or regulation pertaining to railroad highway grade crossings;
5) Is in violation of any provision of 49 C.F.R., Part § 382 related to controlled substances and alcohol use and testing; or
6) Is texting.

DMV Must Be Noti ed of Any Loss of Driving Privileges

Any CDL holder who loses the privilege to drive or is disqualified from driving a CMV for any period of time by any state or jurisdiction including, suspension, revocation, cancellation, or expiration must notify their employer before the end of the business day following the day that they received notice.

Basic Speed Laws

When you exceed the speed limit, you endanger the lives of others as well as your own. Observe speed limits and adjust your speed to driving conditions.

To insure your safety and the safety of others, you should slow down when you are faced with these driving situations:

- Approaching and crossing an intersection;
- Approaching and going around a curve;
- Approaching the top of a hill;
- Traveling on a narrow road; or
- Anywhere traffic, weather, roadway hazards, or other conditions limit visibility or stopping distance.

Speed Limits

Your speed helps determine how much time you have to react to any traffic situation. The higher the speed, the less time you have to spot hazards, judge the speed of other vehicles, and act to avoid personal mistakes, as well as those of other drivers. The interstate speed limit in West Virginia is 70 mph for all vehicles unless otherwise posted. There are designated speeds set by law for highways and certain areas such as school zones, business, and residential districts.

Designated speeds, unless otherwise posted are:

Location	Max Speed
Interstate	70 mph
Open Highway	55 mph
Business or Residential Area	25 mph
School Zone (while children are present)	15 mph

Authorized emergency vehicles may exceed the posted speed limits when on duty with their emergency signal equipment operating, as long as other road users are not endangered.

Crash Report/Tickets

If you are involved in a crash resulting in death or bodily injury, or apparent property damage of $500 or more, the investigating officer is required to complete a crash report. If you are issued a ticket for no compulsory motor vehicle liability insurance, the court is required to send a copy of the ticket to the DMV. If, after reviewing the report or ticket, the Commissioner of Motor Vehicles determines the vehicle was not covered by compulsory motor vehicle liability insurance, the law requires suspension of both the driver's and owners' driving privileges and revocation of the vehicle registration plate. The suspension period for a first offense is 30 days and 90 days for all subsequent offenses. A vehicle registration plate is revoked until proof of current compulsory motor vehicle liability insurance coverage and all required reinstatement fees are provided.

Compulsory Motor Vehicle Liability Insurance

West Virginia law mandates that all motorists driving on the State's public roads must carry compulsory motor vehicle liability insurance. The minimum amount of coverage, as provided by law, is $25,000 for one (1) death or injury, $50,000 for two (2) deaths or injuries, and $25,000 for property damage. This proof of nancial responsibility applies to any policy issued or renewed on or after January 1, 2016.

When you obtain or renew your vehicle registration, you must sign a statement under penalty of false swearing, that you have compulsory motor vehicle liability insurance on your vehicle and will maintain this insurance for the full registration year. Upon cancellation of a vehicle's compulsory motor vehicle liability insurance, you are required to surrender its registration plate. False statements concerning insurance coverage will result in a 90 day suspension of your driver's license and suspension of your vehicle registration plates until proof of current compulsory motor vehicle liability insurance is provided and reinstatement fees are paid.

In addition, a Certificate of Insurance or other proof of compulsory motor vehicle liability insurance, which can be obtained from your insurance company, must always be carried in your vehicle. In the event of a crash, you must present this certificate of insurance or other proof to the investigating officer. You must also show the certificate of insurance for your annual vehicle inspection.

Commercial Drivers are Prohibited from Operating with ANY Alcohol in System

A) Notwithstanding any other provision of law, no person may drive, operate, or be in physical control of a CMV while having any measurable alcohol in their system.

B) A person who drives, operates, or is in physical control of a motor vehicle while having any measurable alcohol in their system, or who refuses to take a preliminary breath test to determine their alcohol content must be placed out-of-service for 24 hours.

Implied Consent Law

Any person who accepts the privilege of driving in West Virginia shall be deemed to have given their consent to take the designated test to determine the alcohol content in their body. If they refuse to take a chemical test, their privilege of operating a motor vehicle will be suspended for a period of at least one (1) year, and up to life. Many people mistakenly assume the Implied Consent Law means they will be fined, or go to jail if they are stopped and have alcohol on their breath. On the contrary, the law was designed to protect the driver who has not been drinking since the blood alcohol test will provide a medically accepted measure of alcohol concentration. The Implied Consent Law protects the public from drivers who are intoxicated but, when arrested, refuse to be tested for alcohol.

Point System

The DMV has a point system to identify and control problem drivers. DMV maintains a continuing record of your driving conduct from the date of your first conviction for a moving violation.

Your record will show the date and nature of the violation, court codes, and points assessed. Points are assessed for traffic violations depending on the seriousness of the violation. Repeated convictions may lead to suspension of your driving privilege.

Upon reaching twelve or more points, your driving privileges will be suspended.

You may have three (3) points deducted from your record upon completion of an eight (8) hour defensive driving course conducted at various locations throughout the state. For schedule and location information, please contact the DMV at 1-800-642-9066 or 1-304-926-3499.

Points will be maintained as part of your driving record for a minimum of two (2) years from the conviction date. However, any conviction will remain on your record for a period of 10 years.

OFFENSES	POINT VALUES
Fleeing from an Officer	8
Speeding in a School Zone	6
Reckless/Careless Driving	6
Hit and Run (Leaving the Scene or Failure to Reveal ID)	6
Speeding 20 mph or More Over the Speed Limit	6
Speeding 15 mph - 19 mph Over the Speed Limit	5
Speeding 11 mph - 14 mph Over the Speed Limit	3
3 or More Wireless Communication Device Violations (Any Combination of Talking and/or Texting)	3
Passing Violation	3
Failure to Yield Violation	3
Failure to Obey Traffic Light	3
Failure to Obey Stop Sign	3
Hazardous Driving	3
Driving Left of Center	3
Driving Too Fast for Conditions	3
Failure to Maintain Control of Vehicle	3
Careless Driving	3
Driving the Wrong Way on a One Way Street	3
Littering	3
Improper Lane Violation	3
Failure to Observe a Safety/Construction Zone	3
Failure to Follow a Police Officer's Instructions	3
Driving on the Wrong Side of the Road	3
Following Too Closely	2
More than 3 Passengers in the Front Seat	2
Improper Turning	2
Improper Backing	2
Improper Signal or No Signal	2
FOR ANY MOVING VIOLATIONS NOT LISTED ABO	

Driving in Other States

West Virginia is a member of the Driver License Compact. Traffic violations you receive in other states will become part of your West Virginia driving record and, if warranted, points will be assessed. If you are convicted in other states and the offense is grounds for suspension or revocation, your West Virginia driver's license may be suspended or revoked. Other states may also restrict, suspend, or revoke your privilege to driver a motor vehicle in those states.

West Virginia is also a member of the Non-Resident Violator Compact (NRVC). This allows drivers to accept traffic citations for certain violations and continue on their way, regardless of whether the driver resides in that state or jurisdiction. Each member state agrees to suspend the driver's license of its own citizens who fail to comply with the terms of the traffic violation committed in another state.

Failure to Comply with In-State Citations

State law requires municipal, magistrate, and circuit courts to notify the DMV when you fail to pay, fail to appear, or fail to comply with any type of court order/decision, even if it is not a traffic ticket. Also, federal law requires the DMV to record the suspension action as a conviction.

The DMV will suspend your driver's license until you present proof of compliance with the court action and all penalty fees are paid. Traffic tickets and other types of citations should be handled promptly to avoid a possible driver's license suspension. If your penalty fee is being paid by a third party, such as a leasing company, it is your responsibility to ensure that the payment is made in a timely manner to avoid suspension of your driver's license.

Mandatory License Revocation

Convictions for certain violations of the motor vehicle laws are serious and require the immediate revocation of your driver's license. DMV must revoke a driver's license when it receives a final notice of conviction for a period of at least one (1) year for any of the following:

- Manslaughter or negligent homicide resulting from the operation of a motor vehicle;
- A felony involving the use of a motor vehicle;
- Perjury or false affidavits to the DMV;
- Leaving the scene of an accident in which you are involved that results in death or personal injury;
- Three (3) convictions of reckless driving in 24 months;
- Racing on streets or highways (drag racing) six (6) months;
- Failure to satisfy a civil judgment against you as a result of your involvement in an automobile accident (no time period);
- Conviction in another state or jurisdiction for driving under the influence of alcohol, controlled substances, or other drugs – applicable time period; or
- A DUI conviction against a person under the age of 18 will be in effect until age 18 or the applicable statutory period or revocation, whichever is longer.

Child Support Suspensions

Circuit courts may order driver's license suspension for any person who accumulates child support payment in arrears of six (6) months or more. DMV may issue a restricted driver's license if ordered by a circuit court so that persons under child support payment suspension may drive to and from work. DMV may impose suspension or revocation against any person that violates the terms of a restricted license. Child support related suspensions remain in effect until DMV receives a court order restoring the license, or certification by the Child Support Enforcement Division that the licensee is complying with the original court order or a modified order.

Driving While Revoked or Suspended

The mandatory penalty for the first conviction of driving while under revocation or suspension is a minimum $100 fine. Even more serious is the penalty for DUI related driving while revoked or suspended. Upon conviction, the penalty is a minimum jail sentence of thirty (30) days. The revocation period is extended by six (6) months. No employer may knowingly allow, permit, or authorize a driver to operate a CMV during any period of revocation or suspension.

Re-Examination of Drivers

You may be required to submit to a re-examination if the Commissioner of Motor Vehicles has good cause to believe you are incompetent or otherwise not qualified to be licensed. After you have taken the re-examination, your license may be retained, suspended, revoked, or you may be issued a restricted license. Refusal to submit to a re-examination is grounds for suspension or revocation of your license.

Disqualification/Cancellation of a CDL

Disqualification Offenses (WV State Code, §17E-1-13)

(a) A person may not operate a commercial motor vehicle if his or her privilege to operate a commercial motor vehicle is disqualified under the provisions of the Federal Motor Carrier Safety Improvement Act of 1999 (public law 106-159 §1748), 49 C.F.R. Part §383, Subpart D (2004) or in accordance with the provisions of this section.

(1) For the purposes of determining first and subsequent violations of the offenses listed in this section, each conviction for any offense listed in this section resulting from a separate incident includes convictions for offenses committed in a commercial motor vehicle or a noncommercial motor vehicle.

(2) Any person disqualified from operating a commercial motor vehicle for life under the provisions of this chapter for offenses described in subsection (b) subdivisions (4) and (6) of this section is eligible for reinstatement of privileges to operate a commercial motor vehicle after ten years and after completion of the safety and treatment program or other appropriate program prescribed by the DMV. Any person whose lifetime disqualification has been amended under the provisions of this subdivision and who is subsequently convicted of a disqualifying offense described in subsection (b), subdivisions (1) through (8) of this section is not eligible for reinstatement.

(3) Any disqualification imposed by this section is in addition to any action to suspend, revoke or cancel the driver's license or driving privileges if suspension, revocation or cancellation is required under another provision of this code.

(4) The provisions of this section apply to any person operating a commercial motor vehicle and to person holding a commercial driver's license.

(b) Any person is disqualified from driving a commercial motor vehicle for the following offenses and time periods if convicted of:

(1) Driving a motor vehicle under the influence of alcohol or a controlled substance;

(A) For a first conviction or for refusal to submit to any designated secondary chemical test while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for a period of one (1) year.

(B) For a first conviction or for refusal to submit to any designated secondary chemical test while operating a noncommercial motor vehicle, a commercial driver's license holder is disqualified from operating a commercial motor vehicle for a period of one (1) year.

(C) For a first conviction or for refusal to submit to any designated secondary chemical test while operating a commercial motor vehicle transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F, a driver is disqualified from operating commercial motor vehicle for a period of three years.

(D) For a second conviction or for refusal to submit to any designated secondary chemical test in a separate incident of any combination of o enses in this subsection while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for life.

(E) For a second conviction or refusal to submit to any designated secondary chemical test in a separate incident of any combination of o enses in this subsection while operating a noncommercial motor vehicle, a commercial motor vehicle license holder is disquali ed from operating a commercial motor vehicle for life.

(2) Driving a commercial motor vehicle while the person's alcohol concentration of the person's blood, breath or urine is four hundredths of one percent or more, by weight;

(A) For a rst conviction or for refusal to submit to any designated secondary chemical test while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for one (1) year.

(B) For a rst conviction or for refusal to submit to any designated secondary chemical test while operating a commercial motor vehicle transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F, a driver is disquali ed from operating commercial motor vehicle for three years.

(C) For a second conviction or refusal to submit to any designated secondary chemical test in a separate incident of any combination of o enses in this subsection while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for life.

(3) Refusing to submit to any designated secondary chemical test required by the provisions of this code or the provisions of 49 C.F.R. §383.172 (2004);

(A) For the rst conviction or refusal to submit to any designated secondary chemical test while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for one (1) year.

(B) For the rst conviction or refusal to submit to any designated secondary chemical test while operating a noncommercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for one (1) year.

(C) For the rst conviction or for refusal to submit to any designated secondary chemical test while operating a commercial motor vehicle transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F (2004), a driver is disquali ed from operating a commercial motor vehicle for a period of three years.

(D) For a second conviction or refusal to submit to any designated secondary chemical test in a separate incident of any combination of o enses in this subsection while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for life.

(E) For a second conviction or refusal to submit to any designated secondary chemical test in a separate incident of any combination of o enses in this subsection while operating a noncommercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for life.

(4) Leaving the scene of a crash;

(A) For the rst conviction while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for one (1) year.

(B) For the rst conviction while operating a noncommercial motor vehicle, a commercial driver's license holder is disquali ed for one (1) year.

(C) For the rst conviction while operating a commercial motor vehicle transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F (2004),a driver is disquali ed from operating a commercial motor vehicle for a period of three years.

(D) For a second conviction in a separate incident of any combination of o enses in this subsection while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for life.

(E) For a second conviction in a separate incident of any combination of o enses in this subsection while operating a noncommercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for life.

(5) Using a motor vehicle in the commission of any felony as de ned in section three, article one (1) of this chapter: Provided, That the commission of any felony involving the manufacture, distribution or dispensing of a controlled substance, or possession with intent to manufacture, distribute or dispense a controlled substance falls under the provisions of subdivision eight of this subsection;

(A) For the rst conviction while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for one (1) year.

(B) For the rst conviction while operating a noncommercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for one (1) year.

(C) For the rst conviction while operating a commercial motor vehicle transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F,(2004 a driver is disquali ed from operating a commercial motor vehicle for a period of three years.

(D) For a second conviction in a separate incident of any combination of o enses in this subsection while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for life.

(E) For a second conviction in a separate incident of any combination of o enses in this subsection while operating a noncommercial motor vehicle, a commercial motor vehicle license holder is disquali ed from operating a commercial motor vehicle for life.

(6) Operating a commercial motor vehicle when, as a result of prior violations committed operating a commercial motor vehicle, the driver's privilege to operate a motor vehicle has been suspended, revoked or canceled, or the driver's privilege to operate a commercial motor vehicle has been disquali ed.

(A) For the rst conviction while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for one (1) year.

(B) For the rst conviction while operating a commercial motor vehicle transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F,(2004 a driver is disquali ed from operating a commercial motor vehicle for a period of three years.

(C) For a second conviction in a separate incident of any combination of o enses in this subsection while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for life.

(7) Causing a fatality through the negligent operation of a commercial motor vehicle, including, but not limited to, the crimes of motor vehicle manslaughter, homicide and negligent homicide as de ned in section ve, article three, chapter seventeen-b, and section one, article ve, chapter seventeen-c of this code;

(A) For the rst conviction while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for one (1) year.

(B) For the rst conviction while operating a commercial motor vehicle transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F,(2004 a driver is disquali ed from operating a commercial motor vehicle for a period of three years.

(C) For a second conviction in a separate incident of any combination of o enses in this subsection while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for life.

(8) Using a motor vehicle in the commission of any felony involving the manufacture, distribution or dispensing of a controlled substance, or possession with intent to manufacture, distribute or dispense a controlled substance, a driver is disquali ed from operating a commercial motor vehicl for life and shall not be eligible for reinstatement.

(c) Any person is disquali ed from driving a commercial motor vehicle if convicted of;

(1) Speeding excessively involving any speed of fteen miles per hour or more above the posted speed limit;

(A) For a second conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(B) For a second conviction of any combination of o enses in this section in a separate. incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's licens holder is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(C) For a third or subsequent conviction of any combination of the o enses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(D) For a third or subsequent conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's license holder shall be disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(2) Reckless driving as de ned in section three, article ve, chapter seventeen-c of this code, careless, or negligent driving including, but not limited to, the o enses of driving a motor vehicle in willful or wanton disregard for the safety of persons or property;

(A) For a second conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(B) For a second conviction of any combination of o enses in this section in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation, or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's licens holder is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(C) For a third or subsequent conviction of any combination of the o enses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(D) For a third or subsequent conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(3) Making improper or erratic tra c lane changes;

(A) For a second conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(B) For a second conviction of any combination of o enses in this section in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation, or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's licens holder is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(C) For a third or subsequent conviction of any combination of the o enses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a driver is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(D) For a third or subsequent conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(4) Following the vehicle ahead too closely;

(A) For a second conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a driver is

disqualified from operating a commercial motor vehicle for a period of sixty days.

(B) For a second conviction of any combination of offenses in this section in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation, or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's license holder is disqualified from operating a commercial motor vehicle for a period of sixty days.

(C) For a third or subsequent conviction of any combination of the offenses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for a period of one hundred twenty days.

(D) For a third or subsequent conviction of any combination of offenses in this subsection in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's license holder is disqualified from operating a commercial motor vehicle for a period of one hundred twenty days.

(5) Violating any law relating to traffic control arising in connection with a fatal accident, other than a parking violation;

(A) For a second conviction of any combination of offenses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for a period of sixty days.

(B) For a second conviction of any combination of offenses in this section in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation, or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial driver's license holder is disqualified from operating a commercial motor vehicle for a period of sixty days.

(C) For a third or subsequent conviction of any combination of the offenses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for a period of one hundred twenty days.

(D) For a third or subsequent conviction of any combination of offenses in this subsection in a separate incident within a three-year period while operating a noncommercial motor vehicle, if the conviction results in the suspension, revocation or cancellation of the commercial driver's license holder's privilege to operate any motor vehicle, a commercial motor vehicle license holder is disqualified from operating a commercial motor vehicle for a period of one hundred twenty days.

(6) Driving a commercial motor vehicle without obtaining a commercial driver's license;

(A) For a second conviction of any combination of offenses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for a period of sixty days.

(B) For a third or subsequent conviction of any combination of the offenses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for a period of one hundred twenty days.

(C) West Virginia state code requires a suspension of the driver's license for a period of sixty days if convicted of driving without a proper license.

(7) Driving a commercial motor vehicle without a commercial driver's license in the driver's possession provided that any person who provides proof of possession of a commercial driver's license to the enforcement agency that issued the citation, by the court appearance or fine payment deadline shall not be guilty of this offense;

(A) For a second conviction of any combination of offenses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a commercial driver's license holder is disqualified from operating a commercial motor vehicle for a period of sixty days.

(B) For a third or subsequent conviction of any combination of the o enses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(8) Driving a commercial motor vehicle without the proper class of commercial driver's license or the proper endorsements for the speci c vehicle group being operated, or for the passengers or type cargo being transported;

(A) For a second conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(B) For a third or subsequent conviction of any combination of the o enses in this subsection in a separate incident in a three-year period while operating a commercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days; and

(C) West Virginia state code requires a suspension of the driver's license for a period of 60 (sixty) days if convicted of driving without proper endorsement.

(9) Driving a commercial motor vehicle while engaged in texting and convicted pursuant to section fourteen-a of this article or similar law of this or any other jurisdiction or 49 CFR §392.80;

(A) For a second conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(B) For a third or subsequent conviction of any combination of the o enses in this subsection in a separate incident in a three- year period while operating a commercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(10) Violating a State or local law or ordinance on motor vehicle tra c control restricting or prohibiting the use of a hand-held mobile telephone while driving a commercial motor vehicle;

(A) For a second conviction of any combination of o enses in this subsection in a separate incident within a three-year period while operating a commercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of sixty days.

(B) For a third or subsequent conviction of any combination of the o enses in this subsection in a separate incident in a three- year period while operating a commercial motor vehicle, a commercial driver's license holder is disquali ed from operating a commercial motor vehicle for a period of one hundred twenty days.

(d) Any person convicted of operating a commercial motor vehicle in violation of any federal, state or local law or ordinance pertaining to any of the railroad crossing violations described in subdivisions one through six of this subsection is disquali ed from operating a commercial motor vehicle for the period of time speci ed;

(1) Failing to slow down and check that the tracks are clear of an approaching train, if not required to stop in accordance with the provisions of section three, article twelve, chapter seventeen-c of this code

(A) For the rst conviction, a driver is disquali ed from operating a commercial motor vehicle for a period of sixty days;

(B) For a second conviction of any combination of o enses in this subsection within a three-year period, a driver is disquali ed from operating a commercial motor vehicle for one hundred twenty days; and

(C) For a third or subsequent conviction of any combination of o enses in this subsection within a three-year period, a driver is disquali ed from operating a commercial motor vehicle for one (1) year.

(2) Failing to stop before reaching the crossing, if the tracks are not clear, if not required to stop, in accordance with the provisions of section one, article twelve, chapter seventeen-c of this code;
(A) For the first conviction, a driver is disqualified from operating a commercial motor vehicle for a period of sixty days;
(B) For a second conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one hundred twenty days; and
(C) For a third or subsequent conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one (1) year.
(3) Failing to stop before driving onto the crossing, if required to stop in accordance with the provisions of section three, article twelve, chapter seventeen-c of this code;
(A) For the first conviction, a driver is disqualified from operating a commercial motor vehicle for a period of sixty days;
(B) For a second conviction of any combination of offenses in this subsection within a three-year period, the driver is disqualified from operating a commercial motor vehicle for one hundred twenty days; and
(C) For a third or subsequent conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one (1) year.
(4) Failing to have sufficient space to drive completely through the crossing without stopping in accordance with the provisions of section three, article twelve, chapter seventeen-c of this code;
(A) For the first conviction, a driver is disqualified from operating a commercial motor vehicle for a period of sixty days;
(B) For a second conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one hundred twenty days; and
(C) For a third or subsequent conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one (1) year.
(5) Failing to obey a traffic control device or the directions of an enforcement official at the crossing in accordance with the provisions of section one, article twelve, chapter seventeen-c of this code; or
(A) For the first conviction, a driver is disqualified from operating a commercial motor vehicle for a period of sixty days;
(B) For a second conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one hundred twenty days; and
(C) For a third or subsequent conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one (1) year.
(6) Failing to negotiate a crossing because of insufficient undercarriage clearance in accordance with the provisions of section three, article twelve, chapter seventeen-c of this code.
(A) For the first conviction, a driver is disqualified from operating a commercial motor vehicle for a period of sixty days;
(B) For a second conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one hundred twenty days; and
(C) For a third or subsequent conviction of any combination of offenses in this subsection within a three-year period, a driver is disqualified from operating a commercial motor vehicle for one (1) year.

(e) Any person who is convicted of violating an out-of-service order while operating a commercial motor vehicle is disqualified for the following periods of time if:
(1) Convicted of violating a driver or vehicle out-of-service order while transporting nonhazardous materials;

(A) For the first conviction of violating an out-of-service order while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for one hundred eighty days.

(B) For a second conviction in a separate incident within a ten-year period for violating an out of service order while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for two years.

(C) For a third or subsequent conviction in a separate incident within a ten-year period for violating an out-of-service order while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for three years.

2) Convicted of violating a driver or vehicle out-of-service order while transporting hazardous materials required to be placarded under 49 C.F.R. Part §172, Subpart F (2004), or while operating a vehicle designed to transport sixteen or more passengers including the driver;

(A) For the first conviction of violating an out of service order while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for one hundred eighty days.

(B) For a second conviction in a separate incident within a ten-year period for violating an out-of-service order while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for three years.

(C) For a third or subsequent conviction in a separate incident within a ten-year period for violating an out-of-service order while operating a commercial motor vehicle, a driver is disqualified from operating a commercial motor vehicle for three years.

(f) After disqualifying, suspending, revoking or canceling a commercial driver's license, the DMV shall update its records to reflect that action within ten days.

(g) In accordance with the provisions of 49 U.S.C. §313119 (a)(2004), and 49 C.F.R §384.226 (2004), and notwithstanding the provisions of section twenty-four, article eleven, chapter sixty-one of this code, no record of conviction, revocation, suspension or disqualification related to any type of motor vehicle traffic control offense, other than a parking violation, of a CDL holder or a person operating a commercial motor vehicle may be masked, expunged, deferred, or be subject to any diversion program.

(h) Notwithstanding any provision in this code to the contrary, the DMV may not issue any temporary driving permit, work-only driving permit or hardship license or permit that authorizes a person to operate a commercial motor vehicle when his or her privilege to operate any motor vehicle has been revoked, suspended, disqualified or otherwise canceled for any reason.

(i) In accordance with the provisions of 49 C.F.R. §391.15(b), a driver is disqualified from operating a commercial motor vehicle for the duration of any suspension, revocation or cancellation of his or her driver's license or privilege to operate a motor vehicle by this state or by any other state or jurisdiction until the driver complies with the terms and conditions for reinstatement set by this state or by another state or jurisdiction.

(j) In accordance with the provisions of 49 C.F.R. 383.52 (2006), the DMV shall immediately disqualify a driver's privilege to operate a commercial motor vehicle upon a notice from the Assistant Administrator of the Federal Motor Carrier Safety Administration that the driver poses an imminent hazard. Any disqualification period imposed under the provisions of this subsection shall be served concurrently with any other period of disqualification if applicable.

(k) In accordance with the provisions of 49 C.F.R. 1572.11(a), the DMV shall immediately disqualify a driver's privilege to operate a commercial motor vehicle if the driver fails to surrender his or her driver's license with a hazardous material endorsement to the DMV upon proper notice by the DMV to the driver that the DMV received notice from the Department of Homeland Security Transportation Security Administration of an initial determination of threat assessment and immediate revocation that the driver does not meet the standards for security threat assessment provided in 49 C.F.R. 1572.5. The disqualification remains in effect until the driver either surrenders the driver's license to the DMV or provides the DMV with an affidavit attesting to the fact that the driver has lost or is otherwise unable to surrender the license.

(l) In accordance with 49 C.F.R §391.41, a driver is disquali ed from operating a commercial motor vehicle if the driver is not physically quali ed to operate a commercial motor vehicle or does not possess a valid medical certi cation status.

(m) In accordance with the provisions of 49 C.F.R. §383.73(g), the division shall disqualify a driver's privilege to operate a commercial motor vehicle if the division determines that the licensee has falsi ed any information or certi cations required under the provisions of 49 C.F.R. 383 Subpart J or 49 C.F.R. §383.71a for sixty days in addition to any other penalty prescribed by this code.

LIMITING THE USE OF WIRELESS COMMUNICATION DEVICES

On October 27, 2010, The Federal Motor Carrier Safety Administration (FMCSA) published a final rule that prohibits texting by commercial motor vehicle (CMV) drivers while operating in interstate commerce and imposes sanctions, including civil penalties and disqualifications from operating CMV's in interstate commerce, for drivers who fail to comply to this rule. Additionally, motor carriers are prohibited from requiring or allowing their drivers to engage in texting while driving. Violations may include a penalty up to $2,750.

§ 390.3 (f) General Applicability

(1) All school bus operations as defined in §390.5 except for the provisions of §391.15(e) and 392.80; The operation of commercial motor vehicles designed or used to transport between 9 and 15 passengers (including the driver), not for direct compensation, provided the vehicle does not otherwise meet the definition of a commercial motor vehicle except for the texting provisions of §§ 391.15(e), 390.19, and 390.21(a), and (b)(2).

PART 391

QUALIFICATIONS OF DRIVERS AND LONGER COMBINATION VEHICLE (LCV) DRIVER INSTRUCTION

49 CFR §391.2 General Exceptions

(a) Farm custom operation. The rules in this part, except for §391.15(e), do not apply to a driver who drives a commercial motor vehicle controlled and operated by a person engaged in custom harvesting operations, if the commercial motor vehicle is used to:
  (1) Transport farm machinery, supplies, or both, to or from a farm for custom-harvesting operations on a farm; or
  (2) Transport custom-harvested crops to storage or market.

(b) Apiarian industries. The rules in this part, except for §391.15(e), do not apply to a driver who is operating a commercial motor vehicle controlled and operated by a beekeeper engaged in the seasonal transportation of bees.

(c) Certain farm vehicle drivers. The rules in this part, except for §391.15(e), do not apply to a farm vehicle driver except a farm vehicle driver who drives an articulated (combination) commercial motor vehicle, as defined in §390.5. (For limited exemptions for farm vehicle drivers of articulated commercial motor vehicles, see §391.67.)

Addendum A: AVOIDING DROWSY DRIVING

Drowsy driving is common on U.S. roads and represents a highly pervasive threat to public health and transportation safety.

After being awake for 18 hours (time varies), driving skills are comparable to someone under the influence of drugs or alcohol. Driving drowsy can decrease your reaction time and increase your crash risk. You often cannot react in time to apply brakes or steer away from a potential crash. Crashes related to drowsy driving can be very serious, leading to death or severe injuries.

If you drive while drowsy, you may become slower to respond to road and traffic conditions. You may also struggle to process complex information coming from different places at once or become careless when making driving decisions. When drowsy, you may have trouble paying attention or actually fall asleep while driving.

Signs that you are drowsy while driving include:

- Falling asleep at stop lights;
- Yawning; rubbing eyes; watery eyes; heavy eyelids;
- Difficulty remembering the last few miles driven;
- Missing road signs or exits;
- Unplanned lane changes;
- Head nodding or dropping;
- Driving off the road or hitting the rumble strips.

Signs that another driver may be drowsy:

- Head nodding or dropping, if driver is visible;
- Drifting out of the travel lane, crossing edge lines or center lines, hitting the rumble strips;
- Near miss crashes, especially rear end;
- Erratic driving behavior - speeding up/slowing down, weaving or drifting in lane;
- Rear-ending another vehicle or hitting another vehicle head-on;
- Hitting a stationary object.

How to prevent drowsy driving:

The best way to reduce drowsiness is to get more sleep. If you are drowsy, don't drive. Pull over to a safe area as soon as you can and take a short nap. As little as 10-20 minutes of sleep can make a big difference. If possible, avoid driving during times you feel sleepy. For many people, this is in the early morning, during the late afternoon or at night. Let a well-rested person drive. Consider carpooling, using public transportation, calling a taxi or asking a family member or friend to drive you.

What does not work to prevent drowsy driving:

What does NOTwork includes rolling down a window, chewing gum or turning up the radio. Caffeine, coffee, energy drinks and other stimulants are not reliable for staying alert. Talking on a cell phone or texting should also not be used as they are not reliable methods to stay awake.

What to do if you observe a drowsy driver:

Most important: Maintain your own safety first, continuing to drive in a safe and responsible manner. Drowsy driving is a type of impaired driving and puts the driver and others on the roadway at risk for harm. Find a safe place to stop or have a passenger call 911 to report the situation. Be able to describe the location, the vehicle and the actions you observed. Be sure to follow any instructions you receive from the 911 dispatcher.

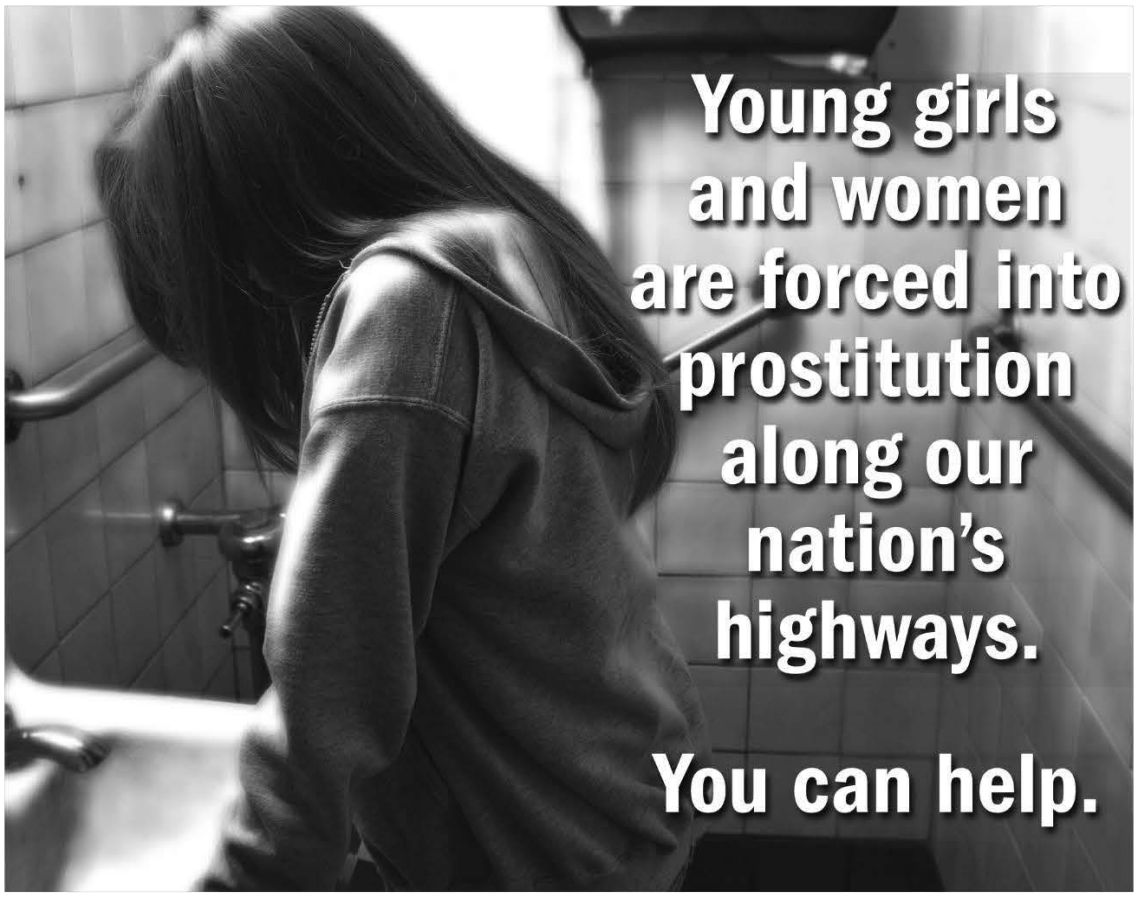
Every vehicle on the road and pedestrians are put in danger with just one drowsy driver. Among those most susceptible to driving while over-tired include shift workers, parents, individuals taking sedating medications, and those who have an untreated sleep disorder. Although anyone can make the fatal mistake of driving without adequate rest, young adults are at the highest risk, comprising a disproportionately large number of fatigue related crashes (64% for those age 16-29).

American Association of Motor Vehicle Administrators

This material is based upon work supported by the Federal Motor Carrier Safety Administration under Cooperative Agreement No. DTFH61-97-X-00017. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the Author(s) and do not necessarily reflect the view of the Federal Motor Carrier Safety Administration.

COPYRIGHT © 2005 AAMVA. All rights reserved

This material has been created for and provided to State Driver License Agencies (SDLAs) by AAMVA for the purpose of educating Driver License applicants (Commercial or Non-Commercial). Permission to reproduce, use, distribute or sell this material has been granted to SDLAs only. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system without express written permission from the author / publisher. Any unauthorized reprint, use, distribution or sale of this material is prohibited.



Everyday Heroes Needed.

TRUCKERS AGAINST TRAFFICKING

Make the Call, Save Lives.

National Hotline:
1-888-373-7888

truckersagainsttrafficking.org

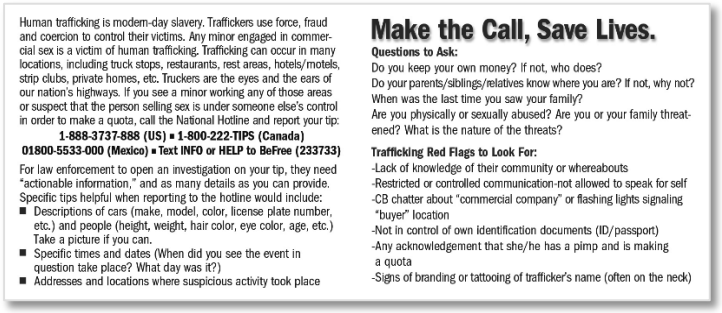
Human trafficking is modern-day slavery. Traffickers use force, fraud and coercion to control their victims. Any minor engaged in commercial sex is a victim of human trafficking. Trafficking can occur in many locations, including truck stops, restaurants, rest areas, brothels, strip clubs, private homes, etc.

Truckers are the eyes and the ears of our nation's highways and are already making calls that are saving lives. If you see a minor working any of those areas or suspect pimp control, call the national hotline and report your tip.

1-888-373-7888 (US)
1-800-222-TIPS (Canada)
01800-5533-000 (Mexico)

In January 2015, an RV pulled in a truck stop in Virginia. Observant professional truck driver Kevin Kimmel recognized suspicious activity around that RV, which had pulled back by the truck line, and decided something was off. Instead of turning a blind eye, he made a call that brought law enforcement out to the scene within a few minutes. After interviewing the occupants of the vehicle, they discovered that a young woman, 20 years old, had been kidnapped from Iowa two weeks before. She had been beaten, raped, her whole body burned by instruments heated on the RV stove, branded and starved. She was being sold by her traffickers, Laura Sorenson and Aldair Hodza, through sex ads on Craigslist, where men were purchasing her and driving at the RV to rape her. She was dying from malnutrition and the torture she was subjected to … had the call not been made that brought law enforcement out to that truck stop, doctors said she would have died within the next few days. Now a recovering survivor, this young woman calls Kimmel her guardian angel. He calls himself a Trucker Against Trafficking.

Truckers Against Trafficking is a non-profit organization that has been working with the trucking industry since 2009 to provide the needed training and tools to enable members of the industry to both recognize human trafficking when they see it happening and to know what actions to take to enable law enforcement to effectively fight this crime. Through this training and these tools, truckers are becoming Everyday Heroes like Kevin Kimmel, who was also named TAT's 2015 Harriet Tubman Award winner.



Human trafficking is modern-day slavery. Traffickers use force, fraud and coercion to control their victims. Any minor engaged in commercial sex is a victim of human trafficking. Trafficking can occur in many locations, including truck stops, restaurants, rest areas, hotels/motels, strip clubs, private homes, etc. Truckers are the eyes and the ears of our nation's highways. If you see a minor working any of those areas or suspect that the person selling sex is under someone else's control in order to make a quota, call the National Hotline and report your tip:

1-888-3737-888 (US) ▪ 1-800-222-TIPS (Canada)
01800-5533-000 (Mexico) ▪ Text INFO or HELP to BeFree (233733)

For law enforcement to open an investigation on your tip, they need "actionable information," and as many details as you can provide. Specific tips helpful when reporting to the hotline would include:

- Descriptions of cars (make, model, color, license plate number, etc.) and people (height, weight, hair color, eye color, age, etc.) Take a picture if you can.
- Specific times and dates (When did you see the event in question take place? What day was it?)
- Addresses and locations where suspicious activity took place

Make the Call, Save Lives.

Questions to Ask:

Do you keep your own money? If not, who does?
Do your parents/siblings/relatives know where you are? If not, why not?
When was the last time you saw your family?
Are you physically or sexually abused? Are you or your family threatened? What is the nature of the threats?

Trafficking Red Flags to Look For:

-Lack of knowledge of their community or whereabouts
-Restricted or controlled communication-not allowed to speak for self
-CB chatter about "commercial company" or flashing lights signaling "buyer" location
-Not in control of own identification documents (ID/passport)
-Any acknowledgement that she/he has a pimp and is making a quota
-Signs of branding or tattooing of trafficker's name (often on the neck)

One of the tools TAT provides is a wallet card with red flags to look for, questions to ask if you suspect someone is a victim and actionable information to report. This wallet card is available by App, from the appropriate App Store, on all smart phones, whether Android, iPhone or Windows format, as well as by emailing tat.truckers@gmail.com, for a version to carry in your wallet.

Additionally, TAT provides a powerful, 26-minute training video on its website (www.truckersagainsttrafficking.org), which, when watched along with taking and passing a short test, certifies drivers as TraffickFree, a designation which can go on your resume. Because professional drivers often find themselves in locations frequented and exploited by human traffickers they are in a unique position to recognize the signs of human trafficking and to make the call that can lead to victim recovery and perpetrator arrests. Get your wallet card today. Be an Everyday Hero! Make the call (888-3737-888); save lives!

1-888-3737-888 (US)

1-800-222-TIPS (Canada)

01800-5533-000 (Mexico)

Text INFO or HELP to BeFree (233733)

Table of Contents

Introduction 1-1
Driving Safely 2-1
Transporting Cargo Safely 3-1
Transporting Passengers Safely 4-1
Air Brakes 5-1
Combination Vehicles 6-1
Doubles and Triples 7-1
Tank Vehicles 8-1
Hazardous Materials 9-1
School Bus 10-1
Vehicle Vehicle Inspection 11-1
Basic Vehicle Control Skills Test 12-1
On-Road Driving 13-1

THIS PAGE INTENTIONALLY LEFT BLANK

Section 1
INTRODUCTION

This Section Covers

- Commercial Driver License Tests
- Medical Requirements
- Driver Disqualifications
- Other Safety Rules
- Internation al Registration Program

There is a federal requirement that each state have minimum standards for the licensing of commercial drivers.

This manual provides driver license testing information for drivers who wish to have a commercial driver license (CDL). This manual does NOT provide information on all the federal and state requirements needed before you can drive a commercial motor vehicle (CMV). You may have to contact your state driver licensing authority for additional information.

You must have a CDL to operate:

Any single vehicle with a gross vehicle weight rating (GVWR) of 26,001 pounds or more.

A combination vehicle with a gross combination weight rating (GCWR) of 26,001 or more pounds, provided the GVWR of the vehicle(s) being towed is in excess of 10,000 pounds.

A vehicle designed to transport 16 or more passengers (including the driver).

Any size vehicle which requires hazardous material placards or is carrying material listed as a select agent or toxin in 42 CFR part 73. Federal regulations through the Department of Homeland Security require a background check and fingerprinting for the Hazardous Materials endorsement. Contact your local department of driver licensing for more information.

(Your state may have additional definitions of CMVs.)

CDL Classifications

The CDL vehicle classification included in the federal standard, together with the type of cargo to be transported, determine what type of CDL license and endorsement an applicant must apply for. There are three basic vehicle classes or groups:

Class A Combination Ve hicles . Any combination of vehicles with gross combination weight rating (GCWR) of 26,001 or more pounds falls in Group A provided the GVWR of the vehicle(s) being towed is more than 10,000 pounds. Most Class A vehicles are trucks such as truck-tractor/semi-trailer or truck and trailer combinations. However, tractor-trailer buses may be found in a few communities. Driving a Class A vehicle requires considerably more skill and knowledge than driving vehicles in Classes B and C. Since these skills include those required to drive a B and C vehicle, a driver who has a Class A license also may drive vehicles in Classes B and C.

Class B Heavy Straight Vehicles. Any single vehicle with a GVWR of 26,001 or more pounds falls in Group B, or any such vehicle towing another vehicle not in excess of 10,000 pounds GVWR. Class B includes straight trucks and large buses, including articulated buses. Safely driving these heavy vehicles requires considerably more knowledge and skill than driving the small trucks and buses found in Class C. Since they include the skills required to drive Class C vehicles, drivers who have qualified for a Class B license may also drive vehicles in Class C.

Class C Small Vehicles . Any single vehicle with a GVWR less than 26,001 pounds falls in Group C, or any such vehicle towing another vehicle not in excess of 10,000 pounds GVWR. However, vehicles of this size are included in the CDL program only if they are: 1) Designed to carry 16 or more passengers including the driver, or (2) Used to transport hazardous materials in quantities requiring placarding under the Hazardous Materials Regulations (49 CFR Part 172, Subpart F) or is carrying material listed as a select agent or toxin in 42 CFR part 73.

There are a great variety of vehicles in Class C. Some rather large Class C vehicles may require more skill and knowledge to operate than do the smaller ones. However, the licensing category is based principally on the type of cargo carried. Because of the seriousness of an accident involving hazardous material or human passengers, the safe operation of even the smaller vehicles in Class C requires special knowledge and the drivers of these vehicles must have a CDL.

STATE OPTIONS: Some states may include more drivers and vehicles in their CDL programs. For example, in some states, a CDL may be required for buses designed to carry fewer than 16 passengers. Going beyond the federal standard is acceptable and the state will need to decide which battery of tests applies to these drivers, or develop a new battery.

CDL Endorsements & Restrictions

Endorsements

All commercial drivers who drive certain types of vehicles or haul certain types of cargo must add endorsements to their CDL license and/or &RPPHUFLDO /HDUQHU¶V 3HUPLW &/3 they have the specialized knowledge required for these operations. There are six kinds of CDL endorsements that may be required, depending on the vehicle or type of cargo.

NOTE: The only endorsements that may be DGGHG WR D &RPPHUFLDO /HDUQHU¶V 3HUPLW &/3 are:

- Passenger (P);
- School bus (S); and
- Tank vehicle (N).

Double and Triple Trailers (T) . Many drivers who are qualified to drive Class A vehicles may wish to pull double or triple trailers. Research shows that considerable additional knowledge and skill is necessary to safely pull double and triple trailers in various traffic conditions and driving environments. Consequently, adding the endorsement to the licenses of Class A drivers is necessary if they wish to pull double or triple trailers. A special knowledge examination on the problems associated with pulling multiple trailers must be passed.

Tank Vehicle (N) . Drivers of any commercial motor vehicle that is designed to transport any liquid or gaseous materials within a tank or tanks having an individual rated capacity of more than 119 gallons and an aggregate rated capacity of 1,000 gallons or more that is either permanently or temporarily attached to the vehicle or the chassis must obtain this endorsement. Applies to Class A, B and C (only applicable to Class C if the vehicle is hauling hazardous materials) vehicles. Liquids in bulk cause driving control problems because the cargo is heavy, prone to shifting, and has a high center of gravity. These drivers must pass a special knowledge examination on the problems posed by large volume liquid cargos to add the endorsement to their CDL/CLP.

Passengers (P) . Drivers who wish to drive a vehicle having a design capacity to carry 16 or more people, including the driver, must add a passenger endorsement to their CDL/CLP. They must pass a special knowledge examination on safety considerations when transporting passengers and must pass skills tests in a passenger vehicle. The endorsement applies to applicants who wish to drive a bus in any class (A, B, or C).

Hazardous Mater ials (H) . Any driver, regardless of the vehicle Class/Group (A, B, or C) who wishes to haul any material that has been designated as hazardous under 49 U.S.C. 5103 and is required to be placarded under subpart F of 49 CFR part 172; or any quantity of a material listed as a select agent or toxin 42 CFR Part 73 must add a hazardous materials endorsement to their CDL. S/he must pass a special written examination on how to recognize, handle, and transport hazardous materials.

The Transportation Security Administration (TSA) and the US Department of Transportation require background checks on commercial drivers who are certified to transport hazardous materials. The background checks include a review of criminal, immigration and FBI records. If the driver is found to represent a security threat, TSA will notify the person and the state will deny issuance of an endorsement.

Combination Hazardous Materials and Tank Vehicle (X) . Drivers of tank vehicles who haul hazardous materials or waste in amounts requiring placards must add an X endorsement to their CDL, showing that they have passed the special knowledge examinations for both tank vehicles and hazardous materials.

School Buses (S) . Drivers who wish to drive a school bus, must add a school bus endorsement to their CDL/CLP. They must pass a special knowledge examination on safety considerations when transporting passengers in a school bus and must pass skills tests in a school bus. The endorsement applies to applicants who wish to drive a school bus in any class (A, B, or C).

In addition to these six required endorsements, states may add special endorsements of their own as they see fit.

Restrictions

Restrictions may be added to Commercial Driver Licenses/Permits based upon the type of vehicle and equipment that the driver uses for the Skills Test. There are ten standardized restriction codes.

NOTE: If a CLP is issued with a Passenger (P) or a School Bus (S) endorsement, it must also contain a (P) ±No passengers in a CMV bus restriction.

If a CLP is issued with a Tanker (N) endorsement, it must also contain a (X) ±No cargo in a CMV tank vehicle.

(E) - No manual transmission . If an applicant performs the skills test in a vehicle equipped with an automatic transmission, the State must indicate on the CDL, if issued, that the person is restricted from operating a CMV equipped with a manual transmission. For the purposes of the skills test and the restriction, an automatic transmission includes any transmission not operating fully on the gear shift and clutch principle.

(K) - Intrastate only: If an applicant certifies their status as either Non-Excepted Intrastate or Excepted Intrastate, the state must indicate on the CDL, if issued, that person is restricted from operating a CMV in interstate commerce. States may impose this restriction for reasons other than those specified above.

(L) - No Air brake equipped CMV: If an applicant does not take or fails the air brake component of the knowledge test, or performs the skills test in a vehicle not equipped with air brakes, the State must indicate on the CLP or CDL, if issued, that the person is restricted from operating a CMV equipped with any type of air brakes. For the purposes of the skills test and the restriction, air brakes include any braking system operating fully or partially on the air brake principle.

(M) - No Class A passenger vehicle: If an applicant applying for a passenger endorsement performs the skills test in a passenger vehicle requiring a Group B CDL, the State must indicate on the CDL, if issued, that the person is restricted from operating a passenger vehicle requiring a Group A CDL.

(N) - No Class A and B passenger vehicle: If an applicant applying for a passenger endorsement performs the skills test in a passenger vehicle requiring a Group C CDL, the State must indicate on the CDL, if issued, that the person is restricted from operating a passenger vehicle requiring a Group A or B CDL

(O) - No tractor trailer CMV: If an applicant performs the skills test in a combination vehicle for a Group A CDL with the power unit and towed unit connected with a pintle hook or other non-fifth wheel connection, the State must indicate on the CDL, if issued, that the person is restricted from operating a tractor-trailer combination connected by a fifth wheel that requires a Group A CDL.

An applicant who passes a skills test using a combination vehicle that is NOT a Truck Tractor Semi-Trailer combination, but is otherwise equipped with a fifth wheel, will be issued a CDL ZLWK DQ ³2´ UHVWULFWLRQ

(P) - No passengers in CMV bus: A CLP holder with a P endorsement is prohibited from operating a CMV carrying passengers, other than Federal/State auditors and inspectors, test examiners, other trainees, and the CDL holder accompanying the CLP holder as prescribed by § CFR 383.25(a)(1) of this part.

A CLP holder with a S endorsement is prohibited from operating a school bus with passengers, other than Federal/State auditors and inspectors, test examiners, other trainees, and the CDL holder accompanying the CLP holder as prescribed by § CFR 383.25(a)(1) of this part.

(V) - Medical Variance: If the State is notified according to § 383.73(o)(3) that the driver has been issued a medical variance, the State must indicate the existence of such a medical variance on the CDLIS driver record and the CDL document, if LVVXHG XVLQJ WKH UHVWULFWLRQ there is information about a medical variance on the CDLIS driver record.

(X) - No cargo in CMV tank vehicle: A CLP holder with an N endorsement may only operate an empty tank vehicle and is prohibited from operating any tank vehicle that previously contained hazardous materials that has not been purged of any residue.

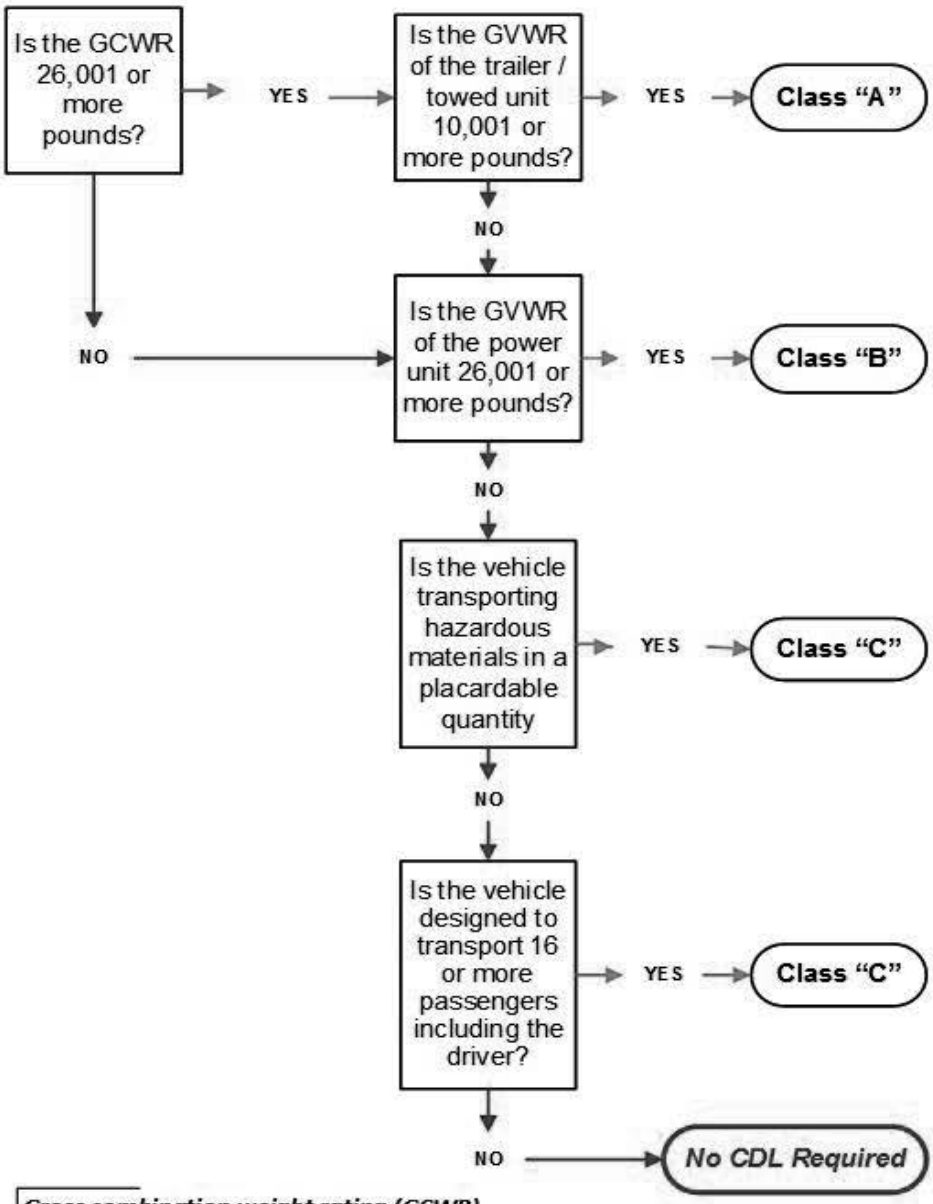
(Z) - No full air brake equipped CMV: If an applicant performs the skills test in a vehicle equipped with air over hydraulic brakes, the State must indicate on the CDL, if issued, that the person is restricted from operating a CMV equipped with any braking system operating fully on the air brake principle. For the purposes of the skills test and the restriction, air over hydraulic brakes includes any braking system operating partially on the air brake and partially on the hydraulic brake principle.

Any additional jurisdictional restrictions that apply to the CLP driving privilege.

To Get a CDL or CLP

To get a CDL or CLP, you must pass knowledge and skills tests. This manual will help you pass the tests, however, it is not a substitute for a truck driver training class or program. Formal training is the most reliable way to learn the many special skills required for safely driving a large commercial vehicle and becoming a professional driver in the trucking industry. Figure 1.1 helps you determine if you need a CDL

Determining Class of CDL Required



Gross combination weight rating (GCWR)
Means the value specified by the manufacturer of the power unit, if the value is displayed on the Federal Motor Vehicle Safety Standard (FMVSS) certification label; or the sum of the gross vehicle weight ratings (GVWRs) *or the gross vehicle weights (GVWs)* of the power unit and the towed unit(s), or any combination thereof, that produces the highest value.
(The underlined and italicized text above is for use by ***roadside enforcement only*** *for the purpose of determining whether the driver/vehicle is subject to CDL regulations.* ***It is not used to determine whether a vehicle is representative for the purposes of Skills testing).***

Gross vehicle weight rating (GVWR) means the value specified by the manufacturer as the loaded weight of a single vehicle.

Figure 1.1

NOTE: A bus may be Class A, B, or C depending on whether the GVWR is over 26,001 pounds or is a combination vehicle.

1.1 ±Commercial Driver License Tests

1.1.1 ±Knowledge Tests

You will have to take one or more knowledge tests, depending on what class of license and what endorsements you need. The CDL knowledge tests include:

The general knowledge test , taken by all applicants.

The passenger transport test , taken by all bus driver applicants.

The air brakes test , which you must take if your vehicle has air brakes, including air over hydraulic brakes.

The combination vehicles test , which is required if you want to drive combination vehicles.

The hazardous materials test , required if you want to haul hazardous materials as defined in 49 CFR 383.5. In order to obtain this endorsement you are also required to pass a Transportation Security Administration (TSA) background check.

The tank vehicle test, required if you want to haul any liquid or gaseous materials in a tank or tanks having an individual rated capacity of more than 119 gallons and an aggregate rated capacity of 1,000 gallons or more that is either permanently or temporarily attached to the vehicle or chassis

The doubles/triples test , required if you want to pull double or triple trailers.

The School Bus test, required if you want to drive a school bus.

1.1.2 ±Skills Tests

If you pass the required knowledge test(s), you can take the CDL skills testwhen you are eligible. The CDL Skills Test consists of three segments: Vehicle inspection, basic vehicle control, and on-road driving. You must take the segments in the order listed and must pass each one before moving to the next. You must take these tests in the type of vehicle for which you wish to be licensed. Any vehicle that has components marked or labeled cannot be used for the CDL Skills Test.

Vehicle Inspection. You will be tested to see if you know whether your vehicle is safe to drive. You will be asked to do a Vehicle inspection of your vehicle. You must point to/touch and name the item you are inspecting and explain to the examiner what you would inspect and why.

Basic Vehicle Control. You will be tested on your skill to control the vehicle. You will be asked to move your vehicle forward, backward, and turn it within a defined area. These areas may be marked with traffic lanes, cones, barriers, or something similar. The examiner will tell you how each control test is to be done.

On-road Test. You will be tested on your skill to safely drive your vehicle in a variety of traffic situations. The situations may include left and right turns, intersections, railroad crossings, curves, up and down grades, single or multi-lane roads, streets, or highways. The examiner will tell you where to drive.

Figure 1.2 details which sections of this manual you should study for each particular class of license and for each endorsement.

What Sections Should You Study?									
		LICENSE TYPE			ENDORSEMENT				
		Class A	Class B	Class C	Hazardous Materials	Double / Triple	Tank Vehicles	Passenger	School Bus
Sections to Study	1	X	X	X					
	2	X	X	X		X	X	X	
	3	X	X	X					
	4							X	
	5*	X	X	X		X			
	6	X				X	X		
	7					X			
	8						X		
	9				X		X		
	10								X
	11	X	X	X				X	X
	12	X	X	X				X	X
	13	X	X	X				X	X
*Study section 5 if you plan to operate vehicles equipped with air brakes.									

Figure 1. 2 ±What to Study

1.2 ±Medical Documentation Requirements

Starting January 30, 2012 and no later than January 30, 2014, if you are applying for a CDL Permit; or are renewing, upgrading, adding endorsements to a CDL; or transferring a CDL from another state, you are required to provide information to your State Driver ¶ License Agency (SDLA) regarding the type of commercial motor vehicle operation you drive in or expect to drive in with your CDL. Drivers operating in certain types of commerce will be required to submit a cur U H Q W P H G L F D O H [D P L Q H U ¶ V certificate and/or any medical variance documents that you have been issued (i.e. Vision, Skills Performance or Diabetic waivers, or other exemptions) W R \ R X U 6 ' / $ W R R E W D L Q D ³ F H U W L L H G ´ medical status as part of your driving record. You must contact your State Driver Licensing Agency (SDLA) to obtain information regarding the requirement for submitting these documents.

, I \ R X D U H U H T X L U H G W R K D Y H D ´ F H U W L L H G ´ R H C L F D O status and fail to provide and keep up-to-date your medical exam L Q H U ¶ V F H U W L L F D W H \ R X E H F R P H ´ Q R W F H U W L L H G ´ D Q G P D \ O R V H \ R X U & ' /

For the purpose of complying with the new requirements for medical certification, it is important to know how you are using the CMV. The following information will help you decide how to self-certify:

1.2.1 ±Interstate or Intrastate Commerce

Do you, or will you, use a CDL to operate a CMV in interstate or intrastate commerce ?

Interstate commerce is when you drive a CMV:

From one State to another State or a foreign country;

Between two places within a State, but during part of the trip, the CMV crosses into another State or foreign country; or

Between two places within a State, but the cargo or passengers are part of a trip that began or will end in another State or foreign country.

Intra state commerce is when you drive a CMV within a State and you do not meet any of the descriptions above for interstate commerce .

If you operate in both intrastate commerce and interstate commerce , you must choose interstate commerce .

1.2.2 ±Inter/Intrast ate Commerce: Status Non - excepted or Excepted?

Once you decide whether you will operate in interstate commerce or intrastate commerce , you must decide whether you will operate (or expect to operate) in a non -excepted or excepted status. This decision will tell you to which of the four types of commerce you must self-certify.

Interstate Commerce:

You operate in excepted interstate commerce when you drive a CMV in interstate commerce only for the following excepted activities:

To transport school children and/or school staff between home and school;

As Federal, State or local government employees;

To transport human corpses or sick or injured persons;

Fire truck or rescue vehicle drivers during emergencies and other related activities;

Primarily in the transportation of propane winter heating fuel when responding to an emergency condition requiring immediate response such as damage to a propane gas system after a storm or flooding;

In Response to a pipeline emergency condition requiring immediate response such as a pipeline leak or rupture;

In custom harvesting on a farm or to transport farm machinery and supplies used in the custom harvesting operation to and from a farm or to transport custom harvested crops to storage or market;

Beekeeper in the seasonal transportation of bees;

Controlled and operated by a farmer, but is not a combination vehicle (power unit and towed unit), and is used to transport agricultural products, farm machinery or farm supplies (no placardable hazardous materials) to and from a farm and within 150 air-miles of the farm;

As a private motor carrier of passengers for non-business purposes; or

To transport migrant workers.

If you answered yes to one or more of the above activities as the only operation in which you drive, you operate in excepted interstate commerce and G R Q R W Q H H G D) H G H U D O P H G L F certificate.

If you answered no to all of the above activities, you operate in non-excepted interstate commerce and are required to provide a current medical H[DPLQHU¶V FHUWLILFDWH (MCSA-5), commonly referred to as a medical certificate or DOT card, to your State Driver Licensing Agency (SDLA). Most CDL holders who drive CMVs in interstate commerce are non-excepted interstate commerce drivers.

If you operate in both excepted in terstate commerce and non-excepted interstate commerce , you must choose non-excepted interstate commerce to be qualified to operate in both types of interstate commerce.

Intrastate Commerce:

You operate in excepted Intrastate commerce when you drive a CMV only in intrastate commerce activities for which your State of licensure has GHWHUPLQHG GR QRW UHTXLUH \RX WR PHHW 6WDWH¶V medical certification requirements. (contact your SDLA about their requirements).

You operate in non-excepted intrastate commerc e when you drive a CMV only in intrastate commerce and are required to meet your State of OLFHQVXUH¶V PHGLFDO FHUWLILFDWLRQ UHTXLUHPHQWV (contact your SDLA about their requirements).

If you operate in both excepted intrastate commerce and non-excepted intr astate commerce , you must choose non-excepted intrastate commerce .

1.2.3 ±Self-Certification Statements

When completing an application for your CDL, you will be required to check the box next to the statement that describes your status. The actual statements on your application may vary from those shown below:

… Interstate non -excepted : I certify that I operate or expect to operate in interstate commerce, that I am subject to and meet the Federal DOT medical card requirements under 49 CFR part 391; and that I am required to obtain a medical H[DPLQHU¶V FHUWLILFDWH

… Interstate excepted : I certify that I operate or expect to operate in interstate commerce, but engage exclusively in transportation or operations excepted under 49 CFR §§390.3(f), 391.2, 391.68 or 398.3 from all or parts of the qualification requirements of 49 CFR part 391; and that I am not required to obtain a medical H[DPLQHU¶V FHUWLILFDWH

… Intrastate non -excepted : I certify that I operate or expect to operate entirely in intrastate commerce, that I am subject to and meet the medical requirements for my State; and that I DP UHTXLUHG WR REWDLQ D PHG certificate.

… Intrastate excepted : I certify that I operate or expect to operate entirely in intrastate commerce, that I am not subject to the medical requirements for my State; and that I am not UHTXLUHG WR REWDLQ D PHGL certificate.

1.3 - CDL Disqualifications

1.3.1 ±General

You may not drive a commercial motor vehicle if you are disqualified for any reason 6WDWH¶V

1.3.2 ± Alcohol, Leaving the Scene of an Accident, and Commission of a Felony

It is illegal to operate a CMV if your blood alcohol concentration (BAC) is .04% or more. If you operate a CMV, you shall be deemed to have given your consent to alcohol testing.

You will lose your CDL for at least one year for a first offense for:

Driving a CMV if your blood alcohol concentration is .04% or higher.

Driving a CMV under the influence of alcohol.

Refusing to undergo blood alcohol testing.

Driving a CMV while under the influence of a controlled substance.

Leaving the scene of an accident involving a CMV.

Committing a felony involving the use of a CMV.

Driving a CMV when the CDL is suspended.

Causing a fatality through negligent operation of a CMV.

You will lose your CDL for at least three years if the offense occurs while you are operating a CMV that is placarded for hazardous materials.

You will lose your CDL for life for a second offense.

You will lose your CDL for life if you use a CMV to commit a felony involving controlled substances.

You will be put out-of-service for 24 hours if you have any detectable amount of alcohol under .04%.

1.3.3 ±Serious Traffic Violations

Serious traffic violations are excessive speeding (15 mph or more above the posted limit), reckless driving, improper or erratic lane changes, following a vehicle too closely, traffic offenses committed in a CMV in connection with fatal traffic accidents, driving a CMV without obtaining a CDL or having a &'/ LQ WKH GULYHU¶V SRVVHVVLRQ DQG GULYLQJ D & without the proper class of CDL and/or endorsements.

You will lose your CDL:

For at least 60 days if you have committed two serious traffic violations within a three-year period involving a CMV.

For at least 120 days for three or more serious traffic violations within a three-year period involving a CMV.

1.3.4 ±Violation of Out -of-Service Orders

You will lose your CDL:

[For at least 90 days if you have committed your first violation of an out-of-service order.

For at least one year if you have committed two violations of an out-of-service order in a ten-year period.

For at least three years if you have committed three or more violations of an out-of-service order in a ten-year period].

1.3.5 ± Railroad -highway Grade Crossing Violations

You will lose your CDL:

For at least 60 days for your first violation.

For at least 120 days for your second violation within a three-year period.

For at least one year for your third violation within a three-year period.

These violations include violation of a federal, state or local law or regulation pertaining to one of the following six offenses at a railroad-highway grade crossing:

For drivers who are not required to always stop, failing to stop before reaching the crossing if the tracks are not clear.

For drivers who are not required to always stop, failing to slow down and check that the tracks are clear of an approaching train.

For drivers who are always required to stop, failing to stop before driving onto the crossing.

For all drivers failing to have sufficient space to drive completely through the crossing without stopping.

For all drivers failing to obey a traffic control device or the directions of an enforcement official at the crossing.

For all drivers failing to negotiate a crossing because of insufficient undercarriage clearance.

1.3.6 ± Hazardous Materials Endorsement Background Check and Disqualifications

If you require a hazardous materials endorsement you will be required to submit your fingerprints and be subject to a background check.

You will be denied or you will lose your hazardous materials endorsement if you:

Are not a lawful permanent resident of the United States.

Renounce your United States citizenship.

Are wanted or under indictment for certain felonies.

Have a conviction in military or civilian court for certain felonies.

Have been adjudicated as lacking mental capacity or have been involuntarily committed to a mental health facility as specified in §1572.109.

Are considered to pose a security threat as determined by the Transportation Security Administration.

The background check procedures vary from jurisdiction to jurisdiction. Your licensing agency will provide you with all the information you need to complete the required TSA background check procedures.

1.3.7 ± Traffic Violatio ns in Your Personal Vehicle

The Motor Carrier Safety Improvement Act (MCSIA) of 1999 requires a CDL holder to be disqualified from operating a commercial motor vehicle if the CDL holder has been convicted of certain types of moving violations in their personal vehicle.

If your privilege to operate your personal vehicle is revoked, cancelled, or suspended due to violations of traffic control laws (other than parking violations) you will also lose your CDL driving privileges.

If your privilege to operate your personal vehicle is revoked, cancelled, or suspended due to alcohol, controlled substance or felony violations, you will lose your CDL for 1 year. If you are convicted of a second violation in your personal vehicle or CMV you will lose your CDL for life.

If your license to operate your personal vehicle is revoked, cancelled, or suspended you may not REWDLQ D ³KDUGVKLS´ OLFHQVH WR RSHUDWH D &09

1.4 ±Other CDL Rules

There are other federal and state rules that affect drivers operating CMVs in all states. Among them are:

You cannot have more than one license. If you break this rule, a court may fine you up to $5,000 or put you in jail and keep your home state license and return any others.

You must notify your employer within 30 days of conviction for any traffic violations (except parking). This is true no matter what type of vehicle you were driving.

You must notify your motor vehicle licensing agency within 30 days if you are convicted in any other jurisdiction of any traffic violation (except parking). This is true no matter what type of vehicle you were driving.

You must notify your employer within two business days if your license is suspended, revoked, or canceled, or if you are disqualified from driving.

You must give your employer information on all driving jobs you have held for the past 10 years. You must do this when you apply for a commercial driving job.

No one can drive a commercial motor vehicle without a CDL. A court may fine you up to $5,000 or put you in jail for breaking this rule.

If you have a hazardous materials endorsement you must notify and surrender your hazardous materials endorsement to the state that issued your CDL within 24 hours of any conviction or indictment in any jurisdiction, civilian or military, for, or found not guilty by reason of insanity of a disqualifying crime listed in 49 CFR 1572.103; who is adjudicated as lacking mental capacity or have been involuntarily committed to a mental institution as specified in 49 CFR 1572.109; or who renounces his or her U. S. citizenship;

Your employer may not let you drive a commercial motor vehicle if you have more than one license or LI \RX¶UH &'/ LV VXVSHQGHG RU UHY may fine the employer up to $5,000 or put him/her in jail for breaking this rule.

All states are connected to one computerized system to share information about CDL drivers. The states will check on drivers' accident records to be sure that drivers do not have more than one CDL.

You are not allowed to hold a mobile telephone to conduct a voice communication or dial a mobile telephone by pressing more than a single button when driving.

You are not allowed to send or read text messages while driving.

You must be properly restrained by a safety belt at all times while operating a commercial motor vehicle. The safety belt design holds the driver securely behind the wheel during a crash, helping the driver to control the vehicle and reduces the chance of serious injury or death. If you do not wear a safety belt, you are four times more likely to be fatally injured if you are thrown from the vehicle.

Your state may have additional rules that you must also obey.

1.5 ±International Registration Plan International Fuel Tax Agreement

If you operate a CDL required vehicle in interstate commerce, the vehicle, with few exceptions, is required to be registered under the International Registration Plan (IRP) and the International Fuel Tax Agreement (IFTA). These federally mandated programs provide for the equitable collection and distribution of vehicle license fees and motor fuels taxes for vehicles traveling throughout the 48 contiguous United States and 10 Canadian provinces.

Under the IRP, jurisdictions must register apportioned vehicles which includes issuing license plates and cab cards or proper credentials, calculate, collect and distribute IRP fees, audit carriers for accuracy of reported distance and fees and enforce IRP requirements.

Registrant responsibilities under the Plan include applying for IRP registration with base jurisdiction, providing proper documentation for registration, paying appropriate IRP registration fees, properly displaying registration credentials, maintaining accurate distance records, and making records available for jurisdiction review.

The basic concept behind IFTA is to allow a licensee (motor carrier) to license in a base jurisdiction for the reporting and payment of motor fuel use taxes. Under the IFTA, a licensee is issued one set of credentials which will authorize operations through all IFTA member jurisdictions. The fuel use taxes collected pursuant to the IFTA are calculated based on the number of miles (kilometers) traveled and the number of gallons (liters) consumed in the member jurisdictions. The licensee files one quarterly tax return with the base jurisdiction by which the licensee will report all operations through all IFTA member jurisdictions.

It is the base jurisdiction's responsibility to remit the taxes collected to other member jurisdictions and to represent the other member jurisdictions in the tax collection process, including the performance of audits.

An IFTA licensee must retain records to support the information reported on the IFTA quarterly tax return

The IRP registrant and the IFTA licensee may be the vehicle owner or the vehicle operator.

The requirement for acquiring IRP plates for a vehicle and IFTA license for a motor carrier is determined by the definitions from the IRP Plan and the IFTA for Qualified Vehicle and Qualified Motor Vehicle:

For purposes of IRP:

A Qualified Vehicle is (except as provided below) any Power Unit that is used or
intended for use in two or more Member Jurisdictions and that is used for the transportation of persons for hire or designed, used, or maintained primarily for the transportation of property, and:

(i) has two Axles and a gross Vehicle weight or registered gross Vehicle weight in
(ii) excess of 26,000 pounds (11,793.401 kilograms), or
(iii) has three or more Axles, regardless of weight, or
(iv) is used in combination, when the gross Vehicle weight of such combination exceeds 26,000 pounds (11,793.401 kilograms).

While similar, the Qualified Motor Vehicle in IFTA means a motor vehicle used, designed, or maintained for transportation of persons or property and:

1) Having two axles and a gross vehicle weight or registered gross vehicle weight exceeding 26,000 pounds or 11,797 kilograms; or

2) Is used in combination, when the weight of such combination exceeds 26,000 pounds or 11,797 kilograms gross vehicle or registered gross vehicle weight. Qualified Motor Vehicle does not include recreational vehicles.

If the vehicle you operate is registered under IRP and you are a motor carrier licensed under IFTA, then you are required to comply with the mandatory record keeping requirements for operating the vehicle. A universally accepted method of capturing this information is through the completion of an Individual Vehicle Distance Record (IVDR), sometimes times referred to as a Driver Trip Report. This document reflects the distance traveled and fuel purchased for a vehicle that operates interstate under apportioned (IRP) registration and IFTA fuel tax credentials.

Although the actual format of the IVDR may vary, the information that is required for proper record keeping does not.

In order to satisfy the requirements for Individual Vehicle Distance Records, these documents must include the following information:

Distance

Per Article IV of the IRP Plan
(i) Date of trip (starting and ending)
(ii) Trip origin and destination ±City and State or Province
(iii) Route(s) of travel
(iv) Beginning and ending odometer or hubometer reading of the trip
(v) Total distance traveled
(vi) In-Jurisdiction distance
(vii) Power unit number or vehicle identification number.

Fuel

Per Section P560 of the IFTA Procedures Manual
.300 An acceptable receipt or invoice must include, but shall not be limited to, the following:
.005 Date of purchase
.010 Seller's name and address
.015 Number of gallons or liters purchased;
.020 Fuel type
.025 Price per gallon or liter or total amount of sale
.030 Unit number or other unique vehicle identifier
.035 Purchaser's name

An example of an IVDR that must be completed in its entirety for each trip can be found in Figure 1 below. Each individual IVDR should be filled out for only one vehicle. The rules to follow when trying to determine how and when to log an odometer reading are the following:

- At the beginning of the day
- When leaving the state or province
- At the end of the trip/day

Not only do the trips need to be logged, but the fuel purchases need to be documented as well. You must obtain a receipt for all fueling and include it with your completed IVDR.

Make sure that any trips that you enter are always filled out in descending order and that your trips include all state/provinces that you traveled through on your route.

There are different routes that a driver may take, and most of the miles may be within one state or province. Whether or not the distance you travel is primarily in one jurisdiction or spread among several jurisdictions, all information for the trip must be recorded. This includes the dates, the routes, odometer readings and fuel purchases. By completing this document in full and keeping all records required by both the IRP and the IFTA, you will have ensured that you and your company are in compliance with all State and Provincial laws surrounding fuel and distance record keeping requirements.

The IVDR serves as the source document for the calculation of fees and taxes that are payable to the jurisdictions in which the vehicle is operated, so these original records must be maintained for a minimum of four years.

In addition, these records are subject to audit by the taxing jurisdictions. Failure to maintain complete and accurate records could result in fines, penalties and suspension or revocation of IRP registrations and IFTA licenses.

For additional information on the IRP and the requirements related to the IRP, contact your base jurisdiction motor vehicle department or IRP, Inc. the official repository for the IRP. Additional information can be found on the IRP, Inc. website at www.irponline.org. There is a training video on the website home page available in English, Spanish and French

For additional information on IFTA and the requirements related to IFTA, contact the appropriate agency in your base jurisdiction. You will also find useful information about the Agreement at the official repository of IFTA at http://www.iftach.org/index.php.

Figure 1 ±Individual Vehicle Mileage & Fuel Record (Example)

Individual Vehicle Mileage And Fuel Record

Carrier	ABC Carriers Inc	Account Number	999999999	Driver Name	John Doe Jr.	Unit Number	58
Load Information	Origins: 1/2/04 Pick Up Maplewood MO 1/3/04 Pick Up Springfield IL	Destinations:	1/2/04 Delivery Springfield IL 1/03/04 Delivery Dayton OH	Driver Comments			

Date	Town Origin-Jurisdiction Lines-Town Destination	State	Ending Odometer	Miles by Jurisdiction	Highways or Routes Traveled	Name of Fuel Stop and Location	Gallons Purchased
1/2/2004	Beginning State & Odometer Reading	MO	45,869	All other odometer reading will be ending readings.			
	Maplewood MO - IL Line	MO	45,878	9	64		
	MO Line - Springfield IL	IL	45,976	98	55-29	Ted's I-72 Fuel — Springfield IL	98
1/3/2004	Springfield IL - IN Line	IL	46,101	125	29-97-72-57-74		
	IN Line - OH Line	IN	46,259	158	74-32-65-465-70		
	OH Line - Dayton OH	OH	46,297	38	70-49		
	Total Trip Miles **			428		Total Fuel Purchases	98

Example

Odometer Miles, Total Trip Miles & Total Jurisdictional Miles Must Agree			Total Jurisdictional Miles **				
			Jurisdiction	Miles	Jurisdiction	Miles	
Ending Odometer	46,297	OFFICE USE	MO	9			OFFICE USE ONLY
Beginning Odometer	45,869		IL	223			
Total Odometer Miles **	428		IN	158			
			OH	38			

Note: Beginning odometer reading on this trip must match ending reading from prior trip and ending reading from this trip must be the beginning reading on the next trip.

THIS PAGE INTENTIONALLY LEFT BLANK.

Section 2
DRIVING SAFELY

This Section Covers

- x Vehicle Inspection
- x Basic Control of Your Vehicle
- x Shifting Gears
- x Seeing
- x Communicating
- x Space Management
- x Controlling Your Speed
- x Seeing Hazards
- x Distracted Driving
- x Aggressive Drivers/Road Rage
- x Night Driving & Driver Fatigue
- x Driving in Fog
- x Winter Driving
- x Hot Weather Driving
- x Railroad -highway Crossings
- x Mountain Driving
- x Driving Emerge ncies
- x Antilock Braking Systems
- x Skid Control and Recovery
- x Accident Procedures
- x Fires
- x Alcohol, Other Drugs, and Driving
- x Hazardous Materials Rules

This section contains knowledge and safe driving information that all commercial drivers should know. You must pass a test on this information to get a CDL. This section does not have specific information on air brakes, combination vehicles, doubles, or passenger vehicles. When preparing for the Vehicle Inspection Test, you must review the material in Section 11 in addition to the information in this section. This section does have basic information on hazardous materials (HazMat) that all drivers should know. If you need a HazMat endorsement, you should study Section 9.

2.1 ±Vehicle Inspection

2.1.1 ±Why Inspect

Safety is the most important reason you inspect your vehicle, safety for yourself and for other road users.
A vehicle defect found during an inspection could save you problems later. You could have a breakdown on the road that will cost time and dollars, or even worse, a crash caused by the defect.

Federal and state laws require that drivers inspect their vehicles. Federal and state inspectors also may inspect your vehicles. If they judge the vehicle to be unsafe, they will put it "out of service" until it is fixed.

2.1.2 ±Types of Vehicle Inspection

Vehicle Inspection. A Vehicle inspection will help you find problems that could cause a crash or breakdown.

During a Trip. For safety you should:

Watch gauges for signs of trouble.

Use your senses to check for problems (look, listen, smell, feel).

Check critical items when you stop:
Tires, wheels and rims.
Brakes.
Lights and reflectors.
Brake and electrical connections to trailer.
Trailer coupling devices.
Cargo securement devices.

After -trip Inspection an d Report. You should do an after-trip inspection at the end of the trip, day, or tour of duty on each vehicle you operated. It may include filling out a vehicle condition report listing any problems you find. The inspection report helps a motor carrier know when the vehicle needs repairs.

2.1.3 ±What to Look For

Tire Problems

Too much or too little air pressure.

Bad wear. You need at least 4/32-inch tread depth in every major groove on front tires. You need 2/32 inch on other tires. No fabric should show through the tread or sidewall.

Cuts or other damage.

Tread separation.

Dual tires that come in contact with each other or parts of the vehicle.

Mismatched sizes.

Radial and bias-ply tires used together.

Cut or cracked valve stems.

Re-grooved, recapped, or retreaded tires on the front wheels of a bus are prohibited.

Wheel and Rim Problems

Damaged rims.

Rust around wheel nuts may mean the nuts are loose--check tightness. After a tire has been changed, stop a short while later and re-check tightness of nuts.

Missing clamps, spacers, studs, or lugs means danger.

Mismatched, bent, or cracked lock rings are dangerous.

Wheels or rims that have had welding repairs are not safe.

Bad Brake Drums or Shoes

Cracked drums.

Shoes or pads with oil, grease, or brake fluid on them.

Shoes worn dangerously thin, missing, or broken.

Steering System Defects

Missing nuts, bolts, cotter keys, or other parts.

Bent, loose, or broken parts, such as steering column, steering gear box, or tie rods.

If power steering equipped, check hoses, pumps, and fluid level; check for leaks.

Steering wheel play of more than 10 degrees (approximately 2 inches movement at the rim of a 20-inch steering wheel) can make it hard to steer.

Figure 2.1

Suspension System Defects. The suspension system holds up the vehicle and its load. It keeps the axles in place. Therefore, broken suspension parts can be extremely dangerous. Look for:

Spring hangers that allow movement of axle from proper position. See Figure 2.2.

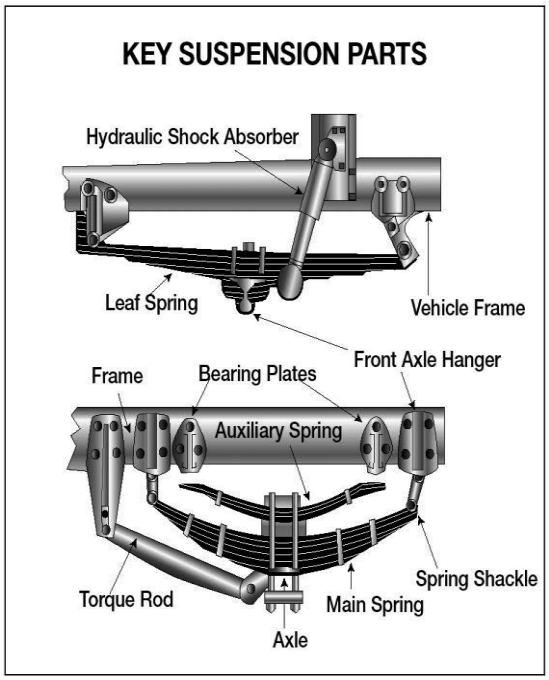


Figure 2.2

Cracked or broken spring hangers.

Missing or broken leaves in any leaf spring. If one-fourth or more are missing, it will put the vehicle "out of service", but any defect could be dangerous. See Figure 2.3.

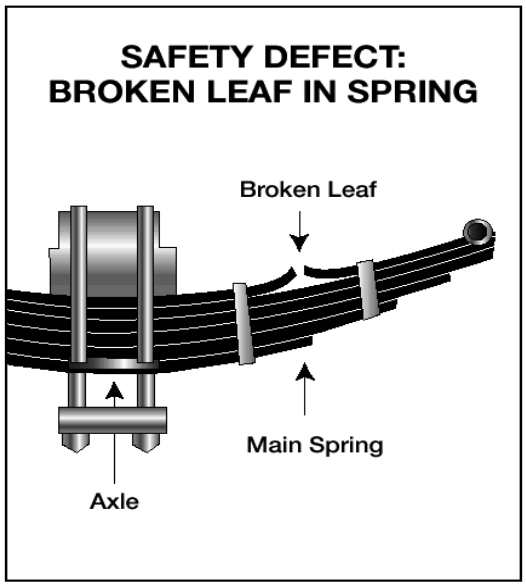


Figure 2.3

Broken leaves in a multi-leaf spring or leaves that have shifted so they might hit a tire or other part.

Leaking shock absorbers.

Torque rod or arm, u-bolts, spring hangers, or other axle positioning parts that are cracked, damaged, or missing.

Air suspension systems that are damaged and/or leaking. See Figure 2.4.

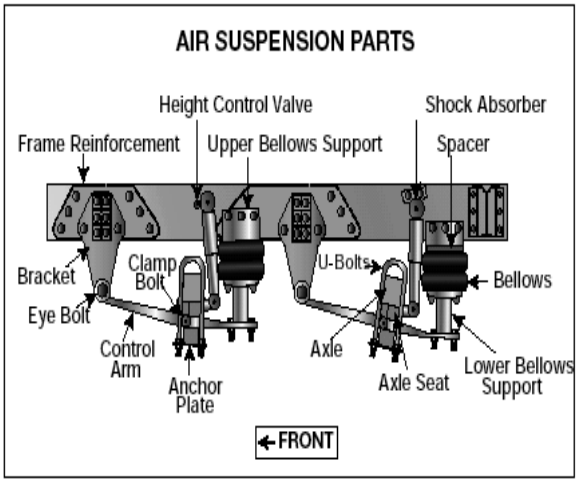


Figure 2.4

Any loose, cracked, broken, or missing frame members.

Exhaust System Defects. A broken exhaust system can let poison fumes into the cab or sleeper berth. Look for:

Loose, broken, or missing exhaust pipes, mufflers, tailpipes, or vertical stacks.

Loose, broken, or missing mounting brackets, clamps, bolts, or nuts.

Exhaust system parts rubbing against fuel system parts, tires, or other moving parts of vehicle.

Exhaust system parts that are leaking.

Emergency Equipment. Vehicles must be equipped with emergency equipment. Look for:

Fire extinguisher(s).

Spare electrical fuses (unless equipped with circuit breakers).

Warning devices for parked vehicles: three reflective triangles or at least 6 fusees or 3 liquid burning flares).

Cargo (Trucks). You must make sure the truck is not overloaded and the cargo is balanced and secured before each trip. If the cargo contains hazardous materials, you must inspect for proper papers and placarding.

2.1.4 ±CDL Vehicle Inspection Test

In order to obtain a CDL you will be required to pass a Vehicle inspection test. You will be tested to see if you know whether your vehicle is safe to drive. You will be asked to do a Vehicle inspection of your vehicle. You must point to/touch and name the item you are inspecting and explain to the examiner what you would inspect and why. The following seven-step inspection method should be useful.

2.1.5 ±Seven-step Inspection Method

Method of Inspection. You should do a Vehicle inspection the same way each time so you will learn all the steps and be less likely to forget something.

Approaching the Vehicle. Notice general condition. Look for damage or vehicle leaning to one side. Look under the vehicle for fresh oil, coolant, grease, or fuel leaks. Check the area around the vehicle for hazards to vehicle movement (people, other vehicles, objects, low-hanging wires, limbs, etc.).

Vehicle Inspection G uide

Step 1: Vehicle Overview

Review Last Vehicle Inspection Report. Drivers may have to make a vehicle inspection report in writing each day. The motor carrier must repair any items in the report that affect safety and certify on the report that repairs were made or were unnecessary. You must sign the report only if defects were noted and certified to be repaired or not needed to be repaired.

Step 2: Check Engine Compartment

Check That the Parking Brakes Are On and/or Wheels Chocked.

You may have to raise the hood, tilt the cab (secure loose things so they don't fall and break something), or open the engine compartment door.

Check the following:

Engine oil level.

Coolant level in radiator; condition of hoses.

Power steering fluid level; hose condition (if so equipped).

Windshield washer fluid level.

Battery fluid level, connections and tie downs (battery may be located elsewhere)

Automatic transmission fluid level (may require engine to be running).

Check belts for tightness and excessive wear (alternator, water pump, air compressor)--learn

how much "give" the belts should have when adjusted right, and check each one.

Leaks in the engine compartment (fuel, coolant, oil, power steering fluid, hydraulic fluid, battery fluid).

Cracked, worn electrical wiring insulation.

Lower and secure hood, cab, or engine compartment door.

Step 3: Start Engine and Inspect Inside the Cab

Get In and Start Engine

Make sure parking brake is on.

Put gearshift in neutral (or "park" if automatic).

Start engine; listen for unusual noises.

If equipped, check the Anti-lock Braking System (ABS) indicator lights. Light on dash should come on and then turn off. If it stays on the ABS is not working properly. For trailers only, if the yellow light on the left rear of the trailer stays on, the ABS is not working properly.

Look at the Gauges

Oil pressure. Should come up to normal within seconds after engine is started. See Figure 2.5

Air pressure. Pressure should build from 50 to 90 psi within 3 minutes. Build air pressure to governor cut-out (usually around 120 ±140 psi. Know your vehicle ¶ requirements.

Ammeter and/or voltmeter. Should be in normal range(s).

Coolant temperature. Should begin gradual rise to normal operating range.

Engine oil temperature. Should begin gradual rise to normal operating range.

Warning lights and buzzers. Oil, coolant, charging circuit warning, and antilock brake system lights should go out right away.

Check Condition of Controls. Check all of the following for looseness, sticking, damage, or improper setting:

Steering wheel.

Clutch.

Accelerator ("gas pedal").

Brake controls.

Foot brake.

Trailer brake (if vehicle has one).

Parking brake.

Retarder controls (if vehicle has them).

Transmission controls.

Interaxle differential lock (if vehicle has one).

Horn(s).

Windshield wiper/washer.

Lights.

Headlights.

Dimmer switch.

Turn signal.

Four-way flashers.

Parking, clearance, identification, marker switch(es).

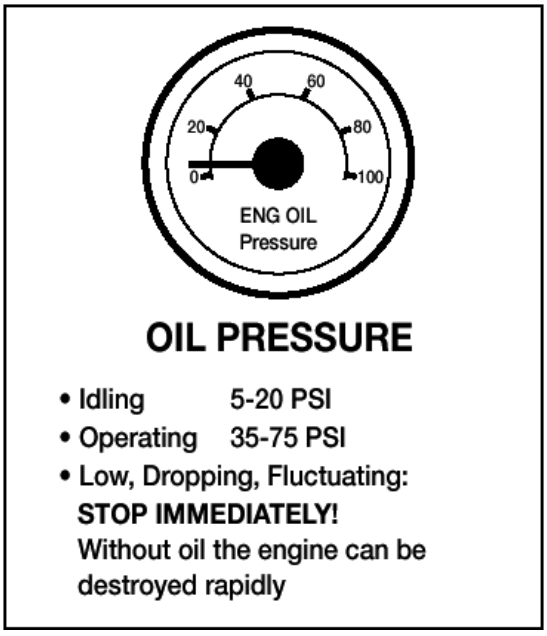


Figure 2.5

Check Mirrors and Windshield. Inspect mirrors and windshield for cracks, dirt, illegal stickers, or other obstructions to seeing clearly. Clean and adjust as necessary.

Check Emergency Equipment

Check for safety equipment:

Spare electrical fuses (unless vehicle has circuit breakers).

Three red reflective triangles, 6 fusees or 3 liquid burning flares.

Properly charged and rated fire extinguisher.

Check for optional items such as:

Chains (where winter conditions require).

Tire changing equipment.

List of emergency phone numbers

Accident reporting kit (packet).

Check Safety Belt. Check that the safety belt is securely mounted, adjusts; latches properly and is not ripped or frayed.

Step 4: Turn Off Engine and Check Lights

Make sure the parking brake is set, turn off the engine, and take the key with you. Turn on headlights (low beams) and four-way emergency flashers, and get out of the vehicle.

Step 5: Do Walk -around Inspection

Go to front of vehicle and check that low beams are on and both of the four-way flashers are working.

Push dimmer switch and check that high beams work.

Turn off headlights and four-way emergency flashers.

Turn on parking, clearance, side-marker, and identification lights.

Turn on right turn signal, and start walk-around inspection.

General

Walk around and inspect.

Clean all lights, reflectors, and glass as you go along.

Left Front Side

Driver's door glass should be clean.

Door latches or locks should work properly.

Left front wheel.

Condition of wheel and rim--missing, bent, broken studs, clamps, lugs, or any signs of misalignment.

Condition of tires--properly inflated, valve stem and cap OK, no serious cuts, bulges, or tread wear.

Use wrench to test rust-streaked lug nuts, indicating looseness.

Hub oil level OK, no leaks.

Left front suspension.

Condition of spring, spring hangers, shackles, u-bolts.

Shock absorber condition.

Left front brake.

Condition of brake drum or disc.

Condition of hoses.

Front

Condition of front axle.
Condition of steering system.

No loose, worn, bent, damaged or missing parts.

Must grab steering mechanism to test for looseness.

Condition of windshield.

Check for damage and clean if dirty.

Check windshield wiper arms for proper spring tension.

Check wiper blades for damage, "stiff" rubber, and securement.

Lights and reflectors.

Parking, clearance, and identification lights clean, operating, and proper color (amber at front).

Reflectors clean and proper color (amber at front).

Right front turn signal light clean, operating, and proper color (amber or white on signals facing forward).

Right Side

Right front: check all items as done on left front.

Primary and secondary safety cab locks engaged (if cab-over-engine design).

Right fuel tank(s).

Securely mounted, not damaged, or leaking.

Fuel crossover line secure.

Tank(s) contain enough fuel.

Cap(s) on and secure.

Condition of visible parts.

Rear of engine--not leaking.

Transmission--not leaking.

Exhaust system--secure, not leaking, not touching wires, fuel, or air-lines.

Frame and cross members--no bends or cracks.

Air-lines and electrical wiring--secured against snagging, rubbing, wearing.

Spare tire carrier or rack not damaged (if so equipped).

Spare tire and/or wheel securely mounted in rack.

Spare tire and wheel adequate (proper size, properly inflated).

Cargo securement (trucks).

Cargo properly blocked, braced, tied, chained, etc.

Header board adequate, secure (if required).

Side boards, stakes strong enough, free of damage, properly set in place (if so equipped).

Canvas or tarp (if required) properly secured to prevent tearing, billowing, or blocking of mirrors.

If oversize, all required signs (flags, lamps, and reflectors) safely and properly mounted and all required permits in driver's possession.

Curbside cargo compartment doors in good condition, securely closed, latched/locked and required security seals in place.

Right Rear

Condition of wheels and rims--no missing, bent, or broken spacers, studs, clamps, or lugs.

Condition of tires--properly inflated, valve stems and caps OK, no serious cuts, bulges, tread wear, tires not rubbing each other, and nothing stuck between them.

Tires same type, e.g., not mixed radial and bias types.

Tires evenly matched (same sizes).

Wheel bearing/seals not leaking.

Suspension.

Condition of spring(s), spring hangers, shackles, and u-bolts.

Axle secure.

Powered axle(s) not leaking lube (gear oil).

Condition of torque rod arms, bushings.

Condition of shock absorber(s).

If retractable axle equipped, check condition of lift mechanism. If air powered, check for leaks.

Condition of air ride components.

Brakes.

Brake adjustment.

Condition of brake drum(s) or discs.

Condition of hoses--look for any wear due to rubbing.

Lights and reflectors.

Side-marker lights clean, operating, and proper color (red at rear, others amber).

Side-marker reflectors clean and proper color (red at rear, others amber).

Rear

Lights and reflectors.

Rear clearance and identification lights clean, operating, and proper color (red at rear).

Reflectors clean and proper color (red at rear).

Taillights clean, operating, and proper color (red at rear).

Right rear turn signal operating, and proper color (red, yellow, or amber at rear).

License plate(s) present, clean, and secured.

Splash guards present, not damaged, properly fastened, not dragging on ground, or rubbing tires.

Cargo secure (trucks).

Cargo properly blocked, braced, tied, chained, etc.

Tailboards up and properly secured.

End gates free of damage, properly secured in stake sockets.

Canvas or tarp (if required) properly secured to prevent tearing, billowing, or blocking of either the rearview mirrors or rear lights.

If over-length, or over-width, make sure all signs and/or additional lights/flags are safely and properly mounted and all required permits are in driver's possession.

Rear doors securely closed, latched/locked.

Left Side

Check all items as done on right side, plus:

Battery(ies) (if not mounted in engine compartment).

Battery box(es) securely mounted to vehicle.

Box has secure cover.

Battery(ies) secured against movement.

Battery(ies) not broken or leaking.

Fluid in battery(ies) at proper level (except maintenance-free type).

Cell caps present and securely tightened (except maintenance-free type).

Vents in cell caps free of foreign material (except maintenance-free type).

Step 6: Check Signal Lights

Get In and Turn Off Lights

Turn off all lights.

Turn on stop lights (apply trailer hand brake or have a helper put on the brake pedal).

Turn on left turn signal lights.

Get Out and Check Lights

Left front turn signal light clean, operating and proper color (amber or white on signals facing the front).

Left rear turn signal light and both stop lights clean, operating, and proper color (red, yellow, or amber).

Get In Vehicle

Turn off lights not needed for driving.

Check for all required papers, trip manifests, permits, etc.

Secure all loose articles in cab (they might interfere with operation of the controls or hit you in a crash).

Start the engine.

Step 7: Start the Engine and Check

Test for Hydraulic Leaks. If the vehicle has hydraulic brakes, pump the brake pedal three times. Then apply firm pressure to the pedal and hold for five seconds. The pedal should not move. If it does, there may be a leak or other problem. Get it fixed before driving. If the vehicle has air brakes, do the checks described in Sections 5 and 6 of this manual.

Brake System

Test Parking Brake (s)

Fasten safety belt

Set parking brake (power unit only).

Release trailer parking brake (if applicable).

Place vehicle into a low gear.

Gently pull forward against parking brake to make sure the parking brake holds.

Repeat the same steps for the trailer with trailer parking brake set and power unit parking brakes released (if applicable).

If it doesn't hold vehicle, it is faulty; get it fixed.

Test Service Brake Stopping Action

Go about five miles per hour.

Push brake pedal firmly

"Pulling" to one side or the other can mean brake trouble.

Any unusual brake pedal "feel" or delayed stopping action can mean trouble.

If you find anything unsafe during the Vehicle inspection, get it fixed. Federal and state laws forbid operating an unsafe vehicle.

2.1.6 ±Inspection during a Trip

Check Vehicle Operation Regularly

You should check:

Instruments.

Air pressure gauge (if you have air brakes).

Temperature gauges.

Pressure gauges.

Ammeter/voltmeter.

Mirrors.

Tires.

Cargo, cargo covers.

Lights, etc

If you see, hear, smell, or feel anything that might mean trouble, check it out.

Safety Inspection. Drivers of trucks and truck tractors when transporting cargo must inspect the securement of the cargo within the first 50 miles of a trip and every 150 miles or every three hours (whichever comes first) after.

2.1.7 ±After -trip Inspection and Report

You may have to make a written report each day on the condition of the vehicle(s) you drove. Report anything affecting safety or possibly leading to mechanical breakdown.

Subsection 2.1
Test Your Knowl edge

The vehicle inspection report tells the motor carrier about problems that may need fixing. Keep a copy of your report in the vehicle for one day. That way, the next driver can learn about any problems you have found.

1. What is the most important reason for doing a vehicle inspection?
2. What things should you check during a trip?
3. Name some key steering system parts.
4. Name some suspension system defects.
5. What three kinds of emergency equipment must you have?
6. What is the minimum tread depth for front tires? For other tires?
7. Name some things you should check on the front of your vehicle during the walk around inspection.
8. What should wheel bearing seals be checked for?
9. How many red reflective triangles should you carry?
10. How do you test hydraulic brakes for leaks?
11. Why put the starter switch key in your pocket during the Vehicle inspection?

7KHVH TXHVWLRQV PD\ EH RQ \RXU WHVW ,I \RX FDQ¶W answer them all, re-read subsection 2.1.

2.2 ±Basic Control of Your Vehicle

To drive a vehicle safely, you must be able to control its speed and direction. Safe operation of a commercial vehicle requires skill in:

Accelerating.

Steering.

Stopping.

Backing safely.

Fasten your seatbelt when on the road. Apply the parking brake when you leave your vehicle.

2.2.1 ±Accelerating

Don't roll back when you start. You may hit someone behind you. If you have a manual transmission vehicle, partly engage the clutch before you take your right foot off the brake. Put on the parking brake whenever necessary to keep from rolling back. Release the parking brake only when you have applied enough engine power to keep from rolling back. On a tractor-trailer equipped with a trailer brake hand valve, the hand valve can be applied to keep from rolling back.

Speed up smoothly and gradually so the vehicle does not jerk. Rough acceleration can cause mechanical damage. When pulling a trailer, rough acceleration can damage the coupling.

Speed up very gradually when traction is poor, as in rain or snow. If you use too much power, the drive wheels may spin. You could lose control. If the drive wheels begin to spin, take your foot off the accelerator.

2.2.2 ±Steering

Hold the steering wheel firmly with both hands. Your hands should be on opposite sides of the wheel. If you hit a curb or a pothole (chuckhole), the wheel could pull away from your hands unless you have a firm hold.

2.2.3 ±Stopping

Push the brake pedal down gradually. The amount of brake pressure you need to stop the vehicle will depend on the speed of the vehicle and how quickly you need to stop. Control the pressure so the vehicle comes to a smooth, safe stop. If you have a manual transmission, push the clutch in when the engine is close to idle.

2.2.4 ±Backing Safely

Because you cannot see everything behind your vehicle, backing is always dangerous. Avoid backing whenever you can. When you park, try to park so you will be able to pull forward when you leave. When you have to back, here are a few simple safety rules:

Start in the proper position.

Look at your path.

Use mirrors on both sides.

Back slowly.

Back and turn toward the driver's side whenever possible.

Use a helper whenever possible.

These rules are discussed in turn below.

Start in the Proper Position. Put the vehicle in the best position to allow you to back safely. This position will depend on the type of backing to be done.

Look at Your Path. Look at your line of travel before you begin. Get out and walk around the vehicle. Check your clearance to the sides and overhead, in and near the path your vehicle will take.

Use Mirror s on Both Sides. Check the outside mirrors on both sides frequently. Get out of the vehicle and check your path if you are unsure.

Back Slowly. Always back as slowly as possible. Use the lowest reverse gear. That way you can more easily correct any steering errors. You also can stop quickly if necessary.

Back and Turn Toward the Driver's Side. Back to the driver's side so that you can see better. Backing toward the right side is very dangerous because you can't see as well. If you back and turn toward the driver's side, you can watch the rear of your vehicle by looking out the side window. Use driver-side backing--even if it means going around the block to put your vehicle in this position. The added safety is worth it.

Use a Helper. Use a helper when you can. There are blind spots you can't see. That's why a helper is important. The helper should stand near the back of your vehicle where you can see the helper. Before you begin backing, work out a set of hand signals that you both understand. Agree on a signal for "stop."

2.3 ±Shifting Gears

Correct shifting of gears is important. If you can't get your vehicle into the right gear while driving, you will have less control.

2.3.1 ±Manual Transmissions

Basic Method for Shifting Up. Most heavy vehicles with unsynchronized manual transmissions require double clutching to change gears. If equipped with a synchronized manual transmission, double clutching is NOT required This is the basic method:

Release accelerator, push in clutch and shift to neutral at the same time.

Release clutch.

Let engine and gears slow down to the rpm required for the next gear (this takes practice).

Push in clutch and shift to the higher gear at the same time.

Release clutch and press accelerator at the same time.

Shifting gears using double clutching requires practice. If you remain too long in neutral, you may have difficulty putting the vehicle into the next gear. If so, don't try to force it. Return to neutral, release clutch, increase engine speed to match road speed, and try again.

Knowing When to Shift Up. There are two ways of knowing when to shift:

Use Engine Speed (rpm). Study the driver's manual for your vehicle and learn the operating rpm range. Watch your tachometer, and shift up when your engine reaches the top of the range. (Some newer vehicles use "progressive" shifting: the rpm at which you shift becomes higher as you move up in the gears. Find out what's right for the vehicle you will operate.)

Use Road Speed (mph). Learn what speeds each gear is good for. Then, by using the speedometer, you'll know when to shift up.

With either method, you may learn to use engine sounds to know when to shift.

Basic Procedures for Shifting Down

Release accelerator, push in clutch, and shift to neutral at the same time.

Release clutch.

Press accelerator, increase engine and gear speed to the rpm required in the lower gear.

Push in clutch and shift to lower gear at the same time.

Release clutch and press accelerator at the same time.

Downshifting, like upshifting, requires knowing when to shift. Use either the tachometer or the speedometer and downshift at the right rpm or road speed.

Special conditions where you should downshift are:

Before Starting Down a Hill. Slow down and shift down to a speed that you can control without using the brakes hard. Otherwise the brakes can overheat and lose their braking power.

Downshift before starting down the hill. Make sure you are in a low enough gear, usually lower than the gear required to climb the same hill.

Before Entering a Curve. Slow down to a safe speed, and downshift to the right gear before entering the curve. This lets you use some power through the curve to help the vehicle be more stable while turning. It also allows you to speed up as soon as you are out of the curve.

2.3.2 ± Multi-speed Rear Axles and Auxiliary Transmissions

Multi-speed rear axles and auxiliary transmissions are used on many vehicles to provide extra gears. You usually control them by a selector knob or switch on the gearshift lever of the main transmission. There are many different shift patterns. Learn the right way to shift gears in the vehicle you will drive.

2.3.3 ±Automatic Transmissions

Some vehicles have automatic transmissions. You can select a low range to get greater engine braking when going down grades. The lower ranges prevent the transmission from shifting up beyond the selected gear (unless the governor rpm is exceeded). It is very important to use this braking effect when going down grades.

2.3.4 ±Retarders

Some vehicles have "retarders." Retarders help slow a vehicle, reducing the need for using your brakes. They reduce brake wear and give you another way to slow down. There are four basic types of retarders (exhaust, engine, hydraulic, and electric). All retarders can be turned on or off by the driver. On some vehicles the retarding power can be adjusted. When turned "on," retarders apply their braking power (to the drive wheels only) whenever you let up on the accelerator pedal all the way.

Because these devices can be noisy, be sure you know where their use is permitted.

Caution. When your drive wheels have poor traction, the retarder may cause them to skid. Therefore, you should turn the retarder off whenever the road is wet, icy, or snow covered.

Subsections 2.2 and 2.3
Test Your Knowledge

1. Why should you back toward the driver's side?
2. If stopped on a hill, how can you start moving without rolling back?
3. When backing, why is it important to use a helper?
4. What's the most important hand signal that you and the helper should agree on?
5. What are the two special conditions where you should downshift?
6. When should you downshift automatic transmissions?
7. Retarders keep you from skidding when the road is slippery. True or False?
8. What are the two ways to know when to shift?

These questions may be on the test. If you can't answer them all, re-read subsections 2.2 and 2.3.

2.4 ±Seeing

To be a safe driver you need to know what's going on all around your vehicle. Not looking properly is a major cause of accidents.

2.4.1 ±Seeing Ahead

All drivers look ahead; but many don't look far enough ahead.

Importance of Looking Far Enough Ahead. Because stopping or changing lanes can take a lot of distance, knowing what the traffic is doing on all sides of you is very important. You need to look well ahead to make sure you have room to make these moves safely.

How Far Ahead to Look. Most good drivers look at least 12 to 15 seconds ahead. That means looking ahead the distance you will travel in 12 to 15 seconds. At lower speeds, that's about one block. At highway speeds it's about a quarter of a mile. If you're not looking that far ahead, you may have to stop too quickly or make quick lane changes. Looking 12 to 15 seconds ahead doesn't mean not paying attention to things that are closer. Good drivers shift their attention back and forth, near and far. Figure 2.6 illustrates how far to look ahead.

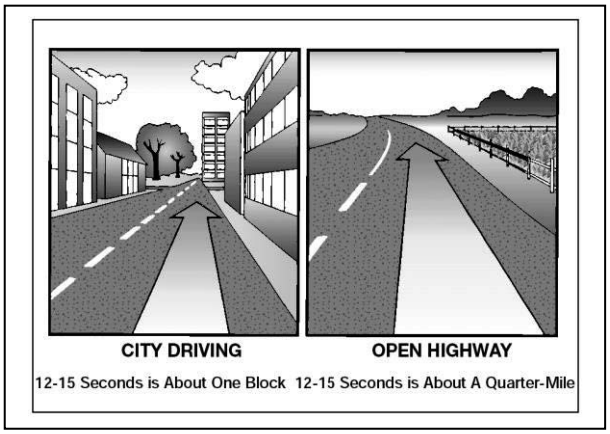


Figure 2.6

Look for Traffic. Look for vehicles coming onto the highway, into your lane, or turning. Watch for brake lights from slowing vehicles. By seeing these things far enough ahead, you can change your speed, or change lanes if necessary to avoid a problem. If a traffic light has been green for a long time it will probably change before you get there. Start slowing down and be ready to stop.

2.4.2 ±Seeing to the Sides and Rear

It's important to know what's going on behind and to the sides. Check your mirrors regularly. Check more often in special situations.

Mirror Adjustment. Mirror adjustment should be checked prior to the start of any trip and can only be checked accurately when the trailer(s) are straight. You should check and adjust each mirror to show some part of the vehicle. This will give you a reference point for judging the position of the other images.

Regular Checks. You need to make regular checks of your mirrors to be aware of traffic and to check your vehicle.

Traffic. Check your mirrors for vehicles on either side and in back of you. In an emergency, you may need to know whether you can make a quick lane change. Use your mirrors to spot overtaking vehicles. There are "blind spots" that your mirrors cannot show you. Check your mirrors regularly to know where other vehicles are around you, and to see if they move into your blind spots.

Check Your Vehicle. Use the mirrors to keep an eye on your tires. It's one way to spot a tire fire. If you're carrying open cargo, you can use the mirrors to check it. Look for loose straps, ropes, or chains. Watch for a flapping or ballooning tarp.

Special Situations. Special situations require more than regular mirror checks. These are lane changes, turns, merges, and tight maneuvers.

Lane Changes. You need to check your mirrors to make sure no one is alongside you or about to pass you. Check your mirrors:

Before you change lanes to make sure there is enough room.

After you have signaled, to check that no one has moved into your blind spot.

Right after you start the lane change, to double-check that your path is clear.

After you complete the lane change.

Turns. In turns, check your mirrors to make sure the rear of your vehicle will not hit anything.

Merges. When merging, use your mirrors to make sure the gap in traffic is large enough for you to enter safely.

Tight Maneuvers. Any time you are driving in close quarters, check your mirrors often. Make sure you have enough clearance.

How to Use Mirrors. Use mirrors correctly by checking them quickly and understanding what you see.

When you use your mirrors while driving on the road, check quickly. Look back and forth between the mirrors and the road ahead. Don't focus on the mirrors for too long. Otherwise, you will travel quite a distance without knowing what's happening ahead.

Many large vehicles have curved (convex, "fisheye," "spot," "bug-eye") mirrors that show a wider area than flat mirrors. This is often helpful. But everything appears smaller in a convex mirror than it would if you were looking at it directly. Things also seem farther away than they really are. It's important to realize this and to allow for it. Figure 2.7 shows the field of vision using a convex mirror.

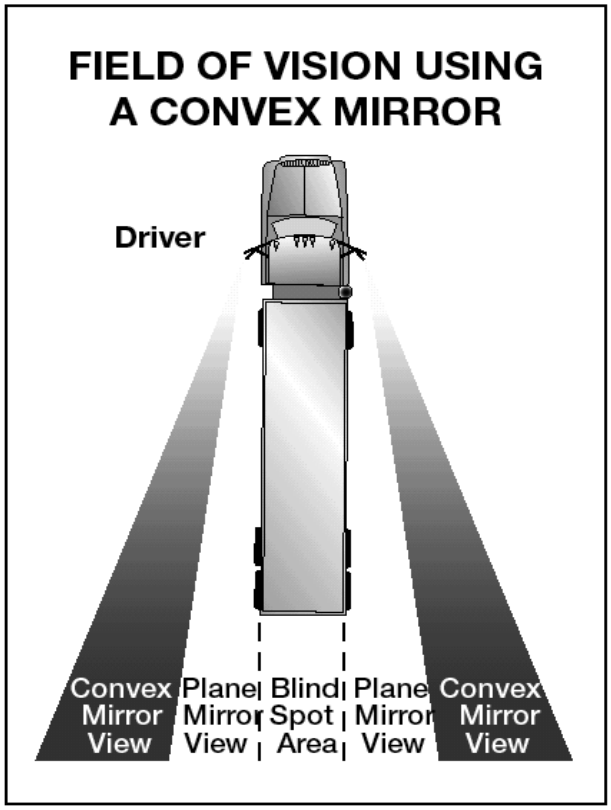


Figure 2.7

2.5 ±Communicating

2.5.1 ±Signal Your Intentions

Other drivers can't know what you are going to do until you tell them.

Signaling what you intend to do is important for safety. Here are some general rules for signaling.

Turns. There are three good rules for using turn signals:

Signal early. Signal well before you turn. It is the best way to keep others from trying to pass you.

Signal continuously. You need both hands on the wheel to turn safely. Don't cancel the signal until you have completed the turn.

Cancel your signal. Don't forget to turn off your turn signal after you've turned (if you don't have self-canceling signals).

Lane Changes. Put your turn signal on before changing lanes. Change lanes slowly and smoothly. That way a driver you didn't see may have a chance to honk his/her horn, or avoid your vehicle.

Slowing Down. Warn drivers behind you when you see you'll need to slow down. A few light taps on the brake pedal -- enough to flash the brake lights -- should warn following drivers. Use the four-way emergency flashers for times when you are driving very slowly or are stopped. Warn other drivers in any of the following situations:

Trouble Ahead . The size of your vehicle may make it hard for drivers behind you to see hazards ahead. If you see a hazard that will require slowing down, warn the drivers behind by flashing your brake lights.

Tight Turns . Most car drivers don't know how slowly you have to go to make a tight turn in a large vehicle. Give drivers behind you warning by braking early and slowing gradually.

Stopping on the Road . Truck and bus drivers sometimes stop in the roadway to unload cargo or passengers, or to stop at a railroad crossing. Warn following drivers by flashing your brake lights. Don't stop suddenly.

Driving Slowly . Drivers often do not realize how fast they are catching up to a slow vehicle until they are very close. If you must drive slowly, alert following drivers by turning on your emergency flashers if it is legal. (Laws regarding the use of flashers differ from one state to another. Check the laws of the states where you will drive.)

Don't Direct Traffic. Some drivers try to help out others by signaling when it is safe to pass. You should not do this. You could cause an accident. You could be blamed and it could cost you many thousands of dollars.

2.5.2 ±Communicating Your Presence

Other drivers may not notice your vehicle even when it's in plain sight. To help prevent accidents, let them know you're there.

When Passing. Whenever you are about to pass a vehicle, pedestrian, or bicyclist, assume they don't see you. They could suddenly move in front of you. When it is legal, tap the horn lightly or, at night, flash your lights from low to high beam and back. And, drive carefully enough to avoid a crash even if they don't see or hear you.

When It's Hard to See. At dawn, dusk, in rain, or snow, you need to make yourself easier to see. If you are having trouble seeing other vehicles, other drivers will have trouble seeing you. Turn on your lights. Use the headlights, not just the identification or clearance lights. Use the low beams; high beams can bother people in the daytime as well as at night.

When Parked at the Side of the Road. When you pull off the road and stop, be sure to turn on the four-way emergency flashers. This is important at night. Don't trust the taillights to give warning. Drivers have crashed into the rear of a parked vehicle because they thought it was moving normally.
If you must stop on a road or the shoulder of any road, you must put out your emergency warning devices within ten minutes. Place your warning devices at the following locations:

If you must stop on or by a one-way or divided highway, place warning devices 10 feet, 100 feet, and 200 feet toward the approaching traffic. See Figure 2.8.

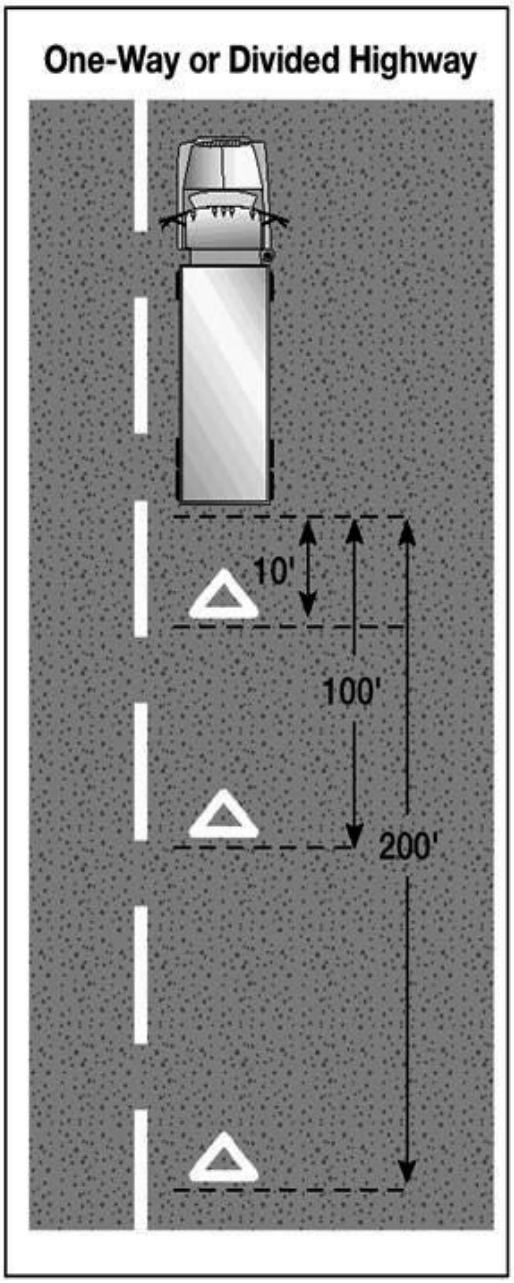


Figure 2.8

If you stop on a two-lane road carrying traffic in both directions or on an undivided highway, place warning devices within 10 feet of the front or rear corners to mark the location of the vehicle and 100 feet behind and ahead of the vehicle, on the shoulder or in the lane you stopped in. See Figure 2.9.

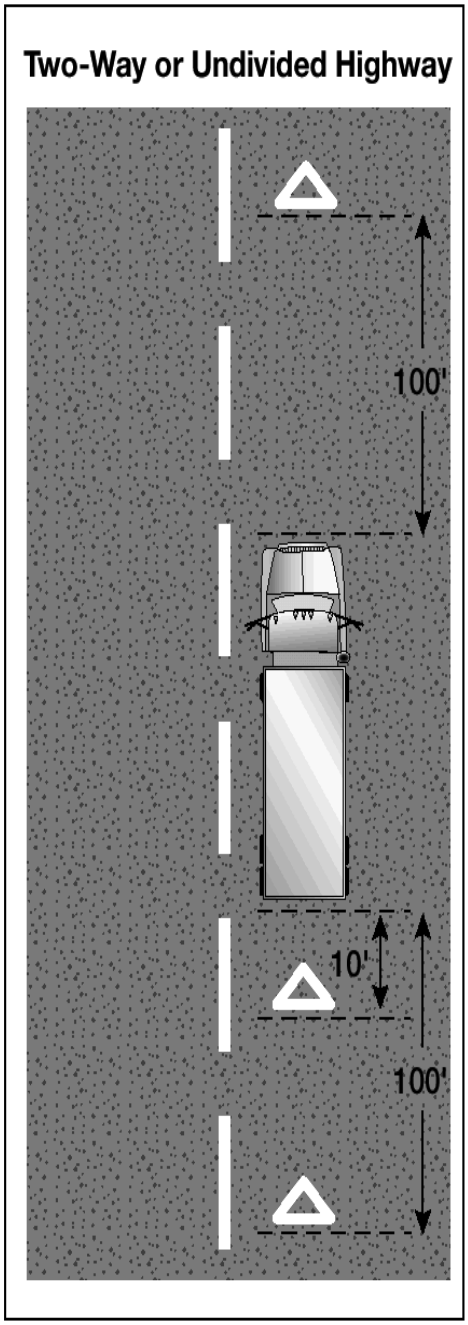


Figure 2.9

Back beyond any hill, curve, or other obstruction that prevents other drivers from seeing the vehicle within 500 feet. If line of sight view is obstructed due to hill or curve, move the rear-most triangle to a point back down the road so warning is provided. See Figure 2.10.

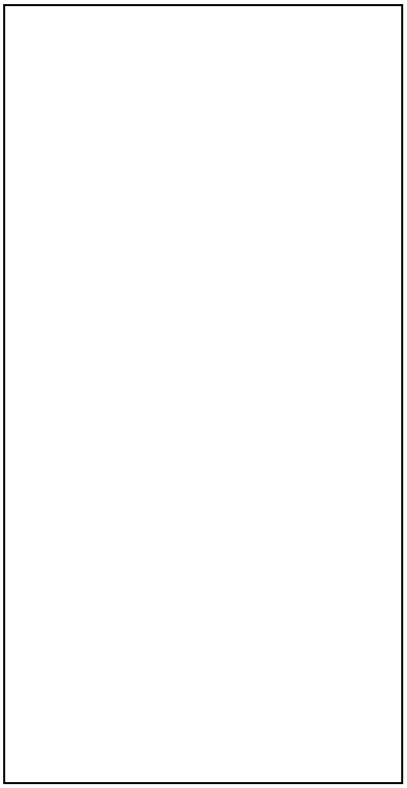


Figure 2.10

When putting out the triangles, hold them between yourself and the oncoming traffic for your own safety. (So other drivers can see you.)

Use Your Horn When Needed. Your horn can let others know you're there. It can help to avoid a crash. Use your horn when needed. However, it can startle others and could be dangerous when used unnecessarily.

2.6 ±Controlling Speed

Driving too fast is a major cause of fatal crashes. You must adjust your speed depending on driving conditions. These include traction, curves, visibility, traffic and hills.

2.6.1 ±Stopping Distance

Perception Distance + Reaction Distance + Braking Distance = Total Stopping Distance

Perception distance. The distance your vehicle travels, in ideal conditions; from the time your eyes see a hazard until your brain recognizes it. Keep in mind certain mental and physical conditions can affect your perception distance. It can be affected greatly depending on visibility and the hazard itself. The average perception time for an alert driver is 1¾

seconds. At 55 mph this accounts for 142 feet traveled.

Reaction distance . The distance you will continue to travel, in ideal conditions; before you physically hit the brakes, in response to a hazard seen ahead. The average driver has a reaction time of ¾ second to 1 second. At 55 mph this accounts for 61 feet traveled.

Braking distance . The distance your vehicle will travel, in ideal conditions; while you are braking. At 55 mph on dry pavement with good brakes, it can take about 216 feet.

Total stopping distance . The total minimum distance your vehicle has traveled, in ideal conditions; with everything considered, including perception distance, reaction distance and braking distance, until you can bring your vehicle to a complete stop. At 55 mph, your vehicle will travel a minimum of 419 feet. See Figure 2.11.

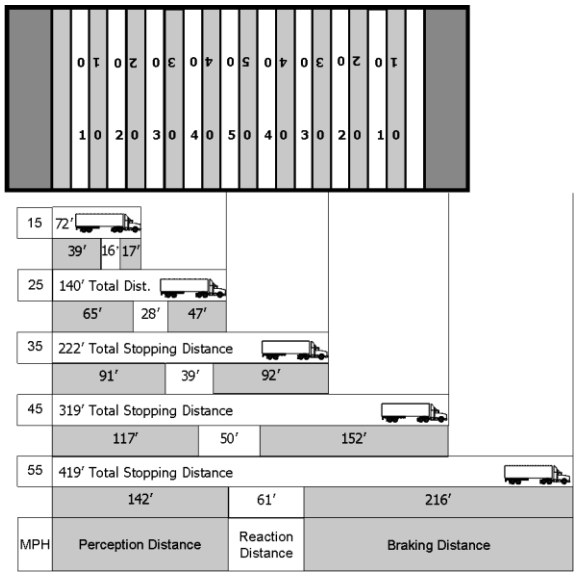


Figure 2.11

The Effect ofSpeed on Stopping Distance.

The faster you drive, the greater the impact or striking power of your vehicle. When you double your speed from 20 to 40 mph the impact is 4 times greater. The braking distance is also 4 times longer. Triple the speed from 20 to 60 mph and the impact and braking distance is 9 times greater. At 60 mph, your stopping distance is greater than the length of a football field. Increase the speed to 80 mph and the impact and braking distance are 16 times greater than at 20 mph. High speeds greatly increase the severity of crashes and stopping distances. By slowing down, you can reduce braking distance.

The Effect of Vehicle Weight on Stopping Distance. The heavier the vehicle, the more work the brakes must do to stop it, and the more heat they absorb. But the brakes, tires, springs, and shock absorbers on heavy vehicles are designed to work best when the vehicle is fully loaded. Empty trucks require greater stopping distances because an empty vehicle has less traction.

2.6.2 ±Matching Speed to the Road Surface

You can't steer or brake a vehicle unless you have traction. Traction is friction between the tires and the road. There are some road conditions that reduce traction and call for lower speeds.

Slippery Surfaces. It will take longer to stop, and it will be harder to turn without skidding, when the road is slippery. Wet roads can double stopping distance. You must drive slower to be able to stop in the same distance as on a dry road. Reduce speed by about one-third (e.g., slow from 55 to about 35 mph) on a wet road. On packed snow, reduce speed by a half, or more. If the surface is icy, reduce speed to a crawl and stop driving as soon as you can safely do so.

Identifying Slippery Surfaces. Sometimes it's hard to know if the road is slippery. Here are some signs of slippery roads:

Shaded Areas . Shady parts of the road will remain icy and slippery long after open areas have melted.

Bridges . When the temperature drops, bridges will freeze before the road will. Be especially careful when the temperature is close to 32 degrees Fahrenheit.

Melting Ice . Slight melting will make ice wet. Wet ice is much more slippery than ice that is not wet.

Black Ice . Black ice is a thin layer that is clear enough that you can see the road underneath it. It makes the road look wet. Any time the temperature is below freezing and the road looks wet, watch out for black ice.

Vehicle Icing . An easy way to check for ice is to open the window and feel the front of the mirror, mirror support, or antenna. If there's ice on these, the road surface is probably starting to ice up.

Just After Rain Begins . Right after it starts to rain, the water mixes with oil left on the road by vehicles. This makes the road very slippery. If the rain continues, it will wash the oil away.

Hydroplaning . In some weather, water or slush collects on the road. When this happens, your vehicle can hydroplane. It's like water skiing--the tires lose their contact with the road and have little or no traction. You may not be able to steer or brake. You can regain control by releasing the

accelerator and pushing in the clutch. This will slow your vehicle and let the wheels turn freely. If the vehicle is hydroplaning, do not use the brakes to slow down. If the drive wheels start to skid, push in the clutch to let them turn freely.

It does not take a lot of water to cause hydroplaning. Hydroplaning can occur at speeds as low as 30 mph if there is a lot of water. Hydroplaning is more likely if tire pressure is low, or the tread is worn. (The grooves in a tire carry away the water; if they aren't deep, they don't work well.)

Road surfaces where water can collect can create conditions that cause a vehicle to hydroplane. Watch for clear reflections, tire splashes, and raindrops on the road. These are indications of standing water.

2.6.3 ±Speed and Curves

Drivers must adjust their speed for curves in the road. If you take a curve too fast, two things can happen. The tires can lose their traction and continue straight ahead, so you skid off the road. Or, the tires may keep their traction and the vehicle rolls over. Tests have shown that trucks with a high center of gravity can roll over at the posted speed limit for a curve.

Slow to a safe speed before you enter a curve. Braking in a curve is dangerous because it is easier to lock the wheels and cause a skid. Slow down as needed. Don't ever exceed the posted speed limit for the curve. Be in a gear that will let you accelerate slightly in the curve. This will help you keep control.

2.6.4 ±Speed and Distance Ahead

You should always be able to stop within the distance you can see ahead. Fog, rain, or other conditions may require that you slowdown to be able to stop in the distance you can see. At night, you can't see as far with low beams as you can with high beams. When you must use low beams, slow down.

2.6.5 ±Speed and Traffic Flow

When you're driving in heavy traffic, the safest speed is the speed of other vehicles. Vehicles going the same direction at the same speed are not likely to run into one another. In many states, speed limits are lower for trucks and buses than for cars. It can vary as much as 15 mph. Use extra caution when you change lanes or pass on these roadways. Drive at the speed of the traffic, if you can without going at an illegal or unsafe speed. Keep a safe following distance.

The main reason drivers exceed speed limits is to save time. But, anyone trying to drive faster than the speed of traffic will not be able to save much time. The risks involved are not worth it. If you go faster than the speed of other traffic, you'll have to keep passing other vehicles. This increases the chance of a crash, and it is more tiring. Fatigue increases the chance of a crash. Going with the flow of traffic is safer and easier.

2.6.6 ±Speed on Downgrades

Your vehicle's speed will increase on downgrades because of gravity. Your most important objective is to select and maintain a speed that is not too fast for the:

Total weight of the vehicle and cargo.

Length of the grade.

Steepness of the grade.

Road conditions.

Weather.

If a speed limit is posted, or there is a sign indicating "Maximum Safe Speed," never exceed the speed shown. Also, look for and heed warning signs indicating the length and steepness of the grade. You must use the braking effect of the engine as the principal way of controlling your speed on downgrades. The braking effect of the engine is greatest when it is near the governed rpms and the transmission is in the lower gears. Save your brakes so you will be able to slow or stop as required by road and traffic conditions. Shift your transmission to a low gear before starting down the grade and use the proper braking techniques. Please read carefully the section on going down long, steep downgrades safely in "Mountain Driving."

2.6.7 ±Roadway Work Zones

Speeding traffic is the number one cause of injury and death in roadway work zones. Observe the posted speed limits at all times when approaching and driving through a work zone. Watch your speedometer, a Q G G R Q ¶ W D O O R Z \ R X U V S H up as you drive through long sections of road construction. Decrease your speed for adverse weather or road conditions. Decrease your speed even further when a worker is close to the roadway.

Subsections 2.4, 2.5, and 2. 6

Test Your Knowledge

1. How far ahead does the manual say you should look?
2. What are two main things to look for ahead?

3. What's your most important way to see the sides and rear of your vehicle?
4. What does "communicating" mean in safe driving?
5. Where should you place reflectors when stopped on a divided highway?
6. What three things add up to total stopping distance?
7. If you go twice as fast, will your stopping distance increase by two or four times?
8. Empty trucks have the best braking. True or False?
9. What is hydroplaning?
10. :KDW LV EODFN LFH´"

These questions may be on the test. If you can't answer them all, re-read subsections 2.4, 2.5, and 2.6.

2.7 ±Managing Space

To be a safe driver, you need space all around your vehicle. When things go wrong, space gives you time to think and to take action.

To have space available when something goes wrong, you need to manage space. While this is true for all drivers, it is very important for large vehicles. They take up more space and they require more space for stopping and turning.

2.7.1 ±Space Ahead

Of all the space around your vehicle, it is the area ahead of the vehicle--the space you're driving into --that is most important.

The Need for Space Ahead. You need space ahead in case you must suddenly stop. According to accident reports, the vehicle that trucks and buses most often run into is the one in front of them. The most frequent cause is following too closely. Remember, if the vehicle ahead of you is smaller than yours, it can probably stop faster than you can. You may crash if you are following too closely.

How Much Space? How much space should you keep in front of you? One good rule says you need at least one second for each 10 feet of vehicle length at speeds below 40 mph. At greater speeds, you must add 1 second for safety. For example, if you are driving a 40-foot vehicle, you should leave 4 seconds between you and the vehicle ahead. In a 60-foot rig, you'll need 6 seconds. Over 40 mph, you'd need 5 seconds for a 40-foot vehicle and 7 seconds for a 60-foot vehicle. See Figure 2.12.

To know how much space you have, wait until the vehicle ahead passes a shadow on the road, a pavement marking, or some other clear landmark. Then count off the seconds like this: "one thousand-and-one, one thousand-and-two" and so on, until you reach the same spot. Compare your count with the rule of one second for every ten feet of length.

If you are driving a 40-foot truck and only counted up to 2 seconds, you're too close. Drop back a little and count again until you have 4 seconds of following distance (or 5 seconds, if you're going over 40 mph). After a little practice, you will know how far back you should be. Remember to add 1 second for speeds above 40 mph. Also remember that when the road is slippery, you need much more space to stop.

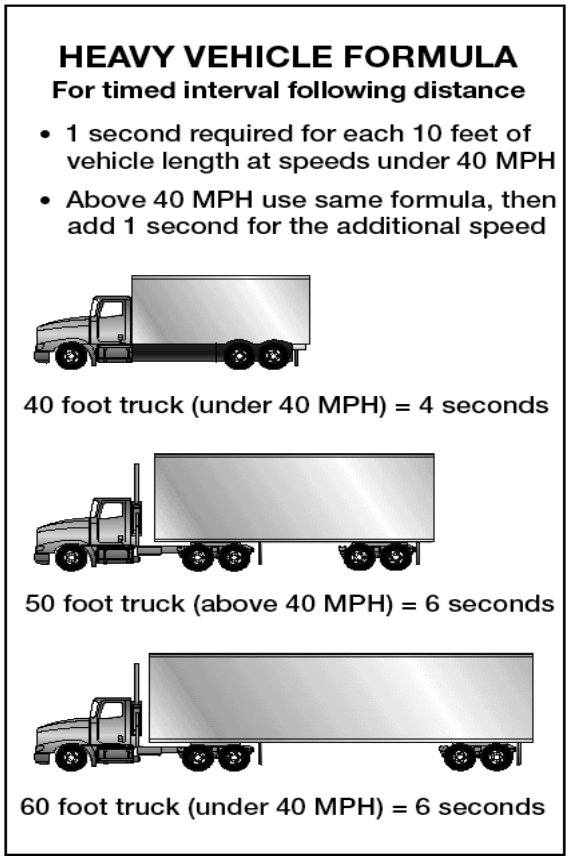


Figure 2.12

2.7.2 ±Space Behind

You can't stop others from following you too closely. But there are things you can do to make it safer.

Stay to the Right. Heavy vehicles are often tailgated when they can't keep up with the speed of traffic. This often happens when you're going uphill. If a heavy load is slowing you down, stay in the right lane if you can. Going uphill, you should not pass

another slow vehicle unless you can get around quickly and safely.

Dealing with Tailgaters Safely. In a large vehicle, it's often hard to see whether a vehicle is close behind you. You may be tailgated:

When you are traveling slowly. Drivers trapped behind slow vehicles often follow closely.

In bad weather. Many car drivers follow large vehicles closely during bad weather, especially when it is hard to see the road ahead.

If you find yourself being tailgated, here are some things you can do to reduce the chances of a crash:

Avoid quick changes . If you have to slow down or turn, signal early, and reduce speed very gradually.

Increase your following distance . Opening up room in front of you will help you to avoid having to make sudden speed or direction changes. It also makes it easier for the tailgater to get around you.

Don't speed up. It's safer to be tailgated at a low speed than a high speed.

Avoid tricks . Don't turn on your taillights or flash your brake lights. Follow the suggestions above.

2.7.3 ±Space to the Sides

Commercial vehicles are often wide and take up most of a lane. Safe drivers will manage what little space they have. You can do this by keeping your vehicle centered in your lane, and avoid driving alongside others.

Staying Centered in a Lane. You need to keep your vehicle centered in the lane to keep safe clearance on either side. If your vehicle is wide, you have little room to spare.

Traveling Next to Others. There are two dangers in traveling alongside other vehicles:

Another driver may change lanes suddenly and turn into you.

You may be trapped when you need to change lanes.

Find an open spot where you aren't near other traffic. When traffic is heavy, it may be hard to find an open spot. If you must travel near other vehicles, try to keep as much space as possible between you and them. Also, drop back or pull forward so that you are sure the other driver can see you.

Strong Winds. Strong winds make it difficult to stay in your lane. The problem is usually worse for lighter vehicles. This problem can be especially bad coming out of tunnels. Don't drive alongside others if you can avoid it.

2.7.4 ±Space Overhead

Hitting overhead objects is a danger. Make sure you always have overhead clearance.

Don't assume that the heights posted at bridges and overpasses are correct. Re-paving or packed snow may have reduced the clearances since the heights were posted.

The weight of a cargo van changes its height. An empty van is higher than a loaded one. That you got under a bridge when you were loaded does not mean that you can do it when you are empty.

If you doubt you have safe space to pass under an object, go slowly. If you aren't sure you can make it, take another route. Warnings are often posted on low bridges or underpasses, but sometimes they are not.

Some roads can cause a vehicle to tilt. There can be a problem clearing objects along the edge of the road, such as signs, trees, or bridge supports. Where this is a problem, drive a little closer to the center of the road.

Before you back into an area, get out and check for overhanging objects such as trees, branches, or electric wires. It's easy to miss seeing them while you are backing. (Also check for other hazards at the same time.)

2.7.5 ±Space Below

Many drivers forget about the space under their vehicles. That space can be very small when a vehicle is heavily loaded. This is often a problem on dirt roads and in unpaved yards. Don't take a chance on getting hung up. Drainage channels across roads can cause the ends of some vehicles to drag. Cross such depressions carefully.

Railroad tracks can also cause problems, particularly when pulling trailers with a low XQGHUQHDWK FOHDUDQFH 'RQ¶W V getting hung up halfway across.

2.7.6 ±Space for Turns

The space around a truck or bus is important in turns. Because of wide turning and off-tracking, large vehicles can hit other vehicles or objects during turns.

Right Turns. Here are some rules to help prevent right-turn crashes:

Turn slowly to give yourself and others more time to avoid problems.

If you are driving a truck or bus that cannot make the right turn without swinging into another lane, turn wide as you complete the turn. Keep the rear of your vehicle close to the curb. This will stop other drivers from passing you on the right.

Don't turn wide to the left as you start the turn. A following driver may think you are turning left and try to pass you on the right. You may crash into the other vehicle as you complete your turn.

If you must cross into the oncoming lane to make a turn, watch out for vehicles coming toward you. Give them room to go by or to stop. However, don't back up for them, because you might hit someone behind you. See Figure 2.13.

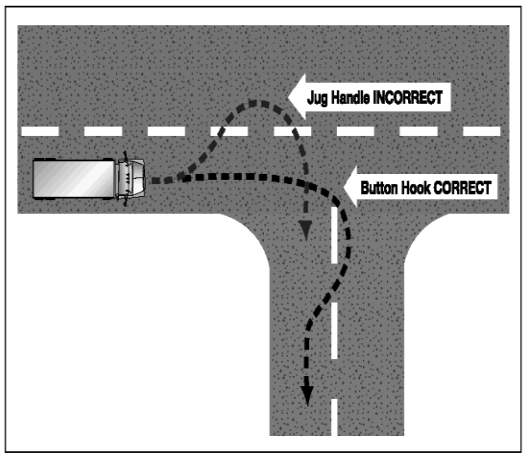


Figure 2.13

Left Turns. On a left turn, make sure you have reached the center of the intersection before you start the left turn. If you turn too soon, the left side of your vehicle may hit another vehicle because of off-tracking.

If there are two turning lanes, always take the right turn lane. Don't start in the inside lane because you may have to swing right to make the turn. Drivers on your left can be more readily seen. See Figure 2.14.

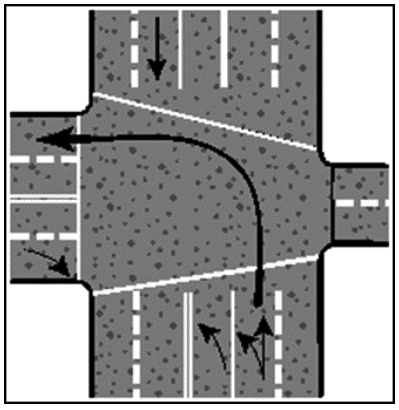


Figure 2.14

2.7.7 ±Space Needed to Cross or Enter Traffic

Be aware of the size and weight of your vehicle when you cross or enter traffic. Here are some important things to keep in mind.

Because of slow acceleration and the space large vehicles require, you may need a much larger gap to enter traffic than you would in a car.

Acceleration varies with the load. Allow more room if your vehicle is heavily loaded.

Before you start across a road, make sure you can get all the way across before traffic reaches you.

2.8 ±Seeing Hazards

2.8.1 ±Importance of Seeing Hazards

What Is a Hazard? A hazard is any road condition or other road user (driver, bicyclist, pedestrian) that is a possible danger. For example, a car in front of you is headed toward the freeway exit, but his brake lights come on and he begins braking hard. This could mean that the driver is uncertain about taking the off ramp. He might suddenly return to the highway. This car is a hazard. If the driver of the car cuts in front of you, it is no longer just a hazard; it is an emergency.

Seeing Hazards Lets You Be Prepared. You will have more time to act if you see hazards before they become emergencies. In the example above, you might make a lane change or slow down to prevent a crash if the car suddenly cuts in front of you. Seeing this hazard gives you time to check your mirrors and signal a lane change. Being prepared reduces the danger. A driver who did not see the hazard until the slow car pulled back on the highway in front of him would have to do something very suddenly. Sudden braking or a quick lane change is much more likely to lead to a crash.

Learning to See Hazards. There are often clues that will help you see hazards. The more you drive, the better you can learn to see hazards. This section will talk about hazards that you should be aware of.

2.8.2 ±Hazardous Roads

[Move -Over Laws]

[The incidents of law enforcement officers, emergency medical services, fire department personnel and people working on the road are being struck while performing duties at the roadside are increasing at a frightening pace. To lessen the problem, move-over laws have been enacted, which require drivers to slow and change lanes when approaching a roadside incident or emergency vehicle. Signs are posted on roadways in states that have such laws].

[When approaching an authorized emergency vehicle stopped on the roadside or a work zone, you should proceed with caution by slowing and yielding the right-of-way by making a lane change into a lane not next to that of the authorized emergency vehicle or work zone if safety and traffic conditions permit. If a lane change is unsafe, slow down and proceed with caution while maintaining a safe speed for traffic conditions].

Slow down and be very careful if you see any of the following road hazards.

Work Zones. When people are working on the road, it is a hazard. There may be narrower lanes, sharp turns, or uneven surfaces. Other drivers are often distracted and drive unsafely. Workers and construction vehicles may get in the way. Drive slowly and carefully near work zones. Use your four-way flashers or brake lights to warn drivers behind you.

Drop Off. Sometimes the pavement drops off sharply near the edge of the road. Driving too near the edge can tilt your vehicle toward the side of the road. This can cause the top of your vehicle to hit roadside objects (signs, tree limbs). Also, it can be hard to steer as you cross the drop off, going off the road, or coming back on.

Foreign Objects. Things that have fallen on the road can be hazards. They can be a danger to your tires and wheel rims. They can damage electrical and brake lines. They can be caught between dual tires and cause severe damage. Some obstacles that appear to be harmless can be very dangerous. For example, cardboard boxes may be empty, but they may also contain some solid or heavy material capable of causing damage. The same is true of paper and cloth sacks. It is important to remain alert for objects of all sorts, so you can see them early enough to avoid them without making sudden, unsafe moves.

Off Ramps/On Ramps. Freeway and turnpike exits can be particularly dangerous for commercial vehicles. Off ramps and on ramps often have speed limit signs posted. Remember, these speeds may be safe for automobiles, but may not be safe for larger vehicles or heavily loaded vehicles. Exits that go downhill and turn at the same time can be especially dangerous. The downgrade makes it difficult to reduce speed. Braking and turning at the same time can be a dangerous practice. Make sure you are going slowly enough before you get on the curved part of an off ramp or on ramp.

2.8.3 ±Drivers Who Are Hazards

In order to protect yourself and others, you must know when other drivers may do something hazardous. Some clues to this type of hazard are discussed below.

Blocked Vision. People who can't see others are a very dangerous hazard. Be alert for drivers whose vision is blocked. Vans, loaded station wagons, and cars with the rear window blocked are examples. Rental trucks should be watched carefully. Their drivers are often not used to the limited vision they have to the sides and rear of the truck. In winter, vehicles with frosted, ice-covered, or snow-covered windows are hazards.

Vehicles may be partly hidden by blind intersections or alleys. If you only can see the rear or front end of a vehicle but not the driver, then he or she can't see you. Be alert because he/she may back out or enter into your lane. Always be prepared to stop.

Delivery Trucks Can Presen t a Hazard. Packages RU YHKLFOH GRRUV RIWHQ EORFN Drivers of step vans, postal vehicles, and local delivery vehicles often are in a hurry and may suddenly step out of their vehicle or drive their vehicle into the traffic lane.

Parked Vehicles Can Be Hazards, especially when people start to get out of them. Or, they may suddenly start up and drive into your way. Watch for movement inside the vehicle or movement of the vehicle itself that shows people are inside. Watch for brake lights or backup lights, exhaust, and other clues that a driver is about to move.

Be careful of a stopped bus. Passengers may cross in front of or behind the bus, and they often can't see you.

Pedestrians and Bicyclists Can Also Be Hazards. Walkers, joggers, and bicyclists may be on the road with their back to the traffic, so they can't see you. Sometimes they wear portable stereos with headsets, so they can't hear you either. This can be dangerous. On rainy days, pedestrians may not see you because of hats or umbrellas. They may be hurrying to get out of the rain and may not pay attention to the traffic.

Distractions. People who are distracted are hazards. Watch for where they are looking. If they are looking elsewhere, they can't see you. But be alert even when they are looking at you. They may believe that they have the right of way.

Children. Children tend to act quickly without checking traffic. Children playing with one another may not look for traffic and are a serious hazard.

Talkers. Drivers or pedestrians talking to one another may not be paying close attention to the traffic.

Workers. People working on or near the roadway are a hazard clue. The work creates a distraction for other drivers and the workers themselves may not see you.

Ice Cream Trucks. Someone selling ice cream is a hazard clue. Children may be nearby and may not see you.

Disabled Vehicles. Drivers changing a tire or fixing an engine often do not pay attention to the danger that roadway traffic is to them. They are often careless. Jacked up wheels or raised hoods are hazard clues.

Accidents. Accidents are particularly hazardous. People involved in the accident may not look for traffic. Passing drivers tend to look at the accident. People often run across the road without looking. Vehicles may slow or stop suddenly.

Shoppers. People in and around shopping areas are often not watching traffic because they are looking for stores or looking into store windows.

Confused Drivers. Confused drivers often change direction suddenly or stop without warning. Confusion is common near freeway or turnpike interchanges and major intersections. Tourists unfamiliar with the area can be very hazardous. Clues to tourists include car-top luggage and out-of-state license plates. Unexpected actions (stopping in the middle of a block, changing lanes for no apparent reason, backup lights suddenly going on) are clues to confusion. Hesitation is another clue, including driving very slowly, using brakes often, or stopping in the middle of an intersection. You may also see drivers who are looking at street signs, maps, and house numbers. These drivers may not be paying attention to you.

Slow Drivers. Motorists who fail to maintain normal speed are hazards. Seeing slow moving vehicles early can prevent a crash. Some vehicles, by their nature, are slow and seeing them is a hazard clue (mopeds, farm machinery, construction machinery, tractors, etc.). Some of these will have the "slow moving vehicle" symbol to warn you. This is a red triangle with an orange center. Watch for it.

Drivers Signaling a Turn May Be a Hazard. Drivers signaling a turn may slow more than expected or stop. If they are making a tight turn into an alley or driveway, they may go very slowly. If pedestrians or other vehicles block them, they may have to stop on the roadway. Vehicles turning left may have to stop for oncoming vehicles.

Drivers in a Hurry. Drivers may feel your commercial vehicle is preventing them from getting where they want to go on time. Such drivers may pass you without a safe gap in the oncoming traffic, cutting too close in front of you. Drivers entering the road may pull in front of you in order to avoid being stuck behind you, causing you to brake. Be aware of this and watch for drivers who are in a hurry.

Impaired Drivers. Drivers who are sleepy, have had too much to drink, are on drugs, or who are ill are hazards. Some clues to these drivers are:

Weaving across the road or drifting from one side to another.

Leaving the road (dropping right wheels onto the shoulder, or bumping across a curb in a turn).

Stopping at the wrong time (stopping at a green light, or waiting for too long at a stop).

Open window in cold weather.

Speeding up or slowing down suddenly, driving too fast or too slow.

Be alert for drunk drivers and sleepy drivers late at night.

Driver Body Movement as a Clue. Drivers look in the direction they are going to turn. You may sometimes get a clue from a driver's head and body movements that a driver may be going to make a turn, even though the turn signals aren't on. Drivers making over-the-shoulder checks may be going to change lanes. These clues are most easily seen in motorcyclists and bicyclists. Watch other road users and try to tell whether they might do something hazardous.

Conflicts. You are in conflict when you have to change speed and/or direction to avoid hitting someone. Conflicts occur at intersections where vehicles meet, at merges (such as turnpike on ramps) and where there are needed lane changes (such as the end of a lane, forcing a move to another lane of traffic). Other situations include slow moving or stalled traffic in a traffic lane, and accident scenes. Watch for other drivers who are in conflict because they are a hazard to you. When they react to this conflict, they may do something that will put them in conflict with you.

2.8.4 ±Always Have a Plan

You should always be looking for hazards. Continue to learn to see hazards on the road. However, don't forget why you are looking for the hazards--they may turn into emergencies. You look for the hazards in order to have time to plan a way out of any emergency. When you see a hazard, think about the emergencies that could develop and figure out what you would do. Always be prepared to take action based on your plans. In this way, you will be a prepared, defensive driver who will improve your own safety as well as the safety of all road users.

Subsections 2.7 and 2.8 Test Your Knowledge

1. How do you find out how many seconds of following distance space you have?
2. If you are driving a 30-foot vehicle at 55 mph, how many seconds of following distance should you allow?
3. You should decrease your following distance if somebody is following you too closely. True or False?
4. If you swing wide to the left before turning right, another driver may try to pass you on the right. True or False?
5. What is a hazard?
6. Why make emergency plans when you see a hazard?

7KHVH TXHVWLRQV PD\ EH RQ WKH WHVW ,I \RX FDQ¶W answer them all, re-read subsections 2.7 and 2.8

2.9 ±Distracted Driving

A driver distraction is anything that takes your attention away from driving. Whenever you are driving a vehicle and your full attention is not on the driving task, you are putting yourself, your passengers, other vehicles, and pedestrians in danger. Distracted driving can cause collisions, resulting in injury, death or property damage.

Activities inside of the vehicle that can distract your attention include: talking to passengers; adjusting the radio, CD player or climate controls; eating, drinking or smoking; reading maps or other literature; picking up something that fell; talking on a cell phone or CB radio; reading or sending text messages; using any type of telematic or electronic devices (such as navigation systems, pagers, personal digital assistant, computers, etc.); daydreaming or being occupied with other mental distractions; and many others.

Possible distractions that could occur outside a moving vehicle: outside traffic, vehicles or pedestrians; outside events such as police pulling someone over or a crash scene; sunlight/sunset; objects in roadway; road construction; reading billboards or other road advertisements; and many others.

2.9.1 ±The Distracted Driving Crash Problem

The Large Truck Crash Causation Study (LTCCS) reported that 8 percent of large-truck crashes occurred when Commercial Motor Vehicle (CMV) drivers were externally distracted and 2 percent of large truck crashes occurred when the driver was internally distracted.

Approximately 5,500 people are killed each year on U.S. roadways and an estimated 448,000 are injured in motor vehicle crashes involving distracted driving (NHTSA Traffic Safety Facts: Distracted Driving).

Research indicates that the burden of talking on a cell phone - even if it's hands-free - saps the brain of 39% of the energy it would ordinarily devote to safe driving. Drivers who use a hand-held device are more likely to get into a crash serious enough to cause injury. (NHTSA distracted driving website, www.distraction.gov).

2.9.2 ±Effects of Distra cted Driving

Effects of distracted driving include slowed perception, which may cause you to be delayed in perceiving or completely fail to perceive an important traffic event; delayed decision making and improper action, which can cause you to be delayed in taking the proper action or make incorrect inputs to the steering, accelerator or brakes.

2.9.3 ±Types of Distractions

There are many causes of distraction, all with the potential to increase risk.

Physical distraction ±one that causes you to take your hands off the wheel or eyes off the road, such as reaching for an object.

Mental distraction ±activities that take your mind away from the road, such as engaging in conversation with a passenger or thinking about something that happened during the day.

Both physical and mental distraction ± even greater chance a crash could happen, such as talking on a cell phone; or sending or reading text messages.

2.9.4 ±Cell/Mobile Phones

49 CFR Part 383, 384, 390, 391 and 392 of the Federal Motor Carrier Safety Regulations (FMCSRs) and the Hazardous Materials Regulations (HMR) restricts the use of hand-held mobile telephones by drivers of commercial motor vehicles (CMVs); and implements new driver disqualification sanctions for drivers of CMVs who fail to comply with this Federal restriction; or who have multiple convictions for violating a State or local law or ordinance on motor vehicle traffic control that restricts the use of hand-held mobile telephones. Additionally, motor carriers are prohibited from requiring or allowing drivers of CMVs to use hand-held mobile telephones.

The use of hand-held mobile telephones means, µµXVLQJ DW OHDVW RQH KDQG WR KROG D PRELOH WHOHSKRQH WR FRQGXFW D YRLFH FRPPXQLFDWLRQ³GLDOLQJ D PRELOH telephone by pressing more than a singl H EXWWRQ RU ³PRYLQJ IURP D VHDWHG GULYLQJ SRVLWLRQ ZKLOH restrained by a seat belt to reach for a mobile WHOHSKRQH´ ,I \RX FKRRVH WR XVH D PRELOH SKRQH while operating a CMV, you may only use a hands free mobile phone that is located close to you and that can be operated in compliance with the rule to conduct a voice communication.

Your CDL will be disqualified after two or more convictions of any state law on hand-held mobile telephone use while operating a CMV. Disqualification is 60 days for the second offense within 3 years and 120 days for three or more offenses within 3 years. In addition, the first and each subsequent violation of such a prohibition are subject to civil penalties imposed on such drivers, in an amount up to $2,750. Motor carriers must not allow nor require drivers to use a hand-held mobile telephone while driving. Employers may also be subject to civil penalties in an amount up to $11,000. There is an emergency exception that allows you to use your hand-held mobile telephones if necessary to communicate with law enforcement officials or other emergency services.

Research shows that the odds of being involved in a safety-critical event (e.g., crash, near-crash, unintentional lane deviation) is 6 times greater for CMV drivers who engage in dialing a mobile telephone while driving than for those who do not. Dialing drivers took their eyes off the forward roadway for an average of 3.8 seconds. At 55 mph (or 80.7 feet per second), this equates to a driver traveling 306 feet, the approximate length of a football field, without looking at the roadway.

Your primary responsibility is to operate a motor vehicle safely. To do this, you must focus your full attention on the driving task.

Note that hands-free devices are no less likely than hand-held cell phones to cause you to become distracted. Attention is diverted from the driving task while using either device.

2.9.5 ±Texting

49 CFR Part 383, 384, 390, 391, 392, the Federal Motor Carrier Safety Regulations (FMCSR) prohibits texting by commercial motor vehicle (CMV) drivers while operating in interstate commerce; and implements new driver disqualification sanctions for drivers of CMVs who fail to comply with this Federal prohibition; or who have multiple convictions for violating a State or local law or ordinance on motor vehicle traffic control that prohibits texting while driving. Additionally, motor carriers are prohibited from requiring or allowing their drivers to engage in texting while driving.

Texting means manually entering text into, or reading text from, an electronic device. This includes, but is not limited to, short message service, e-mailing, instant messaging, a command or request to access a World Wide Web page, or engaging in any other form of electronic text retrieval or entry, for present or future communication.

Electronic device includes, but is not limited to, a cellular telephone; personal digital assistant; pager; computer; or any other device used to enter, write, send, receive, or read text.

Your CDL will be disqualified after two or more convictions of any state law on texting while operating a CMV. Disqualification is 60 days for the second offense within 3 years and 120 days for three or more offenses within 3 years. In addition, the first and each subsequent violation of such a prohibition are subject to civil penalties imposed on such drivers, in an amount up to $2,750. No motor carrier shall allow or require its drivers to engage in texting while driving. There is an emergency exception that allows you text if necessary to communicate with law enforcement officials or other emergency services.

Evidence suggests that text messaging is even riskier than talking on a cell phone because it requires you to look at a small screen and PDQLSXODWH WKH NHDS.DTEZIWK RQH hands. Texting is the most alarming distraction because it involves both physical and mental distraction simultaneously.

Research shows that the odds of being involved in a safety-critical event (e.g., crash, near-crash, unintentional lane deviation) is 23.2 times greater

for CMV drivers who engage in texting while driving than for those who do not. Sending or receiving text takes your eyes from the road for an average of 4.6 seconds. At 55 mph, you would travel 371 feet, or the length of an entire football field ±without looking at the roadway.

2.9.6 ±'RQ¶W 'ULYH 'LVWUDFWHG

Your goal should be to eliminate all in-vehicle distractions before driving begins. Accomplishing this goal can be done by:

Assessing all potential in-vehicle distractions before driving

Developing a preventative plan to reduce/eliminate possible distractions

Expecting distractions to occur

Discussing possible scenarios before getting behind the wheel

Based on the assessment of potential distractions, you can formulate a preventative plan to reduce/eliminate possible distractions.

If drivers react a half-second slower because of distractions, crashes double. Some tips to follow so \RX ZRQ¶W EHFRPH GLVWUDFWHG

Turn off all communication devices.

If you must use a mobile phone, make sure it is within close proximity, that it is operable while you are restrained, use an earpiece or the speaker phone function, use voice-activated dialing; or use the hands-free feature. Drivers are <u>not</u> in compliance if they unsafely reach for a mobile phone, even if they intend to use the hands-free function.

Do not type or read a text message on a mobile device while driving.

)DPLOLDUL]H \RXUVHOI ZLWK \RXU YHKLFOH DQG LWV equipment, before you get behind the wheel.

Adjust all vehicle controls and mirrors to your preferences prior to driving.

Pre-program radio stations and pre-load your favorite CDs.

Clear the vehicle of any unnecessary objects and secure cargo.

Review maps, program the GPS and plan your route before you begin driving.

'RQ¶W attempt to read or write while you drive.

Avoid smoking, eating and drinking while you drive. Leave early to allow yourself time to stop to eat.

'RQ¶W HQJDJH LQ FRPSOH[RU HPR conversations with other occupants.

Secure commitment from other occupants to behave responsibly and to support the driver in reducing distractions.

2.9.7 ±Watch Out for Other Distracted Drivers

You need to be able to recognize other drivers who are engaged in any form of driving distraction. Not recognizing other distracted drivers can prevent you from perceiving or reacting correctly in time to prevent a crash. Watch for:

Vehicles that may drift over the lane divider lines or within their own lane.

Vehicles traveling at inconsistent speeds.

Drivers who are preoccupied with maps, food, cigarettes, cell phones, or other objects.

Drivers who appear to be involved in conversations with their passengers.

Give a distracted driver plenty of room and maintain your safe following distance.

Be very careful when passing a driver who seems to be distracted. The other driver may not be aware of your presence, and they may drift in front of you.

2.10 ±Aggressive Drivers/Road Rage

2.10.1 ±What Is It?

Aggressive driving and road rage is not a new SUREOHP +RZHYHU LQ WRGD\¶V ZR and slow-moving traffic and tight schedules are the norm, more and more drivers are taking out their anger and frustration in their vehicles.

Crowded roads leave little room for error, leading to suspicion and hostility among drivers and increasing the likelihood that drivers will take personally the mistakes of other drivers.

Aggressive driving is the act of operating a motor vehicle in a selfish, bold, or pushy manner, without regard for the rights or safety of others (i.e. changing lanes frequently and abruptly without notice)..

Road rage is operating a motor vehicle with the intent of doing harm to others or physically assaulting a driver or their vehicle.

2.10.2 ±'RQ¶W %H DQ $JJUHVVLYH 'ULYH

How you feel before you even start your vehicle has a lot to do with how stress will affect you while driving.

Reduce your stress before and while you drive.
/LVWHQ WR ³HDV\ OLVWHQLQJ´ PXVLF

*LYH WKH GULYH \RXU IXOO DWWHQWLRQ 'RQ¶W distract yourself to become distracted by talking on your cell phone, eating, etc.

Be realistic about your travel time. Expect delays because of traffic, construction, or bad weather and make allowances.

,I \RX¶UH JRLQJ WR EH ODWH, WKDW \RX H[SHFWHG with it. Take a deep breath and accept the delay.

Give other drivers the benefit of the doubt. Try to imagine why he or she is driving that way. Whatever their reason, it has nothing to do with you.

Slow down and keep your following distance reasonable.

'RQ¶W GULYH VORZO\ LQ WKH OHIW ODQH RI WUDIILF

Avoid gestures. Keep your hands on the wheel. Avoid making any gestures that might anger another driver, even seemingly harmless expressions of irritation like shaking your head.

Be a cautious and courteous driver. If another GULYHU VHHPV HDJHU WR JHW LQ IURQW RI \RX ´ P\ JXHVW ´ 7KLV will soon become a habit DQG \RX ZRQ¶W EH DV RIIHQGHG E\ RWKHU actions.

2.10.3 ±What You Should Do When Confronted by an Aggressive Driver

First and foremost, make every attempt to get out of their way.

Put your pride in the back seat. Do not challenge them by speeding up or attempting to hold-your-own in your travel lane.

Avoid eye contact.

Ignore gestures and refuse to react to them.

Report aggressive drivers to the appropriate authorities by providing a vehicle description, license number, location and, if possible, direction of travel.

If you have a cell phone, and can do it safely, call the police.

If an aggressive driver is involved in a crash farther down the road, stop a safe distance from the crash scene, wait for the police to arrive, and report the driving behavior that you witnessed.

Subsections 2.9 and 2.10
'RQ¶W Knowledge Q

1. :KDW DUH VRPH WLSV WR IROOR become a distracted driver?
2. How do you use in-vehicle communications equipment cautiously?
3. How do you recognize a distracted driver?
4. What is the difference between aggressive driving and road rage?
5. What should you do when confronted with an aggressive driver?
6. What are some things you can do to reduce your stress before and while you drive?

These questions may be on t KH WHVW ,I \RX F answer them all, re-read subsections 2.9 and 2.10.

2.11 ±Driving at Night

2.11.1 ±It's More Dangerous

You are at greater risk when you drive at night. Drivers can't see hazards as quickly as in daylight, so they have less time to respond. Drivers caught by surprise are less able to avoid a crash.
The problems of night driving involve the driver, the roadway, and the vehicle.

2.11.2 ±Driver Factors

Vision. Good vision is critical for safe driving. Your control of the brake, accelerator, and steering wheel is based on what you see. If you cannot see clearly, you will have trouble identifying traffic and roadway conditions, spotting potential trouble or responding to problems in a timely manner.

Because seeing well is so critical to safe driving, you should have your eyes checked regularly by an eye specialist. You may never know you have poor vision unless your eyes are tested. If you need to wear glasses or contact lenses for driving, remember to:

Always wear them when driving, even if driving short distances. If your driver license says corrective lenses are required, it is illegal to move a vehicle without using corrective lenses.

Keep an extra set of corrective lenses in your vehicle. If your normal corrective lenses are broken or lost, you can use the spare lenses to drive safely.

Avoid using dark or tinted corrective lenses at night, even if you think they help with glare. Tinted lenses cut down the light that you need to see clearly under night driving conditions.

Glare. Drivers can be blinded for a short time by bright light. . It can take several seconds to recover from glare. Even two seconds of glare blindness can be dangerous. A vehicle going 55 mph will travel more than half the distance of a football field during that time.

Fatigue and Lack of Alertness. Fatigue is physical or mental tiredness that can be caused by physical or mental strain, repetitive tasks, illness or lack of sleep. Just like alcohol and drugs, it impairs your vision and judgment.

Fatigue causes errors related to speed and distance, increases your risk of being in a crash, causes you to not see and react to hazards as quickly; and affects your ability to make critical decisions. When you are fatigued, you could fall asleep behind the wheel and crash, injuring or killing yourself or others.

Fatigued or drowsy driving is one of the leading causes of traffic collisions. NHTSA estimates that 100,000 police-reported crashes a year are the result of drowsy driving. According to the National SOHHS)RXQGDWLRQ¶V 6OHHS LQ $PHULFD SROO 60% of Americans have driven while feeling sleepy and more than one third (36 percent or 103 million people) admit to having actually fallen asleep at the wheel. Drivers may experience short bursts of sleep lasting only a few seconds or fall asleep for longer periods of time. Either way, the chance of a collision increases dramatically.

At-Risk Groups

The risk of having a crash due to drowsy driving is not uniformly distributed across the population. Crashes tend to occur at times when sleepiness is most pronounced, for example, during the night and in the mid-afternoon. Most people are less alert at night, especially after midnight. This is particularly true if you have been driving for a long time. Thus individuals who drive at night are much more likely to have fall-asleep crashes.

Research has identified young males, shift workers, commercial drivers, especially long-haul drivers and people with untreated sleep disorders or with short-term or chronic sleep deprivation as being at increased risk for having a fall-asleep crash. At least 15% of all heavy truck crashes involve fatigue.

A congressionally mandated study of 80 long-haul truck drivers in the United States and Canada found that drivers averaged less than 5 hours of sleep per day. (Federal Motor Carrier Safety Administration, 1996) It is no surprise then that the National Transportation Safety Board (NTSB) reported that drowsy driving was probably the cause of more than half of crashes leading to a truck dr LYHU¶V GHDW (NTSB, 1990) For each truck driver fatality, another three to four people are killed. (NHTSA, 1994)

Warning Signs of Fatigue

According to the National Sleep Foundation's Sleep in America poll, 60% of Americans have driven while feeling sleepy and 36% admit to actually having fallen asleep at the wheel in the past year. However, many people cannot tell if or when they are about to fall asleep. Here are some signs that should tell you to stop and rest:

Difficulty focusing, frequent blinking or heavy eyelids

Yawning repeatedly or rubbing eyes

Day-dreaming; or wandering/disconnected thoughts

Trouble remembering the last few miles driven; missing exits or traffic signs

Trouble keeping head up

Drifting from your lane, following too closely or hitting a shoulder rumble strip

Feeling restless and irritable

If you notice any of these signs, you need to stop driving to take a nap. Driving while tired is more dangerous than most drivers think. It is a major cause of fatal accidents. If you notice any signs of fatigue, stop driving and go to sleep for the night or take a 15 ±20 minute nap.

Are You At Risk?

Before you drive, consider whether you are:

Sleep-deprived or fatigued (6 hours of sleep or less triples your risk)

Suffering from sleep loss (insomnia), poor quality sleep, or a sleep debt

Driving long distances without proper rest breaks

Driving through the night, mid-afternoon or when you would normally be asleep. Many heavy motor vehicle accidents occur between midnight and 6 a.m.

Taking sedating medications (antidepressants, cold tablets, antihistamines)

Working more than 60 hours a week (increases your risk by 40%)

Working more than one job, and your main job involves shift work

Driving alone or on a long, rural, dark or boring road

Flying, changing time zone

Preventing drowsiness before a trip:

Get adequate sleep ±adults need 8 to 9 hours to maintain alertness

Prepare route carefully to identify total distance, stopping points and other logistic considerations

Schedule trips for the hours you are normally awake, not the middle of the night

Drive with a passenger

Avoid medications that cause drowsiness

Consult your physician if you suffer from daytime sleepiness, have difficulty sleeping at night or take frequent naps

Incorporate exercise into your daily life to give you more energy.

Maintaining aler tness while driving:

Protect yourself from glare and eyestrain with sunglasses

Keep cool by opening the window or using the air conditioner

Avoid heavy foods

Be aware of down time during the day

Have another person ride with you, and take turns driving

Take periodic breaks ±about every 100 miles or 2 hours during long trips

Stop driving and get some rest or take a nap

Caffeine consumption can increase awareness for a few hours, but do not drink too much. It will eventually wear off. Do not rely on caffeine to prevent fatigue

Avoid drugs. While they may keep you awake for a ZKLOH WKH\ ZRQ¶W PDNH \RX DOHUW

If you are drowsy, the only safe cure is to get off the road and get some sleep. If you don't, you risk your life and the lives of others.

2.11.3 ±Roadway Factors

Poor Lighting. In the daytime there is usually enough light to see well. This is not true at night. Some areas may have bright street lights, but many areas will have poor lighting. On most roads you will probably have to depend entirely on your headlights.

Less light means you will not be able to see hazards as well as in daytime. Road users who do not have lights are hard to see. There are many accidents at night involving pedestrians, joggers, bicyclists, and animals.

Even when there are lights, the road scene can be confusing. Traffic signals and hazards can be hard to see against a background of signs, shop windows, and other lights.
Drive slower when lighting is poor or confusing.
Drive slowly enough to be sure you can stop in the distance you can see ahead.

Drunk Drivers. Drunk drivers and drivers under the influence of drugs are a hazard to themselves and to you. Be especially alert around the closing times for bars and taverns. Watch for drivers who have trouble staying in their lane or maintaining speed, who stop without reason, or show other signs of being under the influence of alcohol or drugs.

2.11.4 ±Vehicle Factors

Headlights. At night your headlights will usually be the main source of light for you to see by and for others to see you. You can't see nearly as much with your headlights as you see in the daytime. With low beams you can see ahead about 250 feet and with high beams about 350-500 feet. You must adjust your speed to keep your stopping distance within your sight distance. This means going slowly enough to be able to stop within the range of your headlights. Otherwise, by the time you see a hazard, you will not have time to stop.

Night driving can be more dangerous if you have problems with your headlights. Dirty headlights may give only half the light they should. This cuts down your ability to see, and makes it harder for others to see you. Make sure your lights are clean and working. Headlights can be out of adjustment. If they don't point in the right direction, they won't give you a good view and they can blind other drivers. Have a qualified person make sure they are adjusted properly.

Other Lights. In order for you to be seen easily, the following must be clean and working properly:

Reflectors.

Marker lights.

Clearance lights.

Taillights.

Identification lights.

Turn Signals and Brake Lights. At night your turn signals and brake lights are even more important for telling other drivers what you intend to do. Make sure you have clean, working turn signals and stop lights.

Windshield and Mirrors. It is more important at night than in the daytime to have a clean windshield

and clean mirrors. Bright lights at night can cause dirt on your windshield or mirrors to create a glare of its own, blocking your view. Most people have experienced driving toward the sun just as it has risen or is about to set, and found that they can barely see through a windshield that seemed to look OK in the middle of the day. Clean your windshield on the inside and outside for safe driving at night.

2.11.5 ±Night Driving Procedures

Vehicle Procedures. Make sure you are rested and alert. If you are drowsy, sleep before you drive! Even a nap can save your life or the lives of others. If you wear eyeglasses, make sure they are clean and unscratched. Don't wear sunglasses at night. Do a complete Vehicle inspection of your vehicle. Pay attention to checking all lights and reflectors, and cleaning those you can reach.

Avoid Blinding Others. Glare from your headlights can cause problems for drivers coming toward you. They can also bother drivers going in the same direction you are, when your lights shine in their rearview mirrors. Dim your lights before they cause glare for other drivers. Dim your lights within 500 feet of an oncoming vehicle and when following another vehicle within 500 feet.

Avoid Glare from Oncoming Vehicles. Do not look directly at lights of oncoming vehicles. Look slightly to the right at a right lane or edge marking, if available. If other drivers don't put their low beams on, don't try to "get back at them" by putting your own high beams on. This increases glare for oncoming drivers and increases the chance of a crash.

Use High Beams When You Can. Some drivers make the mistake of always using low beams. This seriously cuts down on their ability to see ahead. Use high beams when it is safe and legal to do so. Use them when you are not within 500 feet of an approaching vehicle. Also, don't let the inside of your cab get too bright. This makes it harder to see outside. Keep the interior light off, and adjust your instrument lights as low as you can to still be able to read the gauges.

If You Get Sleepy, Stop at the Nearest Safe Place. People often don't realize how close they are to falling asleep even when their eyelids are falling shut. If you can safely do so, look at yourself in a mirror. If you look sleepy, or you just feel sleepy, stop driving! You are in a very dangerous condition. The only safe cure is to sleep.

2.12 ±Driving in Fog

Fog can occur at any time. Fog on highways can be extremely dangerous. Fog is often unexpected, and visibility can deteriorate rapidly. You should watch for foggy conditions and be ready to reduce your speed. Do not assume that the fog will thin out after you enter it.

The best advice for G U L Y L Q J L Q I R J L V G R preferable that you pull off the road into a rest area or truck stop until visibility is better. If you must drive, be sure to consider the following:

Obey all fog-related warning signs.

Slow down before you enter fog.

Use low-beam headlights and fog lights for best visibility even in daytime, and be alert for other drivers who may have forgotten to turn on their lights.

Turn on your 4-way flashers. This will give vehicles approaching you from behind a quicker opportunity to notice your vehicle.

Watch for vehicles on the side of the roadway. Seeing taillights or headlights in front of you may not be a true indication of where the road is ahead of you. The vehicle may not be on the road at all.

Use roadside highway reflectors as guides to determine how the road may curve ahead of you.

Listen for traffic you cannot see.

Avoid passing other vehicles.

'R Q ¶ W V W R S D O R Q J W K H V L G H R I W K absolutely necessary.

2.13 ±Driving in Winter

2.13.1 ±Vehicle Checks

Make sure your vehicle is ready before driving in winter weather. You should make a regular Vehicle inspection, paying extra attention to the following items.

Coolant Level and Antifreeze Amount. Make sure the cooling system is full and there is enough antifreeze in the system to protect against freezing. This can be checked with a special coolant tester.

Defrosting and Heating Equipment. Make sure the defrosters work. They are needed for safe driving. Make sure the heater is working, and that you know how to operate it. If you use other heaters and expect to need them (e.g., mirror heaters, battery box heaters, fuel tank heaters), check their operation.

Wipers and Washers. Make sure the windshield wiper blades are in good condition. Make sure the wiper blades press against the window hard enough to wipe the windshield clean, otherwise they may not sweep off snow properly. Make sure the windshield washer works and there is washing fluid in the washer reservoir.

Use windshield washer antifreeze to prevent freezing of the washer liquid. If you can't see well enough while driving (for example, if your wipers fail), stop safely and fix the problem.

Tires. Make sure you have enough tread on your tires. The drive tires must provide traction to push the rig over wet pavement and through snow. The steering tires must have traction to steer the vehicle. Enough tread is especially important in winter conditions. You must have at least 4/32 inch tread depth in every major groove on front tires and at least 2/32 inch on other tires. More would be better. Use a gauge to determine if you have enough tread for safe driving.

Tire Chains. You may find yourself in conditions where you can't drive without chains, even to get to a place of safety. Carry the right number of chains and extra cross-links. Make sure they will fit your drive tires. Check the chains for broken hooks, worn or broken cross-links, and bent or broken side chains. Learn how to put the chains on before you need to do it in snow and ice.

Lights and Reflectors. Make sure the lights and reflectors are clean. Lights and reflectors are especially important during bad weather. Check from time to time during bad weather to make sure they are clean and working properly.

Windows and Mirrors. Remove any ice, snow, etc., from the windshield, windows, and mirrors before starting. Use a windshield scraper, snow brush, and windshield defroster as necessary.

Hand Holds, Steps, and Deck Plates. Remove all ice and snow from hand holds, steps, and deck plates. This will reduce the danger of slipping.

Radiator Shutters and Winterfront. Remove ice from the radiator shutters. Make sure the winterfront is not closed too tightly. If the shutters freeze shut or the winterfront is closed too much, the engine may overheat and stop.

Exhaust System. Exhaust system leaks are especially dangerous when cab ventilation may be poor (windows rolled up, etc.). Loose connections could permit poisonous carbon monoxide to leak into your vehicle. Carbon monoxide gas will cause you to be sleepy. In large enough amounts it can kill you. Check the exhaust system for loose parts and for sounds and signs of leaks.

2.13.2 ±Driving

Slippery Surfaces. Drive slowly and smoothly on slippery roads. If it is very slippery, you shouldn't drive at all. Stop at the first safe place.

Start Gently and Slowly. When first starting, get the feel of the road. Don't hurry.

Check for Ice. Check for ice on the road, especially bridges and overpasses. A lack of spray from other vehicles indicates ice has formed on the road. Also, check your mirrors and wiper blades for ice. If they have ice, the road most likely will be icy as well.

Adjust Turning and Braking to Conditions. Make turns as gently as possible. Don't brake any harder than necessary, and don't use the engine brake or speed retarder. (They can cause the driving wheels to skid on slippery surfaces.)

Adjust Speed to Conditions. Don't pass slower vehicles unless necessary. Go slowly and watch far enough ahead to keep a steady speed. Avoid having to slow down and speed up. Take curves at slower speeds and don't brake while in curves. Be aware that as the temperature rises to the point where ice begins to melt, the road becomes even more slippery. Slow down more.

Adjust Space to Conditions. Don't drive alongside other vehicles. Keep a longer following distance. When you see a traffic jam ahead, slow down or stop to wait for it to clear. Try hard to anticipate stops early and slow down gradually. Watch for snowplows, as well as salt and sand trucks, and give them plenty of room.

Wet Brakes. When driving in heavy rain or deep standing water, your brakes will get wet. Water in the brakes can cause the brakes to be weak, to apply unevenly, or to grab. This can cause lack of braking power, wheel lockups, pulling to one side or the other, and jackknife if you pull a trailer.

Avoid driving through deep puddles or flowing water if possible. If not, you should:

Slow down and place transmission in a low gear.

Gently put on the brakes. This presses linings against brake drums or discs and keeps mud, silt, sand, and water from getting in.

Increase engine rpm and cross the water while keeping light pressure on the brakes.

When out of the water, maintain light pressure on the brakes for a short distance to heat them up and dry them out.

Make a test stop when safe to do so. Check behind to make sure no one is following, then apply the brakes to be sure they work well. If not, dry them out further as described above.
(CAUTION: Do not apply too much brake pressure and accelerator at the same time, or you can overheat brake drums and linings.

2.14 ±Driving in Very Hot Weather

2.14.1 ±Vehicle Checks

Do a normal Vehicle inspection, but pay special attention to the following items.

Tires. Check the tire mounting and air pressure. Inspect the tires every two hours or every 100 miles when driving in very hot weather. Air pressure increases with temperature. Do not let air out or the pressure will be too low when the tires cool off. If a tire is too hot to touch, remain stopped until the tire cools off. Otherwise the tire may blow out or catch fire.

Engine Oil. The engine oil helps keep the engine cool, as well as lubricating it. Make sure there is enough engine oil. If you have an oil temperature gauge, make sure the temperature is within the proper range while you are driving.

Engine Coolant. Before starting out, make sure the engine cooling system has enough water and antifreeze according to the engine manufacturer's directions. (Antifreeze helps the engine under hot conditions as well as cold conditions.) When driving, check the water temperature or coolant temperature gauge from time to time. Make sure that it remains in the normal range. If the gauge goes above the highest safe temperature, there may be something wrong that could lead to engine failure and possibly fire. Stop driving as soon as safely possible and try to find out what is wrong.

Some vehicles have sight glasses, see-through coolant overflow containers, or coolant recovery containers. These permit you to check the coolant level while the engine is hot. If the container is not part of the pressurized system, the cap can be safely removed and coolant added even when the engine is at operating temperature.
Never remove the radiator cap or any part of the pressurized system until the system has cooled. Steam and boiling water can spray under pressure and cause severe burns. If you can touch the radiator cap with your bare hand, it is probably cool enough to open.

If coolant has to be added to a system without a recovery tank or overflow tank, follow these steps:

Shut engine off.

Wait until engine has cooled.

Protect hands (use gloves or a thick cloth).

Turn radiator cap slowly to the first stop, which releases the pressure seal.

Step back while pressure is released from cooling system.

When all pressure has been released, press down on the cap and turn it further to remove it.

Visually check level of coolant and add more coolant if necessary.

Replace cap and turn all the way to the closed position.

Engine Belts. Learn how to check v-belt tightness on your vehicle by pressing on the belts. Loose belts will not turn the water pump and/or fan properly. This will result in overheating. Also, check belts for cracking or other signs of wear.

Hoses. Make sure coolant hoses are in good condition. A broken hose while driving can lead to engine failure and even fire.

2.14.2 ±Driving

Watch for Bleeding Tar. Tar in the road pavement frequently rises to the surface in very hot weather. Spots where tar "bleeds" to the surface are very slippery.

Go Slowly Enough to Prevent Overheating. High speeds create more heat for tires and the engine. In desert conditions the heat may build up to the point where it is dangerous. The heat will increase chances of tire failure or even fire, and engine failure.

Subsections 2.11, 2.12, 2.13, and 2.14
Test Your Knowledge

1. You should use low beams whenever you can. True or False?
2. What should you do before you drive if you are drowsy?
3. What effects can wet brakes cause? How can you avoid these problems?
4. You should let air out of hot tires so the pressure goes back to normal. True or False?
5. You can safely remove the radiator cap as long as the engine isn't overheated. True or False?

7KHVH TXHVWLRQV PD\ EH RQ WKH WHVW answer all of them, re-read subsections 2.11, 2.12, 2.13, and 2.14.

2.15 ±Railroad -highway Crossings

Railroad-highway grade crossings are a special kind of intersection where the roadway crosses train tracks. These crossings are always dangerous. Every such crossing must be approached with the expectation that a train is coming. It is extremely difficult to judge the distance of the train from the crossing as well as the speed of an approaching train.

2.15.1 ±Types of Crossings

Passive Crossings. This type of crossing does not have any type of traffic control device. The decision to stop or proceed rests entirely in your hands. Passive crossings require you to recognize the crossing, search for any train using the tracks and decide if there is sufficient clear space to cross safely.

Active Crossings. This type of crossing has a traffic control device installed at the crossing to regulate traffic at the crossing. These active devices include flashing red lights, with or without bells and flashing red lights with bells and gates.

2.15.2 ±Warning Signs and Devices

Advance Warning Signs. The round, black-on-yellow warning sign is placed ahead of a public railroad-highway crossing. The advance warning sign tells you to slow down, look and listen for the train, and be prepared to stop at the tracks if a train is coming. All passenger and hazmat carrying vehicles are required to stop. See Figure 2.15.

Figure 2.15

Pavement Markings. Pavement markings mean the same as the advance warning sign. They consist RI DQ ³;´ ZLWK WZR VKRUW ZKLWH OLQHV SDLQWHG DQR marking on two-lane roads. See Figure 2.16.

Figure 2.16

There is also a no passing zone sign on two-lane roads. There may be a white stop line painted on the pavement before the railroad tracks. The front of the school bus must remain behind this line while stopped at the crossing.

Cross -buck Signs. This sign marks the grade crossing. It requires you to yield the right-of-way to the train. If there is no white stop line painted on the pavement, vehicles that are required to stop must stop no closer than 15 feet or more than 50 feet from the nearest rail of the nearest track. When the road crosses over more than one track, a sign below the cross-buck indicates the number of tracks. See Figure 2.17.

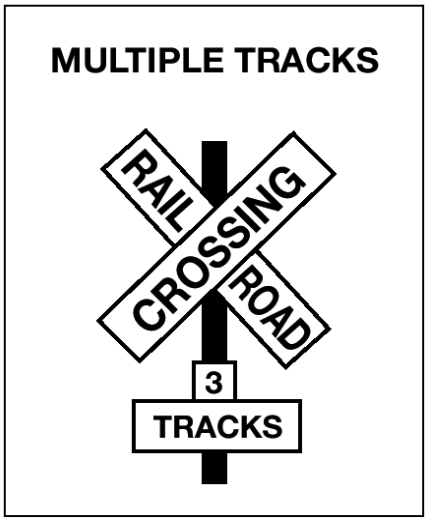


Figure 2.17

Flashing R ed Light Signals. At many highway-rail grade crossings, the cross-buck sign has flashing red lights and bells. When the lights begin to flash, stop! A train is approaching. You are required to yield the right-of-way to the train. If there is more

than one track, make sure all tracks are clear before crossing. See Figure 2.18.

Gates. Many railroad-highway crossings have gates with flashing red lights and bells. Stop when the lights begin to flash and before the gate lowers across the road lane. Remain stopped until the gates go up and the lights have stopped flashing. Proceed when it is safe. See Figure 2.18.

Figure 2.18

2.15.3 ±Driving Procedures

Never Race a Train to a Crossing. Never attempt to race a train to a crossing. It is extremely difficult to judge the speed of an approaching train.

Reduce Speed. Speed must be reduced in accordance with your ability to see approaching trains in any direction, and speed must be held to a point which will permit you to stop short of the tracks in case a stop is necessary.

Don't Expect to Hear a Train. Trains may not or are prohibited from sounding horns when approaching some crossings. Public crossings where trains do not sound horns should be identified by signs. Noise inside your vehicle may, also prevent you from hearing the train horn until the train is dangerously close to the crossing.

Don't Rely on Signals. You should not rely solely upon the presence of warning signals, gates, or flagmen to warn of the approach of trains. Be especially alert at crossings that do not have gates or flashing red light signals.

Double Tracks Require a Double Check. Remember that a train on one track may hide a train on the other track. Look both ways before crossing. After one train has cleared a crossing, be sure no other trains are near before starting across the tracks.

Yard Areas and Grade Crossings in Cities and Towns. Yard areas and grade crossings in cities and towns are just as dangerous as rural grade crossings. Approach them with as much caution.

2.15.4 ± Stopping Safely at Railroad - highway Crossings

A full stop is required at grade crossings whenever:

The nature of the cargo makes a stop mandatory under state or federal regulations.

Such a stop is otherwise required by law.

When stopping be sure to:

Check for traffic behind you while stopping gradually. Use a pullout lane, if available.

Turn on your four-way emergency flashers.

2.15.5 ±Crossing the Tracks

Railroad crossings with steep approaches can cause your unit to hang up on the tracks.

Never permit traffic conditions to trap you in a position where you have to stop on the tracks. Be sure you can get all the way across the tracks before you start across. It takes a typical tractor-trailer unit at least 14 seconds to clear a single track and more than 15 seconds to clear a double track.

Do not shift gears while crossing railroad tracks.

2.15.6 ±Special Situations

Be Aware! These trailers can get stuck on raised crossings:

Low slung units (lowboy, car carrier, moving van, possum-belly livestock trailer).

Single-axle tractor pulling a long trailer with its landing gear set to accommodate a tandem-axle tractor.

If for any reason you get stuck on the tracks, get out of the vehicle and away from the tracks. Check signposts or signal housing at the crossing for emergency notification information. Call 911 or other emergency number. Give the location of the crossing using all identifiable landmarks, especially the DOT number, if posted.

2.16 ±Mountain Driving

In mountain driving, gravity plays a major role. On any upgrade, gravity slows you down. The steeper the grade, the longer the grade, and/or the heavier the load--the more you will have to use lower gears to climb hills or mountains. In coming down long, steep downgrades, gravity causes the speed of your vehicle to increase. You must select an appropriate safe speed, then use a low gear, and proper braking techniques. You should plan ahead and obtain information about any long, steep grades along your planned route of travel. If possible, talk to other drivers who are familiar with the grades to find out what speeds are safe.

You must go slowly enough so your brakes can hold you back without getting too hot. If the brakes become too hot, they may start to "fade." This means you have to apply them harder and harder to get the same stopping power. If you continue to use the brakes hard, they can keep fading until you cannot slow down or stop at all.

2.16.1 ±Select a "Safe" Speed

Your most important consideration is to select a speed that is not too fast for the:

Total weight of the vehicle and cargo.

Length of the grade.

Steepness of the grade.

Road conditions.

Weather.

If a speed limit is posted, or there is a sign indicating "Maximum Safe Speed," never exceed the speed shown. Also, look for and heed warning signs indicating the length and steepness of the grade.

You must use the braking effect of the engine as the principal way of controlling your speed. The braking effect of the engine is greatest when it is near the governed rpms and the transmission is in the lower gears. Save your brakes so you will be able to slow or stop as required by road and traffic conditions.

2.16.2 ±Select the Right Gear before Starting Down the Grade

Shift the transmission to a low gear before starting down the grade. Do not try to downshift after your speed has already built up. You will not be able to shift into a lower gear. You may not even be able to get back into any gear and all engine braking effect will be lost. Forcing an automatic transmission into a lower gear at high speed could damage the transmission and also lead to loss of all engine braking effect.

With older trucks, a rule for choosing gears is to use the same gear going down a hill that you would need to climb the hill. However, new trucks have low friction parts and streamlined shapes for fuel economy. They may also have more powerful engines. This means they can go up hills in higher gears and have less friction and air drag to hold them back going down hills. For that reason, drivers of modern trucks may have to use lower gears going down a hill than would be required to go up the hill. You should know what is right for your vehicle.

2.16.3 ±Brake Fading or Failure

Brakes are designed so brake shoes or pads rub against the brake drum or disks to slow the vehicle. Braking creates heat, but brakes are designed to take a lot of heat. However, brakes can fade or fail from excessive heat caused by using them too much and not relying on the engine braking effect. Brake fade is also affected by adjustment. To safely control a vehicle, every brake must do its share of the work. Brakes out of adjustment will stop doing their share before those that are in adjustment. The other brakes can then overheat and fade, and there will not be enough braking available to control the vehicle. Brakes can get out of adjustment quickly, especially when they are used a lot; also, brake linings wear faster when they are hot. Therefore, brake adjustment must be checked frequently.

2.16.4 ±Proper Braking Technique

Remember. The use of brakes on a long and/or steep downgrade is only a supplement to the braking effect of the engine. Once the vehicle is in the proper low gear, the following are the proper braking techniques:

Apply the brakes just hard enough to feel a definite slowdown.

When your speed has been reduced to approximately five mph below your "safe" speed, release the brakes. (This brake application should last for about three seconds.)

When your speed has increased to your "safe" speed, repeat steps 1 and 2.

For example, if your "safe" speed is 40 mph, you would not apply the brakes until your speed reaches 40 mph. You now apply the brakes hard enough to gradually reduce your speed to 35 mph and then release the brakes. Repeat this as often as necessary until you have reached the end of the downgrade.

Escape ramps have been built on many steep mountain downgrades. Escape ramps are made to stop runaway vehicles safely without injuring drivers and passengers. Escape ramps use a long bed of

loose, soft material to slow a runaway vehicle, sometimes in combination with an upgrade.

Know escape ramp locations on your route. Signs show drivers where ramp are located. Escape ramps save lives, equipment and cargo.

Subsections 2.15 and 2.16 Test Your Knowledge

1. What factors determine your selection of a "safe" speed when going down a long, steep downgrade?
2. Why should you be in the proper gear before starting down a hill?
3. Describe the proper braking technique when going down a long, steep downgrade.
4. What type of vehicles can get stuck on a railroad-highway crossing?
5. How long does it take for a typical tractor-trailer unit to clear a double track?

7KHVH TXHVWLRQV PD\ EH RQ WKH WHVW ,I \RX FDQ¶W answer them all, re-read subsections 2.15 and 2.16.

2.17 ±Driving Emergencies

Traffic emergencies occur when two vehicles are about to collide. Vehicle emergencies occur when tires, brakes, or other critical parts fail. Following the safety practices in this manual can help prevent emergencies. But if an emergency does happen, your chances of avoiding a crash depend upon how well you take action. Actions you can take are discussed below.

2.17.1 ±Steering to Avoid a Crash

Stopping is not always the safest thing to do in an emergency. When you don't have enough room to stop, you may have to steer away from what's ahead. Remember, you can almost always turn to miss an obstacle more quickly than you can stop. (However, top-heavy vehicles and tractors with multiple trailers may flip over.)

Keep Both Hands on the Steering Wheel. In order to turn quickly, you must have a firm grip on the steering wheel with both hands. The best way to have both hands on the wheel, if there is an emergency, is to keep them there all the time.

How to Turn Quickly and Safely. A quick turn can be made safely, if it's done the right way. Here are some points that safe drivers use:

Do not apply the brake while you are turning. It's very easy to lock your wheels while turning. If that happens, you may skid out of control.

Do not turn any more than needed to clear whatever is in your way. The more sharply you turn, the greater the chances of a skid or rollover.

Be prepared to "counter-steer," that is, to turn the wheel back in the other direction, once you've passed whatever was in your path. Unless you are prepared to counter-steer, you won't be able to do it quickly enough. You should think of emergency steering and counter-steering as two parts of one driving action.

Where to Steer. If an oncoming driver has drifted into your lane, a move to your right is best. If that driver realizes what has happened, the natural response will be to return to his or her own lane.

If something is blocking your path, the best direction to steer will depend on the situation.

If you have been using your mirrors, you'll know which lane is empty and can be safely used. If the shoulder is clear, going right may be best. No one is likely to be driving on the shoulder but someone may be passing you on the left. You will know if you have been using your mirrors.

If you are blocked on both sides, a move to the right may be best. At least you won't force anyone into an opposing traffic lane and a possible head-on collision.

Leaving the Road. In some emergencies, you may have to drive off the road. It may be less risky than facing a collision with another vehicle.

Most shoulders are strong enough to support the weight of a large vehicle and, therefore, offer an available escape route. Here are some guidelines, if you do leave the road.

Avoid Braking. If possible, avoid using the brakes until your speed has dropped to about 20 mph. Then brake very gently to avoid skidding on a loose surface.

Keep One Set of Wheels on the Pavement, if Possible. This helps to maintain control.

Stay on the Shoulder. If the shoulder is clear, stay on it until your vehicle has come to a stop. Signal and check your mirrors before pulling back onto the road.

Returning to the Road. If you are forced to return to the road before you can stop, use the following procedure:

Hold the wheel tightly and turn sharply enough to get right back on the road safely. Don't try to edge gradually back on the road. If you do, your tires might grab unexpectedly and you could lose control.

When both front tires are on the paved surface, counter-steer immediately. The two turns should be made as a single "steer-counter-steer" move.

2.17.2 ±How to Stop Quickly and Safely

If somebody suddenly pulls out in front of you, your natural response is to hit the brakes. This is a good response if there's enough distance to stop, and you use the brakes correctly.

You should brake in a way that will keep your vehicle in a straight line and allow you to turn if it becomes necessary. You can use the "controlled braking" method or the "stab braking" method.

Controlled Braking. With this method, you apply the brakes as hard as you can without locking the wheels. Keep steering wheel movements very small while doing this. If you need to make a larger steering adjustment or if the wheels lock, release the brakes. Re-apply the brakes as soon as you can.

Stab Braking . With this method, you apply your brakes all the way and release brakes when wheels lock up. As soon as the wheels start rolling, apply the brakes fully again. (It can take up to one second for the wheels to start rolling after you release the brakes. If you re-apply the brakes before the wheels start rolling, the vehicle won't straighten out.)

Don't Jam on the Brakes. Emergency braking does not mean pushing down on the brake pedal as hard as you can. That will only keep the wheels locked up and cause a skid. If the wheels are skidding, you cannot control the vehicle.

2.17.3 ±Brake Failure

Brakes kept in good condition rarely fail. Most hydraulic brake failures occur for one of two reasons: (Air brakes are discussed in Section 5.)

Loss of hydraulic pressure.

Brake fade on long hills.

Loss of Hydraulic Pressure. When the system won't build up pressure, the brake pedal will feel spongy or go to the floor. Here are some things you can do.

Downshift. Putting the vehicle into a lower gear will help to slow the vehicle.

Pump the Brakes. Sometimes pumping the brake pedal will generate enough hydraulic pressure to stop the vehicle.

Use the Parking Brake. The parking or emergency brake is separate from the hydraulic brake system. Therefore, it can be used to slow the vehicle. However, be sure to press the release button or pull the release lever at the same time you use the emergency brake so you can adjust the brake pressure and keep the wheels from locking up.

Find an Escape Route. While slowing the vehicle, look for an escape route--an open field, side-street, or escape ramp. Turning uphill is a good way to slow and stop the vehicle. Make sure the vehicle does not start rolling backward after you stop. Put it in low gear, apply the parking brake, and, if necessary, roll back into some obstacle that will stop the vehicle.

Brake Failure on Downgrades. Going slow enough and braking properly will almost always prevent brake failure on long downgrades. Once the brakes have failed, however, you are going to have to look outside your vehicle for something to stop it.

Your best hope is an escape ramp. If there is one, there'll be signs telling you about it. Use it. Ramps are usually located a few miles from the top of the downgrade. Every year, hundreds of drivers avoid injury to themselves or damage to their vehicles by using escape ramps. Some escape ramps use soft gravel that resists the motion of the vehicle and brings it to a stop. Others turn uphill, using the hill to stop the vehicle and soft gravel to hold it in place.

Any driver who loses brakes going downhill should use an escape ramp if it's available. If you don't use it, your chances of having a serious crash may be much greater.

If no escape ramp is available, take the least hazardous escape route you can--such as an open field or a side road that flattens out or turns uphill. Make the move as soon as you know your brakes don't work. The longer you wait, the faster the vehicle will go, and the harder it will be to stop.

2.17.4 ±Tire Failure

Recognize Tire Failure. Quickly knowing you have a tire failure will let you have more time to react. Having just a few extra seconds to remember what it is you're supposed to do can help you. The major signs of tire failure are:

Sound. The loud "bang" of a blowout is an easily recognized sign. Because it can take a few seconds for your vehicle to react, you might think it was some other vehicle. But any time you hear a tire blow, you'd be safest to assume it is yours.

Vibration. If the vehicle thumps or vibrates heavily, it may be a sign that one of the tires has gone flat. With a rear tire, that may be the only sign you get.

Feel. If the steering feels "heavy," it is probably a sign that one of the front tires has failed. Sometimes, failure of a rear tire will cause the vehicle to slide back and forth or "fishtail." However, dual rear tires usually prevent this.

Respond to Tire Failure. When a tire fails, your vehicle is in danger. You must immediately:

Hold the Steering Wheel Firmly. If a front tire fails, it can twist the steering wheel out of your hand. The only way to prevent this is to keep a firm grip on the steering wheel with both hands at all times.

Stay off the Brake. It's natural to want to brake in an emergency. However, braking when a tire has failed could cause loss of control. Unless you're about to run into something, stay off the brake until the vehicle has slowed down. Then brake very gently, pull off the road, and stop.

Check the Tires. After you've come to a stop, get out and check all the tires. Do this even if the vehicle seems to be handling all right. If one of your dual tires goes, the only way you may know it is by getting out and looking at it.

2.18 ±Antilock Braking Systems (ABS)

ABS is a computerized system that keeps your wheels from locking up during hard brake applications.

ABS is an addition to your normal brakes. It does not decrease or increase your normal braking capability. ABS only activates when wheels are about to lock up.

ABS does not necessarily shorten your stopping distance, but it does help you keep the vehicle under control during hard braking.

2.18.1 ±How Antilock Braking Systems Work

Sensors detect potential wheel lock up. An electronic control unit (ECU) will then decrease brake pressure to avoid wheel lockup.

Brake pressure is adjusted to provide the maximum braking without danger of lockup.

ABS works far faster than the driver can respond to potential wheel lockup. At all other times the brake system will operate normally.

2.18.2 ± Vehicles Required to Have Antilock Braking Systems

The Department of Transportation requires that ABS be on:

Truck tractors with air brakes built on or after March 1, 1997.

Other air brake vehicles, (trucks, buses, trailers, and converter dollies) built on or after March 1, 1998.

Hydraulically braked trucks and buses with a gross vehicle weight rating of 10,000 lbs or more built on or after March 1, 1999.

Many commercial vehicles built before these dates have been voluntarily equipped with ABS.

2.18.3 ±How to Know If Your Vehicle Is Equipped with ABS

Tractors, trucks, and buses will have yellow ABS malfunction lamps on the instrument panel.

Trailers will have yellow ABS malfunction lamps on the left side, either on the front or rear corner.

Dollies manufactured on or after March 1, 1998, are required to have a lamp on the left side.
As a system check on newer vehicles, the malfunction lamp comes on at start-up for a bulb check, and then goes out quickly. On older systems, the lamp could stay on until you are driving over five mph.

If the lamp stays on after the bulb check, or goes on once you are under way, you may have lost ABS control.

In the case of towed units manufactured before it was required by the Department of Transportation, it may be difficult to tell if the unit is equipped with ABS. Look under the vehicle for the ECU and wheel speed sensor wires coming from the back of the brakes.

2.18.4 ±How ABS Helps You

When you brake hard on slippery surfaces in a vehicle without ABS, your wheels may lock up. When your steering wheels lock up, you lose steering control. When your other wheels lock up, you may skid, jackknife, or even spin the vehicle.

ABS helps you avoid wheel lock up and maintain control. You may or may not be able to stop faster with ABS, but you should be able to steer around an obstacle while braking, and avoid skids caused by over braking.

2.18.5 ±ABS on the Tractor Only or Only on the Trailer

Having ABS on only the tractor, only the trailer, or even on only one axle, still gives you more control over the vehicle during braking. Brake normally.

When only the tractor has ABS, you should be able to maintain steering control, and there is less chance of jackknifing. But keep your eye on the trailer and let up on the brakes (if you can safely do so) if it begins to swing out.

When only the trailer has ABS, the trailer is less likely to swing out, but if you lose steering control or start a tractor jackknife, let up on the brakes (if you can safely do so) until you regain control.

2.18.6 ±Braking with ABS

When you drive a vehicle with ABS, you should brake as you always have. In other words:

Use only the braking force necessary to stop safely and stay in control.

Brake the same way, regardless of whether you have ABS on the bus, tractor, the trailer, or both.

As you slow down, monitor your tractor and trailer and back off the brakes (if it is safe to do so) to stay in control.

There is only one exception to this procedure. If you drive a straight truck or combination with working ABS on all axles, in an emergency stop, you can fully apply the brakes.

2.18.7 ±Braking If ABS Is Not Working

Without ABS you still have normal brake functions. Drive and brake as you always have.

Vehicles with ABS have yellow malfunction lamps to WHOO \RX LI VRPHWKLQJ LVQ¶W ZRUNL

As a system check on newer vehicles, the malfunction lamp comes on at start-up for a bulb check and then goes out quickly. On older systems, the lamp could stay on until you are driving over five mph.

If the lamp stays on after the bulb check, or goes on once you are under way, you may have lost ABS control on one or more wheels.

Remember, if your ABS malfunctions, you still have regular brakes. Drive normally, but get the system serviced soon.

2.18.8 ±Safety Reminders

$%6 ZRQ¶W DOORZ\RX WRGULYH faster, follow more closely, or drive less carefully.

$%6 ZRQ¶W SUHYHQW SRZHU±ABS RU WXU should prevent brake-induced skids or jackknifes, but not those caused by spinning the drive wheels or going too fast in a turn.

$%6 ZRQ¶W QHFHVVDULO\ VKRUWHQ \ VKRUW distance . ABS will help maintain vehicle control, but not always shorten stopping distance.

$%6 ZRQ¶W LQFUHDVH RU GHFUHDVH stopping power ±$%6 LV D-RQ3DQWR \RXU normal brakes, not a replacement for them.

$%6 ZRQ¶W FKDQJH KRZ\RX normally brake. \R Under normal brake conditions, your vehicle will stop as it always stopped. ABS only comes into play when a wheel would normally have locked up because of over braking.

$%6 ZRQ¶W FRPSHQVDWH IRU EDG EU brake maintenance.

Remember: The best vehicle safety feature is still a safe driver.

Remember: Drive so you never need to use your ABS.

Remember: If you need it, ABS could help to prevent a serious crash.

2.19 ±Skid Control and Recovery

A skid happens whenever the tires lose their grip on the road. This is caused in one of four ways:

Over-braking. Braking too hard and locking up the wheels. Skids also can occur when using the speed retarder when the road is slippery.

Over-steering. Turning the wheels more sharply than the vehicle can turn.

Over-acceleration. Supplying too much power to the drive wheels, causing them to spin.

Driving Too Fast. Most serious skids result from driving too fast for road conditions. Drivers who adjust their driving to conditions don't over-accelerate and don't have to over-brake or over-steer from too much speed.

2.19.1 ±Drive-wheel Skids

By far the most common skid is one in which the rear wheels lose traction through excessive braking or acceleration. Skids caused by acceleration usually happen on ice or snow. Taking your foot off the accelerator can easily stop them. (If it is very slippery, push the clutch in. Otherwise, the engine can keep the wheels from rolling freely and regaining traction.)

Rear wheel braking skids occur when the rear drive wheels lock. Because locked wheels have less traction than rolling wheels, the rear wheels usually slide sideways in an attempt to "catch up" with the front wheels. In a bus or straight truck, the vehicle will slide sideways in a "spin out." With vehicles towing trailers, a drive-wheel skid can let the trailer push the towing vehicle sideways, causing a sudden jackknife. See Figure 2.19.

2.19.2 ±Correcting a Drive-wheel Braking Skid

Do the following to correct a drive-wheel braking skid.

Stop Braking. This will let the rear wheels roll again, and keep the rear wheels from sliding.

Counter-steer. As a vehicle turns back on course, it has a tendency to keep on turning. Unless you turn the steering wheel quickly the other way, you may find yourself skidding in the opposite direction.

Learning to stay off the brake, turn the steering wheel quickly, push in the clutch, and counter-steer in a skid takes a lot of practice. The best place to get this practice is on a large driving range or "skid pad."

2.19.3 ±Front-wheel Skids

Driving too fast for conditions causes most front-wheel skids. Other causes include lack of tread on the front tires and cargo loaded so not enough weight is on the front axle. In a front-wheel skid, the front end tends to go in a straight line regardless of how much you turn the steering wheel. On a very slippery surface, you may not be able to steer around a curve or turn.

When a front-wheel skid occurs, the only way to stop the skid is to let the vehicle slow down. Stop turning and/or braking so hard. Slow down as quickly as possible without skidding.

Figure 2.19

Subsections 2.17, 2.18, and 2.19 Test Your Knowledge

1. Stopping is not always the safest thing to do in an emergency. True or False?
2. What are some advantages of going right instead of left around an obstacle?
3. What is an "escape ramp?"
4. If a tire blows out, you should put the brakes on hard to stop quickly. True or False?
5. How do you know if your vehicle has antilock brakes?
6. What is the proper braking technique when driving a vehicle with antilock brakes?
7. How do antilock brakes help you?

7KHVH TXHVWLRQV PD\ EH RQ WKH answer them all, re-read subsections 2.17, 2.18, and 2.19.

2.20 ±Accident Procedures

When you're in an accident and not seriously hurt, you need to act to prevent further damage or injury. The basic steps to be taken at any accident are to:

Protect the area.

Notify authorities.

Care for the injured.

2.20.1 ±Protect the Area

The first thing to do at an accident scene is to keep another accident from happening in the same spot. To protect the accident area:

If your vehicle is involved in the accident, try to get it to the side of the road. This will help prevent another accident and allow traffic to move.

If you're stopping to help, park away from the accident. The area immediately around the accident will be needed for emergency vehicles.

Put on your flashers.

Set out reflective triangles to warn other traffic. Make sure other drivers can see them in time to avoid the accident.

2.20.2 ±Notify Authorities

If you have a cell phone or CB, call for assistance before you get out of your vehicle. If not, wait until after the accident scene has been properly protected, then phone or send someone to phone the police. Try to determine where you are so you can give the exact location.

2.20.3 ±Care for the Injured

If a qualified person is at the accident and helping the injured, stay out of the way unless asked to assist. Otherwise, do the best you can to help any injured parties. Here are some simple steps to follow in giving assistance:

Don't move a severely injured person unless the danger of fire or passing traffic makes it necessary.

Stop heavy bleeding by applying direct pressure to the wound.

Keep the injured person warm.

2.21 ±Fires

Truck fires can cause damage and injury. Learn the causes of fires and how to prevent them. Know what to do to extinguish fires.

2.21.1 ±Causes of Fire

The following are some causes of vehicle fires:

After Accidents. Spilled fuel, improper use of flares.

Tires. Under-inflated tires and duals that touch.

Electrical System. Short circuits due to damaged insulation, loose connections.

Fuel. Driver smoking, improper fueling, loose fuel connections.

Cargo. Flammable cargo, improperly sealed or loaded cargo, poor ventilation.

2.21.2 ±Fire Prevention

Pay attention to the following:

Vehicle Inspection . Make a complete inspection of the electrical, fuel, and exhaust systems, tires, and cargo. Be sure to check that the fire extinguisher is charged.

En Route Inspection. Check the tires, wheels, and truck body for signs of heat whenever you stop during a trip.

Follow Safe Procedures. Follow correct safety procedures for fueling the vehicle, using brakes, handling flares, and other activities that can cause a fire.

Monitoring. Check the instruments and gauges often for signs of overheating and use the mirrors to look for signs of smoke from tires or the vehicle.

Caution. Use normal caution in handling anything flammable.

2.21.3 ±Fire Fighting

Knowing how to fight fires is important. Drivers who GLGQ¶W NQRZ ZKDW WR GR KDYH PDC how the fire extinguisher works. Study the instructions printed on the extinguisher before you need it. Here are some procedures to follow in case of fire.

Pull Off the Road. The first step is to get the vehicle off the road and stop. In doing so:

Park in an open area, away from buildings, trees, brush, other vehicles, or anything that might catch fire.

Don't pull into a service station!

Notify emergency services of your problem and your location.

Keep the Fire from Spreading. Before trying to put out the fire, make sure that it doesn't spread any further.

With an engine fire , turn off the engine as soon as you can. Don't open the hood if you can avoid it.

Shoot foam through louvers, radiator, or from the Y H K L F O H ¶ V X Q G H U V L G H

For a cargo fire in a van or box trailer , keep the doors shut, especially if your cargo contains hazardous materials. Opening the van doors will supply the fire with oxygen and can cause it to burn very fast.

Extinguis h the Fire. Here are some rules to follow in putting out a fire:

When using the extinguisher, stay as far away from the fire as possible.

Aim at the source or base of the fire, not up in the flames.

Use the Right Fire Extinguisher

Figures 2.20 and 2.21 detail the type of fire extinguisher to use by class of fire.

The B:C type fire extinguisher is designed to work on electrical fires and burning liquids.

The A:B:C type is designed to work on burning wood, paper, and cloth as well.

Water can be used on wood, paper, or cloth, but don't use water on an electrical fire (can cause shock) or a gasoline fire (it will spread the flames).

A burning tire must be cooled. Lots of water may be required.

If you're not sure what to use, especially on a hazardous materials fire, wait for firefighters.

Position yourself upwind. Let the wind carry the extinguisher to the fire.

Continue until whatever was burning has been cooled. Absence of smoke or flame does not mean the fire cannot restart.

Class/Type of Fires	
Class	Type
A	Wood, Paper, Ordinary Combustibles Extinguish by Cooling and Quenching Using Water or Dry Chemicals
B	Gasoline, Oil, Grease, Other Greasy Liquids Extinguish by Smothering, Cooling or Heat Shielding using carbon Dioxide or Dry Chemicals
C	Electrical Equipment Fires Extinguish with Non -conducting Agents such as Carbon Dioxide or Dry Chemicals. DO NOT USE WATER.
D	Fires in Combustible Metals Extinguish by Using Specialized Extinguishing Powders

Figure 2.20

Class of Fire/Type of Extinguisher	
Class of Fire	Fire Extinguisher Type
B or C	Regular Dry Chemical
A, B, C, or D	Multi-Purpose Dry Chemical
D	Purple K Dry Chemical
B or C	KCL Dry Chemical
D	Dry Powder Special Compound
B or C	Carbon Dioxide (Dry)
B or C	Halogenated Agent (Gas)
A	Water
A	Water With Anti-Freeze
A or B	Water, Loaded Steam Style
B, On Some A	Foam

Figure 2.21

Subsections 2.20 and 2.21 Test Your Knowledge

1. What are some things to do at an accident scene to prevent another accident?
2. Name two causes of tire fires.
3. What kinds of fires is a B:C extinguisher not good for?
4. When using your extinguisher, should you get as close as possible to the fire?
5. Name some causes of vehicle fires.

These questions may be on the test. If you can't answer them all, re-read subsections 2.20 and 2.21.

2.22 ±Alcohol, Other Drugs, and Driving

2.22.1 ±Alcohol and Driving

Drinking alcohol and then driving is very dangerous and a serious problem. People who drink alcohol are involved in traffic accidents resulting in over 20,000 deaths every year. Alcohol impairs muscle coordination, reaction time, depth perception, and night vision. It also affects the parts of the brain that control judgment and inhibition. For some people, one drink is all it takes to show signs of impairment.

How Alcohol Works. Alcohol goes directly into the blood stream and is carried to the brain. After passing through the brain, a small percentage is removed in urine, perspiration, and by breathing, while the rest is carried to the liver. The liver can only process one-third an ounce of alcohol per hour, which is considerably less than the alcohol in a standard drink. This is a fixed rate, so only time, not black coffee or a cold shower, will sober you up. If you have drinks faster than your body can get rid of them, you will have more alcohol in your body, and your driving will be more affected. The Blood Alcohol Concentration (BAC) commonly measures the amount of alcohol in your body. See Figure 2.22.

What Is a Dr ink?

It is the alcohol in drinks that affects human performance. It doesn't make any difference whether that alcohol comes from "a couple of EHHUV ´ RU IURP WZR JODVVH of hard liquor. Approximate Blood Alcohol Content

Drinks	Bod y Weight in Pounds								Effects
	100	120	140	160	180	200	220	240	
0	.00	.00	.00	.00	.00	.00	.00	.00	Only Safe Driving Limit
1	.04	.03	.03	.02	.02	.02	.02	.02	Impairment Begins
2	.08	.06	.05	.05	.04	.04	.03	.03	Driving Skills Significantly Affected
3	.11	.09	.08	.07	.06	.06	.05	.05	
4	.15	.12	.11	.09	.08	.08	.07	.06	
5	.19	.16	.13	.12	.11	.09	.09	.08	
6	.23	.19	.16	.14	.13	.11	.10	.09	
7	.26	.22	.19	.16	.15	.13	.12	.11	Legally Intoxicated Criminal Penalties
8	.30	.25	.21	.19	.17	.15	.14	.13	
9	.34	.28	.24	.21	.19	.17	.15	.14	
10	.38	.31	.27	.23	.21	.19	.17	.16	

Subtract .01% for each 40 minutes of drinking. One drink is 1.5 oz. of 80 proof liquor, 12 oz. of beer, or 5 oz. of table wine.

Figure 2.22

All of the following drinks contain the same amount of alcohol:

A 12-ounce glass of 5% beer.

A 5-ounce glass of 12% wine.

A 1 1/2-ounce shot of 80 proof liquor.

What Determines Blood Alcohol Concentration? BAC is determined by the amount of alcohol you drink (more alcohol means higher BAC), how fast you drink (faster drinking means higher BAC), and your weight (a small person doesn't have to drink as much to reach the same BAC).

Alcohol and the Brain. Alcohol affects more and more of the brain as BAC builds up. The first part of the brain affected controls judgment and self-control. One of the bad things about this is it can keep drinkers from knowing they are getting drunk. And, of course, good judgment and self-control are absolutely necessary for safe driving.

As BAC continues to build up, muscle control, vision, and coordination are affected more and more. Effects on driving may include:

Straddling lanes.

Quick, jerky starts.

Not signaling, failure to use lights.

Running stop signs and red lights.

Improper passing (See Figure 2.23).

These effects mean increased chances of a crash and chances of losing your driver's license. Accident statistics show that the chance of a crash is much greater for drivers who have been drinking than for drivers who have not.

How Alcohol Affects Driving. All drivers are affected by drinking alcohol. Alcohol affects judgment, vision, coordination, and reaction time. It causes serious driving errors, such as:

Increased reaction time to hazards.

Driving too fast or too slow.

Driving in the wrong lane.

Running over the curb.

Weaving.

Effects Of Increa sing Blood Alcohol Content		
Blood Alcohol Content is the amount of alcohol in your blood recorded in milligrams of alcohol per 100 milliliters of blood. Your BAC depends on the amount of blood (which increases with weight) and the amount of alcohol you consume over time (how fast you drink). The faster you drink, the higher your BAC, as the liver can only handle about one drink per hour ² the rest builds up in your blood.		
BAC	Effects on Body	Effects on Driving Condition
.02	Mellow feeling, slight body warmth.	Less inhibited.
.05	Noticeable relaxation.	Less alert, less self-focused, coordination impairment begins.
.08	Definite impairment in coordination & judgment	Drunk driving limit, impaired coordination & judgment.
.10*	Noisy, possible embarrassing behavior, mood swings.	Reduction in reaction time.
.15	Impaired balance & movement, clearly drunk.	Unable to drive.
.30	Many lose consciousness.	
.40	Most lose consciousness, some die.	
.50	Breathing stops, many die.	
BAC of .10 means that 1/10 of 1 % (or 1/1000) of your total blood content is alcohol.		

Figure 2.23

2.22.2 ±Other Drugs

Besides alcohol, other legal and illegal drugs are being used more often. Laws prohibit possession or use of many drugs while on duty. They prohibit being under the influence of any "controlled substance," amphetamines (including "pep pills," ³XSSHUV´ DQG EHQQLHV QDUFRV substance, which can make the driver unsafe. This could include a variety of prescription and over-the-counter drugs (cold medicines), which may make the driver drowsy or otherwise affect safe driving ability. However, possession and use of a drug given to a driver by a doctor is permitted if the doctor informs the driver that it will not affect safe driving ability.

Pay attention to warning labels for legitimate drugs and medicines, and to doctor's orders regarding possible effects. Stay away from illegal drugs.
Don't use any drug that hides fatigue--the only cure for fatigue is rest. Alcohol can make the effects of other drugs much worse. The safest rule is don't mix drugs with driving at all.

Use of drugs can lead to traffic accidents resulting in death, injury, and property damage. Furthermore, it can lead to arrest, fines, and jail sentences. It can also mean the end of a person's driving career.

2.22.3 ±Illness

Once in a while, you may become so ill that you cannot operate a motor vehicle safely. If this happens to you, you must not drive. However, in case of an emergency, you may drive to the nearest place where you can safely stop.

2.23 ±Hazardous Materials Rules For All Commercial Drivers

All drivers should know something about hazardous materials. You must be able to recognize hazardous cargo, and you must know whether or not you can haul it without having a hazardous materials endorsement on your CDL license.

2.23.1 ±What Are Hazardous Materials?

Hazardous materials are products that pose a risk to health, safety, and property during transportation. See Figure 2.24.

2.23.2 ±Why Are There Rules?

You must follow the many rules about transporting hazardous materials. The intent of the rules is to:

Contain the product.

Communicate the risk.

Ensure safe drivers and equipment.

To Contain the Product. Many hazardous products can injure or kill on contact. To protect drivers and others from contact, the rules tell shippers how to package safely. Similar rules tell drivers how to load, transport, and unload bulk tanks. These are containment rules.

To Communicate the Risk. The shipper uses a shipping paper and diamond shaped hazard labels to warn dockworkers and drivers of the risk.

Hazard Class Definitions		
Class	Class Name	Example
1	Explosives	Ammunition, Dynamite, Fireworks
2	Gases	Propane, Oxygen, Helium
3	Flammable	Gasoline, Acetone
4	Flammable Solids	Matches, Fuses
5	Oxidizers	Ammonium Nitrate, Hydrogen Peroxide
6	Poisons	Pesticides, Arsenic
7	Radioactive	Uranium, Plutonium
8	Corrosives	Hydrochloric Acid, Battery Fluid
9	Miscellaneous Hazardous Materials	Formaldehyde, Asbestos
None	ORM-D (Other Regulated Material-Domestic)	Hair Spray or Charcoal
None	Combustible Liquids	Fuel Oils, Lighter Fluid

Figure 2.24

After an accident or hazardous material spill or leak, you may be injured and unable to communicate the hazards of the materials you are transporting. Firefighters and police can prevent or reduce the amount of damage or injury at the scene if they know what hazardous materials are being transported. Your life, and the lives of others, may depend on quickly locating the hazardous materials shipping papers. For that reason, you must identify shipping papers related to hazardous materials or keep them on top of other shipping papers. You must also keep shipping papers:

In a pouch on the driver's door, or

In clear view within reach while driving, or

On the driver's seat when out of the vehicle.

2.23.3 ±Lists of Regulated Products

Placards are used to warn others of hazardous materials. Placards are signs put on the outside of a vehicle that identify the hazard class of the cargo. A placarded vehicle must have at least four identical placards. They are put on the front, rear, and both sides.

Placards must be readable from all four directions. They must be at least ´ P Pinches square, turned upright on a point, in a diamond shape. Cargo tanks and other bulk packaging display the identification number of their contents on placards or orange panels.

Identification Numbers are a four digit code used by first responders to identify hazardous materials. An identification number may be used to identify more than one chemical on shipping papers. The identification number will be preceded by the letters ³1$´ RU ³81´ 7KH 86 '27 (PHUJHQF\ 5HVSRQVH Guidebook (ERG) lists the chemicals and the identification numbers assigned to them.

Not all vehicles carrying hazardous materials need to have placards. The rules about placards are given in Section 9 of this manual. You can drive a vehicle that carries hazardous materials if it does not require placards. If it requires placards, you cannot drive it unless your driver license has the hazardous materials endorsement. See Figure 2.25.

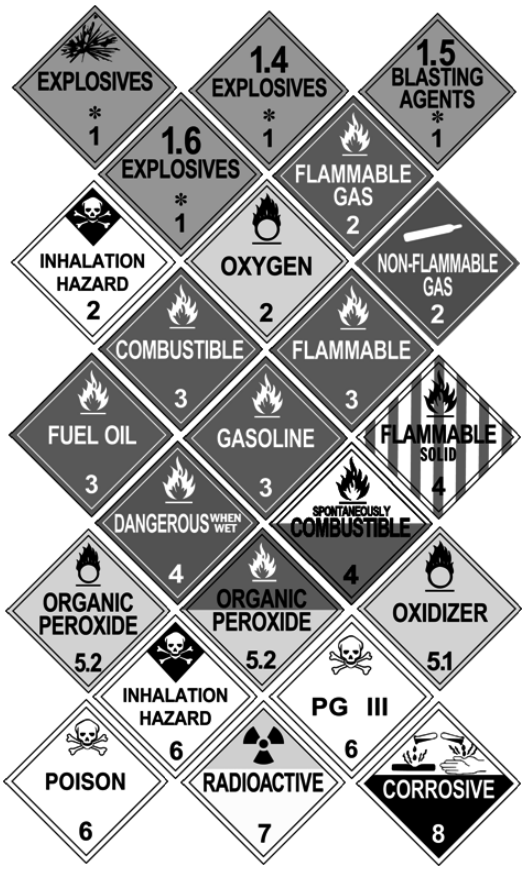


Figure 2.25

The rules require all drivers of placarded vehicles to learn how to safely load and transport hazardous products. They must have a commercial driver license with the hazardous materials endorsement. To get the required endorsement, you must pass a written test on material found in Section 9 of this manual. A tank endorsement is required for any commercial vehicle that is designed to transport any liquid or gaseous materials in a tank or tanks having an individual rated capacity of more than 119 gallons and an aggregate capacity of 1,000 gallons or more that is either permanently or temporarily attached to the vehicle or chassis. The liquid or gas does not have to be a hazardous material.

Drivers who need the hazardous materials endorsement must learn the placard rules. If you do not know if your vehicle needs placards, ask your employer. Never drive a vehicle needing placards unless you have the hazardous materials endorsement. To do so is a crime. When stopped, you will be cited and you will not be allowed to drive your truck. It will cost you time and money. A failure to placard when needed may risk your life and others if you have an accident. Emergency help will not know of your hazardous cargo.

Hazardous materials drivers must also know which products they can load together, and which they cannot. These rules are also in Section 9. Before loading a truck with more than one type of product, you must know if it is safe to load them together. If you do not know, ask your employer and consult the regulations.

Subsections 2.22 and 2.23 Test Your Knowledge

1. Common medicines for colds can make you sleepy. True or False?
2. Coffee and a little fresh air will help a drinker sober up. True or False?
3. What is a hazardous materials placard?
4. Why are placards used?

These questions may be on the test. If you can't answer them all, re-read subsections 2.22 and 2.23.

THIS PAGE INTENTIONALLY LEFT BL ANK.

Section 3
TRANSPORTING CARGO SAFELY

This Section Covers

- Inspecting Cargo
- Cargo Weight and Balance
- Securing Cargo
- Cargo Needing Special Attention

This section tells you about hauling cargo safely. You must understand basic cargo safety rules to get a CDL.

If you load cargo wrong or do not secure it, it can be a danger to others and yourself. Loose cargo that falls off a vehicle can cause traffic problems and others could be hurt or killed. Loose cargo could hurt or kill you during a quick stop or crash. Your vehicle could be damaged by an overload. Steering could be affected by how a vehicle is loaded, making it more difficult to control the vehicle.

Whether or not you load and secure the cargo yourself, you are responsible for:

Inspecting your cargo.

Recognizing overloads and poorly balanced weight.

Knowing your cargo is properly secured and does not obscure your view ahead or to the sides.

Knowing your cargo does not restrict your access to emergency equipment.

If you intend to carry hazardous material that requires placards on your vehicle, you will also need to have a hazardous materials endorsement. Section 9 of this manual has the information you need to pass the hazardous materials test.

3.1 ±Inspecting Cargo

As part of your Vehicle inspection, make sure the truck is not overloaded and the cargo is balanced and secured properly.

After Starting. Inspect the cargo and its securing devices again within the first 50 miles after beginning a trip. Make any adjustments needed.

Re-check. Re-check the cargo and securing devices as often as necessary during a trip to keep the load secure. You need to inspect again:

After you have driven for 3 hours or 150 miles.

After every break you take during driving.

Federal, state, and local regulations for commercial vehicle weight, securing cargo, covering loads, and where you can drive large vehicles vary from place to place. Know the rules where you will be driving.

3.2 ±Weight and Balance

You are responsible for not being overloaded. The following are some definitions of weight you should know.

3.2.1 ±Definitions You Should Know

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

Gross Combination Weight Rating (GCWR). The value specified by the manufacturer of the power unit, if the value is displayed on the Federal Motor Vehicle Safety Standard (FMVSS) certification label; or the sum of the gross vehicle weight ratings (GVWRs) or the gross vehicle weights (GVWs) of the power unit and the towed unit(s), or any combination thereof, that produces the highest value.

(The underlined and italicized text above is for use by roadside enforcement only to determine whether the driver/vehicle is subject to CDL regulation s. It is not us ed to determine whether a vehicle is representative for the purposes of Skills testing).

Axle Weight. The weight transmitted to the ground by one axle or one set of axles.

Tire Load. The maximum safe weight a tire can carry at a specified pressure. This rating is stated on the side of each tire.

Suspension Systems. Suspension systems have a manufacturer's weight capacity rating.

Coupling Device Capacity. Coupling devices are rated for the maximum weight they can pull and/or carry.

3.2.2 ±Legal Weight Limits

You must keep weights within legal limits. States have maximums for GVWRs, GCWRs, and axle weights. Often, maximum axle weights are set by a bridge formula. A bridge formula permits less maximum axle weight for axles that are closer

together. This is to prevent overloading bridges and roadways.

Overloading can have bad effects on steering, braking, and speed control. Overloaded trucks have to go very slowly on upgrades. Worse, they may gain too much speed on downgrades. Stopping distance increases. Brakes can fail when forced to work too hard.

During bad weather or in mountains, it may not be safe to operate at legal maximum weights. Take this into account before driving.

3.2.3 ±Don't Be Top -heavy

The height of the vehicle's center of gravity is very important for safe handling. A high center of gravity (cargo piled up high or heavy cargo on top) means you are more likely to tip over. It is most dangerous in curves, or if you have to swerve to avoid a hazard. It is very important to distribute the cargo so it is as low as possible. Put the heaviest parts of the cargo under the lightest parts.

3.2.4 ±Balance the Weight

Poor weight balance can make vehicle handling unsafe. Too much weight on the steering axle can cause hard steering. It can damage the steering axle and tires. Under-loaded front axles (caused by shifting weight too far to the rear) can make the steering axle weight too light to steer safely. Too little weight on the driving axles can cause poor traction. The drive wheels may spin easily. During bad weather, the truck may not be able to keep going. Weight that is loaded so there is a high center of gravity causes greater chance of rollover. On flat bed vehicles, there is also a greater chance that the load will shift to the side or fall off. See Figure 3.1.

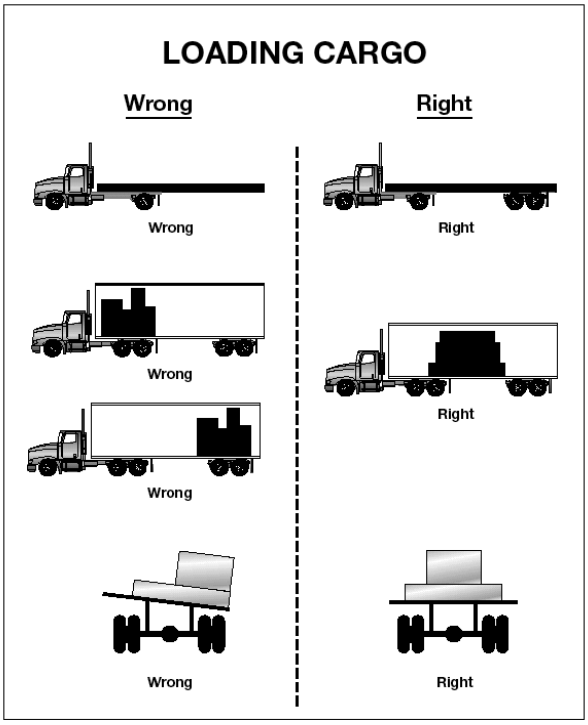


Figure 3.1

3.3 ±Securing Cargo

3.3.1 ±Blocking and Bracing

Blocking is used in the front, back, and/or sides of a piece of cargo to keep it from sliding. Blocking is shaped to fit snugly against cargo. It is secured to the cargo deck to prevent cargo movement. Bracing is also used to prevent movement of cargo. Bracing goes from the upper part of the cargo to the floor and/or walls of the cargo compartment.

3.3.2 ±Cargo Tie -down

On flatbed trailers or trailers without sides, cargo must be secured to keep it from shifting or falling off. In closed vans, tie-downs can also be important to prevent cargo shifting that may affect the handling of the vehicle. Tie-downs must be of the proper type and proper strength. Federal regulations require the aggregate working load limit of any securement system used to secure an article or group of articles against movement must be at least one-half times the weight of the article or group of articles. Proper tie-down equipment must be used, including ropes, straps, chains, and tensioning devices (winches, ratchets, clinching components). Tie-downs must be attached to the vehicle correctly (hooks, bolts, rails, rings). See figure 3.2.

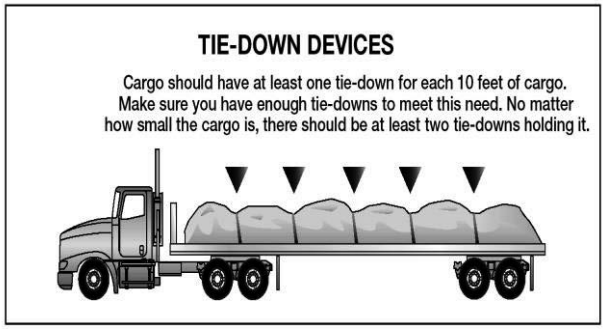


Figure 3.2

Cargo should have at least one tie-down for each ten feet of cargo. Make sure you have enough tie-downs to meet this need. No matter how small the cargo, it should have at least two tie-downs.

There are special requirements for securing various heavy pieces of metal. Find out what they are if you are to carry such loads.

3.3.3 ±Header Boards

Front-end header boards ("headache racks") protect you from your cargo in case of a crash or emergency stop. Make sure the front-end structure is in good condition. The front-end structure should block the forward movement of any cargo you carry.

3.3.4 ±Covering Cargo

There are two basic reasons for covering cargo:

To protect people from spilled cargo.

To protect the cargo from weather.

Spill protection is a safety requirement in many states. Be familiar with the laws in the states you drive in.

You should look at your cargo covers in the mirrors from time to time while driving. A flapping cover can tear loose, uncovering the cargo, and possibly block your view or someone else's.

3.3.5 ±Sealed and Containeri zed Loads

Containerized loads generally are used when freight is carried part way by rail or ship. Delivery by truck occurs at the beginning and/or end of the journey. Some containers have their own tiedown devices or locks that attach directly to a special frame. Others have to be loaded onto flatbed trailers. They must be properly secured just like any other cargo.

You cannot inspect sealed loads, but you should check that you don't exceed gross weight and axle weight limits.

3.4 ±Cargo Needing Special Attention

3.4.1 ±Dry Bulk

Dry bulk tanks require special care because they have a high center of gravity, and the load can shift. Be extremely cautious (slow and careful) going around curves and making sharp turns.

3.4.2 ±Hanging Meat

Hanging meat (suspended beef, pork, lamb) in a refrigerated truck can be a very unstable load with a high center of gravity. Particular caution is needed on sharp curves such as off ramps and on ramps. Go slowly.

3.4.3 ±Livestock

Livestock can move around in a trailer, causing unsafe handling. With less than a full load, use false bulkheads to keep livestock bunched together. Even when bunched, special care is necessary because livestock can lean on curves. This shifts the center of gravity and makes rollover more likely.

3.4.4 ±Oversized Loads

Over-length, over-width, and/or overweight loads require special transit permits. Driving is usually limited to certain times. Special equipment may be necessary such as "wide load" signs, flashing lights, flags, etc. Such loads may require a police escort or pilot vehicles bearing warning signs and/or flashing lights. These special loads require special driving care.

Section 3
Test Your Knowledge

1. What four things related to cargo are drivers responsible for?
2. How often must you stop while on the road to check your cargo?
3. How is Gross Combination Weight Rating different from Gross Combination Weight?
4. Name two situations where legal maximum weights may not be safe.
5. What can happen if you don't have enough weight on the front axle?
6. What is the minimum number of tie-downs for any flatbed load?
7. What is the minimum number of tie-downs for a 20-foot load?
8. Name the two basic reasons for covering cargo on an open bed.
9. What must you check before transporting a sealed load?

These questions may be on your test. If you can't answer them all, re-read Section 3.

THIS PAGE INTENTIONALLY LEFT BLANK.

Section 4 TRANSPORTING PASSENGERS SAFELY

This Section Covers

- Vehicle Inspection
- Loading
- On the Road
- After-trip Vehicle Inspection
- Prohibited Practices
- Use of Brake-door Interlocks

Bus drivers must have a commercial driver license if they drive a vehicle designed to seat more than 16 or more persons, including the driver.

Bus drivers must have a passenger endorsement on their commercial driver license. To get the endorsement you must pass a knowledge test on Sections 2 and 4 of this manual. (If your bus has air brakes, you must also pass a knowledge test on Section 5.) You must also pass the skills tests required for the class of vehicle you drive.

4.1 ±Vehicle Inspection

Before driving your bus, you must be sure it is safe. You must review the inspection report made by the previous driver. Only if defects reported earlier have been certified as repaired or not needed to be repaired, should you sign the previous driver's report. This is your certification that the defects reported earlier have been fixed.

4.1.1 ±Vehicle Systems

Make sure these things are in good working order before driving:

Service brakes, including air hose couplings (if your bus has a trailer or semitrailer).

Parking brake.

Steering mechanism.

Lights and reflectors.

Tires (front wheels must not have recapped or re-grooved tires).

Horn.

Windshield wiper or wipers.

Rear-vision mirror or mirrors.

Coupling devices (if present).

Wheels and rims.

Emergency equipment.

Make sure your bus has the fire extinguisher and emergency reflectors (3 reflective triangles or at least 6 fusees or 3 liquid burning flares) required by law. The bus must also have spare electrical fuses, unless equipped with circuit breakers.

4.1.2 ±Access Doors and Panels

As you check the outside of the bus, close any open emergency exits. Also, close any open access panels (for baggage, restroom service, engine, etc.) before driving.

4.1.3 ±Bus Interior

People sometimes damage unattended buses. Always check the interior of the bus before driving to ensure rider safety. Aisles and stairwells should always be clear. The following parts of your bus must be in safe working condition:

Each handhold and railing.

Floor covering.

Signaling devices, including the restroom emergency buzzer, if the bus has a restroom.

Emergency exit handles.

The seats must be safe for riders. All seats must be securely fastened to the bus.

Never drive with an open emergency exit door or window. The "Emergency Exit" sign on an emergency door must be clearly visible. If there is a red emergency door light, it must work. Turn it on at night or any other time you use your outside lights.

4.1.4 ±Roof Hatches

You may lock some emergency roof hatches in a partly open position for fresh air. Do not leave them open as a regular practice. Keep in mind the bus's higher clearance while driving with them open.

4.1.5 ±Use Your Seatbelt!

The driver's seat should have a seat belt. Always use it for safety.

4.2 ±Loading and Trip Start

Do not allow riders to leave carry-on baggage in a doorway or aisle. There should be nothing in the aisle that might trip other riders. Secure baggage and freight in ways that avoid damage and:

Allow the driver to move freely and easily.

Allow riders to exit by any window or door in an emergency.

Protect riders from injury if carry-ons fall or shift.

4.2.1 ±Hazardous Materials

Watch for cargo or baggage containing hazardous materials. Most hazardous materials cannot be carried on a bus.

The Federal Hazardous Materials Table shows which materials are hazardous. They pose a risk to health, safety, and property during transportation. The rules require shippers to mark containers of hazardous material with the material's name, identification number, and hazard label. There are nine different four-inch, diamond-shaped hazard labels. See Figure 4.1. Watch for the diamond-shaped labels. Do not transport any hazardous material unless you are sure the rules allow it.

Hazard Class Definitions		
Class	Class Name	Example
1	Explosives	Ammunition, Dynamite, Fireworks
2	Gases	Propane, Oxygen, Helium
3	Flammable	Gasoline, Acetone
4	Flammable Solids	Matches, Fuses
5	Oxidizers	Ammonium Nitrate, Hydrogen Peroxide
6	Poisons	Pesticides, Arsenic
7	Radioactive	Uranium, Plutonium
8	Corrosives	Hydrochloric Acid, Battery Acid
9	Miscellaneous Hazardous Materials	Formaldehyde, Asbestos
None	ORM-D (Other Regulated Material-Domestic)	Hair Spray or Charcoal
None	Combustible Liquids	Fuel Oils, Lighter Fluid

Figure 4.1

4.2.2 ±Forbidden Hazardous Materials

Buses may carry small-arms ammunition labeled ORM-D, emergency hospital supplies, and drugs. You can carry small amounts of some other hazardous materials if the shipper cannot send them any other way. Buses must never carry:

Division 2.3 poison gas, liquid Class 6 poison, tear gas, irritating material.

More than 100 pounds of solid Class 6 poisons.

Explosives in the space occupied by people, except small arms ammunition.

Labeled radioactive materials in the space occupied by people.

More than 500 pounds total of allowed hazardous materials, and no more than 100 pounds of any one class.

Riders sometimes board a bus with an unlabeled hazardous material. Do not allow riders to carry on common hazards such as car batteries or gasoline.

4.2.3 ±Standee Line

No rider may stand forward of the rear of the driver's seat. Buses designed to allow standing must have a two-inch line on the floor or some other means of showing riders where they cannot stand. This is called the standee line. All standing riders must stay behind it.

4.2.4 ±At Your Destination

When arriving at the destination or intermediate stops announce:

The location.

Reason for stopping.

Next departure time.

Bus number.

Remind riders to take carry-ons with them if they get off the bus. If the aisle is on a lower level than the seats, remind riders of the step-down. It is best to tell them before coming to a complete stop.

Charter bus drivers should not allow riders on the bus until departure time. This will help prevent theft or vandalism of the bus.

4.3 ±On the Road

4.3.1 ±Passenger Supervision

Many charter and intercity carriers have passenger comfort and safety rules. Mention rules about smoking, drinking, or use of radio and tape players at the start of the trip. Explaining the rules at the start will help to avoid trouble later on.

While driving, scan the interior of your bus as well as the road ahead, to the sides, and to the rear. You

may have to remind riders about rules, or to keep arms and heads inside the bus.

4.3.2 ±At Stops

Riders can stumble when getting on or off, and when the bus starts or stops. Caution riders to watch their step when leaving the bus. Wait for them to sit down or brace themselves before starting. Starting and stopping should be as smooth as possible to avoid rider injury.

Occasionally, you may have a drunk or disruptive rider. You must ensure this rider's safety as well as that of others. Don't discharge such riders where it would be unsafe for them. It may be safer at the next scheduled stop or a well-lighted area where there are other people. Many carriers have guidelines for handling disruptive riders.

4.3.3 ±Common Accidents

The Most Common Bus Accidents. Bus accidents often happen at intersections. Use caution, even if a signal or stop sign controls other traffic. School and mass transit buses sometimes scrape off mirrors or hit passing vehicles when pulling out from a bus stop. Remember the clearance your bus needs, and watch for poles and tree limbs at stops. Know the size of the gap your bus needs to accelerate and merge with traffic. Wait for the gap to open before leaving the stop. Never assume other drivers will brake to give you room when you signal or start to pull out.

4.3.4 ±Speed on Curves

Crashes on curves that kill people and destroy buses result from excessive speed, often when rain or snow has made the road slippery. Every banked curve has a safe "design speed." In good weather, the posted speed is safe for cars but it may be too high for many buses. With good traction, the bus may roll over; with poor traction, it might slide off the curve. Reduce speed for curves! If your bus leans toward the outside on a banked curve, you are driving too fast.

4.3.5 ±Railroad -highway Crossing / Stops

Stop at RR Crossings:

Stop your bus between 15 and 50 feet before railroad crossings.

Listen and look in both directions for trains. You should open your forward door if it improves your ability to see or hear an approaching train.

Before crossing after a train has passed, make sure there isn't another train coming in the other direction on other tracks.

If your bus has a manual transmission, never change gears while crossing the tracks.

You do not have to stop, but must slow down and carefully check for other vehicles:

At streetcar crossings.

Where a policeman or flagman is directing traffic.

If a traffic signal is green.

At crossings marked as "exempt" or "abandoned."

4.3.6 ±Drawbridges

Stop at Drawbridges. Stop at drawbridges that do not have a signal light or traffic control attendant. Stop at least 50 feet before the draw of the bridge. Look to make sure the draw is completely closed before crossing. You do not need to stop, but must slow down and make sure it's safe, when:

There is a traffic light showing green.

The bridge has an attendant or traffic officer who controls traffic whenever the bridge opens.

4.4 ±After -trip Vehicle Inspection

Inspect your bus at the end of each shift. If you work for an interstate carrier, you must complete a written inspection report for each bus driven. The report must specify each bus and list any defect that would affect safety or result in a breakdown. If there are no defects, the report should say so.

Riders sometimes damage safety-related parts such as handholds, seats, emergency exits, and windows. If you report this damage at the end of a shift, mechanics can make repairs before the bus goes out again. Mass transit drivers should also make sure passenger signaling devices and brake-door interlocks work properly.

4.5 ±Prohibited Practices

Avoid fueling your bus with riders on board unless absolutely necessary. Never refuel in a closed building with riders on board.

Don't talk with riders, or engage in any other distracting activity, while driving.

Do not tow or push a disabled bus with riders aboard the vehicle, unless getting off would be unsafe. Only tow or push the bus to the nearest safe spot to discharge passengers. Follow your employer's guidelines on towing or pushing disabled buses.

4.6 ±Use of Brake -door Interlocks

Urban mass transit coaches may have a brake and accelerator interlock system. The interlock applies the brakes and holds the throttle in idle position when the rear door is open. The interlock releases when you close the rear door. Do not use this safety feature in place of the parking brake.

Section 4
Test Your Knowledge

1. Name some things to check in the interior of a bus during a Vehicle inspection.
2. What are some hazardous materials you can transport by bus?
3. : K D W D U H V R P H K D] D U G R X V P D W H U L D O V \ R X F D Q ¶ W transport by bus?
4. What is a standee line?
5. Does it matter where you make a disruptive passenger get off the bus?
6. How far from a railroad crossing should you stop?
7. When must you stop before crossing a drawbridge?
8. ' H V F U L E H I U R P P H P R U \ W K H ³ S U R K L E L W H G S U D F W L F H V ´ O L V W H G L Q W K H P D Q X D O
9. The rear door of a transit bus has to be open to put on the parking brake. True or False?

7 K H V H T X H V W L R Q V P D \ E H R Q \ R X U W H V W , I \ R X F D Q ¶ W answer them all, re-read Section 4.

Section 5
AIR BRAKES

This Section Covers

- Air Brake System Parts
- Dual Air Brake Systems
- Inspecting Air Brakes
- Using Air Brakes

This section tells you about air brakes. If you want to drive a truck or bus with air brakes, or pull a trailer with air brakes, you need to read this section. If you want to pull a trailer with air brakes, you also need to read Section 6, Combination Vehicles.

Air brakes use compressed air to make the brakes work. Air brakes are a good and safe way of stopping large and heavy vehicles, but the brakes must be well maintained and used properly.

Air brakes are really three different braking systems: service brake, parking brake, and emergency brake.

The service brake system applies and releases the brakes when you use the brake pedal during normal driving.

The parking brake system applies and releases the parking brakes when you use the parking brake control.

The emergency brake system uses parts of the service and parking brake systems to stop the vehicle in a brake system failure.

The parts of these systems are discussed in greater detail below.

5.1 ±The Parts of an Air Brake System

There are many parts to an air brake system. You should know about the parts discussed here.

5.1.1 ±Air Compressor

The air compressor pumps air into the air storage tanks (reservoirs). The air compressor is connected to the engine through gears or a v-belt. The compressor may be air cooled or may be cooled by the engine cooling system. It may have its own oil supply or be lubricated by engine oil. If the compressor has its own oil supply, check the oil level before driving.

5.1.2 ±Air Compressor Governor

The governor controls when the air compressor will pump air into the air storage tanks. When air tank pressure rises to the "cut-out" level (around 125 pounds per-square-inch or "psi"), the governor stops the compressor from pumping air. When the tank pressure falls to the "cut-in" pressure (around 100 psi), the governor allows the compressor to start pumping again.

5.1.3 ±Air Storage Tanks

Air storage tanks are used to hold compressed air. The number and size of air tanks varies among vehicles. The tanks will hold enough air to allow the brakes to be used several times, even if the compressor stops working.

5.1.4 ±Air Tank Drains

Compressed air usually has some water and some compressor oil in it, which is bad for the air brake system. For example, the water can freeze in cold weather and cause brake failure. The water and oil tend to collect in the bottom of the air tank. Be sure that you drain the air tanks completely. Each air tank is equipped with a drain valve in the bottom. There are two types:

Manually operated by turning a quarter turn or by pulling a cable. You must drain the tanks yourself at the end of each day of driving. See Figure 5.1.

Automatic--the water and oil are automatically expelled. These tanks may be equipped for manual draining as well.

Automatic air tanks are available with electric heating devices. These help prevent freezing of the automatic drain in cold weather.

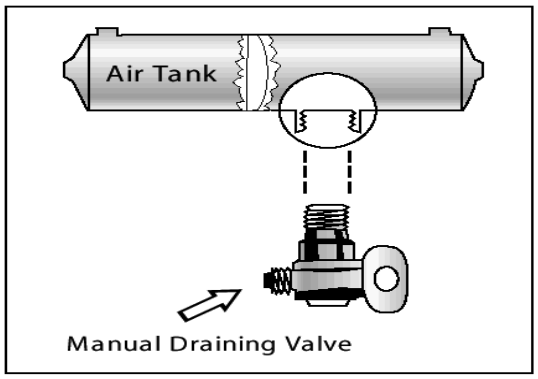


Figure 5.1

5.1.5 ±Alcohol Evaporator

Some air brake systems have an alcohol evaporator to put alcohol into the air system. This helps to reduce the risk of ice in air brake valves and other parts during cold weather. Ice inside the system can make the brakes stop working.

Check the alcohol container and fill up as necessary, every day during cold weather. Daily air tank drainage is still needed to get rid of water and oil. (Unless the system has automatic drain valves.)

5.1.6 ±Safety Valve

A safety relief valve is installed in the first tank the air compressor pumps air to. The safety valve protects the tank and the rest of the system from too much pressure. The valve is usually set to open at 150 psi. If the safety valve releases air, something is wrong. Have the fault fixed by a mechanic.

5.1.7 ±The Brake Pedal

You put on the brakes by pushing down the brake pedal. (It is also called the foot valve or treadle valve.) Pushing the pedal down harder applies more air pressure. Letting up on the brake pedal reduces the air pressure and releases the brakes. Releasing the brakes lets some compressed air go out of the system, so the air pressure in the tanks is reduced. It must be made up by the air compressor. Pressing and releasing the pedal unnecessarily can let air out faster than the compressor can replace it. If the pressure gets too low, the brakes won't work.

5.1.8 ±Foundation Brakes

Foundation brakes are used at each wheel. The most common type is the s-cam drum brake. The parts of the brake are discussed below.

Brake Drums, Shoes, and Linings. Brake drums are located on each end of the vehicle's axles. The wheels are bolted to the drums. The braking mechanism is inside the drum. To stop, the brake shoes and linings are pushed against the inside of the drum. This causes friction, which slows the vehicle (and creates heat). The heat a drum can take without damage depends on how hard and how long the brakes are used. Too much heat can make the brakes stop working.

S-cam Brakes. When you push the brake pedal, air is let into each brake chamber. Air pressure pushes the rod out, moving the slack adjuster, thus twisting the brake camshaft. This turns the s-cam (so called because it is shaped like the letter "S"). The s-cam forces the brake shoes away from one another and presses them against the inside of the brake drum.

When you release the brake pedal, the s-cam rotates back and a spring pulls the brake shoes away from the drum, letting the wheels roll freely again. See Figure 5.2.

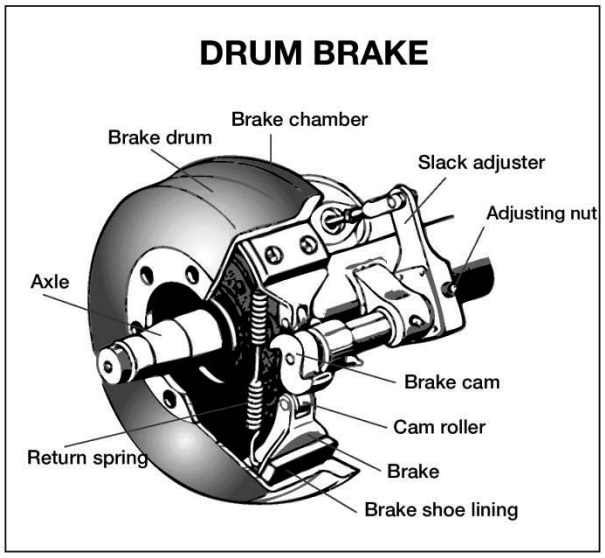


Figure 5.2

Wedge Brakes. In this type of brake, the brake chamber push rod pushes a wedge directly between the ends of two brake shoes. This shoves them apart and against the inside of the brake drum. Wedge brakes may have a single brake chamber, or two brake chambers, pushing wedges in at both ends of the brake shoes. Wedge type brakes may be self-adjusting or may require manual adjustment.

Disc Brakes. In air-operated disc brakes, air pressure acts on a brake chamber and slack adjuster, like s-cam brakes. But instead of the s-cam, a "power screw" is used. The pressure of the brake chamber on the slack adjuster turns the power screw. The power screw clamps the disc or rotor between the brake lining pads of a caliper, similar to a large c-clamp.

Wedge brakes and disc brakes are less common than s-cam brakes.

5.1.9 ±Supply Pressure Gauges

All vehicles with air brakes have a pressure gauge connected to the air tank. If the vehicle has a dual air brake system, there will be a gauge for each half of the system. (Or a single gauge with two needles.) Dual systems will be discussed later. These gauges tell you how much pressure is in the air tanks.

5.1.10 ±Application Pressure Gauge

This gauge shows how much air pressure you are applying to the brakes. (This gauge is not on all

vehicles.) Increasing application pressure to hold the same speed means the brakes are fading. You should slow down and use a lower gear. The need for increased pressure can also be caused by brakes out of adjustment, air leaks, or mechanical problems.

5.1.11 ±Low Air Pressure Warning

A low air pressure warning signal is required on vehicles with air brakes. A warning signal you can see must come on before the air pressure in the tanks falls below 55 psi. (Or one half the compressor governor cutout pressure on older vehicles.) The warning is usually a red light. A buzzer may also come on.

Another type of warning is the "wig wag." This device drops a mechanical arm into your view when the pressure in the system drops below 55 psi. An automatic wig wag will rise out of your view when the pressure in the system goes above 55 psi. The manual reset type must be placed in the "out of view" position manually. It will not stay in place until the pressure in the system is above 55 psi.

On large buses it is common for the low pressure warning devices to signal at 80-85 psi.

5.1.12 ±Stop Light Switch

Drivers behind you must be warned when you put your brakes on. The air brake system does this with an electric switch that works by air pressure. The switch turns on the brake lights when you put on the air brakes.

5.1.13 ±Front Brake Limiting Valve

Some older vehicles (made before 1975) have a front brake limiting valve and a control in the cab. The control is usually marked "normal" and "slippery." When you put the control in the "slippery" position, the limiting valve cuts the "normal" air pressure to the front brakes by half. Limiting valves were used to reduce the chance of the front wheels skidding on slippery surfaces. However, they actually reduce the stopping power of the vehicle. Front wheel braking is good under all conditions. Tests have shown front wheel skids from braking are not likely even on ice. Make sure the control is in the "normal" position to have normal stopping power.

Many vehicles have automatic front wheel limiting valves. They reduce the air to the front brakes except when the brakes are put on very hard (55 psi or more application pressure). These valves cannot be controlled by the driver.

5.1.14 ±Spring Brakes

All trucks, truck tractors, and buses must be equipped with emergency brakes and parking brakes. They must be held on by mechanical force (because air pressure can eventually leak away). Spring brakes are usually used to meet these needs. When driving, powerful springs are held back by air pressure. If the air pressure is removed, the springs put on the brakes. A parking brake control in the cab allows the driver to let the air out of the spring brakes. This lets the springs put the brakes on. A leak in the air brake system, which causes all the air to be lost, will also cause the springs to put on the brakes.

Tractor and straight truck spring brakes will come fully on when air pressure drops to a range of 20 to 45 psi (typically 20 to 30 psi). Do not wait for the brakes to come on automatically. When the low air pressure warning light and buzzer first come on, bring the vehicle to a safe stop right away, while you can still control the brakes.

The braking power of spring brakes depends on the brakes being in adjustment. If the brakes are not adjusted properly, neither the regular brakes nor the emergency/parking brakes will work right.

5.1.15 ±Parking Brake Controls

In newer vehicles with air brakes, you put on the parking brakes using a diamond-shaped, yellow, push-pull control knob. You pull the knob out to put the parking brakes (spring brakes) on, and push it in to release them. On older vehicles, the parking brakes may be controlled by a lever. Use the parking brakes whenever you park.

Caution. Never push the brake pedal down when the spring brakes are on. If you do, the brakes could be damaged by the combined forces of the springs and the air pressure. Many brake systems are designed so this will not happen. But not all systems are set up that way, and those that are may not always work. It is much better to develop the habit of not pushing the brake pedal down when the spring brakes are on.

Modulating Control Valves. In some vehicles a control handle on the dash board may be used to apply the spring brakes gradually. This is called a modulating valve. It is spring-loaded so you have a feel for the braking action. The more you move the control lever, the harder the spring brakes come on. They work this way so you can control the spring brakes if the service brakes fail. When parking a vehicle with a modulating control valve, move the

lever as far as it will go and hold it in place with the locking device.

Dual Parking Control Valves. When main air pressure is lost, the spring brakes come on. Some vehicles, such as buses, have a separate air tank which can be used to release the spring brakes. This is so you can move the vehicle in an emergency. One of the valves is a push-pull type and is used to put on the spring brakes for parking. The other valve is spring loaded in the "out" position. When you push the control in, air from the separate air tank releases the spring brakes so you can move. When you release the button, the spring brakes come on again. There is only enough air in the separate tank to do this a few times. Therefore, plan carefully when moving. Otherwise, you may be stopped in a dangerous location when the separate air supply runs out. See Figure 5.3.

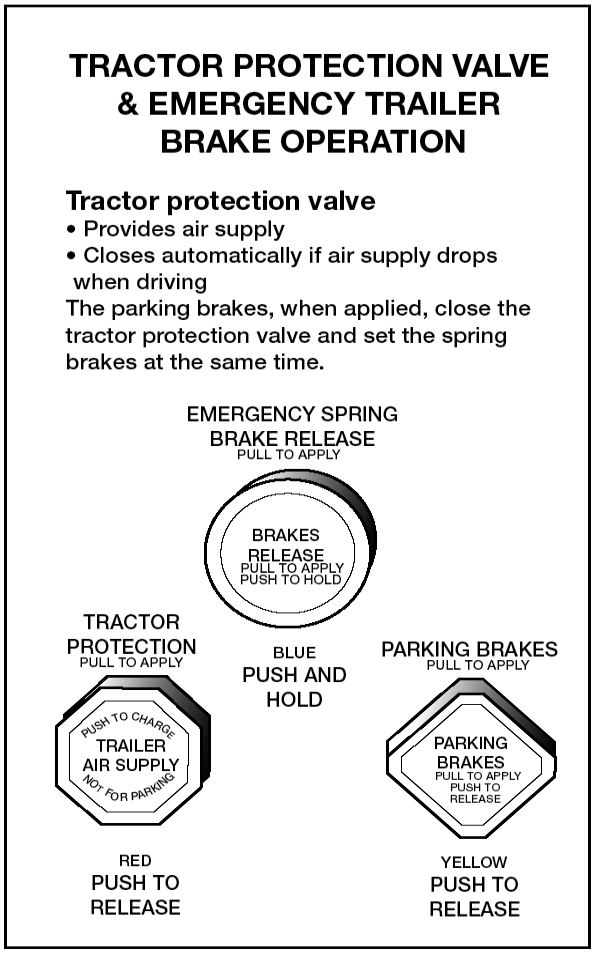


Figure 5.3

5.1.16 ±Antilock Braking Systems (ABS)

Truck tractors with air brakes built on or after March 1, 1997, and other air brakes vehicles, (trucks, buses, trailers, and converter dollies) built on or after March 1, 1998, are required to be equipped with antilock brakes. Many commercial vehicles built before these dates have been voluntarily equipped with ABS. Check the certification label for the date of manufacture to determine if your vehicle is equipped with ABS. ABS is a computerized system that keeps your wheels from locking up during hard brake applications.

Vehicles with ABS have yellow malfunction lamps to WHOO \RX LI VRPHWKLQJ LVQ¶W ZRU

Tractors, trucks, and buses will have yellow ABS malfunction lamps on the instrument panel.

Trailers will have yellow ABS malfunction lamps on the left side, either on the front or rear corner. Dollies manufactured on or after March 1, 1998 are required to have a lamp on the left side.

On newer vehicles, the malfunction lamp comes on at start-up for a bulb check, and then goes out quickly. On older systems, the lamp could stay on until you are driving over five mph.

If the lamp stays on after the bulb check, or goes on once you are under way, you may have lost ABS control at one or more wheels.

In the case of towed units manufactured before it was required by the Department of Transportation, it may be difficult to tell if the unit is equipped with ABS. Look under the vehicle for the electronic control unit (ECU) and wheel speed sensor wires coming from the back of the brakes.

ABS is an addition to your normal brakes. It does not decrease or increase your normal braking capability. ABS only activates when wheels are about to lock up.

ABS does not necessarily shorten your stopping distance, but it does help you keep the vehicle under control during hard braking

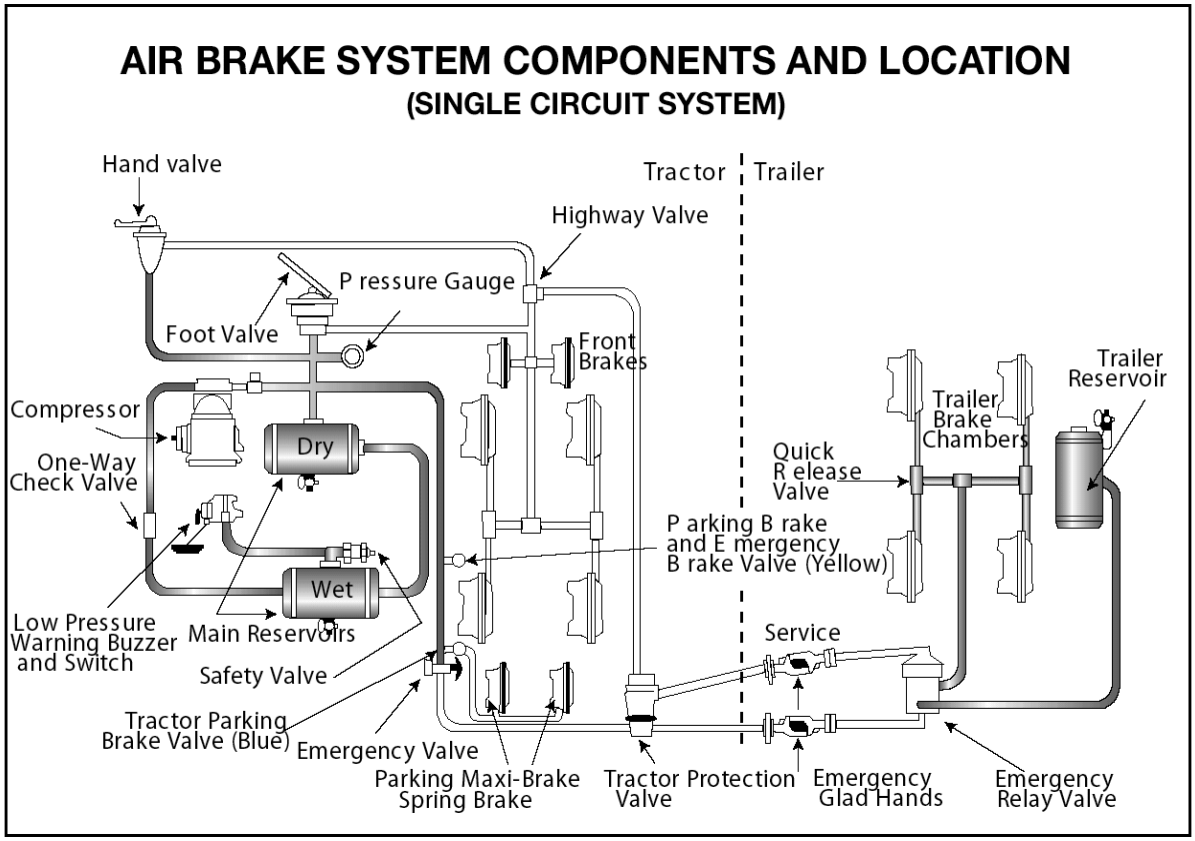


Figure 5.4

.Subsection 5.1
Test Your Kn owledge

1. Why must air tanks be drained?
2. What is a supply pressure gauge used for?
3. All vehicles with air brakes must have a low air pressure warning signal. True or False?
4. What are spring brakes?
5. Front wheel brakes are good under all conditions. True or False?
6. How do you know if your vehicle is equipped with antilock brakes?

7KHVH TXHVWLRQV PD\ EH RQ \RXU WHVW ,I \RX FDQ¶W answer them all, re-read subsection 5.1.

5.2 ±Dual Air Brake

Most heavy-duty vehicles use dual air brake systems for safety. A dual air brake system has two separate air brake systems, which use a single set of brake controls. Each system has its own air tanks, hoses, lines, etc. One system typically operates the regular brakes on the rear axle or axles. The other system operates the regular brakes on the front axle (and possibly one rear axle). Both systems supply air to the trailer (if there is one). The first system is called the "primary" system. The other is called the "secondary" system. See Figure 5.4.

Before driving a vehicle with a dual air system, allow time for the air compressor to build up a minimum of 100 psi pressure in both the primary and secondary systems. Watch the primary and secondary air pressure gauges (or needles, if the system has two needles in one gauge). Pay attention to the low air pressure warning light and buzzer. The warning light and buzzer should shut off when air pressure in both systems rises to a value set by the manufacturer. This value must be greater than 55 psi.

The warning light and buzzer should come on before the air pressure drops below 55 psi in either system. If this happens while driving, you should stop right away and safely park the vehicle. If one air system is very low on pressure, either the front or the rear brakes will not be operating fully. This means it will take you longer to stop. Bring the vehicle to a safe stop, and have the air brakes system fixed.

5.3 ±Inspecting Air Brake Systems

You should use the basic seven-step inspection procedure described in Section 2 to inspect your vehicle. There are more things to inspect on a vehicle with air brakes than one without them. These things are discussed below, in the order they fit into the seven-step method.

5.3.1 ±During Step 2 Engine Compartment Checks

Check Air Compressor Drive Belt (if compressor is belt-driven). If the air compressor is belt-driven, check the condition and tightness of the belt. It should be in good condition.

5.3.2 ±During Step 5 Walk -around Inspection

Check Slack Adjusters on S-cam Brakes. Park on level ground and chock the wheels to prevent the vehicle from moving. Release the parking brakes so you can move the slack adjusters. Use gloves and pull hard on each slack adjuster that you can reach. If a slack adjuster moves more than about one inch where the push rod attaches to it, it probably needs adjustment. Adjust it or have it adjusted. Vehicles with too much brake slack can be very hard to stop. Out-of-adjustment brakes are the most common problem found in roadside inspections. Be safe. Check the slack adjusters.

All vehicles built since 1994 have automatic slack adjustors. Even though automatic slack adjustors adjust themselves during full brake applications, they must be checked.

Automatic adjusters should not have to be manually adjusted except when performing maintenance on the brakes and during installation of the slack adjusters. In a vehicle equipped with automatic adjusters, when the pushrod stroke exceeds the legal brake adjustment limit, it is an indication that a mechanical problem exists in the adjuster itself, a problem with the related foundation brake components, or that the adjuster was improperly installed.

The manual adjustment of an automatic adjuster to bring a brake pushrod stroke within legal limits is generally masking a mechanical problem and is not fixing it. Further, routine adjustment of most automatic adjusters will likely result in premature wear of the adjuster itself. It is recommended that when brakes equipped with automatic adjusters are found to be out of adjustment, the driver take the vehicle to a repair facility as soon as possible to have the problem corrected. The manual adjustment of automatic slack adjusters is dangerous because it may give the driver a false sense of security regarding the effectiveness of the braking system.

The manual adjustment of an automatic adjuster should only be used as a temporary measure to correct the adjustment in an emergency situation as it is likely the brake will soon be back out of adjustment since this procedure usually does not fix the underlying adjustment problem.
(Note: Automatic slack adjusters are made by different manufacturers and do not all operate the VDPH 7KHUHIRUH WKH VSHFLILF Service Manual should be consulted prior to troubleshooting a brake adjustment problem.)

Check Brake Drums (or Discs), Linings, and Hoses. Brake drums (or discs) must not have cracks longer than one half the width of the friction area. Linings (friction material) must not be loose or soaked with oil or grease. They must not be dangerously thin. Mechanical parts must be in place, not broken or missing. Check the air hoses connected to the brake chambers to make sure they aren't cut or worn due to rubbing.

5.3.3 ±Step 7 Final Air Brake Check

Do the following checks instead of the hydraulic brake check shown in Section 2, Step 7: Check Brake System.

Check Air Compressor Governor Cut -in and Cut-out Pressures. Pumping by the air compressor should start at about 100 psi and stop at about 125 psi. (Check manufacturer's specifications.) Run the engine at a fast idle. The air governor should cut-out the air compressor at about the manufacturer's specified pressure. The air pressure shown by your gauge(s) will stop rising. With the engine idling, step on and off the brake to reduce the air tank pressure. The compressor should cut-in at about the manufacturer's specified cut-in pressure. The pressure should begin to rise.

If the air governor does not work as described above, it may need to be fixed. A governor that does not work properly may not keep enough air pressure for safe driving.

Test Air Leakage Rate. With a fully-charged air system (typically 125 psi), turn off the engine, release the parking brake (push in); and time the air pressure drop. The loss rate should be less than two psi in one minute for single vehicles and less than three psi in one minute for combination vehicles.

With the air pressure built up to governor cutoff (120 ±140 psi), shut off the engine, chock your wheels (if necessary), release the parking brake (all vehicles),

and the tractor protection valve (combination vehicle); and fully apply the foot brake. Hold the foot brake for one minute. Check the air gauge to see if the air pressure drops more than three pounds in one minute (single vehicle) or four pounds in one minute (combination vehicle). If the air pressure falls more than three psi in one minute for single vehicles (more than four psi for combination vehicles), the air loss rate is too much. Check for air leaks and fix before driving the vehicle. Otherwise, you could lose your brakes while driving.

Test Low Pressure Warning Signal. Shut the engine off when you have enough air pressure so that the low pressure warning signal is not on. Turn the electrical power on and step on and off the brake pedal to reduce air tank pressure. The low air pressure warning signal must come on before the pressure drops to less than 55 psi in the air tank (or tank with the lowest air pressure, in dual air systems). See Figure 5.5.

If the warning signal doesn't work, you could lose air pressure and you would not know it. This could cause sudden emergency braking in a single-circuit air system. In dual systems the stopping distance will be increased. Only limited braking can be done before the spring brakes come on.

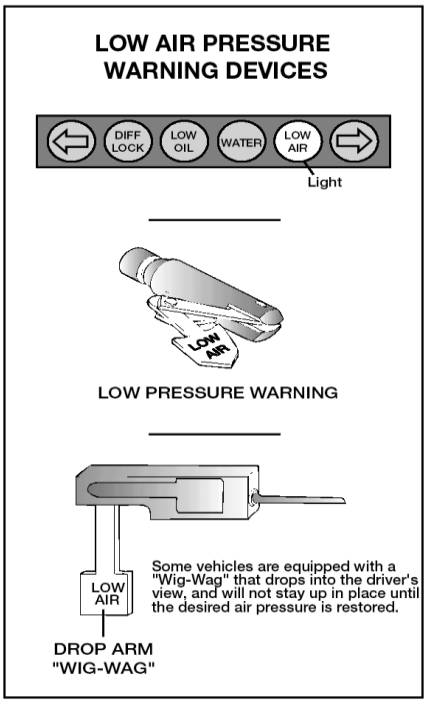


Figure 5.5

Check That Spring Brakes Come On Automatically. Continue to fan off the air pressure by stepping on and off the brake pedal to reduce tank pressure. The tractor protection valve and parking brake valve should close (pop out) on a tractor-trailer combination vehicle and the parking brake valve should close (pop out) on other combination and single vehicle types when the air SUHVVXUH IDOOV WR WKH PDQXIDF (20 ±45 psi). This will cause the spring brakes to come on.

Check Rate of Air Pressure Buildup. When the engine is at operating rpms, the pressure should build from 85 to 100 psi within 45 seconds in dual air systems. (If the vehicle has larger than minimum air tanks, the buildup time can be longer and still be safe. Check the manufacturer's specifications.) In single air systems (pre-1975), typical requirements are pressure build-up from 50 to 90 psi within 3 minutes with the engine at an idle speed of 600-900 rpms.

If air pressure does not build up fast enough, your pressure may drop too low during driving, requiring an emergency stop. Don't drive until you get the problem fixed.

Test Parking Brake. Stop the vehicle, put the parking brake on, and gently pull against it in a low gear to test that the parking brake will hold.

Test Service Brakes. Wait for normal air pressure, release the parking brake, move the vehicle forward slowly (about five mph), and apply the brakes firmly using the brake pedal. Note any vehicle "pulling" to one side, unusual feel, or delayed stopping action.

This test may show you problems, which you otherwise wouldn't know about until you needed the brakes on the road.

Subsections 5.2 and 5.3 Test Your Knowledge

1. What is a dual air brake system?
2. What are the slack adjusters?
3. How can you check slack adjusters?
4. How can you test the low pressure warning signal?
5. How can you check that the spring brakes come on automatically?
6. What are the maximum leakage rates?

7KHVH TXHVWLRQV PD\ EH RQ \RXU answer them all, re-read subsections 5.2 and 5.3.

5.4 ±Using Air Brakes

5.4.1 ±Normal Stops

Push the brake pedal down. Control the pressure so the vehicle comes to a smooth, safe stop. If you

have a manual transmission, don't push the clutch in until the engine rpm is down close to idle. When stopped, select a starting gear.

5.4.2 ±Braking with Antilock Brakes

When you brake hard on slippery surfaces in a vehicle without ABS, your wheels may lock up. When your steering wheels lock up, you lose steering control. When your other wheels lock up, you may skid, jackknife, or even spin the vehicle.

ABS helps you avoid wheel lock up. The computer senses impending lockup, reduces the braking pressure to a safe level, and you maintain control. You may or may not be able to stop faster with ABS, but you should be able to steer around an obstacle while braking, and avoid skids caused by over braking.

Having ABS on only the tractor, only the trailer, or even on only one axle, still gives you more control over the vehicle during braking. Brake normally.

When only the tractor has ABS, you should be able to maintain steering control, and there is less chance of jackknifing. But, keep your eye on the trailer and let up on the brakes (if you can safely do so) if it begins to swing out.

When only the trailer has ABS, the trailer is less likely to swing out, but if you lose steering control or start a tractor jackknife, let up on the brakes (if you can safely do so) until you gain control.

When you drive a tractor-trailer combination with ABS, you should brake as you always have. In other words:

Use only the braking force necessary to stop safely and stay in control.

Brake the same way, regardless of whether you have ABS on the tractor, the trailer, or both.

As you slow down, monitor your tractor and trailer and back off the brakes (if it is safe to do so) to stay in control.

There is only one exception to this procedure, if you always drive a straight truck or combination with working ABS on all axles, in an emergency stop, you can fully apply the brakes.

Without ABS, you still have normal brake functions. Drive and brake as you always have.

Remember, if your ABS malfunctions, you still have regular brakes. Drive normally, but get the system serviced soon.

5.4.3 ±Emergency Stops

If somebody suddenly pulls out in front of you, your natural response is to hit the brakes. This is a good response if there's enough distance to stop, and you use the brakes correctly.
You should brake in a way that will keep your vehicle in a straight line and allow you to turn if it becomes necessary. You can use the "controlled braking" method or the "stab braking" method.

Controlled Braking. With this method, you apply the brakes as hard as you can without locking the wheels. Keep steering wheel movements very small while doing this. If you need to make a larger steering adjustment or if the wheels lock, release the brakes. Re-apply the brakes as soon as you can.

Stab Braking . Apply your brakes all the way. Release brakes when wheels lock up. As soon as the wheels start rolling, apply the brakes fully again. (It can take up to one second for the wheels to start rolling after you release the brakes. If you re-apply the brakes before the wheels start rolling, the vehicle won't straighten out.)

5.4.4 ±Stoppi ng Distance

Stopping distance was described in Section 2 under "Speed and Stopping Distance." With air brakes there is an added delay - ³%UDNH /DJ´ 7KLV L time required for the brakes to work after the brake pedal is pushed. With hydraulic brakes (used on cars and light/medium trucks), the brakes work instantly. However, with air brakes, it takes a little time (one half second or more) for the air to flow through the lines to the brakes. Thus, the total stopping distance for vehicles with air brake systems is made up of four different factors.

Perception Distance + Reaction Distance + Brake Lag Distance + Braking Distance = Total Stopping Distance.

The air brake lag distance at 55 mph on dry pavement adds about 32 feet. So at 55 mph for an average driver under good traction and brake conditions, the total stopping distance is over 450 feet. See Figure 5.6.

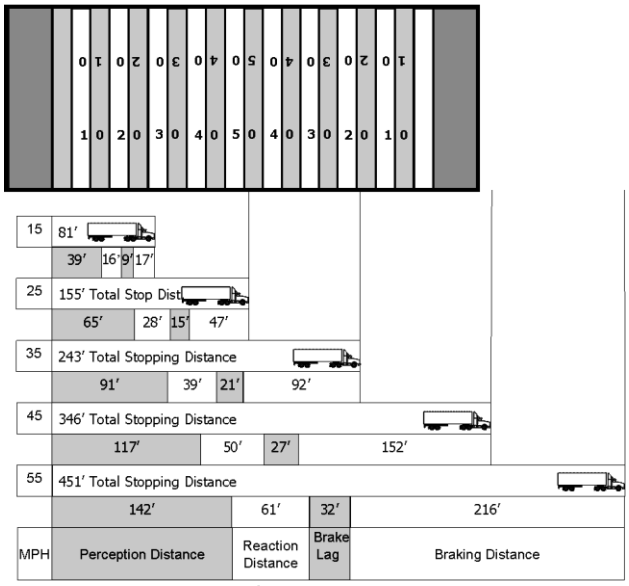


Figure 5.6

5.4.5 ±Brake Fading or Failure

Brakes are designed so brake shoes or pads rub against the brake drum or disks to slow the vehicle. Braking creates heat, but brakes are designed to take a lot of heat. However, brakes can fade or fail from excessive heat caused by using them too much and not relying on the engine braking effect.

Excessive use of the service brakes results in overheating and leads to brake fade. Brake fade results from excessive heat causing chemical changes in the brake lining, which reduce friction, and also causing expansion of the brake drums. As the overheated drums expand, the brake shoes and linings have to move farther to contact the drums, and the force of this contact is reduced. Continued overuse may increase brake fade until the vehicle cannot be slowed down or stopped.
Brake fade is also affected by adjustment. To safely control a vehicle, every brake must do its share of the work. Brakes out of adjustment will stop doing their share before those that are in adjustment. The other brakes can then overheat and fade, and there will not be enough braking available to control the vehicle(s). Brakes can get out of adjustment quickly, especially when they are hot. Therefore, check brake adjustment often.

5.4.6 ±Proper Braking Technique

Remember. The use of brakes on a long and/or steep downgrade is only a supplement to the braking effect of the engine. Once the vehicle is in the proper low gear, the following is the proper braking technique:

Apply the brakes just hard enough to feel a definite slowdown.

When your speed has been reduced to approximately five mph below your "safe" speed, release the brakes. (This application should last for about three seconds.)

When your speed has increased to your "safe" speed, repeat steps 1 and 2.

For example, if your "safe" speed is 40 mph, you would not apply the brakes until your speed reaches 40 mph. You now apply the brakes hard enough to gradually reduce your speed to 35 mph and then release the brakes. Repeat this as often as necessary until you have reached the end of the downgrade.

5.4.7 ±Low Air Pressure

If the low air pressure warning comes on, stop and safely park your vehicle as soon as possible. There might be an air leak in the system. Controlled braking is possible only while enough air remains in the air tanks. The spring brakes will come on when the air pressure drops into the range of 20 to 45 psi. A heavily loaded vehicle will take a long distance to stop because the spring brakes do not work on all axles. Lightly loaded vehicles or vehicles on slippery roads may skid out of control when the spring brakes come on. It is much safer to stop while there is enough air in the tanks to use the foot brakes.

5.4.8 ±Parking Brakes

Any time you park, use the parking brakes, except as noted below. Pull the parking brake control knob out to apply the parking brakes, push it in to release. The control will be a yellow, diamond-shaped knob labeled "parking brakes" on newer vehicles. On older vehicles, it may be a round blue knob or some other shape (including a lever that swings from side to side or up and down).

Don't use the parking brakes if the brakes are very hot (from just having come down a steep grade), or if the brakes are very wet in freezing temperatures. If they are used while they are very hot, they can be damaged by the heat. If they are used in freezing temperatures when the brakes are very wet, they can freeze so the vehicle cannot move. Use wheel chocks on a level surface to hold the vehicle. Let hot brakes cool before using the parking brakes. If the brakes are wet, use the brakes lightly while driving in a low gear to heat and dry them.

If your vehicle does not have automatic air tank drains, drain your air tanks at the end of each working day to remove moisture and oil. Otherwise, the brakes could fail.

Never leave your vehicle unattended without applying the parking brakes or chocking the wheels. Your ve hicle might roll away and cause injury and damage.

Subsection 5.4
Test Your Knowledge

1. Why should you be in the proper gear before starting down a hill?
2. What factors can cause brakes to fade or fail?
3. The use of brakes on a long, steep downgrade is only a supplement to the braking effect of the engine. True or False?
4. If you are away from your vehicle only a short time, you do not need to use the parking brake. True or False?
5. How often should you drain air tanks?
6. How should you brake when you drive a tractor-trailer combination with ABS?
7. You still have normal brake functions if your ABS is not working. True or False?

7KHVH TXHVWLRQV PD\ EH RQ \RXU WHVW ,I \RX FDQ¶W answer them all, re-read subsection 5.4.

Section 6
COMBINATION VEHICLES

This Section Covers

- Drivi ng Combinations
- Combination Vehicle Air Brakes
- Antilock Brake Systems
- Coupling and Uncoupling
- Inspecting Combinations

This section provides information needed to pass the tests for combination vehicles (tractor-trailer, doubles, triples, straight truck with trailer). The information is only to give you the minimum knowledge needed for driving common combination vehicles. You should also study Section 7 if you need to pass the test for doubles and triples.

6.1 ±Driving Combination Vehicles Safely

Combination vehicles are usually heavier, longer, and require more driving skill than single commercial vehicles. This means that drivers of combination vehicles need more knowledge and skill than drivers of single vehicles. In this section, we talk about some important safety factors that apply specifically to combination vehicles.

6.1.1 ±Rollover Risks

More than half of truck driver deaths in crashes are the result of truck rollovers. When more cargo is piled up in a truck, the "center of gravity" moves higher up from the road. The truck becomes easier to turn over. Fully loaded rigs are ten times more likely to roll over in a crash than empty rigs.

The following two things will help you prevent rollover--keep the cargo as close to the ground as possible, and drive slowly around turns. Keeping cargo low is even more important in combination vehicles than in straight trucks. Also, keep the load centered on your rig. If the load is to one side so it makes a trailer lean, a rollover is more likely. Make sure your cargo is centered and spread out as much as possible. (Cargo distribution is covered in Section 3 of this manual.)

Rollovers happen when you turn too fast. Drive slowly around corners, on ramps, and off ramps. Avoid quick lane changes, especially when fully loaded.

6.1.2 ±Steer Gently

Trucks with trailers have a dangerous "crack-the-whip" effect. When you make a quick lane change, the crack-the-whip effect can turn the trailer over. There are many accidents where only the trailer has overturned.

"Rearward amplification" causes the crack-the-whip effect. Figure 6.1 shows eight types of combination vehicles and the rearward amplification each has in a quick lane change. Rigs with the least crack-the-whip effect are shown at the top and those with the most, at the bottom. Rearward amplification of 2.0 in the chart means that the rear trailer is twice as likely to turn over as the tractor. You can see that triples have a rearward amplification of 3.5. This means you can roll the last trailer of triples 3.5 times as easily as a five-axle tractor.

Steer gently and smoothly when you are pulling trailers. If you make a sudden movement with your steering wheel, your trailer could tip over. Follow far enough behind other vehicles (at least 1 second for each 10 feet of your vehicle length, plus another second if going over 40 mph). Look far enough down the road to avoid being surprised and having to make a sudden lane change. At night, drive slowly enough to see obstacles with your headlights before it is too late to change lanes or stop gently. Slow down to a safe speed before going into a turn.

6.1.3 ±Brake Early

Control your speed whether fully loaded or empty. Large combination vehicles take longer to stop when they are empty than when they are fully loaded. When lightly loaded, the very stiff suspension springs and strong brakes give poor traction and make it very easy to lock up the wheels. Your trailer can swing out and strike other vehicles. Your tractor can jackknife very quickly. You also must be very careful about driving "bobtail" tractors (tractors without semitrailers). Tests have shown that bobtails can be very hard to stop smoothly. It takes them longer to stop than a tractor-semitrailer loaded to maximum gross weight.

In any combination rig, allow lots of following distance and look far ahead, so you can brake early. Don't be caught by surprise and have to make a "panic" stop.

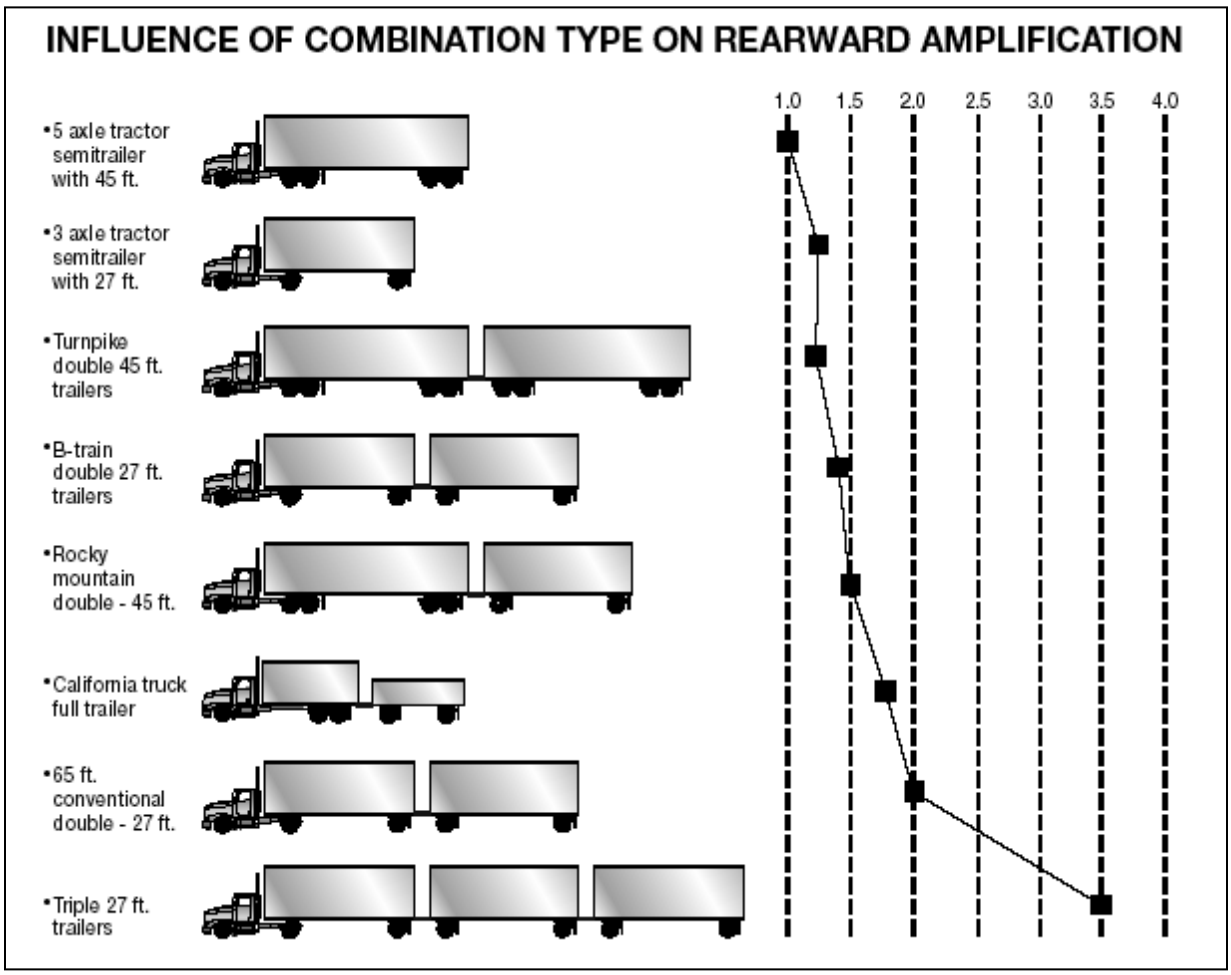


Figure 6.1

6.1.4 ±Railroad -highway Crossings

Railroad-highway crossings can also cause problems, particularly when pulling trailers with low underneath clearance.

These trailers can get stuck on raised crossings:

Low slung units (lowboy, car carrier, moving van, possum-belly livestock trailer).

Single-axle tractor pulling a long trailer with its landing gear set to accommodate a tandem-axle tractor.

If for any reason you get stuck on the tracks, get out of the vehicle and away from the tracks. Check signposts or signal housing at the crossing for emergency notification information. Call 911 or other emergency number. Give the location of the crossing using all identifiable landmarks, especially the DOT number, if posted.

6.1.5 ±Prevent Trailer Skids

When the wheels of a trailer lock up, the trailer will tend to swing around. This is more likely to happen when the trailer is empty or lightly loaded. This type of jackknife is often called a "trailer jackknife." See Figure 6.2.

The procedure for stopping a trailer skid is:

Recognize the Skid. The earliest and best way to recognize that the trailer has started to skid is by seeing it in your mirrors. Any time you apply the brakes hard, check the mirrors to make sure the trailer is staying where it should be. Once the trailer swings out of your lane, it's very difficult to prevent a jackknife.

* (From R.D. Ervin, R.L. Nisconger, C.C. MacAdam, DQG 3 6)DQFKHU ³,QIOXHQFH RI \ variables on the stability and control properties of KHDY\ WUXFNV ³8QLYHUVLW\ RI 0LFK Research Institute, 1983).

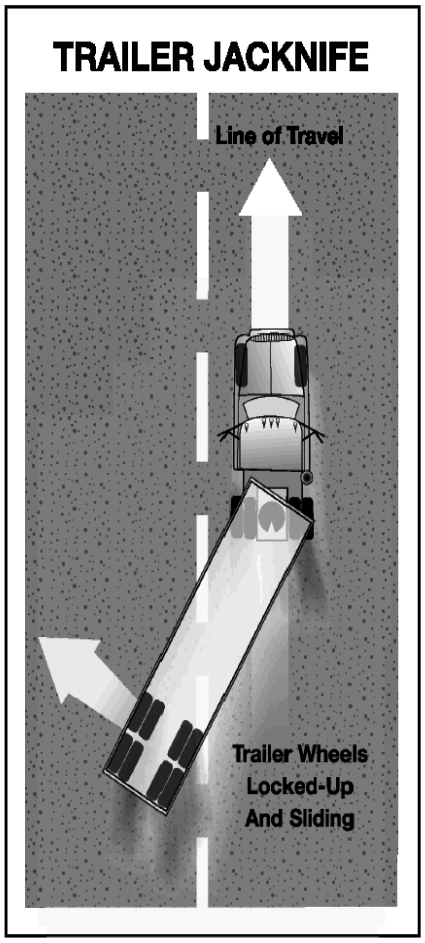


Figure 6.2

Stop Using the Brake. Release the brakes to get traction back. Do not use the trailer hand brake (if you have one) to "straighten out the rig." This is the wrong thing to do since the brakes on the trailer wheels caused the skid in the first place. Once the trailer wheels grip the road again, the trailer will start to follow the tractor and straighten out.

6.1.6 ±Turn Wide

When a vehicle goes around a corner, the rear wheels follow a different path than the front wheels. This is called off-tracking or "cheating." Figure 6.3 shows how off-tracking causes the path followed by a tractor to be wider than the rig itself. Longer vehicles will off-track more. The rear wheels of the powered unit (truck or tractor) will off-track some, and the rear wheels of the trailer will off-track even more. If there is more than one trailer, the rear wheels of the last trailer will off-track the most. Steer the front end wide enough around a corner so the rear end does not run over the curb, pedestrians, etc. However, keep the rear of your vehicle close to the curb. This will stop other drivers from passing you on the right. If you cannot complete your turn without entering another traffic lane, turn wide as you complete the turn. This is better than swinging wide to the left before starting the turn because it will keep other drivers from passing you on the right. See Figure 6.4.

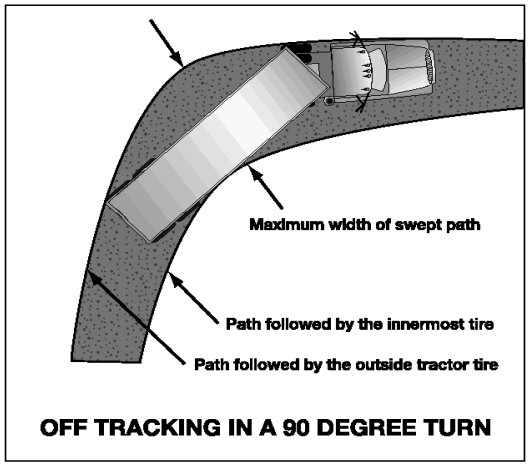


Figure 6.3

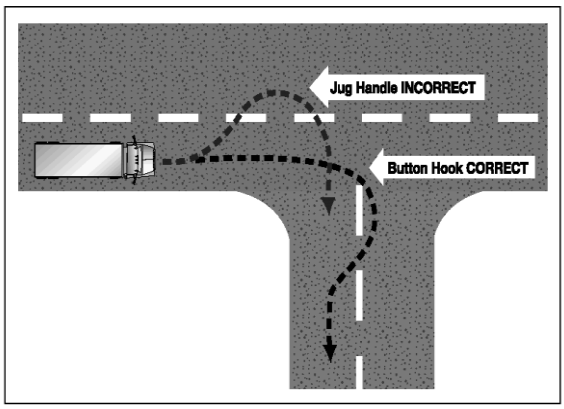


Figure 6.4

6.1.7 ±Backing with a Trailer.

Backing with a Trailer. When backing a car, straight truck, or bus, you turn the top of the steering wheel in the direction you want to go. When backing a trailer, you turn the steering wheel in the opposite direction. Once the trailer starts to turn, you must turn the wheel the other way to follow the trailer.

Whenever you back up with a trailer, try to position your vehicle so you can back in a straight line. If you must back on a curved path, back to the driver's side so you can see. See Figure 6.5.

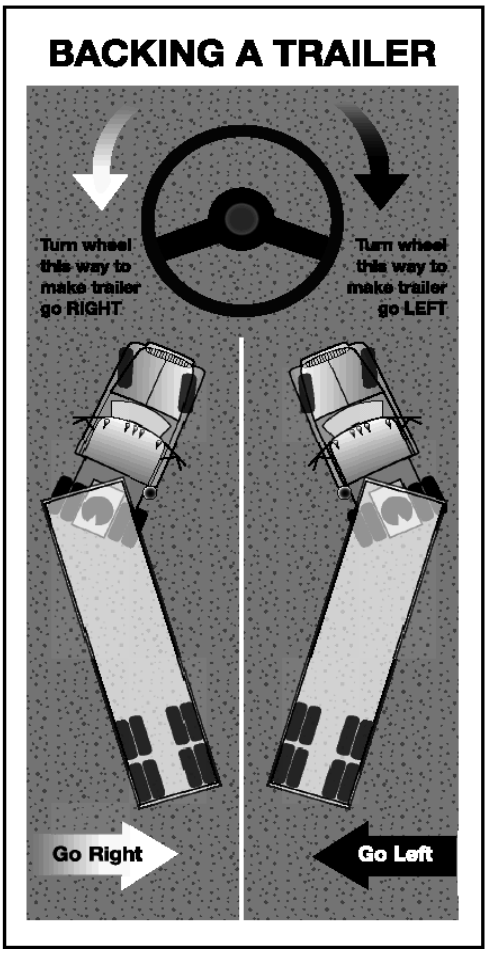


Figure 6.5

Look at Your Path. Look at your line of travel before you begin. Get out and walk around the vehicle. Check your clearance to the sides and overhead, in and near the path your vehicle.

Use Mirrors on Both Sides. Check the outside mirrors on both sides frequently. Get out of the vehicle and re-inspect your path if you are unsure.

Back Slowly. This will let you make corrections before you get too far off course.

Correct Drift Immediately. As soon as you see the trailer getting off the proper path, correct it by turning the top of the steering wheel in the direction of the drift.

Pull Forward. When backing a trailer, make pull-ups to re-position your vehicle as needed.

Subsection 6.1
Test Your Knowledge

1. What two things are important to prevent rollover?
2. When you turn suddenly while pulling doubles, which trailer is most likely to turn over?
3. Why should you not use the trailer hand brake to straighten out a jackknifing trailer?
4. What is off-tracking?
5. When you back a trailer, you should position your vehicle so you can back in a FXUYHG SDWK WR WKH GULYHU False?
6. What type of trailers can get stuck on railroad-highway crossings?

7KHVH TXHVWLRQV PD\ EH RQ \RXU answer them all, re-read subsection 6.1.

6.2 ±Combination Vehicle Air Brakes

You should study Section 5: Air Brakes before reading this. In combination vehicles the braking system has parts to control the trailer brakes, in addition to the parts described in Section 5. These parts are described below.

6.2.1 ±Trailer Hand Valve

The trailer hand valve (also called the trolley valve or Johnson bar) works the trailer brakes. The trailer hand valve should be used only to test the trailer brakes. Do not use it in driving because of the danger of making the trailer skid. The foot brake sends air to all of the brakes on the vehicle (including the trailer(s)). There is much less danger of causing a skid or jackknife when using just the foot brake.

Never use the hand valve for parking because all the air might leak out unlocking the brakes (in trailers that don't have spring brakes). Always use the parking brakes when parking. If the trailer does not have spring brakes, use wheel chocks to keep the trailer from moving.

6.2.2 ±Tractor Protection Valve

The tractor protection valve keeps air in the tractor or truck brake system should the trailer break away or develop a bad leak. The tractor protection valve is controlled by the "trailer air supply" control valve in the cab. The control valve allows you to open and shut the tractor protection valve. The tractor protection valve will close automatically if air pressure is low (in the range of 20 to 45 psi). When the tractor protection valve closes, it stops any air from going out of the tractor. It also lets the air out of the trailer emergency line. This causes the trailer emergency brakes to come on, with possible loss of control. (Emergency brakes are covered later.)

6.2.3 ±Trailer Air Supply Control

The trailer air supply control on newer vehicles is a red eight-sided knob, which you use to control the tractor protection valve. You push it in to supply the trailer with air, and pull it out to shut the air off and put on the trailer emergency brakes. The valve will pop out (thus closing the tractor protection valve) when the air pressure drops into the range of 20 to 45 psi. Tractor protection valve controls or "emergency" valves on older vehicles may not operate automatically. There may be a lever rather than a knob. The "normal" position is used for pulling a trailer. The "emergency" position is used to shut the air off and put on the trailer emergency brakes.

6.2.4 ±Trailer Air-lines

Every combination vehicle has two air-lines, the service line and the emergency line. They run between each vehicle (tractor to trailer, trailer to dolly, dolly to second trailer, etc.)

Service Air-line. The service line (also called the control line or signal line) carries air, which is controlled by the foot brake or the trailer hand brake. Depending on how hard you press the foot brake or hand valve, the pressure in the service line will similarly change. The service line is connected to relay valves. These valves allow the trailer brakes to be applied more quickly than would otherwise be possible.

Emergency Air-line. The emergency line (also called the supply line) has two purposes. First, it supplies air to the trailer air tanks. Second, the emergency line controls the emergency brakes on combination vehicles. Loss of air pressure in the emergency line causes the trailer emergency brakes to come on. The pressure loss could be caused by a trailer breaking loose, thus tearing apart the emergency air hose. Or it could be caused by a hose, metal tubing, or other part breaking, letting the air out. When the emergency line loses pressure, it also causes the tractor protection valve to close (the air supply knob will pop out).

Emergency lines are often coded with the color red (red hose, red couplers, or other parts) to keep from getting them mixed up with the blue service line.

6.2.5 ±Hose Couplers (Glad Hands)

Glad hands are coupling devices used to connect the service and emergency air-lines from the truck or tractor to the trailer. The couplers have a rubber seal, which prevents air from escaping. Clean the couplers and rubber seals before a connection is made. When connecting the glad hands, press the two seals together with the couplers at a 90 degree angle to each other. A turn of the glad hand attached to the hose will join and lock the couplers.

When coupling, make sure to couple the proper glad hands together. To help avoid mistakes, colors are sometimes used. Blue is used for the service lines and red for the emergency (supply) lines. Sometimes, metal tags are attached to the lines with the words "service" and "emergency" stamped on them. See Figure 6.6

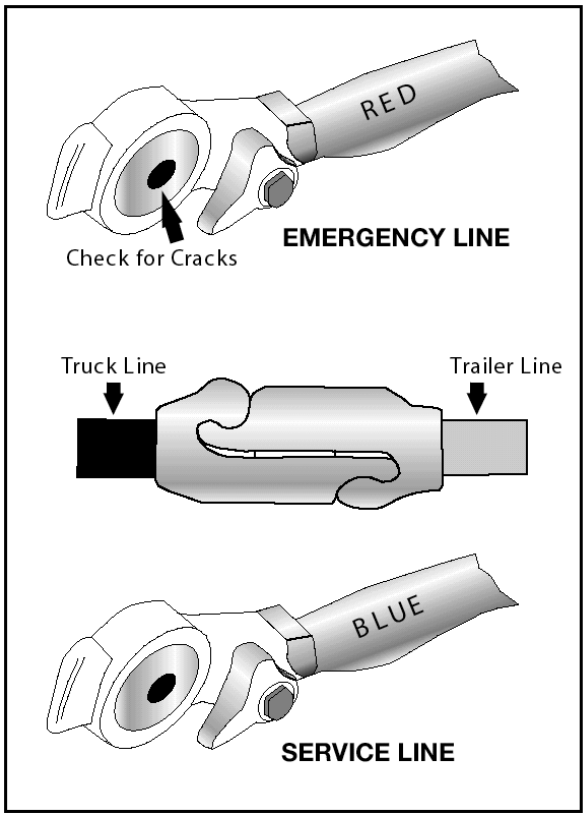


Figure 6.6

If you do cross the air-lines, supply air will be sent to the service line instead of going to charge the trailer air tanks. Air will not be available to release the trailer spring brakes (parking brakes). If the spring brakes don't release when you push the trailer air supply control, check the air-line connections.

Older trailers do not have spring brakes. If the air supply in the trailer air tank has leaked away there will be no emergency brakes, and the trailer wheels will turn freely. If you crossed the air-lines, you could drive away but you wouldn't have trailer brakes. This would be very dangerous. Always test the trailer brakes before driving with the hand valve or by pulling the air supply (tractor protection valve) control. Pull gently against them in a low gear to make sure the brakes work.

Some vehicles have "dead end" or dummy couplers to which the hoses may be attached when they are not in use. This will prevent water and dirt from getting into the coupler and the air-lines. Use the dummy couplers when the air-lines are not connected to a trailer. If there are no dummy couplers, the glad hands can sometimes be locked together (depending on the couplings). It is very important to keep the air supply clean.

6.2.6 ±Trailer Air Tanks

Each trailer and converter dolly has one or more air tanks. They are filled by the emergency (supply) line from the tractor. They provide the air pressure used to operate trailer brakes. Air pressure is sent from the air tanks to the brakes by relay valves.

The pressure in the service line tells how much pressure the relay valves should send to the trailer brakes. The pressure in the service line is controlled by the brake pedal (and the trailer hand brake).

It is important that you don't let water and oil build up in the air tanks. If you do, the brakes may not work correctly. Each tank has a drain valve on it and you should drain each tank every day. If your tanks have automatic drains, they will keep most moisture out. But you should still open the drains to make sure.

6.2.7 ±Shut-off Valves

Shut-off valves (also called cut-out cocks) are used in the service and supply air-lines at the back of trailers used to tow other trailers. These valves permit closing the air-lines off when another trailer is not being towed. You must check that all shut-off valves are in the open position except the ones at the back of the last trailer, which must be closed.

6.2.8 ±Trailer Service, Parking and Emergency Brakes

Newer trailers have spring brakes just like trucks and truck tractors. However, converter dollies and trailers built before 1975 are not required to have spring brakes. Those that do not have spring brakes have emergency brakes, which work from the air stored in the trailer air tank. The emergency brakes come on whenever air pressure in the emergency line is lost. These trailers have no parking brake. The emergency brakes come on whenever the air supply knob is pulled out or the trailer is disconnected. A major leak in the emergency line will cause the tractor protection valve to close and the trailer emergency brakes to come on. But the brakes will hold only as long as there is air pressure in the trailer air tank. Eventually, the air will leak away and then there will be no brakes. Therefore, it is very important for safety that you use wheel chocks when you park trailers without spring brakes.

You may not notice a major leak in the service line until you try to put the brakes on. Then, the air loss from the leak will lower the air tank pressure quickly. If it goes low enough, the trailer emergency brakes will come on.

Subsecti on 6.2
Test Your Knowledge

1. Why should you not use the trailer hand valve while driving?
2. Describe what the trailer air supply control does.
3. Describe what the service line is for.
4. What is the emergency air-line for?
5. Why should you use chocks when parking a trailer without spring brakes?
6. Where are shut-off valves?

7KHVH TXHVWLRQV PD\ EH RQ \RXU W answer them all, re-read subsection 6.2.

6.3 ±Antilock Brake Systems

6.3.1 ±Trailers Required to Have ABS

All trailers and converter dollies built on or after March 1, 1998, are required to have ABS. However, many trailers and converter dollies built before this date have been voluntarily equipped with ABS.

Trailers will have yellow ABS malfunction lamps on the left side, either on the front or rear corner. See Figure 6.7. Dollies manufactured on or after March 1, 1998, are required to have a lamp on the left side.

In the case of vehicles manufactured before the required date, it may be difficult to tell if the unit is equipped with ABS. Look under the vehicle for the ECU and wheel speed sensor wires coming from the back of the brakes.

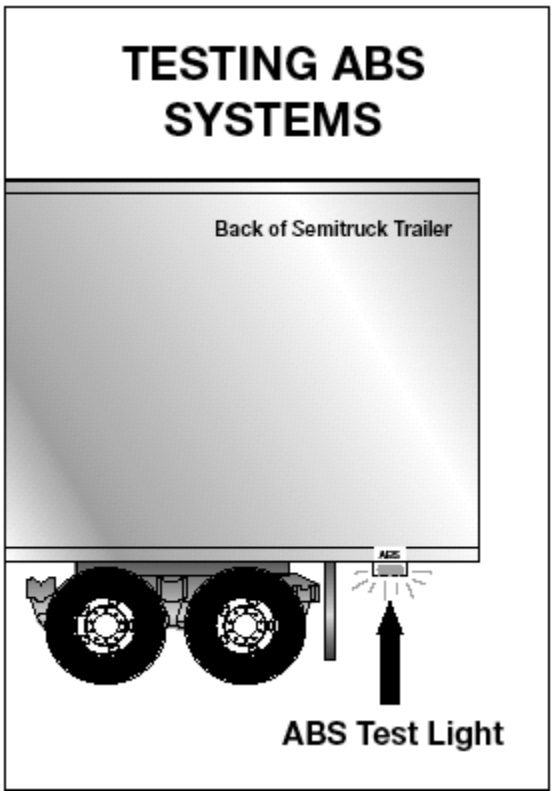


Figure 6.7

6.3.2 ±Braking with ABS

ABS is an addition to your normal brakes. It does not decrease or increase your normal braking capability. ABS only activates when wheels are about to lock up.

ABS does not necessarily shorten your stopping distance, but it does help you keep the vehicle under control during hard braking.

ABS helps you avoid wheel lock up. The computer senses impending lockup, reduces the braking pressure to a safe level, and you maintain control.

Having ABS on only the trailer, or even on only one axle, still gives you more control over the vehicle during braking.

When only the trailer has ABS, the trailer is less likely to swing out, but if you lose steering control or start a tractor jackknife, let up on the brakes (if you can safely do so) until you gain control.

When you drive a tractor-trailer combination with ABS, you should brake as you always have. In other words:

Use only the braking force necessary to stop safely and stay in control.

Brake the same way, regardless of whether you have ABS on the tractor, the trailer, or both.

As you slow down, monitor your tractor and trailer and back off the brakes (if it is safe to do so) to stay in control.

Remember , if your ABS malfunctions, you still have regular brakes. Drive normally, but get the system serviced soon.

$%6 ZRQ¶W DOORZ \RX WR GULYH I closely, or drive less carefully.

6.4 ±Coupling and Uncoupling

Knowing how to couple and uncouple correctly is basic to safe operation of combination vehicles. Wrong coupling and uncoupling can be very dangerous. General coupling and uncoupling steps are listed below. There are differences between different rigs, so learn the details of coupling and uncoupling the truck(s) you will operate.

6.4.1 ±Coupling Tractor -Semitrailers

Step 1. Inspect Fifth Wheel

Check for damaged/missing parts.

Check to see that mounting to tractor is secure, no cracks in frame, etc.

Be sure that the fifth wheel plate is greased as required. Failure to keep the fifth wheel plate lubricated could cause steering problems because of friction between the tractor and trailer.

Check if fifth wheel is in proper position for coupling:

Wheel tilted down toward rear of tractor.

Jaws open.

Safety unlocking handle in the automatic lock position.

If you have a sliding fifth wheel, make sure it is locked.

Make sure the trailer kingpin is not bent or broken.

Step 2. Inspect Area and Chock Wheels

Make sure area around the vehicle is clear.

Be sure trailer wheels are chocked or spring brakes are on.

Check that cargo (if any) is secured against movement due to tractor being coupled to the trailer.

Step 3. Position Tractor

Put the tractor directly in front of the trailer. (Never back under the trailer at an angle because you might push the trailer sideways and break the landing gear.)

Check position, using outside mirrors, by looking down both sides of the trailer.

Step 4. Back Slowly

Back until fifth wheel just touches the trailer.

Don't hit the trailer.

Step 5. Secure Tractor

Put on the parking brake.

Put transmission in neutral.

Step 6. Check Trailer Height

The trailer should be low enough that it is raised slightly by the tractor when the tractor is backed under it. Raise or lower the trailer as needed. (If the trailer is too low, the tractor may strike and damage the trailer nose; if the trailer is too high, it may not couple correctly.)

Check that the kingpin and fifth wheel are aligned.

Step 7. Connect Air-lines to Trailer

Check glad hand seals and connect tractor emergency air-line to trailer emergency glad hand.

Check glad hand seals and connect tractor service air-line to trailer service glad hand.

Make sure air-lines are safely supported where they won't be crushed or caught while tractor is backing under the trailer.

Step 8. Supply Air to Trailer

From cab, push in "air supply" knob or move tractor protection valve control from the "emergency" to the "normal" position to supply air to the trailer brake system.

Wait until the air pressure is normal.

Check brake system for crossed air-lines.

Shut engine off so you can hear the brakes.

Apply and release trailer brakes and listen for sound of trailer brakes being applied and released. You should hear the brakes move when applied and air escape when the brakes are released.

Check air brake system pressure gauge for signs of major air loss.

When you are sure trailer brakes are working, start engine.

Make sure air pressure is up to normal.

Step 9. Lock Trailer Brakes

Pull out the "air supply" knob or move the tractor protection valve control from "normal" to "emergency."

Step 10. Back Under Trailer

Use lowest reverse gear.

Back tractor slowly under trailer to avoid hitting the kingpin too hard.

Stop when the kingpin is locked into the fifth wheel.

Step 11. Check Connection for Security

Raise trailer landing gear slightly off ground.

Pull tractor gently forward while the trailer brakes are still locked to check that the trailer is locked onto the tractor.

Step 12. Secure Vehicle

Put transmission in neutral.

Put parking brakes on.

Shut off engine and take key with you so someone else won't move truck while you are under it.

Step 13. Inspect Coupling

Use a flashlight, if necessary.

Make sure there is no space between upper and lower fifth wheel. If there is space, something is wrong (kingpin may be on top of the closed fifth wheel jaws, and trailer would come loose very easily).

Go under trailer and look into the back of the fifth wheel. Make sure the fifth wheel jaws have closed around the shank of the kingpin.

Check that the locking lever is in the "lock" position.

Check that the safety latch is in position over locking lever. (On some fifth wheels the catch must be put in place by hand.)

If the coupling isn't right, don't drive the coupled unit; get it fixed.

Step 14. Connect the Electrical Cord and Check Air-lines

Plug the electrical cord into the trailer and fasten the safety catch.

Check both air-lines and electrical line for signs of damage.

Make sure air and electrical lines will not hit any moving parts of vehicle.

Step 15. Raise Front Trailer Supports (Landing Gear)

Use low gear range (if so equipped) to begin raising the landing gear. Once free of weight, switch to the high gear range.

Raise the landing gear all the way up. (Never drive with landing gear only part way up as it may catch on railroad tracks or other things.)

After raising landing gear, secure the crank handle safely.

When full weight of trailer is resting on tractor:

Check for enough clearance between rear of tractor frame and landing gear. (When tractor turns sharply, it must not hit landing gear.)

Check that there is enough clearance between the top of the tractor tires and the nose of the trailer.

Step 16. Remove Trailer Wheel Chocks

Remove and store wheel chocks in a safe place.

6.4.2 ±Uncoupling Tractor -Semitrailers

The following steps will help you to uncouple safely.

Step 1. Position Rig

Make sure surface of parking area can support weight of trailer.

Have tractor lined up with the trailer. (Pulling out at an angle can damage landing gear.)

Step 2. Ease Pressure on Locking Jaws

Shut off trailer air supply to lock trailer brakes.

Ease pressure on fifth wheel locking jaws by backing up gently. (This will help you release the fifth wheel locking lever.)

Put parking brakes on while tractor is pushing against the kingpin. (This will hold rig with pressure off the locking jaws.)

Step 3. Chock Trailer Wheels

Chock the trailer wheels if the trailer doesn't have spring brakes or if you're not sure. (The air could leak out of the trailer air tank, releasing its emergency brakes. Without chocks, the trailer could move.)

Step 4. Lower the Landing Gear

If trailer is empty, lower the landing gear until it makes firm contact with the ground.

If trailer is loaded, after the landing gear makes firm contact with the ground, turn crank in low gear a few extra turns. This will lift some weight off the tractor. (Do not lift trailer off the fifth wheel.) This will:

Make it easier to unlatch fifth wheel.

Make it easier to couple next time.

Step 5. Disconnect Air-lines and Electrical Cable

Disconnect air-lines from trailer. Connect air-line glad hands to dummy couplers at back of cab or couple them together.

Hang electrical cable with plug down to prevent moisture from entering it.

Make sure lines are supported so they won't be damaged while driving the tractor.

Step 6. Unlock Fifth Wheel

Raise the release handle lock.

Pull the release handle to "open" position.

Keep legs and feet clear of the rear tractor wheels to avoid serious injury in case the vehicle moves.

Step 7. Pull Tractor Partially Clear of Trailer

Pull tractor forward until fifth wheel comes out from under the trailer.

Stop with tractor frame under trailer (prevents trailer from falling to ground if landing gear should collapse or sink).

Step 8. Secure Tractor

Apply parking brake.

Place transmission in neutral.

Step 9. Inspect Trailer Supports

Make sure ground is supporting trailer.

Make sure landing gear is not damaged.

Step 10. Pull Tr actor Clear of Trailer

Release parking brakes.

Check the area and drive tractor forward until it clears.

Subsections 6.3 and 6.4 Test Your Knowledge

1. What might happen if the trailer is too high when you try to couple?
2. After coupling, how much space should be between the upper and lower fifth wheel?
3. You should look into the back of the fifth wheel to see if it is locked onto the kingpin. True or False?
4. To drive you need to raise the landing gear only until it just lifts off the pavement. True or False?
5. How do you know if your trailer is equipped with antilock brakes?

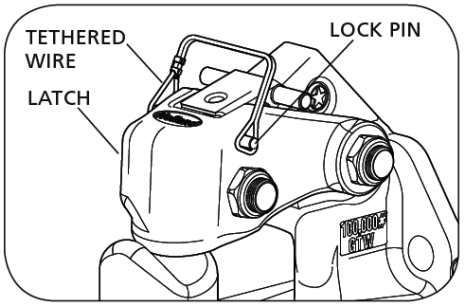
7KHVH TXHVWLRQV PD\ EH RQ \RXU answer them all, re-read subsections 6.3 and 6.4.

6.4.3 Coupling a Pintle Hook

Step 1. Inspect Pintle Hook
Before operating, check for worn, damaged, or missing parts, and make sure mount is secure. If the pintle hook is not secured to the mounting surface, the pintle hook could separate from the vehicle which, if not avoided, could result in death or serious injury.

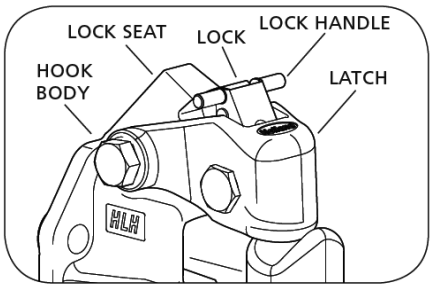
Step 2. Unlock Lock P in and Open Latch
Unlock and remove the tethered lock pin, if applicable (Figure 16).

Figure 16



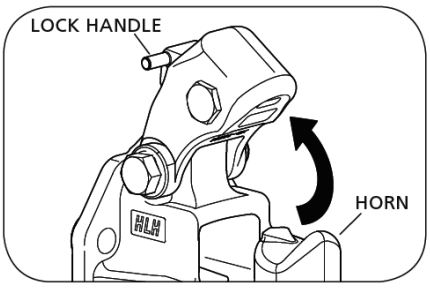
Lift the lock handle away from the vehicle until the lock clears the lock seat on the hook body.
Open the latch by rotating the latch assembly up toward the vehicle until the latch is in its most upright position, then release the lock handle. (Figure 17 and 18)

Figure 17



.

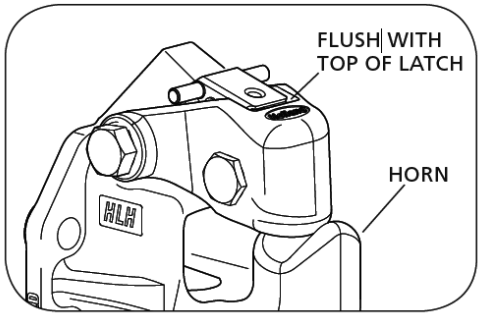
Figure 18



Step 3. Lower Drawbar into Place
Position the drawbar eye over the horn of the pintle hook and lower it into place.

Step 4. Lock Pintle Hook
Push the latch closed. When correctly locked, the lock handle will rotate and move up until it is flush with the top of the latch (Figure 19).

Figure 19



Insert the tethered lock pin through the latch and lock holes, and close the tethered wire lock pin, if applicable (Figure 16).

Failure to correctly lock the latch can result in separation of the trailer and vehicle which, if not avoided, could result in death or serious injury.

6.4.4 - Uncoupling a Pintle Hook

Step 1. Park on Level Surface
Park the trailer on a firm level surface and block trailer tires.

Step 2. Disconnect Electrical Connector, Breakaway Brake Switch and Safety Chains
Disconnect electrical connector.
Disconnect breakaway brake switch lanyard.
Disconnect safety chains from tow vehicle.

Step 3. Unlock th e Coupler
Unlock the coupler and open it.

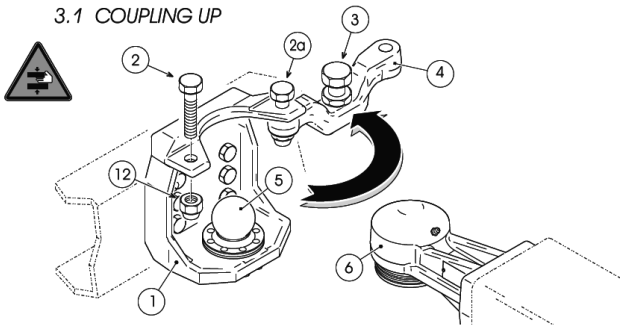
Step 4. Check Ground Surface for Correct Support
Before extending jack, make certain the ground surface below the jack pad will support the tongue load.

Step 5. Rotate Jack Handle
Rotate jack handle to extend the jack and transfer the weight of the trailer tongue to the jack.

Step 6. Raise Trailer Coupler
Raise the trailer coupler above the tow vehicle hitch.

Step 7. Drive Forward
Drive tow vehicle forward.

6.4.5 - Coupling a Drawbar



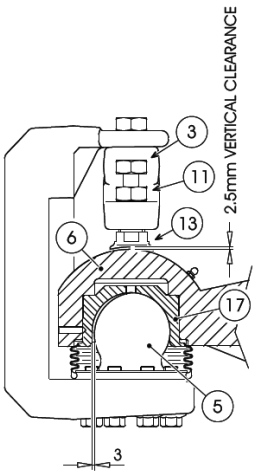
Step 1. Remove Safety Lock screw and Rotate Safety Cover Bar
Remove safety lock screw (2), recover and keep the relative self-locking nut (12) aside then also loosen safety lock screw (2a) and turn out the adjustment screw (3) by at least five turns.
Rotate the safety cover bar (4) outwards so that it is completely open.

Step 2. Reverse Truck
Reverse truck very slowly until the ball cup drawbar eye (6) is in position exactly above the drawbar coupling ball (5).

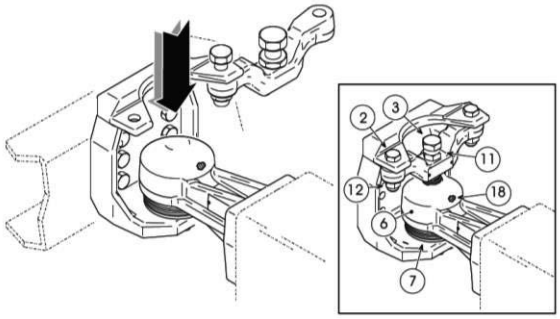
Step 3. Lower the Drawbeam
Lower the drawbeam until the ball cup drawbar eye (6) lies completely covering the drawbar coupling ball (5).

Step 4. Rotate the Safety Cover Bar
Rotate the safety cover bar back inwards (4) and fit in safety lock screw (2) together with its self-locking nut.
Tighten in both the lock screws (2, 2a) together with their relative self-locking nuts (12, 12a) at a 350 to 400 Nm torque wrench setting.

Step 5. Adjust the Adjustment Screw
Adjust the adjustment screw (3) until a 0.3 - 0.5 mm vertical clearance between the guard disk (13) and the ball cup (6) is reached. Lock setting with counter nut (11).



In the event that the safety cover bar (4) will not perfectly lodge into its seating appropriately, travel is strictly forbidden.



Step 6. Protect Coupling Ball and Anchor Edge onto Ball
Protect the part that is still visible of the coupling ball (5) with the rubber dust proof bellows protection cover (7). Accurately anchor the edge directly onto the ball itself.

Step 7. Lubricate the Drawbar Eye
Lubricate the inside of the drawbar eye ball cup (6) directly through the grease nipple (18).

6.4.6 - Uncoupling a Drawbar

Step 1. Turn Trailer Brake On
Make sure that the trailer brake is on.

Step 2. Remove Cover and Loosen Screws
Remove the rubber dust proof bellows protection cover (7).
Loosen the adjustment screw (3) and the counter nut (11).
Loosen safety lock screw (2a) and remove safety lock screw (2) together with its self-locking nut (12).

Step 3. Rotate Safety Cover Bar and Lift Trailer Drawbeam
Rotate the safety cover bar (4) outwards so that it is completely open.
Lift the trailer drawbeam until the drawbar coupling ball (5) is fully visible, then travel forward with the trailer very slowly.
Rotate the safety cover bar inwards (4) until it lodges back in its housing.

Step 4. Lock Safety Screw and Tighten Self - Locking Nut
Fit in safety lock screw (2) and tighten in self-locking nut (12).

6.4.7 - Coupling a Gooseneck Hitch

If you are hooking up a Gooseneck or a fifth wheel hitch, the procedure is a little different from a receiver and ball, but it is not more difficult.

Step 1. Open the Latch and Lubricate the Gooseneck Ball
Open the clamp latch on the Gooseneck coupler. Make sure that the Gooseneck ball is properly lubricated.

Step 2. Position Coupler and Latch the Clamp
Position the trailer's coupler directly over the ball and lower the Gooseneck trailer into position and latch the clamp.

Step 3. Attach Safety Chains
Attach your safety chains. Remember that all trailers are required by law to have safety chains.

Step 4. Connect Tr ailer Light Wiring
Connect your trailer light wiring to your vehicle's connector.
Check all of your lights, including your brake lights.

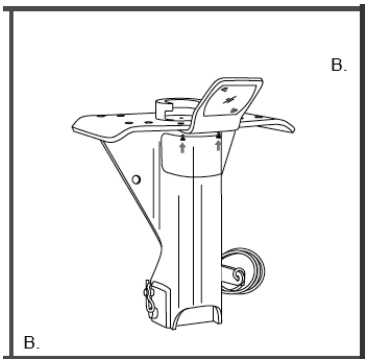
Step 5. Lower and Stow the Trailer Jacks
Completely lower and stow the trailer jacks, allowing the weight to settle onto the tow vehicle.

6.4.8 Uncoupling a Gooseneck Hitch

Step 1. Remove Safety Pin and Clip
Simply remove safety pin and clip.

Step 2. Rotate Handle and Raise Trailer Off Ball
Rotate handle to this position (Fig. B) and raise trailer off ball. Coupler will return to load position automatically.

Step 3. Install Safety Pin and Clip
Install safety pin and clip. (Fig. B)



6.5 ±Inspecting a Combination Vehicle

Use the seven-step inspection procedure described in Section 2 to inspect your combination vehicle. There are more things to inspect on a combination vehicle than on a single vehicle. (For example, tires, wheels, lights, reflectors, etc.) However, there are also some new things to check. These are discussed below.

6.5.1 ±Additional Things to Check during a Walk-around Inspection

Do these checks in addition to those already listed in Section 2.

Coupling System Areas

Check fifth wheel (lower).

Securely mounted to frame.

No missing or damaged parts.

Enough grease.

No visible space between upper and lower fifth wheel.

Locking jaws around the shank, not the head of kingpin. See Figure 6.8.

Release arm properly seated and safety latch/lock engaged.

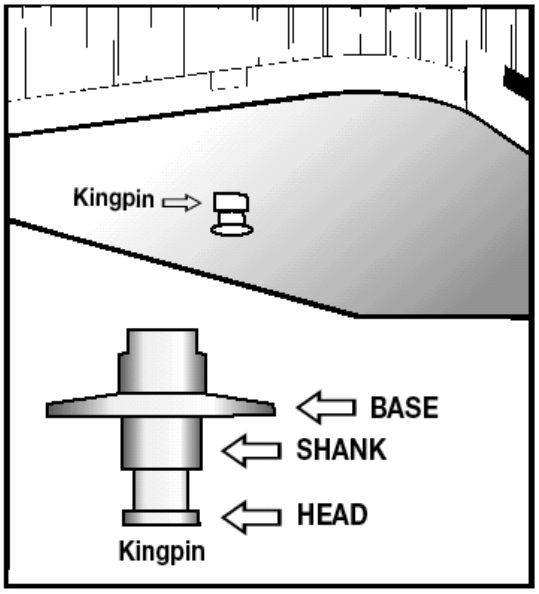


Figure 6.8

Check fifth wheel (upper).

Glide plate securely mounted to trailer frame.

Kingpin not damaged.

Air and electric lines to trailer.

Electrical cord firmly plugged in and secured.

Air-lines properly connected to glad hands, no air leaks, properly secured with enough slack for turns.

All lines free from damage.

Sliding fifth wheel.

Slide not damaged or parts missing.

Properly greased.

All locking pins present and locked in place.

If air powered--no air leaks.

Check that fifth wheel is not so far forward that tractor frame will hit landing gear, or the cab hit the trailer, during turns.

Landing Ge ar

Fully raised, no missing parts, not bent or otherwise damaged.

Crank handle in place and secured.

If power operated, no air or hydraulic leaks.

6.5.2 ±Combination Vehicle Brake Check

Do these checks in addition to Section 5.3: Inspecting Air Brake Systems.

The following section explains how to check air brakes on combination vehicles. Check the brakes on a double or triple trailer as you would any combination vehicle.

Check That Air Flows to All Trailers. Use the tractor parking brake and/or chock the wheels to hold the vehicle. Wait for air pressure to reach normal, then push in the red "trailer air supply" knob. This will supply air to the emergency (supply) lines. Use the trailer handbrake to provide air to the service line. Go to the rear of the rig. Open the emergency line shut-off valve at the rear of the last trailer. You should hear air escaping, showing the entire system is charged. Close the emergency line valve. Open the service line valve to check that service pressure goes through all the trailers (this test assumes that the trailer handbrake or the service brake pedal is on), and then close the valve. If you do NOT hear air escaping from both lines, check that the shut-off valves on the trailer(s) and dolly(ies) are in the OPEN position. You MUST have air all the way to the back for all the brakes to work.

Test Tractor Protection Valve. Charge the trailer Air-brake system. (That is, build up normal air-pressure and push the "air supply" knob in.) Shut the engine off. Step on and off the brake pedal several times to reduce the air pressure in the tanks. The trailer air supply control (also called the tractor protection valve control) should pop out (or go from "normal" to "emergency" position) when the air pressure falls into the pressure range specified by the manufacturer. (Usually within the range of 20 to 45 psi.)

If the tractor protection valve doesn't work right, an air hose or trailer brake leak could drain all the air from the tractor. This would cause the emergency brakes to come on, with possible loss of control.

Test Trailer Emergency Brakes. Charge the trailer air brake system and check that the trailer rolls freely. Then stop and pull out the trailer air supply control (also called tractor protection valve control or trailer emergency valve), or place it in the "emergency" position. Pull gently on the trailer with the tractor to check that the trailer emergency brakes are on.

Test Trailer Service Brakes. Check for normal air pressure, release the parking brakes, move the vehicle forward slowly, and apply trailer brakes with the hand control (trolley valve), if so equipped. You should feel the brakes come on. This tells you the trailer brakes are connected and working. (The trailer brakes should be tested with the hand valve but controlled in normal operation with the foot pedal, which applies air to the service brakes at all wheels.)

Subsection 6.5
Test Your Knowledge

1. Which shut-off valves should be open and which closed?
2. How can you test that air flows to all trailers?
3. How can you test the tractor protection valve?
4. How can you test the trailer emergency brakes?
5. How can you test the trailer service brakes?

7KHVH TXHVWLRQV PD\ EH RQ \RXU W
answer all of them, re-read subsection 6.5.

Section 7
DOUBLES AND TRIPLES

This Section Covers

- Pulling Double/Triple Trailers
- Coupling and Uncoupling
- Inspecting Doubles and Triples
- Checking Air Brakes

This section has information you need to pass the CDL knowledge test for driving safely with double and triple trailers. It tells about how important it is to be very careful when driving with more than one trailer, how to couple and uncouple correctly, and about inspecting doubles and triples carefully. (You should also study Sections 2, 5, and 6.)

7.1 ±Pulling Double/Triple Tra ilers

Take special care when pulling two and three trailers. There are more things that can go wrong, and doubles/triples are less stable than other commercial vehicles. Some areas of concern are discussed below.

7.1.1 ±Prevent Trailer from Rolling Over

To prevent trailers from rolling over, you must steer gently and go slowly around corners, on ramps, off ramps, and curves. A safe speed on a curve for a straight truck or a single trailer combination vehicle may be too fast for a set of doubles or triples.

7.1.2 ±Beware of the Crack -the-whip Effect

Doubles and triples are more likely to turn over than other combination vehicles because of the "crack-the-whip" effect. You must steer gently when pulling trailers. The last trailer in a combination is most likely to turn over. If you don't understand the crack-the-whip effect, study subsection 6.1.2 of this manual.

7.1.3 ±Inspect Completely

There are more critical parts to check when you have two or three trailers. Check them all. Follow the procedures described later in this section.

7.1.4 ±Look Far Ahead

Doubles and triples must be driven very smoothly to avoid rollover or jackknife. Therefore, look far ahead so you can slow down or change lanes gradually when necessary.

7.1.5 ±Manage Space

Doubles and triples take up more space than other commercial vehicles. They are not only longer, but also need more space because they can't be turned or stopped suddenly. Allow more following distance. Make sure you have large enough gaps before entering or crossing traffic. Be certain you are clear at the sides before changing lanes.

7.1.6 ±Adverse Conditions

Be more careful in adverse conditions. In bad weather, slippery conditions, and mountain driving, you must be especially careful if you drive double and triple bottoms. You will have greater length and more dead axles to pull with your drive axles than other drivers. There is more chance for skids and loss of traction.

7.1.7 ±Parking the Vehicle

Make sure you do not get in a spot you cannot pull straight through. You need to be aware of how parking lots are arranged in order to avoid a long and difficult escape.

7.1.8 ±Antilock Braking Systems on Converter Dollies

Converter dollies built on or after March 1, 1998, are required to have antilock brakes. These dollies will have a yellow lamp on the left side of the dolly.

7.2 ±Coupling and Uncoupling

Knowing how to couple and uncouple correctly is basic to safe operation of doubles and triples. Wrong coupling and uncoupling can be very dangerous. Coupling and uncoupling steps for doubles and triples are listed below.

7.2.1 ±Coupling Twin Trailers

Secure Second (Rear) Trailer

If the second trailer doesn't have spring brakes, drive the tractor close to the trailer, connect the emergency line, charge the trailer air tank, and disconnect the emergency line. This will set the trailer emergency brakes (if the slack adjusters are correctly adjusted). Chock the wheels if you have any doubt about the brakes.

For the safest handling on the road, the more heavily loaded semitrailer should be in first position behind the tractor. The lighter trailer should be in the rear.

A converter gear on a dolly is a coupling device of one or two axles and a fifth wheel by which a semitrailer can be coupled to the rear of a tractor-trailer combination forming a double bottom rig. See Figure 7.1.

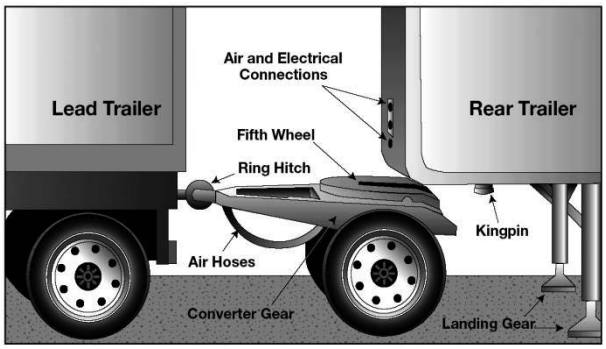


Figure 7.1

Position Converter Dolly in Front of Second (Rear) Trailer

Release dolly brakes by opening the air tank petcock. (Or, if the dolly has spring brakes, use the dolly parking brake control.)

If the distance is not too great, wheel the dolly into position by hand so it is in line with the kingpin.

Or, use the tractor and first semitrailer to pick up the converter dolly:

Position combination as close as possible to converter dolly.

Move dolly to rear of first semitrailer and couple it to the trailer.

Lock pintle hook.

Secure dolly support in raised position.

Pull dolly into position as close as possible to nose of the second semitrailer.

Lower dolly support.

Unhook dolly from first trailer.

Wheel dolly into position in front of second trailer in line with the kingpin.

Connect Converter Dolly to Front Trailer

Back first semitrailer into position in front of dolly tongue.

Hook dolly to front trailer.

Lock pintle hook.

Secure converter gear support in raised position.

Connect Converter Dolly to Rear Trailer

Make sure trailer brakes are locked and/or wheels chocked.

Make sure trailer height is correct. (It must be slightly lower than the center of the fifth wheel, so trailer is raised slightly when dolly is pushed under.)

Back converter dolly under rear trailer.

Raise landing gear slightly off ground to prevent damage if trailer moves.

Test coupling by pulling against pin of the second semitrailer.

Make visual check of coupling. (No space between upper and lower fifth wheel. Locking jaws closed on kingpin.)

Connect safety chains, air hoses, and light cords.

Close converter dolly air tank petcock and shut-off valves at rear of second trailer (service and emergency shut-offs).

Open shut-off valves at rear of first trailer (and on dolly if so equipped).

Raise landing gear completely.

Charge trailer brakes (push "air supply" knob in), and check for air at rear of second trailer by opening the emergency line shut-off. If air pressure isn't there, something is wrong and the brakes won't work.

7.2.2 ±Uncoupling Twin Trailers

Uncouple Rear Trailer

Park rig in a straight line on firm level ground.

Apply parking brakes so rig won't move.

Chock wheels of second trailer if it doesn't have spring brakes.

Lower landing gear of second semitrailer enough to remove some weight from dolly.

Close air shut-offs at rear of first semitrailer (and on dolly if so equipped).

Disconnect all dolly air and electric lines and secure them.

Release dolly brakes.

Release converter dolly fifth wheel latch.

Slowly pull tractor, first semitrailer, and dolly forward to pull dolly out from under rear semitrailer.

Uncouple Converter Dolly

Lower dolly landing gear.

Disconnect safety chains.

Apply converter gear spring brakes or chock wheels.

Release pintle hook on first semi-trailer.

Slowly pull clear of dolly.

Never unlock the pintle hook with the dolly still under the rear trailer. The dolly tow bar may fly up, possibly causing injury, and making it very difficult to re-couple.

7.2.3 ±Coupling and Uncoupling Triple Trailers

Couple Tractor/First Semitrailer to Second/Third Trailers

Couple tractor to first trailer. Use the method already described for coupling tractor-semitrailers.

Move converter dolly into position and couple first trailer to second trailer using the method for coupling doubles. Triples rig is now complete.

Uncouple Triple -trailer Rig

Uncouple third trailer by pulling the dolly out, then unhitching the dolly using the method for uncoupling doubles.

Uncouple remainder of rig as you would any double-bottom rig using the method already described.

7.2.4 ±Coupling and Uncoupling Other Combinations

The methods described so far apply to the more common tractor-trailer combinations. However, there are other ways of coupling and uncoupling the many types of truck-trailer and tractor-trailer combinations that are in use. There are too many to cover in this manual. You will need to learn the correct way to couple and uncouple the vehicle(s) you will drive according to the manufacturer and/or owner specifications.

7.3 ±Inspecting Doubles and Triples

Use the seven-step inspection procedure described in Section 2 to inspect your combination vehicle. There are more things to inspect on a combination vehicle than on a single vehicle. Many of these items are simply more of what you would find on a single vehicle. (For example, tires, wheels, lights, reflectors, etc.) However, there are also some new things to check. These are discussed below.

7.3.1 ±Additio nal Checks

Do these checks in addition to those already listed in Section 2, Step 5: Do a Walk-around Inspection.

Coupling System Areas

Check fifth wheel (lower).

Securely mounted to frame.

No missing or damaged parts.

Enough grease.

No visible space between upper and lower fifth wheel.

Locking jaws around the shank, not the head of kingpin.

Release arm properly seated and safety latch/lock engaged.

Check fifth wheel (upper).

Glide plate securely mounted to trailer frame.

Kingpin not damaged.

Air and electric lines to trailer.

Electrical cord firmly plugged in and secured.

Air-lines properly connected to glad hands, no air leaks, properly secured with enough slack for turns.

All lines free from damage.

Sliding fifth wheel.

Slide not damaged or parts missing.

Properly greased.

All locking pins present and locked in place.

If air powered, no air leaks.

Check that fifth wheel is not so far forward that the tractor frame will hit landing gear, or cab will hit the trailer, during turns.

Landing Gear

Fully raised, no missing parts, not bent or otherwise damaged.

Crank handle in place and secured.

If power operated, no air or hydraulic leaks.

Double and Triple Trailers

Shut-off valves (at rear of trailers, in service and emergency lines).

Rear of front trailers: OPEN.

Rear of last trailer: CLOSED.

Converter dolly air tank drain valve: CLOSED.

Be sure air-lines are supported and glad hands are properly connected.

If spare tire is carried on converter gear (dolly), make sure it's secured.

Be sure pintle-eye of dolly is in place in pintle hook of trailer(s).

Make sure pintle hook is latched.

Safety chains should be secured to trailer(s).

Be sure light cords are firmly in sockets on trailers.

7.3.2 ±Additional Things to Check during a Walk-around Inspection

Do these checks in addition to subsection 5.3, Inspecting Air Brake Systems.

7.4 ±Doubles/Triples Air Brake Check

Check the brakes on a double or triple trailer as you would any combination vehicle. Subsection 6.5.2 explains how to check air brakes on combination vehicles. You must also make the following checks on your double or triple trailers

7.4.1 ±Additional Air Brake Checks

Check That Air Flows to All Trailers (Double and Triple Trailers). Use the tractor parking brake and/or chock the wheels to hold the vehicle. Wait for air pressure to reach normal, then push in the red "trailer air supply" knob. This will supply air to the emergency (supply) lines. Use the trailer handbrake to provide air to the service line. Go to the rear of the rig. Open the emergency line shut-off valve at the rear of the last trailer. You should hear air escaping, showing the entire system is charged. Close the emergency line valve. Open the service line valve to check that service pressure goes through all the trailers (this test assumes that the trailer handbrake or the service brake pedal is on), and then close the valve. If you do NOT hear air escaping from both lines, check that the shut-off valves on the trailer(s) and dolly(ies) are in the OPEN position. You MUST have air all the way to the back for all the brakes to work.

Test Tractor Protection Valve. Charge the trailer air brake system. (That is, build up normal air pressure and push the "air supply" knob in.) Shut the engine off. Step on and off the brake pedal several times to reduce the air pressure in the tanks. The trailer air supply control (also called the tractor protection valve control) should pop out (or go from "normal" to "emergency" position) when the air pressure falls into the pressure range specified by the manufacturer. (Usually within the range of 20 to 45 psi.)

If the tractor protection valve doesn't work properly, an air hose or trailer brake leak could drain all the air from the tractor. This would cause the emergency brakes to come on, with possible loss of control.

Test Trailer Emergency Brakes. Charge the trailer air brake system and check that the trailer rolls freely. Then stop and pull out the trailer air supply control (also called tractor protection valve control or trailer emergency valve) or place it in the "emergency" position. Pull gently on the trailer with the tractor to check that the trailer emergency brakes are on.

Test Trailer Service Brakes. Check for normal air pressure, release the parking brakes, move the vehicle forward slowly, and apply trailer brakes with the hand control (trolley valve), if so equipped. You should feel the brakes come on. This tells you the trailer brakes are connected and working. (The trailer brakes should be tested with the hand valve, but controlled in normal operation with the foot pedal, which applies air to the service brakes at all wheels.)

Section 7
Test Your Knowledge

1. What is a converter dolly?
2. Do converter dollies have spring brakes?
3. What three methods can you use to secure a second trailer before coupling?
4. How do you check to make sure trailer height is correct before coupling?
5. What do you check when making a visual check of coupling?
6. Why should you pull a dolly out from under a trailer before you disconnect it from the trailer in front?
7. What should you check for when inspecting the converter dolly? The pintle hook?
8. Should the shut-off valves on the rear of the last trailer be open or closed? On the first trailer in a set of doubles? On the middle trailer of a set of triples?
9. How can you test that air flows to all trailers?
10. How do you know if your converter dolly is equipped with antilock brakes?

7KHVH TXHVWLRQV PD\ EH RQ \RXU answer them all, re-read Section 7.

Section 8
TANK VEHICLES

This Section Covers

- Inspecting Tank Vehicles
- Driving Tank Vehicles
- Safe Driving Rules

This section has information needed to pass the CDL knowledge test for driving a tank vehicle. (You should also study Sections 2, 5, 6, and 9). A tank endorsement is required for certain vehicles that transport liquids or gases. The liquid or gas does not have to be a hazardous material. A tank endorsement is required if your vehicle needs a Class A or B CDL and you want to haul a liquid or liquid gas in a tank or tanks having an individual rated capacity of more than 119 gallons and an aggregate rated capacity of 1000 gallons or more that is either permanently or temporarily attached to the vehicle or the chassis. A tank endorsement is also required for Class C vehicles when the vehicle is used to transport hazardous materials in liquid or gas form in the above described rated tanks.

Before loading, unloading, or driving a tanker, inspect the vehicle. This makes sure that the vehicle is safe to carry the liquid or gas and is safe to drive.

8.1 ±Inspecting Tank Vehicles

Tank vehicles have special items that you need to check. Tank vehicles come in many types and sizes. You need to check the vehicle's operator manual to make sure you know how to inspect your tank vehicle.

8.1.1 ±Leaks

On all tank vehicles, the most important item to check for is leaks. Check under and around the vehicle for signs of any leaking. Don't carry liquids or gases in a leaking tank. To do so is a crime. You will be cited and prevented from driving further. You may also be liable for the clean-up of any spill. In general, check the following:

Check the tank's body or shell for dents or leaks.

Check the intake, discharge, and cut-off valves. Make sure the valves are in the correct position before loading, unloading, or moving the vehicle.

Check pipes, connections, and hoses for leaks, especially around joints.

Check manhole covers and vents. Make sure the covers have gaskets and they close correctly. Keep the vents clear so they work correctly.

8.1.2 ±Check Special Purpose Equipment

If your vehicle has any of the following equipment, make sure it works:

Vapor recovery kits.

Grounding and bonding cables.

Emergency shut-off systems.

Built in fire extinguisher.

Never drive a tank vehicle with open valves or manhole covers.

8.1.3 ±Special Equipment

Check the emergency equipment required for your vehicle. Find out what equipment you're required to carry and make sure you have it (and it works).

8.2 ±Driving Tank Vehicles

Hauling liquids in tanks requires special skills because of the high center of gravity and liquid movement. See Figure 8.1.

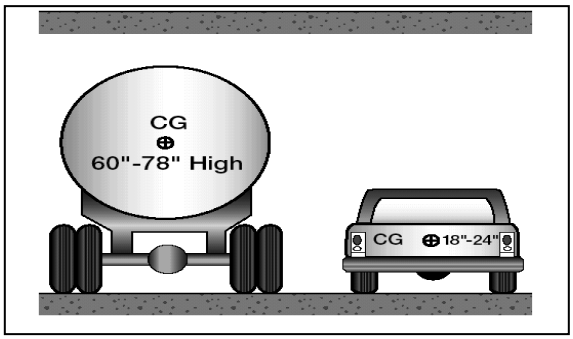


Figure 8.1

8.2.1 ±High Center of Gravity

High center of gravity means that much of the load's weight is carried high up off the road. This makes the vehicle top-heavy and easy to roll over. Liquid tankers are especially easy to roll over. Tests have shown that tankers can turn over at the speed limits posted for curves. Take highway curves and on ramp/off ramp curves well below the posted speeds.

8.2.2 ±Danger of Surge

Liquid surge results from movement of the liquid in partially filled tanks. This movement can have bad effects on handling. For example, when coming to a stop, the liquid will surge back and forth. When the

wave hits the end of the tank, it tends to push the truck in the direction the wave is moving. If the truck is on a slippery surface such as ice, the wave can shove a stopped truck out into an intersection. The driver of a liquid tanker must be very familiar with the handling of the vehicle.

8.2.3 ±Bulkheads

Some liquid tanks are divided into several smaller tanks by bulkheads. When loading and unloading the smaller tanks, the driver must pay attention to weight distribution. Don't put too much weight on the front or rear of the vehicle.

8.2.4 ±Baffled Tanks

Baffled liquid tanks have bulkheads in them with holes that let the liquid flow through. The baffles help to control the forward and backward liquid surge. Side-to-side surge can still occur. This can cause a roll over.

8.2.5 ±Un-baffled Tanks

Un-baffled liquid tankers (sometimes called "smooth bore" tanks) have nothing inside to slow down the flow of the liquid. Therefore, forward-and-back surge is very strong. Un-baffled tanks are usually those that transport food products (milk, for example). (Sanitation regulations forbid the use of baffles because of the difficulty in cleaning the inside of the tank.) Be extremely cautious (slow and careful) in driving smooth bore tanks, especially when starting and stopping.

8.2.6 ±Outage

Never load a cargo tank totally full. Liquids expand as they warm and you must leave room for the expanding liquid. This is called "outage." Since different liquids expand by different amounts, they require different amounts of outage. You must know the outage requirement when hauling liquids in bulk.

8.2.7 ±How Much to Load?

A full tank of dense liquid (such as some acids) may exceed legal weight limits. For that reason, you may often only partially fill tanks with heavy liquids. The amount of liquid to load into a tank depends on:

The amount the liquid will expand in transit.

The weight of the liquid.

Legal weight limits.

8.3 ±Safe Driving Rules

In order to drive tank vehicles safely, you must remember to follow all the safe driving rules. A few of these rules are:

8.3.1 ±Drive Smoothly

Because of the high center of gravity and the surge of the liquid, you must start, slow down, and stop very smoothly. Also, make smooth turns and lane changes.

8.3.2 ±Controlling Surge

Keep a steady pressure on the brakes. Do not release too soon when coming to a stop.

Brake far in advance of a stop and increase your following distance.

If you must make a quick stop to avoid a crash, use controlled or stab braking. If you do not remember how to stop using these methods, review subsection 2.17.2. Also, remember that if you steer quickly while braking, your vehicle may roll over.

8.3.3 ±Curves

Slow down before curves, then accelerate slightly through the curve. The posted speed for a curve may be too fast for a tank vehicle.

8.3.4 ±Stopping Distance

Keep in mind how much space you need to stop your vehicle. Remember that wet roads double the normal stopping distance. Empty tank vehicles may take longer to stop than full ones.

8.3.5 ±Skids

Don't over steer, over accelerate, or over brake. If you do, your vehicle may skid. On tank trailers, if your drive wheels or trailer wheels begin to skid, your vehicle may jackknife. When any vehicle starts to skid, you must take action to restore traction to the wheels.

Section 8
Test Your Knowledge

1. How are bulkheads different than baffles?
2. Should a tank vehicle take curves, on ramps, or off ramps at the posted speed limits?
3. How are smooth bore tankers different to drive than those with baffles?
4. What three things determine how much liquid you can load?
5. What is outage?
6. How can you help control surge?
7. What two reasons make special care necessary when driving tank vehicles?

These questions may be on the test. If you can't answer them all, re-read Section 8.

Section 9
HAZARDOUS MATERIALS

This Section Covers

- The Intent of the Regulations
- Bulk Tank Loading, Unloading, and Marking
- Driver Responsibilities
- Driving and Parking Rules
- Communications Rules
- Emergencies
- Loading and Unloading

Hazardous materials are products that pose a risk to health, safety, and property during transportation. The term often is shortened to HAZMAT, which you may see on road signs, or to HM in government regulations. Hazardous materials include explosives, various types of gas, solids, flammable and combustible liquid, and other materials. Because of the risks involved and the potential consequences these risks impose, all levels of government regulate the handling of hazardous materials.

The Hazardous Materials Regulations (HMR) is found in parts 171 - 180 of title 49 of the Code of Federal Regulations. The common reference for these regulations is 49 CFR 171 - 180

The Hazardous Materials Table in the regulations contains a list of these items. However, this list is not all-inclusive. Whether or not a material is considered hazardous is based on its characteristics and the shipper's decision on whether or not the material meets a definition of a hazardous material in the regulations.

The regulations require vehicles transporting certain types or quantities of hazardous materials to display diamond-shaped, square on point, warning signs called placards.

This section is designed to assist you in understanding your role and responsibilities in hauling hazardous materials. Due to the constantly