## ENGLISH STUDY GUIDE 3

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# TDLR APPROVED TEXAS STATE

# STUDY GUIDE

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# Introduction

This Study Guide is provided to you by Southwest Tow Operators. (Southwest Tow Operators). It contains basic towing information required to pass the Southwest Tow Operators Texas Tow Truck Driver Certification Exam.

The Study Guide is also designed as a reference that you will refer to many times in your towing career for basic information. You do not have to memorize the Study Guide to pass the exam. Safe, professional towing techniques are the focus of the exam. The charts and technical explanations are for you to keep as a reference.

The Certification Exam consists of 100 multiple choice and true/false questions. You should be able to complete the exam in less than one hour. However, you may take as long as two hours.

Every towing situation is different, depending on your experience level, training, weather, equipment used, and many other factors. The principals put forth in this Study Guide cover most situations accurately. However, you must apply your hands-on training, knowledge, experience and sound judgement to each situation INDIVIDUALLY. You cannot rely solely on the information in this Study Guide to teach you proper towing techniques and practices. This Study Guide is NOT a substitute for professional, hands-on training.

Remember, this Study Guide is just that, a Guide to help you learn the basics so that you can become a Certified Texas Tow Truck Driver. You cannot become a professional tow truck driver simply by reading this Study Guide. Make sure you are properly trained by an experienced tow truck professional before you dive in!

PLEASE READ THE STUDY GUIDE COMPLETELY BEFORE TAKING THE WRITTEN TEST

## Good Luck!

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# CHAPTER 1

## PARKING AND WORKING ON THE ROADWAY

### Traffic Hazards to Emergency First Responders While Working Along Roadways

The number of first responders struck and killed by motor vehicles has dramatically increased within recent years. During the 5-year period between 1995 and 1999, 17 fire fighters were struck and killed by motorists. This represents an 89% increase in the number of line-of-duty deaths over the previous 5-year period (between 1990 and 1994), when 9 fire fighters were struck and killed by motor vehicles [NFPA 2000].

Under the Fire Fighter Fatality Investigation and Prevention Program, NIOSH investigated two separate incidents involving fire fighters who were struck and killed while providing emergency services along roadways during 1999 [NIOSH 1999, 2000]. These incidents and data demonstrate that hazards to first responders are very serious and require the utmost care and training.

Motorists accustomed to a clear, unobstructed roadway may not recognize and avoid closed lanes or emergency workers on or near the roadway. In some cases, conditions can reduce a motorist's ability to see and avoid emergency responders and equipment. Some examples include weather, time of day, scene lighting (i.e., area lighting and optical warning devices), traffic speed and volume, and road configuration (i.e., hills, curves, and other obstructions that limit visibility).

The incident response team consists of all emergency service providers, including law enforcement**,** tow truck operators, EMS, and fire fighters. Each one is exposed to these hazards.

**CASE STUDY *Tow Truck Driver Struck by Car***

By KATE MCCARDELL / Floridan Staff Writer, Jackson County Newspaper February 27, 2008

A Marianna man remains hospitalized after he was struck by a vehicle on State Road 77. John N. Bryan, 38, owner of John's Automotive in Marianna, was air-lifted to Flowers Hospital Tuesday night in critical condition According to Florida Highway Patrol Cpl. Rick Warden, Bryan was tending to another crash that was minor in nature when he stepped out into the road to direct re-entry of a wrecker onto the roadway.

Graceville woman Ashley McCombs, 21, driving northbound in a two-door Saturn, had slowed down to between 26 and 33 miles per hour when her vehicle struck Bryan.

"When you've got a vehicle that weighs about 2,200 to 2,300 pounds hitting at 26 miles per hour, it's pretty intense. (Bryan) actually came off the vehicle approximately 11 feet after the impact, then slid an additional 37 feet," said Warden.

McCombs received minor injuries from the incident, which occurred at 8:50 p.m.

Bryan's injuries, said Warden, were initially described as a double-compound fracture in his leg, a crushed pelvis and a "host of internal injuries."

He was transported via ambulance, then air -lifted to Flowers Hospital in Dothan, Ala., and subsequently transported to University of Alabama Hospital for further treatment.

"He had stepped onto the road and was trying to get traffic to stop to get the wrecker on the roadway to enter traffic," explained Cpl. Warden. "Unfortunately, when he had entered the roadway, **the headlights on the wrecker truck were pointed directly into oncoming traffic,** which caused a glare that reduced visibility. He was standing about two or three feet from the side of the road. She (McCombs) commented that she had slowed down when she noticed all the lights but did not see (Bryan)."

Bryan's injuries, said Warden, were initially described as a double-compound fracture in his leg, a crushed pelvis and a "host of internal injuries.

## CASE STUDY

**June 29, 2007**

### *Tower Killed While Loading Vehicle - Fatal crash backed up traffic on I-95 for hours*

A tow truck driver was killed, and a Florida Highway Patrol officer injured after a sport utility vehicle sideswiped two vehicles Friday afternoon on Interstate 95.

FHP Trooper Kenneth Washington, 52, had pulled over to the right side of the interstate north of State Street to complete a report on a previous minor accident, Lt. Bill Leeper said. As Washington typed on his computer, Charles Daniel Sharpe, 57, of Jacksonville was standing outside his tow truck, which was in front of the Highway Patrol car, Leeper said.

For unknown reasons, Reginald Tyrone Benyard, 37, of Jacksonville drove his SUV off the road and into the sides of both vehicles about 1 p.m., Leeper said.

Sharpe died at the scene, Leeper said. Benyard, who was wearing his seat belt, had no injuries. Washington, who was not wearing a seat belt and was parked, was taken to Shands Jacksonville with minor injuries, Leeper said.

"If the trooper was standing outside his car, we could have had two deaths," Leeper said.

**Recommendations for Accident Prevention**

- Ensure that tow trucks are positioned to take advantage of topography and weather conditions (uphill and upwind) and to protect tow truck operators from traffic if possible.

- Park or stage unneeded vehicles off the roadway whenever possible.
- If police have not yet arrived at a scene involving a highway incident or fire, first control the oncoming vehicles before safely turning your attention to the emergency.
- Position yourself and any victim(s) in a secure area that maximizes your visibility to motorists when it is impossible to protect the incident scene from immediate danger.
- Use a traffic control device that maximizes your visibility to motorists when controlling traffic.
- Always wear a reflective vest or reflective jacket while working outside the tow truck. The reflective vest or jacket must meet the ANSI/ISEA 207-2006 requirements for high visibility safety apparel.

National Institute of Occupational Safety and Health

**Roadside Safety**

When arriving at an accident scene, park the tow truck out of the way, assess the scene, and locate the officer in charge. Always approach the vehicle you are towing from the shoulder side of the road. If you must approach the roadway, **MAKE SURE YOU**

**HAVE YOUR REFLECTIVE GEAR ON AND ARE VISIBLE TO PASSING MOTORISTS.**
On an accident scene, lighting serves two functions: as a warning to approaching motorists, and to illuminate the work scene. **BE CAREFUL NOT TO OBSTRUCT PASSING MOTORIST VISION WITH YOUR LIGHTING. WORK LIGHTS CAN BLIND ONCOMING CARS.**

**Make sure the passengers and drivers are safely off the roadway, away from all vehicles and traffic. Do not ask them to assist you or direct traffic.**

Do not allow the front of your tow truck to be chained to another truck or heavy object during a recovery.

# CHAPTER 2

## PERSONAL SAFETY OF DRIVER

**Effects of Alcohol**

In low doses, alcohol produces:

- a relaxing effect
- reduces tension
- lowers inhibitions
- impairs concentration
- slows reflexes
- impairs reaction time
- reduces coordination

In medium doses, alcohol produces:

- slurred speech
- drowsiness
- altered emotions

In high doses, alcohol produces:

- vomiting
- breathing difficulties
- unconsciousness
- coma

## Alcohol Facts

- Male drivers involved in fatal motor vehicle crashes are almost twice as likely as female drivers to be intoxicated with a blood alcohol concentration (BAC) of

  0.08% or greater (NHTSA 2006). It is illegal to drive with a BAC of 0.08% or higher in all 50 states, the District of Columbia and Puerto Rico.

- Young men ages 18 to 20 (under the legal drinking age) reported driving while impaired more frequently than any other age group (Shults et al. 2002, Quinlan et al. 2005).

- Of the 1,946 traffic fatalities among children ages 0 to 14 years in 2005, 21% involved alcohol (NHTSA 2006b).

## Drinking and Driving Don't Mix

The following tables are from the Pennsylvania Liquor Control Board. They illustrate the effects of alcohol consumption on blood alcohol levels and driving skills. These data should be used only as a general reference for the effects of alcohol because body weight and other variables may influence the results

# ALCOHOL IMPAIRMENT CHART

NEVER DRINK AND DRIVE

| Drinks | APPROXIMATE BLOOD ALCOHOL PERCENTAGE — Body Weight in Pounds | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 90 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 | |
| 0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | ONLY SAFE DRIVING LIMIT |
| 1 | .05 | .05 | .04 | .03 | .03 | .03 | .02 | .02 | .02 | Impairment Begins |
| 2 | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .04 | .04 | Driving Skills Affected — Possible Criminal Penalties |
| 3 | .15 | .14 | .11 | .10 | .09 | .08 | .07 | .06 | .06 | |
| 4 | .20 | .18 | .15 | .13 | .11 | .10 | .09 | .08 | .08 | |
| 5 | .25 | .23 | .19 | .16 | .14 | .13 | .11 | .10 | .09 | |
| 6 | .30 | .27 | .23 | .19 | .17 | .15 | .14 | .12 | .11 | Legally Intoxicated — Criminal Penalties |
| 7 | .35 | .32 | .27 | .23 | .20 | .18 | .16 | .14 | .13 | |
| 8 | .40 | .36 | .30 | .26 | .23 | .20 | .18 | .17 | .15 | |
| 9 | .45 | .41 | .34 | .29 | .26 | .23 | .20 | .19 | .17 | |
| 10 | .51 | .45 | .38 | .32 | .28 | .25 | .23 | .21 | .19 | |

Your body can get rid of one drink per hour.
Each 1½ oz. of 80 proof liquor, 12 oz. of beer or 5 oz. of table wine = 1 drink.



(Chart from the Pennsylvania Liquor Control Board)

# ALCOHOL IMPAIRMENT CHART

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| 1 | .04 | .03 | .03 | .02 | .02 | .02 | .02 | .02 | Impairment Begins |
| 2 | .08 | .06 | .05 | .05 | .04 | .04 | .03 | .03 | |
| 3 | .11 | .09 | .08 | .07 | .06 | .06 | .05 | .05 | Driving Skills Affected — Possible Criminal Penalties |
| 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 | |

Your body can get rid of one drink per hour.
Each 1½ oz. of 80 proof liquor, 12 oz. of beer or 5 oz. of table wine = 1 drink.

FEMALE

(Chart from the Pennsylvania Liquor Control Board)

**BLOOD BORNE PATHOGENS**

Workers in many different occupations are at risk of exposure to blood borne pathogens, including Hepatitis B, Hepatitis C, and HIV/AIDS. EMS, nurses and **TOW TRUCK DRIVERS** are examples of workers who may be at risk of exposure.

OSHA defines blood to mean human blood, human blood components, and products made from human blood. Other potentially infectious materials (OPIM) include the following human body fluids: semen, vaginal secretions, cerebrospinal fluid, saliva or any body fluid that is visibly contaminated with blood.

- Wear latex gloves when working an injury wreck where you may come in contact with blood or other body fluids.
- Make sure you wash your hands and any other skin with soap and water or flush mucous membranes with water as soon as feasible after contact with blood or other potentially infectious materials
- Dispose of your latex gloves in an appropriately designated area or container for disposal
- If you think you have been exposed to body fluids, notify your supervisor and plan to be checked by a health care professional

# FATIGUE

**Tips for Staying Alert**

- Get plenty of sleep each night. While driving, schedule a break at least once every two hours. During a break, get out of your vehicle and take a walk, or do some form of exercise to increase alertness.

- If you are too tired to drive, take the appropriate break needed to safely return to work.

- Eat sensibly while you are driving and avoid large meals. They can make you drowsy, particularly at lunchtime.

- Stay hydrated. Caffeine drinks (tea, coffee and cola drinks) help you stay alert, but they take time to be effective.

- Get fresh air into the vehicle. You'll find it easier to stay alert if you have fresh air blowing into your vehicle.

- Conversation and music can help you stay alert, but they're only short-term solutions.

- Avoid taking medications, both prescribed and over-the-counter, that lead to drowsiness. Examples of medications to avoid are some antihistamines, travel sickness tablets, sleeping pills, some cold preparations and some pain killers.

- Always read the packaging of your medications before you drive, to make sure they won't affect your alertness. If you're unsure, ask your pharmacist.

# PROTECTIVE GEAR

## SEAT BELTS

Your personal safety is very important. Always make sure you and all passengers wear your seat belts. Never allow a passenger to ride in the towed vehicle.

## STEEL-TOED BOOTS

Always wear steel-toed boots when working heavy recoveries or with heavy objects. ALWAYS EXERCISE CAUTION, even when wearing steel-toed boots. Heavy objects can bend the steel and crush your toes.

## WORK GLOVES AND PROTECTIVE EYEWEAR

It is also a good idea to keep a good pair of work gloves and protective eyewear in your toolbox. Make sure you use your protective eyewear when jumping a battery.

Take a few seconds to protect yourself so you can go home safe and return to work tomorrow!

# CHAPTER 3

### SAFE DRIVER SKILLS

Keep your truck in top working condition. Check it daily when you start work and when you finish. Make sure all equipment is present, secure, and in good working order. Check fluid levels daily. Check all lights: front, back, and tow lights before starting work. If you make this a daily habit, you will have much less downtime and won't end up stranded or unable to help your customers in a timely manner.

When you are towing a vehicle, the weight is transferred from the front of the tow truck to the back. **This greatly reduces your braking ability**. To compensate for this:

1. Always follow at a safe distance and never tailgate.
2. Keep brakes in good repair. Faulty brakes should be repaired immediately. Do not drive a tow truck with faulty brakes.
3. NEVER EXCEED THE SPEED LIMIT

When towing a vehicle at 60 MPH, it will take you about 6 seconds to come to a stop. Always maintain a safe stopping distance when towing a vehicle so that you have plenty of time to stop. Sudden stops can cause the towed vehicle to come UNHOOKED.

Always walk around a vehicle prior to towing it and check:

- Tires to make sure there are no flats
- For existing damages
- The ground clearance

Use your safety chains whenever you perform a tow on ANY public roadway. Anytime a wheel lift is the securing mode of towing, use wheel straps with a safety chain.

Never drive on the shoulder area of the highway to get to an accident. Do not allow another person to steer the towed vehicle while it is in tow. Always straighten and secure the steering wheel so this is not necessary.

Do not hog the fast lane. If someone wants to pass, maneuver over to the next lane on the right and allow them to pass on the left.

**ALWAYS DRIVE SAFELY AND OBEY ALL TRAFFIC LAWS WHEN RESPONDING TO A CALL.**

# CHAPTER 4

**ROADSIDE SERVICES AND SAFETY**

## Types of Roadside Services

### Flat Tire Repair

Services include replacement of a flat tire on a disabled vehicle with a good spare tire. Most vehicles will have a spare tire. Equipment needed is a floor jack for stable level lifting of vehicle, lug nut remover, or “Star”. In high traffic areas, it is recommended you move the vehicle to a safe area to perform the tire change.

### Emergency Fuel Delivery

Services include delivery of fuel to a disabled vehicle that has run out of fuel. In older vehicles, it may be necessary to hold back a small amount of fuel to “prime” the vehicle. Equipment needed is a small, approved, fuel container to safely deliver the fuel to the vehicle, safety goggles and fire-resistant gloves.

### Battery Boost / Jump Start

Services include charging a battery on a disabled vehicle for allowing the engine to start by using a set of jumper cables from the tow truck battery to the disabled vehicle. A jumper box is also recommended if available. Equipment needed is a set of jumper cables, or jumper box, eye goggles and gloves. It is recommended to use a heavy duty set of jumper cables with at least a rating of 6 AWG with enough length to safely connect to the disabled vehicle.

Make sure that your jumper cables are color coded with Red and Black connections. Red should always be connected to the positive “+” post of the battery and the Black should be connected to the negative “- “post of the battery. Make sure that you check that there is no serious corrosion, as this may be a sign of a volatile battery and it could explode on contact.

When jumpstarting a vehicle, always put the jumper cable on the dead battery first, then connect the cable to your truck. Always wear eye protection when jumpstarting a vehicle.

**Lockout Service**

Services include unlocking a vehicle when someone has lost or locked their keys inside the car. Equipment needed is a lockout kit or lockout bar.

A slim-jim may be used on older vehicles but is not recommended for newer vehicles. Many newer vehicle models have side-air bags. DO NOT SLIM JIM A VEHICLE WITH SIDE-AIR BAGS. Auto makers warn us that our probing around inside the car door can disconnect, disable or destroy the wiring connections powering the side airbag devices. This may not be discovered until later when a crash occurs, and the side-airbags don't deploy.

A lockout kit has many different tools available but should only be used by personnel who are trained to use such tools for each different type of vehicle. The more popular tool is the lockout bar. It is used to extend in from the door jam and safely unlock the vehicle without doing extensive, unseen damages to the inner parts of the door.

When doing a lock-out, always work on the PASSENGER SIDE door. This is in case you damage the door lock. The passenger side door is not used as much as the driver side door. It will inconvenience your customer much less if there is damage.

**Winching**

Services include pulling or lifting a vehicle out of a ditch, waterway, muddy field or patch of land or from a solid object. There are many uses for winching and you must not attempt to winch without proper training and connecting to the proper hook up points of a vehicle. Equipment needed is a winch, cable, snatch block or a chain.

**Motorist Safety**

When assisting stranded motorists, you must be very careful. They are distracted, worried about missing an appointment, repairing their car, etc. Many of them don't understand how dangerous a busy highway can be. Make sure all passengers exit the vehicle on the non-traffic side of the highway if possible. Also, a tow truck operator should always approach the vehicle from the NON-TRAFFIC side. When loading the vehicle, place the stranded motorist INSIDE THE CAB OF THE TOW TRUCK.

Never place yourself or your customer between your tow truck and the vehicle to be towed and never allow any person behind a carrier while loading.

# CHAPTER 5

## TOW TRUCK EQUIPMENT KNOWLEDGE

### TOW TRUCKS & EQUIPMENT RATINGS

The following explains a list of ratings that are used to determine safe towing capacity for tow trucks and working load limits for equipment used.

**Index of Terms Used:**

| | |
|---|---|
| GVWR: | Gross Vehicle Weight Rating |
| GAWR: | Gross Axle Weight Rating |
| STC: | Safe Towing Capacity |
| OH: | Overhang |
| FAW: | Front Axle Weight |
| WB: | Wheelbase |
| BSR: | Breaking Strength Rating |
| WLL: | Working Load Limit |
| RAW: | Rear Axle Weight |

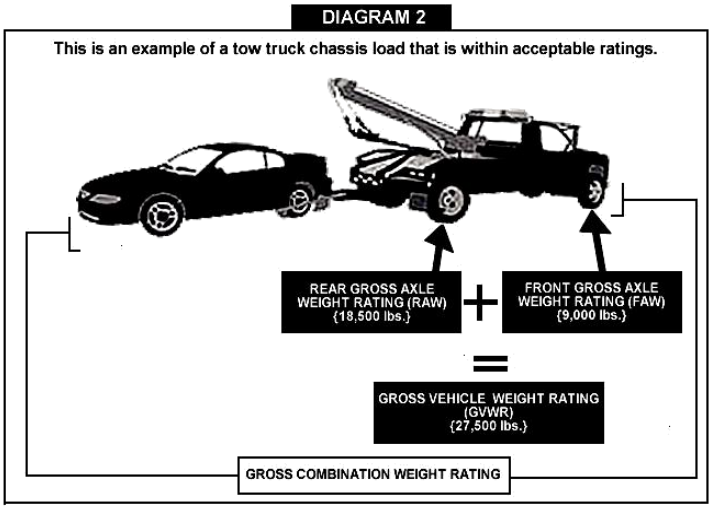
Always familiarize yourself with the manufacturer's equipment ratings, which list the limits for its use. Exceeding these rating may lead equipment failure. This may lead to unnecessarily dangerous situations, placing others at risk.

### WEIGHT RATINGS

All ratings for tow trucks are listed as the manufacturer's GVWR. This rating is calculated by the unloaded weight of a vehicle plus the maximum carrying capacity recommended by the vehicle's manufacturer.

A truck's GAWR is the amount of weight that the axle(s) is designed to carry. The total GAWR for all axles equals the truck's GVWR.

DIAGRAM 2




The Safe Towing Capacity (STC) of a tow truck is always progressively less than its GAWR. It is important to note that you must stay within the GAWR and the STC.

A tow truck's STC will change with the various distances behind the rear axle(s). This distance is called Overhang (OH). As the OH decreases or increases, the safe towing capacity of the tow truck decreases or increases. OH is measured from the center of the wheel lift, or point of attachment for lifting, to the center of the rear axle(s) of the tow truck. The heavier the vehicle or the further it is from the rear axle(s), the decreased amount of STC is the end result.

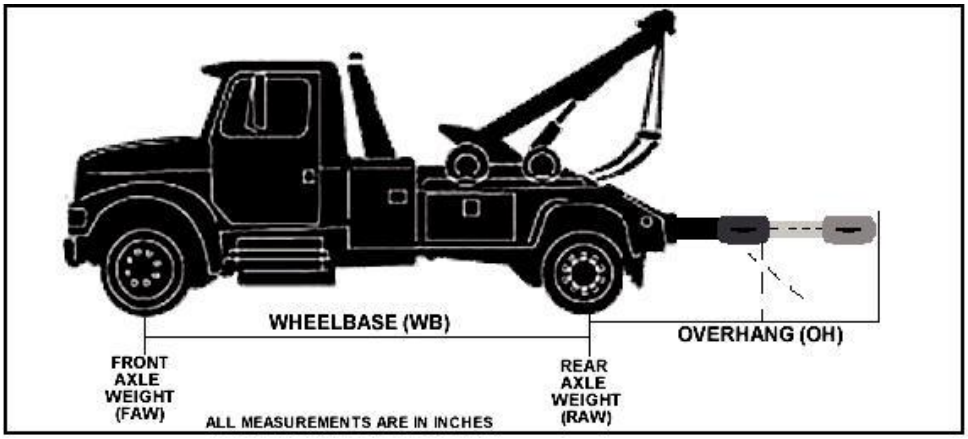
A vehicle that is too heavy, or is too far from the rear axle, will affect the Front Axle Weight (FAW) of the tow truck, causing impossible steering conditions and making it unsafe to tow the vehicle. More than 50% loss of the FAW is considered too dangerous to operate safely.

The **STC** is calculated by using the following formula:

**(FAW x WB/OH)/2= STC**

**[((FAW multiplied by WB) divided by OH) divided by 2 = STC]**

**DIAGRAM 3**



## EQUIPMENT RATING

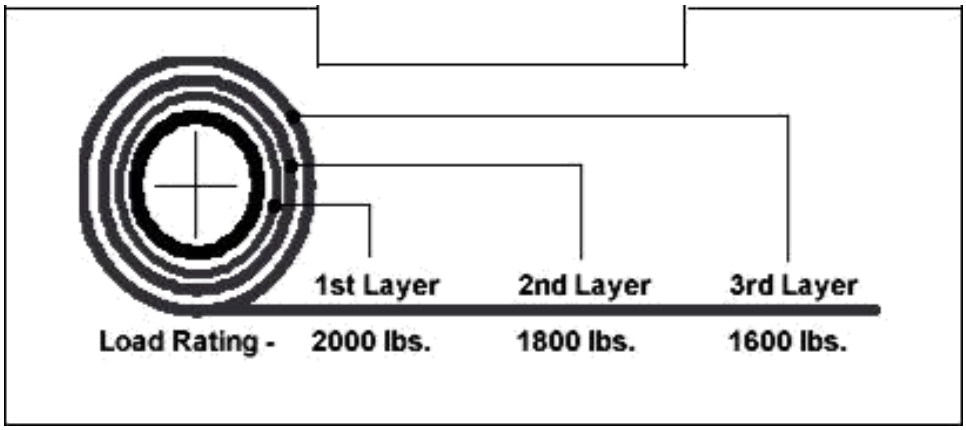
The **breaking strength rating (BSR)** is the average force at which the equipment, in the condition it would leave the factory, has been found by manufacturers while testing, to break when a constantly increasing force is applied in a direct line and at a uniform rate of speed on a standard pull testing machine.

**BSR's** are obtained under controlled laboratory conditions. Listing of the BSR does not mean the working load limit should ever be exceeded. The **working load limit (WLL)** is the maximum load which should ever be applied to the equipment, even when the equipment is new and when the load is uniformly applied in straight line pull only.

The working load limit is considerably lower than the breaking strength rating. With every additional layer of cable wrapped around the drum, the rating decreases. The more layers of cable on the drum, the less weight the winch can effectively lift.

- The winch's strongest point is at the actual drum shaft. The further out you move, the less strength the winch has.
- First layer capacity is the highest load rating.
- As cable capacity increases, the load rating decreases.

**DIAGRAM 4**



## TIRE CAPACITY

Manufacturers put a load rating on their tires. Make sure that the maximum load rating stamped on the tire is enough for the load that it will carry. Do not allow the weight of your vehicle and load to exceed the rating for any individual tire or any group of tires on a single axle.

Manufacturers also consider tire capacity in determining gross vehicle weight ratings (GVWR). You should never use tires that do not meet manufacturer's specifications, and you should always keep your tires properly inflated.

Be sure to check tire pressure when the tires are cold and warm. Cold temperatures can cause the pressure of the tire to decrease and warm weather may cause the tire pressure to expand. The closer your tow truck is to capacity limits, the more important the tire capacity is to the overall ratings.

## TOW TRUCK EQUIPMENT

### BOOM

A boom is comprised of one single mast or two identical channel- shaped members being secured together in face-to-face relationship to form a space there between. Each of the members includes serrations in the side walls in a common transverse plane at the center of the boom and the serrations are closed by weldments. They are used support the vehicle and to hold, extend or lift a vehicle free of the ground and clear of the tow truck body. Almost all booms are currently operated by use of hydraulic assistance.

### WINCH

A **winch** is a mechanical device that is used to wind up a rope or wire rope (also called "cable"). The cable is wound, or wrapped, on a drum. To help prevent the cable from pulling loose from the winch drum and dropping the load, always maintain a minimum of three to five wraps of cable on the drum, or the number of wraps the winch manufacturer recommends. The winch cable is normally routed over the end of the boom and then down to a sling or tow bar.

**NEVER USE A WINCH AS A SECURING DEVICE.**

## CABLE (STEEL WIRE ROPE)

Cable (wire rope) is used for pulling or supporting a load during an operation of the winch. Wire rope consists of several strands laid (or 'twisted') together like a helix. Each strand is likewise made of metal wires laid together like a helix.

Loose or uneven cable can become crushed, bent or kinked, so wrapping the cable in a tight and even manner is essential.

The following table below shows the cable diameter and its respective working load limits.

**Cable Working Load Limits**

| **Wire Rope (6 x 37, Fiber Core)** | |
|---|---|
| **Diameter mm (inches)** | **WLL kg (pounds)** |
| **7 (1/4)** | **640 (1,400)** |
| **8 (5/16)** | **950 (2,100)** |
| **10 (3/8)** | **1,360 (3,000)** |
| **11 (7/16)** | **1,860 (4,100)** |
| **13 (1/2)** | **2,400 (5,300)** |
| **16 (5/8)** | **3,770 (8,300)** |
| **20 (3/4)** | **4,940 (10,900)** |
| **22 (7/8)** | **7,300 (16,100)** |
| **25 (1)** | **9,480 (20,900)** |

## SNATCH BLOCKS

A Snatch block is a specific type of "sheave", which is a wheel with a grooved edge to hold the rope or cable, combined with an axle or pin, side plates and a means of attaching it to something, typically a hook or shackle.

The amount of force applied to the block is dependent upon the angle between the incoming line and the anchor line. If the snatch block is moving with the load, it is reducing tension; if it is not moving, it is changing the direction of the pull. Great care must be used while using a snatch block.

If you overload a cable/snatch block, and the block parts from the anchor, you have a 10 or more-pound missile flying at great speed, which can cause serious injuries. The snatch block is most used in direction assistance in car carrier loading and maneuvering.

## CHAINS

Chains are used for securing, lifting, and assist in pulling vehicles. Only chains with the recommended ratings below may be used for each weight listed.

The National Association of Chain Manufacturers has adopted a system for identifying chain. Chain that is manufactured by these standards bears a letter (which identifies the manufacturer) and a number (which represents the chain's grade or strength rating). You should never use chain that cannot be identified by its grade.

The common types of recommended chains are:

1. Transport, Grade 70, chain is a high-quality, heat-treated chain. It is electronically welded, and heat treated. It has a high strength to weight ratio. This chain type is widely used in the towing industry, but it is not approved for overhead lifting. DOT approved for truck tie-downs used for interstate transport.

2. Alloy, Grade 80, which is a special heat-treated alloy steel specifically designed for overhead lifting. It is a much more expensive chain but is much safer with a higher load limit.

Please refer to the table below for the dimensions and working load limits different grades of chain:

**DEPARTMENT OF TRANSPORTATION FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION**

TABLES TO § 393.108 [Working Load Limits (WLL), Chain]

| [Working Load Limits (WLL), Chain] Size mm (inches) | WLL in kg (pounds) | | |
|---|---|---|---|
| | Grade 70 transport | Grade 80 alloy | Grade 100 alloy |
| 1. 7 (1/4) | 1,430(3,150) | 1,570(3,500) | 1,950(4,300) |
| 2. 8 (5/16) | 2,130(4,700) | 2,000(4,500) | 2,600(5,700) |
| 3. 10 (3/8) | 2,990(6,600) | 3,200(7,100) | 4,000(8,800) |
| 4. 11 (7/16) | 3,970(8,750) | | |
| 5. 13 (1/2) | 5,130(11,300) | 5,400(12,000) | 6,800(15,000) |
| 6. 16 (5/8) | 7,170(15,800) | 8,200(18,100) | 10,300(22,600) |
| Chain Mark Examples: | | | |
| Example 1 | 7 | 8 | 10 |
| Example 2 | 70 | 80 | 100 |
| Example 3 | 700 | 800 | 1000 |

Federal Register / Vol. 71, No. 35833 / Monday, July 24, 2006 / Rules and Regulations, adapted.

## TOWING DEVICE TYPES

**Tow sling** is a device used for lifting and towing vehicles (generally damaged), with the load supported on rubber belts and chains. Most tow slings are rated for a lifting capacity of 3,500 pounds, and a towing capacity of 7,000 pounds.

**Wheel-lift** is an attachment coupled to a tow truck boom or frame for supporting the wheels of a vehicle to be lifted and towed by the tow truck. Wheel-lifts come in many different varieties, the L- Arm lift, Spoon lift, Self-Load or Auto -Load, and Claw lift. They are designed to eliminate damages to modern vehicles that an older style tow sling cannot support properly.

All modern wheel-lifts operate using a hydraulic system to power the operation of the lift. Almost all wheel-lifts can raise and lower, extend outward and some have a tilting capability.

**Under-lifts** are lift adaptors for the hook-up and towing of heavy vehicles such as buses, coaches and trucks without damage. The under lift may be mounted to receivers slidable over the under-lift crossbar of heavy-duty, wheel lift tow trucks.

An engagement end of the under lift may be secured to the underside portion of a vehicle to be towed, using an eye bracket, apertures or another attachment mechanism. A boom may be used to locate the crossbar in a proper position beneath the towed vehicle, enabling engagement to the lift adaptors. The lift adaptors are preferably designed for quick decoupling in the field so that they may be replaced with forks or other hook-up or towing attachment mechanisms. They are generally used on medium-duty and heavy-duty tow trucks.

## DOLLIES

Dollies are of a set of apparatuses that have two wheels connected to a shaft that has slots used to attach two dolly axles to each side of a vehicle. They are used to lift the trailing end of a vehicle completely off the ground by its tires and allow for the vehicle to be towed without damaging the drive train. They are also used to tow a vehicle that is damaged prior to towing.

## TOW TRUCK LIGHTING

**1.** Hazard light is a single unit or multiple units comprised of a revolving, rotating, or flashing strobe light, amber in color. The lights should be visible to all approaching traffic for a distance up to 500 feet.

**2.** Tow lights are attached to the trailing end of the vehicle that is being towed. They operate in conjunction with the tow truck's lighting and brake system. Failure to attach these lights to a towed vehicle is a violation of State of Texas and federal law.

**3.** Work lights may be used to illuminate the scene of an accident or disablement. Only use the necessary amount of work lights while using them on a public roadway for they may blind oncoming traffic.

# CHAPTER 6

## OPERATION AND SAFE HANDLING OF TRUCK

### Tow Truck Definition

According to the **Texas Occupations Code, Title 14, Chapter 2308, Subchapter A, Sec. 2308.002 (11),** the State of Texas defines a Tow Truck as a motor vehicle, including a wrecker, equipped with a mechanical device used to tow, winch, or otherwise move another motor vehicle.

### General Towing Information for Passenger Cars

**(Ford Motor Company Towing Manual)**

### Preparatory Steps

Release the parking brake, and place transmission/transaxle in NEUTRAL. As a rule, vehicles should be towed with the drive wheels off the ground. If the vehicle is to be towed on its drive wheels, the transmission/transaxle and differential must be operable. If the transmission/transaxle is not operable, place the rear wheels on a dolly or disconnect the rear driveshaft on rear wheel drive vehicles. **EXERCISE CAUTION, YOU CANNOT DISCONNECT THE DRIVESHAFT ON ALL VEHICLES**. If the differential is not operable, place the rear wheels on a dolly.

When a vehicle is towed on its front wheels, the steering wheel must be clamped in the straight-ahead position with a steering wheel-clamping device designed for towing service use, such as those provided by towing system manufacturers.

Do not use the vehicle's steering column lock to lock the wheels in a straight-ahead position when towed from the front or rear. If the ignition key is not available, place a dolly underneath the driving wheels of the vehicle and tow with the non-drive wheels raised.

### Flat Beds

When using a flatbed to transport a vehicle, always use T-hooks inserted in the appropriate tie down slot. Never fasten J -hooks to any suspension or driveline component because J-hooks will damage driveline and suspension components. When using winches, take care to avoid damaging the bumper system, lower body panels, or air dams.

When carrying a vehicle on a flatbed, you should always put the heaviest part (the engine) of the vehicle being towed as close to the cab as possible

**DIFFERENTIALS**

The differential is a device that splits the engine torque two ways, allowing each output to spin at a different speed.

The differential is found on all modern cars and trucks, and in many all -wheel-drive (full-time four-wheel-drive) vehicles. These all-wheel-drive vehicles need a differential between each set of drive wheels and between the front and the back wheels as well, because the front wheels travel a different distance through a turn than the rear wheels.

On a front- wheel drive vehicle, the differential is located between the front wheels. On a rear-wheel drive vehicle, it is located between the rear-wheels.

Always tow a vehicle from wherever the differential is located. All-wheel, or four-wheel drive vehicles should be towed with all wheels off the ground, on a flatbed or on dollies.

**DRIVE TRAIN**

In a motor vehicle, the term drive train or power train refers to the group of components that generate power and transmit it to the wheels. This includes the engine, transmission, driveshafts, and differentials.

**DRIVESHAFT**

The driveshaft connects the transmission output shaft to the differential pinion shaft.

**REAR END**

The complete rear axle assembly of a vehicle.

**CAR CARRIERS**

Car carriers are designed to transport one or more motor vehicles on a flat platform that slides or tilts to the ground to facilitate the loading and unloading of the vehicle(s). In addition, they are generally equipped with a wheel- lift or under lift that enables them to tow an additional vehicle behind them. Car carriers are sometimes referred to as slide backs, rollbacks, equipment transporters, or flatbeds.

Car carriers are up to 40 feet in length, bumper to bumper, including bed load. They generally transport (and tow) automobiles, pickup trucks and small vans, although large car carriers (often referred to as equipment transporters) transport large vehi-

cles, farm machinery and construction equipment. Car carriers are also often used to transport vehicles that would be damaged by conventional towing techniques, or vehicles with severe wheel damage.

Diagram 1

## Tow Truck /Car Carrier Classifications

**LIGHT DUTY**

Tow Truck

Car Carrier — GVWR of 8,600 to 10,000 Lbs.

**MEDIUM DUTY**

Tow Truck

Car Carrier — GVWR of 10,001 to 26,000 Lbs.

**HEAVY DUTY**

Tow Truck

Low Boy Carrier — GVWR of over 26,000 LBS

# CHAPTER 7

## PERSONAL APPEARANCE

Personal appearance of a tow truck operator is very important. Your appearance reflects on your company, and projects confidence and professionalism to your customers and to law enforcement officers.

TDLR rules require that a tow truck operator wear a uniform with his company name displayed while on duty. Your uniform should be kept clean and free from tears and stains. It is also a good idea to keep raingear in your truck at all times to keep your clothing dry and neat looking.

When a customer receives excellent, professional service by a uniformed, neat-looking employee, they will be much more likely to call you again and refer you to family and friends.

Remember, you must always keep your TDLR issued operator license on you while working.

# CHAPTER 8

**Customer Service:**

When you are dealing with customers, remember that they are most likely under considerable stress, probably with a wrecked or inoperable car, and late for an important appointment.

Always notify your office if you are taking longer than your ETA (estimated arrival time). It helps keep a customer's frustration to a minimum if you or your office can keep them updated on your arrival time. It may also prevent them from calling another tow truck to see which one can get there the fastest. Of course, you should treat everyone equally, regardless of their race, sex, or religion. Good communication with your customers is very important.

Always wear latex gloves when working with greasy parts. Remember to remove them when handling the customer's vehicle so as not to smudge or soil the car unnecessarily.

Never smoke around customers. This is very offensive to some non-smokers. Don't even ask if they mind. Some people will say they don't mind but make a mental note to never call your Towing Company again for service.

Make sure your truck is clean and neat inside and out. A layer of mud on the truck is not attractive and can make a first-class towing company look like a junk-yard dog! It can also hide the information that is required to be displayed on both sides of the truck. You can get a ticket if the required information is not visible.

Also, keep the inside clean and free from clutter. Organize your Map books, tow ticket books, and whatever else you carry around in your truck so that customers don't have to re-arrange it or sit on it when you give them a ride.

## Damages:

Before towing a vehicle, you should inspect it for existing damages. Any existing damages should be photographed and noted on your tow ticket. If the customer is present, have him initial your notes. If you do inadvertently damage someone's vehicle, notify your office or your supervisor immediately. Of course, you should always take care not to damage vehicles you tow, but damages do happen occasionally.

It is always better for you and the company if you let the customer know about it before he finds it. It can hurt your reputation very quickly if you try to hide or deny damages caused by towing. There are some customers out there who will turn in false damage claims to get old damages repaired, etc. If you are open and up front about any actual damages you cause, you will be much more believable when someone falsely accuses you of damaging their vehicle. And, remember, you can never have too much documentation of existing damages.

# CHAPTER 9

# INVOICING AND DOCUMENTATION

## Texas Tow Truck Registration:

Tow trucks must be registered with the Texas Department of Licensing and Regulation (TDLR), and display the company name, address, phone number, and TDLR issued number for that truck on EACH SIDE of the truck. You must keep the following documents in your truck for law enforcement if you are pulled over:

- Cab card issued by TDLR
- Proof of insurance
- Commercial vehicle registration issued by the local tax office

The cab card will be issued by TDLR when the truck is registered, or the registration is renewed. Registration is good for one year. Each truck will be issued a unique registration number by TDLR that must be displayed on each side of the truck. Tow trucks are also required to register with the local tax office as a commercial vehicle.

It is good practice to verify that these documents are present in your truck frequently so that you do not receive a traffic ticket for not having them.

## Tow Tickets:

Tow tickets are very important. Do not be in a hurry when you are completing your tow ticket. It is good practice to write down the complete VIN, being very careful that your writing is legible. One good trick is to check the 8$^{th}$ letter or number from the end of the VIN to verify the year of the vehicle. If the 8$^{th}$ letter or number indicates it is a 1992-year model, but you know the vehicle you are towing is a 2004, you know there is an error.

Knowing the correct year of the vehicle is important so that you can reference proper towing procedures for the exact year, make, and model of car.

It is also important on non-consent tows. If the vehicle is not picked up by the owner within 24 hours, letters must be written to the owner and lien holder. You want to make sure your office has the correct information to include in these letters. The VIN may be found on the driver's side dash, viewable from outside the vehicle.

The tow ticket is also where you can document any pre-existing damage to the vehicle. Always walk around every vehicle before you tow it and inspect for existing damage. If there is damage, note it on the tow ticket. Some tow tickets even have outlines of the vehicle, so you can mark the spot where it is damaged.

The drivers TDLR number is required on a non-consent tow ticket.

THERE IS NO SUCH THING AS TOO MUCH DETAIL. THE MORE THE BETTER. It is good practice to take photos of any pre-existing damage you find for further documentation.

It is also important to inventory the vehicle. Anything not attached to the vehicle that is VALUABLE and visible through the windows should be removed and turned into your office for safekeeping. Anything you can view through the windows should be listed on the inventory section of the tow ticket (such as books, bags of clothes, etc.).

You should also note whether it has a radio/CD player. Since most vehicles do have radios and/or CD players, you should make a note if it is MISSING. Then if there is any question about something missing, you will have documentation of what was in the vehicle when you towed it. This protects you and your company.

**VIN Number**

The Year of the vehicle is identified by the eighth number or letter FROM THE RIGHT in the VIN. Use the following chart to determine the correct year of the vehicle by its VIN:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | **1980** | L | **1990** | Y | **2000** | A | **2010** |
| B | 1981 | M | 1991 | 1 | 2001 | B | 2011 |
| C | 1982 | N | 1992 | 2 | 2002 | C | 2012 |
| D | 1983 | P | 1993 | 3 | 2003 | D | 2013 |
| E | 1984 | R | 1994 | 4 | 2004 | E | 2014 |
| F | 1985 | S | 1995 | 5 | 2005 | F | 2015 |
| G | 1986 | T | 1996 | 6 | 2006 | G | 2016 |
| H | 1987 | V | 1997 | 7 | 2007 | H | 2017 |
| J | 1988 | W | 1998 | 8 | 2008 | J | 2018 |
| K | 1989 | X | 1999 | 9 | 2009 | K | 2019 |

EXAMPLE 1999 VIN: 1FBSS31L2**X**HC13948

The “X” is the eighth digit from the right. It tells you it is a 1999-year model.

# CHAPTER 10

## TEXAS TOWING LAWS

**Private Property Tows:**

A towing company with an IM or PP license may remove and store a vehicle from private property without the vehicle owner's consent only if the parking facility owner:

(1) requests that the towing company remove and store the specific vehicle; or

(2) has a standing written agreement with the towing company to enforce parking restrictions in the parking facility from which the vehicle will be removed.

Private property (non-consent) tows must be reported to local law enforcement in the jurisdiction from which the tow originated within two hours of being towed. You must report the make, model, year, VIN and address it was towed from. This prevents a "false stolen" report from being filed by the vehicle owner. It is good practice to report the tow as soon as possible, and not wait for two hours. Also, some cities may require that you report in a quicker time frame.

Proper towing signs are required to be posted on private property before you perform a non-consent tow. The signs must be posted AT LEAST 24 HOURS PRIOR TO TOWING. The signs must contain the International Tow Truck symbol and contain the phone number where the vehicle will be stored. Signs must state the hours of towing enforcement.

Signs must be visible from each entrance. Signs must be placed no lower than five feet and no higher than 8 feet above ground level.

Non-consent tows must be stored at a licensed Vehicle Storage Facility (VSF) or a government-operated facility. Many cities have additional requirements for private property tows. Familiarize yourself with the local ordinances and customs so that you don't have any problems.

**Definitions:**

Non-consent tow: any tow of a motor vehicle that is not a consent tow

Consent tow: any tow of a motor vehicle initiated by the owner or operator of the vehicle or by a person who has possession, custody, or control of the vehicle. The term does not include a tow of a motor vehicle initiated by a peace officer investigating a traffic accident or a traffic incident that involves the vehicle. (Repossession is considered a consent tow because it is initiated by the lien holder who has taken possession of the vehicle. A lien holder who has repossessed a vehicle is considered the owner of the vehicle.)

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**Tow Truck and Tow Truck Operators Licensing Program**

In 2007, the 80th Legislature created the "Texas Towing Act" by adding a new Section 2308 to the Occupations Code. The Texas Towing Act gave the authority to regulate this new section to the Texas Department of Licensing and Regulation (TDLR).

It also transferred the authority to regulate Section 2303 of the Occupations Code, Vehicle Storage Facilities, from the Texas Department of Transportation (TxDOT) to TDLR.

This means that if you are involved in the towing and/or vehicle storage facility business, you are regulated by TDLR.

While the Texas Towing Act became effective on September 1, 2007, the major provisions of the Act that require drivers and vehicle storage facility employees to obtain licenses from TDLR are effective as of **September 1, 2008**.

As of **January 1, 2008**, tow truck companies are licensed and regulated by the Texas Department of Licensing and Regulation.

- Effective **September 1, 2008:**
    - Each tow truck must be permitted with a unique number
    - Each tow truck operator must be licensed and the requirements for criminal background checks and drug testing of tow truck operators become effective. Tow trucks and operators may be licensed as:
        - Incident Management (IM)
        - Private Property (PP) or
        - Consent towers (CT)

- IM trucks and operators may also do PP or CT tows
- PP trucks and operators may also do CT tows
- CT trucks and operators may only do consent tows
- The Act requires TDLR to do a criminal background check of all applicants for licenses.
- IM and PP operators will need to be certified by the Southwest Tow Operators Texas Certification Program, the National Drivers Certification Program of the TRAA, or a TDLR-recognized equivalent.
- All licenses and permits must RENEW ANNUALLY.
- Effective September 1, 2017, each vehicle storage facility (VSF) employee must be licensed. Drivers who release vehicles from VSF's must hold "A" TDLR License. It must be Either a VSF or IM License. You do NOT need both.
- Tow truck operators must display their TDLR license while working

**Classifications of Towing**

The Texas Tow Act created the following classifications of tow trucks and operators:

- **Incident Management (IM) Towing Permit** – required for any tow initiated by a peace officer (considered a NON-CONSENT TOW)
    - Maintain at least $500,000 of liability insurance for the tow truck
    - Maintain at least $50,000 of cargo insurance for the tow truck
    - A tow truck with an IM permit may also be used for private property towing and consent towing.
- **Private Property (PP) Towing Permit** – required for a tow truck used to perform a non-consent tow authorized by a parking facility owner
    - Maintain at least $300,000 of liability insurance for the tow truck
    - Maintain at least $50,000 of cargo insurance for the tow truck
    - A tow truck with an PP permit may also be used for consent towing but **NOT** for incident management towing
- **Consent Towing (CT) Permit** – required for a tow truck used for a consent tow
    - Maintain at least $300,000 of liability insurance for the tow truck
    - A tow truck with an CT permit may **NOT** be used for non-consent towing including incident management and private property towing

To receive a Texas Tow Operator's license, drivers must pass a drug test.

Drivers must be drug-tested when hired, at random, and at least once annually.

All licenses and permits must be renewed annually.

**CRIMINAL PENALTIES.** There are criminal penalties for violating the rules of the Texas Department of Licensing and Regulation that are applicable to tow trucks and towing companies

**Obtaining a TDLR License**

**I do not have a TDLR License. How do I apply for my license? Choose only one Type of License.**

1. **Consent Tow License (CT)**
   - Visit www.tdlr.texas.gov and **APPLY** for your Consent Tow License
   - Certification Testing is **NOT** Required
   - Receive license from TDLR within 7-10 business days.
2. **Private Property License (PP)**
   - Certification Testing **IS** Required – Please see Tab for the Certification Testing process.
   - Visit www.tdlr.texas.gov and **APPLY** online for Private Property License
   - Receive license from TDLR within 7-10 business days.
3. **Incident Management License (IM)**
   - Certification Testing **IS** Required – Please see Tab for the Certification Testing process.
   - Visit www.tdlr.texas.gov and **APPLY** online for Incident Management License
   - Receive license from TDLR within 7-10 business days.

*Please do not take any course until you receive a TDLR License Number from TDLR. Your Course will not count.*

**I have a TDLR license already and need to Renew my Consent (CT) or Private Property (PP) License.**

1. Please choose one of the two:
   a. Visit www.tdlr.texas.gov and **Renew** your Consent Tow License prior to your license expiring.
      - Take a **4 Hour Continuing Education Course each year**. Can been taken in class or **on-line.** SEE Training Tab for courses.
      - Follow the same steps above to renew your Consent Tow License every year prior to expiring.

   b. Visit www.tdlr.texas.gov and **Renew** your Private Property License prior to your license expiring.
      - Take a **4 Hour Continuing Education Course each year**. Can been taken in class or **on-line**. SEE Training Tab for available courses.
      - Follow the same steps above to renew your Consent Tow License every year prior to expiring.

**I have a TDLR license already and need to Renew my Incident Management License (IM).**

1. ***VERY IMPORTANT *** IF YOU DO NOT HAVE A TDLR LICENSE NUMBER -DO NOT TAKE THIS COURSE. YOU WILL NOT GET CREDIT FOR ANY COURSES TAKEN WITHOUT A TDLR NUMBER. MUST HAVE TDLR NUMBER PRIOR TO TAKING A COURSE.***
    - Visit www.tdlr.texas.gov to **Renew** your Incident management License (IM)
    - The first year requires an 8 Hour Classroom Course to Renew your license. The 8-Hour course is only taken once.
    - Each year after that a 4-Hour Course is required for renewal. SEE Training Tab for available courses.

**PLEASE NOTE:** licenses are issued by TDLR once you (1) apply and/or renew your license and (2) completed the appropriate certification or course as stated above.

**PLEASE NOTE:** IF YOU ARE ONE DAY LATE IN RENEWING YOUR LICENSE, YOUR RENEWAL FEE WILL INCUR A LATE FEE.

SOURCES

Center for Disease Control

Dept. of Transportation Federal Motor Carrier Safety Administration Ford Motor Company Towing Manual Jackson County Newspaper

National Association of Chain Manufacturers National Institute of Occupational Safety and Health Occupational Safety and Health Administration Pennsylvania Liquor Control Board

Texas Department of Licensing and RegulationTexas Occupations Code, Chapter 2303. VEHICLE STORAGE FACILITIES Texas Occupations Code, Chapter 2308. VEHICLE