



Everything
on WHEELS



18-Wheelers

You have likely encountered numerous semi-trucks and trailers while cruising down American highways. These pickups on steroids feature massive bodies, air-brake systems and extremely powerful engines to haul full loads in their 53-foot trailers.

These trucks, trailers and the people who drive them supply goods and services to nearly every industry in the world.

HISTORY OF THE 18-WHEELER

In 1896, automobile manufacturer Alexander Winton decided he needed a more efficient way to transport vehicles to customers. He developed a semi-trailer that could be pulled behind a truck. At first, his creation could only carry one vehicle at a time.

As time went on, manufacturers began modifying his design and ultimately settled on an 18-wheel design. This gives the trailer eight steering wheels and the truck eight wheels to pull the trailer, and two front tires to steer. Today, semi-trucks are able to transport more than 700,000 pounds of goods in their trailers.



SHARING THE ROADS

The United States Department of Transportation reports that nearly 75 percent of truck accidents are caused by drivers of smaller vehicles rather than truck drivers.

It should be no surprise that semi-trucks require more room to operate when driving, stopping and turning than passenger vehicles. Do your

part in reducing the number of semi-related accidents by respecting the space around these important vehicles.

Have you seen the warning decal, "If you can't see my mirrors, I can't see you?" Drivers are unable to check for blind spots over their shoulder as their view is typically blocked by the trailer they are pulling.

Instead, they count on extended side mirrors, which give them a good view of what is behind them. When you see a truck signaling for a lane change, it is best to get out of its path as soon as you can.

FUTURE OF SEMI-TRUCKS

Semi-truck manufacturers are focused on the safety of

their drivers and our roads. The popular big-rig manufacturer Freightliner has unveiled some tech-enabled safety features for their new models.

They have placed a radar and camera system on the front of their trucks, which provides active brake assist, adaptive cruise control and even lane departure warnings.

Self-driving trucks have been in the works for some time now. In October 2016, a semi-truck made a 120-mile trip without the aid of a human. This technology is still in development, but don't be surprised if you notice a semi rolling down the highway without a driver sometime soon.

Police Vehicles

Police vehicles share the same bodies as some of the most popular vehicles on the road today. However, there are many different options police vehicles use to make the cruisers vastly different from standard civilian vehicles.

Police cruisers require a tremendous amount of electronic technology to assist their officers in enforcing laws. For this reason, law enforcement vehicles typically feature an upgraded alternator to handle the extra load. They also use high-performance engines, auxiliary coolers for extra protection to the cooling system and heavy-duty components.

UNDER THE HOOD

A police cruiser's engine must be able to endure high-demand levels while remaining budget friendly. For this reason, cruisers need to find a perfect balance in power and cost.

Vehicles that are mostly used for in-town patrolling will usually run off a six-cylinder engine, while vehicles that are intended for high-speed chases or highway patrol typically feature an eight-cylinder.

Extra help to the cooling system is a must for police cruisers due to the excessive amount of time the engine runs per day. Police are sometimes hesitant to shut off their vehicles in case they need to react to an emergency.

This means the engine rarely takes a break and needs assistance from additional-fluid coolers to reduce the risk of damage. Some of these coolers include engine oil, transmis-



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sion fluid and even power-steering fluid coolers.

HIGH-TECH GADGETS

Police vehicles are equipped with extremely impressive technology to put an end to crime. Here are a few of these amazing gadgets as reported by Popular Mechanics:

- Automatic license plate recognition cameras are used to scan the license plates of civilian vehicles in front and to the sides of police cruisers. These cameras send plate numbers to a processor in the cruiser's trunk, which tells the police officer if the plate is the subject of a stolen vehicle, the

an Amber Alert or a warrant.

- StarChase has created a GPS tracker that can be launched from a cruiser to a vehicle involved in a pursuit. This allows a real-time location for fleeing vehicles and allows police to track a suspect and plan how to end to a pursuit.

- Project54 is giving police

the power to control their vehicles by voice. Utilizing a push-to-talk switch and announcing, "Pursuit," the cruiser will engage its lights and sirens. It also can be used to log events important to an officer's shift and record GPS coordinates of any suspicious activity by suspects.

Food Trucks

Many American adults have fond memories associated with the familiar sound of the neighborhood ice cream truck. In today's world, trucks supply lobster, barbecue, gourmet grilled-cheese sandwiches and pretty much any delicacy you can name. Yes, it's a great time to live in America.

The popularity of American food trucks has exploded in the last decade. From large cities to rural areas, it is not uncommon to witness large groups of hungry patrons surrounding a truck offering delicious food. This trend seemed to come out of nowhere, but it is easy to see that Americans are reacting well to the idea of food on wheels.

WHY THE SUDDEN POPULARITY?

The National Food Truck Association (yes, that's a real thing) gives credit to Roy Choi for reintroducing Americans to the food truck. In 2008, Choi, launched Kogi in Los Angeles as the economy was beginning its slump.

With the help of social media, Kogi could connect with residents and inform them of the location of his truck, offering a mixture of Mexican and Korean food styles. Kogi became a sensation that inspired other food vendors to create their own mobile restaurants.

REGULATIONS

Owning a food truck isn't all that easy. Much like every other food service, food trucks are required to pass strict health and safety regulations. While each state holds different requirements to retain a



license, some of these laws include:

- Proof of ownership of truck, vehicle license, insurance and business permits are required for food trucks.
- Properly running water and suitable cooking equipment are a must. Food trucks are inspected at least once a year

by health department officials.

- Restricted parking zones.

This depends on individual cities, but it is likely that there are restrictions about where food trucks can be parked.

GETTING IN THE BUSINESS

Interested in creating your own food truck to serve your

favorite recipes? It may involve more than you think or are ready for.

Creating a list of the equipment required to create your favorite dishes in a mobile setting is your first step. After that, you need to find a truck that affords enough space for your operation.

Electricity and plumbing are other necessities. If you are inexperienced in either, it is best to contact a local professional.

Other important steps include reinforcing the interior, creating service windows and introducing a ventilation system.

Limousines

Limousines are often associated with wealthy people, special occasions and even American presidents. The process that goes into creating these luxury vehicles requires laser-guided systems, extended electrical connectors and custom-built chassis extensions.

THE CONVERSION PROCESS

Producers of limousines begin the conversion process by purchasing a standard car off a lot. Some popular choices for limo conversion include Cadillacs, Lincolns, Hummers and Mercedes.

Braking and suspension systems are immediately beefed up by using oversized brake pads, rear wheel cylinders and suspension components to accommodate the extra weight of a limo.

Then, the cutting process begins. Most manufacturers depend on laser-guided cutting systems to cut to their precise calculations while keeping the vehicle up to safety regulations. With the vehicle cut in half, a new frame is fabricated and welded together.

Next, a new extended floor is put into place as well as extending exhaust systems, fuel and brake lines. Once new windows are installed, a new roof is in place and a new interior is installed, the limo heads to the paint shop before it is ready to provide an exquisite ride for clients.

PRESIDENTIAL HISTORY

General Motors is upgrading its signature presidential limo known as The Beast. GM will release the new limo under its Cadillac line again, taking



inspiration from its popular Escalade model. The Beast is said to be resistant to IED blasts and rocket-propelled grenades and even features an air supply in case of a chemical weapon attack.

According to The History Channel, the United States government purchased its first

limousine during Theodore Roosevelt's presidency, even though he preferred horses over cars. It wasn't until William Taft became president that the horse stable was replaced by a fleet of motor vehicles. Since 1993, GM has designed special-built Cadillac limousines for each President.

RENTING A LIMOUSINE

Do you plan to rent a limo for a special event? Consider these tips from the National Limousine Association.

- **Insurance:** Ask your chauffeur service to provide you with their extent of insurance. Be sure that you, as the client, are covered in case of any type of

injury.

- **Inspection:** Schedule a meeting with the provider to be sure your potential limo is in good shape for your special event.

- **References:** Do research online to see what others are saying about the service or ask for references from past clients.

Diesel Pick-Up Trucks

Duramax. Power Stroke. These names are heavy hitters in the world of diesel pick-up trucks and will almost always create arguments when diesel enthusiasts discuss their top choice.

Diesel engines have become a popular choice for pickup owners for many reasons. They offer more torque, which provides enough power when it comes to towing. Another benefit is the higher fuel economy and the heavy-duty components, which will typically make a diesel engine last longer than one that runs on gasoline.

Now for a little history on these two extremely popular diesel engines that have changed the pick-up truck game.

GM'S DURAMAX

In the late 1990s, General Motors was far behind its competition in the diesel pickup truck market. The company offered a Detroit Diesel in its HD pickups that consumers felt couldn't hold up with the other available engines.

GM teamed up with Isuzu to create what is now known as the Duramax. Isuzu was set to release this engine in 2003, but with GM's assistance, HD trucks began featuring the new engine in 2001 models.

Duramax has seen several changes to its engine throughout the years, including increased piston oil flow, durability and improved temperature control.



FORD'S POWER STROKE

The first official 7.3L Power Stroke made its debut in 1994, when it was featured in Ford Super Duty trucks. The engine became an instant hit due to its tremendous power, totally reworked turbocharger and

direct injection. The 7.3 was produced until early 2003.

In 2003, Ford began using a new Power Stroke in its trucks: the 6.0L. This new engine featured even more power than its predecessor and offered lower emissions. However, the

6.0 suffered from several problems that Ford corrected with its new engine in 2007.

The 6.4 is deemed the quietest and cleanest Power Stroke ever offered. It utilized twin turbochargers, high-pressure rail injection and piezoelectric

fuel injectors in order to meet diesel engine requirements.

The current Power Stroke in action is the 6.7, which was rolled out in 2011. It features instant-start glow plugs, aluminum cylinder heads and piston-cooling jets.

Self-Driving Cars

Today's cars are being developed with many automated features and crash-avoidance technology. Manufacturers are close to mastering their efforts to put self-driving cars on American highways.

Will self-driving cars provide any advantage other than allowing Americans to get an extra nap in on their way to work or dig into a good book on a long road trip?

SAVING LIVES

The advantages of self-driving cars are huge and are expected to greatly reduce the number of traffic injuries and fatalities.

The United States Department of Transportation reports that 35,092 people lost their lives in traffic incidents in 2015. These fatalities increased by 7.2 percent from the previous year. Autonomous vehicles are expected to substantially lower this statistic.

HOW DO THEY WORK?

Self-driving cars use several different sensors and real-time GPS coordinates to navigate the roads. Lidar (Light Detection and Ranging) is a popular tool manufacturers are using. It is basically a rotating laser that mounts to the roof of a self-driving car, scanning each side of the vehicle. These scans send data to a processor, which analyzes the data to determine how the vehicle should be operated.

This cutting-edge software can tell the difference between



cars, people, bikes, animals and other upcoming road hazard and appropriately adjust the car's driving technique.

ALREADY IN OPERATION

Several different manufacturers have self-driving cars on American highways; technology giant Google began

testing in 2009. The company recently re-branded these cars as the Waymo, or What Are You Made Of.

Since 2009, Google cars have logged 2 million self-driven miles in the states of Washington, California, Arizona and Texas. These cars do have real people inside

them during driving, to judge the vehicle's performance and provide feedback to the engineering team.

In California, self-driving car companies are required to disclose any incidents when human drivers had to overtake the autonomous mode to avoid an accident. In 2015,

there were 272 failures and a human driver intervened in 13 potential accidents.

This proves that this technology still has bugs to work out, but with excessive testing and research, it won't be long before autonomous vehicles gain a larger share of the market.

Mobility Scooters

For decades, electric-mobility scooters have made life easier for handicapped and elderly people by lessening the amount of time spent walking.

These vehicles give people the option of navigating public areas without a cane, walker or manual wheelchair.

Mobility scooters are a popular transportation aid found in grocery stores, tourist attractions and most shopping centers. They feature a seat which rests over two rear wheels, a place to rest your feet and handlebars to control the front wheel or wheels of the scooter. They receive their power from batteries and a built-in or separate battery charger.

THEIR HISTORY

Alan R. Thieme created the first electric scooter in 1968. As a resident of Michigan, Thieme decided to build a mobility scooter to assist a family member with multiple sclerosis. He attached an electric motor to a custom-built scooter and nicknamed it Amigo.

The mobility scooter was so helpful to his family member that he decided to bring his creation to market. It didn't take long to prove a success, and other manufacturers were paying attention. Today, there are many different companies invested in creating these ultra-helpful devices. Amigo is among them.

PRESCRIPTION

Depending on which mobility scooter fits your needs, you may be looking to spend quite a bit of money. Under Medicare Part B, you may be able to receive a furnished scooter with a doctor's prescription. According to the organization, Medicare Interactive, there are some questions your doctor may have about your condition:

- Do you have trouble doing everyday activities in your home? These include bathroom visits, getting dressed or having trouble getting in and out of bed.
- Are other types of mobility assistance, such as a cane, manual wheelchair or walker, not offering you enough help?

Your doctor will be able to determine whether you are eligible for a mobility scooter prescription and help you choose a unit that is covered by Medicare and is suitable for your needs.

Your prescription will need to specify that your scooter will be used outside of the home, as well. Medicare will typically only cover use for in your home unless otherwise noted by your doctor.

