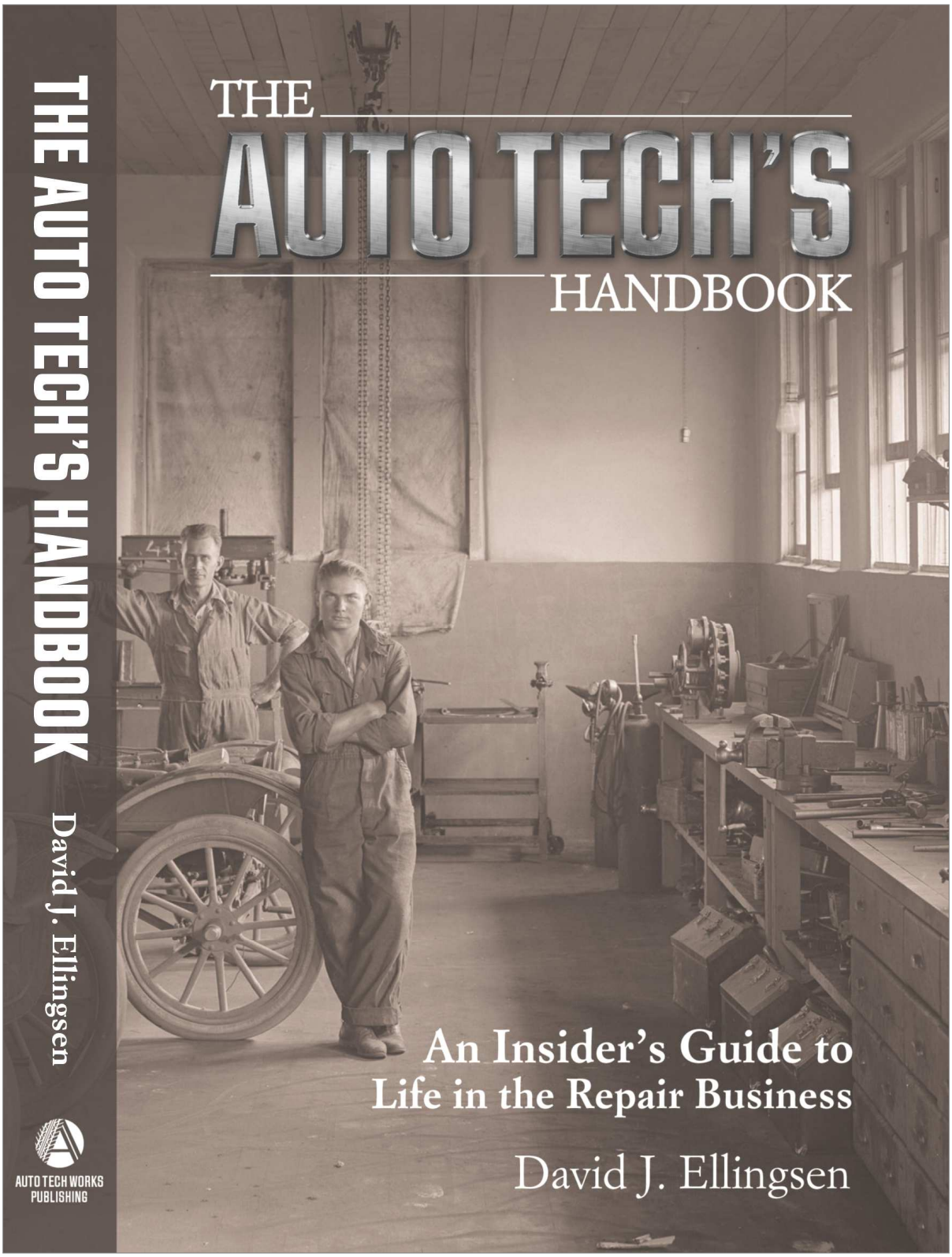
Excerpts from

The Auto Tech's Handbook:
An Insider's Guide to Life in the Repair Business

By David J. Ellingsen


THE AUTO TECH'S HANDBOOK
An Insider's Guide to Life in the Repair Business
David J. Ellingsen
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AUTO TECH WORKS PUBLISHING

The Auto Tech's Handbook: An Insider's Guide to Life in the Repair Business.

A few excerpts from *The Auto Tech's Handbook* will illustrate the range of subjects covered, the style of writing, and the applicability of the material to the issues encountered in the everyday life and long-term career of an auto tech.

A. Identifying Natural Skills and Abilities

The handbook encourages techs to identify and develop their natural skills and abilities. In the excerpt below, for example, David describes his early childhood aptitude for working with adhesives and how he was able to apply this successfully to his career.

> From *Chapter 26, The Glue King:* "This may be an odd trait to brag about but I claim to be able to glue almost anything back together. I was born with this skill. No one taught it to me. It sprouted at age nine while assembling the plastic models of cars and ships I received on Christmas Day. From there it blossomed quickly. By New Years Day, I had begun the highly addictive process of shooting the finished models with my brand new BB gun and gluing them back together just to be able to shoot them one more time. It isn't easy gluing hundreds of tiny pieces back together that resemble the original structure, but I had to come close to get the same kick out of destroying them again. As time passed I gradually refined my gluing skills, repairing broken toys, furniture and whatever else I could find. No one formally recognized my gluing skills for many years. It was only when I started working on cars, and sometimes breaking them, that my talents began to be appreciated, sort of, by my fellow techs."
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> "First, make sure the pieces to be glued will fit together properly before applying any adhesive. Some pieces will distort when broken so you may have to work with them a bit to get them back into proper shape. Then do a dry run using the necessary clamps and props to keep the pieces straight. This will help things go much more smoothly during the application of the glue. If a work piece has to be held with your hands while the glue sets, you will need to prepare yourself mentally to be very, very still for a minute or two. As in any Zen practice, premature movement will cost you eternal success. That's the biggest mistake in gluing."

B. Working Well with Other People

Auto techs, to survive and thrive, need to be able to work well with the people with whom they come into contact on a regular basis—fellow techs, the shop foreman, the parts counter, used-car sales managers, the sometimes-pushy or irritated customer, and so on—a tricky and complex subject vital to career success.

From *Chapter 5, You Gotta Have Parts!: "*Having good working relationships between all personnel in all departments is critical to the success of any business, large or small. These relationships, however, do not form and are not maintained all by themselves. It takes hard work. In the auto repair business all too often there is unfortunately too much tension between the service and parts departments. Over the years many experienced techs, service managers, general managers, and owners have cautioned me, "Dave, parts and service will never get along." But I always disagreed with that. I figured they simply were unwilling to sit everybody down and work it all out. We have to get along because we rely so heavily on one another."

From *Chapter 6, The Deal with Dealerships:* "Working with other departments requires a working knowledge of those departments, which begins with understanding the roles of the personnel in each area and seeing how they all fit together. My best advice is to first learn your own role, then the roles of everyone else in the service department. You can do this quickly, usually within a few weeks. Then begin to focus on the roles of people in other departments—parts, sales, new car, used car, office staff, finance, management, and so on. Try to understand their duties, motivations, and interconnections. There's a pattern to it and a reason for everything. Try to see how it all gels into one common purpose: the goal of serving customers well and making good money by doing so."

From *Chapter 17, Mr. Pushy Charges the Shop:* "When customers become emotional or otherwise difficult, your best path is to remain calm and stick to the science of what you are doing for a living. Be honest and fair, and never let things degenerate into emotionalism. Explain the facts as clearly as you can and do not let the customer intimidate you in any way. And never respond emotionally to any form of abuse. If you can't handle the situation alone, politely send him to the manager. As you become more experienced with customers, the writers will ask you to step in more often to sort out problems. So watch and learn and practice interacting with customers as skillfully as you can when needed or asked. If you train yourself to always treat customers as professionally as you treat their cars, you are guaranteed a long and prosperous career."

From *Chapter 29, Gossip, Trash Talk, and Politics:* "According to Webster in his dictionary, "politics" means *factional scheming for power and status within a group.* According to me, good old Dave, the definition of politics is, *"someone trying to get what they want by manipulating others."* Politics sounds like a negative and damaging practice, doesn't it? Some people are very good at it, though most of us are not. So how is an auto tech supposed to deal with politics in the shop? Here's the first step: if your job is to fix cars, just come in every day and fix cars. A day in the shop is not intended to be an episode of 'Survivor.' Don't try to manipulate people to get what you want or to make yourself look good. And don't let yourself get caught up in other people's political schemes."

C. Customer Service Is the Key to Success

The single most important theme emphasized throughout the handbook is the importance of customer service. If nothing else were to be gained from this book, the orientation to a customer-centric point of view might itself be sufficient to successfully navigate the wandering course of any auto tech's career.

From *Chapter 10, CSI and the Power of Satisfaction:* "Customers are the source of all revenues, and without a steady flow of new and old customers a business can't last. As a result companies will go to great lengths to get new customers and keep them coming back. The best way to do this is by producing better products and services and maintaining better relationships. Therefore smart companies closely monitor customer satisfaction, improve upon it wherever possible, and prevent threats to it."

From *Chapter 15, Dealing with Customers:* "When someone brings their car in for service, it's generally not the highlight of their day. When they walk in the door they want good service at a fair price, no hassles, no unnecessary delays, and they especially want to be treated with respect. It's the job of everyone in the shop to make sure the customer has a good experience, preferably one so enjoyable that they return again and again and refer their friends.

"Customers are not entirely predictable and each one is unique. They come in all sizes, shapes, colors, sexes, and from a variety of cultures and backgrounds, including some with unfamiliar accents and strange attitudes. Each time a customer brings their car in for service, he or she might also be in a different mood, or under some new financial stress, or just feeling the effects of age. If there were only one type of person in the world, like those cyborgs in the movies, life would be more predictable but boring. So let's be glad everyone is different. But no matter how 'different' these customers might seem, each must be made to feel welcome in your shop.

"Never assume a customer is unable to engage in some amount of technical talk. When properly explained, almost anyone can understand the operation of smart air bags or throttle-position sensors. And especially never think female customers are 'just dumb girls.' They know when they're being treated badly and most have a sixth sense telling them when they are being ripped off. In fact, women are often better customers than men because they don't come in thinking they already know everything."

From *Chapter 33, Final Thoughts:* "But out of all the pieces of this great big puzzle, if I were to choose the single most vital point of this book it would be this: *outstanding customer service is key to success.* Everything you learn on the job, in school, from experience, from your managers, writers and the master tech working next to you, all leads to satisfying the customer. This is the most important thing to learn, to remember every day and apply—but often it's the one most neglected. That's why I am stressing it one more time. Techs, managers, parts guys, and owners can get so caught up in prices and profits that they lose sight of why they are in this business in the first place. If it's not to help customers by giving them excellent repairs and great service, then what is it? If you remember this fact and do whatever it takes every day to get new customers in the door and keep them coming back, you will succeed."

D. Higher Productivity Means Higher Income

The author places strong emphasis on production efficiency being the key to financial success, as supported by clear explanations of the systems of pay; how to thrive within the flat-rate model; how to set up your workspace and daily schedule to complete more jobs; and how to get yourself into the habit of earning more money by doing higher quality work.

From *Chapter 9, Systems of Pay:* "Nearly every experienced tech I know is paid by the flat-rate pay system. Under this piece-work system you get paid for a set amount of time for each job you complete. If you are a skilled tech in a busy shop, able to crank out a lot of work in a week, the money is great. If the customers are trickling in the door or if your skills and work ethic are lacking, then your paycheck will be smaller. But don't worry, it will take some time and training before you reach the level of a flat-rate tech."

. . .

"Your new outlook on efficiency will extend beyond the shop. When working around the house, for example, everything you do will be more carefully thought out. You'll think to yourself, 'What's the best way to take out the trash; do I grab two bags or one? Do I walk around the house

or through the house?' You'll start to notice inefficiency all around you, and boy, will it stand out! If you watch people at their jobs, you can tell which ones are paid by the hour and which are paid only for results."

. . .

"A flat-rate tech needs the right type of personality and has to maintain a good attitude. He has to be able to stay calm and remain focused on his work, especially when trying to diagnose an electronic circuit on a time-consuming problem car while the tech right next to him is cranking out high-paying brake jobs. You also have to style your life around the idea of producing as much as you can when the shop is busy. That might mean working through lunch, staying late a couple evenings, and working a Saturday morning or two. When things are slow, you have to stay calm, keep your quality of work high, and be able to support yourself on just 30 to 40 hours a week until things pick up. You could also use the slow times to muck out the shop or study for your next ASE certification test."

E. Building Appreciation for the People Who Make Up the Organization

The most successful techs develop—early on—an understanding and appreciation for the people involved in the organization. As a result, they are less likely to become caught up in confusions and resentments. To accelerate this development, the handbook includes chapters on the interrelated roles of the people in the parts department, used car sales, service managers, service writers, other managers, and especially the owner(s) of the business.

From *Chapter 14, A Writer's Short and Easy Life:* "When I strolled into work this morning my service writer was typing away at her desk. She was intensely focused and I could tell she'd been at it for a while. I took a shot anyway, 'Hey, did you sleep here last night?' 'No, I came in at six thirty,' she grunted, saying it like I should appreciate her dedication. 'You look hungry,' I said, trying to break her concentration, 'I have a couple of sunflower seeds in my pocket.' Without breaking stride she said flatly, 'There's an oil-change-waiter on your bench.' Her keyboard kept right on clicking and clacking like mad as I strolled out into the shop.

"Every service writer I've ever worked with is at his or her desk when I arrive in the morning and, unless I work late, is still there when I leave in the evening. These guys and gals are always demanding, typically relentless, often abused and overworked, and of course underappreciated and underpaid. But who cares? As a tech all I want to know is, 'Did you call Mr. Bumper and sell that brake job? Was the rattle in Mrs. Demon's car over bumps or in the engine? Did you leave Mr. Bumper a message about his brakes? Do you think he'll call back soon? Hey, I almost forgot, I have a dentist appointment at 3:00, so if you do

sell the brakes tell him we have to keep his car overnight.' That's the kind of treatment a service writer gets from just one tech in the first five minutes of any normal day.

"The service writer's job is undeniably the toughest in the building."

. . .

From *Chapter 24, The Soul of the Owner:* "Now their life is wrapped up in watching the books, making sure their managers are doing their jobs, dealing with struggling car manufacturers, lawsuits, paying back loans, and constantly worrying.

"I believe any owner running an honest business deserves every penny he or she makes. Owners have more time and money invested in the business than anyone else. No matter where that money came from, they've put it all on the table to start the business. If the business goes under, who loses? Who has the most at risk? The owner might have earned the startup capital by run-blocking for twelve years in the NFL, or by crashing around on the stock car circuit, or jumping over thirty-five school buses on a rocket-powered motorcycle. Whether or not they now have to live on cortisone injections or pain medications for the rest of their lives, they still have earned the right to buy up two or even twenty-two dealerships and give it a go."

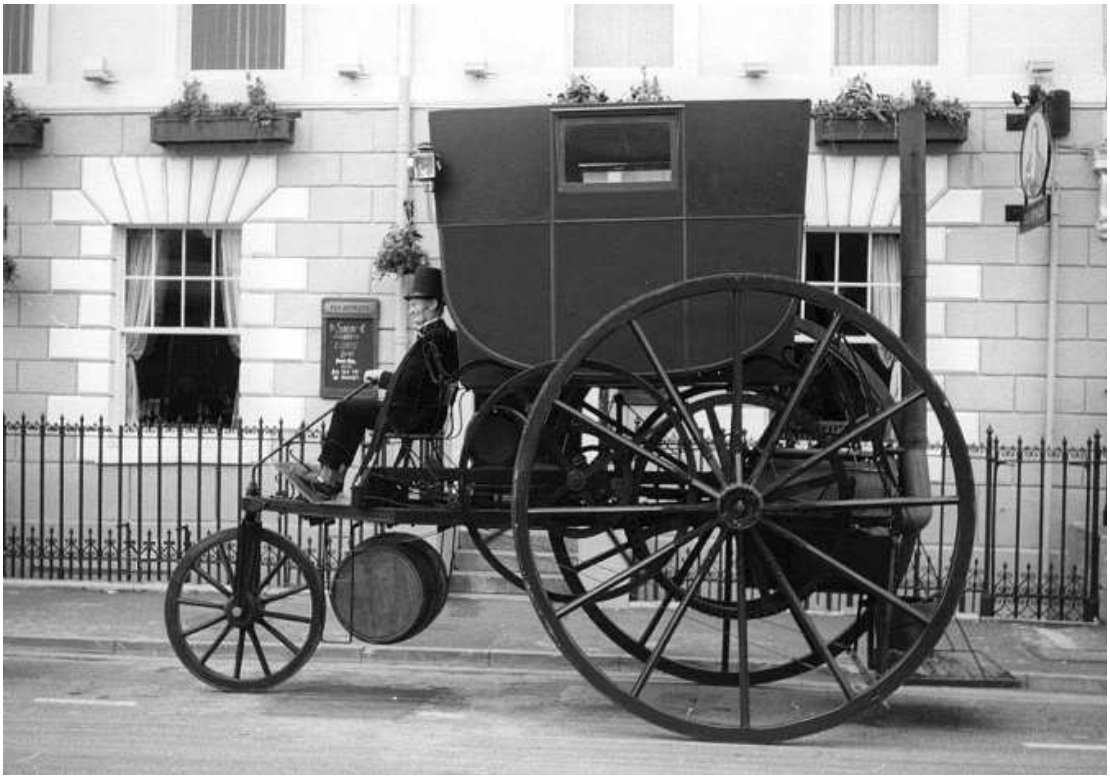
F. Historical Photos Build Insight into the Development of the Automotive Industry

The career of any technician can be enhanced by having an understanding of the origins and evolution of the industry. This aspect alone would require a voluminous and weighty text. Instead the author accomplishes the goal in a far more palatable fashion, by delivering the most important highlights in the form of eighty nine historical photos with enlightening captions scattered throughout the book. David explains his never-say-die reasoning in the excerpt below:

> From *Chapter 33, Final Thoughts:* "The historical photos and captions throughout the book are intended to be more than just entertaining breaks. The real purpose behind events such as the first engine, the first race, and pioneers such as Karl Benz, Henry Ford, Ferdinand Porsche, and Louis Chevrolet, and their extraordinary accomplishments, is to remind every tech that the makers of automotive history all were great mechanics, who got dirty and never gave up. Guys like Charlie Wiggins, the star of the Colored Racing Association, and Red Vogt, souping up cars for bootleggers and racers, and Vic Edelbrock, inventing new levels of speed and performance, were all truly exceptional not only in their mechanical abilities, but in the fact that they never quit. They never let one failure, or even hundreds of failures, stop them from moving forward. They knew the road to success is full of sinkholes, blind curves, and detours to nowhere. They were slowed down, but never stopped. Some worked their entire lives before succeeding, like Felix Wankel, inventor of the rotary engine. Where would Mazda be today if Felix Wankel never had his dream, or if he gave up on it? It's the same hard road for every auto tech trying to become a master technician, or just trying to earn that one next cert, or striving for perfect CSI scores. It takes dedication and persistence to become good at anything, and I hope these historical figures and their hard-won accomplishments will inspire everyone to work harder toward their own goals—you can accomplish them."

A dozen examples of these photos, captions, and special insets are given on the following pages.

From page 10 – First Passenger Car



The World's First Passenger Car – Richard Trevithick, a British inventor, was the builder of the world's first steam-powered passenger car. In 1803 it was driven about ten miles through the streets of London with seven or eight guest passengers, the streets having been closed to other vehicles. This was the first trip of a self-powered passenger-carrying vehicle in the world. During a trip on another evening, Trevithick and his colleague crashed the carriage into some house railings. As a result of the damage done in this and another accident, and also because of a lack of sales, the vehicle was scrapped and the engine sent to work in a mill making hoops for beer barrels. *(Photo courtesy of The Steam Car Club of Great Britain)*

From page 44 – Beginnings of the Automobile Industry

The Beginnings of the Automobile Industry

Karl Benz, a German mechanical engineer, is credited with building the first successful gasoline-powered automobile. He had been manufacturing gasoline engines since 1878 before putting one into an automobile design in 1885. He named it "The Benz Patent Motorwagen" and was granted a patent for it on January 29, 1886. The Benz company's first production run of automobiles followed in 1888. In 1894 Benz produced the "Velo," an affordable, lightweight model that was built until 1901. The Velo is regarded as the world's first mass-produced car with a total production of about 1,200. By 1900, Benz & Company had become the world's largest manufacturer of automobiles. In 1903, at the age of 59, Benz retired from the company, but he remained a member of the supervisory board until his death in 1929. To this day Benz (along with Daimler) produces some of the finest cars in the world. *(Photo courtesy of Mercedes-Benz Classic)*

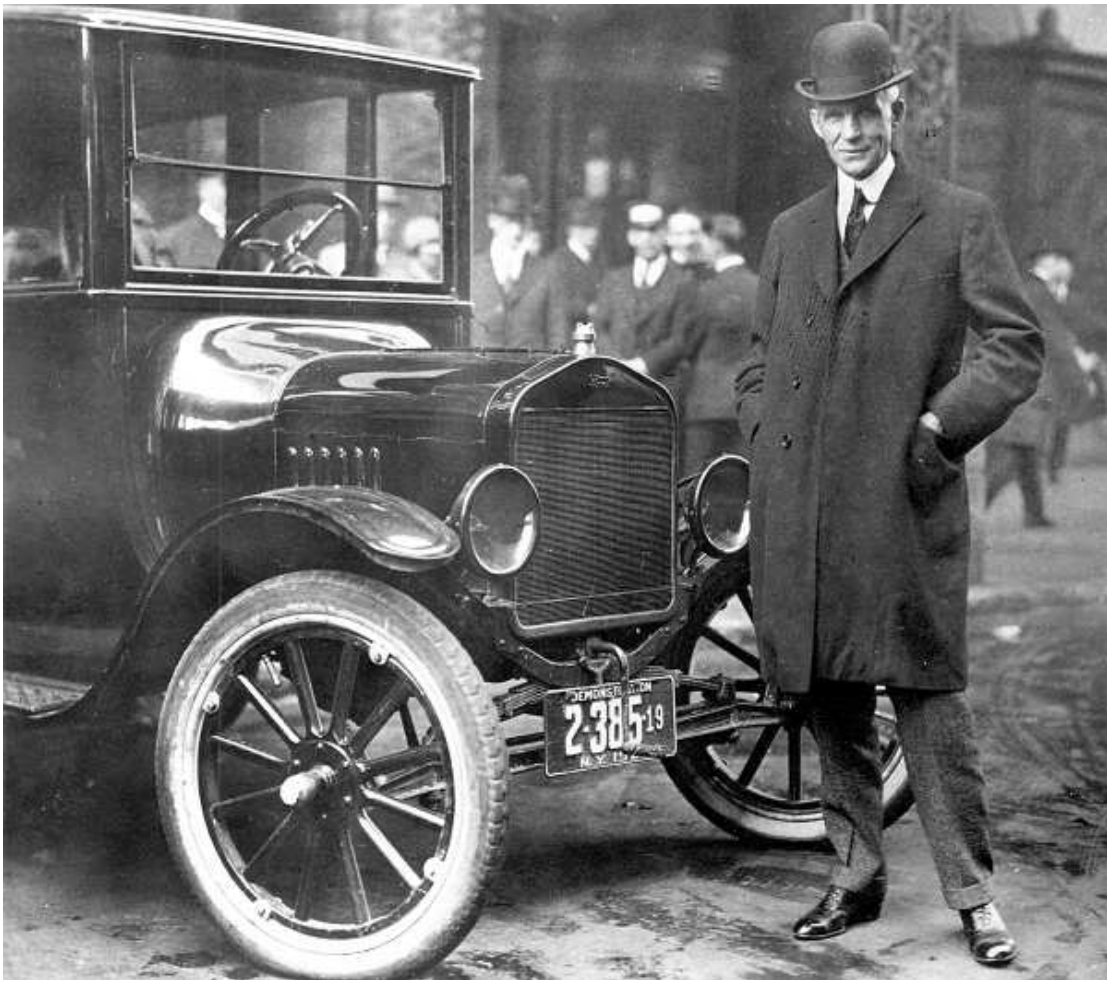
From page 86 – Ford Authorized Repair Shop

J.A. Stuntebeck Dealership – A clean and professional-looking Ford-authorized shop in Avon, Minnesota, 1920. *(Photo by Henry A. Briol, by permission of Minnesota Historical Society)*

The Beginnings of the Flat-Rate System

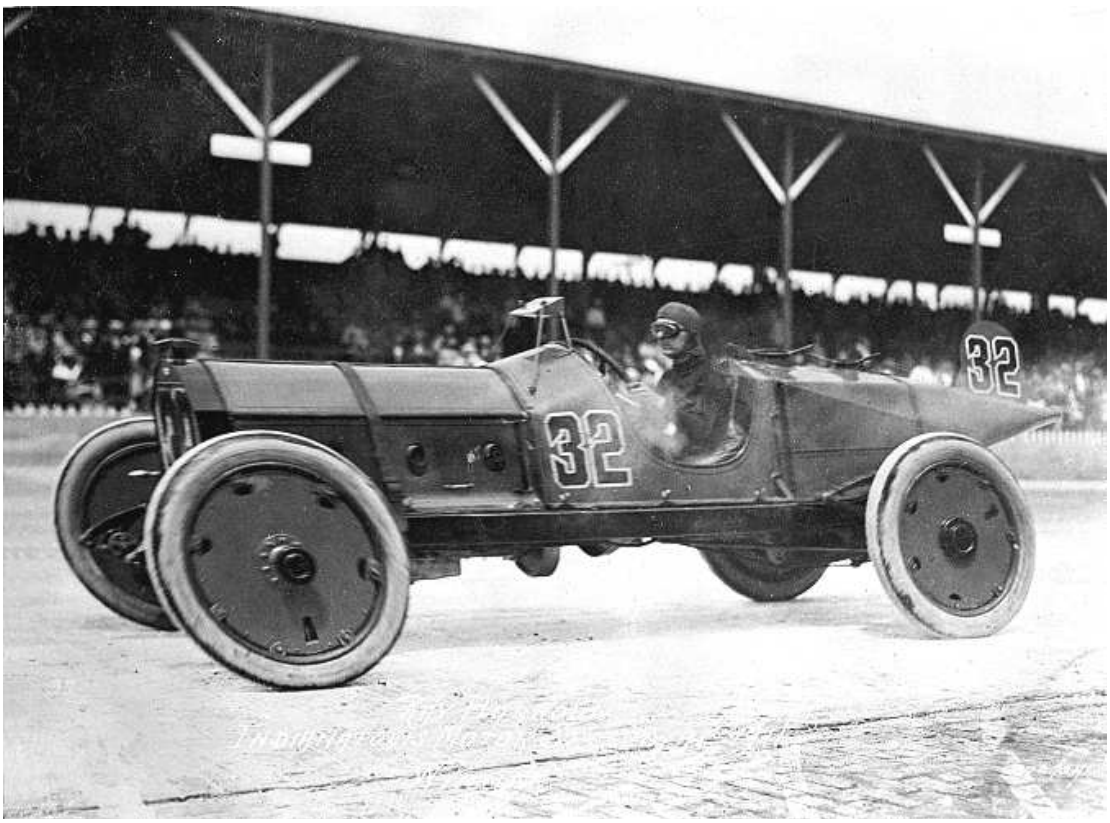
There were so many Ford Models Ts on the road by the early 1910s, mechanics were having trouble keeping up, quality wasn't a priority, and customers were suffering. At that time mechanics were paid by the hour and worked slowly, often in filthy conditions, yet these shops were able to charge their customers whatever they wanted. Dissatisfaction was growing. Henry Ford knew that poor quality work by dealers meant unhappy customers, which in turn would mean fewer sales of the Model T. To solve the problem he knew he had to gain control over the dealerships to influence their quality of work and improve their customer service and pricing. What he really wanted was the same level of efficiency and cleanliness he had built into his own factories. One of the solutions Ford was able to implement was the "Flat-Rate" system of repairs, whereby all authorized dealers were required to charge the same number of labor hours for a given type of repair as listed in Ford's flat-rate book. The goal of the system was to establish a fair and consistent system of pricing for Ford's customers. It also promoted higher quality work since dealers who did not fix something correctly the first time could not charge the customer again to re-do the work. Ford was also one of the first companies to produce service manuals with detailed repair steps, and to deliver specialized tools to dealers, and one of the first to open up technical training schools for Ford mechanics.

From page 87 – Car of the Century



The Car of the Century – Henry Ford in 1921, posing in front of a Model T. Regarding the design of the Model T, Henry Ford stated: "I will build a car for the great multitude. It will be large enough for the family, but small enough for the individual to run and care for. It will be constructed of the best materials, by the best men to be hired, after the simplest designs that modern engineering can devise. But it will be low in price that no man making a good salary will be unable to own one—and enjoy with his family the blessing of hours of pleasure in God's great open spaces." Ford had set forth the right set of goals, as proven in the success of the Model T in the marketplace and as further validated in 1999 when a jury of 132 professional automotive-industry journalists from 33 different countries awarded the title of COTC (Car of the Century) to the Ford Model T, calling it "the world's most influential car of the twentieth century." *(Photo: From the Collections of The Henry Ford)*

From page 124 – The First Indy 500

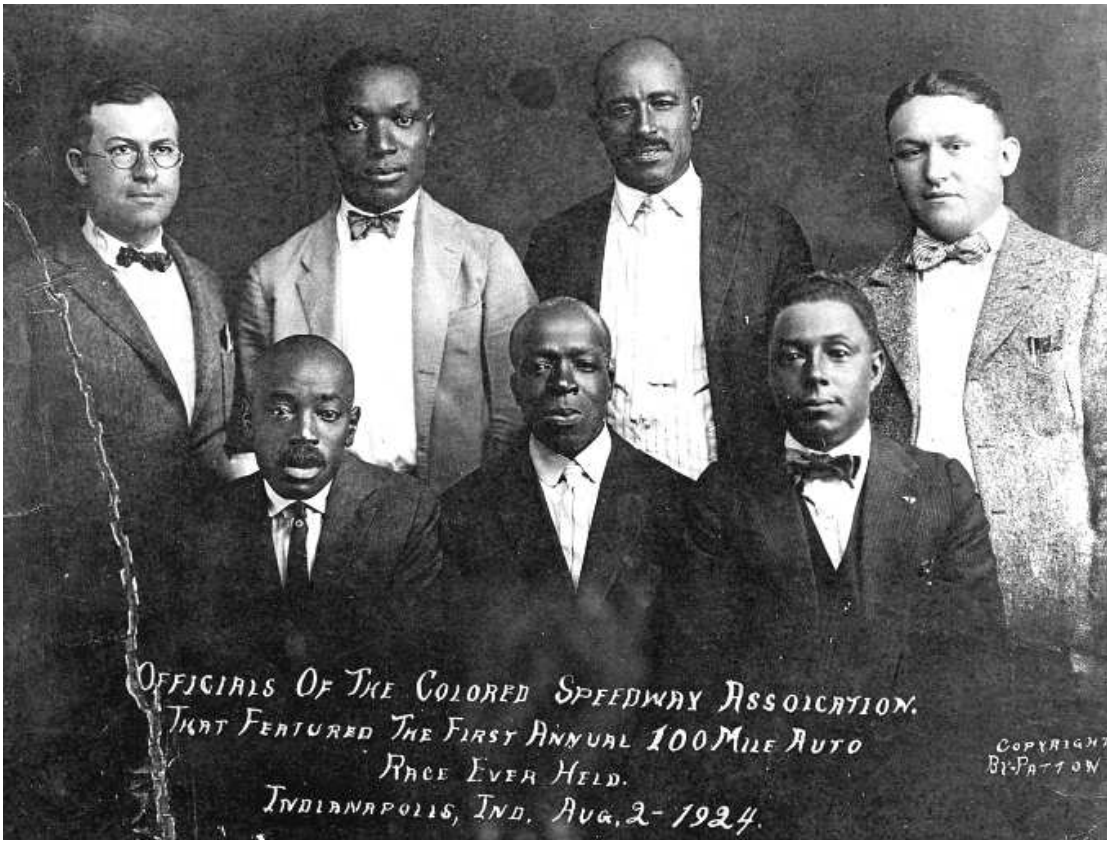


The First Indy 500 – The first Indianapolis 500 race was held on Memorial Day, May 30, 1911, in front of 80,200 spectators who each paid $1 admission. Many considered the winner, Ray Harroun, to be a hazard in the race since his was the only car without a riding mechanic onboard to check the oil pressure and warn him when traffic was coming. Harroun's "Marmon Wasp," however, was not all that dangerous. It was equipped with a much simpler and better method of traffic control—a rearview mirror. *(IMS Photo)*

From page 141 – Louis Chevrolet at Daytona Beach Speed Week

Chevrolet at Daytona Beach Speed Week – Twenty-seven-year-old Louis Chevrolet—with grease under his fingernails—relaxes between runs at the 1906 Ormond-Daytona Beach Speed Week. Many advances in auto technology came through racing. Speed, durability, fuel mileage, suspensions, tires, aerodynamics, and material strength are just a few. *(Photo: National Automotive History Collection, Detroit Public Library)*

From page 180 – The Colored Speedway Association



Colored Speedway Association – In 1924 William Rucker, a respected African American community leader pictured here at bottom center, founded "The Colored Speedway Association." *(Photo: Indiana Historical Society)*

The Trailblazing Colored Speedway Association

Since African Americans were not allowed to race in sanctioned events due to the segregationist policies of the AAA, the Colored Speedway Association was founded in 1924. This gave them their only high-profile opportunity to compete on selected tracks in the mid-eastern US. Their championship race, the "Gold and Glory Sweepstakes," drew 12,000 fans to the Indiana State Fairgrounds in its first year. This was the African American community's response to the Indy 500, held just a few miles away, where highly skilled racers like Charlie Wiggins would try to enter every year, just to be turned away and ignored. The Association and its supporters were the leaders of their time and, despite having to operate in a hotbed of racism in Indiana, provided opportunities to many black racers. The association lasted for twelve years until the severe financial problems of The Great Depression finally ended its run.

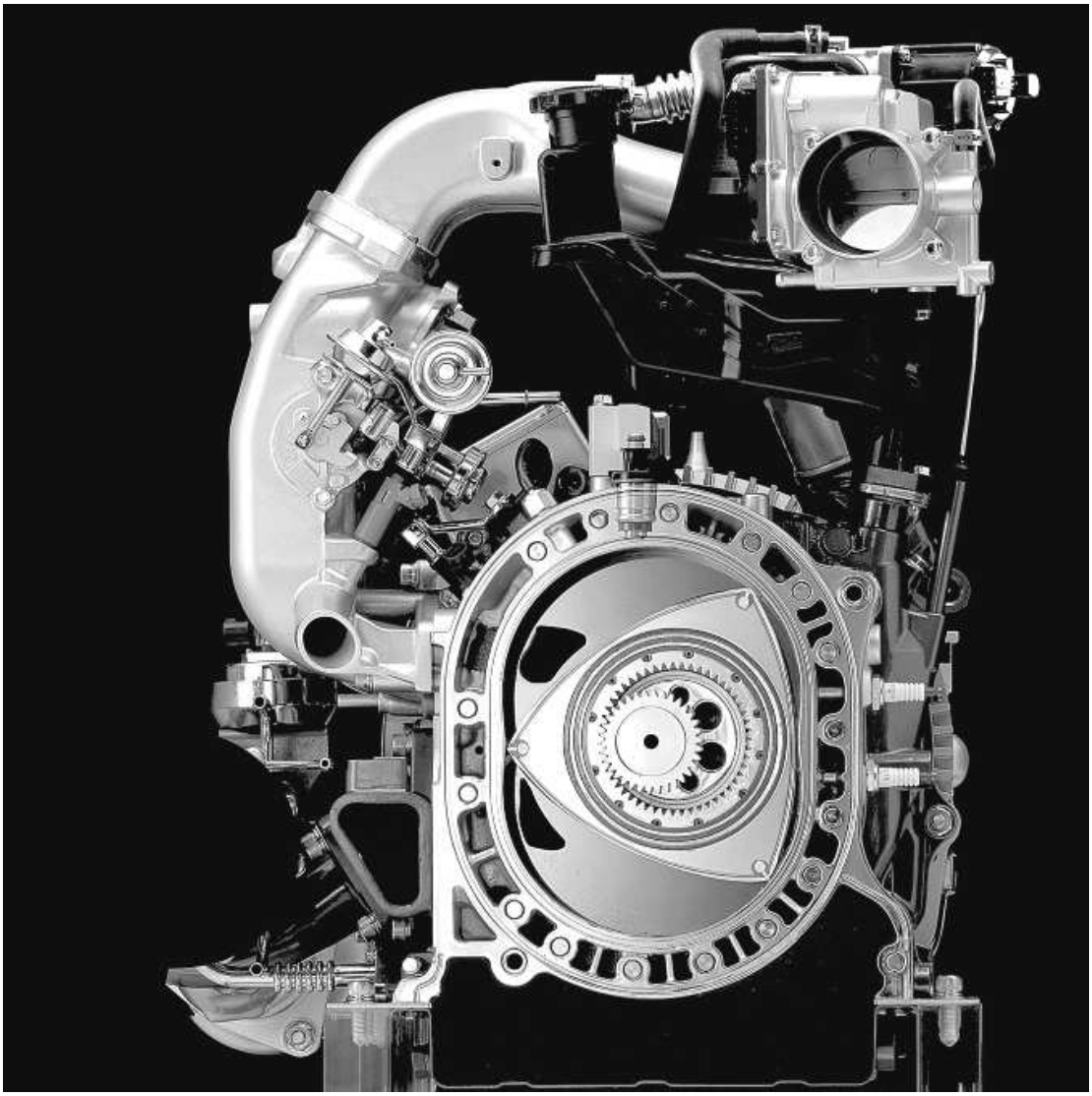
From page 221 – High School Auto Mechanics Class

High School Auto Mechanics Class, East High School, Madison, Wisconsin, 1934 – The instructor is showing how a differential works using what appears to be a rear-axle assembly from a heavy-duty truck. He is moving the pinion with his left hand while his right hand rests on the housing above the ring gear. It's a good way to show the need for clearance (backlash) between the ring and pinion gears. The brake drum is cut away and you can see the student's hand leaning on the brake shoe. This type of hands-on demonstration in trade schools has not changed in 75 years. *(Photo by permission of Wisconsin Historical Society)*

From page 245 – Just Another Day at the Beach

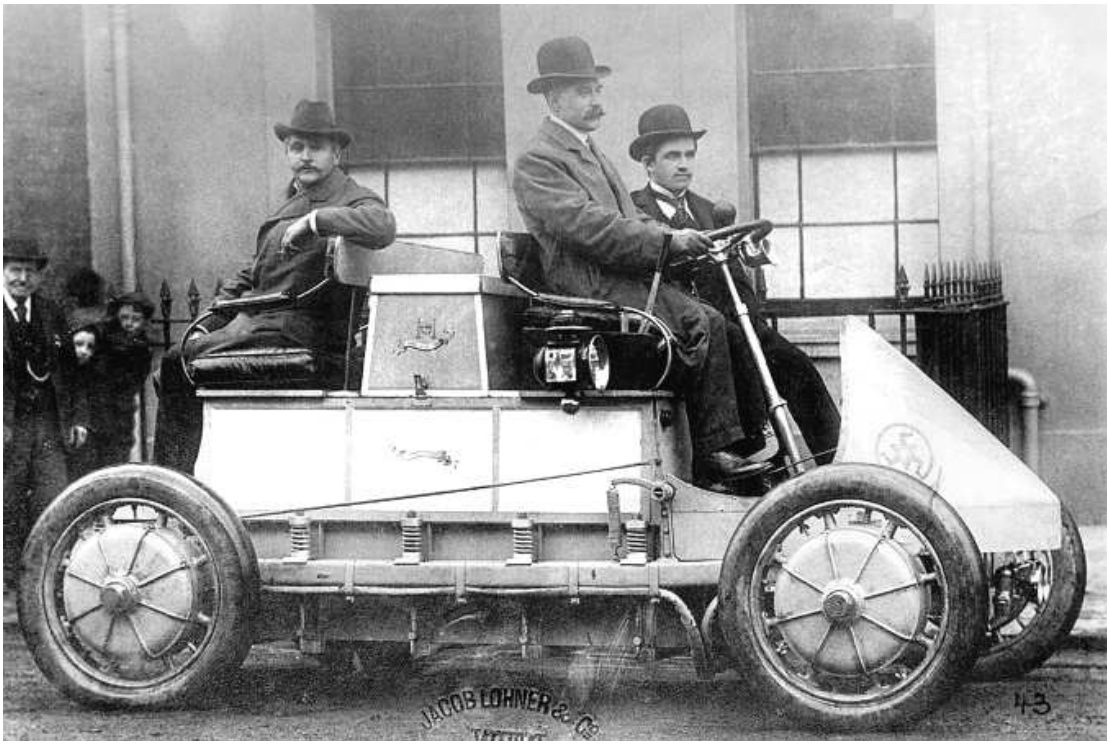
Just Another Day at the Beach – Check out Pit Row at the Daytona Beach Road Course during Speed Week in 1952. Imagine the magnetic power of a racing venue that combined sun, sand, cars, drivers, mechanics, and leggy girls sunning while working on crossword puzzles. *(Photo: State Archives of Florida)*

From page 270 – Mazda's Renesis Rotary Engine



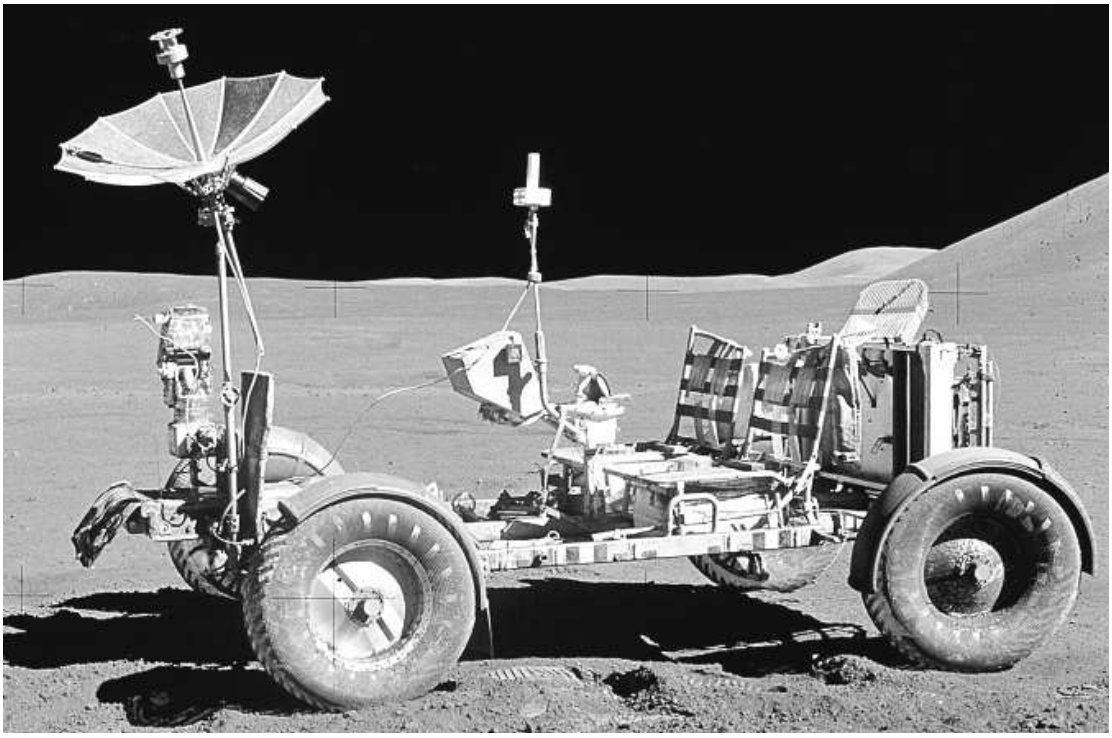
Mazda's Renesis, "2003 International Engine of the Year" – Felix Wankel was born in Lahr, Germany in 1902. In the summer of 1919, at age 17, he had a crazy dream about going to a concert in a handmade car. He boasted to his friends in the dream, "My car has a new type of engine: a half-turbine, half-reciprocated engine. I invented it!" Wankel at that time knew nothing about engines but when he woke up, he remembered the dream and was convinced his idea would work. That dream went on to steer his entire life. It did not become a reality until 1957. Since then the Wankel engine has been most used by Mazda, starting with their 1967 Cosmo. *(Photo courtesy of Mazda Motor Corp.)*

From page 297 – World's First All-Wheel-Drive Electric Car



The World's First All-Wheel-Drive Electric Car – Ferdinand Porsche, in the passenger seat, is delivering this Lohner-Porsche 4WD electric car to his customer E.W. Hart of Luton, England in 1901. The car was powered by four individual motor-hubs rated at 2.5-hp each. This tank-like design carried over 3,000 lbs. of batteries but was still agile enough to win races all over England. *(Photo courtesy of Porsche-Werkphoto)*

From page 301 – The Moon's First All-Wheel-Drive Electric Car



The Moon's First All-Wheel-Drive Electric Car – Apollo 15 astronauts delivered this 4WD Lunar Rover to the moon in 1971, then drove it for a total of 17.25 miles during the mission. A single joystick system, developed by General Motors, controlled the steering, acceleration, and braking. The electric-drive system, also made by Delco/GM consisted of one 1/4-hp electric motor attached to each wheel through an 80:1 harmonic drive. The system was very similar to the 1900 Lohner-Porsche electric car, which was thoroughly studied by NASA and GM while developing the Rover. A total of four units were built, one each for Apollo 15, 16, and 17, plus one for spare parts. (Photo courtesy of NASA)

G. Clear, Concise, Practical Career Advice

The life-long career of an auto tech can be confusing and complex, and without proper guidelines the tech can go astray. To penetrate the dense jungle of often conflicting business ideas, and to make the path as straight as possible, the author first defines, and then expands upon, five time-tested rules that can be applied with benefit on a daily basis.

From *Chapter 32, The Top Five Rules for Business Success:* "Out of an ocean of ideas about how to succeed as an auto tech, I was able to eventually boil it down to just five key rules. These five have proven themselves so consistently over the years that I strongly recommend them to any tech, young or old. You can use these on the job at all times with good results. As I mentioned earlier, don't just take my word for it. Check them out by testing them for yourself. Compare the results when you and your boss and the other techs follow these rules, versus what happens when they are ignored.

"The five key rules, in order of importance:

1. Keep your customers happy
2. Never turn away work
3. Upsell every repair needed
4. Test-drive and perform quality control
5. Never make excuses

"These might seem very simple and obvious, and they certainly are, but that's also where they get their power—from common-sense and simplicity. Don't be fooled into thinking that they are so simple they will take care of themselves; they won't. They produce results only to the degree that you put them into hard practice."

H. About the Author

From the inside back cover:

> "David Ellingsen, a master ASE (L1) and master Infiniti tech with thirty years of professional experience, is currently employed at Porter Infiniti in Newark, Delaware. Throughout his career Dave often found himself working directly with owners and managers, helping solve problems with tricky repairs, customer relations, new technicians, shop policies, and warranty issues. Throughout these interactions Dave was able to gain a strong insight into the way the repair business operates and how the non-technical aspects can impact the career of new or experienced technicians. By passing these insights along during his on-the-job training of other technicians, Dave earned a reputation for improving not only their quality of work, but their efficiency, money-earning ability, and customer care skills as well.
>
> "Dave is one of those mechanics who could be called a 'natural.' His interest in everything that rolls began at age eight, building go-carts and eventually attaching engines to their crude wooden frames. By age twelve he was tearing into the family junkers, learning even more about engines, and especially about electricity, including the ability to hot-wire a '61 Plymouth after the keys were confiscated as the result of an unauthorized joyride to the local gas station. Right then and there was when Dave (and his parents) understood he had a knack for working on cars. Many more tear-downs and rebuilds in the parent's driveway would follow before landing his first real job at a local independent repair shop at the age of twenty."

Making the Most of Your Career as an Auto Technician

To be a winner in the shop requires more than technical skills. Knowing the ins-and-outs of the repair business, recognizing the true value of your customers, and delivering great service are just as important. *The Auto Tech's Handbook* will teach you how to manage your career and develop to your highest potential through a series of valuable lessons such as:

- **Mastering the flat-rate pay system**
- **Becoming super efficient in the shop**
- **Building customer loyalty for higher income**
- **Making CSI work for you, not against you**
- **Understanding managers and owners**

Learn from a Master ASE Technician

The Auto Tech's Handbook is easy-to-read with a series of entertaining stories illustrating the most important lessons every auto tech must learn. Why wait thirty years to gain these essential insights—often the hard way, the most expensive way—when you can get a big jump on it today?

Fun to read—more than ninety photos and captions highlighting the history of the automotive industry and great auto mechanics.

"Dave's insight into the auto repair business provides a clear picture of what being an auto technician is all about. This is a must-read for anyone considering a career as a technician, and an eye-opener for experienced technicians as well." —**Tim Hendrick**, Service Director, Don Rosen Imports, Philadelphia, PA

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