

PTEN

PROFESSIONAL TOOL & EQUIPMENT NEWS

\$15.00 - August 2023
Volume 34, Number 7

ENDEAVOR
BUSINESS MEDIA



EXCLUSIVE
2023 PTEN
INNOVATION
AWARDS WINNERS
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**CATEGORY
SPOTLIGHT**
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TOPDON ULTRADIAG

DIAGNOSTICS MEETS KEY PROGRAMMING



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AND OTHER NEW TOOLS **PAGE 10**



▲ Features shop-friendly footprint.



▲ Converts to R-1234yf systems



▲ 5-in-1 air ratchet, drill, and grinder

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PROFESSIONAL TOOL & EQUIPMENT NEWS

Published by Endeavor Business Media, LLC

ENDEAVOR 30 Burton Hills Blvd, Ste 185
BUSINESS MEDIA Nashville, TN 37215
800-547-7377

Printed in the U.S. Volume 34, Number 7; August 2023

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PO Box 3257 • Northbrook IL 60065-3257

Article reprints reprints@endeavorb2b.com

Professional Tool & Equipment News (USPS 012-426, ISSN 1081-4485 print; ISSN 2150-2072) is published ten times a year in February, March, April, May, June, July, August, September, October, and December by Endeavor Business Media, LLC, 1233 Janesville Avenue, Fort Atkinson, WI 53538. Periodicals postage paid at Fort Atkinson, WI 53538 and additional mailing offices. POSTMASTER: Send address changes to *Professional Tool & Equipment News*, PO Box 3257, Northbrook, IL 60065-3257. Canada Post PM40612608. Return undeliverable Canadian addresses to: *Professional Tool & Equipment News*, PO Box 25542, London, ON N6C 6B2.

Subscriptions: Individual subscriptions are available without charge in the U.S. to qualified subscribers. Publisher reserves the right to reject non-qualified subscriptions. Subscription prices: U.S. \$50 per year, \$93 two year; Canada/Mexico \$72 per year, \$131 two year; All other countries \$105 per year, \$195 two year. All subscriptions payable in U.S. funds, drawn on U.S. bank. Canadian GST#R4273848. Back issue \$10 prepaid, if available. Printed in the USA. Copyright 2022 Endeavor Business Media, LLC.

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Mario Rojas, Autobahn Performance in Oakland Park, Florida.



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XD

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KTIXD5555

Rechargeable 2,000 Lumens Headlamp / Flashlight

- + 2000 lumen maximum / 800 lumen holding
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5 WORKING MODES
2,000 LUMENS

KTIXD6174

Worklight, Rechargeable Cob Foldable & Swivel

- + 180° Foldable and 270° Swivel/Twist with top light
- + High/Low power, max brightness 600/300 lumens
- + Direct micro USB charge
- + Super strong magnetic base
- + Run Time: 4.0 to 8.0 hours. Charge Time: 4.0 hours. 4000 MAH Li-ion 3.7V battery. Length: 13.0", 7.5" folded

600/300
LUMENS



FOLDABLE AND
SWIVEL/TWIST LIGHT



Voted One of the Top
100 Products
of 2022 by
PTEN Magazine

KTIXD6299

1400/700/350 L Floodlight and 400 L Spotlight

- + 1400/700/350 lumen flood light and 400 lumen spotlight
- + Power meter
- + 180 degree rotatable leg with magnetic base
- + Work modes: spot, low med, high and off
- + Run Time: 10.0, 5.0 and 2.5 hours. Spot Light: 8 hours. Charge Time: 4.0 hours. 5200 MAH Li-ion 3.7V battery. Dimensions: 4.6" x 4.0" x 1.6"

1,400/700/
359 LUMENS



180° ROTATING
WITH
MAGNETIC BASE

KTIXD6132

1000 lu Flashlight w/ Power Bank Function

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- + Direct Micro USB Recharge

POWERBANK



1,000 LUMENS

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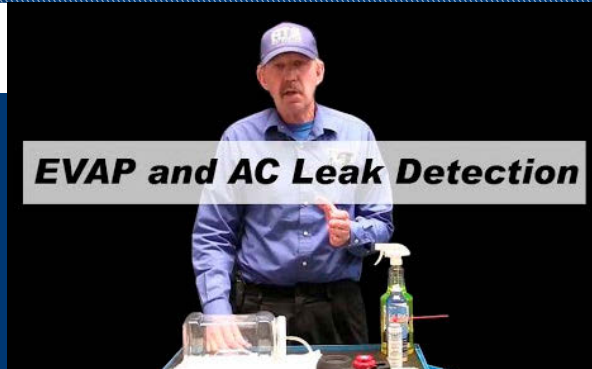
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VIDEO



EVAP and AC Leak Detection

Bernie Thompson of Automotive Test Solutions puts multiple products to the test when looking to find leaks in EVAP and A/C systems.

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TECHNICIAN PROFILE



Making a career change at the age of 30 in the midst of COVID-19 was no easy feat. However, it didn't stop this young technician from achieving his ultimate goal – becoming a Porsche Certified Technician.

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DIAGNOSTICS



Check out the top 10 diagnostic tools and updates of 2023 Q2. From Oasis Scientific's smartphone Vividia CX-6010M inspection camera to TEXA's handsfree Axone Voice, see what you may have missed.

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SHOP SERVICES



Should you add wheel alignment to your shop? It can be a big investment; however, without it you may be losing out on an important revenue stream.

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FEATURED PRODUCTS



Midtronics

High-Voltage Module Balancer, No. xMB-9640
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DeWalt

20V Max XR Brushless Cordless Rivet Tool Kit
[VehicleServicePros.com/53065615](https://www.VehicleServicePros.com/53065615)



Exair Corporation

Updated Ultrasonic Leak Detector (ULD)
[VehicleServicePros.com/53064914](https://www.VehicleServicePros.com/53064914)



Polyvance

Plastic Welding Rod Assortment with Organizer Case (Tier 2), No. 5003-04
[VehicleServicePros.com/53062470](https://www.VehicleServicePros.com/53062470)

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87043 Professional No-Spill Coolant Funnel Kit



37187 Harmonic Balancer Puller



37310 Master Ball Joint Installer/Remover Adapter Set



23997 64 Pc. 1/4\"/>



26554 Front End Service Kit



22989 32 Pc. Hex Bit Socket Set

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The next big thing

The results are in. See which tools and equipment made the cut this year and received a 2023 Innovation Award.

By **Emily Markham**, Editor
EMarkham@VehicleServicePros.com

It's undeniable that the auto industry is in a constant state of change.

As vehicle technology continues advancing, the tools and equipment necessary for fixing and maintaining that technology must evolve as well. However, when it comes to new tools and equipment hitting the market, does evolution always mean innovation? What does it take for a tool to truly stand out?

In this month's Big-Time Boxes article (page 50), Autobahn Performance's diagnostician Mario Rojas shares some of the many tools he houses in his updated tool storage setup. From hand tools to scan tools and so much more, Rojas has expanded his storage space to ensure his investments (aka his tools) are safe from dirt, grime, and the potential of being stepped on so long as they're tucked away in his diagnostic cart, toolbox, or one of his cabinets.

Though content with his setup for the time being, as any technician knows it's rather easy to grow out of your toolbox. Especially when new tools and equipment are required to do some jobs. Although new tools aren't always necessary, sometimes it's for the sake of convenience such as an updated version of an old tool that gets the work done in half the time, and

sometimes it's purely a want such as that new color of a hand tool line that you just *have to own*.

It's easy to see how technician's tool collections have had to grow in more recent years. Between the boom of ADAS technology and electric vehicles becoming more and more popular – technicians and shops alike have had to adapt. This is why each year *PTEN* honors the newest, most innovative products in the industry with its Innovation Awards.

We're always on the lookout for the next "big thing" and how it can help you save time, be more efficient, and/or make you more money. The products we're showcasing on page 18 were hand-picked by a panel of judges out of over 100 submissions as 26 of the best new products to enter the industry in the past year.

Each product was judged on the following criteria:

- Time savings
- Simplifying a task
- Unique/new approach
- Improving a current tool
- Ease of use

While we'll have full product descriptions for you to peruse in this issue, we'll also be presenting the Innovation Awards in person at the Automotive Aftermarket

Expo (AAPEX) in Las Vegas at our *PTEN* booth in November, so if you wanted to chat with any of these award-winning companies about their products, our Innovation Awards ceremony could be the place to do just that.

If you do attend the show, be sure to stop by the *PTEN* booth and say hello. While you're at it, let us know what tools and equipment have been "game changers" for you and your shop this year. And if you won't be in Vegas, shoot us an email. We'd love to hear from you! ❌

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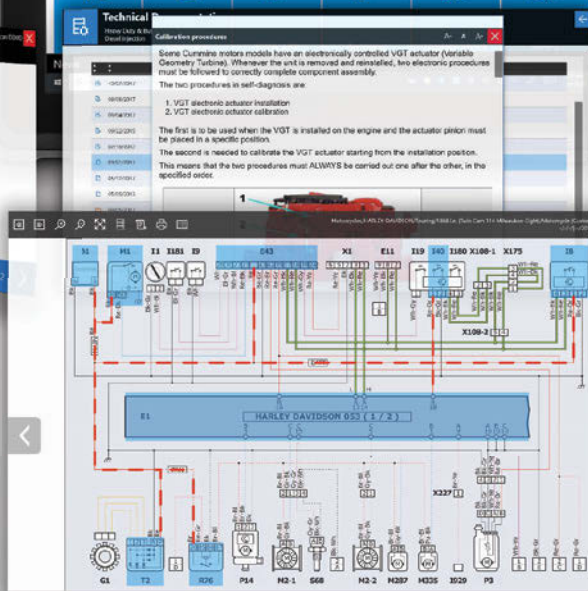
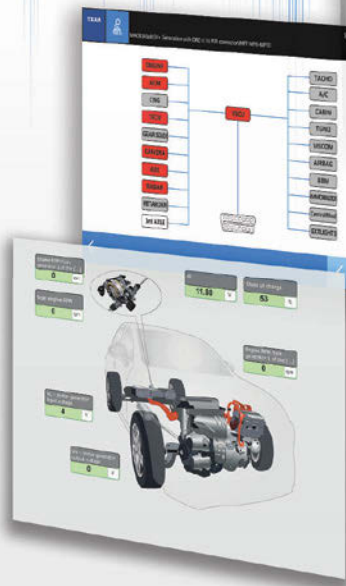
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ADVANCED COVERAGE & REPAIR SOLUTIONS

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- System Diagnostic Reports
- Accurate ADAS Calibration
- Technician Remote Assist



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DIAGNOSTICS FOR PROFESSIONAL TECHNICIANS
Single diagnostic interface able to scan cars, trucks, motorcycles, ATVs/UTVs, agricultural, construction and marine, while automatically using multiple protocol and connection options.



RP1210, CanFD, DoIP, K-L, J2534, J1708, J1850, J1939 Ethernet, WiFi, Bluetooth, USB

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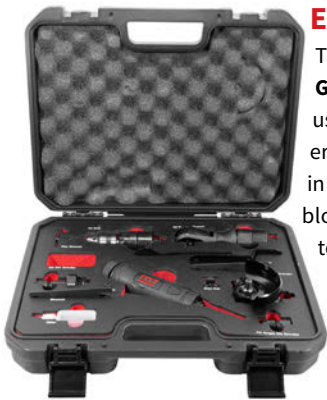
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FEATURED NEW PRODUCTS



ERGONOMIC RUBBER GRIP

The **M7 5-in-1 Air Ratchet, Drill, and Grinder**, No. NE-0405-KIT, is designed to give users hours of comfortable use thanks to its ergonomic composite rubber grip. It comes in an oil-resistant foam tool holder inside a blow-molded case. The kit features a drive tool fitted with five tool heads which include a pneumatic die grinder, air angle grinder, air ratchet, air angle die grinder, and an air drill. Via a one-touch push sleeve, these heads have the ability to connect and disconnect from the drive. Also included are three spanner wrenches and an oiler.

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CONVERT R-12 OR R-134A MANIFOLD GAUGE SETS

The **FJC R-1234yf Conversion Kit with Manual Couplers**, No. 6820, can be used to convert R-12 or R-134a manifold gauge sets to connect to R-1234yf mobile A/C systems. Features a brass high-side manual coupler with M12 fitting and a brass low-side manual coupler with M12 fitting. In addition there are two fittings (M12 by 1/4" SAE) to connect high- and low-side manual couplers to 1/4" R-12 hoses and two fittings (M12 by M14) to connect the high- and low-side manual couplers to M14 R-134a hoses.



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AVAILABLE IN THREE MODELS

The **Coats Maxx Tire Changer Series** features a shop-friendly footprint and includes three models: Maxx 70, 80, and 90. The series can accommodate wheel assemblies from 6" to 30". Each model comes standard with two nozzles pointing directly at the bead and rim to deliver more air and to direct a concentrated blast of increased air flow to seal tough beads efficiently. Additionally, each model features a 220V 2hp motor, hand control bead loosener (Maxx 80 and 90 have hand and foot control), and the company's patented tool heads (Leverless Bead Lifter, Robo Roller, and Robo Arm). Designed and built in the U.S.A.



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Kicking off the New Products section each month, our Featured New Products page includes brand new products showcased on the cover that are available to the automotive market.



DIAGNOSTICS MEETS KEY PROGRAMMING

TOPDON's UltraDiag is a well-rounded diagnostic tool upgraded for the modern automotive market. The device features OBD-II capabilities, full-system diagnostics, and eight maintenance service functions. Advanced functions include the repair data library and bidirectional control for in-depth repairs and troubleshooting. This version has many new features, including updated software, a wireless Bluetooth VCI, and key programming. The UltraDiag has comprehensive key programming capabilities, including PIN reading, key learning, remote control learning, and all keys lost. Combined key programming and diagnostics put the UltraDiag at home in every shop.

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FOR MORE INFORMATION ON THESE PRODUCTS, CLICK ON "PTEN E-INQUIRY" at VehicleServicePros.com OR CIRCLE THE NUMBER ON THE CARD.

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MADE OF NON-MARRING SILICONE POLYMER

The **Snap-on Flexible Magnetic Spray Can Holder**, No. FLEXCANHLDR, uses powerful neodymium front magnets to secure spray cans, and includes an integrated clip designed to keep loose lids in place. Rear magnets secure the holder to the user's toolbox or other metallic surfaces while their pull tabs make removing easy and damage free. Compact yet strong, the holder is made of non-marring silicone polymer.

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REMOVES DAMAGED AND CORRODED LUGS

The **CTA Tools Emergency Twist Flip Socket Set**, No. 5700, comes with six sockets that cover commonly used sizes for lug nuts and lug bolts. Made from high-quality steel for durability and strength, this socket set is designed to remove damaged and corroded lug nuts. It features a twist-flip design which allows users to switch between standard hex sockets and twist sockets with just one hand. The set includes 17mm, 19mm, 21mm, 13/16", and 7/8" sockets. It also includes a matching emergency twist size on the opposite end of each socket and a 3" long 1/2" drive extension for use on all sockets.

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REACHES UP TO 20"

The **NextLED Flexible Shaft Magnetic LED Flashlight and Pickup Tool**, No. NT-7647-1, combines a flashlight and a pickup tool in one. The tool features a telescoping neck with an extendable reach of up to 20", making it easy to access hard-to-reach areas. The strong magnetic bottom of the tool allows users to pickup items weighing up to 1lb, while the 300 lm Cree COB LED worklight provides bright and reliable illumination.

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FEATURES A LIGHTWEIGHT DESIGN

The **UX10 Fully Rugged Tablet** from **Getac Technology Corporation** is part of the company's G-RuggedPro series. The 10.1" tablet offers a lightweight design and is easy to carry. Users have the choice between a 12th Generation Intel Core processor and an Intel Pentium Gold processor to suit their needs. Other key features include a LumiBond touchscreen, 8GB of DDR4 RAM (with option of up to 32GB), fully sealed buttons, and protection against dust and water. It also incorporates a range of enhanced security features, including Microsoft's latest suite of authentication tools, TPM2.0, smart card reader (optional in UX10), and optional Intel vPro, fingerprint reader, RFID, and Windows Hello Webcam.

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EXTRA WIDE BASE FOR STABILITY

The **ATD Tools 1/2-Ton Hydraulic Telescope Transmission Jack**, No. 7429, features an extra wide base for stability. It has a capacity of 1,000 lbs and rises to a maximum height of 74.8". Its adjustable saddle tilts in both directions and when expanded it has an area of 13.58" by 13.78". The transmission jack also features a chrome-plated ram for smooth operation and a welded hydraulic pump for durability. It meets or exceeds ASME/PASE 2019 standards.

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HANDSFREE MOTION DETECTION

The **Lumileds Philips Xperion 6000 Headlamp** is a headband-mounted worklight that allows service professionals to shine LED illumination exactly on the task at hand. Powered by the Philips Xperion LED chips, the headlamp uses two light sources. Across the front of the headband, an LED light strip provides a broad beam of light up to 300 lm in boost mode and up to 150 lm in eco mode. On the side of the headband a spotlight provides a narrow beam of up to 120 lm. To ensure ease of use, the headlamp is equipped with a handsfree motion detection feature that allows the user to turn the light on and off without touching it.

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SUPPORTS A NOBLE CAUSE

The **Miller Electric Digital Infinity Series Honor Welding Helmet** features a camouflage design and supports a noble cause. For every Honor helmet sold, Miller will donate to Semper Fi and America's Fund, a nonprofit organization that provides assistance to wounded, critically ill, and injured members of the U.S. armed forces and their families. The Honor Helmet has a 13.4 sq. in. viewing area and is integrated with advanced technologies, including ClearLight 2.0 for a clear, bright, and more realistic view, X-Mode to eliminate sunlight interference, InfoTrack 2.0 to monitor arc time and arc count, and AutoSense which automatically sets the helmet sensitivity by sensing the user's environment.

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OFFERS RANGE OF SIZES

The **Matco Tools 1/4" and 3/8" Drive 10-pc 8mm Socket Set**, No. SAB106M, includes 10 of the most commonly used 8mm chrome and impact sockets and is designed to cater to various automotive job needs. The set offers a range of sizes, including 1/4" drive standard length, mid-length, deep, magnetic, and universal sockets, as well as 3/8" drive standard and deep length sockets. The socket set comes packaged on a nylon socket rail.

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FEATURES REDUCTION NOZZLE

The **Bosch 18V Heat Gun**, No. GHG18V-50N, is designed to deliver a fast heat-up time, heating up to 570 degrees within six seconds. Featured in this heat gun is a reduction nozzle, a hook nozzle to supply directed hot air for even heating, an LED worklight, a lockout switch to prevent accidental activation, and an ergonomic grip zone. This heat gun is ideal for heat-shrinking wires, bending plastic pipes, removing labels, and softening adhesives. It has two heat settings of -930 degrees F and 570 degrees F and has a max airflow rate of 175 liters per minute for efficient heating.

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FEATURES SIX SPEED SETTINGS

The **8A 6" Hercules Forced Rotation Dual Action Polisher** from **Harbor Freight** is designed to combine the power and speed of variable speed rotary buffers/polishers with the more user-friendly orbital motion of a dual action machine. Featuring six speed settings that deliver a total speed range between 3,200 and 9,600 opm. The soft-start variable speed trigger prevents burning and reduces product sling, according to the company. Its adjustable knob sets grip position for better balance and control, and its 25' rubber cord eliminates the need for an extension cord.

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FOR SMOOTHING PAINT AND LIGHT WELDING

The **Solder-It Butane Blow Torch with Flame Control**, No. PT-520CR, is designed for smoothing paint and light welding. To start, it uses a water-resistant Piezo electronic ignition system. The adjustable airflow produces a soft and solid flame for use in various projects. At its mid-setting, users can get 30 minutes of continuous burn time on a full tank.

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INCLUDES UV LIGHT IN THE LAMP HEAD

The **Ledlenser W7R Worklight** is a compact worklight designed for professionals who need continuously adjustable color temperature depending on the application scenario and additional UV light in the lamp head for leak detection. Its 180-degree fold-out and 270-degree rotatable lamp head illuminates narrow working areas evenly while its light beam ensures the necessary precision and is continuously adjustable between warm white and cool white light. The rechargeable battery can be easily and repeatedly charged and then replaced at the end of its battery life. Other features include various mounting options, a nubbed surface for a strong grip, and a handy transport lock.

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Watch this product in action here: VehicleServicePros.com/53064671

NEW PRODUCTS



REMOVE AND INSTALL WHEEL BEARING LOCKNUTS ON SUVs AND TRUCKS

The **OEMTOOLS 7-pc Wheel Bearing Locknut Set**, No. 37385 can be used to remove and install the wheel bearing locknuts found on many Dodge, Ford, and Toyota SUVs and trucks. The removal set comes with popular metric sizes for front and rear wheels of imported trucks, and includes an SAE socket for American-made trucks with dual rear wheels. This set can be used with a 1/2" square drive ratchet, breaker bar, or torque wrench. Included in the set are standard hex and rounded hex sockets for universal appeal.

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SLIP-ON STYLE WITH PULL TABS

The **Surewrx Avenger Black Widow Series Work Boots**, include safety features like slip resistance, weather resistance, puncture resistance, and electro-hazard protection with a soft or composite toe option. The boots are designed for increased comfort and have a breathable and wicking high-performance mesh lining. Additionally, the Black Widow boots have a direct inject PU midsole and a PU outsole. Also featured in these boots is a premium full-grain leather upper with double stitching designed to make the shoe durable and comfortable.

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MARKED FOR EASY IDENTIFICATION

The **Lisle Corporation 13-pc Aluminum Spring Disconnect Set**, No. 39480, includes tools for separating oil cooler lines, fuel lines, heater lines, and air conditioning line couplings on most vehicles. The tools feature a spring-loaded construction which allows one-handed access to hard-to-reach, confined, and obstructed areas. The tools are marked for easy identification and come in a blow molded case for storage.

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AN ALL-SYSTEMS SCAN TOOL AND SERVICE TABLET

The **Autel MaxiCheck MX900** is an 8" touch-screen all-systems scan tool and service tablet, compatible with U.S., Asian, and European vehicles, 1996 and newer. The corded tablet can read and erase codes, view freeze frame data, view and graph live data, and perform bidirectional active tests and special functions. The MX900 is also a full-featured service tablet with more than 40 service and maintenance tasks, including brake bleed, oil and service light resets, battery registration, DPF regen, and electronic parking brake and steering angle resets. The MX900 runs on Android 11, is powered by 1.8 GHZ processor, and comes with one year of free software updates.

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FEATURES INTERCHANGEABLE BUSHINGS

The **Dodge/Ram 6.4L HEMI Broken Exhaust Manifold Bolt Repair Kit: Chad** from **ProMaxx Tool by Milton**, is designed to easily fit behind the shock tower. Featured in this set are interchangeable bushings with fasteners and a CNC machined thread repair kit. The Chad comes in two varieties, a base kit and a pro kit. The base kit includes one ProPlate, one ProBushing, one Premium Vertical Fluted Bit, two ProFasteners, and one ProLube Cutting Fluid. The pro kit includes one ProPlate, two ProFasteners, one ProBushing, and one ProDrill pack. The repair kit allows technicians to quickly and accurately remove and repair broken exhaust manifold bolts.

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FEATURES MOISTURE-WICKING LINING

The **Terra Murphy Series** combines a casual style with worksite-ready protection. The easy pull-on work boots feature a composite toe or soft toe and composite plate to keep users safe, and are water resistant to keep users dry. The boots have moisture-wicking and abrasion-resistant lining, CLEANFEET odor-control, direct-injected PU midsole, full grain leather upper, dual-density PU Footbed insole, and a slip, heat, and acid-resistant TPU outsole. They are also 100 percent metal free and available in black, brown, and grey.

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CLEANS UP TO 800 CAR HUBS

The **Checkpoint Car Stud and Hub Cleaning Tool** from **Martins Industries** is designed to quickly remove rust, corrosion, and dirt from cars, SUVs, and light trucks' rotors, hubs, studs, and the back of the wheels to ensure the secure fitment of wheels and wheel nuts. This is meant to minimize the risk of a wheel detachment and prevent the hub from running off center leading to vibrations, accelerated wear and tear on bearings and other components. The long lasting abrasive pads can clean up to 800 car hubs and is compatible with 1/2" impact wrench. Additionally, this tool is made in one piece and does not require any replacement parts.

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FEATURES HEAVY DUTY GLUE GUN

The **H&S Autoshot GPR-Pro Glue Pull Repair System**, No. GPR-7571, includes minor dent tabs as well as heavy damage ring tabs for increased pulling capabilities, lift and lateral pull straps for complex repairs, a heavy duty glue gun, and special glue for both large and small pull areas.

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STORES FOUR VEHICLES IN TWO SPOTS

The **BendPak PL-12000DP and PL-12000DPS Double-Wide Parking Lifts** are designed to store four vehicles in two parking spots. Each PL-12000DP and PL-12000DPS platform operates independently, meaning one side can be lowered while the other remains still. It's only necessary to move a single vehicle out of the way to get one parked above. The PL-12000DP tall-rise, extended length model offers versatility with its maximum rise of 82.2", a 183" runway, and a drive-through height of 80.5". The PL-12000DPS standard-rise, standard-length lift has a more compact footprint to fit in smaller spaces. Its maximum rise is 70.2", with a 159" runway, and a drive-through height of 68.5". Both models have a total rated capacity of 12,000 lbs or 6,000 lbs per platform.

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FEATURES A SPRING-LOADED FRICTION BALL

The **Grey Pneumatic 1/4" Drive 3-pc Impact Extension Set**, No. 9703E, contains three extensions in 3", 6", and 10" lengths. These extensions feature a spring-loaded friction ball retainer for positive socket retention.

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CONSTRUCTED FROM AIRCRAFT-GRADE ALUMINUM

The **NEBO Big Larry 3 Work Light** is a worklight, a flashlight, and a red task light in one. Offering seven light modes, it emits up to 600 lm as a worklight, 220 lm as a flashlight, and 40 lm as a red task light. With useful features like variable dimming, direct-to-red, power memory recall, and a strong magnetic base the light offers versatility for all lighting needs. The Big Larry 3 is constructed from aircraft-grade aluminum and has a rubber grip for impact-resistant drop protection. Carry it in a pocket or on a belt with the sturdy steel belt clip. Battery powered with three AA batteries (included).

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NOW AVAILABLE IN DIFFERENT SIZES

The **Dana Incorporated Victor Reinz Reinzosil RTV Silicone Update** is designed to be resistant to fluids, including mineral oils and synthetic oils, lubricants, gasoline, diesel oil, greases, water, and detergents. The chemical is safe for all sensors and is ideal for use on two-dimensional flat surfaces where there is a sealing gap, such as gasket intersections and components originally sealed with RTV by the manufacturer. Reinzosil sealant is not meant to shrink or lose weight when in high-heat environments.

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HAS AN ANGLED EXHAUST

The **AME International Air Power Buddy (APB) Classic 1" Air Impact Wrench**, No. 79710, has a 1" drive, a 6" extended anvil, and weighs 26.7 lbs. This impact wrench has a maximum reverse torque of 1,800 ft-lbs, a working torque range between 1,600 and 1,800 ft-lbs, and a free speed of 4,500 rpm. The tool features a pinless hammer mechanism and an angled exhaust, as well as a 1/2" air inlet. The impact wrench also has three power settings for forward and reverse movement.

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OFFERS 4,200 BPM

The **W3131 IQV20 Cordless Compact 3/8" Impact Wrench** from **Ingersoll Rand** offers breakaway torque up to 400 ft-lbs, a maximum speed of 2,800 rpm, and 4,200 bpm for rapid removal of fasteners. The compact impact wrench weighs 2.3 lbs and measures 5.3" in length. It also features an overmolded ergonomic grip to provide comfort for extended periods of use, a patented 360-degree LED shadowless light ring to illuminate fasteners from all sides, three speed options with variable speed trigger to cover a wide range of applications, and impact-resistant bumpers on upper and lower housing to maximize durability.



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AIRFLOW OF UP TO 3,400 CFM

The **Cool-Space 350** from **Big Ass Fans** is a versatile fan that can put out up to 3,400 cfm of airflow, covering an area of up to 2,300 sq. ft. Designed to cool large indoor and outdoor spaces, such as auto bays, by up to 33 degrees F. Its portable design allows the fan to travel with its user and its 50-gallon reservoir enables 10 hours of hose-less runtime. The fan is algae and mold resistant for cleaner, safer air. The fan's diameter is 20" and its cooling media is 8". As well as this, the fan is equipped with a variable speed dial and pump switch.



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ELIMINATE SLIPPAGE

The **KnKut 8-pc Step Point 1/2" Reduced Shank Drill Bit Set**, No. 8KK12SP, combines a split tip point with a step drill design for a more accurate starting without the need for a center punch. The design of the drill bit is intended to reduce heat to increase the tool life and can be used to enlarge existing holes without damaging the drill bit point. Drill bits are jobber length with three-flats on the shank to help eliminate slippage in the user's chuck. Intended for use with hard steel, brass, sheet metal, and acrylics.

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UNCLOG BLOCKED DPFs

The **Rislone DPF Clean: Diesel DPF, Exhaust, and Emissions System Cleaner** is designed to clean the fuel, exhaust, and emissions system of diesel vehicles in order to restore power and performance, reduce regeneration cycles, extend diesel vehicles particulate filter (DPF) life, save fuel, and turn off check engine lights. The cleaner unblocks DPFs and, according to Rislone, reduces the need for frequent highway driving to accelerate regeneration. It was specifically designed for vehicles equipped with DOC catalytic converters, DPFs, selective catalytic reduction (SCR) devices, or diesel exhaust fluid (DEF) systems. Works in all fuel tanks, including those with misfuelling devices.

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PROTECTS A/C RECOVERY EQUIPMENT

The **AirSept Automatic Dual Recycle Guard** is designed to safely and effectively capture sealant, debris, dye, excess lubricant, and other contaminants to protect A/C recovery equipment without adjustment or monitoring. Equipped with two internal filters to provide simultaneous high and low side protection. The Automatic Dual Recycle Guard is engineered to work with all A/C recovery machines by hooking up the guard with either 1/2" ACME or 1/4" flare fittings and a 36" R134-a hose. The product maintains continual refrigerant flow while in operation.



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UP TO 1,000 LM

The **DeWalt Rechargeable LED Task Light**, No. DCL182, features a pivoting light head, strong magnets for mounting, and a carabiner for transport and storage. As well as these things, the light has an LED output of up to 1,000 lumens of brightness on high mode and a runtime of up to 12 hours. Charging this light takes around 85 minutes using 5VDC 3A power supply/brick. The USB charging cable is included.

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ADJUSTS UP TO 75"

The **K-Tool International 24" Waterproof Oscillating Fan with Misting Attachment**, No. KT17726KIT, features a three-blade aluminum design and a misting fan attachment. The misting attachment uses the pressure generated by the water to evenly distribute a powerful cooling mist, the company says. The fan has an air flow volume of 7,435 cfm, includes a 6' cord, and has a three-speed operation. As well as this, the fan's height can be adjusted up to 75" and features an IPX4 waterproof-rated motor.



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ALL-IN-ONE SOLUTION FOR A/C SYSTEM REPAIRS

The **CPS Products UView SpotGun Jr Injection Starter Kit**, No. 390100, is an all-in-one solution that removes the hassles of outdated methods and allows users to easily tackle A/C system repairs and maintenance, says the company. This kit includes the SpotGun Jr Injector with purge valve adapters, R-134a and R-1234yf couplers, two SpotGun Jr service hose assemblies, four universal oil cartridges (1 oz/30 ml), two Extendye cartridges (1 oz/30 ml), and two LeakGuard OneShot cartridges (1 oz/30 ml).

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FOR MORE INFORMATION ON THESE PRODUCTS, CLICK ON "PTEN E-INQUIRY" at **VehicleServicePros.com** OR CIRCLE THE NUMBER ON THE CARD.

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Snap-on ZEUS+

The **Snap-on ZEUS+** is an advanced information-driven scan and scope device in the industry, offering onboard storage and processing and communications capabilities. Fast-Track Intelligent Diagnostics simplifies the diagnostic process and guides technicians through the repair, avoiding unnecessary steps along the way. It includes SureTrack for verified parts replacement records and real fixes, smart data for relevant vehicle and code specific PIDs, and prefiltered functional tests and guided component tests to verify repairs. ZEUS+ also delivers the software coverage, processing power and speed, and access to the information needed for technicians to work quickly and efficiently.

CATEGORY: Automotive Scan Tools

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Every year since 1999, the **PTEN Innovation Awards** feature the newest and most innovative products introduced to the automotive aftermarket. For 2023, **PTEN** received over 100 submitted product entries in 26 categories. Throughout the next several pages, you'll find product details for the winner in each of those categories. To view a full list of winners online, visit: VehicleServicePros.com/2023IAWinners.



Autel Wheel Alignment and All Systems ADAS Machine

The **Autel IA900AST Wheel Alignment and All Systems ADAS Machine** is an all-in-one wheel alignment and ADAS calibration system that delivers a comprehensive approach to servicing today's sophisticated vehicles. The space-saving, single machine and workflow of the IA900AST guides the technician through an all-systems diagnostic scan, digital chassis and tire inspection, four-wheel alignment, and ADAS calibration. The IA900AST package includes the targets, mats, patterns, and components for LDW, ACC, lidar, radar, night vision, RCW, lane watch, AVM system calibrations, and an MSUltra diagnostics tablet. Compatible with any standard four-wheel alignment rack, the IA900AST offers alignment coverage for U.S., Asian, and European vehicles 1996 and newer.

CATEGORY: ADAS

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Mueller-Kueps

Multi-Cleaner

The **Mueller-Kueps Multi-Cleaner**, No. 460 300, is designed to easily clean brakes, exhaust, and more. With replaceable heads, the tool removes the need to buy multiple tools. The heads are easy to change out and the kit comes with two different sizes: a 40mm and a 50mm. A sturdy abrasive reduces the time spent cleaning, quickly removing rust, corrosion, and dirt without excessive material removal. The heads are in a trapezoidal shape for multiple cleaning options. Use the angled sides or the flat top. The universal cleaning tool also features a two-component handle to allow users to apply pressure without having the tool dig into their hand.

CATEGORY: Brake Service



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Flo-Dynamics

Transmission Flusher

The **Flo-Dynamics Transmission Flusher**, No. TTCF-9A, features an adjustable flow rate, which allows one machine to perform services from small vehicles to large heavy duty trucks and buses. The programmable control board easily allows the technician to set circulation time, along with short bursts of air to further agitate the cooler and remove stubborn particles. Its reversible flow direction valve eliminates the need to change hoses during service. The unit includes a heater to remove built up tarnish. Additionally, its removable screen verifies all particles are flushed out and the control panel displays service time, before and after, temperature, flow rate, and pressure. The unit is OE approved and patent pending.

CATEGORY: Shop Equipment

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KNIPEX

4" Pliers Wrench XS

The **KNIPEX 4" Pliers Wrench XS**, No. 86 04 100, is a compact tool at just 4", with a jaw capacity of 3/4". Designed with smooth jaws that will not mar surfaces, the Pliers Wrench XS is ideal for gripping, holding, pressing, and bending applications. With one-handed adjustment, users can quickly and easily slide through 10 adjustment positions to find the right fit on the workpiece. Its texturized handles and compact design and slim head allow easy access to confined areas such as for under the dashboard, under seats, and more.

CATEGORY: Hand Tools

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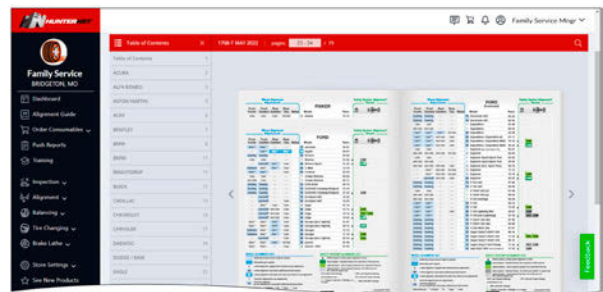
Snap-on

High-Definition Borescope

The **Snap-on High-Definition Borescope with 5.5mm Dual Imager**, No. BK7000, is an end-to-end, true high-definition borescope that provides ideal image quality and comes ready to use out of the box. A picture-in-picture makes it possible for technicians to capture forward and side images simultaneously, even video, on a large, 5" capacitive touchscreen, similar to a phone screen. Users can overlay text or audio information to the image and software/feature updates are easy through the tool's Wi-Fi connectivity. It has quick USB-C charging with the battery providing up to 1.5 hours of run-time.

CATEGORY: Inspection Tools & Lab Scopes

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Hunter Engineering

1708-T Online Alignment Guide

The **Hunter Engineering 1708-T Online Alignment Guide** is now available online via the HunterNet 2 portal. Updated twice yearly, the guide has long been a staple of point-of-sale counters, serving as the go-to source for service advisors quoting work, the company says. The comprehensive document guides shops on vehicle suspension adjustments as well as any electronic resets or ADAS calibrations required after wheel alignment, thus adding a large revenue opportunity. The online version is intuitive and easy to use, with a linked table of contents, quick search capability, and full-screen display. Shops can now always have the latest version online with no reordering of printed copies necessary.

CATEGORY: Automotive Software

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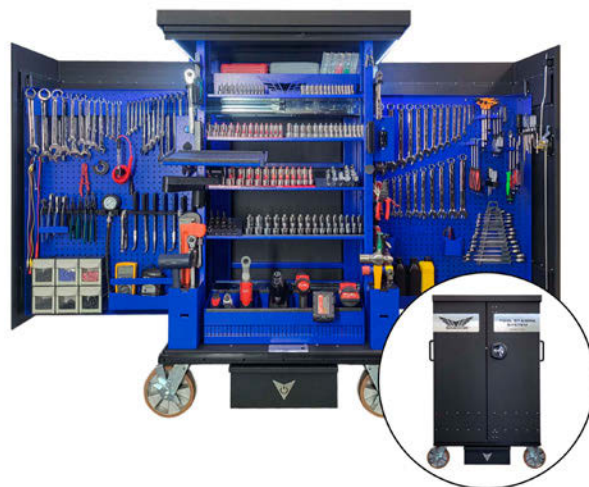


Milwaukee Tool
M18 18V Cordless Tire Inflator

The **Milwaukee Tool M18 18V Cordless Tire Inflator** is designed to meet the needs for transportation maintenance professionals by providing ideal performance, versatility, and the durability to survive demanding jobsites. It can top off 33" light truck tires in under a minute and is equipped with TrueFill technology to provide speed and accuracy, featuring auto pressure check and an automatic shut-off feature to ensure a tire's targeted pressure is achieved. Optimized for passenger, light truck, and other medium duty tires, the inflator has the ability to save up to four psi memory presets. As a portable cordless solution, the M18 Inflator features versatile onboard attachments, such as the inflator hose and nozzle storage, as well as an internal cooling mechanism to extend the tool's life.

CATEGORY: Tire & Wheel Service

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Shadow Tool Company
Tool Staging System

The **Tool Staging System TSS 5.2** from **Shadow Tool Company** offers the same features as the TSS 6.5 model but stands just 5'2" tall, for easier use under a lift and visual maneuvering through a large facility. The closed TSS 5.2 provides tool storage capabilities and tool staging when the system is opened and expanded, creating a barrier-free tool wall. This open access reduces physical motions, allows visual cues for rapid tool selection/return, and seamless tool inventory control to help save time, providing ergonomic relief while increasing available work hours to improve bottom line profits.

CATEGORY: Tool Storage

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Snap-on
Welding Helmet with Light

The **Snap-on Skull Auto-Darkening Welding Helmet with Light**, No. WELDIGNSKULL, features a built-in pivoting, flip-out light that functions when the helmet is raised or lowered and fully integrates into the contour of the helmet when not in use.

A 180-degree viewing area includes shade 10 peripheral-vision-enhancing side lenses creating a wide field of vision. Including true color technology brightened by IGNITE Series 360 LED light-balance technology, the helmet also features an extra-large, four-sensor solar-powered ADF with a lithium battery backup. The patented quick-adjust, comfort-fit headgear has push button adjustment.

CATEGORY: Welding

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Power Probe
PWM Adapter

The **Power Probe PWM Adapter** allows technicians to create a pulse width modulation (PWM) signal to test components on modern vehicles. The tool connects in line with the lead probe on any Power Probe (PP3/PP3EZ/PP4/Maestro) to change the signal from a steady 12V output to a selectable PWM signal. The PWM range is 5 percent to 100 percent, in 1 percent increments. Newer vehicles use PWM control to change speeds on items like blower motors, cooling fans, fuel pumps, and A/C compressors. The Power Probe PWM adapter gives technicians a way to safely and accurately measure these components.

CATEGORY: Diagnostic Equipment

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CATEGORY: HEAVY DUTY SCAN TOOLS

Triage Tool for Commercial Vehicles

If you're looking for a mid-line code scanner to diagnose light to heavy duty commercial vehicles and you don't want to break the bank, then look no further! Introducing the all-new HD Code Pro.

The HD Code Pro is slotted right in between our HD Code II and our more professional line of scan tools, such as the HD Pro III and HD Pro Tab. It is a perfect triage tool for reading & clearing codes and performing quick & easy DPF resets and regens - but even more, with the HD Code Pro, now you can also perform SCR, Ash, Soot Level Resets and DPF filter registration. It is now a full service DPF tool! The HD Code Pro covers Engines, Brakes and Transmissions, including brands such as Bendix, Wabco and Allison. The



tool is also capable of performing Service and Maintenance Resets. A built-in printer is also included. ■

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- ▶ EGR Test and Reset
- ▶ Detroit: Register New DPF Filter
- ▶ Read & Clear Codes and View/Graph Live Data
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Snap-on

3/8" Drive Cordless Impact To Go Kit

The **Snap-on 3/8" Drive Cordless Impact To Go Kit**, No. 262CTSS01FR, organizes and protects power tools for technicians on the go. Complete with a Snap-on CTR861 14.4 V 3/8" Drive Cordless Ratchet and CT861 14.4 V 3/8" Drive Cordless Impact Wrench, this 62-pc kit organizes the necessary tools for tackling mobile jobs. Included are 12 3/8" drive shallow SAE impact sockets, 12 3/8" drive deep SAE impact sockets, 14 3/8" drive shallow metric impact sockets, 14 3/8" drive deep metric impact sockets, four 3/8" drive impact extensions, and a 3/8" drive friction ball swivel ball impact universal joint. Tools are precision fitted in closed-cell cross-linked foam, providing ideal tool organization and protection.

CATEGORY: Tool Organization

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Plymovent

Internal Grabber

The **Plymovent Internal Grabber** is a universal, vehicle exhaust extraction nozzle designed to fit the shape and position of any car and pickup truck exhaust tailpipe. Due to the protruding beak and ergonomic body, the Internal Grabber nozzle is easy to attach to virtually any vehicle exhaust tailpipe. The Internal Grabber connects to standard horizontal discharges, dual tailpipes, and flush tailpipes that exit through the vehicle bumper. It's easy to attach and features an extendable nozzle skirt to dock close to body work, a 360-degree pivoting collar to accommodate a single tailpipe or dual tip tailpipe, dual exhaust capability, and a self-aligning squeeze grip for a smooth attachment to the tailpipe. It also has a built-in damper that opens/closes automatically, and is compatible with any hose brand.

CATEGORY: Safety & Personal Gear

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Milwaukee Tool

M12 Paint and Detailing Color Match Light

The **Milwaukee Tool M12 Paint and Detailing Color Match Light** features five color temperatures to replicate natural sunlight. The light emits 1,000 lm of output with a 98+ Color Rendering Index to illuminate metallics and imperfections in the paint. Additionally, the variations in color temperature provide professionals with a full spectrum of sunlight throughout the day. The light has three power modes that provide up to 14 hours of output and run-time on low. Built to withstand the toughest conditions, it's resistant to common chemicals found in autobody shops and is IP54 rated.

CATEGORY: Lighting

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Flo-Dynamics

EV Battery Pack Leak Tester

The Flo-Dynamics EV Battery Pack Leak Tester

The **Flo-Dynamics EV Battery Pack Leak Tester**, No. LPLT-100, is a multi-purpose, low-pressure leak tester designed to test the battery chamber/compartments in electric vehicles. It uses shop air and removes oil, particles, and moisture to ensure a safe condition when testing the vehicle's battery chamber. Its flow meter and gauge verifies if

the vessel has been compromised and the patent-pending high-voltage glove adapter allows technicians to check their gloves before each use. If the gloves have a hole, the test will quickly inform them. The LPLT-100 is OE approved.

CATEGORY: EV Tools & Equipment

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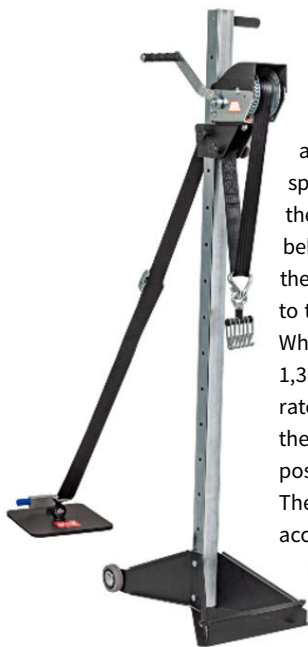
H&S Autoshot

Pull-Pro Portable Dent Pulling Tower

The **H&S Autoshot Pull-Pro Portable Dent Pulling Tower**, No. UNI-1096, is a lightweight portable setup that is space-saving in the shop. Quickly setup the tower and place the plate 15 degrees behind the tower. Plug in your airline to the receptacle and the steel plate secures to the floor by way of a rubber gasket. While the air is engaged, expect up to 1,350 lbs of pulling force. The industrial ratcheting winch allows for precision to the pull and the tower has many vertical positions to get the best pull possible. The standard tower is 66" tall. Optional accessories include the lower pull base plate (UNI-1097) and high pull extension kit (UNI-1098).

CATEGORY: Body Shop

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Tracer Products

LeakFinder A/C Leak Sealant

The **LeakFinder A/C Leak Sealant**, No. LF200CS, from **Tracer Products** is a single-use syringe injector designed to seal pinhole leaks in accumulator/receivers, evaporators, condensers, O-rings, hoses, and more. With LF200CS, users can fix hard-to-find leaks and extend the service life of the A/C system. The sealant is easy to use and is compatible with all popular refrigerants, including R-1234yf systems. The sealant formula is also compatible with electrically-driven A/C compressors used in hybrid/electric vehicles. With the included patented dual adapter, users can easily connect to either R-1234yf or R-134a systems.

CATEGORY: Air Conditioning Service

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AGS Automotive Solutions

Resto Solutions Bumper and Trim Restorer

The **AGS Resto Solutions Bumper and Trim Restorer** is designed to permanently restore plastic bumpers, fenders, cladding, and trim to a factory look. No re-application is needed. Exclusive technology imbeds the coating into the plastic, making it impervious to sun, harsh weather, and car washes. Comes with a limited lifetime warranty.

CATEGORY: Chemicals

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ADJUSTABLE FLOW RATE

Heavy Duty Heated Transmission Component Flusher

The **Flo-Dynamics TTCF-9A** Variable High Flow Hydraulic System Flusher will flush and clean transmission coolers and lines or any hydraulic system of contamination, sludge, varnish deposits, and particles. The **TTCF-9A**, with an adjustable flow rate from 1-8.5 GPM, was specially developed to service both automotive and heavy duty transmission cooling systems in one machine!

- Powerful 3/4 HP motor
- Reverser valve allows easy flow reversal without removing service hoses
- Air injection agitates the system, creating a scrubbing action to remove trapped debris and solidified waxy varnish
- Selectable flush cycles; choose from continuous or 15-120 minutes with or without air injection

FLUSH COMPLETE	
Run Time: 0:15:44.4	
START	STOP
T: 140 F	136 F
P: 75 PSI	54 PSI
F: 5.60 GPM	7.20 GPM

Flush cycle results displayed live



PATENT PENDING

For more information, please visit www.flodynamics.com

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LTI Tools by Milton

Shockit Socket Diesel NOx and Particulate Sensor Removal Kit

The **LTI Tools by Milton Shockit Socket Diesel NOx and Particulate Sensor Removal Kit**, No. LT996D, uses the force and vibration of an air hammer to loosen and remove rusted diesel exhaust sensors without damaging the threads. With its compact size, users can access hard-to-reach sensors. Each Shockit Socket has three driving ears with 8mm inverted index holes for tightening and loosening, allowing for the most stubborn sensors to be worked back and forth during removal. The kit includes a non-turning offset 8mm radius tip 11" Standard Shockit Punch, No. LT1910P, as well as 20mm, 22mm, and 27mm bottoming tap and dies for sensor and mounting hole threads.

CATEGORY: Specialty Tools

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Milwaukee Tool

M12 FUEL 3/8" Extended Reach High Speed Ratchet

The **Milwaukee Tool M12 FUEL 3/8" Extended Reach High Speed Ratchet** is able to fit into tight spaces while delivering up to 35 ft-lbs of maximum torque. Featuring a long reach and small head size, users can complete critical applications around automobiles and heavy duty equipment. The extended neck design provides more reach and its compact head profile and recessed forward-reverse shift knob reduces the width, providing access at 0.76". The high speed ratchet delivers 450 rpm, weighs just over 2 lbs, and is also available in 1/4".

CATEGORY: Power Tools

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Snap-on

Bench Top Battery Charger Plus

The **Snap-on Bench Top Battery Charger Plus**, No. EEBC30A12V, can quickly charge 6V, 8V, or 12V AGM, standard lead acid, and LiFePO4 vehicle batteries. Its rugged design features wraparound cord storage bristles to secure clamps and a retractable hook for under hood hanging. Its large LCD color, readable-in-sunlight display offers selection prompts, charge status, and diagnostic information. Performing a multi-stage charge cycle, the unit offers a charge rate of 2A, 15A, or 30A (2A or 10A for LiFePO4) and a stable power mode that maintains vehicle battery voltage during repairs and offsets battery drawdown while the engine is off. Includes field replaceable cables and an AC power cord, complete with two-year warranty.

CATEGORY: Battery Starting & Charging

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CanDo

HD Code Pro

The **CanDo HD Code Pro** is a mid-line code scanner that will diagnose light to heavy duty commercial vehicles. The scanner reads and clears codes as well as performs DPF resets and regens. In addition, the scanner allows users to perform SCR, ash and soot level resets, along with service maintenance resets. The full DPF service tool also comes with manufacturer-specific engine, brakes, and transmission coverage.

CATEGORY: Heavy Duty Scan Tools

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Diesel Sensor Puller - Innovation Award Winner!

LTI Tool's SHOCKIT™ Socket Diesel NOx and Particulate Sensor Removal Kit uses the force and vibration of an air hammer to loosen rusted, stuck sensors. *SHOCKIT OFF Fast!*

Not only is the Shockit Diesel NOx & Particulate Sensor Removal Kit (LT996D) an indispensable tool for quickly removing stubborn, rusted diesel exhaust sensors, it is also the 2023 Specialty Tool PTEN Innovation Award Winner!

An LTI Tools by Milton design, this air-hammer-powered solution saves techs hours of time, eliminating the need to dismantle other vehicle elements to access hard-to-reach sensors. The secret is sockets with 8-millimeter indexed holes with three driving ears that work with a non-turning offset punch. Shockit's compact size provides access to hard-to-reach areas.

It is compatible with sensors on Chevy Duramax, Dodge Cummins, Ford Power Stroke, Jeep/RAM EcoDiesel, Kenworth, International, Detroit, and Volvo and other diesel engine vehicles.

SHOCKIT™ OFF

Diesel Sensor Puller Key Success Drivers

- Air hammer-powered for force and vibration to loosen the most rusted sensors
- Compact sizes for reaching sensors in restricted access areas
- Allows most sensors to be removed without damaging the threads
- Three driving ears with 8mm indexed holes for delivering maximum rotational force
 - Sockets have inverted index holes for tightening/loosening allowing for stubborn and frozen sensors to be worked back and forth



LTI Tools is a member of the Milton Specialty Tool Group

SPECIAL ADVERTISING SECTION

PRODUCTIVITY MADE SIMPLE

LT996D



SHOCKIT™ DIESEL NOx & PARTICULATE SENSOR

- ▶ Air hammer powered for force and vibration to loosen the most rusted sensors
- ▶ Compact sizes for reaching sensors in restricted access areas
- ▶ Allows most sensors to be removed without damaging the threads
- ▶ Removes sensors on Chevy Duramax, Dodge Cummins, Ford Power Stroke, Jeep/RAM ECO Diesel, Kenworth, International, Detroit, & Volvo
- ▶ Each socket has inverted index holes for tightening and loosening allows for stubborn and frozen sensors to be worked back and forth

Save hours of time without having to drop an exhaust system.



Scan QR Code for More Information on Solutions from LTI Tools

Remove Stubborn Bolts, Sensors, & Fasteners with the Power of an Air Hammer

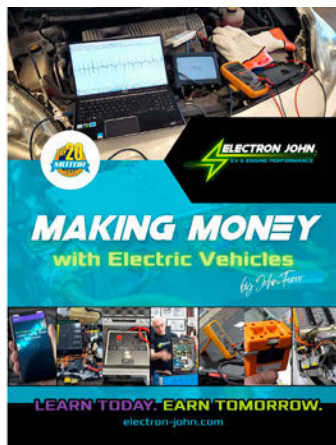


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Electron John

Making Money with EVs

The **Electron John's Making Money with EVs** program addresses the need for technician training pertaining to electric vehicles. It covers all the technical materials needed as well as uses custom training props to simplify the explanation of various complex subjects pertaining to how EVs are designed to work. The course consists of either instructor-led or video training, breaking the course into chapters



where the attendee must pass their current section before continuing on to the next chapter. A manual accompanies both the instructor-led and video training course and features QR codes throughout to show short videos to help explain more complex sections.

CATEGORY: Training

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Ingersoll Rand

Heavy Duty Air Hammer

The **Ingersoll Rand 135MAX Heavy Duty Air Hammer** is designed for vehicle, truck, bus, and heavy machinery repair. Weighing in at 4.5 lbs, the 135MAX HD Air Hammer delivers 2,600 bpm, with a 3" piston stroke. It also has a feather-touch trigger that provides the accuracy needed for fine-tuned pin driving and steering, making it ideal for jobs that require light handling. Featuring a 3/4" (19mm) bore size, the air hammer is available in a convenient kit that includes five chisels and the air hammer in a carrying case or as an individual tool.

CATEGORY: Air Tools

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Schley Products

Extension Protectors Essential Kit

The **Schley Products Extension Protectors Essential Kit**, No. 15900, consists of two 1/2" square drive male and female hammers designed to connect to any length 1/2" drive extension to protect the extension ends should it be otherwise used as a hammer drift. The extension protectors are precision machined from heat-treated alloy steel and allow the use of a normal socket extension as a drift without causing damage. The hammer set is versatile, works with ordinary 1/2" drive tools, and the hammer heads are designed for a variety of uses.

CATEGORY: Tool Accessories

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Snap-on

Under Hoist Stand

The **Snap-on Under Hoist Stand**, No. UHS1500, eliminates the need for constant cranking. The stand has a release mechanism that quickly positions the saddle, saving



critical shop time. The saddle is designed to adapt to various undercar components. A hand crank makes small height adjustments easy and precise, and the folding foot pedal allows for handsfree, quick alignment of components. The UHS1500 has 3/4-ton capacity and can reach a service height of 80-1/8".

CATEGORY: Lifts, Jacks, & Stands

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Leveraging shop management and service information systems

Harnessing the power of integrated shop management and service information systems in automotive service and repair.

By **Scott Brown**, Technical Editor



▲ Shops now have powerful tools at their disposal to enhance customer communication and provide detailed consumer education. Photo Courtesy of Scott Brown

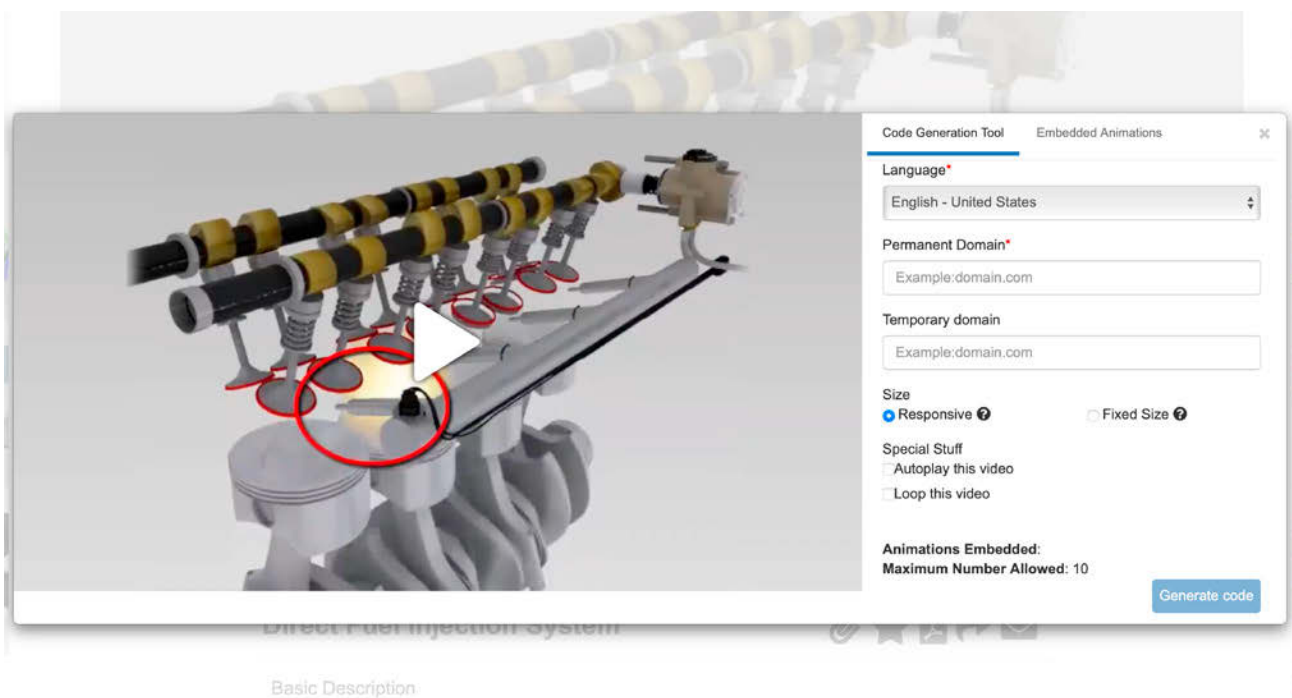
Given the complexity of automotive service and repair, effective customer communication and consumer education are vital components for building trust and satisfaction. Oftentimes traditional methods of explaining repairs and maintenance to customers make it difficult to convey many of the complex scenarios we currently see. However, with many of the modern automotive shop management systems, shop owners and technicians now have powerful tools at their disposal to enhance customer

communication and provide detailed consumer education. Furthermore, access to service and repair information is essential in producing successful, long-lasting repairs and maintaining consumer trust. In this article, we will explore several ways shops are leveraging modern shop management and service information systems and discuss some real-world challenges.

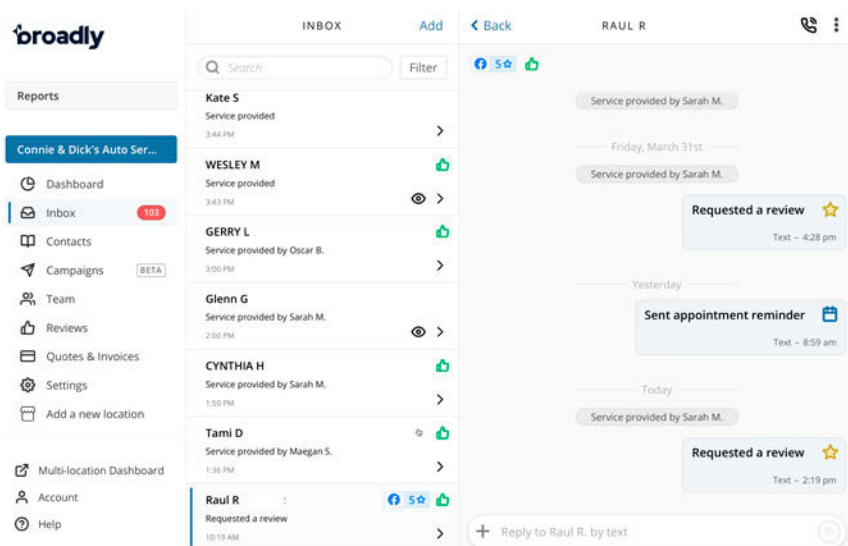
THE EVOLUTION OF AUTOMOTIVE SHOP MANAGEMENT SYSTEMS

Automotive shop management systems have come a long way from the days of

manual record-keeping and fragmented communication channels. Modern management systems have revolutionized the way automotive repair shops operate, providing comprehensive solutions that streamline workflows, track inventory, manage scheduling, and facilitate communication with customers. These systems integrate various components like customer databases, repair order management, parts ordering, vehicle history tracking, quick specs, recalls, and more, all within a centralized platform. Today, many systems are cloud based and run in a



▲ Figure 1 - MotoVisuals graphics - embedding content



▲ Figure 2 - Broadly service - client communications

web browser removing many of the potential challenges experienced with running a locally managed client-server system.

IMPROVING CUSTOMER COMMUNICATION

One of the most significant advantages of modern shop management systems is the ability to capture and share visual documentation of repairs right within

an inspection/diagnostic process. By integrating images and videos into repair orders, technicians can showcase the problems and their solutions, allowing customers to better understand the issues their vehicles are facing. During complex diagnostic scenarios, technicians can better track the work being performed on the vehicle with transparency which in my opinion adds value to the service.

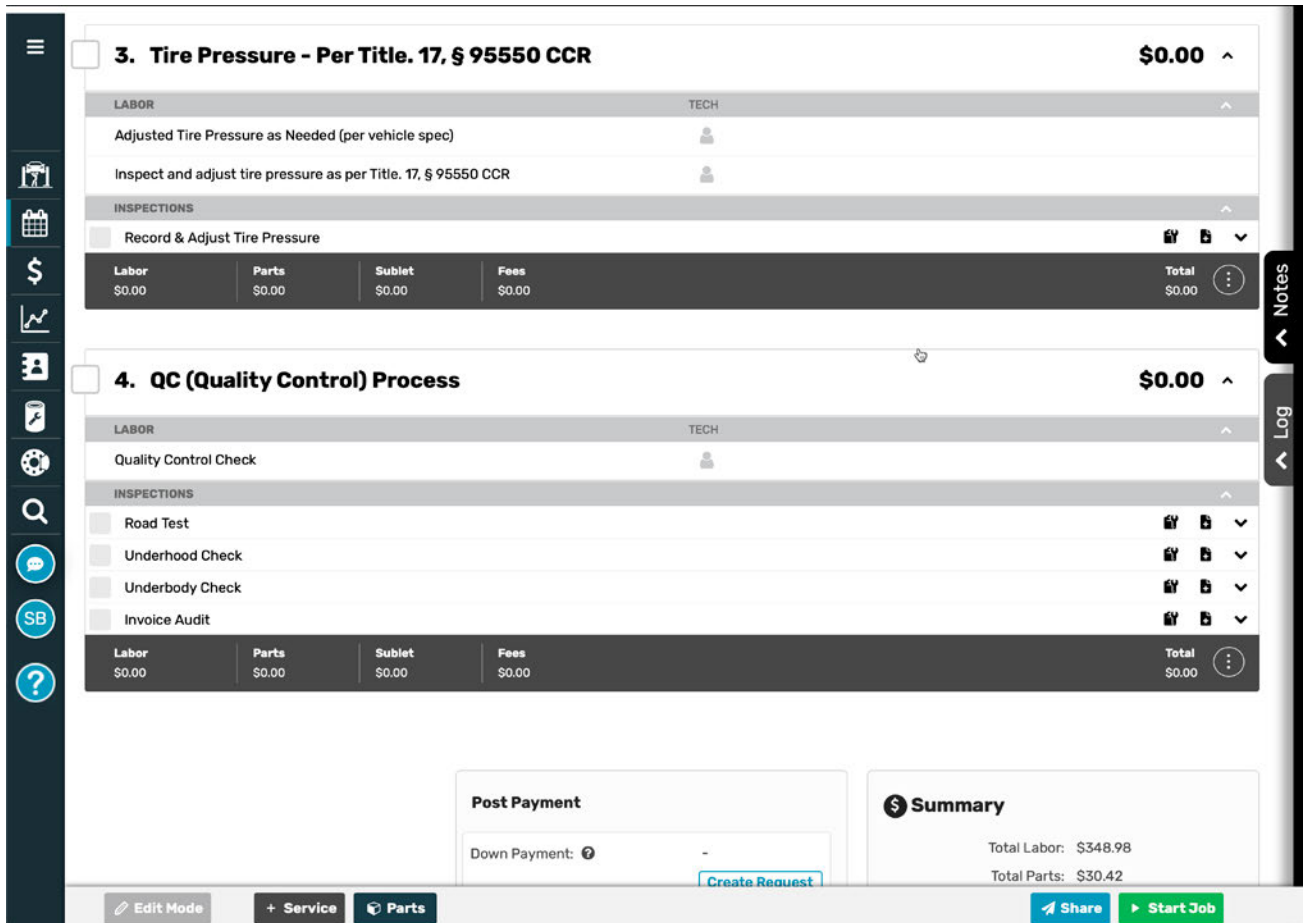
These consumer touch points help to build trust by providing solid evidence of the repairs carried out. Additionally, in the case where the vehicle arrived with multiple faults, the documentation can provide clarity on what's up next for service and repair.

UPDATES AND NOTIFICATIONS

Effective communication requires timely updates. With modern management systems, customers can receive real-time updates and notifications about the progress of their repairs. And in some cases, can be provided a link to a secure view of either recommended services or their invoice where they can take the appropriate action of approving or paying for repairs. Automated messages can be sent at various stages, such as when the vehicle is checked in, when the repairs begin, and when the work is completed. Proactive communication keeps customers informed and minimizes any uncertainties or frustrations they may have about the repair process.

EXPLAINING COMPLEX REPAIRS

Automotive repairs can often involve complex technical concepts that are difficult



▲ **Figure 3 - Shop-Ware tire pressure and quality control process**

for customers to grasp without proper visualization. By utilizing pictures, videos, technical drawings and more, shop management systems can help bridge this gap. Technicians can record videos, capture images from their test equipment, and gather technical information to help explain the repair process step-by-step, breaking down intricate procedures into easily understandable segments. This empowers customers to make informed decisions about their vehicle service and repair and goes a long way towards developing a clear understanding of the work being done. The sheer act of performing these steps demonstrates technical competencies and goes a long way towards generating credibility for the business.

MAINTENANCE TIPS AND EDUCATIONAL RESOURCES

Automotive shop management systems

can serve as a platform to provide customers with valuable educational resources. Integrated knowledge libraries can be utilized to create informative articles, videos, and guides on assorted topics, including routine maintenance, common issues, and best practices for car care. By sharing these resources with customers, shops can contribute to their automotive literacy, enabling them to better understand their vehicles' needs and proactively address potential problems. There are services such as MotoVisuals that can provide animated explanations covering just about anything on today's vehicles. Through our relationship at my service facility with Carquest TechNet, we have access to the entire MotoVisuals library. Through this service we can educate clients on site, remotely, or through a share link, PDF, etc., to help convey the issue at hand. Additionally, their service will

also produce assets that you can embed on your own website which of course can continue delivering information for prospective clients. See **Figure 1**.

MARKETING

In our shop we come across interesting things that get added to a work order and get repurposed by posting to social media or through other consumer-facing channels. Using these practices has been beneficial for us in generating interest and awareness, which of course works as a lead generator. Many of the marketing companies have application programming interfaces (API) that can allow a modern shop management system to continue marketing to your existing clients. For my shop we use a couple of services that help us gain public reviews that can be found on the web and even have them be repopulated right into your

Beat Book Times With Broken Bolt Repair Kits

ProMAXX Tool Kits Have Precision Guide Plates, Premium Drill Bit Tooling and ProTaps to quickly remove broken bolts and restore threading to factory new. Drill, Tap, Done!

Broken bolts can take an easy job and turn it into a complex, frustrating job in seconds. That's why technicians turn to ProMAXX Tool. Precision tolerances, machine-shop tooling (bits & taps), productivity delivered and entirely manufactured right here in the USA.

Case in point—The Ford Power Stroke 6.7L EGR Mounting Bolt. Why spend nearly 8 hours removing it, only to replace it, when you can spend under an hour repairing it?

The PowerTech Combo Sets repair exhaust manifold bolts on Ford, GM and CDJR vehicles. Each version comes with three different ProPlate Jigs for work on gas and gas/diesel engines.

The BULLIT Universal Broken Bolt Extractor Kit works on almost any in-line bolt pattern, making it ideal for tasks like repairing exhaust and intake manifolds, oil pans, valve covers and more.

ProMAXX Tool Key Success Drivers

- **Ford 6.7L EGR Tube Bolts:** Why waste eight hours to remove the intake, turbocharger, and exhaust manifold only to replace it vs about 45 minutes to repair it? Drill, tap, done!
- **The PowerTech Sets:** Repair exhaust manifold bolts on Ford, GM and CDJR vehicles. Save almost \$400 on kits that fix up to 20 gas and diesel engines.
- **The BULLIT:** Adapts to repair in-line broken bolts on just about any bolt pattern. From 4-cylinder to 12-cylinder engines, transmissions, oil pans, and more. Ford, GM, Dodge, and even heavy-duty class 8 engines such as Volvo, Caterpillar, Cummins, Detroit Diesel, International, John Deere, Kubota, etc.

ProMAXX Tool is a member of the Milton Specialty Tool Group

SPECIAL ADVERTISING SECTION

Beat Book Time on Broken Bolts with



Ford 6.7L Power Stroke EGR Bolt Repair Kit

PMXN200PRO

Turn 8 hours of repair time into about 60 minutes.

- On -the-truck Repair - FAST!
- Eliminate Intake & Turbo removal



FORD | GM | CDJR
1 Kit, Up to 20 Engines

Alpha - 15 Engines
PMXPWT200PRO

Bravo - 17 Engines
PMXPWT210PRO

Charlie - 20 Engines
PMXPWT220PRO

Delta - 14 GM Engines
PMXPWT230PRO

EXHAUST MANIFOLD REPAIR KITS



Charlie - 20 Engines
PMXPWT220PRO

BULLIT Universal In-line Broken Bolt Repair Kit



SCAN TO SHOP



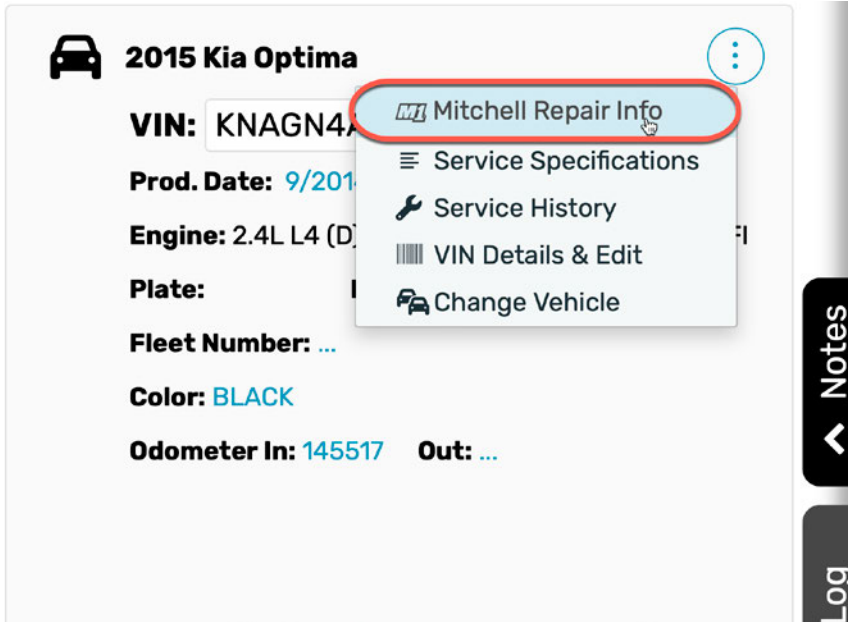
- Unmatched versatility: Kit conforms to multiple bolt patterns on numerous engines.
- Most economical: One Kit, Nearly Unlimited Applications
- Fastest — Interchangeable bushings with fasteners and Extractorless™ capability.



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▲ **Figure 4 - Ability to link to Mitchell 1 from within a Shop-Ware work order.**

website automatically. Other services can work to send out reminders and special communications such as promotions as well. **Figure 2** shows how Broadly works with our shop management system by queuing a request for review following the closing of an invoice, sending out appointment reminders, and more.

SERVICE INFORMATION (SI)

Service information today comes in many forms and can be sourced through several channels. From the vehicle owner’s manual to factory service information, we have a plethora of data available to us 24/7. Many of the aftermarket service information resources such as ALLDATA, Mitchell 1, Motor, MotoLogic, and others, provide access to service information resources both through conventional access and with the advancements in digital communications, some of that service information can be delivered right within your service management system. For example, some of the quick specifications needed to carry out specific tasks can be contextually embedded right within the repair order. Given the decades of behind-the-scenes work by groups such as the Auto Care Association and others in linking

up relational parts and vehicle component information with vehicle (DNA) build data, modern systems possess the power to work more intelligently providing a path to reduced friction for all of us front-line service providers.

NONTRADITIONAL SI CHANNELS

An internet search can turn up a ton of info but not all of it can be trusted. However, there are professional service sites such as Diagnostic Network (diag.net), iATN, and others that can also serve as a trusted resource for uncommon situations. Furthermore, adding one or more of these resources to your toolchest can help you stay up to date with emerging trends and technologies. In fact, the Diagnostic Network offers a support channel that can empower shops to find solutions to many of the challenges they face and offers up the opportunity to participate in discourse aimed at raising the automotive service professional’s situational awareness to the highest levels.

EFFICIENT WORKFLOW MANAGEMENT

Automotive shop management systems not only facilitate customer communica-

tion but also optimize the internal operations of repair shops. Custom jobs can be engineered with inspection routines that will help support company processes and procedures. This can serve as a quality assurance step that will go a long way in supporting quality control over each job. Additionally, if your state or jurisdiction has any mandates around service, shop management systems can be leveraged by adding the items needed to solve for mandates. For example, in California we are required to check and adjust the air pressure on every vehicle passing through our facility. So, on any new repair order the tire pressure “job” is automatically added to each work order. In addition, we also have a quality control job process added to the work order as well (**Figure 3**).

Some shop management systems also allow one to tie in direct access with their service information providers allowing a technician to link to their SI source carrying over the vehicle details which oftentimes eliminates a step in the information look up. See **Figure 4** which shows a direct link to Mitchell 1 from within a Shop-Ware work order.

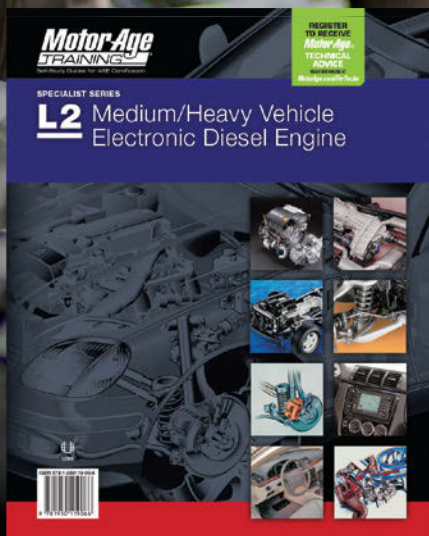
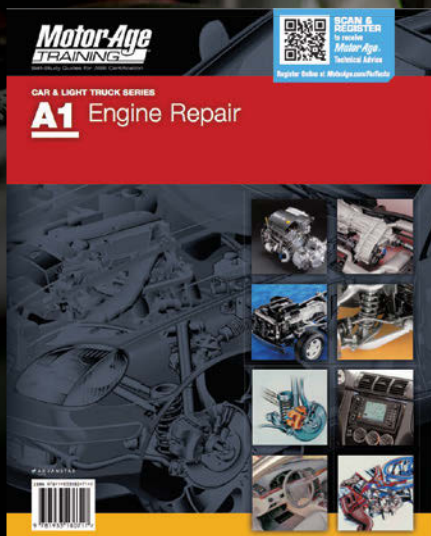
CONCLUSION

The modern information and shop management systems we have access to today are helping service professionals conduct business with a little less friction and can go a long way in supporting profitable business operations well into the future. ❌



SCOTT BROWN is an ASE Master Certified L1 Technician and has over 37 years of professional service industry experience. He is an independent shop owner in Southern California and is engaged at various levels within the industry. He has a deep understanding of the challenges technicians experience at the service level and is continuously striving to move the industry forward through education and networking. Brown founded Diagnostic Network (diag.net) after 22 years of service at iATN, where he retired as company president in 2018. SBrown@VehicleServicePros.com

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Maximize Your Shop's Potential >>>

By: Allison Whitney

When Autel debuted the MaxiSYS ADAS IA900WA all-in-one wheel alignment and ADAS calibration system last Spring, it proudly declared its compatibility with any standard four-wheel alignment lift.

The IA900WA's six high-resolution tracking cameras that detect the vehicle's height and adjust the software metrics accordingly allow for any standard lift to be used to quickly perform alignment checks and forward-facing camera calibrations.

Still, it became clear that the design of available lifts limited technicians' ability to take full advantage of the IA900WA's comprehensive approach to modern-day vehicle repair and service guiding the technician through an all-systems diagnostic, a digital chassis and tire inspection, a four-wheel alignment, and ADAS calibration.

Enter the Autel ADAS Bay Max Lifts.

The North American-made Bay Max 12K and Bay Max 14K lifts are flush-mounted hydraulic scissor lifts with twin 6K and 7K Jacking Beams, respectively, and a Floor Lift Table. The Floor Lift Table is a distinctive feature that enables the technician to safely stand under the entire length of the raised vehicle to make repairs. When the lift is lowered and flush with the ground, the technician can position the vehicle anywhere in the bay to perform nearly any ADAS calibrations, regardless of the vehicle's distance to the calibrator, pattern, or target.

"We had several goals in mind when we designed the Bay Max lifts. First and foremost, we wanted to sell a quality, dependable, and durable piece of equipment. We also wanted a lift that could capitalize on the Autel IA900's extensive capabilities and maximize a shop's space, efficiency, and profits, said Stewart Peregrine, Autel's Senior Executive of ADAS Sales, adding that the Bay Max lifts achieve this goal and more.

"The IA900 and the Bay Max offer techs a new comprehensive approach to vehicle repair essential to servicing

the sophisticated modern vehicle, in which every repair and every system affects another system and component operation," Peregrine said.

The lifts' design enables technicians to perform every needed vehicle service in the same shop bay, from pre-scan, visual inspection, and mechanical repair to a four-wheel alignment and calibration of all ADAS systems.

Offering comprehensive alignment coverage for U.S., Asian, and European vehicles, the system guides the user through the process with illustrated

or radar on a Honda, Autel has the target, the pattern, and the calibrator you need.

To grasp how innovative the IA900WA system is, one only must look at the most time-consuming and tedious part of any ADAS calibration, the pre-calibration vehicle-to-target positioning. It takes, on average, 40 minutes to align and center a vehicle using mechanical aids like lasers, mirrors, plumb bobs, and chalk. The IA900WA employs its tracking cameras, targeted wheel clamps, and location software, transforming the frame into a rapid yet precise centering and positioning unit, enabling technicians to



instructions, live readings, and action steps. Alignment readings displayed on a mounted 24-inch touchscreen monitor mirror those on the Ultra ADAS tablet, enabling the technician to manipulate the vehicle and monitor the adjustment effects freely.

When it comes to ADAS calibration systems, Autel offers the industry's most expansive vehicle and safety-system camera and component coverage. Whether you need to calibrate lidar on an Audi, an Eyesight camera on a Subaru,

accomplish target-to-vehicle placement in as little as three minutes.

The simple truth is that if your shop is doing alignments or a host of any number of repairs, your shop should be doing ADAS calibrations. If lack of bay space was the reason shops sublet ADAS calibrations, a Bay Max lift, and the IA900WA is the solution your shop has been waiting for.

Check out Autel's Bay Maximizing solution at Autel.com.

AUTEL

BRING YOUR BAY TO THE MAX



NEW **ADAS BAY MAX LIFT**

Designed specially for ADAS calibration, while providing safer and more efficient mechanical repair and wheel alignment in a single standard bay space.

Autel ADAS Bay Max 14K Lift
PART NO: AULS14ALOR1T

Autel ADAS Bay Max 12K Lift
PART NO: AULS12ALOR1T



AULS14ALOR1T, AULS12ALOR1T



**ALL SYSTEMS
ADAS CALIBRATION**

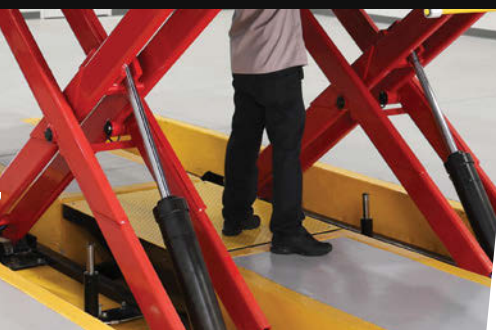


**MECHANICAL
REPAIR**



**WHEEL
ALIGNMENT**

TURN A SINGLE BAY INTO A MAXIMIZED PROFIT CENTER



PREMIUM LIFT FEATURES

The innovative table riser, rolling jacking beams, stainless steel radius plates, runway air inflation, and LED undercarriage lighting are all standard.



DRIVE ON/OFF AND IN ANY DIRECTION

Front and rear open runways paired with the unique flush-mount H shape configuration increases floor space, allowing for all systems ADAS calibration.



IA900 + MSULTRA

A single system complete diagnostics, alignment, and ADAS workflow. One Maximized Bay.



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AUTEL ACADEMY TECHNICAL TRAINING

Visit autel.com/us/academy and register today for our onsite 2-day hands on ADAS Calibration Course.

AUTEL

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How to Buy Quality Shop Equipment Online

You can buy just about anything online, from clothes to cars. And why not? Shopping online is super convenient. You can shop when and where you want, plus, it's easy to compare products and brands.

You can get much of what you need for your business online, too, from shop towels, hand tools and gloves to tire changers, workbenches, and car lifts. The tricky part can be figuring out where to buy and exactly what you're getting.

To minimize disappointment and maximize efficiency, here are 5 tips for buying quality shop equipment online:

1. Consider the company history. Check the "About" page of the website. How long has the company been in business? A company that doesn't meet customer expectations isn't going to last as long as one that does. You may not be concerned about placing a \$20 order through a newer website, but if you're dropping several thousand dollars, stick with a proven provider.

2. Read the reviews. One of the best things about shopping online is how easy it is to find out what other people think about a product or company. Consider reviews directly on the website, on Google, and search for reviews on YouTube. Reviews are useful for making informed decisions.



3. Evaluate the brands. Some people have no qualms about buying everything generic. For them, the cheaper something is, the better. But cheap is not the same as "good value." If your priority is quality, start with the name-recognition of the brands the site carries. Are you familiar with them? Generic wipes are one thing. But do you want to stand under a generic lift or trust a no-name brake lathe? Companies that invest in building their brands also invest in their products. Look for websites that carry category-leading brands.

4. Consider product safety and certification requirements. Most equipment used for vehicle service and repair is covered by ANSI/UL 201 – UL Standard for Safety: Garage Equipment. Car lifts are covered by ANSI/ALI ALCTV: Safety Requirements for Construction, Testing and Validation of Automotive Lifts. Manufacturers are not

required to certify their products, so protect yourself by weeding out the uncertified equipment from the beginning.

5. Who has your back? Buy yourself some peace of mind by shopping at websites backed by people who will help you when you need it. Look for companies that help coordinate delivery, installation, and service. Investigate their policies on returns and warranties. Product specifications and owner's manuals should be easy to download.

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A heavy duty solution to a heavy duty problem

The step-by-step process of replacing a cylinder head on a Caterpillar C11 ACERT.

By Eric Moore, Contributing Editor

With our fleet at Griffin Pavement Striping, we have more than our share of mechanical, electrical, liquid propane, fuel, hydraulic, pneumatic, or human-related failures to overcome daily, or more accurately, hourly. We have vehicles in our fleet ranging from light duty trucks to medium duty and Class 8 tractors and trailers, plus our specialized vocational equipment, both truck-mounted and stand-alone.

At first glance, our removal and application vehicles can be complex, mobile manufacturing platforms. Many of these vehicles have all the above-mentioned systems. A few even have auxiliary powerplants with vehicle-mounted air compressors to supply the additional electrical, hydraulic, or pneumatic needs that specific vehicles require to perform their tasks.

We constantly have to address more than one catastrophic issue at a time. What works best for us is breaking failures down into the core systems involved and working forwards or backward to the failure site.

We have taken the steps and invested in being as self-reliant as possible where maintaining and repairing our fleet vehicles are concerned.

THE PROBLEM

What we are working with in this case is the replacement of a cylinder head on our oldest thermoplastic application striper.

The chassis is a 2007 American LaFrance Condor with a Caterpillar C11 ACERT powerplant. Our operators had



▲ The "patient" is in need of a cylinder head replacement.
Photo courtesy of Eric Moore

been complaining of a loud ticking noise along with noticeable charring around the back cylinder bolts for the exhaust manifold.

Once we verified the location, our technicians shut off the main disconnect at the batteries. Then using a GEARWRENCH SAE 9/16" combination wrench they disconnected the cables

from the positive leads. Grabbing a drain pan and a set of Channellock slip joint water pump pliers, they loosened the radiator drain valve and drained the coolant about halfway down.

The technicians then proceeded to use 3/8" and 1/2" Milwaukee M18 Fuel impacts with SK Tools and Snap-on shal-

»» TOOLS USED:

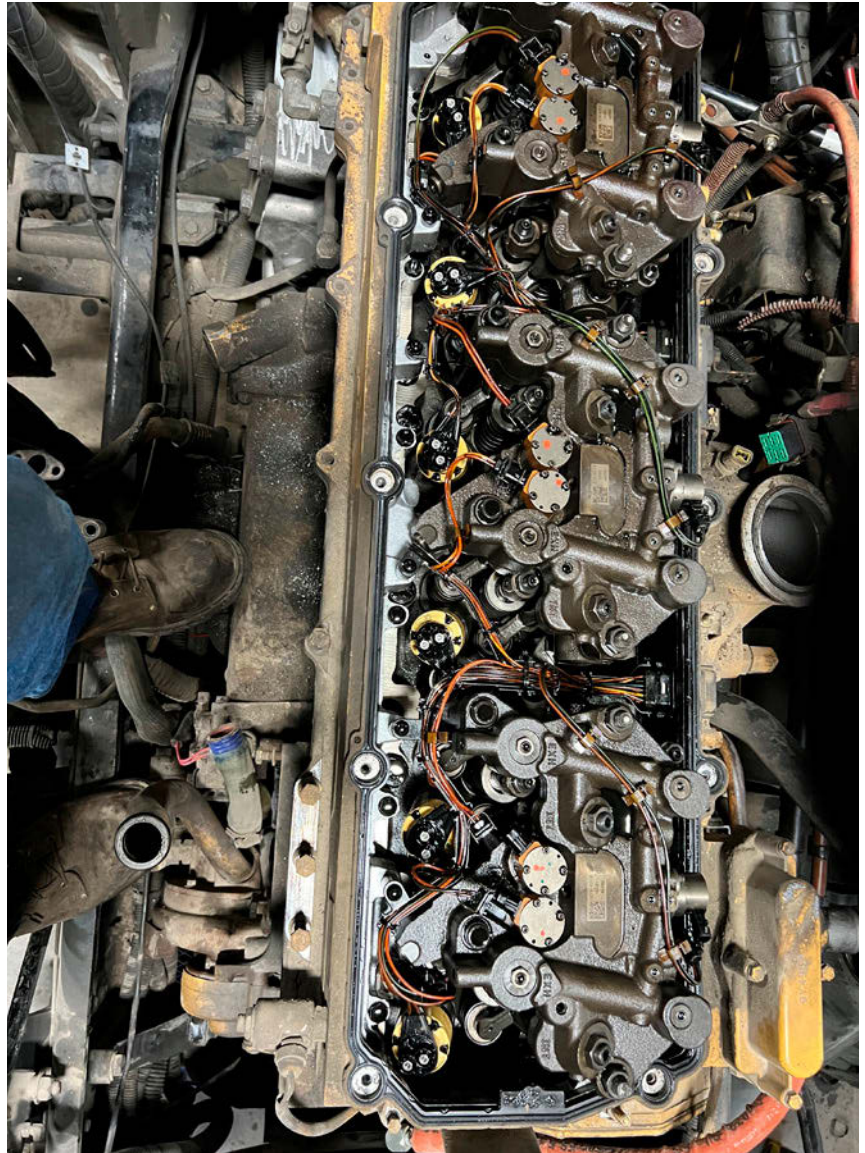
- Snap-on 1/2" digital torque wrench with angle meter
- 48" Mayhew prybar
- Snap-on stud extractor set
- Milwaukee M18 Fuel 3/8" and 1/2" cordless impacts
- Matco Tools 3/8" cordless ratchet
- Milwaukee M18 Fuel 1/2" cordless drill
- Irwin carbide tipped drill bits
- Channellock slip joint water pump pliers
- GEARWRENCH ratcheting wrenches
- Pittsburgh coolant system pressure tester
- Streamlight Wedge pocket flashlight
- Cornwell straight razor blade gasket scraper
- Chicago angle die grinder w/surface prep discs

low, semi-deep, and deep sockets with extensions as needed to remove the turbo and evacuate the A/C system with our Robinair 32700Z recovery machine.

From there, they removed the A/C compressor and alternator with all associated hoses, wiring, and lines for access to the exhaust manifold.

With all the accessories out of the way, access to the manifold was much better. Grabbing the Milwaukee M18 Fuel 3/8" impact, they removed all the bolts and nuts holding it on. Once we removed the manifold for inspection, we found studs broken off flush with the head surface at the front and rear exhaust ports.

We got lucky with two out of the three broken studs and were able to remove them using the Snap-on and Irwin bolt extractor sets relatively easily. The last one... not so much. When drilling out the remaining stud, we went just a bit too far



▲ *The cylinder head is reassembled and ready to have the valve clearances set up.*

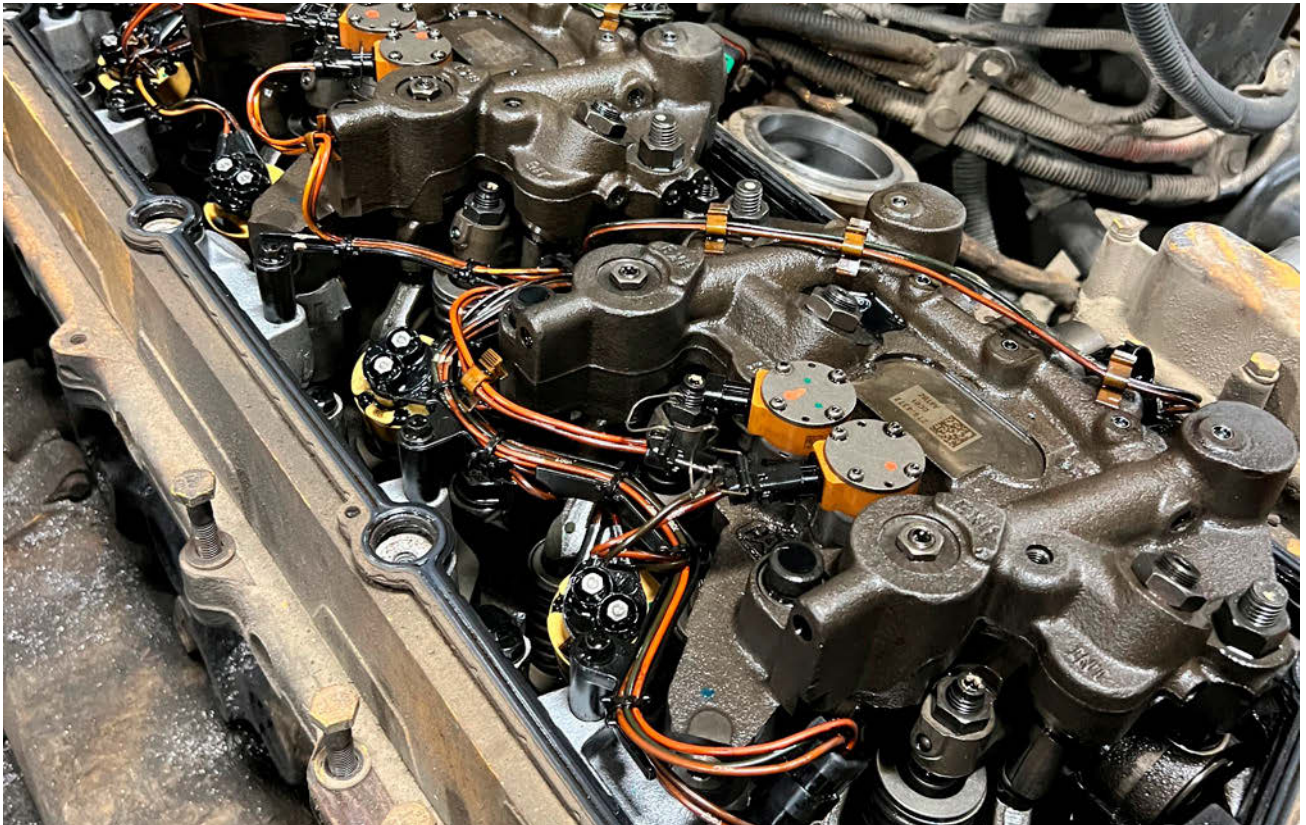
Photo courtesy of Eric Moore

and got into the oil galley. No fixing that. We made the decision to replace the cylinder head since the unit could not cost-effectively be easily replaced and is still very much capable for use in the field.

We drained the remaining coolant and removed the intake piping, coolant hoses, serpentine belt and tensioner, cooling fan blade, fan clutch assembly, which was bad (it was spinning freely) and the accessory bracket, which was found to be cracked. We decided it was the best time to replace the radiator and A/C condenser as well since they were original and in poor shape once we inspected them more closely.

Next, the techs removed the intake manifold, valve cover, injectors, harnesses, tappet rack, rails, and push rods. Removal of the cylinder head was fairly straightforward once we figured out the best way to support it using a fork truck and loggers chain with assistance from a 48" Mayhew prybar. Once on the bench, we removed all remaining components that would be transferred to the remanufactured cylinder head.

We found clips and a few other items that would need to be replaced as well. No surprise, honestly, since the vehicle is our oldest and we have never had reason



▲ *The cylinder head has been installed, and the head bolt torque has been set.*
Photo courtesy of Eric Moore



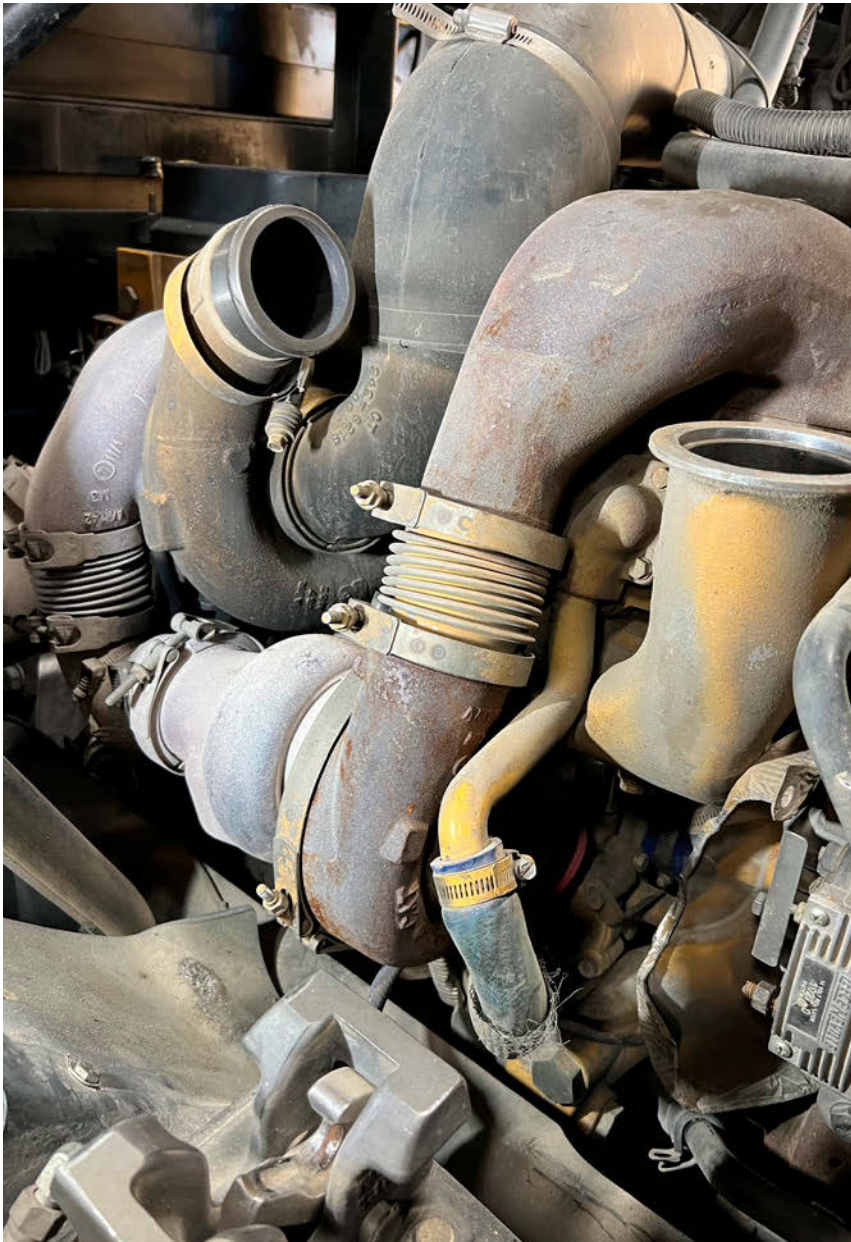
▲ *New vs. old — Transferring parts to the new assembly.*
Photo courtesy of Eric Moore

to be into the engine this deep prior to this failure.

Our techs prepared the cylinder block surfaces with their Chicago Pneumatic angle die grinder with surface prep discs and a Cornwell straight razor blade scraper. Then we took the time to clean off the tops of the pistons and inspect the cylinder liner walls. The liners still have crosshatch, which we made sure to point out to our field crews as an example of why we perform maintenance the way we do, choosing synthetic fluids with routine fluid analysis to prolong our equipment's lifespan.

Assembling the replacement cylinder head, tappet rack, and related harnesses on the bench, the techs chased most of the fasteners and bolt holes with Snap-on taps and dies prior to assembly. One tech placed the new head gasket on the block, and we lowered the new head into place.

Then we applied either sealant or lubricant as required to start the torque sequences for the new cylinder head bolts. Several steps and angles



▲ **Before disassembly — Exhaust leaks are at the manifold behind the turbo assembly.**
Photo courtesy of Eric Moore

were involved to get through the different lengths and sizes of new bolts. Fortunately, one of our techs had purchased a Snap-on 1/2" digital torque wrench with an angle meter. We went through the process twice making sure we followed the diagrams and directions we found on Google and YouTube.

Pushrods came next, and with a Snap-on 3/8" digital torque wrench, we started snugging up the rocker arms and tappets. We followed the valve clearance adjust-

ment procedure as outlined and rotated the assembly after each adjustment while rechecking clearances several times before locking down the tappets and installing the injectors, rocker, and valve covers. Afterward, we installed the manifolds, turbo, and related hoses and piping.

One of the techs drained the existing engine oil, removed the filters, and refilled it with fresh synthetic 5W40. Once the fuel system was primed, it was time to hear it run.

PROBLEM SOLVED

It took several minutes of extended cranking before it fired off, running rough until it worked all the air out of the fuel system. Once that worked itself out, it ran smoothly and, most importantly, quietly. We let it run for several minutes to get some heat to build up before we took the time to remove the valve and rocker covers to recheck the valve clearances one last time.

Our techs installed a new condenser, radiator with isolator bushings, accessory mounting plate, cooling fan blade, fan hub with clutch, alternator, A/C compressor, and, finally, the serpentine belt and new tensioner.

After adding water to the cooling system, we fired it off once more and let it build to operating temperature, checking for any sign of leaks, and listening for anything that didn't sound happy. Our process is to run it this way, with only water in the system, and to use our Pittsburgh coolant pressure tester quite a few times before we drain the system completely and fill it with extended-life coolant. This way we are likely to catch any leaks without losing much expensive coolant.

Once filled with coolant, we let it run for about 45 minutes, performing a vacuum and leak test on the A/C system using our Robinair 32700Z machine again before charging it up to capacity.

Last in the process is to road test the unit and feel for any vibrations or loss of power that could indicate there are other items needing to be addressed. This one passed without additional attention needed. ❌



ERIC MOORE began his career working on cars at several franchise dealerships. Initially, he leaned towards smaller vehicles, settling into Powersports vehicles, where he stayed for over 20 years. Then, Moore went the total opposite direction, landing at a medium and heavy duty truck dealership. Eventually, he moved into management and has performed most roles at the dealership level except for owning his own franchise. Currently, he is the fleet manager at Griffin Pavement Striping, belonging to the Frontline Road Safety group of companies.

Matco Tools ForceFlex Safety Glasses

Reviewed by Jaime Lazarus, retired technician
from Ocala, Florida.

With all the safety glasses on the market today, it may seem difficult to choose one you can say is “just right” for you. When comparing, I look for comfort, low visibility distortion, and of course, how safe the glasses actually are. With the Matco Tools ForceFlex Safety Glasses, I found all of those requirements are met, and are met with flying colors.

For their production, Matco Tools contracted with a company called Radians to build ForceFlex Safety Glasses. Radians has become a major leader in the safety industry by manufacturing high-performance personal protective equipment (PPE) for the industrial, construction, and



safety markets. ForceFlex Safety Glasses feature eight accepted patents and have four patents pending.

Some of the features that Matco has published are “key flex points ... with an elastomeric compound which provide incredible flexibility while retaining the original form” and “i-Form flexible frames [that] perfectly fit any size head, eliminating pressure points and providing maximum comfort.” I found these are why the glasses are so comfortable. The level of comfort is important if you wear safety glasses for extended periods of time and do so daily. If you wear safety glasses that aren’t comfortable then you’re likely to not wear them as much as you should.

The lenses have no distortion, and, as Matco advertises, the “polycarbonate sub-structure provides maximum durability.” To me, durability equates to fewer scratches and longer life. They’re also advertised as having “T-axis optics [to] provide unparallel optics engineered for zero distortion across the entire lens.” I noticed mine did *not* fog up despite the high humidity in which they were used. Again, an important feature for safety glasses.

“ForceFlex frames exceed the highest ballistic standards ANSI Z87.1 - CSA Z94.3-2014 - EN 166 - ASTM F803 - MIL-PRF-31020,” Matco states. That means these glasses meet a U.S. civilian

ballistic eyewear standard (ANSI Z87.1), a Canadian ballistic standard (CSA Z94.3), and a European standard (EN 166), but not any U.S. military standards (APEL requirements). Of note, I was unable to locate any specific description for “MIL-PRF-31020” that was also advertised.

Pro(s): 22 styles available: Full-frame, half-frame, or frameless versions offered with various lens shapes and colors enough to suit almost any safety glasses wearer. Intrablock UV protection lens infusion technology provides 100 percent UVA, UVB, and UVC protection.

Con(s): They do not fit over prescription eyeglasses. These are not adjustable. ❌



JAIME LAZARUS retired in 2020 after 41 years in the transportation repair sector. Throughout his career, he filled such positions as “lube tech”, mechanic, technician, shop-owner, inventor, automotive technologies instructor, and published author. Also known as “The Car Whisperer”, he was widely diversified in automotive diagnostics. Lazarus focused his career on emerging automotive technology, recognizing early on that the biggest challenge for automotive repair technicians is diagnosing electrical systems and electronic components. He was a four-time certified ASE Master Automotive Technician that had held the L-1 (Advanced Engine Performance) certification since the test’s inception.

PRODUCT DESCRIPTION

The full-frame **Matco Tools ForceFlex Safety Glasses** provide high-performance vision protection that meets the ANSI Z87.1+ and CSA Z94.3 safety eyewear standards. The patented frames adjust to any head size, eliminating pressure points behind the ears and at the temples and nose. This means one pair has the custom-fit capabilities to be worn securely and comfortably by many technicians, which promotes compliance and allows for easy stocking and distribution on the mobile tool truck and in a garage. Matco’s ForceFlex Safety Glasses resist scratches, are durable, and hold up in the shop, while offering an ideal user experience in flexibility, comfort, and adjustability. **Circle 77 on card or click “PTEN e-inquiry” on VehicleServicePros.com**

This product was given to the reviewer free of charge from the manufacturer.



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Astro Pneumatic 900lm Wireless Rechargeable LED

Reviewed by Brian Culotta, shop foreman/master technician
at Dave's Auto Care in Willoughby, Ohio.



Q: How did the tool function as far as saving you time?

A: Having a rechargeable battery saves time in the workplace by not having to worry about having backup replacement batteries on hand.

Q: How easy was it to use?

A: Simple. The flashlight has multiple brightness options to choose from using one singular button.

PRODUCT DESCRIPTION

The **Astro Pneumatic Tool 900 Im Wirelessly Rechargeable LED Slim Light with Top Flashlight**, No. 90SL, is an adjustable output, magnetic swivel base, slim light with press-and-hold dimming functions, allowing 70-900 lm of output plus a 150 lm top light. The light features a stainless-steel base hook, a strong 20-lb magnetic swivel base, charge level indicator lights, a chemical-resistant nylon body, a 4,500mAh capacity battery, and a USB-C style charging cable and adapter for quick charging. Light can also be charged wirelessly using the company's 52SL-WCP magnetic dual charging pad, to charge one or two lights at a time (not included).

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Q: How has using this tool impacted your shop's profitability?

A: Being able to see component failures and repair them with confident visibility equals increased sales and productivity.

Q: What kind of setup was involved before using the product?

A: No setup was required other than charging the light. I charge the battery once every day when leaving work. The battery lasts me all day.

Q: How was its packaging? Did it come with any accessories?

A: The product was packaged well. The flashlight came with a USB-C charger and A/C adapter. Everything needed was included.

Q: Was there a manual included? If so, did you use the manual, and was the manual easy to understand?

A: Yes. The small manual included instructions on changing the different modes the light offered.

Q: What features did you like?

A: The magnet on this tool is the strongest magnet I have ever experienced on a flashlight. There is no fear of the flashlight falling to its demise onto the concrete below if accidentally "bumped" when working on a vehicle.

Q: Is there any way you could think to improve or add to this tool?

A: The addition of a UV light would be nice for A/C leak detection. Wireless charging would be convenient as well.

Q: What types of jobs/repairs did you use this tool for?

A: I use this light frequently every day.

Q: How does this tool compare to other tools you've used like it?

A: I have many flashlights. Almost *too* many. This tool is in my top five favorites. The strong pivoting magnet is the biggest stand-out feature I observed. There are no more arguments with your helper holding your flashlight! Let the magnet hold it where you need it.

Q: On a scale of 1 to 10, how would you rate this tool overall? Why?

A: I would rate this tool a 10. The flashlight performs well, is very rugged, and properly sized. ✕



BRIAN CULOTTA is a graduate of the Universal Technical Institute in Chicago, Illinois. After graduating, he started working for an independent car dealership as a lead technician for seven years. He then moved to a new job at an independent repair shop where he stayed for three years. He now works at Dave's Auto Care in Willoughby, Ohio, as the shop foreman and ASE Master L1, L3 technician.

This product was given to the reviewer free of charge from the manufacturer.

Tool Aid Clamp Probe Set

Reviewed by Randy Kaiser, service manager at Rost Motor Inc. in Manson, Iowa.



Q: How did the tool function as far as saving you time?

A: This is a very unique tool. It's a couple of spring-loaded electrical probes attached to clamps. You can attach the clamps close to whatever you are trying to check, and the spring-loaded probe stays in place. This saves the time and hassle of trying to figure out how to keep the probe where you need it, and quite possibly frees up your hands.

Q: Is there any way you could think to improve or add to this tool?

A: The clamps themselves are made from some sort of plastic or composite material. I understand the thought process around electrical equipment but wonder if insulated metal might hold up better. Additionally, the probe swivels in one

direction on the clamp. There were times when it would have been nice to be able to change the angle in the other direction as well. Maybe a ball and socket attachment instead of a single swivel joint.

Q: How easy was it to use?

A: Very easy to use. The clamps are a squeeze type clamp, so you just squeeze them open and clamp them onto whatever is close to where you need to test. The probes themselves are spring-loaded to maintain contact with whatever you are testing.

Q: Was there a manual included?

A: There was no manual included. There were some pictures of the clamps in use on the cardboard backplate. If you couldn't figure out how to use them, you probably shouldn't be working on electrical systems.

Q: What features did you like?

A: I really like that the probes are pointed on the end, and spring-loaded. This works great for maintaining contact with whatever you are trying to test. They also swivel on the clamps, so you don't have to be directly in line with your intended target. The probes also have a 4mm female end on them which seems to be the standard for most test leads.


Q: What types of jobs/repairs did you use this tool for?

A: I used the probes for electrical circuit testing under the hood and in the passenger compartment. They were handy when checking circuits originating from the fuse panel. They also worked well in making a good ground for circuit checking. With a long test lead, they work well for testing from one end of the vehicle to the other.

Q: Have you used a previous version of this tool?

A: I have used various probes before, but never any attached to clamps. These were handy in several instances.

Q: On a scale of 1 to 10, how would you rate this tool overall? Why?

A: A solid nine. They are very nice, and somewhat different than I had ever used before. 

PRODUCT DESCRIPTION

The **Tool Aid Clamp Probe Set**, No. 21200, was originally designed to allow a lone technician to test for voltage drop on top battery posts, but its handsfree operation is a useful diagnostic tool when a third hand is needed. The probe, under spring tension, adjusts in height within the housing, and rotates 360 degrees so users can test where they need to. The probes accept a standard 4mm banana plug, allowing technicians to use their existing equipment. The Clamp Probes are also available individually as the 21215 (black) and 21216 (red).

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RANDY KAISER started working at Rost Motor, Inc. shortly after graduating high school, and he is still working there 48 years later. Through the years, he has been a lube tech, line tech, paint and body tech, parts department head, service manager, and is currently in charge of the parts and service departments. Kaiser is ASE Master Certified and a Ford Master Certified Technician, as well as a Ford certified Service Manager and Service Advisor.

This product was given to the reviewer free of charge from the manufacturer.



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Ingersoll Rand W3111 IQV20 1/4" Compact Impact Driver

Reviewed by John Baumgardt, owner and operator of Baumgardt's Auto Repair in Fillmore, Indiana.

Q: How did the tool function as far as saving you time?

A: The smooth operating quick-change chuck made changing bits fast, and the charger is also a fast charger which greatly reduces time.

Q: Was there a manual included? If so, did you use the manual, and was the manual easy to understand?

A: Yes, a multi-language manual was included. The writing is a bit small, and it contains the typical instructions for care and use as any other cordless tool.

Q: How has using this tool impacted your shop's profitability?

A: Not having to run an air hose outside saved even more time, but being able to work on a job away from the building while still having the power of a pneumatic impact made a really big difference.

Q: How easy was it to use?

A: Pretty easy. With the battery installed, all you need to do is pull the collar on the quick-change chuck forward to insert the bit of your choice and release the collar to lock in the bit.

Q: Is there any way you could think to improve or add to this tool?

A: It needs a way to attach a belt clip. Having a way to hook it to a pocket or a belt when you have your hands full would be nice.

Q: What types of jobs/repairs did you use this tool for?

A: I used it to tear apart a few transmissions and on a couple intake manifold jobs. I also helped a buddy drywall for two days. I did both days of drywall work on half of the 2.5Ah battery included in the kit and that still left me with a 5.0Ah to use.

Q: What features did you like?

A: The impact has great power. I think that the three speeds in forward and reverse make it easier to adjust the torque. Most impacts I've used are full power in reverse and that increases the chances of losing a



small fastener if it slips out of the socket. Battery charge status lights aren't anything new, but the full halo light on the front is amazing. There are no dark spots in the front of this impact.

Q: On a scale of 1 to 10, how would you rate this tool overall? Why?

A: 9.8 out of 10. This impact is truly awesome. The only downfall for me is not having a belt clip. ❌



JOHN BAUMGARDT III is the owner/operator of Baumgardt's Auto Repair in Fillmore, Indiana. He has been a professional auto tech for about 20 years. He attended the two-year Auto

Mechanics program at Lancaster Vocational High School. Previously, Baumgardt worked at AAMCO Transmissions and earned about a dozen AAMCO certificates. He believes it's important to provide an honest, quality service that people can depend on.

This product was given to the reviewer free of charge from the manufacturer.

PRODUCT DESCRIPTION

The **Ingersoll Rand W3111 IQV20 1/4" Compact Impact Driver** delivers up to 4,200 in-lbs of breakaway torque with its brushless motor. With a total length of 5.2" and weight under 2.3 lbs, the W3111 provides ideal control and maneuverability in tight work-spaces. The tool has a 1/4" hex drive with a quick release collet for use with impact rated bits, a fastening torque up to 3,400 in-lbs, and a free speed of 2,800 rpm. It also features an over-molded ergonomic grip for comfort, a patented 360-degree shadowless LED ring to illuminate the fastener from all sides, and three speed options with a variable speed trigger to cover a wide range of applications.

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CATEGORY SPOTLIGHT

HAND TOOLS & SPECIALTY TOOLS

Between balancing the price and the quality of a hand or specialty tool, it can be difficult to choose which one is right for you, and which tool is best for the application at hand. Here are some of the latest hand and specialty tools that crossed our desk that we think will be of interest to you.



REMOVES QUICK CONNECT WITH SNAP/SIDE LOCK COUPLERS

The **Cal-Van Tools Adjustable Jaw Fuel Line Pliers**, No. 68800, are designed to disconnect fuel, EVAP and breather, push-style quick connect fittings. Can also be used on some electrical connectors. Features a spring-loaded handle with a 2-3/8" maximum jaw spread in the straight position and a 1" maximum spread in the 90-degree position. The 2" long, tapered jaws rotate 180 degrees and have 1/8" contact points. The pliers are suitable to use on multiple vehicles.

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ERGONOMIC, TWO-COMPONENT HANDLE

The **Mueller-Kueps Mini Pry Bar Set**, No. 276 100, is a universal use set ideal for any application that requires lifting or prying. The pry bars have a black oxide finish to help protect the tools against corrosion, are made from hardened and tempered steel to provide maximum durability, and feature a six-sided shaft for strength. With an ergonomic, two-component handle, the pry bars offer a comfortable and secure grip through all applications. The set includes two different tip widths and an angled design to give the user maximum leverage and options.

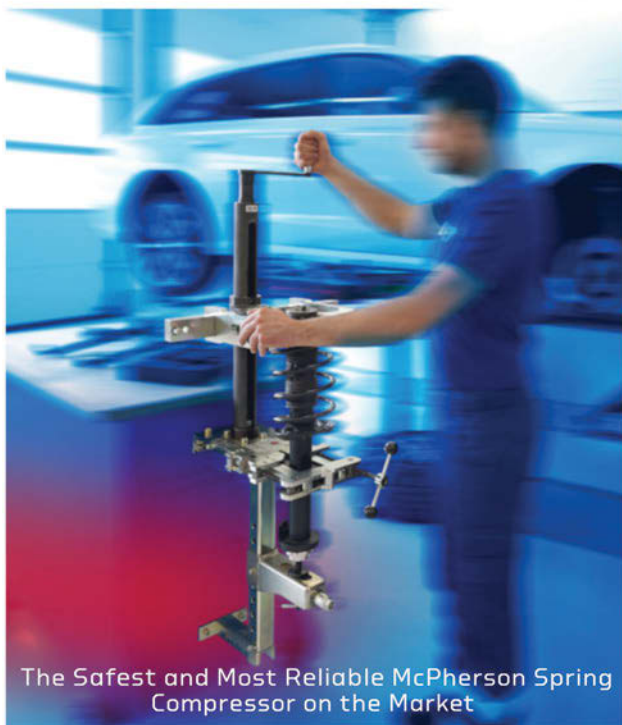
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FOR EASY ORGANIZATION OR JOBS ON-THE-GO

The **Matco Tools 8-pc Pliers Set** comes with a canvas tool bag used for both organization and on-the-go jobs. Each plier has a dipped handle to help reduce hand fatigue and allow a non-slip grip while working.



The pliers are made from high-alloy carbon steel, drop-forged, and heat-treated with a steel surface that has been polymer-coated for corrosion resistance and extending the life of the tool. The set includes 11" and 8" diagonal cutting pliers, 10" arc joint pliers, 9-3/4" lineman's pliers, 8" long nose pliers, 6" and 8" slip joint pliers, and 8" tongue and groove pliers.

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FOR WORK IN CONFINED SPACES

The **Wera Tools 2-pc Zyklop Mini 1 Bit Ratchet 1/4" SB with 1/4" drive**, No. 8001, is designed to be suitable for the direct take-up of bits with a 1/4" hex head drive. The set is drop-forged with a full-steel design and a torque of over 47 ft-lbs. Equipped with 60 teeth, it has a return angle of six degrees and a left/right switchover. The thumbwheel is designed for rapid fastening in confined places where there is little room for ratcheting.



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ACCESS HARD-TO-REACH SPACES

The **Milwaukee Tool 6-pc Metric Double End Flare Nut Wrench Set**, No. 48-22-9471, has ink-filled size labels designed to offer easy identification and distinction between SAE and metric wrenches. The wrenches slim profile open ends help provide additional access to hard-to-reach line nuts and hex bolt heads. Additionally, the wrench set features a comfortable I-Beam handle design, are chrome plated, and offer rust protection. This set includes the sizes 9mm by 1mm, 10mm by 12mm, 13mm by 14mm, 15mm by 17mm, 16mm by 18mm, and 19mm by 21mm.

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ERGONOMIC NYLON MICRO HANDLE

The **Mayhew Tools 4-pc Micro Torx Set**, No. 31030, features an ergonomic micro handle design and high alloy steel blades with a black oxide finish. The set is made with a custom heat-treatment and temper process and each screwdriver's tip is precision CNC machined to industry specifications with tight tolerances for a more reliable fastener engagement. Measurements for these tools are 6" by 2", 7" by 2", 8" by 2-1/2", and 9" by 2-1/2".

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ERGONOMIC DESIGN AND COMFORTABLE GRIP

The **OTC Angled Wire Stripping Tool**, No. 5950D, is a versatile handheld tool designed for stripping wires in tight spaces, up against bulkheads, and in other hard-to-reach areas. Its angled head with stripping dies provides the user with an optimal angle for precise and easy stripping of wires. The tool is made of high-quality materials, making it durable and reliable for use in a wide range of applications. With its compact size, ergonomic design, and comfortable grip, the 5950D is easy to use, even for extended periods, making it an ideal tool for electricians and technicians who require a go-to wire stripping tool.

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FEATURES 72 TEETH

The **VIM Tools 12-point Ratcheting Wrenches**, No. SAR100, feature an exo-skeleton design to reduce weight and give additional comfort and grip to the user. These wrenches have a 15-degree offset and 72 teeth. The wrenches come in a foam, laser-etched case for easy identification and organization. Included in this set are wrenches from 10mm to 19mm without skipped sizes. The wrenches are designed to be heavy duty in terms of strength, but feel lightweight in the user's hand.

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REMOVES SEALS, PLASTIC CLIPS, O-RINGS, AND MORE

The **Lisle Corporation 2-pc Pocket Pry Bars**, No. 35170, are ideal for use when removing seals, electrical connectors, plastic clips, O-rings, plastic caps, interior trim pieces, and metal and plastic retainers. The 1/8" and 3/16" square shaft pry bars each have a pocket clip and measure 4.5" in length. The 1/8" pry bar features a magnet in the top of the handle that can lift 1 lb.

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CUSTOMER REVIEW:
 "Awesome tiny pry bars. These are great for small prying tasks and are way better than a pocket screwdriver."



PROVIDES LEVERAGE TO 3/8" TOOLS

The **Assemmacher Specialty Tools 10mm Bypass Wrench**, No. BY10, is designed to access bolts and nuts by going around obstructions that would normally be in the way. The BY10 is able to access hard-to-reach places and provides leverage to 3/8" tools. It is ideal for various CASE Construction Equipment and Chelsea-Allison PTOs as well as any other applications requiring a 10mm. Made from forged steel. Also available in 13mm (No. BY13) and 14mm (No. BY14).

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CATEGORY SPOTLIGHT

Hand Tools & Specialty Tools



HOOKED TIP FOR LEVERAGE

The **Klein Tools Locknut Wrench Set**, No. 50900R, features opposing offset bends for access to difficult-to-reach locknuts. Three wrenches are included in this set: 1/2", 3/4", and 1". Two internal magnets on each wrench hold the set together for easy storage. The alloyed steel design allows for access when space is limited. For size identification, each wrench is a different color. The hooked tip latches on the locknut for additional turn leverage. Its steel design is corrosive resistant.

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HEAD FLEXES THROUGH 180 DEGREES

The **90-Tooth 12-Point GearBox Double Flex Ratcheting Wrenches** from **GEARWRENCH** deliver a 4-degree swing arch for improved access. With a longer, wider beam, the wrenches offer improved reach, leverage, and comfort. The head flexes through 180 degrees for adjustable access angles. Additionally, the ratcheting wrenches feature off-corner loading that reduces fastener rounding, large color markings for easy size identification, and full polish chrome. Available in two sets: 6-pc metric and 4-pc SAE.

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REMOVES LARGE INTERNAL RETAINING RINGS

The **Lang Tools 26" Internal Retaining Ring Pliers with Interchangeable Tip**, No. 1489, are heavy duty pliers used to remove and install the large internal retaining ring in transmission cases. Its 26" handles provide the leverage needed to compress large retaining rings. Ideal for GM 5L40, 5L50, 6L50, 6L80, and 6L90 transmissions. The pliers weigh 3.85 lbs and include straight .120" diameter tips (No. 8600).

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REMOVES AXIAL JOINTS

The **GEDORE Excentric Wrench** is designed to remove and install axial joints and fits universally for cars and vans. The wrench offers direct mounting on the tie rod and one-handed operation. Its resistant profiling is designed to prevent tool slippage and save time.

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SPRING-LOADED FRICTION BALL RETAINER

The **Grey Pneumatic 1/4" Extended Length Impact 4" Hex Drivers**, No. 9247H, are designed for getting to the smallest fasteners located in hard-to-reach places. These drivers are available in four different sets or individual pieces. This is a 4" extension set.

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CUSTOMER REVIEW:

“ I'm a Ford tech and use this kit a lot on newer Fords when changing water pumps or replacing cam phasers on the 3.5L. I've also used it on a 6.2L and it worked flawlessly. ”

REDUCES THE RISK OF DAMAGING CRANK BOLTS

The OEMTOOLS Long Reach Harmonic Balancer/Pulley Installer,

No. 37306 is used to install crank pulley or underdrive pulley on many late model Ford, GM, Dodge, and Chrysler vehicles with V8 and V6 engines, with or without recessed threads.

This installer helps reduce the risk of stripping threads inside the crank or breaking crank bolts.

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INCLUDES LONG-REACH THREADED PRESS RODS

The **Master Harmonic Balancer Install Kit**, No. 15086, from **ARES** includes a threaded driving stud, a heavy duty driving nut with thrust bearing, 12 threaded install adapters in both metric and SAE thread sizes, four long-reach threaded press rods, and a heavy duty case for easy storage and transport to install harmonic balancers on most domestic and many foreign vehicles. Featuring solid steel construction with a black phosphate finish for additional strength and durability, this kit also includes extra-long installers that provide coverage for installing harmonic balancers on late model and truck applications that require additional reach and a heavy duty thrust bearing washer for a smooth and simple harmonic balancer installation.

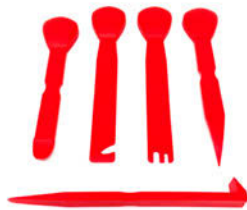
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SIZES ARE LASER ETCHED

Dynamic 3/8" Drive Starter Socket Sets feature both standard and deep length sockets in SAE and metric sizes. The industrial-duty sets come with clip organizers for convenient storage and have a chrome finish for maximum corrosion resistance. Sizes are laser etched for easy identification, and a knurled ring provides ideal grip when removing the sockets from ratchets and attachments. The socket sets meet ANSI standards.

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HELPS REDUCE CHANCE OF DAMAGE

The **CTA Tools 5-pc Wire Install Tool Kit**, No. 1450, is designed to help users place and extract cables, connectors, and components with ease, while reducing the chance of damage to wire insulation. Fitted with the ability to push, pull, and feed wires safely and accurately, the tool kit's tools measure approximately 6" in length, making them easier to handle and maneuver in tight spaces. These tools are not meant for high voltage or live wire use.

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FOR PRECISION WORK IN TIGHT SPACES

The **Harbor Freight Tools 1/4" Drive Professional Special Edition Gold-Plated Ratchet**, No. R1GOLD, is engineered for precision work in tight spaces. This ratchet has a precision machined 90-tooth gear-to-gear mechanism, and a 4-degree arc swing per click. The geared mechanism is intended to provide smooth ratcheting and withstand heavy torque. Its ergonomic grip is designed to promote a secure hold during use and reduce user fatigue. Its sealed head keeps lubricants in and contaminants out to ensure a longer tool life.

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CRIMPS, GRIPS, STRIPS, AND CUTS WIRE

The **Mac Tools 4-in-1 Angled Wire Service Tool**, No. WSC8A, features an angled nose that allows access in tight spaces for crimping. The gripping nose enables pulling, twisting, bending, and shaping. The compact tool measures 7" and can be used four ways: crimper, gripping nose, stripper, and cutter. It crimps 12-20 AWG insulated and non-insulated wire and strips 12-20 AWG wire.

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Photos courtesy of Mario Rojas

Rojas is constantly cleaning and reorganizing his setup to find what works most efficiently for him.

The next evolution

The progression of this diagnostician's setup shows the growth he's making in his knowledge of the industry.

By *Emily Markham*, Editor

Last time we checked in with diagnostician Mario Rojas, he gave us a closer look at his Harbor Freight diagnostic tool cart. It's been two years since then, and Rojas has not only updated his diagnostic cart but his whole tool storage setup.

BIGGER AND BETTER

Rojas' diagnostic cart is his go-to for everyday work around the shop. It not only carries his most used tools and equipment but also allows him to multitask by checking emails, looking up service information, examining wiring diagrams, etc. When his previous 43" TV broke, Rojas took that as an opportunity to upgrade to a 55" TV. Additionally, he added three AGM batteries along with an inverter, and a TOPDON maintainer/charger to keep the cart mobile for at least 12 hours.

BUILD-A-HUTCH

Moving on to Rojas' 76" Cornwell toolbox, this is where he keeps many of his hand tools, office supplies like paper and

OWNER

Mario Rojas
 Shop: Autobahn Performance
 Location: Oakland Park, Florida

pens, and other lesser-used tools. Recently, he's added two big cabinets to each end of the toolbox giving him about another 6' of storage to his setup. Along with the cabinets, Rojas placed two 12" wide by 12' long wooden planks across the cabinets to create an "open hutch".

"All of the Cornwell hutch options were too short for me," Rojas explains. "I'm 6' tall and would've hit my head constantly."

This DIY hutch option also enabled Rojas to install whatever he liked on the underside of the planks. Currently, he has a bench light mounted along with a magnetically mounted fan that he can move as needed. The diagnostician also notes the money he saved by going this route.

"Instead of shelling out \$10,000 for a whole setup, I went with this," Rojas says.

"It's two regular office cabinets and then the long pieces of wood."

The additions give Rojas plenty of space for all his tools and equipment, meaning his "investments" are safe.

THE NEW FAVORITE

One of the newest additions to Rojas' workspace — not to mention his favorite — is his reworking station. He uses the rework station for module repair, EEPROM work, module cloning, and BDM programming. The workstation has a hot air system, power supply system, HEPA filtering system (to counteract the fumes), and a microscope with a camera mounted on it.

"I host a free quarterly training event," Rojas says. "Everyone and anyone is welcome to give soldering and reworking a shot and everyone watching can learn from it."

He also records these events and shares the repairs on his YouTube channel, Super Mario Diagnostics.

Though the rework station is Rojas' favorite part of his setup, overall what he really enjoys is how his setup conveys how he's grown.

"It shows that I'm not becoming stagnant, and that's the way everyone should be," Rojas notes. "Everyone should be trying to improve in this industry." ❌

Want to see more photos of Rojas box? Visit: [VehicleServicePros.com/53067062](https://www.vehicle-service-pros.com/53067062)



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