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# PTEN

PROFESSIONAL **TOOL & EQUIPMENT** NEWS

\$15.00 • August 2022  
Volume 33, Number 7

ENDEAVOR  
BUSINESS MEDIA



**EXCLUSIVE:**  
2022 PTEN INNOVATION  
AWARDS WINNERS PAGE 20



## AUTEL ULTRA EV

### ELECTRIC VEHICLE DIAGNOSTICS

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AND OTHER NEW TOOLS **PAGE 10**

**DIAGNOSTIC TECH**  
TOOLS FOR  
PROGRAMMING SERVICES  
**PAGE 29**

**CATEGORY  
SPOTLIGHT**  
TIRE & WHEEL SERVICE  
**PAGE 60**



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electric-powered  
tool drawer



▲ Fits all car  
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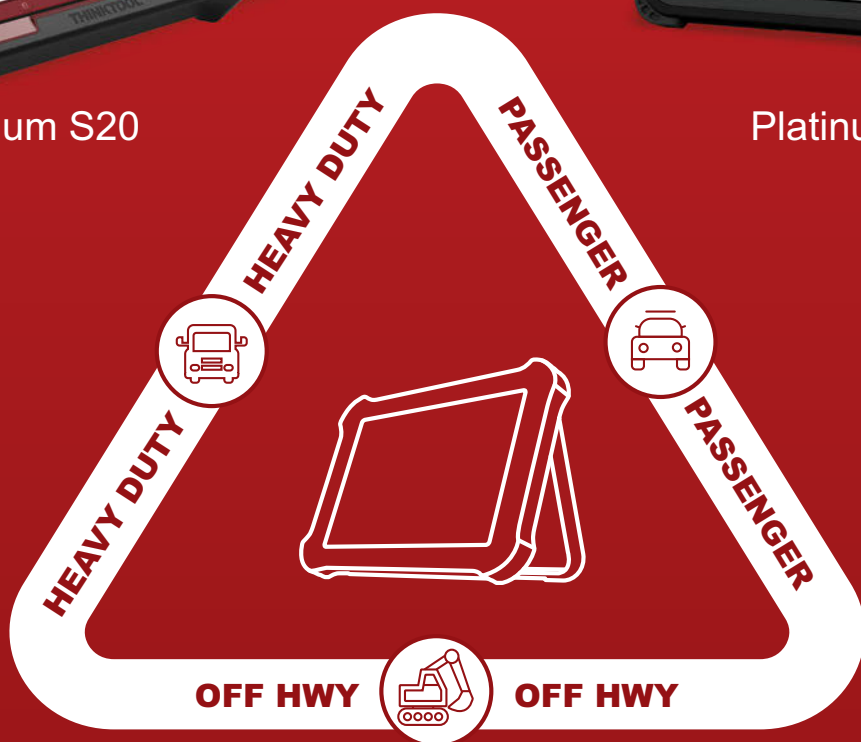
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## ON OUR COVER

### Autel Offers Advanced Diagnostics for Electric Vehicles

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## EXCLUSIVE

### 20 2022 PTEN INNOVATION AWARDS WINNERS

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Joshua Albrecht, 'Truck Master'



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## VIDEO



Catch up on new tools and trends in the industry with PTEN editor Amanda Silliker and ISN's Pete Peterson.  
**VehicleServicePros.com/21274432**

## ARTICLE



Check out the top three most popular Big-Time Box articles for 2022 so far.

**VehicleServicePros.com/21271307**

## TRAINING



Want to learn from the best in the industry? Register now for the Motor Age Accelerate event and receive in-person training from Brandon Steckler, G. Truglia, Pete Meier, and Scott Brown.

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## TECHNICIAN PROFILE



Dantley Edgren was one of the top 10 runners-up for PTEN's Best Young Tech Award in 2021. This young tech notes, "My main goal is to be well known by everybody in my community for doing honest and good work."

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## NEW PRODUCTS



An exclusive look at new products from Milwaukee Tool's 2022 Pipeline event.

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## FEATURED PRODUCTS



### Spring Tools

4-pc Heavy Duty Mechanics Set, No. HD1015

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### Brass Knuckle

Heavy Duty Cushioned Foam Knee Pads, No. BKKN200

**VehicleServicePros.com/21273945**



### VIM Tools

4-pc Firm Flex Drive 1/4" x 11mm UJ Kit, No. FFDD400K

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### Ascot Supply

4-Way Inflator Accessory Block

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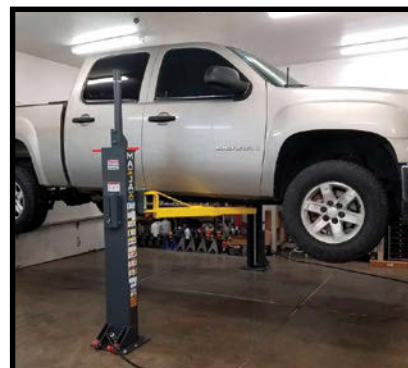
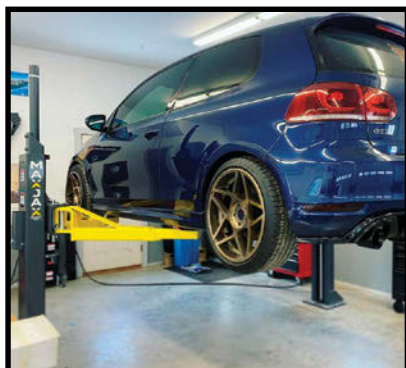


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# The most innovative tools of the year have arrived!

The winners of our Innovation Awards don't disappoint.

**By Amanda Silliker**, Editorial Director  
[ASilliker@EndeavorB2B.com](mailto:ASilliker@EndeavorB2B.com)

**T**his is one of my favorite issues of the year! On page 20, you can see the winners of our *PTEN* Innovation Awards. This list is a great way to know what new tools you've got to have in order to ramp up your productivity and get more cars repaired faster. We get tons of product entries for the *PTEN* Innovation Awards, and our independent third-party panel of judges selects the best of the best for the winners.

Each product is judged on the following criteria:

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

While you can see all the winners in this issue, some of the *PTEN* editors' favorites were the following:

- Tool storage from Shadow that clearly shows you all the tools in your box. (You'll never need to rifle around again!)
- A tire changer from Hunter that helps keep count of tires changed and mea-

sures shop activity and productivity.

- An underbody light from Milwaukee that has a 12" magnetic extended arm and dual joints for 300-degree swivel.

On an unrelated note, here's a question for all you shop owners out there: How much of your time is spent training your C and D techs? I was recently chatting with a couple of shop owners who said in light of the technician shortage, they are spending more time than they used to helping those younger guys and gals learn how to complete certain repairs. It was an interesting conversation, and while one gentleman was grumbling that he is "not getting any younger", and it's harder for him to do training sessions, they both agreed it was a good way to make the most out of a difficult situation where there simply isn't enough labor walking into their shop.

If you have a young tech with a great attitude and a willingness to learn, embrace that. If they've mastered changing oil and rotating tires, teach them how to do that next maintenance task that they're chomping at the bit to learn. In our Best Young Tech roundtable, Bogi Lateiner explained that a willingness to learn is one of the most important things she looks for

when hiring technicians for her shop. She also looks for people who care about the work they do and take pride in their work.

So, the next time you need to take a few extra minutes to show that young technician how to get a new job done, be grateful that you found someone with the right attitude and embrace the fact that you can mold them to fit the needs of your shop.

As Lateiner says: "I can teach you how to turn a wrench; I can't teach you how to care." ✕

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Three Steps to Successful Electrical Troubleshooting



### BRANDON STECKLER

Session: SCAN TOOL ANALYSIS 101:  
Gaining Diagnostic Direction From The Driver's Seat



### G. JERRY TRUGLIA

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# FEATURED NEW PRODUCTS

## FITS THE SHAPE AND POSITION OF ANY CAR



The **Plymovent Internal Grabber Exhaust Extraction Nozzle** is a universal nozzle designed to fit the shape and position of any car and pickup truck 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.

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## QUICKLY CUTS, GRIPS, AND TWISTS WIRE

The **Titan Professional Tools 6" Automatic Reversible Safety Wire Twisting Pliers**,

No. 60795, are designed to quickly cut, grip, and twist wire to ensure parts stay where they belong.

Features a heavy duty return spring and chromed spiral mechanism that twists and tightens wire when pulled. The induction hardened cutting edges slice through stainless steel wire up to .060 gauge, and the locking grip and cross-serrated jaws hold wire securely while twisting. The pliers have precision ground and tapered jaws.

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## FEATURES AN ELECTRIC-POWERED TOOL DRAWER

The **Homak Manufacturing 44" RS Pro 8 Drawer Service Cart** features an electric-powered tool drawer with slotted sides to efficiently store, organize, and charge power tools in one place. The top till includes a lockable security compartment with an additional electric outlet to store laptops, phones, or other electronics. A heavy duty rubber-coated steel



push handle allows the product to be easily maneuvered around the shop. Lift latch drawer pulls prevent drawers from opening. Each drawer is fully extendable, can hold up to 100 lbs, and is lined with PVC foam. A high gloss UV protective powder coat finish prevents rusting. Available in four color options.

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**K**icking 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.



## AUTEL OFFERS ADVANCED DIAGNOSTICS FOR ELECTRIC VEHICLES

**Autel** extends its advanced diagnostics coverage to electric vehicles with the introduction of the **MaxiSYS MSUltra EV** and the **MS909 EV** tablets. From legacy brands to startups, automakers are committed to electric vehicles, and Autel is right there, providing its users with the tools and technology to ensure that these vehicles are serviced with the utmost skill, efficiency, and safety. The MSUltra EV and the MS909 EV tablets offer comprehensive vehicle coverage for U.S., European and Asian electric, gas, diesel, and hybrid vehicles. Both tablets are equipped with the EVDiag Box to diagnose high voltage systems and battery packs comprehensively. The tablets provide direct access to fault locations within the high voltage system and clear and concise OE-compliant instructions to ensure optimal battery maintenance.

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## NEW PRODUCTS



### IDEAL FOR GENERAL CUTTING, BODY PANEL CRIMPING, AND MORE

The **SP Air Long Barrel Air Hammer**, No. SP-1400, is ideal for general cutting, body panel crimping, shearing, rust/paint removal, chipping, and scraping. It has a built-in air regulator, comfortable non-slip ergonomic grip, and a graduated tripper control. With an aluminum alloy housing, the tool is able to withstand tough environments, repeated drops, and exposure to harsh chemicals. Its quick change coil spring retainer allows for fast and easy chisel changes (chisel not included). It weighs 3.63 lbs, measures 8.5" in overall length, and has a free speed of 3,000 bpm.

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### AVAILABLE IN TWO LENGTHS

The **John Bean 15k 4-Post Alignment Lift** comes equipped with safety devices to protect both the operator and the vehicle while being serviced. With open-front columns, ultra-wide 26" runways and integrated 100"-long rear slip plates, the lift is extremely sturdy and can handle heavy duty, dual-rear-wheel trucks as well as accommodate standard, four-wheel alignments on passenger vehicles. Available in two lengths, standard and extended, the lift is certified to the industry's leading ANSI/ALI automotive lift standard. Other notable features include: Enhanced rear slip plates, dimpled ramps, cable lock brake, and an adjustable air-hydraulic jack beam.

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### FEATURES BUILT-IN PRESSURE-RELIEF AND SAFETY VALVES

The **Mityvac Fluid Evacuator/Dispenser**, No. MV7120, offers convenience and efficiency when servicing a wide range of vehicle system fluids. It features an oversized 5-gal reservoir designed for fluid capacities in larger vehicles, including sprinter vans, over-the-road trucks, yellow iron, and agriculture equipment. The tool utilizes compressed air to dispense and extract automotive fluids such as brake, washer, power steering, and transmission fluid, as well as engine oil, gear oil, and coolant. The MV7120 uses redundant pressure control systems to maintain peak output pressure below 30 psi for optimal safety. It also features built-in pressure-relief and safety valves.

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### FEATURES A 4,500 LB PULL FORCE

The **Milwaukee Tool M18 Fuel 1/4" Lockbolt Tool With One-Key** eliminates compressors and hoses when installing lockbolts, increasing portability and maneuverability. Designed to withstand harsh shop environments, the tool features an all metal gearcase, impact strength plastics, and a rubber overmold while the optimized ergonomic design provides maximum comfort for all-day use. Additionally, it features a 4,500 lb pull force and 1.18" stroke length. It weighs 4.68 lbs (without the battery) and comes with a mandrel collector, a bobtail cap, and a belt clip.

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### INCLUDES NEW BRANDS, MODELS, SYSTEMS, AND MORE

The **Cojali Jaltest Software 22.2 Update** includes new brands, models, systems, technical information, and wiring diagrams to assist technicians in their day-to-day repairs across multi-brand diagnostics for commercial vehicles, agricultural equipment, OHW equipment, material handling equipment, and marine. Some notable features include: Jaltest Download Manager for downloading Jaltest versions, ability to zoom in on images, GRP Analytics, user management improvement in GRP, and unknown variants resolution through other brand models.

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### WORKS WITH LEFT AND RIGHT SIDE CALIPERS

The **Lock Technology Bendix/Knorr-Bremse Air Disc Brake Pad Retainer Tool**, No. LT891, is designed to provide a safe and easy way to remove the pad retainer when servicing Bendix/Knorr-Bremse air disc brakes. The patent-pending tool works with left and right side calipers, and can work with or without the caliper shield. It features an easy grip handle and is heat treated for strength and durability.

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### INCLUDES SEVEN SUPER LOW-PROFILE SOCKETS

The **VIM Tools 89-pc Flex Ratchet Bit and Socket Set**, No. FRBS89, includes flats, Phillips, Torx, Torx tamper proof, Torx plus, Torx plus tamper proof, metric hex, SAE hex, MORTORQ, Robertson, clutch, and triple square bits. The bits are all 1/4" hex shanks that are 1" in overall length. The set comes with seven super low-profile sockets with special 1/4" male hex drive ranging from 5mm to 10mm, including 5.5mm. It also comes with VIM Tools' 3-pc Locking Flex Head Bit Ratchet Set, No. RFB400K, which includes a locking flex head bit ratchet, a 4" magnetic bit extension, and a 1/4" square drive adapter.

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### FIVE-STEP ANGLE-ADJUSTABLE TEMPLES

The **Brass Knuckle Spike Safety Glasses**, No. BKADJ-5060AFP, feature BK-Anti-Fog+ technology that is fused directly to the lens and offers long-lasting fog-free protection. The safety glasses also offer abrasion, chemical, and UV resistance. Other notable features include rimless lenses, green and black zebra striping, earpieces that ratchet up and down with a five-click adjustable temple joint to create a customizable fit, an integrated soft brow guard, soft rubber at the end of the earpieces, and floating, reinforced-rubber nosepieces that conform to the bridge of the nose.

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### INTEGRATES BATTERY TESTING AND VEHICLE DIAGNOSIS

The **BST880D Handheld Tool** from **Launch Tech** can test battery and charging systems in addition to OBD system access. It's equipped with AUTOVIN detect and live data monitoring, able to diagnose four systems, and supports CCA, BCI, CA, MCA, EN, JIS, DIN, IEC, SAE, GB battery standards, gel, AGM, and lead acid battery types. It also includes six service functions: TPMS reset, oil reset, brake reset, ABS bleeding, electronic throttle relearn, and battery reset.

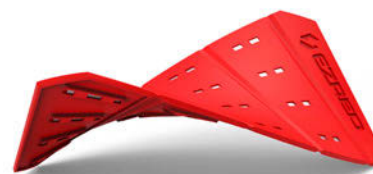
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### DETECTS THE INFRARED RAYS AN OBJECT EMITS

The **Power Probe No Contact Infrared Thermometer**, No. IRGUN500, is designed to detect the infrared rays that an object emits. The instrument focuses the infrared energy of the object through the lens and onto a sensor. As a result, the instrument changes the surface temperature into an electrical signal, and a microcomputer calculates and displays the measured temperature on the LCD. Features a spectral response between 8-14 μm, degrees selection, one second response time, and a relative humidity between 10 and 90 percent.

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### HOLDS TOOLS TO CURVED OR TILTED FERROUS SURFACES

The **EZRED MAGMAT Magnetic Flexible Tool Mat** is a multi-purpose tool organizer that holds parts and tools to any curved or tilted ferrous surface. Made of non-marring TPEE material, the tool mat will fold, bend, or roll any way needed while always returning to its original shape. It's strong neodymium magnets hold tools, hammers, wrenches, sockets, drill bits, nuts, bolts, and more. The MAGMAT also features a low profile with a large surface area. It measures less than 1/4" tall and is 8.75" in length and 5.5" in width.

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### COMPATIBLE WITH ALL POPULAR REFRIGERANTS

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. 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.

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**NEW PRODUCTS**



### COMES IN A POP-UP CASE

The **Vessel Tool IMPACT BALL Torsion Bit 10+1-pc Set**, No. IB11P02U, comes in a pop-up case. The product includes +1, +2, +3, SL6, SQ2, T10, T15, T20, T25, T30, and 1/4" hex bit holders with C-ring retainers. The set also features magnetized tips, high wear-resistance, durable bits made from VoHA material, and the highest hardness (62 HRC) created by in-house optimum heat treatment.

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### HAS AN A6 CUT LEVEL

The **Magid D-ROC DX+ Technology Coreless Work Gloves**, No.

DXPG62, feature a light-weight poly-urethane palm coating that maintains dexterity while delivering ideal grip. DX+ Technology uses strength-enhancing micro particles which eliminate the need for heavy steel and fiberglass to achieve higher levels of cut protection. The non-irritating safety gloves resist cuts, abrasion, and puncture for optimal safety. Additionally, the gloves are cool to the touch, machine washable, and achieves an A6 cut level.



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### How to find your fit:

Measure around your hand at the widest part of your palm.

**Circumference Glove size**

5"	2XS
6"	XS
7"	S
8"	M
9"	L
10"	XL
11"	2XL
12"	3XL

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C. 24609: Rechargeable Diagnostic Work Light

D. 25245: Infrared Thermometer

E. 37377: A/C Flush Kit

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## FEATURES AN INTEGRATED LED

The **Lincoln Electric Viking 2450 ADV Series Welding Helmets** are auto-darkening and feature an integrated LED. Operators can easily activate or deactivate the light using a low-profile external control. When activated, the light illuminates the work area for increased workspace visibility during arc-off time. To save power and increase battery life when welding, the LED light automatically turns off when the operator strikes an arc and turns back on when the arc is extinguished. The helmets also feature digital controls for intuitive shade, sensitivity, delay, and mode control, as well as 4C lens technology, 1/1/1/1 optical clarity, and a 9.3 sq. in viewing area.



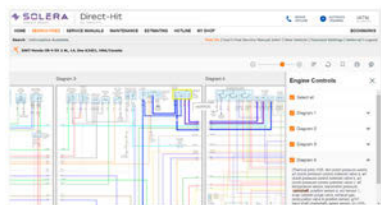
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## HAS 10 ADJUSTABLE POSITIONS

The **KNIPEX 4" Pliers Wrench XS, No. 86 04 100**, features 10 adjustable positions and one-handed quick adjustments, up to 3/4" gripping capacity. Texturized handles allow for ideal gripping, holding, pressing, and bending applications. The parallel jaws evenly distribute force for a secure grip, the smooth jaws will not mar surface finish, and the pinch guard prevents operators' fingers being pinched. Additionally, it offers a box-joint design for higher stability, and the compact design and slim head allows easy access to confined areas.

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## INCLUDES ENHANCED COLOR WIRING DIAGRAMS

The **Identifix Direct-Hit Auto Repair Software Update** includes intuitive color wiring features to bring an easier and more convenient experience to the technician-built vehicle repair database. Direct-Hit subscribers can now view multiple wiring diagrams side-by-side and all

at once, creating the ability to trace wires across multiple diagrams and identify all interacting wires throughout the related circuits simply by hovering or clicking a component. Technicians can also print multiple diagrams at once. Other enhanced features include updated navigation, ability to drag, move, and zoom display features for enhanced interaction, and one-click access to open diagrams in full-screen view on a new browser tab.

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**CUSTOMER REVIEW:**  
“These things are a complete game changer! Jaws stay parallel and are narrow enough to use in extremely small spaces. As short as they are, they're ridiculously maneuverable to boot!”



## DUAL RATCHETING DESIGN

The **Mac Tools 41-pc Dual Ratcheting Screw and Nut Driver Set, No. SBDR41SN**, features a 3-in-1 screwdriver, T-handle, and stubby for versatility. Its dual ratcheting design delivers speed and power. It has a 45-tooth ratchet for strength and reliability. The tool offers traditional ratcheting action for high-speed screw driving. Technicians can use as a power ratcheting T-handle for higher torque applications or use the removable stubby cap when access is limited.

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## FITS BETWEEN TANDEM TRUCK WHEELS

The **Ascot Supply 22-Ton Air/Hydraulic Truck Jack** contains a large air motor for a quick lifting experience. Its narrow chassis allows for fitting between tandem truck wheels, and its lift range accommodates between 10-1/2" and 21-1/8". The truck jack comes with three adapters in different sizes that cater to different working environments. The product is user friendly with smooth motion wheels and includes a one-year limited warranty.

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## SERVICES REAR AXLE HUB BEARING RETAINING NUT

The **CTA Manufacturing 12-pin Hub Nut Socket- RAM, No. 1212**, services rear axle hub bearing retaining nuts on heavy duty RAM trucks, and rear hubs with 12 pins on 2019+ RAM 3,500, 4,500, and 5,500 models (D2, DD, DP).

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**NEW PRODUCTS**



## TESTS ALL 12V LEAD-ACID BATTERIES

The **ATD Tools Battery Charging and Starting System Diagnostic Tester**, No. ATD-5494, is designed to test all 12V lead-acid batteries, including AGM and gel. It detects and alerts bad cells and surface charge and has a 100-1,700 CCA range. The tester also has a 5V to 33V operating range, 12V starter test with cranking voltage, 12V charging test with load and ripple test, and 24V starting and charging test in voltmeter mode. Additionally, the tool displays the battery capacity percent and a color-coded bar graph.

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## DELIVERS 600 FT-LBS OF MAXIMUM FASTENING TORQUE

The **DeWalt 20V Max XR 1/2" Mid-Range Impact Wrench with Hog Ring Anvil**, No. DCF891B, delivers 600 ft-lbs of maximum fastening torque and 800 ft-lbs of maximum breakaway torque. Designed to help prevent over-tightening in forward, and run-off in reverse, the wrench integrates a Precision Wrench setting to help optimize user control. Users can utilize the updated four-mode push button switch to easily transition speeds when needed. The impact wrench weighs less than 4 lbs (tool only), making it ideal for applications where high torque is needed in compact spaces. Also offers an on-tool LED worklight.

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**CUSTOMER REVIEW:**  
“This impact is fantastic for its size. This thing broke stuck bolts free with ease. It also fits into spaces better than the larger impacts.”

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- Full Bi-directional Controls
- Change/Set Parameters
- 2 Years FleetCross Troubleshooter included
- Years Free Software
- All Cables and Connectors included

OHVPRO



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- Change/Set Parameters
- Calibrate Hydraulics
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## NEW PRODUCTS



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### ENHANCES DURABILITY, CONTROL, AND COMFORT

The **Grease Monkey Gloves Dura-Knit Gloves** enhance durability, control, and comfort. Featuring a breathable fabric that provides 360-degree stretch, Dura-Knit is digitally optimized to mold to the hand for a second-skin fit and all-day comfort. The seamless back design eliminates failure points and uncomfortable seams while the grip-enhanced palm delivers the confidence and control to safely handle tools or small parts. An adjustable wrist strap provides a customized fit and keeps out debris. The gloves are touchscreen compatible and machine washable for enhanced longevity.

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**CUSTOMER REVIEW:**  
"I love the amount of superior grip you have while working on the car. You do not have to worry about slipping in wet conditions when using these gloves."



### INCLUDES 1", 3", 6" AND 10" EXTENSIONS

The **Toolsol 8-pc Removable Hex Bit/Square Drive Extension Set**, No. 1010894, from **LDS Industries** includes 1", 3", 6" and 10" extensions in both 1/4" and 3/8" drive sizes. The set enables removable bit use with standard hand and power ratchets. Magnetic retention allows for quick bit changes. The 3/8" drive extensions feature a durable powder coated black finish while the 1/4" drive extensions have a zinc finish. Also available as a 4-pc 1/4" Drive Set, No. 1010892 and 4-pc 3/8" Drive Set, No. 1010893.

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### WORKS WITH AN AIR COMPRESSOR

The **Kent Automotive Tornado Black** is designed to work with an air compressor to blast cleaning solution into crevices not reached by hand. The cone-shaped nozzle and oscillating tip create a tornado cleaning action that cleans hard and soft surfaces. It releases a fine mist of cleaning solution that doesn't over-saturate surfaces. Ideal for both interior and exterior jobs such as dashboard, door panels, steering wheel, fabric upholstery, carpet, floor mats, between seats and in seams, fabric convertible tops, body seams, detailing of wheels, and emblems.

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### THREE-WAY LIGHTING CAPABILITIES

The **Maxxeon LumaStik 10" and 12" Folding Inspection Lights**, Nos. MXN01010 and MXN01020, are rechargeable and offer three-way lighting capabilities for versatility, including: front and back flood-lights and spot-lights on the tips. The folding lights have integrated magnets, are made from durable, high-impact plastic and aluminum construction, and have LED charge indicators. LumaStik 10 emits up to 400 lm and measures 5.8" when folded. LumaStik 12 emits up to 800 lm and measures 6.3" when folded. Both lights include a type C USB charging cable.

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### WITHSTANDS PHYSICAL IMPACTS

The **Getac Technology Corporation X600 and X600 Pro Fully Rugged Mobile Workstations** are designed to enable users to achieve tasks quickly and efficiently, running the latest Windows 11 Pro operating system and featuring an Intel Core 11th gen i5/i7/i9 H-Series processor with integrated Intel UHD Graphics. They have a large 15.6" FHD display with optional capacitive 10-point touch, meaning it can be operated when cold, wet, or even while wearing gloves. Getac's proprietary LumiBond screen technology also delivers ideal color, contrast, and brightness (1,000 nits) making it easily readable, even in direct sunlight. Additionally, they can withstand physical impacts and dust intrusion.

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### 3-year warranty

» Accidents can take your equipment out of service when you least expect it, especially in a rugged environment, which can cause costly equipment downtime. That is why Getac has introduced accidental damage as standard under its Bumper-to-Bumper warranty, to help minimize enterprise IT costs. Bumper-to-Bumper is a hassle-free guarantee and your unit will be back in service within days.



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### INCLUDES A ZEUS DOCKING AND CHARGING STATION

The **Updated ZEUS Workstation** from **Snap-on** is now available in black and red to highlight the company's signature colors. The flip top workstation includes a ZEUS docking and charging station with a custom-fit organizer and space for a wireless keyboard and mouse, all stored safely in a lockable slide top. The 27" high-resolution touchscreen monitor has a tilting monitor bracket to get the right angle. The deep 12" drawer can accommodate a printer, while the two 3-1/2" drawers include organizers for standard and optional accessories, to maximize storage space. The updated cart provides the use of the ZEUS diagnostic and information system throughout the service bay.

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### DELIVERS 1,022 DEGREES F

The **Makita 18V LXT Lithium-Ion Cordless Heat Gun**, No. XGH01ZK, delivers 1,022 degrees F and 7 cfm of maximum air flow. The heat gun has a continuous run-time of 21 minutes and weighs 2.9 lbs. It features a trigger switch with lock-on and lock-off functions, an LED to illuminate the work area, a rubberized soft grip to increase user comfort, and a compact and ergonomic design at only 6-5/8" long. Compatible with various nozzle accessories for increased versatility.

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### REMOVES BROKEN EXHAUST MANIFOLD BOLTS ON FORD 3.5L ECOBOOST MOTORS

The **Lisle Corporation Manifold Drill Template for Ford 3.5L EcoBoost**, No. 72610, is designed to remove broken exhaust manifold bolts on Ford 3.5L EcoBoost motors without damaging the cylinder head. The tapered bolts center the base plate over the bolt holes and the slip fit bushing allows the user to move from hole to hole without moving the base plate. The screw extractor is used to remove the broken bolt. The template includes bushing to drill to tap size for when the extractor cannot be used.

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### SECURELY SUPPORTS 2,400 LBS

The **Bendpak EV2400SL** is an EV battery pack and powertrain lifting system. The compact and portable unit rides on proprietary zero-throw casters on all four corners that provide low rolling resistance and maneuverability. The EV2400SL elevates to more than 6' in less than 20 seconds. It supports 2,400 lbs on its oversized 40" by 60" cushioned rubber platform. Adjustable screwjacks on each corner provide effortless pitch and roll adjustments for more precise alignment of high-voltage batteries, engine and drivetrain assemblies, fuel tanks, and more.

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Watch this product in action here:  
[VehicleServicePros.com/21273340](https://www.VehicleServicePros.com/21273340)



### LITHIUM-POWERED, PORTABLE WELDER

The **Vanair EPEQ Welder140** is a 140A CC stick welder that offers clean, quiet operation. Weighing 34 lbs, the cordless welder is designed to be portable. It measures 18.3" in length, 7.6" in width, and 14.9" in height. It's powered by a Li-ion battery for convenience and mobility. The EPEQ Welder140 features a built-in high power constant-current and constant-voltage charging unit for fast charging, hot start for easier welding, high accuracy display for current, easy-to-read LED display, and is user friendly for quick repair jobs. It also has built-in safety features, including over charge, overload, and over discharge protection.

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### FEATURES

- Li-ion battery replaces AC power supply for convenience and mobility
- Built-in high power constant-current and constant-voltage charging unit for fast charging
- Ergonomic handle and weight balance design for easy carrying
- Hot start for easier welding
- High accuracy display for current
- Easy to read LED display
- Waterproof, dust-proof, and shock-proof
- Rugged and durable battery pack



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## NEW PRODUCTS



### REINFORCED CHROME VANADIUM STEEL SOCKETS

The **OEMTOOLS 13-pc Tamper Proof Star Bit Socket Set**, No. 22710, comes in many star bit sizes, including the (1/4" drive) T8, T10, T15, T20, T25, T27, T30, (3/8" drive) T40, T45, T47, T50, T55, and (1/2" drive) T60. The hard wearing bits are made of heat-treated alloy steel while the reinforced chrome vanadium steel sockets are designed to give users extra turning power. The bits have been treated with zinc oxide to prevent rust and corrosion. The socket set exceeds ANSI standards and comes in a sturdy blow molded case for convenient and organized storage.

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### FEATURES TWO SETS OF JAWS

The **Ken-Tool Multi-Purpose Vise** features two sets of jaws for fast clamping on workpieces. The 5" wide jaws are made of No. 45 carbon steel, heat treated with precision machined jaw teeth. They provide a solid grip on pipe or square stock. Its main screw system is a U-shaped collar designed for a stronger clamping force and durability. The head of this vise rotates 360-degrees, along with a 360-degree swivel base. The gear-type locking system with double lock-down bolts locks the vise securely in position.

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### MAGNETIC BASE ALLOWS FOR HANDSFREE USAGE

The **K-Tool International 650 1m COB Wireless Inductive Charging Work Light**, No. KTIXD5534, is a dual mode light that uses COB technology to provide a clear, bright light with a wide illuminated area. The magnetic base allows for flexible, handsfree usage.

When there is no magnetic surface available, users can pull out a rotating hook to hang the light. The light can be charged using the company's KTIXD5523 wireless charger (inductive charger not included). The worklight measures 8" in length. The front light emits 650 lm while the top light emits 80 lm. Includes USB Type C cable.

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### MEASURES 5-1/2" IN LENGTH

The **Mayhew Tools Mini Pry Bar Set**, No. 31092, features both a curved and straight blade option. Measuring 5.5", both pry bars are ideal for working in tight spaces, providing leverage in close quarters. Each pry bar offers an ergonomic handle, designed for comfort and a secure grip. Made from high tensile strength Nylon 6 material, the handles are able to withstand abrasions and damage. A hardened and tempered alloy steel shaft runs from the prying edge straight through the handle for maximum durability and prying power. Made in the U.S.A.

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### **Snap-on** Mini Right Angle Air Drill

The **Snap-on Mini Right Angle Air Drill**, No. PDR2005, is designed to allow technicians to access hard-to-reach areas quickly and more accurately. The variable-speed trigger provides optimal drilling speed control and smooth operation for high performance, plus an added degree of accuracy when precise drilling is critical. Weighing only 1.45 lbs, this compact air drill is small enough for technicians to tackle work in cramped compartments, while providing ideal power and durability.

**CATEGORY: Air Tools**

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### **ESAB Welding & Cutting** EMP 210

The **ESAB EMP 210 MIG/Stick/TIG Welder** is lightweight and offers dual-voltage input power flexibility, offering ideal portability for around the shop. The multi-process MIG/flux cored/stick/lift TIG welding system has a 10-200A output, a stable Lift TIG arc at low amperage for finesse welds, and the power to run Stick electrodes up to 5/32", including 7018. Additionally, it features a large easy-to-read LED display with digital controls for fast and accurate operation and can run off a generator with a 10 kVA output.

**CATEGORY: Welding**

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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 2022, **PTEN** received 121 submitted product entries in 23 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/2022IAWinners](http://VehicleServicePros.com/2022IAWinners).



### **Mayhew Tools** Low Profile Screwdrivers

The **Mayhew Tools Low Profile Screwdrivers**, Nos. 16990, 16991, and 16992, include a #1 Phillips, a #2 Phillips, and a slotted tip. The low-profile design provides ideal performance in hard-to-reach areas, while still affording full engagement to the screw at a 90-degree angle. The 10mm alloy steel bit is compact to reach into space limiting areas, while still affording full engagement to the screw at a 90-degree angle. The tools measure 4.25" in overall length and have a contoured handle that fits securely in the palm of the hand to provide a comfortable and reliable grip. The handles have been heat treated to enhance the tool's durability and strength.

**CATEGORY: Hand Tools**

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### **Lawson Products** Torrent Parts Washer

The **Lawson Products Torrent Parts Washer** combines the triple-action cleaning power of heat, chemistry, and pressure. It uses a water-based, solvent-free surfactant blend, reducing employee risk while cleaning 90 percent of parts within one minute, according to the company. The aqueous cleaning solution is heated to 131 degrees F, activating the aqueous cleaners and loosening oils and greases. The cleaning chemistry produces zero VOCs and leaves behind a rust inhibitor for maximum protection of parts. Then, tough deposits are blasted away by pressure. A notable feature is that the pressure and solution can be directed by the user where needed.

**CATEGORY: Shop Equipment**

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### Shadow Tool Company

#### Shadow Tool Staging System TSS 6.5

The **Shadow Tool Staging System TSS 6.5** is designed to simplify tool selection/return, saving technicians on time and reducing physical motions while making tool inventory control simple. The TSS 6.5 openly presents tools in dedicated positions, allowing visual cues and barrier-free tool selection. The compact system measures 6'5" height by 30" depth by 36" width and sits on 8" wheels. The unit expands with large panels sliding out to 90" in width, exposing shelves, custom accessories, power (110, USB, 12V), battery charging drawer, plus laptop mounting options. It was designed to speed repair times, track tools easily, and reduce mechanic fatigue to help increase bottom line profits.

**CATEGORY: Tool Storage**

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### Hunter Engineering

#### BL Brake Lathe Tablet

The **Hunter Engineering BL Series Bench Lathe Tablet** enables operators to look up the vehicle and access the specifications immediately. The tablet then calculates the distance between the cutting bits on the lathe and compares it live to the specifications, signaling the operator if the rotor or drum is safe to resurface. With a user-friendly display and multilingual interface, the tablet provides information on the depth of cuts, speeds and settings, as well as data such as bore size, lug nut torque and stud type, onboard training videos, text, and animations. After a certain number of cuts, the BitMinder function reminds the user when it's time to rotate the bits.

**CATEGORY: Brake Service**

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### Autel

#### MaxiSYS MS909CV

The **Autel MaxiSYS MS909CV Commercial Vehicle Diagnostics Tablet** is compatible with more than 80 models of light, medium, and heavy duty vehicles. With a 9.7" wireless, Android-based touchscreen, it performs extensive diagnostics, including the ability to read/erase codes, view and graph live data, and perform active tests. The tablet includes a Bluetooth-enabled VCI/J2534 Pass-Thru programmer, MaxiBAS B200 battery starting/charging system test device, and a multimeter. The tablet also includes ADAS calibration software for Class 3 to 5 vehicles and Class 6 to 8 vehicles with dynamically calibrated systems. The MS909CV includes one year of free software updates.

**CATEGORY: Heavy Duty Scan Tools**

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# 2022 WINNERS



## OTC

### CA7149 Ball Joint Connected Adapter Starter Kit

The **OTC CA7149 Connected Adapter Ball Joint Starter Kit** includes seven connected cups and adapters for use on more than 235 vehicle models as well as a 17-page application manual with vehicle application by year, make, model, and adapters needed for both removal and installation. The CA7149 kit also includes a patent-pending secure-click, extra-large 9" by 2-3/4" C-frame for cars, trucks and SUVs up to F-550/5500 series, making it easier to setup, remove, and install ball joints, U-joints, wheel studs, heavy duty wheel studs, and more. Additionally, the kit features an impact-rated forcing screw with proprietary coating for durability and long life, a flat-top forcing screw plug, and a connected adapter forcing screw plug.

**CATEGORY: Specialty Tools**

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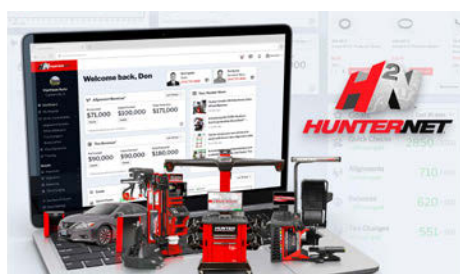
## Snap-on

### TRITON-D10

The **Snap-on TRITON-D10** scan and scope tool is ideal for shop owners and general technicians that need scope functionality, intuitive diagnostic testing, and system verification from a single source for more all-around certainty, even on complex repairs. TRITON-D10 allows users to dig deep into vehicle systems and evaluates performance with comparative data, and Snap-on's Fast-Track Intelligent Diagnostics helps to streamline the diagnostic process. In addition, the tool features rugged hardware designed specifically for the shop, fast two second boot-up, and a 10" capacitive touch-screen display.

**CATEGORY: Automotive Scan Tools**

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## Hunter Engineering

### HunterNet 2 Multi-Store View

The **HunterNet 2 Multi-Store View** from **Hunter Engineering** is designed for undercar service operators with multiple rooftops. It allows operators to access actionable performance data for all their Hunter-connected equipment from across the entire organization, in one place, from anywhere, at any time. Managers can analyze trends and

rank all the stores in their network by individual activities such as alignments or number of tires changed, as well as track equipment ROI in real-time. Shops can also view all Hunter assets by age, and thereby plan for capital investments across the network. Additionally, organizations may also easily compare opportunities from inspections verse actual services performed, such as alignments, tire changes, balances, and brake work.

**CATEGORY: Automotive Software**

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CATEGORY: ADAS

## ALLDATA receives 2022 PTEN Innovation Award for ADAS Quick Reference

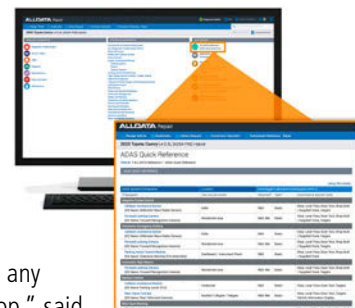
**A**LLDATA's latest update added an ADAS Quick Reference tool to its flagship OEM repair information products. It gives users one-click access to vehicle-specific ADAS information in ALLDATA Repair® or ALLDATA Collision®.

### How ADAS Quick Reference works

The ADAS Quick Reference tool links directly to the ADAS system or component by name, such as Backup Camera or Lane Departure System. It also provides the location of the component, identifies removal/replacement requirements that could result in extra labor for calibration or sublet costs, and displays basic calibration information, required tools, and prerequisites for servicing ADAS components.

"With a range of ADAS now standard on new vehicles, it's critical that service writers and technicians be prepared for any vehicle that comes into their shop," said Satwinder Mangat, president, ALLDATA.

"We are honored to receive the PTEN Innovation Award for our new ADAS Quick Reference tool, as well as our second PTEN Innovation Award in training for the Instructor Toolkit, a turnkey curriculum resource for CTE educators." ■



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JUDGE'S COMMENT, 2022 PTEN INNOVATION AWARDS



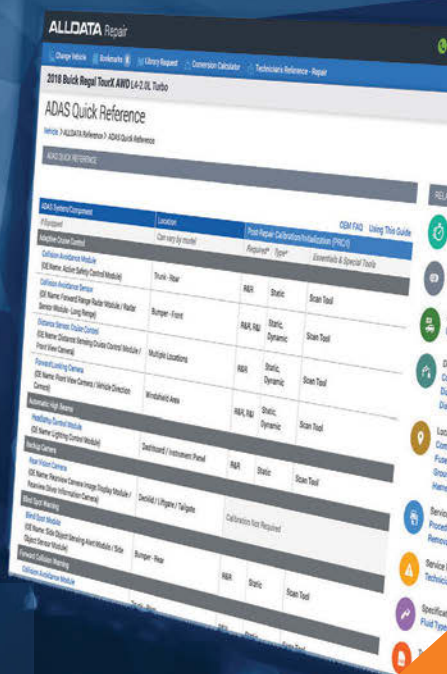
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## Launch Tech BST360 Battery Tester

The **Launch Tech BST360 Battery Tester** is a Bluetooth-enabled battery detection tester. It features depicting battery health and an overall indicator of the vehicles starting and charging system, enabling the user to identify charging system issues accurately and timely. With Bluetooth technology, the tester is portable and able to sync with smartphones and Launch Tech diagnostic scan tools.

**CATEGORY: Diagnostic Equipment**

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## Snap-on Phantom Auto-Darkening Welding Helmet with Light

The **Snap-on Phantom Auto-Darkening Welding Helmet with Light**, No. WELDIGNPHNTM, features a compact design to fit into tighter workspaces and offers a 180-degree viewing area with 10 peripheral-vision enhancing side lenses. The helmet's true color technology is brightened with a multi-function, pivoting, flip-out light that can be used when the helmet is raised or lowered and fully integrates into the contour of the helmet when not in use. Extra-large, four-sensor ADF is solar-powered with a lithium battery back-up and a patented user-friendly, quick-adjust push button ensures welders have a comfortable fit.

**CATEGORY: Safety & Personal Gear**

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## Ingersoll Rand 1" Cordless Impact Wrench, No. W9691

The **Ingersoll Rand 1" Cordless Impact Wrench**, No. W9691, is designed to increase safety and productivity with cordless mobility eliminating hoses and tripping hazards. It features a brushless motor, 3,000 lbs of torque and an IP56 rating. The IQV20 batteries perform up to 250 bolt removals and installations in a single charge. An ergonomic D-handle with a 360-degree auxiliary rotates fully around the tool as the job demands. It also features a 6" anvil to provide additional flexibility. Full-power reverse, and three additional power modes allow for greater control, preventing over-tightening and stripping.

**CATEGORY: Power Tools**

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## ANSED Diagnostic Solutions HD DIGITAL VIDEO SCOPE KIT w/ 6mm ARTICULATION PROBE

The **ANSED Diagnostic Solutions Hi-Res Digital Video Scope Kit with 6mm Articulation Probe**, No. DVSK-60ART, features a 6mm diameter articulation imaging probe that lets the user look back up to 180 degrees, making it ideal for any engine work. The videoscope is flexible, allowing users to monitor, capture, and inspect hard-to-reach spaces and cavities. The video monitor supports 13 languages, offers a 3.5" full view IPS LCD display, and has a solid rubber boot protector for shock resistance. The DVSK-60ART kit also contains an 8G SD mini card, USB cable for charging, user manual, and a hard-shell plastic carrying case.

**CATEGORY: Inspection**

**Tools & Lab Scopes**

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CATEGORY: TIRE & WHEEL SERVICE



## Take Control Of Your Business

**In this issue, you'll discover Hunter Engineering products that have been honored with 2022 PTEN Innovation Awards.**

The winning entries have a number of qualities in common, such as ease of use and a focus on productivity and profitability. What they also have in common is that they're all connected by one of the entries itself: the "equipment intelligence" of HunterNet<sup>®</sup> 2.

HunterNet<sup>®</sup> 2 is a free customer portal that automatically provides shop owners with business intelligence for all their Hunter-connected equipment, whether a single location or multiple rooftops. Managers can analyze trends, formulate goals, receive daily reports, track return on investment, contact their local Hunter team, order consumables 24/7, view training videos and much more.

In this way, managers can monitor everything happening in their business, from anywhere, at any time.

For example, with the Revolution<sup>(TM)</sup> tire changer, shops can keep easy count of the number of tires changed, measure shop activity and productivity, and note trends over any period of time across the entire organization. Before and after images of the wheel and tire are automatically stored, along with inflation pressure, service time and any special procedures used.

Managers can compare tire inspection opportunities with tire services actually performed to help drive rapid, maximum ROI.

With such a wealth of data, the centerpiece of the HunterNet<sup>®</sup> 2 portal is the same as the other Innovation contest entries: performance. Analyzing your data enables you to visualize success, plan for success, and then measure success. That's equipment intelligence, and that's HunterNet<sup>®</sup> 2. ■

### Hunter Engineering

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[hunter.com/hn2](http://hunter.com/hn2)

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# How intelligent is your equipment?

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# BST360

## BLUETOOTH BATTERY TESTER

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- Compatible with a full series of X-431 diagnostic tablets.



### 6 TYPES OF BATTERY TESTS



CONNECT VIA



# 2022 WINNERS



### **Hunter Engineering** **Collision Alignment System**

The **Collision Alignment System** from **Hunter Engineering Company** features a diagnostic workflow designed specifically for collision shops. At the heart of the Collision Alignment System is Hunter's WinAlign17 software. Collision Alignment automatically guides the technician through a workflow of five essential diagnostic measurements, blueprinting the full alignment before work begins. The five measurements are toe out on turn, maximum steer, ride height, suspension body dimension audit, and steering axis inclination.

**CATEGORY: Body Shop**

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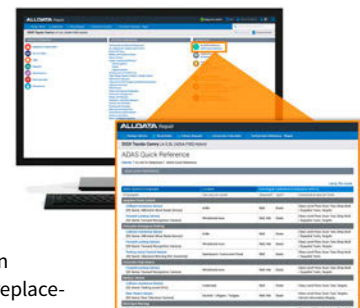
### **ALLDATA**

#### **ALLDATA Repair and Collision Update**

The latest **ALLDATA Repair and Collision Update** added the ADAS Quick Reference tool to its OEM repair information products. By clicking on ADAS Quick Reference, users are now taken to vehicle-specific ADAS information in ALLDATA Repair or ALLDATA Collision. The quick reference features links directly to the ADAS system/component by name, provides the location of the component that may have been damaged in a collision, identifies component removal/replacement that could result in extra labor for calibration or sublet costs based on procedure complexity, and includes basic calibration information, required tools, and prerequisites for servicing ADAS components.

**CATEGORY: ADAS**

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### **E-XTEQ**

#### **BC512 Battery Charger**

The **E-XTEQ BC512 Battery Charger** is an automatic 12V/50A charge, quick diagnostic, and maintaining solution for 12V lead, AGM, gel, Li-ion, and EFB batteries. It possesses a user-friendly monochrome display with LED indicators and is encapsulated within a silicone protective shell for increased durability. The software is easily upgraded via Optimus computer program which is linked to Argos cloud based system. It can be utilized in many different formats such as during PDI and UCI, automotive showrooms in maintaining mode as well as power supply mode for ECU reflash.

**CATEGORY: Battery Starting & Charging**

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### Snap-on

#### EEAC334B Polartek Dual AC Machine

The **Snap-on Polartek Dual AC Machine**, No. EEAC334B, is able to measure both R-134a and R-1234yf refrigerants with a simple push of a button. The unit handles both refrigerants with dedicated 30-lb tanks, removing the risk of cross-contamination and making it easy to get repeatable and accurate results without doubling work or cost. The machine's built-in Wi-Fi capabilities and graphic touchscreen enable technicians to efficiently maneuver through selections and a large status light helps monitor progress from afar while completing other tasks.

**CATEGORY: Air Conditioning Service**

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### Milwaukee Tool M12 Underbody Light

The **Milwaukee Tool M12 Underbody Light**, No. 2126-20, offers a complete handsfree lighting solution, featuring a magnetic base for easy mounting and a 12" magnetic extended arm to hold loose nuts and bolts. This light adapts to the user's needs with a rotating arm and light head to provide complete undercarriage lighting coverage. Dual joints allow the light head to swivel 300 degrees horizontally and up to 180 degrees vertically for maneuverability. The M12 Underbody Light delivers 1,200 lm of TRUEVIEW high-definition output for full visibility.

**CATEGORY: Lighting**

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### Carlyle Tools by NAPA 10mm Lock-A-Socket

The **Carlyle Tools 10mm Lock-A-Socket** is designed to keep 10mm sockets secure in one place. The rail holds 10 sockets, with five 1/4" posts and five 3/8" posts. The underside contains a full-length, high-powered magnet that allows the user to store their 10mm Lock-A-Socket on most metal surfaces without scratching the paint. Simply twist the socket to the right to lock the socket in place, and twist to the left to unlock the socket. The unit measures 11.5" in length, 1.5" in width, and 1.25" in height.

**CATEGORY: Tool Organization**

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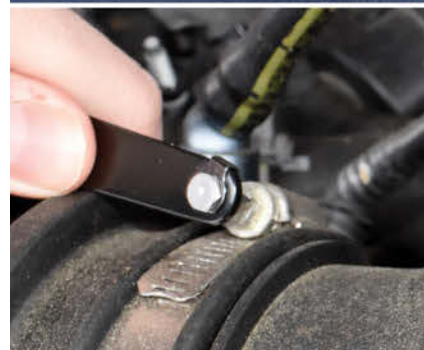
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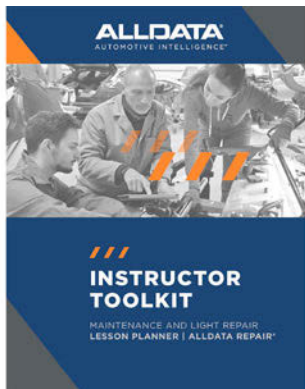
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# 2022 WINNERS



## **ALLDATA** Instructor Toolkit

The **ALLDATA Instructor Toolkit** is a resource for automotive and collision career and technical education (CTE) programs. The Instructor Toolkit was developed in partnership with the ASE Education Foundation and aligns 100 percent with ASE standards. The toolkit includes clear, step-by-step instructions, goals, and objectives; tasks for students that mirror the Task List at the end of the ASE Standards guide;

and vehicle examples (specific to year/make/model/engine) and navigation path to the required information.

**CATEGORY: Training**

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## **Hunter Engineering** Revolution Tire Changer with HunterNet 2 Connectivity

The **Hunter Engineering Revolution Tire Changer with HunterNet 2 Connectivity** allows shops to keep convenient count of the number of tires changed, measure shop activity and productivity, and note trends over any period of time. Before and after images of the wheel and tire are automatically

stored, along with inflation pressure, service time and any special procedures used, such as WalkAway or bead massage. Technicians can also make notes and enter vehicle details. Managers are able to compare tire inspection opportunities with tire services actually performed to help drive rapid, maximum ROI.

**CATEGORY: Tire & Wheel Service**

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## **CARLYLE** **TOOLS** by **NAPA**

### 10mm Lock-A-Socket, LAS10C



The **Carlyle Tools 10mm Lock-A-Socket** is designed to keep 10mm sockets secure in one place. The rail holds 10 sockets, with five 1/4" posts and five 3/8" posts. The underside contains a full-length, high-powered magnet that allows the user to store their 10mm Lock-A-Socket on most metal surfaces without scratching the paint. Simply twist the socket to the right to lock the socket in place, and twist to the left to unlock the socket. The unit measures 11.5" in length, 1.5" in width, and 1.25" in height.

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## **Snap-on** SODC1 Soldering Clamp

The **Snap-on Soldering Clamp**, No. SODC1, features a small design, allowing it to fit into tight spaces so technicians can use both hands to solder without the worry of misaligned and shaky wires. The lightweight aluminum tool won't tug on wires and two spring-loaded clamps offer a wide range wire capacity from 22 to 8 gauge, says the company. The convenient, nearby thumbwheel offers quick loading, unloading, and adjustments while precisely bringing wire ends together.


**CATEGORY: Tool Accessories**

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# Programming services: How to use the tools you have

Should we program a module just because it has an available update?

By **Scott Brown**, Technical Editor

 <b>INFINITI®</b>		<b>SERVICE BULLETIN</b>
<b>Classification:</b>	<b>Reference:</b>	<small>COPYRIGHT © NISSAN NORTH AMERICA</small> <b>Date:</b>
EC12-010f	ITB12-026f	March 15, 2016
<b>MIL ON WITH DTC P0106 STORED</b>		
<p><b>This bulletin has been amended to edit the part numbers in Table A on page 5 and remove 2010 G37 Convertible from Applied vehicles. No other changes have been made. Please discard all previous versions of this bulletin.</b></p>		
<b>APPLIED VEHICLES:</b>	2010-2012 FX50 (S51) 2010-2012 G37 Sedan (V36) 2010-2012 G37 Coupe (CV36) 2011-2012 G37 Convertible (HV36) 2011-2012 M37 and M56 (Y51) 2011-2012 QX56 (Z62)	

▲ **Figure 1- Nissan TSB**

**A**lmost all the vehicles in the fleet today will at some point require module programming. Whether it's because of a replacement component, or a software update to correct an issue, programming operations cannot be ignored. If you're in a multi car line shop, there may be situations where it's best to leave certain car lines up to a specialist, especially when looking at higher end European vehicles.


Additionally, there are so many variables at play that one can easily dig themselves a big hole if they're not following the proper procedures and using the proper equipment. I'm not necessarily talking about the procedures written in the service manual, I'm talking about procedures that are learned through knowledge and experience gained by those handling these program operations routinely.

Therefore, it's good practice to maintain a high level of situational awareness through networking with fellow professional

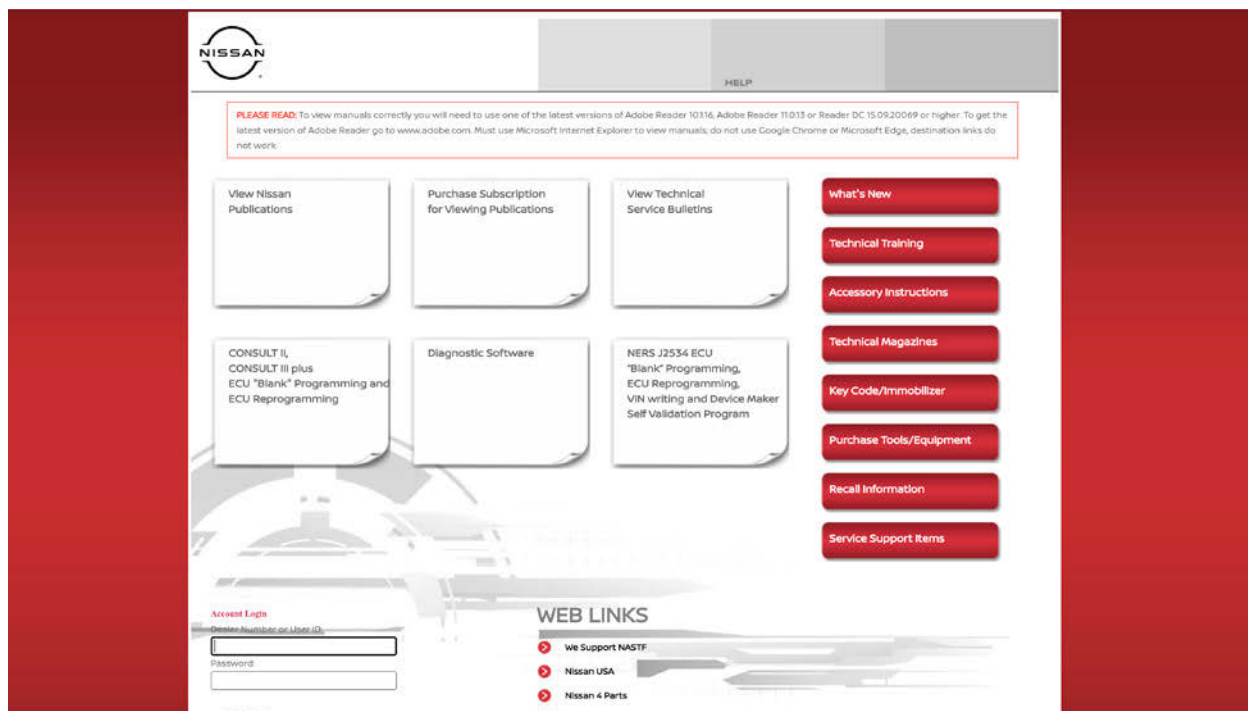
networks like the Diagnostic Network and trade associations. I know first-hand how shared knowledge and experience can result in a positive result when undertaking new tasks like module programming.

So, onto the why, when, and how.

Why would somebody want to consider doing programming services within the shop? Well, you may be faced with a diagnostic situation where a diagnostic trouble code leads to a technical service bulletin (TSB) outlining the symptoms that you're dealing with. Within that TSB you might end up being required to reprogram a module in order to solve for that situation. For example, we recently had a 2012 Infiniti GX70 that had his service bulletin related to a manifold absolute pressure plausibility signal issue. The technician discovered the TSB and read through it carefully to make sure the current software versions in the vehicle matched those outlined in the TSB (**Figure 1**).

Based on that information, we logged into our Nissan Tech Info account and placed an order for that calibration file. Since 





▲ Figure 2- Nissan Tech Information

we perform services on many Nissan and Infiniti automobiles, we had already purchased the programming software package to perform J2534 reprogramming operations on these vehicles (Figure 2).

Using this software on a properly equipped Windows PC and a certified J2534 device (Figure 3), one can perform programming operations on model years 1999 to the current model year. We have multiple devices and for Nissan, we're using the Mongoose Nissan interface from Drew Technologies. Today, the software application costs \$350, and the current expiration date is 2100.

Once we performed the look up for this vehicle by using the current software ID, we were presented with a file we needed to purchase for a nominal fee (less than \$50). Once we completed the purchase, we were able to download the file and perform the extraction which resulted in placing the binary file in the appropriate folder, so the J2534 reprogramming applications could easily find it.

From there, we connected our battery support system (Figure 4). We have several including the Associated Equipment ESS6100, along with the Pro-Logix PL6100 from Clore Automotive, an IOTA DLS-75, and others (which we also use for diagnostics).



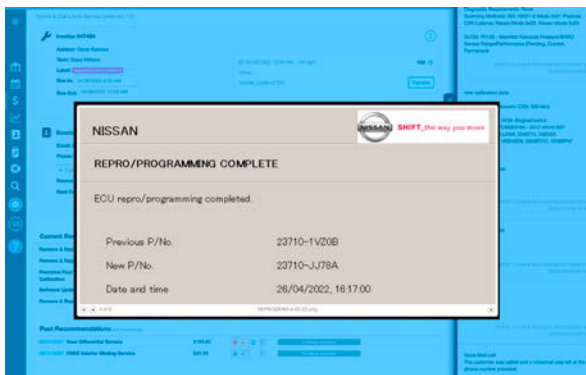
▲ Figure 3- The three programming interfaces: L-R Mongoose Nissan, GM MDI2, and CardAQ Plus 3

We then followed through with the required programming steps to get the software updated.

In my opinion, there are a couple of things you may want to do before you execute on such an operation. Collect the appropriate data stored within the vehicle, such as calibration ID numbers, and DTCs at a minimum and place them within your service ticket (Figure 5). This can come in handy if you need to refer to this sometime in the future. The software update on this vehicle took approximately 18 minutes to complete; you want to be sure to have the proper energy support system in place. ➡



▲ **Figure 4- Programming battery support - Associated Equipment ESS6100**



▲ **Figure 5- Programming confirmation**

Should we program a module just because it has an available update? I reached out to my mobile diagnostic services colleague Tanner Brandt, who owns Auto Diag Clinic in Greenville, N.C. for his input. He states he will only update a module if there is a bulletin for the present vehicle and symptoms, or if the update states it covers something the vehicle operator is complaining about or whenever a replacement module is being installed.

My opinion on the matter is like Brandt's, but I'd have to quote my long-time technician colleague Jonathan Riggle: "It depends." There is a possibility of creating a new problem if you were to update the software on a module without doing the research beforehand. In some cases, drivability characteristics can drastically change.

For example, the transmission may be shifting much differently than it did before after a software update, and if you did this without addressing any complaints on the vehicle, you may be in a difficult situation explaining to your customer their vehicle now behaves differently than before, and they'll have to live with it. In that example, the software update may have been established to correct for an engineering deficiency as a result of a compromise being made to make the vehicle behave properly. In other situations, you may be dealing with a diagnostic dilemma that seems unsolvable, and it may make sense to make sure all the modules are operating at the latest levels just in case there is an undocumented bug fix that might be the key to solving the problem at hand. ➡

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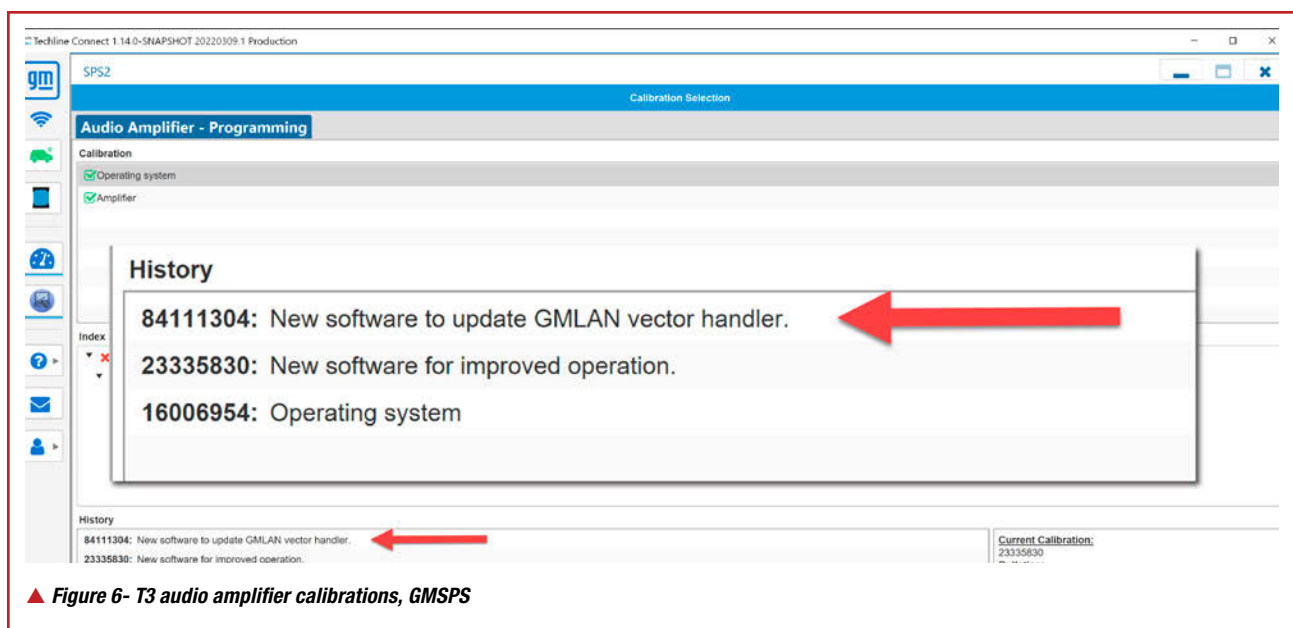
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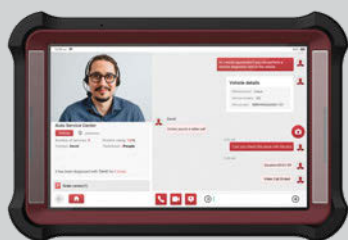


For example, I recently had a 2017 Cadillac that would randomly exhibit a loss of radio control head display, along with the instrument cluster going dark, along with several low speed (SWCAN) network DTCs. What I believe was happening was there was a network communication problem during startup on this vehicle. After checking pin fitments on every module, and power supply voltage circuit integrity, I kept looking at the

modules on this bus and took a deeper look at the programming version levels.

I found a software update applicable to the audio amplifier with a note stating, “New software to update GMLAN vector handler” (Figure 6). Here, I figured I was onto something, but I really had no idea what this “CAN vector handler” was going to do, but I figured I would go ahead and perform the update. ➡

## RELATED PRODUCTS



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**Matco Tools**  
RapAssist, No. MDRAPASSIST  
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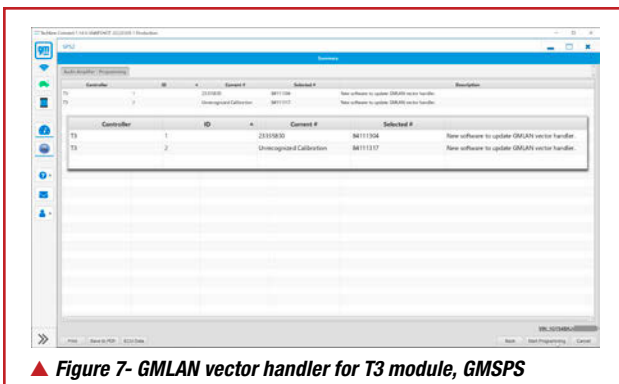
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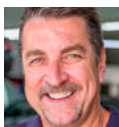
▲ Figure 7- GMLAN vector handler for T3 module, GMSPS

When I went to proceed, the following screen revealed there were two software items that were being addressed with the same statement offered above (Figure 7). Once I completed that software update, the symptoms the vehicle used to randomly exhibit never reappeared, even after two days of multiple startup and road test events.

## THE ESSENTIALS

For the most part, OEMs offer their J2534 programming software for the Windows PCs. You'll need to review the software and hardware minimum requirements for each manufacturer. If you have a tablet-based scan tool that runs something other than Windows (Android), you will not be able to download and run the application on that device. If you're considering running several manufacturers on the same machine, you might want to consult with someone who's done this.

You may be advised to partition your hard drive to run separate instances of Windows because a specific manufacturer's software may conflict with others. Some manufacturers require a lengthy sign-up process that may take a week or so to get approved. The National Automotive Service Taskforce is a great place to find out more about the manufacturer you're thinking about partnering up with to perform factory-level reprogramming operations. Additionally, you may want to consider obtaining a security credential from NASTF since you'll likely find a security related challenge during programming, and this is a great way to remove some friction from your workflow down the road. Finally, if you're new to programming, don't fear it, look for training on this topic and get yourself up to speed. ❌



**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 is retired as company president in 2018.

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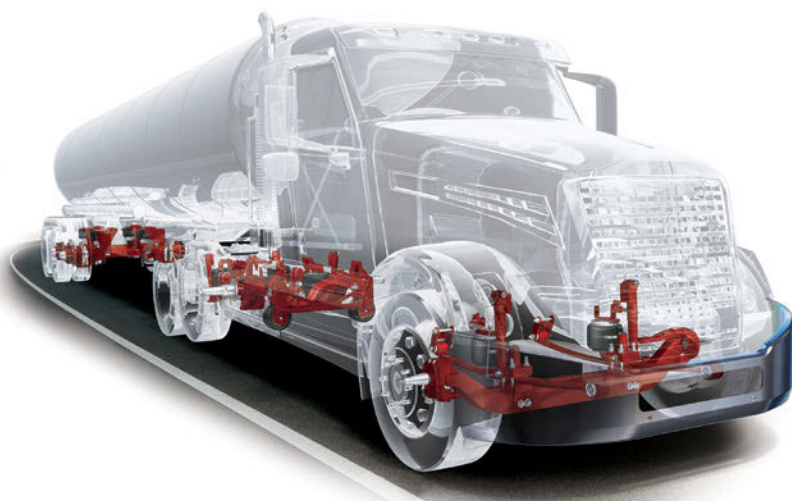
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# The ups and downs of air suspension

We take a look at the components, issues, and fixes.

By Mike Mavrigian, Contributing Editor



*Hendricks glass tanker air suspension*  
Courtesy of Hendricks

**A** vehicle's suspension system features springs and dampers (shocks). The spring supports vehicle weight and determines ride height. The dampers (shocks and struts) provide control of the springs, dampening compression and rebound.

Coil or leaf springs provide non-adjustable support. When overloaded with additional weight, the springs compress and, depending on the amount of weight (fore/aft or lateral), reduce ride height. Air suspensions utilize inflatable airbags, in addition to or in place of steel springs. The addition of rear "air shocks" allowed owners to compensate for rear weight by simply swapping out the original shock absorbers with shocks that incorporate built-in airbags (Figure 1).

Today, many vehicle manufacturers offer air suspension systems (either as standard or an option) that replace steel springs with strut-style air spring/damper units (pneumatic). These are controlled by an on-board

air compressor and control modules, regulating ride height on demand (either by driver selection or automatically, depending on design). So when a vehicle owner loads the rear of a Dodge Ram or Chevy Suburban (for example), if the vehicle is equipped with air suspension, the ride height sensors detect

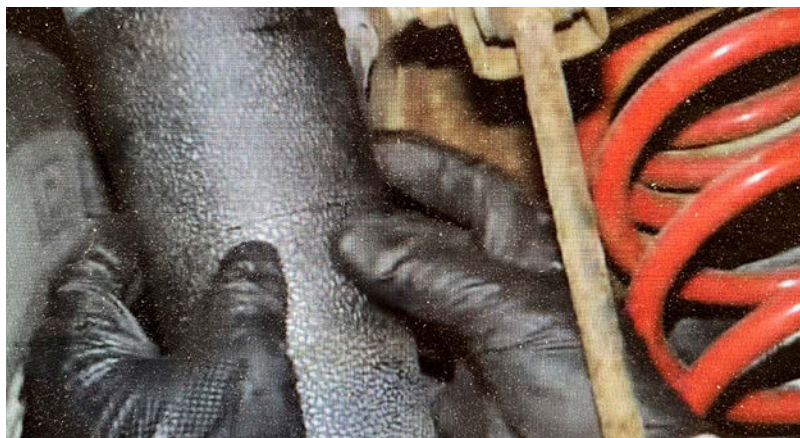
the change in ride height (Figure 2); the control module commands the compressor to activate, providing additional inflation pressure to the air springs; and the rear ride height is restored to original specs.

## SYSTEM COMPONENTS

The air suspension compressor supplies the entire system with compressed air to inflate the air spring and is generally mounted on the vehicle's frame or in the trunk. The compressor assembly consists of an electronic pump; a dryer filled with a desiccant to absorb moisture; mounting hardware, including rubber isolators and brackets; and thermal overload protection to help prevent the unit from overheating (burn-out) due to overuse.

Burn-out is normally caused by a small leak in one or more of the air springs, or less commonly, other components that cause the compressor to continually cycle in its effort to maintain the proper vehicle ride height. Signs of compressor failure include symptoms such as longer run-time, a louder noise when activated, or dashboard warning lights. They alert the driver and repair shop to trouble and signal that underlying issues will need to be fixed. Compressor warranties are often voided when burnout is indicated. Here are system components:

**Air lines:** They carry compressed air to the air springs or air shocks. The lines are typically high-pressure air lines and are routed along the frame of the vehicle protected from heat and pinch points. ➔



▲ **Figure 1—Inspect air bag condition.** Brittleness, cracks, and/or road debris damage can result in leaks, which cause the compressor to overwork and overheat.

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- DVOMS
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**Valve blocks:** They allow air to enter the system. Valves isolate and control where air is directed and how. While valve blocks are rugged, air line fittings have rubber seals that might dry rot and fail, causing damage to the rest of the valve block.

**Solenoids:** They are used in electronically controlled air suspension systems to fill and release air from each air spring.

**Control module:** Electronic air suspension systems are managed through a control module. The controlling software can be very basic, offering not much more than an analog on/off switch, or it may be more sophisticated, monitoring pressure and ride height in real time.

## DIAGNOSING AND FIXING AIR SUSPENSION PROBLEMS

Many consumers miss the early warning signs of an air suspension issue. Unfortunately, these problems only get worse and more expensive over time. The main signs of air suspension problems include:

The dashboard warning light. One of the obvious signs of an air suspension problem is when a dashboard warning light comes on. Even if the light doesn't stay on, the vehicle should be checked. Using a capable scan tool (with adequate

software) should be enough to allow for proper initial analysis.

**Suspension sagging.** One of the first signs of an air suspension problem is when a car sags in a corner or entire side. Typically, this is due to the rubber air spring developing tiny cracks or holes because of dry rot or road debris. If a customer notes that their vehicle drops in height overnight or after they park, they most likely have leaks in their air spring or strut. Leaks can be easy to detect but can also be difficult. Utilizing a scan tool (for bidirectional control) to isolate portions of the system should allow you

to focus on an area of the system where a leak is present. Using a soapy solution of water in a spray bottle will allow you to pinpoint the exact leak location. A popular approach to finding these tiny leaks is by using a combination of CO2 gas and a leak detection system, such as the BullsEye Leak Detector from Automotive Test Solutions (**Figure 3**).

Air suspension compressor constantly working. If there is damage to the air springs, the compressor will constantly be pumping air to keep the air bladders inflated. If the compressor is constantly running, the system should be examined as soon as ➔



▲ **Figure 2—** Ride height sensors may be adjustable for rod length. When replacing, measure the original as a reference. If original sensors are removed and reinstalled, be careful to avoid altering rod length.



▲ **Figure 3—** ATS BullsEye Leak Detector

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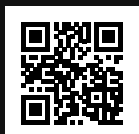


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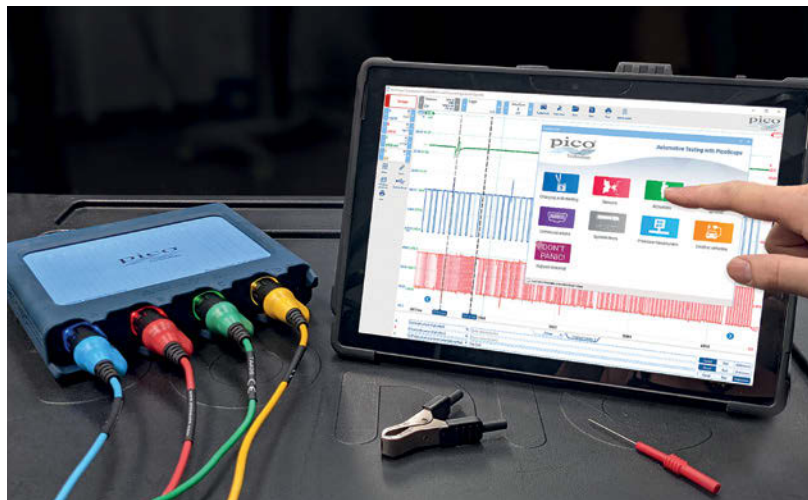
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▲ **Figure 4– PicoScope 4425a lab scope**

possible. When compressors are overworked, they begin to overheat and eventually fail. Monitoring electrical current flow of the compressor motor (using a lab scope and amp probe) on known-good vehicles will allow you to become familiar with what a normal functioning pump's operation should look like (**Figure 4**). Only then will you be able to efficiently use this strategy

to recognize a failing pump's signature, before symptoms are present, preventing come-backs. A DVOM can also work, however you will not have visible signature of the current, only the current value

Compressor not working at all. The air suspension system cannot function without the compressor. If the compressor does not come on at all, that may be a sign that it was

overworked and has burned out or it could be as simple as a fuse or relay problem. Of course, referencing a proper wiring diagram is where the analysis should always begin. Whether it's sourced from Mitchell, MotoLogic, ALLDATA, Identifix, or even factory OEM information, it's crucial to an accurate diagnosis. We should always aim to find the root-cause of the failure, not just replace the failed component.

Compressor making noises. The owner may also notice abnormal noises during compressor operation, such as loud clicking, whining, or grinding. This could be a sign that the compressor has been overworked, or there could be excess moisture in the system because the compressor's dryer is saturated. Once the compressor has been replaced, the rest of the system, including the air springs and struts, should be tested.

**Other suspension issues also might apply to air suspension, including:**

- The vehicle bottoms out over bumps or rides rough;
- It nose-dives when stopping;
- The vehicle pulls to one side or steering is difficult; ➡

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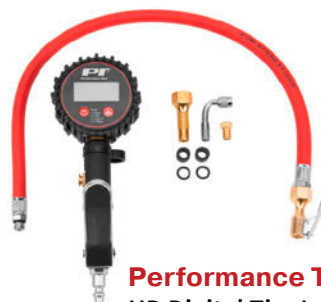
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- The car continues to bounce after hitting a bump;
- Uneven tire tread wear;
- The shock portion of the strut appears to be oily or damaged.

If the customer complains about any of these symptoms and if the vehicle is more than five years old or has more than 50,000 miles, you should inspect it for signs of air suspension damage. This can be conducted using electronic chassis ears to help pinpoint noises. Obviously, the rest of the chassis and suspension components should be properly inspected. This includes verifying the correct tires for the vehicle are installed, adequate tire pressure, and the vehicle is within proper alignment specifications.

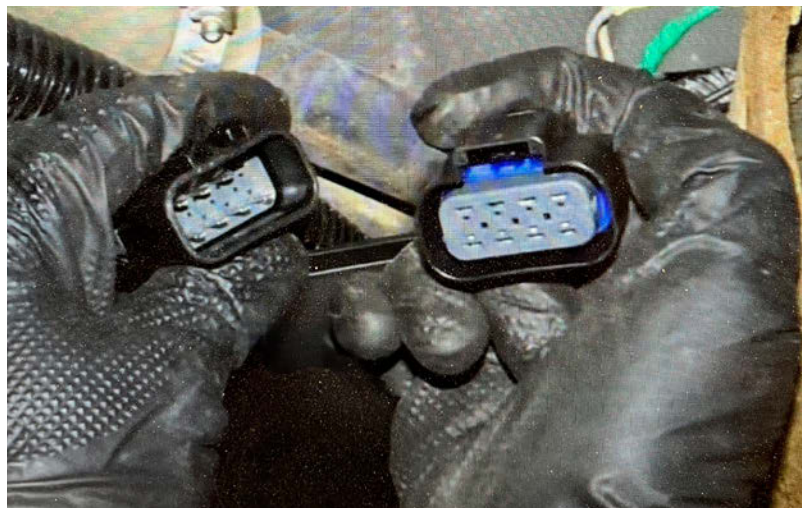
If the vehicle's dashboard's suspension warning light comes on, but the vehicle seems to be maintaining its height, you should use a scanner to diagnose the fault code. Typically, this is an electrical problem such as a relay, fuse, or skewed sensor data.

If the vehicle sags at one corner or side, the easiest way to diagnose the air suspension problem is to put the vehicle on a lift and do a visual inspection of the air struts and springs, the ride height sensors, air lines and connections and the compressor (**Figure 5**). To locate leaks in the air suspension system, spray the air bladders, fittings, lines, and top seal, with the soapy solution, and watch for the bubbles (as described earlier).

## THE FIX ALTERNATIVES

There are multiple options for repairing and replacing a leaking air spring or strut. New OE springs, struts, and compressors are expensive at dealerships, but aftermarket vendors offer options that cost far less. Arnott, for example, offers new OE-quality compressors, as well as brand new replacement air springs that are often easier to install than the OE and built with heavier duty rubber. They also offer both new aftermarket replacement struts that they design and assemble and remanufactured OE struts.

While remanufactured struts maintain the vehicle's electronic or active damping, as well as provide auto-leveling at a fraction of the price of a new OE strut, be aware



▲ **Figure 5—** When checking for causes of improper air system operation, inspect the compressor connection for connector contamination, moisture intrusion, or bent pins.

that some suppliers may only repaint the external core parts and replace the leaking air bladder with a new one, leaving a shock and strut that has an unknown number of miles and problems.

Quality-minded suppliers will recharge the damper by replacing the old, worn oil that has gone through literally millions of cycles with new high-performance shock oil, while also replacing worn seals, wear bands, and top caps. They also computer test the damper and active damping coil to assure proper functionality and ride quality.

For older vehicles and those without active damping, new aftermarket struts are available that include a brand-new shock assembly with zero miles. Manufacturers like Arnott designed new struts that are built from the ground up with all new components, including a name brand air bladder, new strut body, isolators, bottom mount brackets, dust boots, mounting bolts, and top caps, many of which are machined by using aircraft quality aluminum. New struts are typically pre-assembled for easy installation, don't require a core deposit or core processing, and provide a responsive, OE-like ride.

## ELIMINATING ISSUES: THE BUDGET FIX

If a vehicle has multiple air suspension problems or has had a long history of

issues, it might be more cost-effective to replace the air suspension with a coil conversion kit. Some kits cost about the same as a single air strut at a dealership, but should provide many years of trouble-free driving.

Granted, the "luxury" of having an air system that alters ride height as needs change, and simply converting from the air system in favor of coil-over replacements completely eliminates the potential problems that can be exhibited by a problematic — and often complex — and expensive air system.

The bottom line is air suspension repairs are not difficult to diagnose or fix. You should be inspecting the systems after 50,000 miles and customers should be encouraged to repair their air suspension problems quickly before one problem turns into multiple, more expensive, problems. ✖



**MIKE MAVRIGIAN** is the founder and owner of Birchwood Automotive Group in Creston, Ohio. He has written automotive technical articles for industry publications since 1977. Currently, he produces technical material and photos for industry publications and automotive books. Mavrigian's technical facility also builds custom project vehicles for a variety of OEM and aftermarket companies. In addition, Birchwood operates a professional endurance road racing team that tests and promotes products for a range of aftermarket firms.

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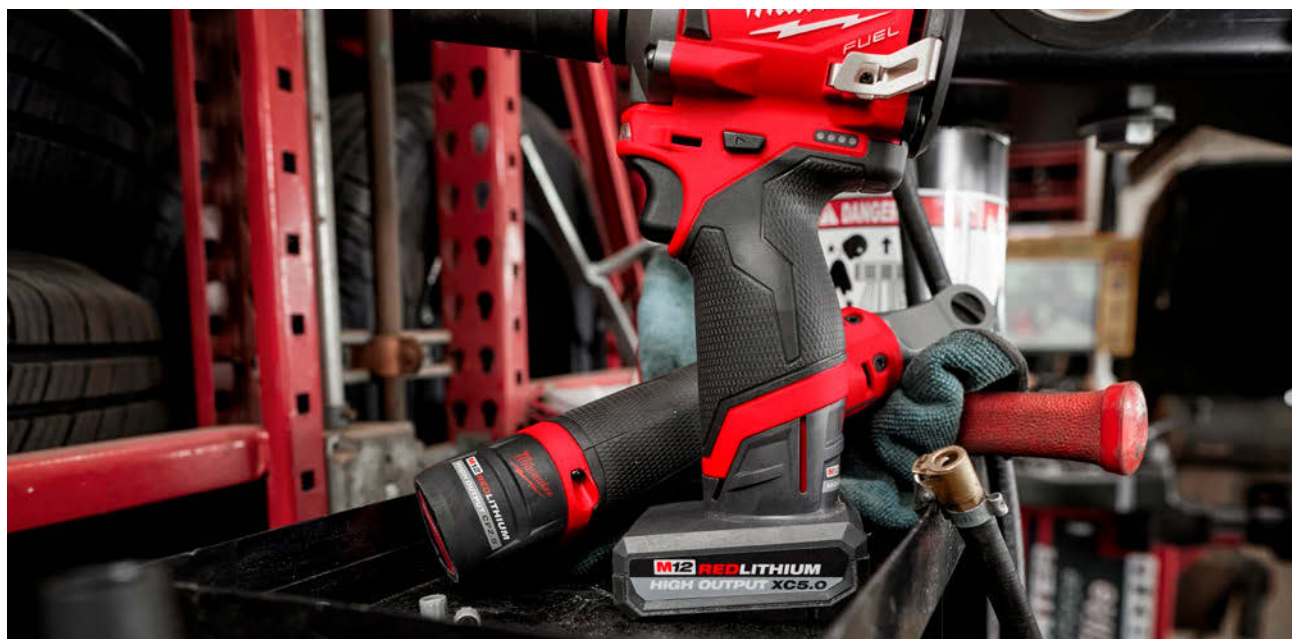
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**W**hen trouble shooting a vehicle electrical concern, having the right tools can make a huge difference. Electrical troubleshooting can be intimidating. Electricity is this mysterious invisible stuff somehow running around through all these little copper "pipes" we call wires and making things work like lights and motors. It doesn't have to be so scary. Learning just a few basic electrical principles can go a long way towards understanding what is going on in electrical circuits.

Voltage (Volts) is a force like pressure in a water pipe. But just because there is pressure does not automatically mean there is flow. Current (Amps) is the amount of electrons actually flowing through the pipe.

Resistance (Ohms) is any restriction or opposition to flow.

And if you have even vaguely heard the term Ohm's Law, it is the electrical rule that basically states these 3 things always work together. In the systems we work on, the Voltages are usually fixed at either 12 or 24 Volt, so for the most part, the voltage never changes. The Resistance of the component being operated will be what determines how much current (Amps) the circuit will draw. More Resistance equals less Amps, less Resistance equal more Amps. You cannot force more Amps into a circuit and a component will not draw more current than its Resistance allows. (Unless you applied more pressure/voltage.)

So now if we are going to be testing electrical circuits, and we can't see this electron pressure or flow, we need special tools that can measure these things:

- A Voltmeter can measure electrical pressure and it reads in units called Volts. More volts equal more electrical pressure.
- An Ammeter can measure the actual electron flow in units called Amps. More Amps equals more electrical flow.
- An Ohmmeter can measure the amount of restriction or resistance to flow, and it reads in units called Ohms, More Ohms equals more resistance to flow.

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When used together, the PPDMM and the Power Probe III circuit tester become the ultimate electrical circuit testing combination making quick work of diagnosing any electrical circuits. The PPROKIT01 Master Kit is our value packed testing kit that includes the PPDMM Digital Multi-Meter, a Power Probe III Circuit Tester, two 10-foot extension leads and a variety of adapters and probes all in one convenient carrying case. For seasoned pros or beginning troubleshooters, the PPROKIT01 is packed with professional level testing power at an affordable price. ■

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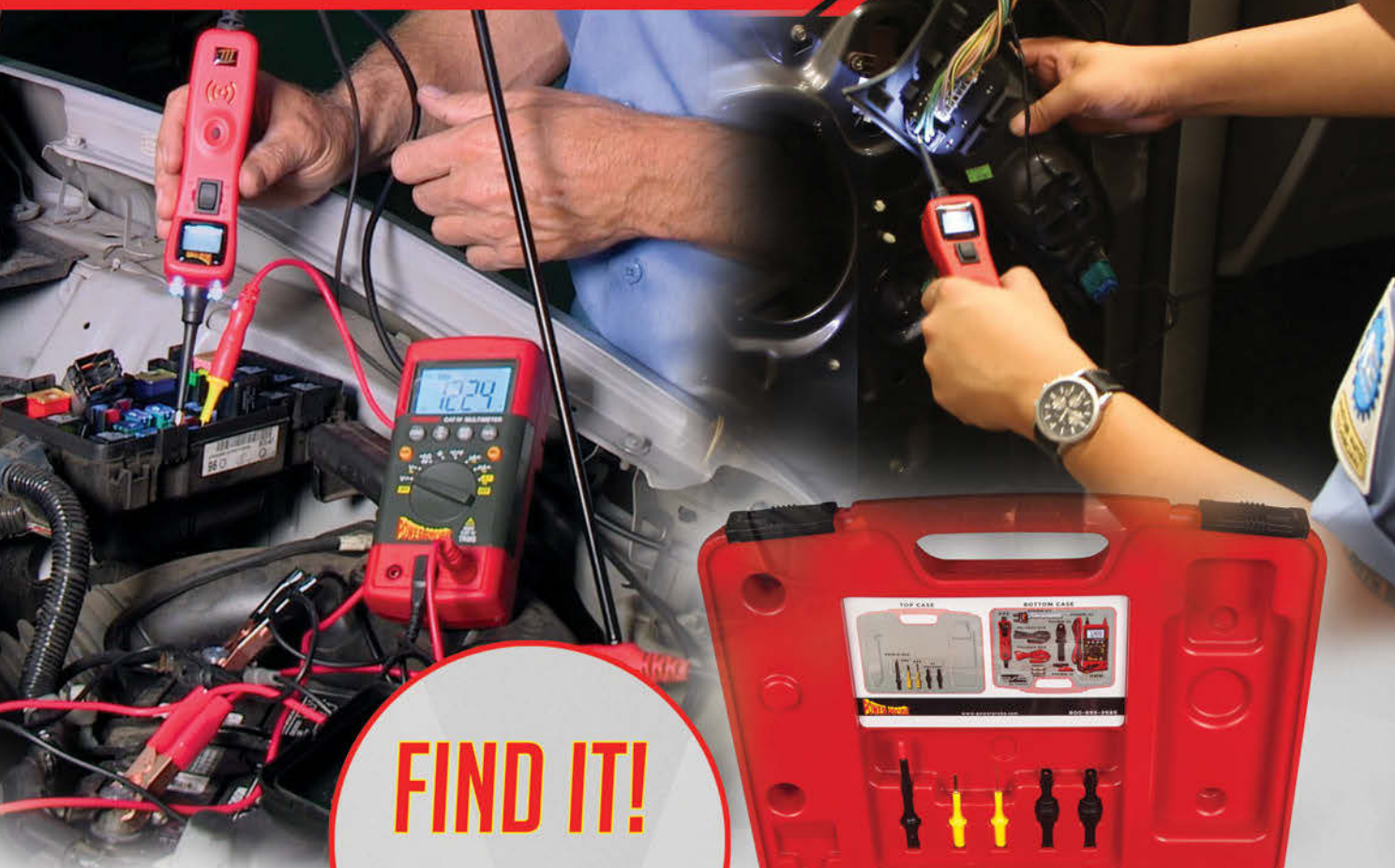
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# Get Ready to Lift Electric Vehicles



**E**lectric vehicles are going nowhere but up. EV sales keep sparking higher, with global sales forecast to top 10.5 million this year. In the U.S., EVs are projected to claim around 30% — some 4.7 million units — of new passenger vehicle sales by 2030.

In the next few years, more and more EVs will be rolling into shops. Handling the work safely and efficiently will require shops to invest in equipment engineered specifically for EV service.

Many electric vehicles are heavier than those with internal combustion engines, thanks in large part to the hefty high-voltage battery packs that can weigh from 1,000 to nearly 3,000 lbs. each. What's more, these batteries occupy most of the vehicle's undercarriage, pushing lifting points out to the extreme edges of the frame, making it tricky to lift the vehicle.

## Built for the job

Manufacturers are responding to these EV challenges with new lift designs and updated products.

To safely raise an electric vehicle for service, you'll need a lift with sufficient rated load capacity and the ability to reach the OEM-recommended lifting points. A two-post surface lift with 10,000 pounds capacity is enough for the EVs currently on the market, but you'll want to make sure the lift arms can reach the lifting points and that you have the required adapters. Also, if you're planning to service electric vans, make sure you have enough overhead clearance — consider a tall lift with a higher top beam. For example, the top beam on the BendPak XPR-10S-168 is 14 feet high instead of the standard 12 feet.

When it's necessary to remove an EV's battery pack, using a lift table eliminates manual lifting or lowering, making it safe and easy to move the pack around the shop. Recognizing that most vehicles on the road will continue to be gasoline-powered for a long time, BendPak designed its new EV2400SL EV battery pack and powertrain lifting system to lift, lower and position high-voltage batteries, engines, transmissions, gas tanks, transaxle assemblies and more, making it a versatile choice.

For routine maintenance that doesn't require standing under the vehicle, shops may want to consider a mid-rise scissor lift. While many mid-rise scissor lifts can't reach EV pickup points, the new BendPak MDS-6EXT was designed with long lift platforms to better accommodate them. Configurable approach ramps and push-button controls make it easy to position vehicles weighing up to 6,000 pounds.

Finally, with mobile service on the rise, you may be looking for a lift you can take to your customers instead of the other way around. The new QuickJack 6000ELX portable car lift is a compact, frame-engaging scissor lift with an open-center design for full access to a vehicle's undercarriage. It has a rated lifting capacity of 6,000 pounds. Extra-long frames provide access to lifting points from 47.5 to 76 inches, accommodating sports cars to light trucks. ■



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# How do *you* plan to service **EV battery** packs?

The BendPak EV2400SL is a push-around full-rise scissor lift table that is perfectly suited for EV battery pack replacement. With its compact design, this space-saving scissor lift can be easily transported anywhere in the workplace, making it ideal for multi-bay facilities or workplaces with confined areas. To learn more visit [www.bendpak.com/EVLIFT](http://www.bendpak.com/EVLIFT).

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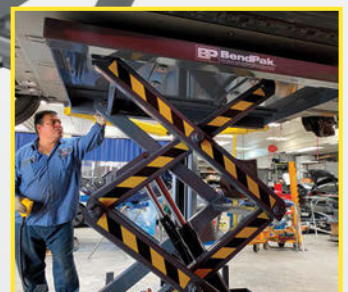
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**BP BendPak**



# 4 Steps to Simplifying ADAS Calibration



**M**ore than 90% of new vehicles are equipped with at least one ADAS feature – a growth trajectory that makes ADAS calibrations a soon-to-be industry staple. For shop owners and technicians, it's crucial to have future-proof tools and diagnostic solutions that can adapt to new ADAS offerings and industry standards, and the next generation of vehicles. Tools and solutions need to be modular and grow with continuous updates to software or new calibration targets in addition to a seamless, user-friendly experience.

Access to the most up-to-date information for a specific vehicle is critical to ensuring a proper calibration. This not only includes your scan tool's ability to access a particular ADAS feature within the vehicle, but the procedures and specifications for setting up the targets and equipment for static calibrations or the drive cycle requirements for a dynamic calibration. By integrating ADS 625X, Bosch's latest diagnostic scan tool, into the DAS 3000 ADAS Master Recalibration Solution, technicians can significantly reduce setup time and complete recalibrations without sacrificing precision and accuracy.

The ADS 625X gives technicians everything they need to perform an ADAS calibration, including pre- and post-scan reporting, licensed OE-level software coverage, step-by-step guided instructions and access to Repair-Source -- Bosch's cloud-based repair information library. The guided instructions break the entire calibration procedure down into easy-to-follow steps that outline the exact equipment needed, OE preconditions for calibration, a gamified set-up process and confirmation of a successful calibration.

Here's a look at the simple steps to perform a calibration with Bosch:

1. First, the technician checks the health of the car battery and performs a standard DTC pre-scan of the vehicle using ADS 625X to make sure there aren't any trouble codes that could interfere with

the recalibration process. Once pre-scans are complete, it's time to begin the recalibration.

2. The technician will begin a guided tour on ADS 625X to accurately align the equipment using the leading-edge Bosch ADAS Positioning System. Each guided tour is unique to every car brand and model. Bosch works directly with the OEs for coverage on all major platforms (domestic and foreign) and continues to co-develop as new vehicles are designed.
3. The guided tour provides step-by-step instructions for positioning DAS 3000 in relation to a vehicle, when to use specific recalibration targets and more. The digital positioning system provides accurate distances and angles to the recalibration targets without any manual measuring.
4. After attaching the appropriate calibration targets and positioning DAS 3000, the technician can continue and complete the calibration process according to ADS 625X. Once completed, the technician can run a DTC post-scan and create a calibration report to return to the customer.

Visit <https://www.boschdiagnostics.com/> to learn more about the ADS 625X, DAS 3000 and other Bosch Diagnostic products. ■



# BOSCH

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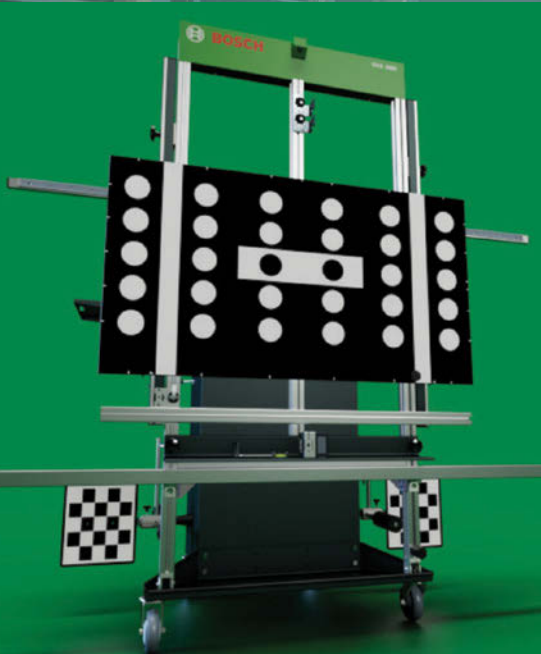
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Mechanic's Time Savers started over 30 years ago with the idea of saving mechanics time, since time is money. We have continued that vision and have been the leader in magnetic tool control systems, components and accessories in the Automotive Tool Industry for over 30 plus years. Our goal has always been to innovate and provide quality products to



our customers. After several decades of creating tool organizational products we took the next step to design toolboxes that work in unison with our products to create the ultimate organizational system for mechanics. We are proud to have won back-to-back PTEN Innovation awards for tool storage with our 42" Service Cart with Power Tool Drawer (2020 Winner) and our 52" Heavy-Duty Toolbox and Workstation (2021 Winner). ■



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# Save time and money by removing Diesel NOx & Particulate Sensors "The Shockit™ Way"!



**R**emoving rusted and obstructed diesel NOx and particulate sensors has become an expensive and time consuming problem due to limited access to the sensors and no space for tools that use lateral motion. Too much time is wasted removing other vehicle components to get to the sensors and there's a high risk of damaging the exhaust system by attempting

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The LT996D Shockit™ Socket Diesel NOx & Particulate Sensor Removal Kit solves these problems by using the force and sonic vibration of an air hammer along with a Shockit™ Punch to

loosen the most rusted sensors without damaging the threads and the compact design gives access to the most difficult to reach sensors. Each Shockit™ Socket has 3 driving ears with 8mm inverted indexed holes for tightening and loosening, allowing the most stubborn sensors to be worked back and forth during removal.

This patented kit includes 20mm, 24mm & 30mm Shockit™ Sockets, 22mm & 24mm Low Profile Shockit™ Sockets, a 22mm Thin Wall Deep Shockit™ Socket, 20mm, 22mm & 27mm bottoming tap and dies for sensor and mounting hole threads and a non-turning offset 8mm radius tip LT1910P 11" Standard Shockit™ Punch. Additional Shockit™ Punches are also available separately. ■



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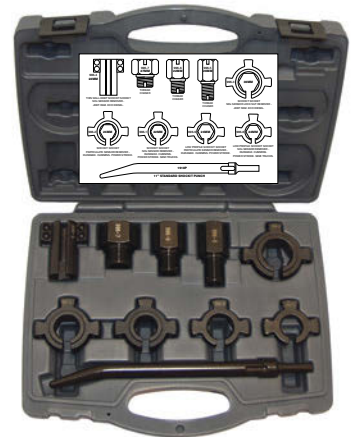
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## REMOVE RUSTED AND OBSTRUCTED DIESEL NOx & PARTICULATE SENSORS "THE SHOCKIT™ WAY"!

### LT996D Shockit™ Socket Diesel NOx & Particulate Sensor Removal Kit

- Air hammer powered Shockit™ Sockets for removing diesel exhaust sensors
- Compact sizes for reaching sensors with restricted access
- Uses the force and vibration of an air hammer to loosen the most rusted sensors
- Includes non-turning offset 8mm radius tip LT1910P 11" Standard Shockit™ Punch
- Force and vibration of air hammer allows most sensors to be removed without damaging the threads
- Each Shockit™ Socket has 3 driving ears w/ 8mm indexed holes for delivering maximum rotational force
- Each Shockit™ socket has inverted indexed holes for tightening and loosening, allowing the most stubborn sensors to be worked back and forth during removal
- 22mm Shockit™ Socket removes NOx sensors on Chevy® Duramax, Dodge® Cummins, Ford® Power Stroke. Also removes most Semi Truck NOx sensors including Kenworth®, Cummins®, International®, Detroit & Volvo®
- 22mm Low Profile Shockit™ Socket for delivering maximum rotational force and minimum side loading for extremely stuck NOx sensors
- 22mm Thin Wall Deep Shockit™ Socket removes NOx sensors on Jeep® & RAM® ECO Diesel
- 24mm Shockit™ Socket removes Particulate Sensors (Soot Sensors) on Chevy® Duramax, Dodge® Cummins and Ford® Power Stroke
- 24mm Low Profile Shockit™ Socket for delivering maximum rotational force and minimum side loading for extremely stuck particulate sensors
- 30mm Shockit™ Socket removes the NOx sensor lock nuts on Jeep® and Ram® ECO Diesel
- Includes 20mm, 22mm & 27mm bottoming tap and dies for sensor and mounting hole threads
- Must be used with Shockit™ Punches for maximum performance and warranty coverage
- Additional Shockit™ Punches sold separately - LT1910PS 5.5" Short Punch, LT1910PL 22" Long Punch
- Patent #7,677,143

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# Beta Tools Introduces Stainless Steel Hand Tools to the US Market

**B**eta Tools of Italy created a line of hand tools made from 420 stainless steel called the Beta INOX. The Beta INOX product line includes tool storage, combination and adjustable wrenches, ratchets, hex key wrenches, screwdrivers, pliers, nippers, and more. Since carbon steel tools can lose their chrome finish over time, they have the potential of leaving rust deposits on the equipment they are used on. Stainless steel tools are pure stainless and do not have an outside coating, so they never have to worry about losing their rust protection.

**The Beta INOX line was developed for a growing demand in the following industries:**

- Marine Repair and Ship Building
- Food Processing and Food Equipment Manufacturing
- Petrochemical, Wind, and Solar

- Pharmaceutical and Bio-Tech Processing
- Laboratories and Clean Room Environments

## About Beta Tools of Italy

Beta Tools of Italy has been in business since 1939, sold in over 90 countries, and are known globally for its high-quality tools with a lifetime guarantee. Their tool storage products are known for their signature orange color and unique designs modeled from end-user input and feedback.

The Beta product line includes more than 16,000 items in categories such as Hand Tools, Non-Sparking Tools, Plumbing Tools, Insulated Tools, and Tool Storage. You can see the complete product line at [www.beta-tools.com](http://www.beta-tools.com) ■



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STAINLESS STEEL + STAINLESS STEEL = NO RUST

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**In a critical environment, a single contamination can cost your company precious time and resources. With Italian Design and European Quality, Beta Tools offers an industry leading suite of Inox tools that have remarkable hygiene, incredible resistance to corrosion and can be autoclaved at 250°F/121°C.**

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# Rislone® CAT Complete™ Fuel, Exhaust and Emissions System Cleaner **Clears Check Engine Lights**

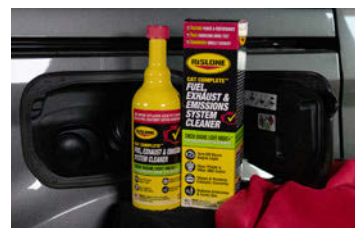
**W**hen a customer wants to clear a Check Engine Light as cost effectively as possible, Rislone's new CAT Complete™ Fuel, Exhaust and Emissions System Cleaner could be the solution. This unique formula cleans the entire emissions and exhaust system to clear the P0420 and other OBD codes that indicate catalytic converter efficiency issues, and goes a step further to also clean the fuel system to increase power, performance and fuel economy.

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CAT Complete can be used as a pre-treatment before emissions tests or as an alternative to replacing catalytic converters. Recommend regular use every 5,000 miles to "tune-up" the fuel, emissions and exhaust system

to keep it clean and prevent the Check Engine Light from returning. Installation is easy for all gas tanks, including standard, obstructed and capless (no fuel cap) systems. It will not void manufacturers' vehicle warranties.

Rislone is so confident in the effectiveness of CAT Complete that it's offering a money-back guarantee, so your customers can try it risk-free. For more information on Rislone® CAT Complete™ Fuel, Exhaust and Emissions System Cleaner, visit [cel-reset.com](http://cel-reset.com). ■



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# Streamlight BearTrap

Reviewed by Mario Rojas, lead diagnostic tech at Autobahn Performance in Oakland Park, Fla.

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

**A:** It has multiple mounting options that save me time.

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

**A:** No assembly is required; the battery came charged. It is ready to go right out of the box.

**Q: How easy was it to use?**

**A:** It is effortless to mount this tool and utilize it.

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

**A:** The light came with a charger. The pack-

aging is high quality, which is the norm for Streamlight.

**Q: Was there a manual included?**

**A:** Yes, the instruction manual was included. It is easy to understand and as concise as it can be.

**Q: What features did you like?**

**A:** I liked the several mounting options, be it magnetic or the spring-loaded clamp. Seeing many European vehicles has limited the number of steel hoods we see here. The clamp allows this light to be mounted virtually anywhere. I also liked the option of utilizing the flood or spot-light beams.

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

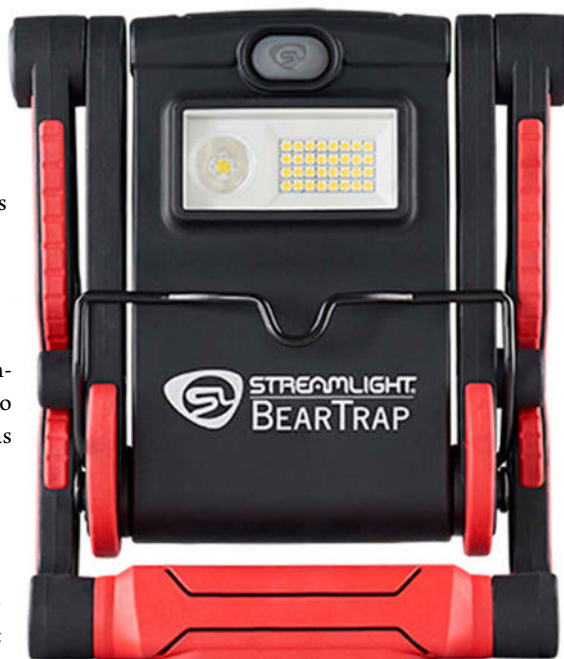
**A:** I think this tool is great as is. I would love to see a "mini" version in the future.

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

**A:** I've used it for underhood repairs on all kinds of vehicles, along with under dash testing on just about everything that rolls into our shop.

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

**A:** I have not seen anything that has the features that this light has, so I can't compare it to anything like it. I've seen either magnetic mount lights or clamp mount



lights, but not one that incorporates both options, along with spot and flood beams.

**Q: Is there anything you had questions or concerns about in regard to the tool?**

**A:** Not at all. So far, it's been performing great.

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

**A:** 10 – it does exactly as claimed and comes with the quality and support we've come to expect from this great company. ✖



**MARIO ROJAS** is an L1 ASE Master certified Diagnostic Technician from Miami, Florida. He first began working on cars as a way to supplement his income until finally stepping into the industry full-time in 2013. He's now working at Autobahn Performance, a shop that specializes in European vehicles. Rojas also shares some of his work on his Youtube channel, Super Mario Diagnostics, in the hopes that his audience will appreciate what it takes to troubleshoot and repair the modern automobile, and to steer everyone into continued training.

## PRODUCT DESCRIPTION

The **Streamlight BearTrap** is designed to provide high power and performance with bright white light in both spot and flood, each with high, medium, and low lighting modes. The worklight is rechargeable and continues to charge while plugged in and in use, eliminating down time. Clamps to virtually anywhere or stands on its own, the worklight provides hands-free lighting option and allows users to illuminate hard-to-get-to spaces, such as under the dash. The worklight also features a magnetic base, stowable hook, thermoplastic construction, and a chemical-resistant lens that withstands most common automotive chemicals.

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



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OR CIRCLE THE NUMBER ON THE CARD.

# Mac Tools 52-pc 4V Cordless Screwdriver Set

Reviewed by Matt Fanslow diagnostic tech/shop manager at  
Riverside Automotive, LLC in Red Wing, Minn.

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

**A:** Most of my cordless electric screwdrivers are of the screw gun variety. When out in the open, you may gravitate to a gun style, but in more tight quarters, like under a dash or in a crowded area, this can sneak in. You don't need to find and aim a light either, as the LED on this thing is pretty well placed and bright.

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

**A:** You may wish to top off the battery. Luckily, while they of course have a charging cord in the kit, it uses USB-C, so those cables are all over a shop anyway.

## PRODUCT DESCRIPTION

The **Mac Tools 52-pc 4V Cordless Screwdriver Set** has a compact design that mirrors that of a traditional multi-bit screwdriver, with a 300 rpm motor, maximizing speed while minimizing strain. The IP54 rating and durable handle material protects against water, dust, and various solvents, while an internal locking mechanism stabilizes gearing when manual torquing is required. The five-bulb LED illumination enhances work surface visibility, while the three-stage charge indicator updates the battery status. Simple push-button functionality makes driving/reversing screws easy, with a quick-change collet for no-hassle bit swap-out and secure hold. The tool delivers a full recharge in 70 minutes and up to 1,300 screws per charge.

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**Q: How easy was it to use?**

**A:** Cake. Absolute cake. It has a forward and reverse rocker switch that you will most likely actuate with your thumb or perhaps index finger.

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

**A:** It comes in a very nice latching case with a fair complement of bits, like flat head, Phillips head, Torx, and Allen head bits. The bits are all the typical 1/4" variety, so anything you already have will also work. There are also a couple of adapters to 1/4" drive for sockets.

**Q: Was there a manual included?**

**A:** Yes, there was a manual. It is arguably on the more difficult side to navigate, but really...who reads directions anyway?

**Q: What features did you like?**

**A:** The bright LED, the fact that it uses USB-C, and the reversing rocker switch. The size of the tool helps make it more useful as well. Older driver style cordless screwdrivers were fairly large, whereas this is sized very appropriately. The majority of the body sits in the palm of your hand.

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

**A:** Mainly interior/dash type of work.

**Q: Have you used a previous version  
of this tool? If so, what are some new  
features compared to the old version?**

**A:** I used to have some driver-type cordless screwdrivers. This puts them all to shame.



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

**A:** I know I'm going to contradict myself: The rocker switch. I feel they could have made it slightly more elevated or easier to actuate. Not that it's hard to use, but it can get a bit uncomfortable, especially after sustained use.

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

**A:** Eight. The rocker switch issue, and cordless drivers can use more torque. ❌



**Matt Fanslow** is the shop manager for Riverside Automotive, an all makes/all models independent repair shop in Red Wing, Minnesota. He has over 27 years of experience in the automotive industry and is an ASE Master Certified Technician (A1-A8) and an L1 Automobile Advanced Engine Performance Specialist. He also has his own podcast, Matt Fanslow Diagnosing the Aftermarket A to Z, that provides a wide-open perspective on all aspects of the automotive aftermarket from a working diagnosticians' point of view.

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



# ProMAXX Tool PowerDrive High-Torque Hex Adapter

Reviewed by Ken Elzinga, owner of Hilltop Auto Service in Byron Center, Mich.



a fastener without disassembling other components is a timesaver. This little screwdriver bit can be a timesaver because you can put it on your 1/4" drive hand ratchet or air ratchet and access screws that have very little room above the head.

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

**A:** The vehicles we service daily are finding new ways to make fasteners difficult to access. Any tool that can help us take out

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

**A:** Time is what we're selling to our customers. This tool helps to complete some difficult jobs more quickly, and that improves productivity.

## Q: How easy was it to use?

**A:** It's very easy and intuitive to use.

## Q: How was its packaging?

**A:** The packaging was good and reusable, which is important, so that it doesn't get lost in the toolbox.

## Q: What features did you like?

**A:** The tool is designed with just the right size. Small enough to get in small spaces, but big enough, so it doesn't slip out of your fingers too easily. It can also be rotated by hand if need be.

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

**A:** It would be helpful if the tool had some knurling on the outside to make it easier to rotate by hand. It would also be helpful to include a few small Torx bits to expand its capability and usefulness.

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

**A:** I used it for several dash repair jobs. I also used it to remove inner fender screws with removing the wheel first. Some cars need the inner fender removed to access the headlight, and it came in handy to remove the Phillips screws holding the inner fender. Normally I would have taken the tire off to give myself enough space, but this tool allowed me to remove the screws with the tire still on the car.

## Q: Have you used a previous version of this tool? If so, what are some new features compared to the old version?

**A:** I have not used a previous version of this tool. I do have other low profile screwdrivers. So far, this one has held its shape very well.

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

**A:** I would give it a nine. It does what it is designed to do, is holding up well, and helps me get in tight spaces. ⓧ



**Ken Elzinga** is a lifelong auto tech, starting in the business in 1978 and today working as a diagnostic tech and owner of Hilltop Auto Service in Byron Center, Michigan, a 24-bay shop with 12 technicians that opened in 2003. Elzinga worked at a Lincoln-Mercury dealership for 24 years, gaining knowledge and experience, eventually becoming a Ford master tech. He says he has enjoyed working in this industry and serving his customers with their vehicle repairs.

## PRODUCT DESCRIPTION

The **ProMAXX PowerDrive Hex Adapter**, No. PMXPDH250A, is designed to convert any type of 1/4" drive ratchet, including electric, air, and hand, into a powerful, high-torque hex screwdriver. With a compact design, its 1/2" tall profile allows users to reach limited access areas with an included straight-head or Phillips-head hardened-steel bit. Additionally, the PowerDrive Hex accepts any 1/4" security hex shank specialty bit, enabling technicians to use their ratchet for any repair, even in the tight sections of the engine compartment. Made in the U.S.A.

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# CTEK PRO25S 25A Battery Charger and Power Supply

Reviewed by Tanner Brandt, president of Autodiag Clinic in Greenville, S.C.

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

**A:** The charger is easy to set up with only one button needed to change functions. It automatically turns on as soon as the leads are connected to a battery. This makes it fast and easy to use.

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

**A:** Nothing! Open it up, read the manual, and plug it in.

**Q: How easy was it to use?**

**A:** With only one button for mode selection, it's very easy to use.

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

**A:** Packaging was good, typical cardboard box, nothing fancy. No fancy case or any-



thing, but that isn't needed for this tool. It did not come with any accessories.

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

**A:** Yes, there was a manual. I used it to understand what the different settings were and to see what the specifications of the charger were. The manual was easy to use.

**Q: What features did you like?**

**A:** I liked the small size and one button operation.

**Q: What features didn't you like:**

**A:** The charging lead is too short and isn't replaceable in the field.

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

**A:** Battery charging and battery maintenance of stored vehicles.

**Q: Have you used a previous version of this tool? If so, what are some new features compared to the old version?**

**A:** I have not used a previous version of this tool in the past.

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

**A:** I would make the battery cable lead and the AC cord field replaceable. Currently, if anything happens to either cord, the charger will need to be replaced. Being able to just replace the cables would be nice. I would also like higher quality clamps with serrated jaws. On a corroded or dirty battery cable, the supplied clamps may struggle to create a good contact point. For automotive applications, I feel the PRO25SE is a better option. It comes with a wall mount and a longer battery cable, which were the only two things I wished this charger had. ☒



**Tanner Brandt** is an industry-leading diagnostics specialist and the CEO of Autodiag Clinic. By trade, he is an automotive diagnostic technician and technical trainer. Brandt

has spent his career focused on researching automotive systems and strives to diagnose problems efficiently and accurately. When he isn't working on vehicles he is finding ways to pass along his knowledge and expertise to others through training and consulting. Brandt works with various companies throughout the automotive industry on solving problems, beta testing diagnostic equipment, and helping companies break into the automotive industry.

## PRODUCT DESCRIPTION

The **CTEK PRO25S 25A Battery Charger and Power Supply** is designed to meet the needs of the automotive professional. Combining power and advanced technology with safety, portability, and flexibility to work with any 12V vehicle battery, including lithium (LiFePO<sub>4</sub>, Li-Fe, Li-iron, LFP), the PRO25S is ideal for professional battery charging, in the workshop, or the showroom. Fully automatic and easy to use, it's also simple to connect, spark-proof, and reverse-polarity protected to protect the user and the battery.

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# CATEGORY SPOTLIGHT

## TIRE & WHEEL SERVICE

**A**s a vehicle's only point of contact to the road, tires play a vital role in not only the safety of the vehicle but also the driver. From accurate inflation and TPMS servicing to wheel balancing and alignment, tire maintenance requires the right tooling. Does your shop have what it takes to service tires and wheels properly? Here are some products to consider.



### PROVIDES FULL CHASSIS DIMENSIONING

The **Coats CWA 6500 3D Diagnostic Wheel Alignment System** features an automatic power tracking camera boom to keep the high definition cameras focused on the targets, enabling fast and accurate alignments. The black diamond mini targets are low profile and easy to handle. The aligner offers full chassis dimensioning, including wheelbase, setback, rolling radius, and all cross measurements are available on one large, moveable LCD screen. The CWA 6500 also includes features such as a VIN scanner and patented QC20 tire clamps which prevent damage to alloy wheels.

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### IDEAL FOR ONE, TWO, FOUR, AND SIX PISTON BRAKE CALIPERS

The **Matco Tools Hydraulic Brake Caliper Press**, No. BCPH1, is a low-profile hydraulic piston with a T-handle or 14mm hex drive for spreading pistons on hydraulic brake systems. The BCPH1 starts thin and spreads wide, ranging from 37mm - 71mm (1.45" to 2.8"). The hydraulic-driven ram creates force of ratcheting presses with minimal user effort. The Hydraulic Brake Caliper Press is ideal for one, two, four, and six piston brake calipers.

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### CAN EASILY READ SENSORS

The **ATEQ VT Truck 2.0** is designed for the maintenance of commercial trucks and buses. It can easily read sensors, even in twin wheels, and can manage up to 22 wheels. The tool is compatible with most truck and bus TPMS sensors and can be frequently updated with new heavy transport vehicles as soon as they are introduced. The VT Truck 2.0 features a built-in vehicle configuration system and has OBD-II capability for on-board diagnostics, aftermarket programmable sensor support, Wi-Fi and real-time updates, and it displays all TPMS information on one screen.

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### FEATURES A COMPACT DESIGN

The **Hofmann geoliner 609 Imaging Wheel Aligner** is versatile, takes minimal space in the shop, comes pre-assembled, and requires one-person installation to get shops started. A technician can control the geoliner 609 from anywhere in the shop with a tablet, and the beam rotates vertically for added mobility and easy storage. In addition, a mechanical winch allows for precise camera beam movement. The aligner has an elevated, two-wheel compensation mode for shops with limited space, and includes a predictive alignment flow and automatic error detection system, as well as video-speed imaging for fast roll-back compensation.

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### APPLIES ADDITIONAL FORCE TO THE WHEEL HUB

The **ProMAXX Tommy Rail** is crafted from solid, hard-coated American aluminum and attaches to the outside of the lower push flange, creating a powerful structural link similar to an automotive rear-end four-bar linkage setup. It's designed to work with the company's Tommy Wheel Bearing Puller, allowing technicians to apply even more force to the wheel hub to make any wheel bearing removal quick and easy on select Ford and Subaru Models. The tool is made in the U.S.A.

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## CATEGORY SPOTLIGHT



Tire & Wheel Service



### PROFESSIONALLY CALIBRATED DIGITAL PRESSURE GAUGE

The **Performance Tool HD Digital Tire Inflator Kit**, No. M526, features a professionally calibrated digital pressure gauge for accurate readings between 0 to 150 psi with resolution of 0.1 psi within  $\pm 1$  percent and pressure monitoring system. It has a large backlit LCD gauge that is easy to read and will automatically shut off after 20 seconds of inactivity to preserve battery life. The kit includes an inflation gun, digital gauge, 20" by 1/4" rubber lead hose, heavy brass air chucks (clip-on, screw-on, right angle, and presta valve), four rubber valve seals, and two AAA batteries.

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### FEATURES A CONCAVE DESIGN AT THE MIDPOINT

The **CTA Manufacturing 10-pc Wheel Hanger Set**, No. 7435, is used to hang/guide wheels during removal and installation on the wheel hub. The tool fits virtually all European vehicles. The set holds/guides the wheel for safe removal and installation. With a heavy duty finish and a concave design at the midpoint, the tool is designed to keep the wheel from slipping off. The set is packed in a clear case and comes in five different sizes.

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### FOR USE WITH HUNTER TIRE CHANGERS

The **Ascot Supply Wing Mount/Demount Head** is intended for use with Hunter tire changers.

The molded wing guides the tire bead into the drop center. Its design prevents the tire from moving above the knuckle. The Wing Mount/Demount Head allows for a fast and easy mounting process. The tool is the head only and doesn't include mounting hardware.

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## CATEGORY SPOTLIGHT

Tire & Wheel Service



### USE WITH A DRILL OR IMPACT WRENCH

The **VIM Tools Hub and Stud Cleaning Kit for Trucks**, No. HSC200, includes the HSC1 Hub and Stud cleaning tool with a 1/4" hex to 1/2" square adapter, HCP23 4-pack 23mm hub cleaning pad, and SCB22 4-pack 22mm stud cleaning wire brush. The HCS1 can be used with a drill or impact wrench and has a quick-lock system for switching heads easily. The HCP15 removes rust and grime from wheel hub surface and helps prevent brake rotor warping. The SCB22 also removes rust and grime from wheel studs, and can prevent lug nuts from seizing and cross threading.

The set can be used on most SUVs and pickup trucks.

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### FEATURES A RECOIL-REDUCING BARREL

The **Gaither Tool Company Gen2 Bead Bazooka** is designed to work with an extensive range of tire sizes and types, ranging from motorcycles to light agricultural vehicles.

The next generation bead seater range offers twice the power and is equipped with significantly upgraded trigger-operated rapid air release (RAR) valve technology compared to the original models. The Gen2 Bead Bazooka range features ASME, CE, and TUV approved smaller steel tanks; an anti-corrosion interior tank coating; and a recoil-reducing barrel, which narrows in shape towards the tip. Gen2 Bead Bazookas are available in 3L, 6L, and 10L.



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### FEATURES A 2- AND 3-PIN SIDE

The **Lisle Corporation Adjustable Brake Caliper Tool**, No. 25200, features a 2- and 3-pin side. The adapter is easily adjustable and is used to rewind brake pistons back into the caliper. Its slim design and fully adjustable rotating body align the pin location for engaging into the brake caliper piston face on most domestic and import vehicles. The adapter will work on right- or left-hand rewind calipers. The 2-pin range is from 1/2" (12.7mm) to 1-1/2" (38mm), and the 3-pin range is from 1" (25.4mm) to 1-11/16" (43mm). Use with a 3/8" square drive.

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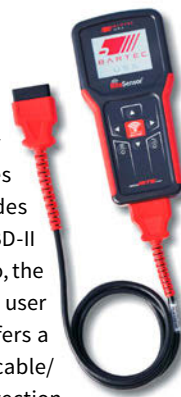
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### ALSO SERVES AS A RITE-SENSOR PROGRAMMER

The **Bartec TechRITEPro** is a TPMS tool designed to offer technicians of all levels, high-powered functionality at an entry level price. The TechRITEPro also serves as a Rite-Sensor programmer and includes Bartec's Rite-Sync technology, as well as OBD-II relearns and VINDicate. Like the Tech600Pro, the TechRITEPro has an easy-to-learn graphical user interface and menu flow. In addition, it offers a rechargeable battery, heavy duty OBD-II cable/connector, improved LF signal and UHF detection, and an 8" high resolution color display.



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### EXTENDS TPMS FUNCTIONS ON X-431 SCAN TOOLS

The **Launch Tech X-431 TSGUN** is designed to be a portable, affordable, powerful TPMS tool solution. It works with Launch Tech X-431 diagnostic scan tools to expand TPMS functions. Additionally, the X-431 TSGUN covers approximately 98 percent of global TPMS coverage, can activate and match all 315 MHz/433 MHz sensors, and monitors tire pressure, temperature, and battery status by simply being close to the tire of vehicle.



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## CATEGORY SPOTLIGHT



Tire & Wheel Service



### AUTOMATICALLY SHUTS OFF TO PREVENT OVERINFLATION

The **Milwaukee Tool M18 Inflator** is an 18V cordless tire inflator designed to meet the needs for transportation maintenance professionals by providing ideal performance, versatility, and the durability to survive demanding jobsites. With the 150 psi maximum capability, users can fill tires twice as fast. Additionally, the inflator is equipped with TrueFill auto shut-off technology that has the accuracy to be set at a specific psi which will automatically shut off the tool to prevent overinflation. Coupled with the resistance to auto shop chemicals, the M18 Inflator solves common user frustrations as a durable, versatile solution.

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### FOR LIGHT DUTY AND MEDIUM DUTY U-JOINTS

The **Cal-Van Tools Bearing Cup Installer**, No. 20200, is designed for light duty and medium duty U-joints. An encased magnet is utilized for installation, retaining the new bearing cup in place over the yoke assembly opposite the forcing screw. Once this assembly is secured, a second bearing cup is positioned for installation by means of the plunger found at the end of the forcing screw. An impact or hand wrench is applied to the forcing screw, securing the first bearing cup in place and allowing installation of the first retaining clip. The tool is manufactured from high-grade steel for strength and durability.

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### TOWER-FREE DESIGN

The **Rotary Lift R1090 Pro 3D Alignment System** is ideal for shops with limited space and for shops that perform a high volume of wheel alignments. Its tower-less design frees up valuable space within the bay and improves cycle times by removing obstructions that interrupt transmission signals. With animated instructions, live data, and easy-to-read results, technicians have the flexibility to work from anywhere in the bay. Additionally, a magnet on the back of the tablet allows technicians to adhere it directly on the lift or vehicle. The Wi-Fi-enabled tablet can be used on any lift and any height because of its automatic lift level compensation feature.

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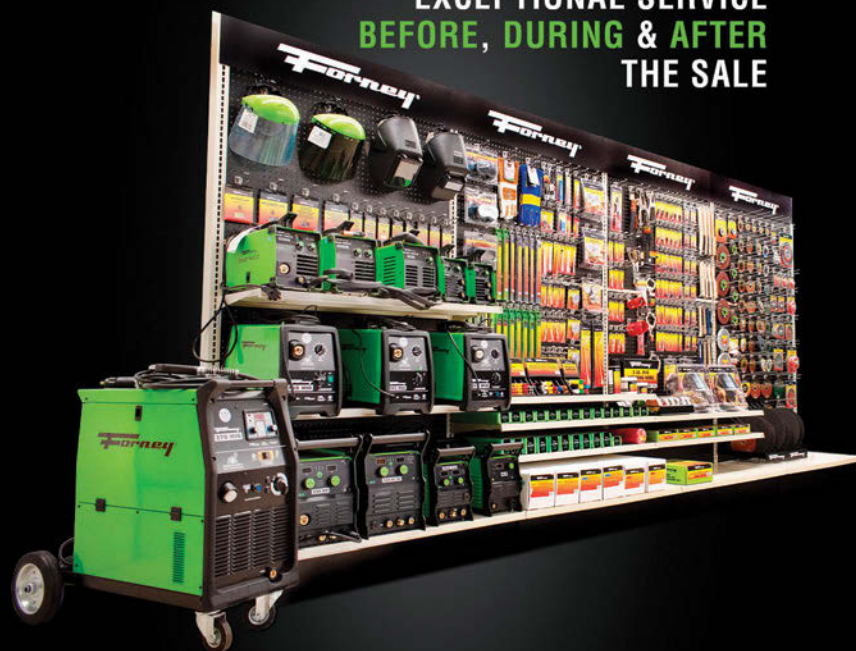
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## SELF-POSITIONING FRAME MOVEMENT

The **Autel Intelligent ADAS IA900WA Wheel Alignment and ADAS Calibration System** integrates wheel alignment and ADAS calibration into an all-in-one, space-saving device. It features a folding crossbar and six in-frame, high-resolution tracking cameras that automatically monitor vehicle height on the shop lift, and robotic frame movement for alignment reading accuracy to 0.02 degrees. Alignment coverage is offered for U.S., Asian, and European vehicles, 1996 and newer. The system guides the user through the complete process with illustrated instructions, live readings, and required tools. Alignment readings displayed on a mounted 24" touchscreen monitor mirror those on the MaxiSYS Ultra table enabling the technician to freely manipulate the vehicle and monitor the adjustment effects.

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## COMPACT FOR SHOPS WITH LIMITED SPACE

The **Hunter Engineering TC33 Tire Changer** is compact for shops with limited space and is designed for mobile service. It features a floating three-point arm and the ergonomic control handle of the PowerOut Bead Loosener is able to break tough beads. The cam plate adjusts to three height positions for operator comfort, allowing a wide range of wheel widths. The cam action also multiplies the clamping force, with no need for flange plates on many reverse wheels. The TC33 series offer ideal wheel protection by clamping to the hub instead of the rim edge and has additional plastic protectors on the side shovel and a polymer mount head.

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## ALLOWS FOR AUTO INFLATE AND DEFLATE

The **Ken-Tool Handheld Automatic Tire Inflator**, No. 26012, allows technicians to auto inflate and deflate with the over pressure setting and underinflation protection. The tire inflator offers a 12' hose with spring protector, a clip-on chuck, a 8" dual foot chuck, and a 1/4" NPT thread for all air connection. Features an accuracy of 0.3 psi at 25-174 psi, a DC 12V rechargeable Li-ion battery, a black rubber cover, and an operating temperature of -14 to +122 degrees F. The product is self calibrating and has an automatic shut-off, a backlit digital display, audible warning, and two presettable inflation settings.

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## COMBINES TPMS SERVICES WITH OBD-II DIAGNOSTIC FUNCTIONS

The **ThinkTPMS T109** from Thinkcar combines TPMS services with OBD-II diagnostic functions. With rugged, easy-to-hold housing and an internal power supply, the T109 is ideal for a variety of tire shop functions such as reading sensor data including pressure, temperature, battery life, and id number; TPMS sensor activation, programming and relearning; TPMS health check; reading/clearing TPMS trouble codes; generic OBD-II functions with DTC lookup and reset; I/M test readiness test for emissions test prep; as well as O2 sensor and EVAP testing. The T109 provides coverage of 98 percent of import and domestic passenger cars and trucks with a capacity up to 1 ton.



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## CATEGORY SPOTLIGHT



Tire & Wheel Service



### FOR EXISTING TWO POST LIFTS, OR FOUR POST AND SCISSOR LIFTS

The **FCAR Tech FD505 Wheel Alignment Machine** is for existing two-post lifts, or four-post and scissor lifts. The unit can accurately measure the wheel alignment parameters without space limitations. It measures front and rear toe-in, front and rear camber, caster, kingpin inclination, and thrust angle accurately. The machine features five built-in heavy-duty cameras to scan targets from different angles. The camera is adjustable to accommodate oversized vehicles. It also features support for multiple displays on any smart device.

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### FEATURES EZ-SENSOR PROGRAMMING

The **ST-1 TPMS Tool** from **Schrader TPMS Solutions** features EZ-sensor programming and an ID-Sync function for matching scanned IDs to vehicle ECU IDs. The tool triggers OE sensors for all cars in North America, Europe, and Asia. It displays all sensor data (pressure, battery, temperature, ID, frequency) and indicates OE sensor and service kit part numbers. In addition, it provides TPMS ECU relearn procedures and retrieves and decodes TPMS DTC information. The TPMS tool has a 2.8" LCD screen, protective rubber sleeve, is Wi-Fi capable, and comes with a quick-connect cable and carrying case.

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### SIMULTANEOUS FRONT AND REAR WHEEL ALIGNMENT

The **Cutting Edge Automotive Solutions Fox 3D Auto Boom Alignment Machine** includes vision-based 3D imaging technology using two high-performance SI cameras. It also has a simultaneous front and rear wheel alignment (4x4). The machine includes an animated pictorial display of angles during the alignment process. It features a two-wheel alignment program by fixing only the front two target plates, and has data manager software for storing alignment results.

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### REDUCES TIME SPENT CLEANING RIMS

The **Mueller-Kueps Conical Eraser Kit**, No. 282 260/KIT, includes six erasers made from high quality rubber. At 60mm in diameter, the erasers are designed to reduce time spent cleaning rims. Use with an electrical drill, cordless drill or with the Air Eraser, No. 297 013, from Mueller-Kueps. It can be used with multiple speeds on the drill from 500 to 1,000 maximum rpms. If used at proper speed, the eraser will not leave any residue on the rim, the company says. The erasers will not damage or scratch aluminum rims.

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*To keep his toolbox organized, Albrecht uses Harbor Freight tool organizers.*

# The Sumo Box

'I had three smaller toolboxes and I was able to consolidate it into one'.

*By Brandon Lewis, Editorial Assistant*

**J**oshua Albrecht has only had his SP Tools Sumo Box for a year, but it's easily his favorite toolbox he's ever owned.

"It's way bigger than my last toolbox," Albrecht says. "I had three smaller toolboxes, and I was able to consolidate it into one. It's also green... I love the color green!"

The box, which is measured at 72", contains ample amounts of storage for all of Albrecht's tools. While storage played a role in Albrecht deciding to invest in a new toolbox, one aspect of the Sumo Box set it apart from the rest: price.

"It was a couple hundred dollars cheaper than a Snap-on, which I had previously," he says. "I liked my Snap-on box, but I loved the price of the SP Tools."

Albrecht likes to use Harbor Freight's organizers to organize his tools inside the box. His favorite tool is the SP Tools 1/2" Electric Drive Impact.

"I use it for everything," he says. "I remove a lot of transmissions and engines,



## OWNER

**Joshua Albrecht**

Location: Lansing, Mich.

and I don't have to use air anymore. I know it's kind of elementary, but to me, it's a huge deal because I've been using air for so long. It's low maintenance and strong."

His favorite feature on the box is the protection of the doors.

"When I shut the doors to the toolbox, you can't slam the doors because they retract into the toolbox," he says. "There's shocks in each door, so if I were to try and slam the doors, the doors would absorb right into the box."

Five years ago, Albrecht started his own YouTube channel, "Truck Master", as a hobby to showcase his vehicle repair skills on his own, personal trucks. The types of trucks he fixes include Duramax, Powerstroke, and Cummin trucks. Quickly, through promotion on social media, his channel started gaining

steam and after retiring from the army two years ago, he dove head first into YouTube full-time.

"I started the YouTube channel to show people how to fix their vehicles, and it exploded, so I decided to commit to doing YouTube full-time, and now it turned into where I'm actually building vehicles."

As "Truck Master" continued to climb in subscribers, Albrecht realized he needed more space than his garage at his home, hence the reason he decided to open up a shop. Albrecht says there is no name to his shop, and the shop is used only for personal reasons.

"I have about eight diesel trucks, so with the shop, I'm able to get a hoist in there and have more room to film videos and work on the trucks." ❌



*Want to see more photos of Albrecht's box?*

*Visit: [VehicleServicePros.com/21267727](https://www.vehicle-service-pros.com/21267727)*



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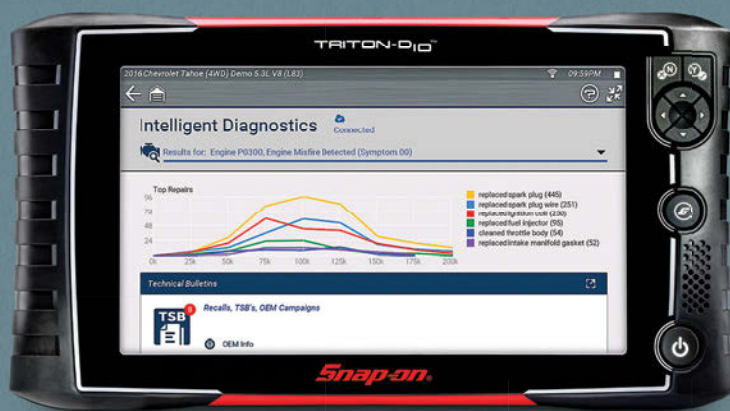


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