

# PTEN

The Independent Tool Authority



## PPMWL1000 MODULAR WORK LIGHT

by Power Probe Tek



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2019 PTEN Innovation  
Awards Nominees, Part 2  
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ADAS, it's not just  
for collision shops  
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and other new tools  
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Tech Routing List ☐ ☐ ☐ ☐ ☐ ☐ ☐



▲ Blow gun with  
an air delivery rate  
up to 23 cfm



▲ Each element  
in the toolset  
revolves around  
a central axle



▲ Ideal for  
transporters  
and light trucks

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**See a video of this tool:** [bit.ly/coboltxl](https://bit.ly/coboltxl)

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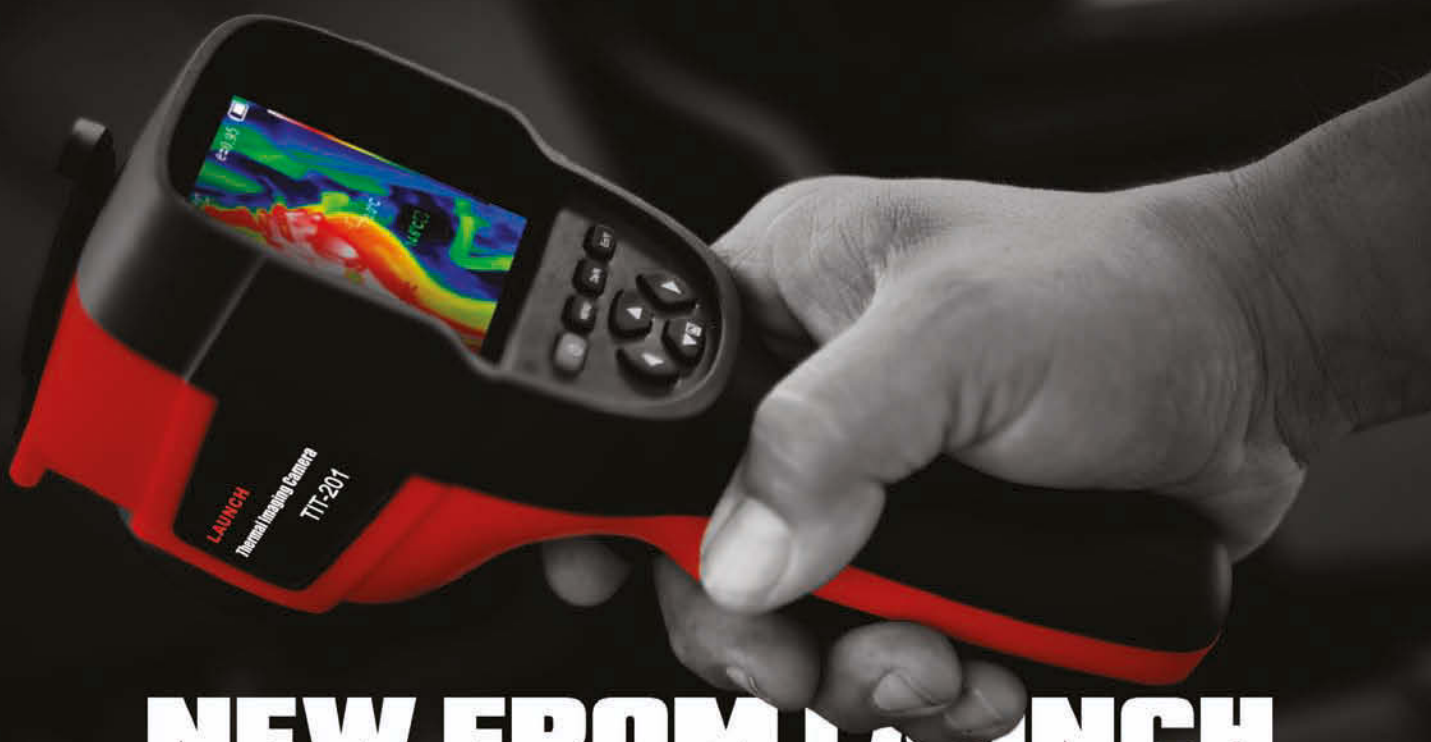
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CoBolt XL



Original 8"  
CoBolt





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## EXCLUSIVE

### 30 2019 PTEN INNOVATION AWARDS NOMINEES, PART 2

PTEN received so many entries, we needed two issues to feature all the products! Check out tools and equipment from the second round of the 18th annual PTEN Innovation Awards.

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Owner: Mark Myers  
Shop: Brown Lee Ford  
Location: Manchester, Tenn.

## ON OUR COVER



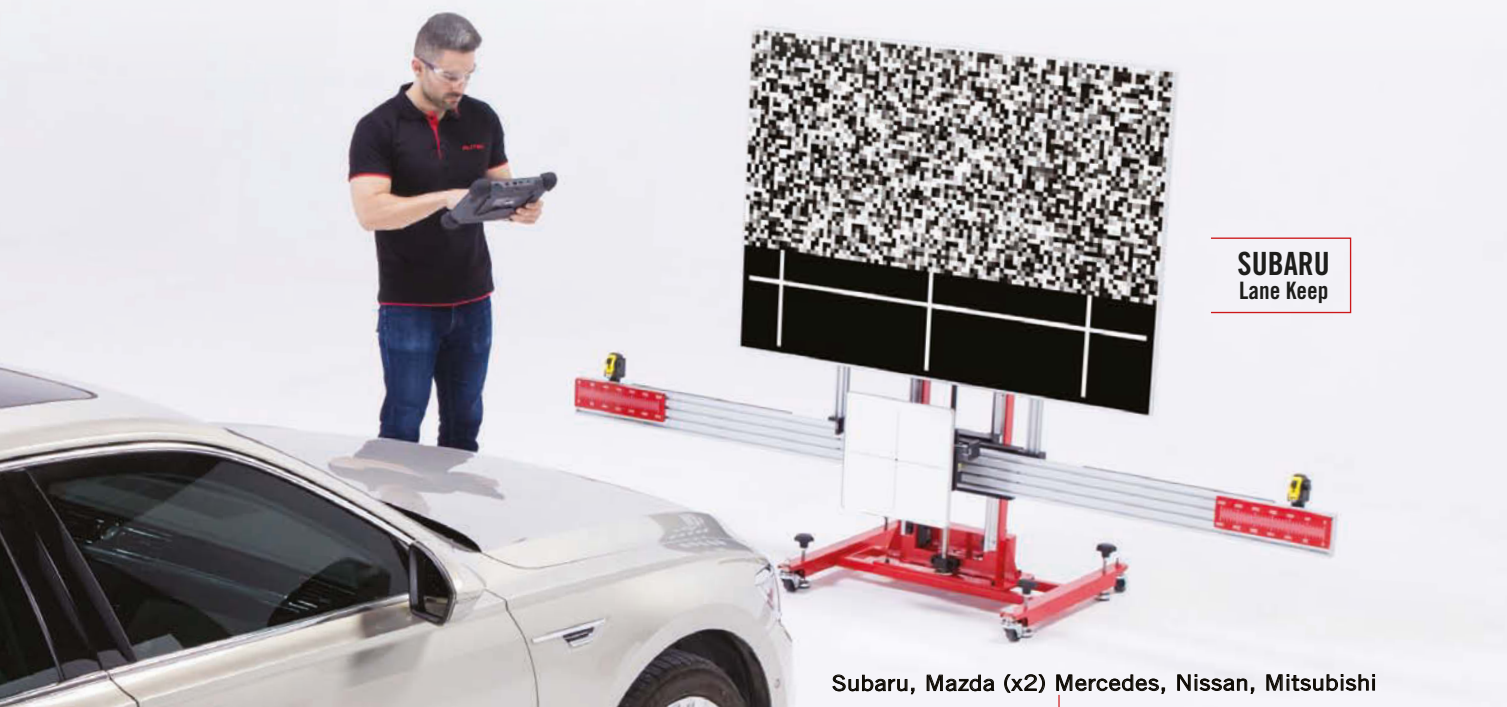
The Power Probe TEK PPMWL1000 Modular Work Light

## IN THE NEXT ISSUE

The annual PTEN Product Showcase issue will feature hundreds of new products for your shop. See what's trending in the July 2019 Showcase issue.

# ADAS CALIBRATION **AUTEL** NEW COVERAGE

## SOFTWARE / TARGETS



**SUBARU**  
Lane Keep

Subaru, Mazda (x2) Mercedes, Nissan, Mitsubishi

## 6 NEW LDW TARGETS

PACKAGE PART# **LDWTARGET2**



## GRAPHIC INSTRUCTION NEW CALIBRATION SOFTWARE

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## NEWS



### AUTO CARE ASSOCIATION INVITES MEMBERS TO ATTEND AUTO CARE LEGISLATIVE SUMMIT

The Auto Care Legislative Summit, in conjunction with the Auto Care

Association Fall Leadership Days, will take place in September in Washington, D.C. To read more, visit: [VehicleServicePros.com/21082065](http://VehicleServicePros.com/21082065)

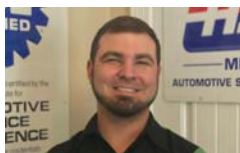
## ASK THE EXPERT



In the auto industry, workers must wage daily battles with extreme temperatures and poor visibility that leave them exhausted, frustrated, and less productive. By using high-volume, low-speed (HVLS) fans and modern LED fixtures to keep conditions comfortable and well-lit, managers at garages and service centers can improve productivity, employee morale, and energy efficiency. To read more, visit:

[VehicleServicePros.com/21081404](http://VehicleServicePros.com/21081404)

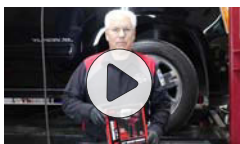
## GUEST BLOG



For years, technicians relied on mechanical tools and a good hypothesis to diagnose problem vehicles. Today, diagnostic technicians rely on high tech tools like digital oscilloscopes, pressure transducers, and diagnostic scan tools to fix complex problems. To read more, visit:

[VehicleServicePros.com/21080524](http://VehicleServicePros.com/21080524)

## VIDEO



Shop owner and master technician Jeff Buckley reviews the AIRCAT Pneumatic Tools Vibrotherm Drive 1/2" Impact Wrench, No. 1178 VXL. To watch the video review, visit:

[VehicleServicePros.com/21081509](http://VehicleServicePros.com/21081509)

## FEATURED PRODUCTS



### B'laster Air Tool Conditioner

B'laster Corporation  
[VehicleServicePros.com/21076972](http://VehicleServicePros.com/21076972)



### King Tony's 9-in-1 Ratcheting Screwdriver, No. 32809MR

KT Pro  
[VehicleServicePros.com/21082229](http://VehicleServicePros.com/21082229)



### Industrial Tool Chest + 133-pc Tool Set, No. C35-5935VI/2MB

Beta Tools  
[VehicleServicePros.com/21081259](http://VehicleServicePros.com/21081259)



Look for this logo in PTEN to identify where you can email to provide feedback and contact us.

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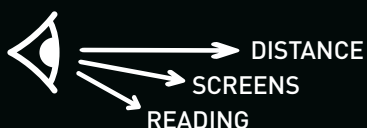
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## Celebrating a milestone

This year marks 30 years — *and counting* — of new tool and equipment coverage.

By Sara Scullin, Editor  
Sara@VehicleServicePros.com

**Y**ou may have noticed from the cover these last few months that we've reached a milestone here at *Professional Tool & Equipment News*. That's right: this year marks 30 years of covering new products — and the technicians who use them — in the automotive aftermarket. And we're celebrating all year!

We're honored to have shown up on lunch tables, toolboxes, and service desks for three consecutive decades. When you think about it, that's a substantial amount of time... and a lot of tools! It's 30 years of new product releases, reviews, technician and shop profiles, and Big-Time Boxes. From your vantage point, we hope it means 30 years of inspiration, education, wish lists, and successful purchases.

*Professional Tool & Equipment News* founder Rudy Wolf established this publication as a the go-to source for automotive repair professionals. From the start, the magazine featured tools that equipment shop owners and technicians could discover, research, and purchase for their shops. These were made-for-professionals products designed to help solve problems and speed repairs. Perhaps some of these products even helped a shop owner or two to launch new revenue opportunities throughout the years.

In that respect, not much has changed from then until now. The pages might look a bit different. And though diagnostic goods have come on strong in the last decade or so, and we are seeing more software and smartphone solutions hit the streets, *PTEN's* ultimate goal



remains the same: to bring you new-to-market products that will help you do your best work.

Continuing in this tradition, this month we feature the second half of the 2019 Innovation Awards nominees (page 30). Each year the Innovation Awards are voted on by a panel of active technicians in the field. Hang on to this issue, along with May, so you can reference all the innovative tool nominations. Winners will be announced in the August issue.

How long have you been coming to *PTEN* for the latest tool information? We've always been the new products source for the aftermarket; and we aim to keep that tradition going strong.

Thank you for reading. We couldn't do it without you. **PTEN**

### Next Month's Issue:

Next month we feature *PTEN's* annual Product Showcase. Check out hundreds of new products in a range of categories in this issue. We'll be back in August with our regular issue of *PTEN*.



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# THE NEW PRO SERIES MODULAR WORK LIGHT #PPMWL1000

The Pro Series Modular Work Light is extremely versatile and can be used as an underhood light, an area spotlight and four individual work lights!



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#### FEATURES:

- Dust & Water Resistant IP54 (On Base) & IP65 (On Modules)
- COB LED 1000 Lumens Total
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# FEATURED NEW PRODUCTS

## Ideal for transporters and light trucks

The **Hazet 1/2" Impact Wrench 5-pc.**

**Set**, No. 903 SLg6/5, comes with an additional outside hexagon adapter (No. 1003 S-1), power screwdriver sockets with spanner widths of 17mm (No. 903 SLg6-17) and 19mm (No. 903 SLg6-19), an enclosed safety link pin, and O-ring. The power screwdriver sockets can now also be driven via the 3/4" hexagon adapter (1003 S-1) with a 3/4" impact wrench. The outside hexagon attached to the socket with the spanner width of 24mm enables connection to the adapter (1003 S-1) equipped with 3/4" drive. These two tools are connected securely with the enclosed safety link pin and O-ring. This toolset is ideal for transporters and light trucks, including the Fiat Ducato or Mercedes-Benz Sprinter. A plastic coating on the sockets protects the rims against damage.

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## Each element in the toolset revolves around a central axle

The **CRKT Twist and Fix Socket Tool**, No. 9904, is a stainless steel multi-tool used for everyday repair jobs. The tool is held together with a low-profile frame, and each element snaps in and out with ease. Instead of being housed in fixed, eternal bearings, each element in the toolset revolves around a central axle, lengthening the tool you need and keeping the others out of the way. The Socket Tool includes the SAE socket sizes 1/4", 5/16", and 7/16", and the metric sizes 6mm, 8mm, and 10mm. Additionally, the tool features a durable glass reinforced nylon handle.

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## Blow gun with an air delivery rate up to 23 cfm

The **Steinel professional heat blower**, No. HB 1750, is optimized for drying efficiency and for heat-shrinking tubes and sleeves on cables. This heat tool delivers almost 30 percent more air than conventional tools, according to the company. Adjustable airflow ensures user control. The ergonomically shaped soft grip handle permits fatigue-free working. The included stand offers stationary operation at any angle. Features include a turbine blower with an air delivery rate up to 23 cfm, color coded keys, a maintenance-free factory sealed motor, a lightweight and well-balanced design, and a plug-in heating element that takes only seconds to change.

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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.

## Use as an underhood light, area spotlight, or four individual work lights

The **Power Probe Pro Modular Work Light**, No. PPMWL1000, is versatile and can be used as an underhood light, an area spotlight, or four individual work lights. The worklight can be mounted in multiple orientations for hands-free use by utilizing the magnets on the side and back of the housing, or the threaded holes for mounting to a tripod. Also, each individual modular light has magnets and a hook, allowing your hands to work freely. This light has a total of 1,000 lm on high (3 hrs) or 500 lm on low (6 hrs).

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## Compact, high-resolution, multiple-aspect camera

The **Cal-Van Tools Wi-Fi Borescope**, No. 84, uses a compact, high-resolution, multiple-aspect camera (up to 1080p), and adjustable LED lighting, to give technicians different views without teardown. With the long 58" bendable cable and camera both IP67 rated, users can access areas without needing to drain the fluid. The borescope is compatible with Android and iOS devices and has an independent Wi-Fi signal up to 30' that allows users to work wirelessly during the inspection. It comes with additional inspection accessories including a viewing mirror, recovery hook, and magnet.

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## Spot beam for long-range visibility

The **Milwaukee USB Rechargeable Pivoting Flashlight** combines the features of a flashlight and flood light into an easy-to-carry, durable lighting solution. This light offers a 500 lm light output and a 110 degree pivoting head that includes a 155m spot beam for long-range visibility and a wide flood beam for task lighting. For handsfree use, this light comes equipped with a magnetic base. The light offers up to a 10-hr runtime with three output mods: flood high, flood low, and spot beam. Users can charge the battery right inside the light via micro USB, or swap it out with an additional Redlithium USB battery. The light's body and lens are impact and chemical-resistant, and IP54 rated to protect against weather and dust.

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## Quick and easy fastening

The **OEMTOOLS R2 Rechargeable Speed Ratchets**, Nos. 24493 and 24494, are designed to speed up your work for quick and easy fastening. They are rechargeable and include two 2,000 mAh Li-ion batteries for continuous use for less work interruptions to re-charge. With an internal over-torque protection mechanism, there is less worry about overtightening of fasteners. The R2 Speed Ratchets are lightweight and have a low profile design for tight work areas. The two ratchets are available in 1/2" drive (No. 24493) and 3/8" drive (No. 24494).

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## Designed for use in HVAC applications

The **Klein Tools multi-bit pocket screwdriver**, the **3-in-1 HVAC Pocket Screwdriver**, No. 32613, is designed for use in precision HVAC applications with three different tips in one tool: #0 Phillips, 1/8" (3.2mm) slotted, and a Schrader bit. The screwdriver features concealable tips and a pocket clip for convenient, everyday carrying between jobs. Other features include a rotating cap for precise control, interchangeable barrel with a short and a long side for greater versatility, and a cushion-grip handle to provide comfort when working on small equipment. Steel bits with heat-treated precision ground tips for greater tool strength, and corrosion-resistant anodized aluminum plated barrel ensures durability.

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## Features magnetic/USB recharging technology

The **Powertac M6** is an everyday carry flashlight for technicians that emits 1,300 lm and has four lighting modes plus strobe. The flashlight's circuitry provides for a three hour run-time on the high power setting. The M6 has a magnetic tail cap for handsfree use and features Powertac's magnetic/USB recharging technology. The light is waterproof, impact resistant, includes the battery, and has a lifetime warranty.

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## Suitable for a variety of screw-types

The **Vessel Tool Megadora screwdrivers** feature the JAWSFIT mechanism, allowing the blade to bite into the screw for easy removal. The JAWSFIT mechanism reduces cam-out of the screws while holding them properly. The JAWSFIT also helps remove already damaged screws, weather damaged screws, and plastic screws.

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## Lift up to 10,000 lbs

The **AMGO PRO-10A** four post commercial lift is an ideal choice of lift, with the combination of great performance and safety. The lift works well for repairs, tire services, and wheel alignments for your commercial service. The PRO-10A four post lift is made stronger, more versatile, and is easier to use. It is also able to lift up to 10,000 lbs.

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## Includes T-adapter for connecting smoke machines to help locate air leaks

The **Lisle Turbo Air System Test Kit with Smoke Adapter**, No. 69910, plugs the output side of the turbo and the intake inlet. Air and smoke are applied through one adapter to show the presence of leaks within the system. The kit features a pressure gauge, shut off valve, pressure regulator, and includes six pairs of stepped adapters to fit most turbo systems on cars and light trucks. Can also be used on some cooling system hoses.

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## Track misplaced light audibly

The **Mac Tools 600 lm Inspection Light**, No. MHL600, is designed to ensure that technicians don't misplace their light. This product taps into a radio frequency to send a signal to the light so the user can track the light audibly. The user is alerted when the light is misplaced, goes out of range of the docking station, and when the light only has 10 minutes of charge left. The 600 lm rechargeable light offers two power settings through a front COB providing a 2-1/2 hour run-time on high or up to 6-1/2 hours on low. A 180 degree rotating bracket and hidden hook on the bottom offer two handsfree options.

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## High power in a compact package

The **Snap-on Tools 14.4V 3/8" Drive MicroLithium Quick Change Cordless Impact Wrench**, No. CT761AQC,

offers improved power in a compact, lightweight package. With its 60 ft-lb torque output and 2,500 free speed rpm, this wrench weighs 2.5 lbs, allowing techs to better maneuver in tight, hard to reach spaces. The tool features over-current and thermal protection for the motor and three built-in LEDs to allow illumination of the work area.

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# Introducing the new DWA1000ADAS Wheel Alignment System

Add alignment service and time savings profitability to your ADAS capability.

## ALIGNMENT & ADAS CALIBRATION

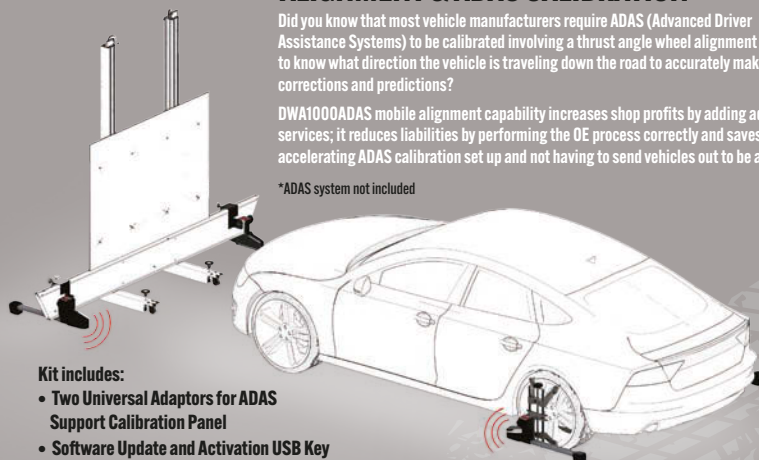
Did you know that most vehicle manufacturers require ADAS (Advanced Driver Assistance Systems) to be calibrated involving a thrust angle wheel alignment in order to know what direction the vehicle is traveling down the road to accurately make safety corrections and predictions?

DWA1000ADAS mobile alignment capability increases shop profits by adding additional services; it reduces liabilities by performing the OE process correctly and saves time by accelerating ADAS calibration set up and not having to send vehicles out to be aligned.

\*ADAS system not included

Kit includes:

- Two Universal Adaptors for ADAS Support Calibration Panel
- Software Update and Activation USB Key



Turn your 2-post lift into a profitable alignment service bay today!

Includes all items necessary to begin offering wheel alignments. (2 post lift not included)



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*R. Jones | November 12, 2018*

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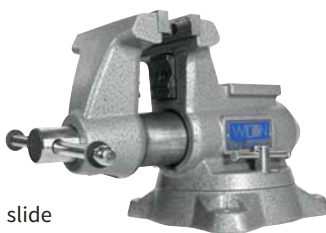


## NEW PRODUCTS

### Jaw sizes ranging from 4-1/2" to 10"

The **Wilton Mechanics Pro Vises** are designed for durability. These vises feature an enclosed spindle, precision slide bar, innovative thrust bearing, 360 degree swivel, and a lifetime warranty. Other notable features include: precision machined slide bar, enclosed spindle, needle roller thrust bearing, 60,000 psi ductile iron movable jaw and base, large anvil work surface, and 360 degree swivel base with double lockdowns. These vises are available in five sizes with jaw sizes ranging from 4-1/2" to 10".

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### Can reach a vacuum of 15 microns

The **Mastercool Inc. 18V Cordless 1.5 cfm, Two-Stage Vacuum Pump** is designed for field applications where access to a power supply isn't readily available. The sure-grip handle is ergonomically designed for comfort and portability while the reinforced base provides shock resistance. This two-stage vacuum pump can reach a vacuum of 15 microns. It is equipped with an oil-mist free exhaust port and an oil-gas separator at the air exhaust outlet. The air-cooled motor is designed for operation under high temperature conditions. The vacuum pump features an accessible oil drain port and sight glass. Dimensions are 9.9" L, 3.7" W, 6.1" H; 7.9 lbs; 3.5 oz oil capacity.

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### This impact wrench delivers 2,500 ft-lbs of torque

The **Michigan Pneumatic MP-2740-ST 1"** impact wrench is designed for truck tire maintenance and repair, off-road construction equipment, and even industrial maintenance operations. Features include 2,500 ft-lbs of torque, a friction ring and thru-hole anvil, fast rundown, and an adjustable dead handle. Available with a 6" or 8" extended anvil, Models MP-2740-ST-6 and MP-2740-ST-8.

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## NEW PRODUCTS

### Restores engine performance

The **BG 44K Platinum**, No. 208, is designed to clean modern gasoline direct injection (GDI) fuel delivery and combustion systems. Pour right into the gas tank to restore performance and gas mileage, says the company. It removes accumulated deposits from the oxygen sensor and deposits in combustion chambers, cleans the catalytic converter, restores flow to fuel injectors, prevents corrosion, and stays in the fuel system to continue to clean over time and miles.



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### Shines 200 lm over 85m

The **Streamlight Inc. QB** ultra-compact headlamp delivers 200 lm over a distance of 85m on its highest setting. Offering the convenience of USB rechargeability, three output modes and a lightweight, low-profile design, it is the ideal hands-free personal work light for professional and consumer uses alike. The company says the headlamp features an adjustable elastic head strap with a non-slip inner surface that can also be used with hard hats. The QB offers 200 lm and 1,800 candela over an 85-meter beam distance on its high setting; on low, it provides 95 lm over 55m. Run times range from 4 hours on low to 2 hours on high. A large top button allows for easy actuation and switching between the high, low and flash modes. The headlamp uses a 600 mAh lithium polymer battery, sealed within the unit for service-free operation, and is rechargeable via a micro USB charging port. Red and green LED lights indicate battery charging status; charge time is approximately 3.5 hours depending on the USB charging source. In addition to the silicone-backed elastic head strap, the QB also includes a built-in hat clip that easily attaches to the brim of a baseball or bump cap. Featuring an impact-resistant polycarbonate body and lens, the QB weighs just 1.5 ounces with the attached headband and measures 1.57 inches in length. The light is IPX4 rated for weather resistance and is impact resistance-tested to two meters. It is available in safety yellow and black

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## SUMMER'S HERE. HAVE SOME FUN.

OCTANE  
BLACK



RPM

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## NEW PRODUCTS

### Delivers power and speed in a compact size

The Makita 12V Max CXT Lithium-Ion Brushless Cordless 3/8"

Square Drive Impact Wrench, No. WT05, is ideal for maintenance, auto, and general use. The impact wrench delivers power and speed in a compact size for fastening and working in tight spaces and overhead applications. It weighs 2.2 lbs and delivers 120 ft-lbs of torque and 210 ft-lbs of nut-busting torque. It's reverse rotation auto-stop mode stops rotation and impact when the fastener is loosened adequately, which helps prevent over-loosening and dropped fasteners. The impact wrench is also offered as a kit that includes a charger, batteries, and a tool bag.

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### Safe alternative to mark, cut, punch, start, and set

Mayhew Tools' Hammerless Tools are ideal for use on wood or metal surfaces delivering up to 3,500 lbs of striking force. These spring-powered tools serve as a safe alternative to mark, cut, punch, start and/or set without the need for a hammer. Users place the tool directly on the work surface, pull back the spring, and release. All tools in the Mayhew hammerless tools line are made in the USA and have a lifetime warranty. The hammerless tools line includes Center Punch & 2/32" Nail Set, No. 17351; Nail Master, No. 17352; 2/32" & 3/32" Nail Set, No. 17353; Center Punch & Prick Punch, No. 17354; 5/16" Cold Chisel & 5/16" Hammer, No. 17355; Punch & Cold Chisel, No. 17356; Self Centering Center Punch, No. 17357; 5/16" Wood Chisel & 5/16" Hammer, No. 17358; 5/16" Wood Chisel, No. 17359; and 5/16" Cold Chisel, No. 17360.

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### Combines convenience and versatility

The Power Port Products Flexible 2-in-1

Flexible LED Work Light combines both convenience and versatility in one light. It is equipped with a bright high powered 1W LED and 4 UV LEDs to detect leaks easily and quickly. The 15' flex-neck and small lamp size are ideal for hard to reach tight spaces while affixed to the base is a magnet for easy mounting to various metal objects. The unit is available in both a AA battery and rechargeable battery model.

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## Every EuroVent exhaust system is customized to each facility

The **JohnDow EuroVent Heavy Duty Motorized Hose Reel** systems are customized, fixed motorized overhead hose reel exhaust extraction systems. Every EuroVent exhaust system is customized to each facility and its unique specifications. Engineers design an extraction system that meets a facility's requirements, budget, and timetable – once drawings are submitted, a design package and estimate will be presented within five business days, at no charge. Other features include a 36" drum holding 35' of 8" hose, 600- to 1500-degree temperature rated hose, hanging control pendant, and single phase 120V and UL508 compliance. Assembled in the U.S., EuroVent systems are available in four types: an overhead rail, an overhead telescoping, an overhead fixed-hose recoil, or an underground disappearing system.

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## Bottles feature built-in magnet designed for secure placement

The **CTA Manufacturing Corp. Brake Bleeder Bottle**, No. 7786, comes with two brake bleeding bottles. The bottles feature a built-in magnet designed for secure placement. They are equipped with a nipple top for placement of tubing. The nipple top also vents the bottle. Remaining brake fluid drains back into the bottle. The attached metal wire with a hook adds additional security when anchored to a nearby suspension component.

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# Lisle

# NEW TOOLS



17972



17982



### 17972 4.5 GALLON OVAL DRAIN PAN - BLACK 17982 4.5 GALLON OVAL DRAIN PAN - GREEN

New drain pan design provides 60% larger catch area for easier fluid draining. Smooth pan design is easy to wipe out and clean. 6.25" pan height to fit tight spaces. 1.125" outer diameter spout for quick and easy pouring of used fluids into most jugs. The anti-splash lip helps prevent spilling when carrying or pouring. Multiple hand positions for carrying. Made of high-density polyethylene material that is resistant to chemicals and solvents.



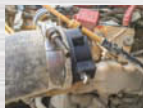
69910 Adapters



69930 Adapters



NEW  
69920 Smoke Adapter



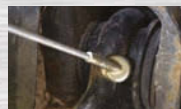
### 69910 TURBO AIR SYSTEM TEST KIT w/SMOKE ADAPTER 14PC. 69930 TURBO AIR SYSTEM TEST KIT w/SMOKE ADAPTER 10PC.

Includes T-Adapter for connecting smoke machines to help locate air leaks in the components. Plugs the output side of the turbo and the intake inlet. Air and smoke are applied through one adapter to show the presence of leaks within the system. Features a pressure gauge, shut off valve and pressure regulator and includes six pairs of stepped adapters to fit most turbo systems on cars and light trucks. Can also be used on some cooling system hoses.



### 55210 LOW PROFILE ADJUSTABLE SEAL PULLER

Two hook sizes easily remove most oil and grease seals. Where clearance is a problem, remove the pin to reposition the head. Two hook sizes easily remove most oil and grease seals. The adjustable head works great on front wheel drive transaxles.



### 52520 STETHOSCOPE WITH MAGNETIC HOLDER

Includes magnetic accessory that can be attached to the end of the stethoscope probe and allows hands free use. Unique sound chamber and super thin diaphragm greatly amplifies sounds.



### 37200 TIMING TOOL FOR FORD WITH TENSIONER

for use when servicing the timing chain on Ford V6 3.5L and 3.7L engines. Helps ensure camshaft alignment during removal and installation of the timing chain. Includes holding tool for secondary chain tensioner. Applications: 3.5L - 2007 to 2016, non-turbo 2017. 3.7L - 2009 and newer.



### 17370 35 DEGREE LONG HOSE CLAMP PLIERS

provides an extra long reach and 35° angled tips for hard-to-reach hoses. Cross-cut tip design grips most hose clamps from multiple angles. Ratcheting lock mechanism holds the clamp.



71350



71600



### 71350 MANIFOLD DRILL TEMPLATE FOR FORD 6.0L & 6.4L DIESEL 71600 MANIFOLD DRILL TEMPLATE FOR FORD 4.6L, 5.4L & 6.0L

Helps remove exhaust studs without damaging the cylinder head. Tapered bolts center the base plate over bolt holes and slip fit bushing allows you to move from hole-to-hole without moving base plate. Includes bushing to drill to tap size when extractor cannot be used. Drill depth gauge makes sure water jacket is not pierced.

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- Pulleys
- Axle pinion flanges
- Old distributors
- Connect to your specialty pullers
- **NO MORE SLIDE HAMMERS**
- Patent #7,036,211

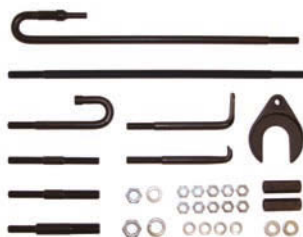


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### Butterfly valve for maximum air discharge

The RPG 5-Gal Bead Seater is designed for heavy duty, commercial use to quickly inflate large truck tires, passenger tires, and ATV tires up to 24.5" in size. The bead seater is equipped with a butterfly valve for maximum air discharge, and also features rubber foot pads to lessen vibration while in use. The long reach metal barrel also has a specially designed lip that delivers a quick air blast between the tire and rim at the perfect angle and position to ensure that the job gets done, the company says. The bead seater comes with an easy-to-read gauge to ensure the recommended operating pressure (psi) is used.

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### Intelligent Diagnostic system that quickly verifies component failures

The Snap-on Diagnostics Triton D8 was designed to help save time and increase productivity for technicians by guiding them to the problem, while filtering out unnecessary steps. Triton D8 features Technical Service Bulletins (TSB) to access fault codes, "Smart Data" to configure the display to show vehicle parameters (PIDS) relevant to the fault codes, and SureTrack that provides access to repair information from shops that have solved the same problem. It also includes functional tests to verify component operation, reset procedures to complete the repair after component replacement, and a built-in scope. Accessing the Intelligent Diagnostic functions on the Snap-on Triton D8 requires a software agreement, which will keep the tool updated with the latest information and functionality available.

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### Repair, build, and create battery terminal cables

The **E-Z Red BCK18 Cable Cutter and Crimper Kit** comes with all the tools needed to repair, build, and create battery terminal cables on or off the vehicle. This set of heavy duty tools can be used with a pneumatic driver or ratchet, as well as the included breaker bar. Strip the jackets with the precision stripper for a secure connection.

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### 360 degree rotation

The **OEMTOOLS 1,250 lb Rotating Engine Stand**, No. 24846, securely holds most engine configurations, making them ideal for engine work or storage. The Heavy Duty Worm Gear provides 360 degree rotation allowing access from any angle. The mounting arms are adjustable to fit most engines, while the folding legs make for easy storage.



Constructed from tubular steel, the engine stands are durable with great accessibility.

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### The blades are constructed of M42 high speed steel

**BoreTech's Hole Saw Kit** provides saw blades manufactured with bi-metal that are designed for hole cutting in wood, plastic, aluminum, and soft metals. Constructed of M42 high speed steel, the saws feature backing plates and a thicker saw wall to reduce warping during extended periods of use. The progressive gullet design delivers material removal. The kit includes 14 pieces, with arbors, bits, and adapters.

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Hy-per Lube® is a 100% petroleum oil performance booster that has been formulated with premium base oils and petroleum-extracted additives. High performance protection for everyday driving. Making new and high-mileage engines run better and last longer for over 50 years.

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## NEW PRODUCTS

### 30 bit set with a magnetic bit holder

**Beta Easy 860EA 31-pc Hex Bit Set** from **Beta Tools** includes 30 bits and a 1-1/4" magnetic bit holder within a durable plastic case with a clear lid. Slotted screw bits include: 0.5mm x 3mm, 0.6mm x 4.5mm, 0.8mm x 5.5mm, 1.0mm x 5.5mm, 1.2mm x 6.5mm, and 1.6mm x 8mm. Phillips screw bits include: PH1, PH2, and PH3. Pozidriv cross head screw bits include:



PZ1, PZ2, and PZ3. Hex bits include: 2mm, 3mm, 4mm, 5mm, 6mm, and 8mm. Torx bits include: T8, T9, T10, T15, T20, T25, T27, T30, and T40. And square drive bits include: 1mm, 2mm, and 3mm.

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### Three tools in one unit

The **Clore Automotive Solar Pro-Logix 12V Smart Battery Charger**, No. PL2545, comes with engine start assistance. Designed to provide continuous operation in a wide variety of professional/industrial battery service environments, the PL2545 combines a fully automatic operation utilizing a proprietary multi-phase charging process with the ability to properly charge multiple battery types. The PL2545 is really three tools in one unit. It functions as an advanced automatic battery charger to bring depleted batteries to full charge so that they can be put back into service. It functions as an advanced automatic battery maintainer, conditioning and maintaining batteries in long term storage charging situations. It also provides engine starting assistance, quickly energizing a depleted battery so that the engine can be started.

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VehicleServicePros.com



### Designed to clear the sensor connection bracket of the fuel/temperature flow sensor on Ford Transit Connect

The **CTA Manufacturing Corp. Ford Flow Sensor Socket**, No. 7850, is a 19mm socket with inner hex walls that are machined extra-deep for clearance of the Ford fuel/temperature flow sensor found on 2010-2017 Ford Transit Connect vans. It is designed to clear the sensor connection bracket for easy removal of the Fuel/Temperature flow sensor. The socket has a thin-wall design with 3/8" drive and an overall socket Length of 3". It can also be used on any 19mm application that doesn't exceed 2.5" depth.

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### Atomize fluids up to 42 gallons per hour

**Exair's 1/8" NPT Small Internal Mix Spray Nozzles** combines liquid and compressed air to create a coating of liquid that can be adjusted to meet the needs of the user's application. The spray nozzles mix the liquid and air inside the cap and can atomize fluids up to 42 gallons per hour. They are available in narrow-angle round pattern, wide angle round pattern, and flat fan pattern and are used to coat parts in containers, cool laminates, or apply paint and lubricant. The stainless steel construction of these atomizing nozzles adds to their durability and corrosion resistance. They also come in 1/4 and 1/2 NPT.

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## Rubber hose can withstand oil, grease, and water

**Prevost Open Drum Hose Reels** are intended for professional use and available in a range of sizes and hose lengths. The rubber hose can withstand oil, grease, water, and harsh conditions. They can be paired with any Prevo S1 safety coupling and are sold with a fixed or optional 140 degree swivel bracket allowing it to be mounted to a wall or overhead. A stop catch locks the hose at the length needed for work and by gently pulling on the hose, the return spring automatically winds the hose back into the reel.

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## Ergonomic rivet squeezers and lightweight rivet hammers

The **Chicago Pneumatic CP42 Series** comprises of ergonomic squeezers and lightweight rivet hammers that are ideal for providing optimal riveting solutions for maximum productivity. The CP42 series includes six models of squeezers and seven models of compact rivet hammers. The squeezers are silent (as low as 72 dB) with a minimum vibration of less than 2.5 m/s<sup>2</sup>. A rotating air inlet provides added flexibility so the user can easily maneuver the squeezer into the right position. The rivet hammers are available from 1X to 9X and can adeptly handle all aluminum rivets up to 3/8" in size.

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## Increases battery dependability

The **PulseTech SolarPulse Battery Chargers** are designed to charge, maintain, and desulfate lead-acid batteries in vehicles and equipment stored outside. The battery chargers are available in 3-, 7-, and 12-watt and reduce jump starts, increase battery power, and extend battery life by as much as three times, says the company. SolarPulse works with all types of 12V batteries, are weatherproof, and offers multiple mounting options.

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"Without my Portacool evaporative cooler running, I can't work in the near 100° temperatures in the shop."

**Shannon Aikau, Lead Builder and Bike Shop Manager, Count's Kustoms**



**PACJS260**

**PORTACOOOL**  
WHEN COMFORT COUNTS™



# Loosens Frozen Metal Parts



## It Works!

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**KANO LABORATORIES.COM**

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 "e-inquiry" on VehicleServicePros.com

## NEW PRODUCTS

### Replaces manual pumping methods

The **Macnaught BOP20 Battery-Operated Pump** is designed for pumping gear oil from 5-gal containers, replacing manual pumping methods and helping to improve efficiency and reduce operator fatigue. The pump's 18V, 2.0 Ah Li-Ion battery delivers up to 40-gal on a single charge, with flow rates up to 1-gal per minute. The modular pump's flow nozzle enables one-handed operation with on-demand flow control. Featuring a safety lockout carry handle, the BOP20's portable powerhead can be transferred across multiple pump stems to help reduce setup costs, while the unit's sealed, wetted parts prevent contamination. The pump is suitable for lubricants ranging from 0W40 to SAE90. The BOP20 Starter Kit comes with a pump powerhead, stem with adjustable suction tube, adapter, flow nozzle, 5' hose, Li-Ion battery and charger.



The pump is suitable for automotive, truck and bus, marine, construction, mining, aviation and agriculture applications, as well as for plant equipment.

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 "e-inquiry" on  
 VehicleServicePros.com

### Heavy duty hexagon grip

The **Matco Tools 12-pc Hand Impact Driver Set**, No. SID12PBA, features a reversible 3/8" square drive impact driver with a heavy duty hexagon grip that helps prevent the impact driver from slipping out of the user's hand. This set includes an impact driver, bit holder and 10 S2 impact bits: T30, T40, T45, T47, T50, T55, P2, P3, P4 and 9/32 slotted.

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 VehicleServicePros.com



### Removes broken exhaust manifold bolts without damaging the cylinder head

The **Lisle Manifold Drill Template**, No. 71600, is designed to remove broken exhaust manifold bolts on Ford 4.6L, 5.4L, and 6.8L motors without damaging the cylinder head. Tapered bolts center the base plate over bolt holes and slip fit bushing allows you to move from hole to hole without moving the base plate. The screw extractor is then used to remove the broken bolt. Includes bushing to drill to tap size when extractor cannot be used. Dimensions are 19" W x 8.5" L x 2.25" D.

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 VehicleServicePros.com

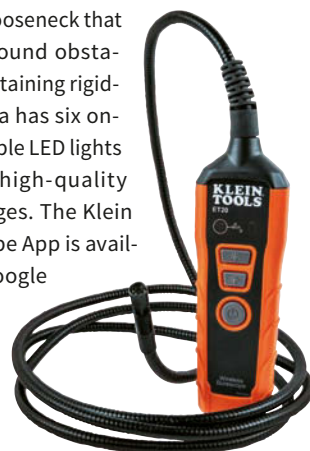


### Transmits images and video to compatible smartphones

**Klein Tools' Wi-Fi Borescope** displays, saves, and shares jobsite images and videos through a mobile app compatible with Android or iPhone devices. The borescope features a 9mm camera on a 6

" waterproof gooseneck that maneuvers around obstacles while maintaining rigidity. The camera has six on-board, adjustable LED lights and outputs high-quality 640 x 480 images. The Klein Tools Borescope App is available free at Google Play or the App Store. The app is optimized for Apple iOS Version 6 or higher and Android Version 4.2 or higher. The Wi-Fi Borescope includes a pocket clip, USB charging cable, hook attachment, carrying case, and instructions.

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 VehicleServicePros.com





LS43B  
Laser-Spot™  
Wheel Balancer  
5040121

**NEW**

**\$3040**

~~\$3170~~

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- Max. Tire Diameter - 50"

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ON ALL PRODUCTS**

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SUPER SALE!  
90 DAYS ONLY**

Valid April 1 - June 30, 2019

**\$1965**  
~~\$2095~~



**DST2420  
Wheel Balancer**

- 5140200
- Max. Wheel Diam. - 10" - 30"
  - Max. Tire Diameter - 50"

**\$2125** ~~\$2255~~



**DST30P  
Wheel Balancer**

- 5140300
- Max. Wheel Diam. - 10" - 30"
  - Max. Tire Diameter - 50"

**\$2450** ~~\$2580~~



**DST642D  
Wheel Balancer**

- 5140305
- Max. Wheel Diam. - 10" - 30"
  - Max. Tire Diameter - 50"

**\$3005** ~~\$3135~~



**DST64T 3D Quick-Touch™  
Wheel Balancer**

- 51402400
- Max. Wheel Diam. - 10" - 30"
  - Max. Tire Diameter - 50"

**FREE**  
Wheel weight starter kit  
included with all balancers

**\$2455** ~~\$2585~~

**R980XR  
Swing-Arm  
Tire Changer**

5140220

- Int. Clamping - 10" - 30"
- Ext. Clamping - 8" - 26"



**TIRE SHOP  
APPROVED  
TESTED**

**\$3930** ~~\$4080~~

**R76ATR  
Tilt-Back  
Tire Changer**

5140280

- Int. Clamping - 10" - 30"
- Ext. Clamping - 8" - 26"



**TIRE SHOP  
APPROVED  
TESTED**

**\$6460** ~~\$6610~~

**R80EX  
Tilt-Back  
Tire Changer**

5140122

- Int. Clamping - 13" - 34"
- Ext. Clamping - 10" - 30"



**TIRE SHOP  
APPROVED  
TESTED**

**\$7465** ~~\$7615~~

**RV1  
Touchless  
Tire Changer**

5140109

- Rim Diam. - 13" - 30"
- Max. Tire Diameter - 47"



**TIRE SHOP  
APPROVED  
TESTED**

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**Ranger**





### Offers extensive set of screwdriving tools

The **Wurth USA Limited Edition 46-pc Tool Set**, No. 09652019, contains an extensive set of screwdriving tools. Additionally, the tool set includes multi-use sockets suitable for use with five different screw heads. The tools come in a black "limited edition" finish, and are delivered complete in an organized, high-quality presentation box.

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### Includes OEM service procedures

The **Mac Tools Repair Source Diagnostics** is software on the ET7200 and ET6250 Diagnostic tools included in the purchase price of the tool. This software includes diagnostic coverage updates, software updates, and Repair Source. Repair Source offers vehicle service and repair information, including OEM service procedures for A/C and heater, engine, airbag, brake bleed, steering, suspension, starter alternator, and timing belt; DTC troubleshooting; test conditions and diagrams and supporting tests; OE wiring diagrams; component location diagrams; computer relearn procedures and more.

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### Higher flow, improved ergonomics, and robust durability

The **Graco Inc. SD Series**

**Upgrade** features higher flow, improved ergonomics, and robust durability to its premium line of SD Series electronic meters. The user can choose from manual or preset models with max flow of eight or 18 gpm. With a Pulse FC starter kit, users can convert SD preset meters to the Pulse FC Fluid Control System. Graco's new SD Series meters also features upgraded electronics with a large, high-contrast LCD screen that allows viewing dispense amounts in all lighting conditions. The ergonomically-enhanced recessed button pad and four-finger trigger reduce technician fatigue, enabling them to meet the fast-paced needs of a service shop.

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cars globally will be using R1234yf by the end of 2019

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and many more manufacturers have converted to R1234yf

**only 20%**

of cars produced in 2019 will have R134a systems

\*data estimated by Chemours

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# 20<sup>TH</sup> ANNUAL **PTEN** INNOVATION 2019 AWARDS

**E**ach year the *PTEN* Innovation Awards feature the newest and most innovative products introduced to the automotive aftermarket. This year, *PTEN* received 148 product entries – the most entries in a single year to date! We shared the first round of nominees in the May issues of *PTEN* and *Professional Distributor*. For the full list of 2019 nominees with full product details, visit: [VehicleServicePros.com/2019IANominees](http://VehicleServicePros.com/2019IANominees).

## NOMINEES PART 2



**John Bean**  
V2280 Imaging Wheel  
Alignment System  
*CATEGORY: Alignment  
Equipment*  
Circle 82 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)

### Cal-Van Tools

4-pc Plastic Oil Pan Drain Plug  
Tool Set, No. 38200  
*CATEGORY: Specialty Tools*  
Circle 83 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)



### Associated Equipment

Graphical Battery and Electrical  
Systems Tester, No. 12-2415  
*CATEGORY: Battery Service  
Equipment*  
Circle 85 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)



### CanDo Diagnostics

C-Pro Scan Tool  
*CATEGORY: Automotive  
Scan Tools*  
Circle 87 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)



### Snap-on Tools

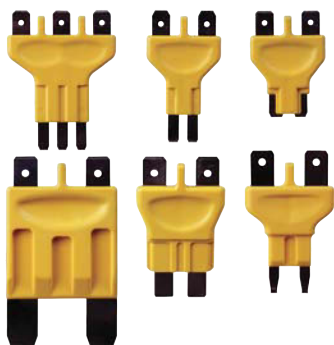
275 lm Magnetic Mountable  
Headlamp, No. ECHDB022  
*CATEGORY: Lighting*  
Circle 89 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)



**Big Gator Tools**  
Metric V-DrillGuide  
*CATEGORY: Hand Tools*  
Circle 84 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)

### General Technologies Corp.

Fuse Socket Connector Set,  
No. GTC063  
*CATEGORY: Electrical  
Testing Tools*  
Circle 86 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)



### Matco Tools

E-Z Solder Clamp,  
No. EZSOLD  
*CATEGORY: Specialty Tools*  
Circle 88 on card, or  
enter at “e-inquiry” on  
[VehicleServicePros.com](http://VehicleServicePros.com)





**ATS Chemical**  
3C Intelligent  
Induction Cleaner  
*CATEGORY: Engine  
Service & Repair*  
Circle 90 on card, or  
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VehicleServicePros.com



**ToolBox Widget**  
Wrench Organizer  
*CATEGORY: Tool Organizers*  
Circle 92 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Chicago Pneumatic**  
CP8849 1/2" Cordless  
Brushless Impact Wrench  
*CATEGORY: Power Tools*  
Circle 94 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Carlisle Tools**  
Heavy Duty Creeper with  
Parts Tray, No. 815-1341  
*CATEGORY: Creepers & Seats*  
Circle 96 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**OEMTOOLS**  
Safety Readers  
*CATEGORY: Safety Equipment  
& Personal Gear*  
Circle 98 on card, or  
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VehicleServicePros.com

**Launch Tech USA**  
"Roxie" AIT (Automatic  
Information Terminal)  
*CATEGORY: Diagnostics*  
Circle 91 on card, or  
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VehicleServicePros.com



**Snap-on Tools**  
TPMS4 Diagnostic Tool  
*CATEGORY: Tire, Wheel Service*  
Circle 93 on card, or  
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VehicleServicePros.com



**Lisle**  
2-pc Truck Anchor Pin Bushing  
Driver Set, No. 29090  
*CATEGORY: Specialty Tools*  
Circle 95 on card, or  
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VehicleServicePros.com



**Mayhew Tools**  
Dominator 3-pc  
Curved Pry Bar Set  
*CATEGORY: Hand Tools*  
Circle 97 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Lumax**  
Manual/Pneumatic 2-in-1 Fluid  
Extractor, No. LX1314  
*CATEGORY: Engine Service & Repair*  
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FANS™**

EXCEPTIONALLY  
ENGINEERED

# 2019 NOMINEES

## PART 2



**Tracer Products**  
UV Leak Detection Kit, No. TPOPUV19

**CATEGORY: Leak Detection**

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**Bosch**  
Off-Highway Diagnostic Cable and Introductory Software Package

**CATEGORY: Diagnostics**

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**CarMD**  
CarMD Pro Scan Tool

**CATEGORY: Shop Software**

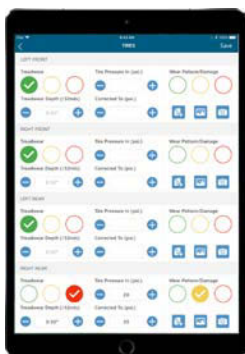
Circle 105 on card, or enter at "e-inquiry" on VehicleServicePros.com



**Dent Fix Equipment**  
Blind Rivet Adapter, No. DF-SPR/BRAD

**CATEGORY: Body Shop**

Circle 107 on card, or enter at "e-inquiry" on VehicleServicePros.com



**Mitchell 1**  
SE ProSpect

**CATEGORY: Shop Software**

Circle 109 on card, or enter at "e-inquiry" on VehicleServicePros.com

### Snap-on Tools

Synergic Double-Pulse Inverter MIG Welder, No. MIG200i

**CATEGORY: Welding**

Circle 102 on card, or enter at "e-inquiry" on VehicleServicePros.com



### Big Ass Fans

LED Bay Light

**CATEGORY: Lighting**

Circle 104 on card, or enter at "e-inquiry" on VehicleServicePros.com



### Hennessy Industries

Coats HTS Tire Inflation Tool

**CATEGORY: Tire, Wheel Service**

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### AutoEnginuity

Giotto Android

**CATEGORY: Automotive Scan Tools**

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### Airboss Air Tools

Twin Hammer Impact Wrench, No. AW-140P

**CATEGORY: Air Tools**

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**Pinnacle Automotive Systems**

Jumbo 3D Super Alignment System  
*CATEGORY: Alignment Equipment*

Circle 111 on card, or enter at "e-inquiry" on VehicleServicePros.com



**TEXA**

Quick Service Diagnostic Service Tool  
*CATEGORY: Heavy Duty Scan Tools*

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**Mac Tools**

Rounded Bolt Removal Technology  
*CATEGORY: Specialty Tools*  
Circle 115 on card, or enter at "e-inquiry" on VehicleServicePros.com



**ATD Tools, Inc.**

500 Im SABER Ball, No. 80200  
*CATEGORY: Lighting*  
Circle 117 on card, or enter at "e-inquiry" on VehicleServicePros.com



**Milwaukee Tool**

M12 Rivet Tool  
*CATEGORY: Power Tools*  
Circle 119 on card, or enter at "e-inquiry" on VehicleServicePros.com

**Snap-on Tools**

1/2 Ton Air-Assist Telescopic Transmission Jack, No. TJA100  
*CATEGORY: Jacks & Stands*  
Circle 112 on card, or enter at "e-inquiry" on VehicleServicePros.com



**Thexton**

Circuit Energizer, No. 852  
*CATEGORY: Electrical Testing Tools*  
Circle 114 on card, or enter at "e-inquiry" on VehicleServicePros.com



**Mueller-Kueps**

Removal Wedge, No. 277 003  
*CATEGORY: Hand Tools*  
Circle 116 on card, or enter at "e-inquiry" on VehicleServicePros.com



**Snap-on Diagnostics**

ADAS Software Upgrade Versions 18.2 and 18.4  
*CATEGORY: ADAS*  
Circle 118 on card, or enter at "e-inquiry" on VehicleServicePros.com



**Mac Tools**

EDGE Series Roller Cabinet  
*CATEGORY: Tool Boxes & Carts*  
Circle 120 on card, or enter at "e-inquiry" on VehicleServicePros.com



# 2019 NOMINEES

## PART 2



### K Tool International

3-watt 120 lm Head Lamps, Nos. KTI73398A and KTI73398B

**CATEGORY: Lighting**

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### Bosch

HPT 500 Bladder Adapters

**CATEGORY: Leak Detection**

Circle 123 on card, or enter at "e-inquiry" on VehicleServicePros.com



### Florida Pneumatic

AIRCAT Vibrotherm Drive Impact Wrenches

**CATEGORY: Air Tools**

Circle 125 on card, or enter at "e-inquiry" on VehicleServicePros.com



### Monster

36" Green Heavy Duty Professional Cart, No. MST3605

**CATEGORY: Tool Boxes & Carts**

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### Autologic

Diagnostics DrivePro

**CATEGORY: Automotive Scan Tools**

Circle 122 on card, or enter at "e-inquiry" on VehicleServicePros.com



### Cartek Group

Ze-Ru System

**CATEGORY: Alignment Equipment**

Circle 124 on card, or enter at "e-inquiry" on VehicleServicePros.com



### Snap-on Tools

Digital Torque Screwdriver, No. ATECHMS80FK

**CATEGORY: Hand Tools**

Circle 126 on card, or enter at "e-inquiry" on VehicleServicePros.com



### SP Tools/Schley Products

Injector Puller Kit, No. 16400

**CATEGORY: Engine Service & Repair**

Circle 128 on card, or enter at "e-inquiry" on VehicleServicePros.com





# SPEAKS **SOFTLY** & CARRIES A BIG PUMP



7.5 HP  
Low-RPM Motor

Asymmetric  
Rotary-Screw

80  
Gal

ASME  
Certified Tank

FREE

Anti-Vibration Pads

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MSRP \$3,735



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Quiet time never sounded so good.

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Model shown XPR-10XLS

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**First Light Inc.**  
5,400 lm 24" Black Portable  
LED Work Light/Stand Light  
*CATEGORY: Lighting*  
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VehicleServicePros.com



**Mueller-Kueps**  
Alignment Wrench, No. 512 712  
*CATEGORY: Specialty Tools*  
Circle 134 on card, or  
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VehicleServicePros.com



**Polyvance**  
Bumper Rollers, No. 6148  
*CATEGORY: Body Shop*  
Circle 136 on card, or  
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VehicleServicePros.com



**SP Tools/Schley  
Products**  
Ford Power Stroke Injector  
Puller Kit, No. 16300  
*CATEGORY: Engine Service  
& Repair*  
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VehicleServicePros.com

**Bartec USA**  
Tech1000 TPMS Tool  
*CATEGORY: Tire, Wheel Service*  
Circle 132 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Rotary Lift**  
TreadScan 2700  
*CATEGORY: Tire, Wheel Service*  
Circle 133 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Ullman Devices**  
Metal Marker  
*CATEGORY: Safety Equipment  
& Personal Tools*  
Circle 135 on card, or  
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VehicleServicePros.com



**Bar's Leaks**  
Super Transmission Fix  
*CATEGORY: Chemicals*  
Circle 137 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Snap-on Tools**  
36" 6-Drawer  
Heavy Duty Shop Cart  
*CATEGORY: Tool Boxes & Carts*  
Circle 139 on card, or  
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VehicleServicePros.com



# 2019 NOMINEES

## PART 2



**Macnaught**  
KY+ Safety Grease Coupler  
*CATEGORY: Oil and Lube*  
Circle 140 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Black Mamba**  
Torque Grip Gloves  
*CATEGORY: Safety Equipment  
& Personal Gear*  
Circle 142 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**Snap-on Diagnostics**  
Thermal Imager Elite  
*CATEGORY: Inspection Tools,  
Lab Scopes*  
Circle 144 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



**ARI-Hetra**  
Brake Maintenance Hub  
and Caliper Removal  
System  
*CATEGORY: Brake Service*  
Circle 146 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com

### Prevost

Flexair Hybrid Hose Assembly  
*CATEGORY: Shop Equipment*  
Circle 141 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



### Bosch

ADS 625 Scan Tool  
*CATEGORY: Automotive Scan Tools*  
Circle 143 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



### Matco Tools

MaximusFix Repair Database  
*CATEGORY: Repair Information*  
Circle 145 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com



### Makita

18V LXT Li-ion Sub-Compact  
Brushless Impact Driver,  
No. XDT15RB  
*CATEGORY: Power Tools*  
Circle 147 on card, or  
enter at "e-inquiry" on  
VehicleServicePros.com

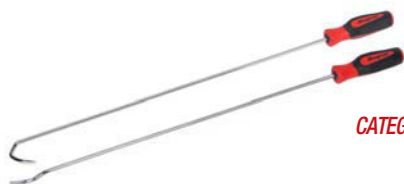






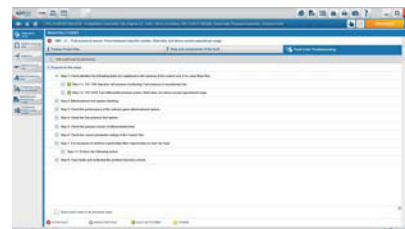
**MAHLE**  
Service Solutions  
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*CATEGORY: A/C Service*  
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Light, No. 83139  
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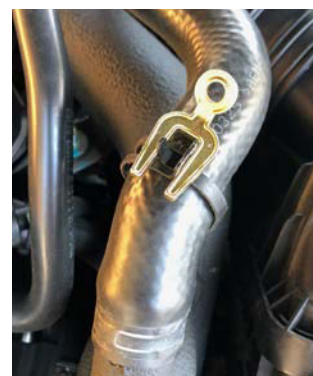
**Milwaukee Tool**  
M12 FUEL 3"  
Compact Cut Off Tool  
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# ADAS, it's not just for collision shops

On modern vehicles, even some seemingly simple tasks such as replacing a headlamp or a radiator can affect the alignment of a camera or module.

By Barry Hoyland, Contributing Editor

**O**ne of the latest technologies introduced to vehicles is grouped into a category commonly referred to as Advanced Driver Assistance Systems (ADAS). This technology has the fastest growth in electronics. It is used in vehicles and is primarily used for driver convenience and safety, but is also the primary bridge for making autonomous and "connected car" vehicles possible.

Due to the ability of the system to avoid, or at minimum reduce, the severity of a crash, ADAS is quickly becoming a must-have on late model vehicles. In fact, vehicles in the EU have been mandated to have collision avoidance systems installed on all new vehicles built in 2020, with U.S. car makers following suit in 2022. Additionally, the liability of a collision may eventually shift from the driver to the electronic systems responsible for collision avoidance. This could include potential liability for a technician repairing an ADAS component, or failing to calibrate a system after a seemingly normal repair that caused a sensor to become misaligned.

When it comes to ADAS, it is necessary to fully understand how the systems work and how they interact with other vehicle systems. Additionally, there are other components and systems within the vehicle that may affect ADAS functionality if repairs are done without completing an ADAS calibration.

We will first review the different types of ADAS systems and discuss some of the individual components, then analyze how some repairs can cause a malfunction of ADAS if the repair does not include a recalibration. Please remember this is not a complete list of components, systems, or repairs that are considered ADAS and you *must* obtain vehicle specific information in order to determine

which systems are on any vehicle you are working on.

#### ADAS Systems:

- Collision Warning
- Collision Avoidance
- Adaptive Cruise Control
- Parking Assistance
- Adaptive Braking
- Lane Departure Warning
- Drowsy Driver Warning
- Pedestrian Detection
- Rear Collision Warning
- Cross Traffic Alert
- Rain Sensor
- Blind Spot Warning

#### SENSORS

Most current ADAS systems use passive sensors to warn the driver of hazards, or use sensors to detect hazards and actively take measures to assist in collision avoidance. The most common passive sensors have been around for many years; the ultrasonic sensors are found in front and rear bumpers on many vehicles. These sensors provide a signal to a module that determines if an object is too close to the vehicle, then the module provides an audible warning to alert the driver. Some of the latest uses of these sensors are to sense obstacles on the side of the vehicle (see images on page 43).

Even though these sensors are relatively trouble-free and the most common causes of a failure are from either

#### **TOOLS USED:**

- Mitchell 1 ProDemand
- Diagnostic Scan Tool
- ADAS Component Alignment Tools
- ADAS Target System

a damaged or dirty sensor, the steps to diagnose and replace them are fairly simple. On early vehicle models, the sensors may not trigger a fault code, so the only way to test an individual sensor was to cover each sensor and listen for an audible warning from the vehicle. Late model vehicles can set a fault code and will require a scan tool to diagnose. It should be noted that fault codes for these systems can be located in different modules of various vehicles, and it may be necessary to check modules other than the Powertrain Control Module (PCM), or the Body Control Module (BCM).

Other tools required for service include hand tools for sensor removal and pliers for wire stripping and connector repair. Care should be taken when replacing sensors that the correct part replacement is used, and that the installation angle remains unchanged in order to retain original functionality. In some cases a sensor will need to be painted to match the vehicle. If so, use only the matching factory color on the sensor as even the slightest color change may affect the sensitivity of the sensor.

Ultrasonic sensor limitations include being unable to detect objects at long

distances and their inability to determine what an object is.

## CAMERAS

The use of cameras provides the system the ability to identify objects while extending the distance for the detection of possible hazards. The use of a camera also allows the system to recognize road signs and pedestrians. Recognizing road signs and pedestrians is critical information necessary for the system to recognize hazards and to react actively. Sign recognition can alert the system when the vehicle is approaching a turn, or even a construction zone, and alert the driver if there has not been a reduction in speed or a steering input necessary for the turn. The down side of cameras is they do not function as well in poor weather and they do not have the ability to determine distance. Because of this, most vehicle makers are using either a camera and a series of ultrasonic sensors, or a combination of cameras, sensors, and LIDAR (Light Detection and Ranging) radar units which incorporate the ability to gauge distance, even in poor visibility.

Some systems use these inputs to initiate an active response from the ADAS system. Some active responses from the system include throttle control, braking, steering control, and pre-tensioning of occupant restraint systems.

Cameras can be mounted inside the front windshield and need little to no maintenance. Failures do occur though, and many of them are caused by excessive heat. Because the cameras are mounted very close to the windshield, and the camera itself generates heat, lack of airflow across the camera can sometimes cause an issue. If the camera senses too much heat, they will typically shut off and send a warning to the driver information center that the system is unavailable. Some systems will change the inside temperature of the vehicle in an attempt to reduce the temperature.

Many car makers are now locating cameras in locations other than just the windshield. Rear facing cameras are typically located in the center of the vehicle near the rear license plate. These cameras

have now incorporated technology for object detection, along with providing a rear view to a monitor within the vehicle. These camera systems are typically used for object detection, but may be used for other functions such as self-parking.

Many other vehicle manufacturers are placing cameras in the side or in the exterior mirrors of the vehicle. These are used for blind spot and side collision detection. Many vehicles now include forward facing cameras that are mounted in the grille area. Recent additions to camera technology include 360° view cameras that reduce the need for multiple cameras on a vehicle.

In order to diagnose camera issues, the use of a scan tool and access to vehicle specific information will be necessary. First, use vehicle specific information along with your scan tool to identify what, if any, ADAS system components are used on your vehicle. If any fault codes are found, use the vehicle specific

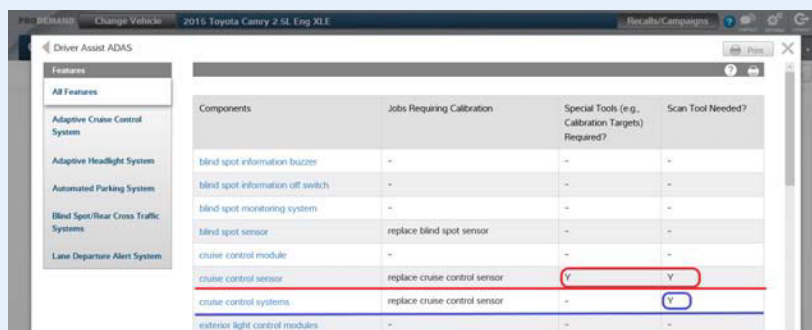
diagnostic procedure to correct the issue.

**Mitchell 1 ProDemand** recently released an ADAS Quick Reference button on their Quick Reference Ribbon at the top of the repair page. This section will allow the technician to quickly obtain information on which ADAS systems are installed on the vehicle they are working on. Not only does the information address which system could be installed on the vehicle, it informs on what types of repairs would necessitate a calibration of each ADAS system, along with the procedure and specific tool or target requirements. **Mitchell 1** has done an exceptional job of obtaining and placing this information in an easy to find and understand format (see image on page 45).

Common issues include fault “U” fault code module communication failures, dirty camera lenses and mis-alignment of the camera. Technician induced issues include replacing the windshield ➡

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### ADAS is here – are you ready?



Components	Jobs Requiring Calibration	Special Tools (e.g., Calibration Targets) Required?	Scan Tool Needed?
blind spot information buzzer	-	-	-
blind spot information off switch	-	-	-
blind spot monitoring system	-	-	-
blind spot sensor	replace blind spot sensor	-	-
cruise control module	-	-	-
cruise control sensor	replace cruise control sensor	Y	Y
cruise control systems	replace cruise control sensor	-	Y
exterior light control modules	-	-	-

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▲ The ADAS Quick Reference in ProDemand displays an overview of all ADAS features and related components on the selected vehicle. Techs can instantly see jobs requiring calibration and special tools needed like targets and scan tools. Click the links to access all the related repair information.

To read more, visit: [VehicleServicePros.com/21032964](http://VehicleServicePros.com/21032964)

Sponsored Content





▲ Image of front ADAS sensor on Toyota Tacoma.



▲ Image of side warning sensor on Toyota Tacoma. It should be noted if paint repairs are done, the original color must be matched.

with glass that is not consistent with the OE requirements of clarity or even the angle of the glass, which can distort the camera's image. The most common issue, and possibly the worst, is camera misalignment. Even some seemingly simple tasks such as replacing a headlamp or a radiator can affect the alignment of a camera or module.

You must keep in mind that the camera provides an image to its module, which uses the image to determine if a potential hazard exists. If the image is distorted, or even more common, the image is not reporting the location of the hazard in the correct relationship to the position of the vehicle, the module will not be able to correctly determine if a hazard really exists. A camera that has been moved as little as a degree or two from its calibrated position can change the reported position of obstacles by as much as 20 feet closer or further from the vehicle.

In order to assure each component is reporting potential hazards correctly, calibrating components to the position of the vehicle is necessary.

#### Repairs that will likely require an ADAS calibration:

- Glass replacement
- Interior or exterior mirror removal or replacement

- Thrust alignment
- Steering angle reset
- Suspension modifications
- Any repair affecting ride height, including tire or wheel size changes
- Removal or repositioning of any sensor, camera, radar, or LIDAR unit

It is essential to recognize ADAS components while repairing vehicle systems and take care to position them correctly and calibrate them after any repair.

Because these systems are relatively new, some vehicles have required software updates (reprogramming) in some of their modules, which may also necessitate performing a calibration of the sensor or camera.

Aligning or calibrating cameras, radars, or LIDAR systems is vehicle specific, although the steps prior to preparing most vehicles for calibration are similar.

#### Calibration Preparation Steps:

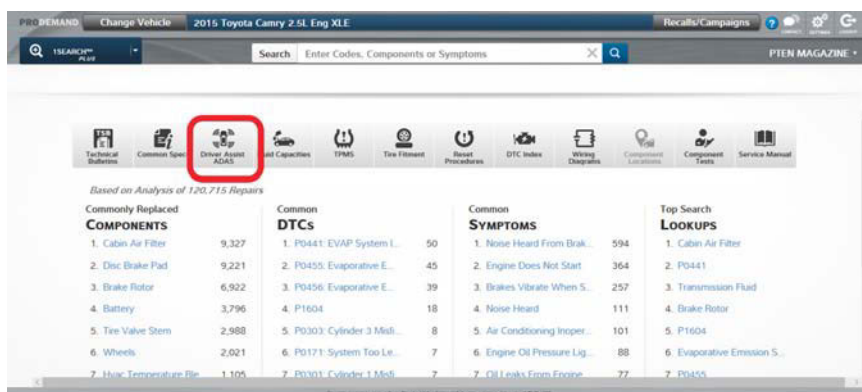
- Assure tires are inflated to specification
- Ensure fuel tank is full
- All windows, sensors, and cameras are clean
- Remove extra cargo from passenger and trunk
- Ensure suspension or tires have not been modified

Some vehicles utilize a dynamic test only to calibrate the camera to the position of the vehicle. A dynamic test starts with assuring the mountings are secure for the imaging device, and that the vehicle's electrical system is fully charged and has no issues. Use vehicle specific information to enable the system to start a dynamic calibration. This is typically accomplished by using your scan tool to place the system in a calibration mode, driving the vehicle on a clearly marked highway, and driving it at a specific speed and time determined by the vehicle manufacturer.

Some issues that can prevent a calibration from completing include lanes that are not clearly marked, heavy traffic, rain, snow or fog, or even Botts Dots type of lane markings instead of traditional painted lines. Excess window tint or driving into the sun may also affect the ability to perform a calibration.

Other vehicles use a static calibration for calibrating their systems. In order to perform a static calibration, prepare the vehicle according to the vehicle manufacturer's specific instructions found in your information source.

The sensors must be aligned both vertically and horizontally to the vehicle's centerline. Most static calibrations also require specific tools or targets designed



▲ This image illustrates the Mitchell 1 ProDemand Quick Access tab on homepage.

to assure that cameras, LIDARs, or other sensors are installed and aligned correctly to the centerline of the vehicle.

Some of the tools required include levels, bubble gauges, laser pointers, and targets with stands. In some cases, specific brackets to attach the tool to a sensor will be required. Target systems utilized for static calibrations are vehicle

specific and are required to be placed at specific locations, distances and heights from the vehicle. Many static calibrations will also require a dynamic calibration in order to complete the process.

Other requirements for performing static calibrations are a level bay, clear access around the vehicle, and good lighting with no direct sunlight.

In conclusion, since ADAS is here to stay and as this technology develops, the requirement to repair and calibrate those systems correctly will only become more critical. Taking time prior to any repair to use your information sources to determine if any ADAS system will be affected by the service. Ensuring you have the tools required to calibrate the system after any repair will not only be essential, but profitable.

Historically as automotive technology advanced, repair procedures also required change. With ADAS becoming more common, not only will we be required to check for TSB's before any repair, using specific vehicle information to determine what ADAS systems are installed and how they could be affected by working on the vehicle is now necessary. **PTEN**

For more information on related tools, visit: [VehicleServicePros.com/21081302](http://VehicleServicePros.com/21081302)



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# AIRCAT Pneumatic Tools VIBROTHERM DRIVE 1178- VXL 1/2" Impact Wrench

Reduced vibration and tuned exhaust keep noise to a minimum.

by Emily Markham, Assistant Editor

## THE REVIEW:

**W**orking in the shop can get noisy, but with the AIRCAT Pneumatic Tools VIBROTHERM DRIVE 1178-VXL 1/2" Impact Wrench, technicians can eliminate some of that noise, and they won't have to sacrifice on the tool's power, says reviewer Jeff Buckley.

Buckley, owner of My Father's Shop in Midlothian, Texas, put the VIBROTHERM DRIVE to the test. This model is designed to have a much quieter impact with a greater amount of power, so Buckley compared the noise level of the AIRCAT tool against the usual impact wrench used in his shop. With its new mechanism to reduce vibration and tuned exhaust to keep noise to a minimum, Buckley noticed a difference.

"[The VIBROTHERM DRIVE] actually does quiet down the noise quite a bit, so whether you have one of these going in the shop or several, it's going to be a bit quieter," Buckley said.

The testing didn't stop there though. Buckley used the tool in a variety of jobs around the shop, including standard tire

service, brakes, and suspension. Featuring 1,300 ft-lbs of loosening torque at 90psi, Buckley decided to test the power of the VIBROTHERM DRIVE on a particularly stubborn crankshaft bolt, and the tool removed the bolt with ease.

When a tool isn't tough enough to do a job, it can cost technicians valuable time when they have to go searching for a tool that can. According to Buckley, "[The VIBROTHERM DRIVE] seems to have plenty of power to do the standard jobs that we need to do as mechanics."

Buckley was impressed with the AIRCAT impact wrench from the moment he laid his eyes on it. Pulling the tool from its box and removing it from the black, cloth bag, he said, "The first thing [you] notice when you get this out is this is a really good-looking tool."

The molded handle offers a comfort-

able grip that "fits right in the palm of your hand," Buckley says. He adds, the switch for forward and reverse is simple enough to flip with just a flick of your thumb.

Additionally, Buckley found the VIBROTHERM DRIVE easy to use, with little set-up required — the technician only had to install the connector to prepare for use. Though Buckley found it unnecessary

for this very straightforward tool, the impact wrench does come with an instruction manual.

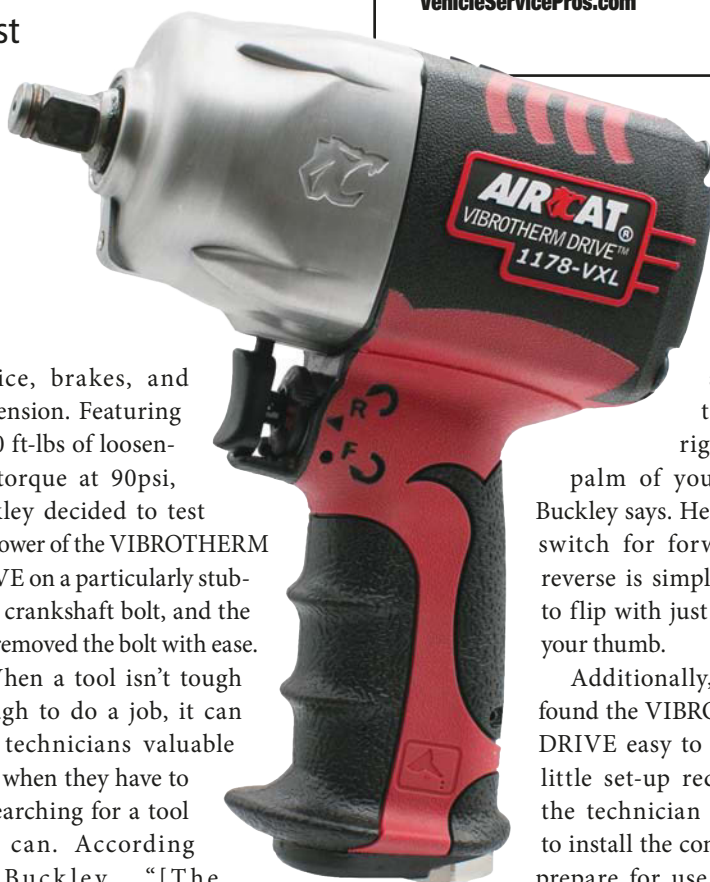
After finishing the reviewing process for the VIBROTHERM DRIVE, Buckley had just one thing to say, "I know where this one's going — into my toolbox!"

To see the VIBROTHERM DRIVE 1/2" Impact Wrench in action, check out Buckley's video review. **PTEN**

## PRODUCT DESCRIPTION:

The AIRCAT Pneumatic VIBROTHERM DRIVE Impact Wrench Series is designed for professional automotive technicians and service shop professionals. The impact wrenches offer high torque, low vibration, low noise, low weight, shorter length, longer working life, and operating comfort and convenience, the company says. AIRCAT includes a three-year warranty on the tool.

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# Lisle Double Ended Clip Lifter

The simplistic, versatile, and durable design impressed the reviewer.

by Tyler Fussner, Assistant Editor

## PRODUCT DESCRIPTION:

The Lisle Double Ended Clip Lifter, No. 35460, features a smaller opening designed for lifting the center pin and a wider opening that lifts the fastener from the panel. This tool also works with plastic fasteners, plastic clips, upholstery, or door panels. It offers a zinc finish with a 3-1/2" grip, and the overall tool length is 8".

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## THE REVIEW:

**T**he Lisle Double Ended Clip Lifter, No. 35460, requires no setup. There is no manual included, and none needed – it is very self-explanatory and straightforward. It comes well packaged and without accessories. Randy Kaiser, service manager and partial owner at Rost Motor, Inc. in Manson, Iowa, attests to the versatility of this clip lifter after using it to remove plastic push pins in his shop.

"It took the place of two or three different tools to do the same job. I have a universal set of trim tools and clip removers that I have used in the past; the clip removal tools never seem to fit quite right. This little gem [Lisle Double Ended Clip Lifter] fit the clips perfectly. It removed the center pin and then the clip,

without damaging them or breaking off part of the clip," Kaiser said.

When dealing with the removal of plastic parts, there is a risk of inflicting damage, even beyond repair, when applying metal tools to do so. The Lisle Corporation Double Ended Clip Lifter was designed with universal applications and offers technicians the ability to fit a wide range of clips and pins in order to complete removal without forcing its fit; Kaiser says the tool does just that.

"You slide the end with the small opening under the center pin of the clip and lift it up. Then you take the other end of the tool and remove the clip from the opening. The angle of the end of the tool makes it very easy to remove the clips," said Kaiser. "It didn't mark up the object

that I was removing clips from."

Durability and comfort are important aspects in the design of hand tools. "The metal in the tool seemed to be good quality and didn't bend or deform when I used it," Kaiser told us. "It has a nice, smooth finish. The handle in the center is very comfortable and has a little cushion to it."

This product can eliminate the need for multiple tools and kits to perform a single task – a major reason Kaiser rated the Lisle Double Ended Clip Lifter a 10 out of 10. "It is a nice, compact tool that is well designed," said Kaiser. "Instead of having to dig out your pocket knife, pocket screwdriver, regular screwdriver, and side cutter, you just need this one, handy tool." **PTEN**

## PRODUCT DESCRIPTION:

The **Makita Impact GOLD 9-pc 3/8" Drive Socket Set** comes in Metric (No. B-49862) and Standard (No. B-34833) sizes. The set offers a 1/4" hex to 3/8" square drive socket adapter which tilts up to 15 degrees for use in tight spaces. The sockets are made from heat-treated alloy steel for high-torque applications, and are ideal for use with impact drivers, impact wrenches, and ratchets. The black oxide coat on the sockets is designed to resist corrosion. The socket set comes in a flexible boot for storage. The metric set comes with the following 3/8" drive impact sockets: 8, 10, 12, 13, 14, 15, 17, and 18mm. The standard set comes with the following 3/8" drive impact sockets: 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 11/16", and 3/4".

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# Makita

## Impact GOLD 9-pc 3/8" Drive Socket Set

With their durability and precision, these socket sets impressed Lead Technician Lou Fort.

by Vesna Brajkovic,  
Contributing Editor



## THE REVIEW:

**T**he fear of rounding off a fastener due to a loose fitting and poorly made socket is a real one for Lou Fort, lead technician at K.A.R.S Inc. in Huntingburg, Indiana. But with the Makita Impact GOLD 9-pc 3/8" Drive Socket Sets that feeling was eliminated.

"I was very surprised to find how precise all the sockets were," Fort says. "Even after some very heavy usage with high impact air tools these sockets are keeping true to their sizes."

Fort used the sockets, both in Metric (No. B-49862) and in Standard (No. B-34833), while performing daily repairs in the shop, from rebuilding differential assemblies to removing dash assemblies required for heater core replacement.

"All of the sockets have taken a beating with no signs of wear," Fort says.

The set also comes with a 1/4" hex to 3/8" square drive socket adapter which tilts up to 15-degrees for use in tight spaces, which Fort used with a Makita

Impact Driver [No. XDT15ZB] when possible. To use the adapter, users must attach it to a driver and then attach whichever socket is needed.

"One does need to pay attention to the orientation of the 'Hole' in the sockets side so it lines up with the 'Ball' of the adapter," Fort advises. "Failure to do so will reduce the angle it will work at."

The 1/4" Hex Shank Adapter was a stand-out addition to the sockets sets. He says although the adapter seems like a "little thing," on certain jobs that adapter makes the biggest difference.

"I am also quite impressed to how well the bit drive adapters are holding up," Fort says. "I honestly expected to break them in short order but haven't broken one yet."

For more than 10 years, Fort has used sockets from all makes and types, and he still walks away impressed by these socket sets.

"These sockets are amongst the high-

est quality sockets I have ever used and the adapters are, so far, a step above all the others I have owned and used," Fort boasts.

The Metric set does not have an 11, 16, or 19 mm socket, so Fort advises purchasing both sets together.

Both socket sets come with a silicone-formed holder to keep the sockets and adapter organized. The standard set's organizer is red whereas the metric set is Makita's signature color.

The sockets include size markings, but Fort says these are a "little hard to read, especially in low-light situations."

"If I could, I would add size marking to the silicone organizers for easier socket identification," Fort suggests as a future update to the tool. "I would also like to have the size markings on the sockets easier to read, colored laser etching perhaps?"

Overall, these socket sets are durable, even with daily use, and leave this technician of 10 years impressed. **PTEN**

## MAHLE ArcticPRO ACX2150

The reviewers attest to the machine's ability to save time by allowing technicians to multitask.

by Tyler Fussner, Assistant Editor

### PRODUCT DESCRIPTION:

The MAHLE ArcticPRO ACX2150, No. 460 80445 00, is an R134a refrigerant handling system. The ACX2150 features an ergonomic design with a hinged service door to simplify unit service, a 7" capacitive touch LCD display, and an intuitive user interface. Its data and reporting metrics have the ability to log and monitor services which allows analytics for proactive service reminders, refrigerant use optimization, warranty reporting, and more. The unit also includes automatic updates, remote support for technicians, oil system management, network printing to print services provided for the customer, UV dye injection for leak detection, and a two-year warranty.

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### THE REVIEW:

**R**eturn on investment can be measured in minutes; time saved in the shop equates to lower costs. When integrating new equipment into the shop, the time-to-be-saved is always a priority consideration. Matt Chappell of Mad Matt's Diesel Performance in Aledo, Texas, and lead technician, Darrell Pile, attest to the ACX2150's ability to save time.

"I don't have to babysit the machine ... I can set the automatic features to recover, vacuum, and recharge," Pile says. The freedom granted through the ACX2150's automatic functions allows Pile to work on multiple aspects of the vehicle simultaneously.

"The unit arrived to the shop on a pallet and was well packaged," Chappell says. "It had everything but the refrigerant to get started." The ACX2150 was also packaged with an owner's manual, including set-up and operating instructions. *Editor's note: The manual is also located on the homescreen as a small button that looks like an open book.* Pile states that after figuring out where the buttons were located on the machine, it was "really simple" to operate.

"Overall – real good," he says. "Really easy to pick up right off the bat." Chappell says it took him a bit of time, initially, to refill the internal vessel. The manufac-



turer notes there's a shortcut button on the homescreen that takes users directly to this function. The icon looks like a small internal vessel.

Along with the machine's automatic functions, Pile says a favorite feature of his is the post-operation print-out screen. This summary details critical data, such as how long the procedure took, how much refrigerant was pulled or charged through the vehicle, and whether oil was pulled or injected. Since the ACX2150 has Wi-Fi capabilities, this data can be sent directly to a shop's printer, or it can be emailed to technicians or even customers.

Chappell enjoys the machine's ability to update its software and systems using Wi-Fi. "We will leave the machine on overnight and it is ready to go the

next morning; we're not waiting hours for the update, having to stop what we are doing," he says.

Mad Matt's Diesel Performance's previous A/C service unit was eight years old; both Chappell and Pile claimed there is a major difference in technology between their previous machine and the ACX2150. "[The] MAHLE machine is a lot nicer," Chappell says.

Pile states that there were two features he wishes the machine could perform. The first being the ability to check the vehicle's pressure levels while the engine is running. The other being a vehicle-assist on charging, utilizing the vehicle's compressor to pull refrigerant into the vehicle in instances when the machine cannot force refrigerant into the vehicle itself. *Editor's note: The reviewer was using a beta version of the ACX2150 and may not have had access to all features. Check with user manual or the manufacturer to confirm these and other product options and features.*

Overall, both Chappell and Pile give the MAHLE ArcticPRO ACX2150 a solid rating. With the machine's advanced technology, ability to free up technicians to perform other services, and the multi-functionality of the Wi-Fi capabilities, they are glad to have it in their shop. **PTEN**





# Inspecting the pre- and post-scan

The practice of recording information before and following a repair is not new, but the methods and technology to do so have improved over time.

By **Scott Weaver**, *Contributing Editor*  
gonzosae@aol.com

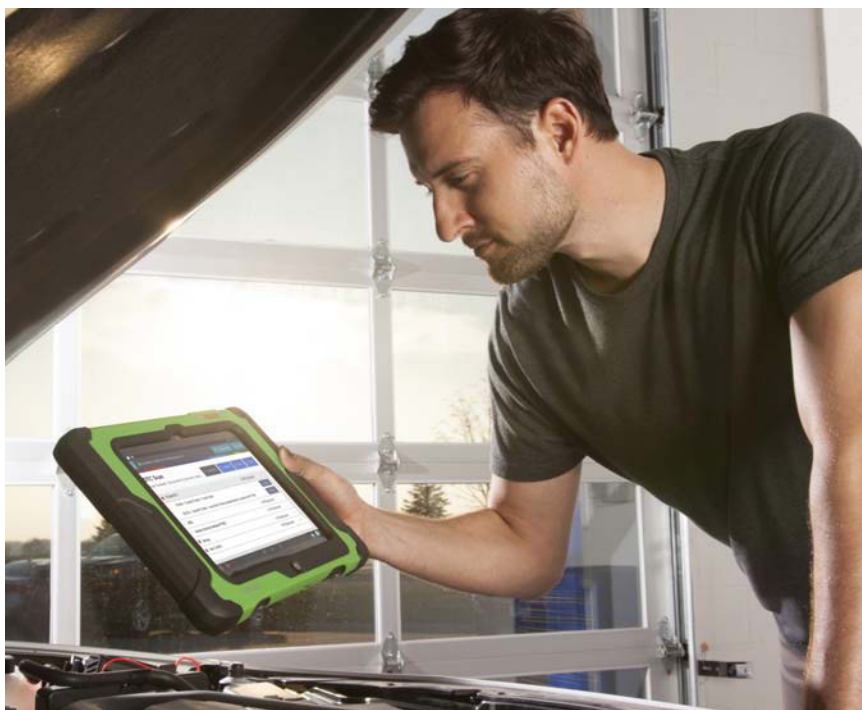
Photo courtesy of Bosch

**I** find it rather interesting that this subject of pre- and post-scans seems to pop up these days. It's as if somebody is saying that we didn't do anything like this in the past and they are trying to tell us to be more careful today than in years past. I'm not so sure the grapevine has gotten this story correct, because every shop that I know has always done some sort of pre-scan, as well as a post-scan of the repairs they performed. We may not have called it that, but we did it just the same.

So, what gives these days? What's the big concern with it all? It comes down to how we are acquiring this pre- and post-scan information and delivering that information to our customers. With the changes in technology, the customer expects to be informed on not only what was wrong and how you corrected it, but they also want that information delivered as quickly and precisely as possible. That's where the technology plays a major role in how this is accomplished. First, let's take a nostalgic look at how it had been accomplished in years past.

## IN THE BEGINNING

Back in the day of the paper and pencil, a service sheet was filled out and a technician would be assigned to the task. The technician would then diagnose the complaint and write up what they found. Then, the service writer would inform the customer of the results and a decision was made as to when or how the repair would be handled. Eventually, the work order would be checked, initialed, and OK'd by the customer, and that mere



piece of paper would be sent back to the technician to have the actual work done. Upon completion of the repair, it was customary to take the vehicle for a test drive, noting anything odd or unusual, and then writing that down on the repair order (RO).

Then came the computer age. Many of the duties that involved passing the invoice back and forth became electronic. As we all know, the electronic age moves a lot faster than the pad and pencil days did. Now it's the internet, smartphones, cloud-based storage capabilities, endless information sources, and immediate answers to nearly every conceivable problem.

Technology has certainly changed how we handle the whole customer/

repair situation. However, that is only part of the issue. We also have to consider how the technology has changed the automobile itself. With all the interaction between different systems that are now interconnected, it's hard to determine where one system begins and another ends. This emphasizes the essential nature of the pre- and post-scan in the repair process rather than its previous designation as a courtesy to the customer.

I asked Danijela Haskin, product manager of diagnostics at Bosch, about the importance of full health checks and pre/post scans on today's vehicles. Haskin said, "Pre- and post-scanning has become a very important topic, especially for body shops, over the last

# PRE-SCAN & POST-SCAN

# COLLISION-REPAIR READY

SCAN / PRINT / REPAIR / PRINT

FROM TOOL - WIRELESSLY PRINT & EMAIL REPORTS TO SUBMIT FOR INSURANCE CARRIER APPROVAL

SCAN MORE VEHICLES - GET MORE PROFIT OUT OF EVERY ESTIMATE

## PRE-SCAN



TEST ALL MODULES IN ALL VEHICLE SYSTEMS



## Fast & Easy Reports

### Step 1: AutoSCAN the Vehicle

- AutoVIN instantly identify all vehicle information
- AutoSCAN all available modules in all systems
- Single screen list all DTCs and code details

### Step 2: Print Pre-SCAN Report

- Take vehicle pictures and attach to SCAN report
- Single button generates dated report file to submit
- Report is customized with shop and vehicle info
- Expedite insurer approved repair estimate
- Avoid additional insurance authorizations

### Step 3: Repair Vehicle

CREATE EFFICIENT REPAIR PLAN FROM THE START



### Step 4: AutoSCAN Repaired Vehicle

- Ensure no new faults were created during repair
- Confirm no DTCs are present at completion
- Ensure vehicle is repaired and safe for customer

### Step 5: Print Post-SCAN Report

- Prove all DTCs on Pre-SCAN report are fixed
- Dated SCAN report to confirm project complete

## POST-SCAN



TEST ALL MODULES IN ALL VEHICLE SYSTEMS



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## CALIBRATION

### MODULE IDENTIFICATION

Icon shows during AutoSCAN to pinpoint modules requiring ADAS calibration procedures.

AFFORDABLE & EASY-TO-USE

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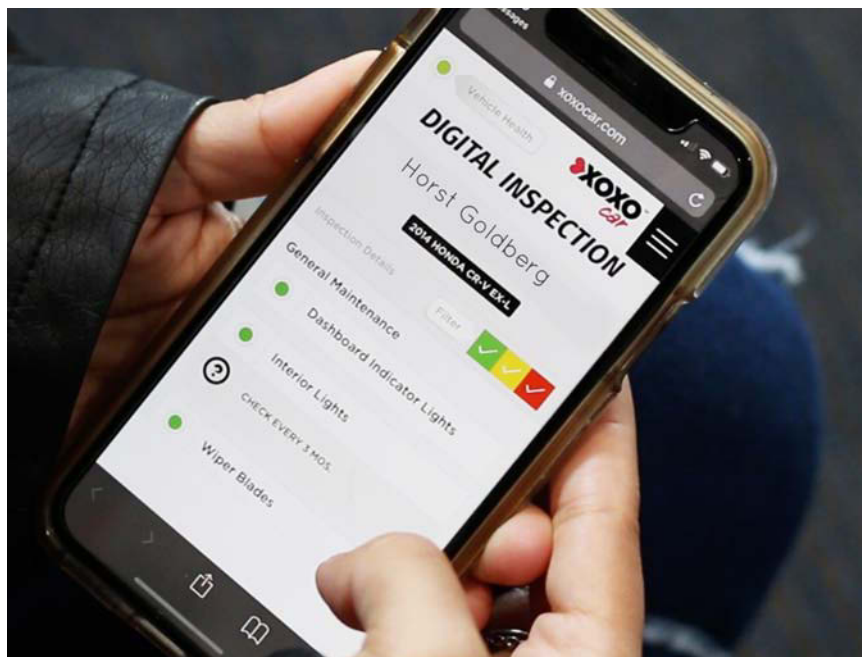
18 months. Our main approach [at Bosch] is to ensure vehicle scans are, most importantly, thorough and provide all the critical vehicle information needed, whether for technicians, shops, vehicle owners, or insurance companies. It's still up to the knowledgeable technician to translate vehicle symptoms based on the scan data and present the customer with a diagnosis in consumer-friendly language."

Michael Flink, Autel's Director of North American Sales, says the Autel Maxisys line of tools "has done this type of report from the beginning (6 years ago). In our diagnostics menu there is an 'Autoscan' or all system scan feature," Flink says. "After running [the scan], at the bottom is a 'Report' button which produces a printable PDF of the scan results, all the codes by module, with date, time, and VIN listed. Autel has now added an actual 'Pre-scan and Post-scan' button that performs and saves this report automatically on models popular for the collision industry." This feature also files reports by VIN and RO number.

## PRE-SCAN

So, why pre-scan? These days it is essential. A pre-scan is more than the obligatory walk around the car, where you are marking any defects so you're not held liable for them or making sure the shop camera is operating and recording. A full 'health check' with the scan tool can reveal a lot more than codes. All the interconnections of computer data can be simplified through performing a full health check: such as a service code that seems so far-fetched that it shouldn't have anything to do with the problem the customer mentioned, but turns out it really does. Never underestimate the code definition until you've read up on the actual function and reasons for the code.

A perfect example of this was a diesel pickup that came in to the shop with a customer complaint about the air conditioning not working correctly. There was only one code stored in the powertrain control module (PCM) for the high-speed coolant fan. Upon further



▲ **BOLT ON TECHNOLOGY's** digital inspections provide customized vehicle health reports based on the services performed. Each line item indicates the results of the technician's findings—with either a green, yellow, or red grade indicating the severity of needed services.

testing, it was determined that a faulty connection was present at the fan motor. Once this was repaired and the code was cleared, the air conditioning system returned to normal operation.

A code indicating the lack of a coolant fan can cause comparative issues to that of a faulty fan motor connection. The lack of a fan leads to a hotter condenser core, which leads to higher head pressures and no air conditioning. Even though there may be similarities between some codes and the actual problem, many codes have no obvious connection from one certain system to another initially. That's why a full health check of all operating systems is essential, and we shouldn't ignore the pre-scan information or skip over any of it.

## POST-SCAN

The post-scan is just as important. Not just to verify the repair, but to indicate that something else hasn't been left disconnected or has gone out of calibration as a result of the work that was performed. Keep in mind, a lot of the issues in today's cars have a certain drive time, mileage base, or other requirements that will only show up after a proper test drive

has been completed.

The post-scan can be a teaching aid for younger technicians, as well. This is the time when everything should be functioning properly, and knowing how systems are supposed to work or be displayed on a scanner or scope is a great teaching tool for everyone involved.

Autel's Michael Flink agrees with using the post-scan as a teaching aid. "This is a huge need, especially in the collision industry. Every shop should be having their diagnostic person mentoring someone," says Flink.

Bosch's Haskin also advocates for diagnostic scan education. "Successful technicians are those who never stop learning. There's no better way for a younger tech to learn than by getting involved from the beginning so they can see how the vehicle evolves from the initial pre-scan, during repair, and the post-scan. Each step is critical and provides unique learning experiences. A developed apprenticeship program would benefit many and provide consistency in the educational programs."

For a customer it's not about the scanner screen display; they are more con-



cerned with the results of the test. Even though a lot of us technicians tend to look at a job as finished as soon as it pulls away from the shop, the truth is, the job isn't done until the customer has a smile on their face. Tony Defazio with BOLT ON TECHNOLOGY told me about an additional feature they offer with their pre- and post-scan software. He said, "Text to Pay ... provides an even more compelling reason for auto repair shop owners to use these software solutions. Our new Text to Pay feature is available to all new and existing BOLT ON customers using the company's PRO Pack

suite of products with the addition of a simple plug-in."

Make no mistake: customers are after the peace of mind that comes with knowing all is well with their vehicles.

Scanning for a code is now much different than it used to be in the early '80s. Manufacturers, technicians, shop owners, and the general public are after more precise answers for even greater, technologically advanced systems. There's no doubt that as we move forward with quickly advancing technologies, even more interaction and involvement will be on the horizon. **PTEN**

## PRODUCTS TO STOCK



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AirPro Scan Tool  
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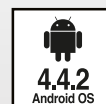


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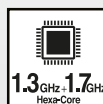


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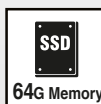
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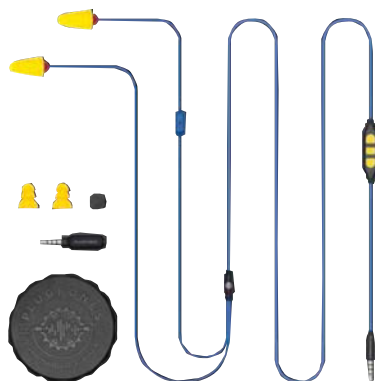
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### TEAR-RESISTANT CORD

The **Plugfones Protector Plus Earplugs** feature SoundSeal noise suppressing technology, tear-resistant cord, noise isolating mic, tuned speaker and Quickdraw easy access control for controlling music and making calls. The Protector Plus earplugs also offer a double-reinforced jack and are sweat resistant. Protector Plus includes one pair of ComforTwist foam plugs, one pair of interchangeable ComforTiered silicone plugs, waterproof hard case, cable management clip, stereo-to-Mono adapter, and a quick start guide.

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### FEATURES FLOODLIGHT AND PENLIGHT

The **Maxxeon WorkStar 3000 LED Worklight**, No. MXN03000, offers a wide floodlight main beam and a narrow penlight beam on top. The flood-style beam provides a 6' beam diameter at a 4' distance from the light, and the penlight provides 700 lm and has a seven-hour run-time. The light also features a rugged build, retractable hook, magnetic base, soft touch handle, and battery charge status indicator. The head is adjustable 180 degrees and the LED bulb is designed to last up to 50,000 hours.

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### BREATHABLE YET DURABLE

The **Red Kap Lightweight Crew Pants and Shorts** are designed to keep workers cool without sacrificing strength. They are made from breathable yet durable ripstop fabric with Touchtex technology and have a water-repellent finish. Other features include a dedicated cellphone pocket with hidden straps to keep devices secure, a stretch waistband, and a covered waistband button and zipper to avoid paint scratches and dings.

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### ATTACHES TO MOST METAL SURFACES

The **Bayco Products Model SL-868 LED Worklight** is designed for portability and functionality. The light features a 40' heavy duty 18/3 SJT retractable cord and a rare-earth magnetic base that attaches to most metal surfaces. The light swivels to illuminate different directions, and a single switch activates the 950 lm floodlight that emits from a 10W LED. The light is built with a tempered glass lens and features a powder-coated aluminum finish for improved durability. The SL-868 is backed by a one-year limited warranty.

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### PVC IMPACT RESISTANT PADS

The **Galeton PFlex Pro Impact Resistant, Sandy Nitrile Coated Cushioned Palm Gloves**, No. 13300, are designed to be durable yet flexible, with extra protection padding on both sides. The PVC impact resistant pads help prevent injuries to hands, fingers, and thumbs, while the glove's palm features an EVA rubber padding for impact absorption and a sandy, nitrile coating finish for improved dry and oily grip. These gloves are made with lightweight 15 gauge polyester knit and feature thumb saddle reinforcement for added durability and wear life.

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### REMOVABLE SMARTMASKA SOCK LINERS

The **Coastal Boot Octane Athletic Casual Shoe**, available from Snap-on, features lightweight nylon mesh uppers designed to keep users cool and dry. The shoes offer removable Smartmaska sock liners for improved comfort and lightweight EVA outsoles for additional shock absorption. The Octane is available in sizes 7 to 13 in Snap-on Red or Black and Charcoal.

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## DESIGNED FOR ALL-DAY COMFORT

The **Honeywell Uvex SVP Series Safety Eyewear** is designed to provide protection, all-day comfort, and modern style. This series is available in the Uvex SVP 200, 300, and 400 line, delivers 9- or 10-base coverage, and is lightweight. The 200 series features a low-profile frameless design; the 300 series offers a bold, full-frame look; and the 400 series offers a stylized frameless design. **Circle 179 on card, or enter at "e-inquiry" on VehicleServicePros.com**



## PROVIDES UP TO 35 HOURS OF HEAT

The **Makita 18V LXT Cordless Heated Jacket** uses Makita 18V LXT and 18V Compact Li-ion batteries to deliver up to 35 hours of heat (with 6.0Ah battery, sold separately). This jacket features a convenient on-board USB power port to keep portable electronics charged. The heated jacket offers three heat settings to adjust to changing weather conditions and five core heat zones (left chest, right chest, back, and both pockets) for optimal heat distribution. The jacket offers a polyester shell for improved wind and water resistance, stretchy side panels for extra mobility, and a soft fleece interior for extra warmth. The adjustable cuffs have a hook and loop closure for convenience and comfort to provide a better fit.

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## MAGNETS ON THE CLIP AND THE BASE

The **Matco Tools Pocket Dial Floodlight**, No. MPLFL, is a 400 lm COB light that provides two to five hours of light based on the variable setting. This floodlight is equipped with magnets both on the clip and the base and offers a dial dimmable switch.

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## OIL AND MOISTURE RESISTANT

**Big Uggly Knee Protection Pads**, by **Premier Products**, feature premium closed-cell, automotive grade, polymeric foam that is both oil and moisture resistant. The ergonomically designed pads measure 15" by 22" by 1.5", clean easily, and air dry. This product offers superior knee protection and comfort while working or moving, according to the company.

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## OFFERS DEXTERITY AND PRECISION

**Ansell's ActivArm Medium Duty Multipurpose Glove**, No. 97-008, is designed for body work, general maintenance, and repair. The gloves feature reinforced palm ridges and an advanced layer of DuPont Kevlar. This glove stands up to abrasions and cuts and offers the dexterity and precision technicians need to work efficiently.

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## AVAILABLE IN FOUR COLORS

The **LightStar InfiniStar**, a 275 lm micro-USB rechargeable penlight, features a rubber bite-grip that allows hands-free use, a high-CRI LED, and 275/50 lm output from dual modes. The micro-USB charging port allows charging from any common source. The battery is good for up to 400 charge cycles. Available in four colors. Limited lifetime warranty.

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## MULTI-USE TOOL WITH VARIETY OF CARRYING OPTIONS

The **CRKT Technician Tool** is a multi-use tool that features a telescoping magnetic pickup device, needle-nose pliers, grippers, wire cutters, and a wire stripper, all built in corrosion-resistant stainless steel. On one side, the magnetic pickup device nests within with both a fine and rough file that also features a bottle opener and a strap cutter. A standard feeler gauge sits in snugly. Flip the tool around and a slip-joint knife blade becomes accessible with a thumb stud, 1/4" bit driver and gasket scraper. The entire tool fits inside a tough nylon case with multiple carrying options.

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## DESIGNED FOR USE IN INDUSTRIAL APPLICATIONS

Designed for use in industrial applications, the **SW GraphEx** work gloves offer ANSI A4 and A6 level protection, while providing comfort, tactility, and durability. GraphEx gloves, the company's first cut-resistant product, are made using SW's proprietary AxiFybr yarn, which is 200 times stronger than steel, harder than a diamond, and just one atom thick. AxiFybr is 48 percent stronger and 21 percent more cut resistant than the latest HPPE (high performance polyethylene) technologies, yet remains lightweight and flexible.

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## DOUBLE DUTY AIR HAMMER

### LT855-AH-SK TEXAS TWISTER™. BIDIRECTIONAL AIR HAMMER STARTER KIT

- Bidirectional air hammer - use as air hammer or pneumatic slide hammer - 2500 BPM
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  - 855-2A - 7" Seal Remover  
Pulls seals, bearings, brake hubs, axles, diesel injectors and axle pinion flanges and much more
  - 855-5A - 7" Universal Flat Blade Puller  
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  - 855-12A - 6" Double Male 1/2-20 to 5/8-18 Thread Connector  
Use to attach your specialty pullers directly to the Texas Twister™ Air Hammer
- Just install the included air lock plug into quick release chuck in front of air hammer to convert to pneumatic puller
- Unlimited applications in automotive, aircraft, marine repair, farm implement maintenance, manufacturing industries
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- Includes air lock plug, quick release chuck, 1/4" NPT adjustable brass air flow regulator



Patent #7,036,211

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## ORGANIZES, STORES, AND CHARGES UP TO EIGHT BATTERIES

The **Streamlight, Inc. 18650 Battery Bank Charger** is designed to help first responders, industrial technicians, and other users maintain and charge up to eight Streamlight 18650 USB rechargeable lithium-ion batteries. The charger features an eight-bay design with each bay having its own LED display above the battery slot to indicate charge status. It securely holds each battery in place, and its low-profile design allows for it to be mounted in trucks and other service vehicles. The Battery Bank Charger is powered by either a 120V AC, International power supply wall adapter or a 12V DC charger.

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## WURTH USA VOLCANO HAND CLEANER DEMO

See Volcano Hand Cleaner in action!  
 Spoiler alert: He works at a printshop.

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To see a video demo of this product, visit: [VehicleServicePros.com/21076696](http://VehicleServicePros.com/21076696)



## SPOT BEAM FOR LONG-RANGE VISIBILITY

The **Milwaukee USB Rechargeable Pivoting Flashlight** combines the features of a flashlight and flood light into an easy-to-carry, durable lighting solution. This light offers a 500 lm light output and a 110 degree pivoting head that includes a 155m spot beam for long-range visibility and a wide flood beam for task lighting. For handsfree use, this light comes equipped with a magnetic base. The light offers up to a 10-hour run-time with three output modes: flood high, flood low, and spot beam. Users can charge the battery right inside the light via micro USB or swap it out with an additional Redlithium USB battery. The light's body and lens are impact and chemical-resistant and IP54 rated to protect against weather and dust.

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## WEAR ON NECK FOR HANDS-FREE USE

The E-Z Red Multi-Position LED Neck Light, No. NK10, offers a sleek, comfortable design that provides 200 lm and has a run-time of up to two and a half hours. The light wears around your neck for hands-free use and rotates up and down 70 degrees. The neck light weighs 4.6 oz and includes two AA batteries.

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## FEATURE HEAVY TEXTURED SURFACE

The **Adenna Catch Orange Nitrile Powder Free Gloves** feature a heavy textured surface for improved grip. This glove is designed to offer extra protection and stronger resistance to wear and tear. The orange color increases visibility at the workplace to help enhance safety. The extra thickness makes these gloves more durable while working on rough jobs, and also helps ensure that they keep hands safe and protected against harsh chemicals, solvents, and paints.

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## OFFERS TOUCHSCREEN COMPATIBILITY

The **Magid AeroDex Gloves** are designed to deliver lightweight, 360-degree A4 cut resistance that is up to 50 percent lighter than a comparable cut A4, the company says. These gloves are designed for flexibility and dexterity for jobs that require tactile sensitivity without removing gloves. These gloves feature a polyurethane palm coating to maintain dexterity and offer improved grip and touchscreen compatibility.

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## CHEMICAL RESISTANT NITRILE DISPOSABLE GLOVES

The **Eppco Lion Grip Gloves** are chemical resistant nitrile disposable gloves with a tread style textured surface that is designed to provide better grip and tactile sensitivity. They are commercial grade, 8mm thick, puncture resistant, and latex free. The gloves come in black to promote non-medical durability and to separate them for automotive use. They are available in sizes medium through XXL.

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## ALL STAINLESS STEEL FOLDABLE KNIFE

The **Kershaw Boilermaker Knife** features a modified drop-point blade with a 3.3" cutting edge. The all stainless steel knife provides extra cutting control with jimping along the blade's spine. The blade opens quickly with the SpeedSafe assisted opening by a push on the thumbstud or a pull back on the flipper. Both the handle and blade have a PVD coating and a stonewashed finish to give the Boilermaker an industrial look and to provide an additional measure of protection for the steel. The knife also features a deep carry pocketclip.

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## OFFERS A MOTION SWITCH FUNCTION

The **Cornwell Quality Tools Multi-Function Sensor Headlamp**, part of their blueION lighting product line, offers COB light technology and has four function switches: bright, dim, red, and off. For convenient use, the headlamp includes a motion switch function where you simply wave your hand in front of the sensor to turn on/off. The headlamp has a maximum 160 lm brightness and the light head rotates 360 degrees from the belt holder. It includes a 3.7V 500 MAH Li-ion rechargeable battery and micro USB cable.

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## SLIDE FOCUS AND ANTI-ROLL BEZEL

The **Coast High Lumen Rechargeable Handheld Flashlight**, No. TC14R, offers a 900 lm flashlight that combines the company's Long-Range Optic System with slide focus and anti-roll bezel, designed for easy use in the field. With a Flex Charge Dual Power system, this light uses either lithium or alkaline power and using a micro USB, the user can recharge the batteries either in or out of the light. The light is adaptable to different situations with a high, strobe or low mode with a slide focus. This flashlight is impact resistant, weather resistant and its LED is virtually unbreakable, the company says.

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## PROVIDES COMFORT AND FUNCTIONALITY WITH MAGNETIC DISH

The **Monster Kneeling Pad**, No. MST19400, provides cushion comfort and functionality with its magnetic dish for nuts, bolts, and small parts. The three layer thick foam protects your knees from hard surfaces and is slip-resistant, oil proof, and solvent-resistant. It also comes with a built-in handle for carrying and easy storage. The size measures 24" (length) x 16" (width) x 1.13" (thick).

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- 65 ft. 12/3 SJTOW
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- 1875W, 15A, 125V

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- OUTLET IN HANDLE
- HOOK & MAGNET
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**5050CL8**

- 900 LUMEN COB LIGHT REEL
- 50 ft. 18/2 SJT
- FOLDING SWIVEL HOOK & MAGNET

**5320T-SW**

- PIGTAIL - 60" SJTOWW 12/3
- 20FT SJTOWW 12/3
- 15 AMP RESETTABLE CIRCUIT BREAKER

**5330M-SW**

- PIGTAIL - 60" SJTOWW 14/3
- 30FT SJTOWW 14/3
- 13 AMP RESETTABLE CIRCUIT BREAKER

**5030AM**

- 1300 LUMEN COB LIGHT REEL
- GROUNDING OUTLET IN HANDLE
- HOOK & MAGNET
- 30' 16/3 SJTOW CORD

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### TOOL REVIEW

#### MAC TOOLS 20V MAX HOOD LIGHT

When working in the shop, being able to see what you're working on is key to maximizing efficiency. Reviewer Ken Elzinga of Hilltop Auto Service in Byron Center, Michigan, appreciated the brightness and utility of the Mac Tools 20V MAX Hood Light. "Even in a well-lit shop, there are always situations where you need more light," Elzinga says. "The Mac underhood light made it very easy to keep working with the engine bay fully illuminated." Setup was simple—just charge the batteries, and the light was ready to use. The only accessory included was a battery charger. To read the full article, visit: [VEHICLESERVICEPROS.COM/21077193](http://VEHICLESERVICEPROS.COM/21077193)



### VIDEO



#### STREAMLIGHT STINGER SWITCHBLADE

The Streamlight Stinger Switchblade is designed to be a compact, multi-function worklight for automotive professionals. The Stinger

Switchblade is five lights in one: a drop light, hands-free light, bright white light, CRI light, and UV light. The Switchblade offers a double-sided light bar that rotates 180 degrees to offer three lighting options. The white LEDs deliver 800 lm of area illumination, the CRI light, with Streamlight's Color-Rite technology, is used for paint matching or checking wires and the UV light detects HVAC leaks or minor frame cracks. To watch the video, visit:

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### VIDEO



#### ULLMAN DEVICES METAL MARKER

In this video, Ullman Devices demonstrates the Metal Marker. To watch the video, visit:

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## Built for work

This box helps a busy tech find the tools he needs.

by Stefanie Von Rueden, Assistant Editor

**M**ark Myers of Manchester, Tennessee, has been an automotive technician for 24 years, and last year, he upgraded his previous toolbox to a Snap-on Epiq series box with two matching side cabinets.

“My last box was a Snap-on box as well,” Myers said. “It just didn’t have enough storage. I liked a lot of the features, so when I upgraded, I went with another Snap-on box.”

Each drawer of Myers’ current setup is filled to the brim with tools, and although he doesn’t use a particularly rigid organizational system, he makes sure he is always able to find what he needs. To help with that, he uses storage trays to organize easy to lose items such as sockets, and keeps like tools

### OWNER:

**Mark Myers**

Brown Lee Ford  
Manchester, Tennessee

grouped together.

“The way I see it, a toolbox doesn’t pay for the investment unless it helps you find the tool you need to use, when you need it,” Myers says. “A toolbox is an expensive investment, and it has to work for you.”

Myers says that the workstation under his hutch is his favorite part of the toolbox, because it gives him a nice, open area to work and has a built-in power strip that allows him to charge tool batteries. He keeps his workspace mostly



▲ Each drawer of Myers’ setup is filled to the brim with tools. He uses trays to organize items such as sockets, and keeps like tools grouped together.

clear, except for his laptops and frequently used tools such as impacts.

“The side cabinets were an add-on feature that provides extra storage,” Myers says. “The drawer handles also have an upgraded finish, which looks nice.”

Secondary to the looks though, is the performance, and on that front, Myers has been pleased with this toolbox purchase. Since this was a recent upgrade, he has no immediate plans for expansion, but he hasn’t ruled out the possibility if he needs more space in the future. **PTEN**

*Want to see more photos of Myers’ box?*  
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