

TOP 20 TOOLS 2010 ALL-STARS

BY THE EDITORS OF MOTOR

Each year the call goes out to the world's automotive tool designers, manufacturers and suppliers. The message is simple: Send us your latest and greatest—tools that are truly new and innovative. Show us something that makes us say: “Wow! We’ve never seen anything like this before!” Besides league-leading originality, there’s only one other criterion that must be met for consideration: The product must have been introduced between July 1, 2009 and June 30, 2010.

MOTOR's annual Top 20 Tools competition is now in its 19th year. As in years past, we were impressed by the quality and ingenuity of the entries we received. We offer our sincere thanks to all companies that submitted candidates for consideration, and a special congratulations to each of this year's all-stars. Without further ado, we proudly present the best of the best for 2010. Batter up!

Photoillustration: Harold A. Perry; images: Thinkstock



A/C Charge Guard For Hybrid Vehicles by AirSept

Most a/c technicians understand that residual PAG oil in the lines of recycling machines must be kept out of the systems of hybrids with electric drive compressors. These use POE (polyol ester) oil, and even 1% cross-contamination would reduce the resistivity of the oil below the manufacturer's specs, posing a potential high-voltage danger to technicians.

Although the problem is one that could occur with repeated service, the industry is promoting special procedures to positively prevent the problem. There's an SAE specification of .1% for maximum oil cross-contamination on an individual service. The typical approach to meet it is to flush the hoses and plumbing of the machines with refrigerant prior to electric-drive compressor system



service. Although many new machines incorporate the flush procedure, almost all existing machines would require modification.

The Charge Guard is an external oil removal device that eliminates that need, and, in fact, makers of some new machines do not even offer the flushing modification, recommending the Charge Guard instead. The easily connected Charge Guard oil-removal device, using a sophisticated filtering system, works much faster than performing a refrigerant flush, and reduces potential cross-contamination 90% below even the SAE .1% specification that flushing methods typically reach, according to the manufacturer. It also enables a large shop with more than one recycling machine to service a hybrid with any one of them.

Automotive Diagnostic Kit (A.D.K.) by Silvertronic Limited

This comprehensive kit features a variety of adapter leads that enable the user to connect to virtually all the automotive connectors found on import and domestic vehicles. The kit comes with a range of both flat and round pins, ranging from 6.3mm flat to 1.5mm round. A pair of each size, both male and female, is included. Each lead is made from bright yellow double-insulated silicone cabling and is terminated with an industry-standard 4mm plug that's marked with a unique reference number. The silicone cables will not be damaged by hot engine parts and the leads are compatible with 4mm instrument sockets. A pair of silicone-insulated test leads, a retractable 6-meter cable reel, assorted T-sockets, alligator clips, straight and angled backprobes, cable piercers and a protective case are also included.

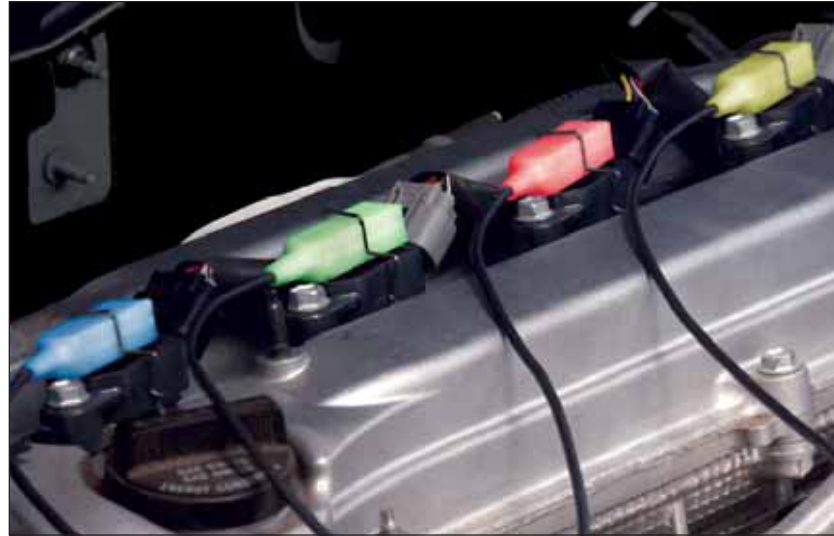




E-COP by Automotive Test Solutions

Ignition waveforms have been used for many years to quickly identify the causes of many engine driveability problems. Most modern engine designs now include coil-on-plug (C-O-P) ignition systems, with the module driver built into the C-O-P assembly. Due to the lack of a primary ignition signal in these systems, the ignition waveform has been unobtainable and diagnosis has been difficult for the technician.

E-COP is an innovative tool that quickly attaches to the C-O-P housing, and its specially designed pickup captures the ignition waveform. Individual E-COP units may be installed at each C-O-P



assembly, allowing the user to simultaneously monitor several ignition waveforms via a multichannel PC-based digital storage oscilloscope.

Oil Filter Removal Tools Set by Strategic Tools & Equipment

Having scalding hot, dirty engine oil run down your forearm is a rite of passage that many technicians would happily forgo. These simple tools provide a solution that's so obvious, you have to wonder why no one ever thought of it before. Rather than loosening the oil filter slightly and allowing the excess oil to escape around the oil filter seal, these Oil Filter Removal Tools capture the oil instead.

Tool use is straightforward. With the old filter on the vehicle, slide the tool into place. The inside of the tool is grooved to form a solid grip on the filter, and the flexible bellows seals against the engine block. Loosen the filter using a $\frac{3}{8}$ -in. ratchet inserted in the square drive at the bottom of the tool,



then remove the filter along with the tool. The excess oil is retained in the tool, and can then be safely drained into a receptacle without scalding your skin. The kit covers the vast majority of spin-on oil filters currently on the market.



KTS 340 Diagnostic Scan Tool by Bosch Diagnostics

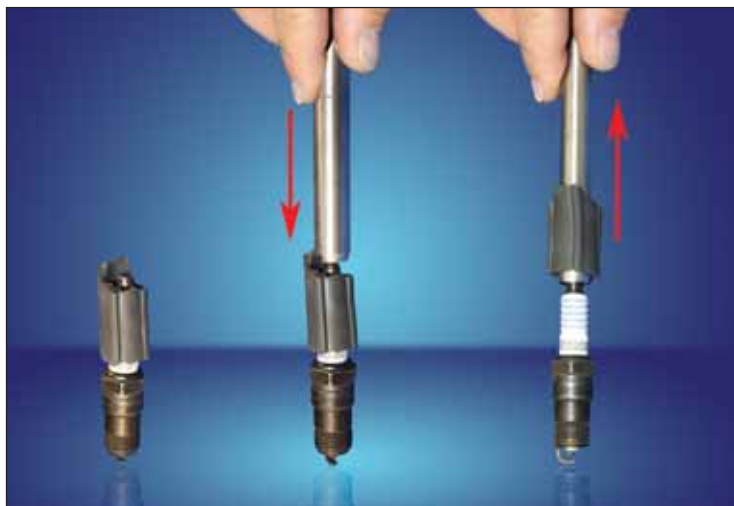
The KTS 340 diagnostic tool is designed for fast and reliable diagnosis of domestic, Asian and European vehicles operating in the North American market, using the company's globally sourced ESI[tronic] database to acquire the most current relevant automotive data. Key features include: an 8.4-in. touchscreen with stylus, a graphing two-channel multimeter, automatic vehicle identification with one click using Auto ID or manual VIN entry using the tool's touchscreen keypad and a step-by-step selection of the correct vehicle. If a DTC has been set and a quick overview of the vehicle's systems is desired, the tool can conduct a Quick Vehicle Health Check. The company's ESI[tronic] software is installed and temporarily licensed with 12 months of updates in-



cluded. If automatic download has been activated, the KTS 340 searches for new updates every time it connects to the internet, and automatically downloads any relevant updates.

Ford & Chrysler Ripped Spark Plug Boot Remover by SP Tools/Schley Products

Because today's spark plugs typically go long mileage between replacements, and (particularly with coil-on-plug ignition) are installed in recessed tubes, replacement is often a tedious adventure that starts with hoping the boot can be disconnected and removed. If it's been heat-baked in place over the long service interval, it often breaks, and then you're stuck trying to dig out the pieces so you can get a socket on the plug. Among the most common problem engines are the Ford "modulars" (4.6 and 5.4L V8s since 1997 and 1999-on 6.8L V10s) and the Chrysler 5.7 Hemi V8 and 3.7 V6.



The No. 68450 boot remover slips between the broken boot and the porcelain shell of the plug, freeing the boot and then lifting it out. Although de-

signed specifically for these applications, it will work on any other engine in which the diameter of the plug's porcelain is .432 in. or smaller.



CarDAQ-M by Drew Technologies

CarDAQ-M is the world's first modular, field-upgradable J2534 flash reprogramming device. Four CarDAQ-M modules are currently available: J2534-1, J2534-2, Mega-CAN and Mega-Kline. Purchase and connect any of these modules to meet your reprogramming requirements today and upgrade later as needed. This allows you to upgrade the device as J2534-2 and vehicle technology changes.

CarDAQ-M can have up to seven expansion modules connected, and the company will release new upgrade modules as technology changes. Upgrading the unit involves unscrewing the four rubber feet on the expansion (back) side of the base module, plugging in an expansion module, then reinstalling four



new rubber feet. Modules are protected from static electricity, so module upgrades can be done in a garage environment with a screwdriver.

Y-Lift by Rotary Lift

The Y-legged drive-on No. YA12 lift is an ingenious design that can accommodate everything from a mini smart fortwo to trucks and SUVs up to 12,000 lbs. for alignment and general service work. The Y-shape of the arms and the lift's mechanism provide a straight vertical lift, in contrast to the forward lift movement of a scissors type, reducing the lift's required footprint. The Y-arm type also makes more underbody space accessible for service than a scissors lift. The YA12 turnplates are 17½x17½ in. and 2 in. deep, and the lift permits four-wheel alignment on vehicles with wheelbases from 71½ to 158 in. The width and spacing of the nonskid runways allows them to accommodate vehicles up to 88 in. wide.

The lift senses vehicle weight and adjusts operating speed according to load. Average lift time is 37



seconds; however, even fully loaded, the Y-legger can reach maximum height of 68½ in. in 50 seconds. Key components, including the operating cylinder, are protected within the runways. The YA12 is available with extended runways (Model EL1), which allow two-wheel alignment on vehicles with wheelbases as long as 174½ in. (vs. 164½ in. for the L model).



TPL16 Extended Reach Snap Ring Pliers by Mac Tools

Every shop has snap ring pliers—in fact, perhaps several sets, with straight and angle tips for different access issues. But those deeply recessed snap rings, such as for internal housings, often lead to trying to dig them out with makeshift arrangements, extra disassembly for access or giving up.

This new 16-in. extended-reach pliers is an answer for many of the most common problem jobs on heavy-duty vehicles (Ford Super-Duty transfer cases and transmissions, Dodge Ram HD diesel transmissions, dual-rear-wheel grease seals) and even some jobs on passenger cars (such as replacing air bag systems).



This tool adds versatility with its set of five tips—.038 and .047, both in straight and 90° configurations, and .070 straight. The jaw faces are serrated, so the tool also can work as an extended-reach conventional pliers.

45665 G2 Diesel Injector Tester by Hickok

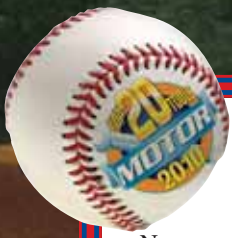
No diesel technician wants to make a mistake troubleshooting the Generation II (“G2”) hydraulic-electronic diesel fuel injection system used in Ford Powerstroke/Navistar 6.0, Ford/Navistar 4.5 V6s and the Navistar I6. But it isn’t easy to pinpoint the causes of driveability problems (hard starting, white smoke, misfire, etc.), especially if they produce no codes.

This G2 diesel injector tester connects to the engine computer harness and, if available, to a PC, and produces real-time graphs of the operation of all of the injectors on the PC monitor. The graphs are derived from a proprietary algorithm that times the operation of the injector spool valve, which typically is delayed by poor-quality fuel and dirty oil, the most common root causes of injector malfunction. If there are any injec-



tors that are defective because of delayed spool valve operation, their graphs stand out from the rest, and the technician doesn’t have to replace all of the injectors, hoping that expensive step will fix the problem. (Normally, if the driveability issue has this cause, only one or two injectors require replacement.) The tester works on a cold or hot engine, important because many of the problems surface when the engine is cold.

The diagnostic software in the package enables the technician to perform a cylinder kill, pull fuel-related trouble codes (if any) and store the graph patterns for later display for the customer. Although the PC mode is the most visually definitive, the G2 tester also works as a stand-alone, displaying spool valve times as numerical values, so those with delays also can be identified.



Model 6007A Intella matic Pro Series Battery Charger/Analyzer by Associated Equipment

Numerous battery testers and specialty chargers have been brought to market as technicians face a range of requirements that their one piece of equipment could not cover. The No. 6007A multifunction unit charges up to 40 amps and allows the user to perform battery diagnostics. It provides a stable voltage supply, essential for re-flashing computers and maintaining battery voltage during long key-on diagnostic service procedures with the scan tool connected, which could otherwise discharge the battery (or perhaps induce a low-voltage-related code). The charging function works on all 12-volt types—wet (“flooded”) cells, AGM (absorbent glass mat) and gel cells—and includes a pair of “smart” programs—one for attempting recovery of deep-discharge wet cells, another that permits unattended charging of AGMs.



Never Overcharge A Battery Again!!!

Associated Model 6007A

- Micro-processor controlled battery charger, analyzer and power supply
- Versatile: use for AGM, lead-acid or gel cell batteries
- **SAFE IN ANY WEATHER** — indoor/outdoor



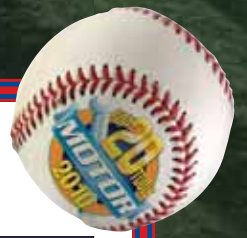
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Circle #21



Model 233/A Remote Display Automotive Digital Multimeter Kit by Fluke Corporation

The name of the tool itself tells much of the story: It's a digital multimeter with a removable display panel that can be placed anywhere in the work area (range about 10 ft.). That allows you to make test connections even in difficult areas, with no need to route the leads so you can position the meter body where you can read it. The readings are wirelessly transmitted from the meter body to the display panel, which has a magnetic back and flat bottom, so it can be optimally positioned for easy reading. For example, the meter could be connected in the rear of the car, perhaps into the brake light circuit, while the display is on the dash and the technician applies the brake pedal. That makes the test a one-man job. The meter is rated at Category III for 1000 volts and Category IV for 600 volts, making it suitable for use on high-voltage hybrids.



Work in two places at once.

Detachable display makes testing faster, safer

The new Fluke 233/A Digital Multimeter Kit lets you connect in one place and view results in another. Imagine seeing underhood measurements from the driver's seat. Imagine doing jobs that used to take two people.

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TCX575 Leverless Tire Changer by Hunter Engineering

The TCX575 leverless tire changer combines traditional tabletop wheel clamping and side shovel bead breaking with a leverless tool head to service everything from simple steel wheels to high-performance assemblies. The leverless tool head operates with one switch to smoothly insert itself and lift the bead over the rim edge. The elimination of bead levers

reduces stress on the operator and prevents potential damage to beads and rims.

The twin-cylinder tabletop clamping system handles 12- to 30-in. wheels and adjusts to two work positions. The table design allows easy access to the bottom bead while ensuring rigidity for large-diameter wheels. The automatic swing-arm saves space

“Our new leverless tire changer combines power and speed in a simple design.”



- ✓ Prevent costly damage
- ✓ Service oversized wheels
- ✓ Increase productivity

and locks to preset wheel diameter and width positions with the touch of a button to speed service of same-size wheels.

The 220-volt motor and two-speed drive system operate at a low speed with increased torque to prevent damage to wheels and tire beads when servicing tough combinations; technicians can apply the faster speed when servicing less difficult assemblies. An optional pneumatic wheel lift is available to assist the operator with heavy assemblies.

Circle #23

HUNTER
Engineering Company
www.hunter.com



Mini-Ductor II by Induction Innovations

The Mini-Ductor II is a powerful 1000-watt hand-held induction power inverter that features an ergonomically shaped, slip-resistant hand grip and an ultra bright LED to illuminate the work load. The tool is faster and safer than a torch, and uses high-frequency magnetic fields to quickly heat and remove seized nuts, bearings, pulleys and other metallic or mechanical hardware without the danger of an open flame. This approach virtually eliminates the possibility of collateral damage normally associated with an open flame.

The optional Mini-Ductor Coil Kit offers an array of attachments in various sizes and lengths, allowing the user to apply the heat where one normally would not have access, such as around corners and other intruding objects. The optional Mini-Pad can be used to remove vinyl graphics and other auto body trim.



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**If your shop burnt down while using a torch ...
...would Flameless Heat be of value to you?**

TOP 20 TOOLS MOTOR 2010

MINI-DUCTOR II™

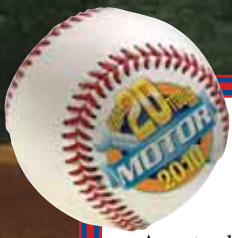
15 seconds to red hot, 3/4" nut.

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Induction Innovations, Inc.**

Circle #24



Swing Arm Safety Guard by Mohawk Lifts

Any technician who has hit his head against the edge of a lift swing arm was probably annoyed with himself the first time, and was sufficiently wary working underneath lifts on subsequent occasions. But then there's a momentary lapse and another injury. If that's ever happened to you, you've surely wished that the lift arms included some protection.

If you've tried to glue pieces of rubber against the ends, you had mixed results, as the surfaces were difficult to prep, and any glue eventually gave out against the attack of shop chemicals inevitably seeping into the glue joints. And despite cut-and-try, nothing could be easily fabricated that really provided full protection, even for as long as it held in

Lifts That Last A Lifetime.

Every Mohawk Lift features all-position mechanical stops and infinite-position hydraulic locks. All two-post lifts feature our patented hydraulic equalization system.

Clear Floor, Clear Overhead. ▶

Two-post lifts with patented hydraulic equalization system. Eight models from 7,000-30,000 lb. capacity. *Shown: System F*



Circle #25



Circle #26

Full Vehicle Door Opening – Fits Narrow Bays. ▶

Asymmetric two-post lift allows clear floor and clear overhead. *Shown: Model A-7*

Open Front & Total Under Vehicle Access ▶
Ramp-style four-post lifts with ten models from 19,000-120,000 lb. capacity. *Shown: FP Series Lift*



Circle #27



Circle #28

Space-Saver Takes No More Space Than A Car. ▶

Scissors lift with flush or surface mount and full under vehicle access. *Shown: Model USL-6000*



MOHAWK



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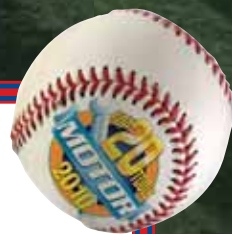
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place. Finally, a lift manufacturer has introduced protective pads that are shaped to fit, and stay in place, on the ends of the swing arms of its two-post lifts (and those of many other brands, it reports).





3834 Tire Pressure Reset Tool by SPX/OTC

Ever since phase-in of tire pressure monitoring systems became the law of the land, technicians have learned they need at the very least a TPMS tool that tests the sensors and does a reset, just for such basic work as tire rotation on many vehicles. The No. 3834 Tire Pressure Reset (TPR) tool does the routine functions using simple navigation buttons, and

integrates with the company's premium scan tool—the Genisys—via an included wireless (Bluetooth) adapter for more complicated tasks. So the tool can use the Genisys to access the reset procedures and add diagnostics. It covers all systems up through late 2009 and is updated wirelessly whenever new software is installed in the Genisys.



Complete the TPMS Solution!

*Stand-alone Tire Pressure Reset Tool
also accesses Genisys® for the
Complete TPMS Service Solution*



OTC is the only company to offer a convenient new hand held Tire Pressure Reset tool (#3834) with a wireless connection to any Genisys scan tool. The TPR has simple navigation buttons to enable vehicle selection for fast activation. Connected to Genisys, it's easy to automatically register new sensor ID's and quickly access reset procedures without leaving the vehicle. **Don't have the tools to service TPMS?** Get the complete TPMS Master Kit (#3835) with the new TPR included.

TPR Key Features

- Covers all known TPMS sensors through 2010
- Eliminates cross activation of nearby sensors
- Bluetooth wireless connection adapter included
- Compatible with Genisys System 4.0 diagnostics technology



To learn more about the TPR Reset Tool (#3834) or the TPMS Master Kit (#3835) call 1-800-533-6127 or visit us at www.otctools.com

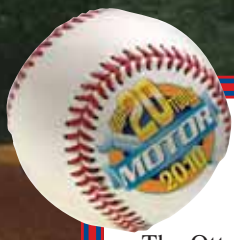
SPX

OTC

OTCTOOLGUY

f OTC Tools

Circle #29



Ottotest VCI by Blue Streak Electronics

The Ottotest VCI (Vehicle Communications Interface) is a scan tool interface that works in combination with a PC platform (such as a touchscreen hand-held PC, tablet PC or laptop). It features a powerful processor designed for future expansion, and the unit can be easily updated via internet downloads. Connection to the vehicle is simple via the standard OBD II connector, and no keys or adapters are required. Supported protocols include CAN, J2534, J1850, ISO9141, ISO14230/KWP2000, ISO15765, CCD and UART.

Technicians can use the Ottotest WiFi option to remotely control actuators while observing their behavior. An unlimited number of datastreams, capturing up to 10,000 frames per file, can also be saved for review. The touchscreen-enabled navigation menu is designed for tablet PCs, making



using the unit very intuitive. Control module updates for body, chassis or engine can also be performed, without the need for additional tools.



Beats Handhelds Hands-Down

Ottotest VCI 2-in-1 PC Based Diagnostic Scantool and J2534 Reprogrammer

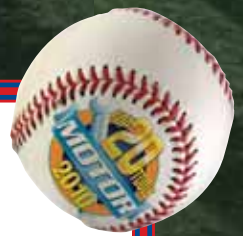
- OE enhanced coverage for powertrain, body, chassis systems and more
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- PC based processing power delivers faster results
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- Internet upgrades keep your service techs current



www.ottotest.com
1-877-916-8324

Circle #30





DIA-4 by Dynamic Auto Test Engineering

Using a PC-based oscilloscope, the DIA-4 gives the user direct access to each cylinder in order to evaluate firing times at three levels: at idle, at 2000 rpm and under load. Once the tool has been installed, all testing can be completed within three minutes. The tool can be used on both coil-on-plug (C-O-P) and distributorless ignition systems simply by changing the clips at the ends of the leads. It requires only two scope channels to display up to eight cylinders in pairs. With the scope set at 1mS, the user has a clear view



of electron behavior inside the combustion chamber. Any cylinder deviation outside established parameters sets a red flag. By separating each coil as an individual ignition, there's no need to unscramble overlapping parade scope patterns.

A built-in attenuator circuit protects the scope from the primary inductive kick and functions as a suppressor of high-voltage secondary leakage. All cylinder functions can be controlled from the driver's seat, including cylinder kill for C-O-P or polarity correction for DIS.

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Level 1

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- Oil Reset

Level 2

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Circle #32



Diagnostics On Line (DOL) by Autoland Scientech

Many of us are familiar with the concept of cloud computing, which involves the use of shared resources via the internet. Diagnostics On Line (DOL) brings this concept to automotive diag-

dedicated server that's accessed using a simple application that's compatible with even the latest versions of Windows. Functionality includes the ability to read and clear codes, view datastream



nostics. Through an internet portal, technicians receive access to diagnostic information that can be used to service 40 different vehicle makes. This includes engine, transmission, ABS, SRS and many other systems. This system allows fast and easy connection, is Bluetooth-capable and can operate over a low-speed internet connection.

The information resides on a

information and perform activations. This is not a J2534 device, nor is it a dedicated scan tool. Using DOL, you'll receive access to every major car manufacturer's proprietary diagnostic data and pay one low subscription fee. Remote tech support that can see what you're seeing as you use the tool provides additional help on tough-to-diagnose vehicles.



Visit www.motormagazine.com for complete details!



2015MAX & 2025MAX Hammerhead low-profile Impact tools by Ingersoll-Rand

If you have an air ratchet, you appreciate its speed. But wouldn't a ratchet that also serves as an impact wrench be even better? There have been other impact air ratchets, including one from this manufacturer. But the new Hammerhead impact air ratchets are the first that deliver the performance of an impact wrench in an air ratchet with the true accessibility of a ratchet.

The ratchet head is less than 2 in. high, and the tool produces up to 180 ft.-lbs. of torque and 7100 rpm free speed. It's available in 3/8- and 1/2-in. drives (Nos. 2015 and 2025, respectively). The Forward/Reverse collar is easy to reach even with the tool in tight working quarters. The ratchet features the company's "reactionless" design, in which the location of the impact hammer assembly minimizes the possibility of hand injury from kickbacks.



How to Get the Top 20

For more information on these Top 20 Tools award winners, visit the websites listed here or circle the appropriate numbers on the Product Information Page on page 74 of this issue.

AirSept

www.airsept.com
Circle #101

Associated Equipment

www.associatedequip.com
Circle #102

Autoland Scientech USA

www.autoland-dol.com
Circle #103

Automotive Test Solutions

www.automotivetestsolutions.com
Circle #104

Blue Streak Electronics

www.bsecorp.com
Circle #105

Bosch Diagnostics

www.boschdiagnostics.com
www.kts340.net
Circle #106

Dynamic Auto Test Engineering

www.datec.us
Circle #107

Drew Technologies

www.drewtech.com
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Fluke Corporation

www.fluke.com
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Hickok

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Hunter Engineering

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Induction Innovations

www.theinductor.com
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Ingersoll-Rand

www.ingersollrandproducts.com
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Mac Tools

www.mactools.com
Circle #114

Mohawk Lifts

www.mohawklifts.com
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Rotary Lift

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