



TOP 20 WORKS OF ART



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 genre-defining originality, there’s only one other criterion that must be met for consideration: The product must have been introduced between May 1, 2013 and June 30, 2014.

MOTOR’s annual Top 20 Tools competition is now in its 23rd 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 winners. Without further ado, we proudly present these automotive masterpieces for 2014.

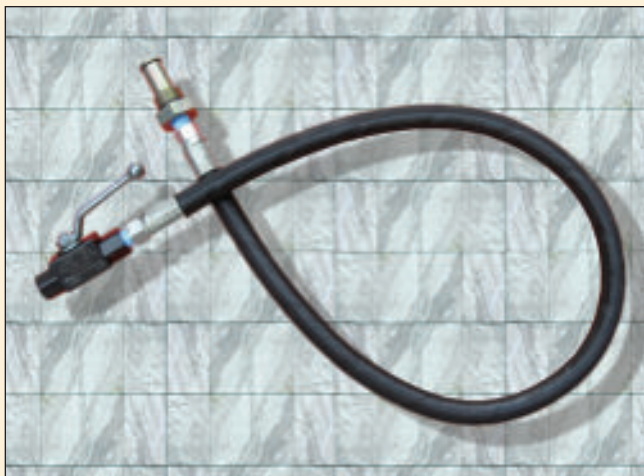
Photoillustration: Harold A. Perry; images: Thinkstock



6.0L High Pressure Oil System IPR Air Test Tool by M&J Products (dist. by Accurate Technical Services)

One of the most common causes of hard starting or no hot starting on Ford 6.0L Powerstroke diesels is leakage within the high-pressure oil system that supplies the force to operate the hydraulic-electric unit injectors for the fuel system. Finding leaks by using this new tool to pressurize the oil system with shop air overcomes the issue of trying to close the injector pressure regulator (IPR) valve, such as with a scan tool.

The IPR valve is not designed to close completely; as a result, the incompletely closed valve allows enough leakage to make it difficult to find the leakage points that are affecting starting. This tool replaces the IPR valve for the test, so the system can be sealed, and any leaks you find will be ones that have to be corrected. The tool, which also works with the new Powerstroke standpipes with internal check valves, is available by itself or in a complete assembly with a heavy-duty hose and shutoff valve. So when the system is



pressurized, closing the shutoff valve traps air pressure for easier diagnostics. The test procedure takes about 20 minutes. The turbo remains in place during the test. (www.accuratediesel.com/circle #115)

No. WV711 Smart Pressure Diagnostic Smoke Machine by Vacutec

Smoke machines have become essential tools for evap leaks but, as we've seen, they're also being redesigned, and used with adapters, for a variety of other automotive leak detection functions. As turbocharged engines become more common because of their potential for a combination of increased performance and better fuel economy, the need to identify high-pressure leakage in them has arisen, and smoke machines are a logical choice. However, at high pressures the smoke tends to thin out and leaks become more difficult to find.

The No. WV711 Smart Pressure Diagnostic Smoke Machine takes a two-pronged approach: First, it incorporates a digital microprocessor that automatically maintains the densest smoke possible at any selected pressure up to 43.5 psi, which increases the visibility of the smoke stream. Second, it incorporates an ultraviolet dye that deposits a trace at the lo-



cation of the leak. The machine runs with shop air or any inert gas, such as nitrogen. It also calculates leak rates from its measurement of flow rate during pressure decay testing. (www.vacutec.com/circle #116)