Air Compressor Built From Cadillac Engine

By Jim Ruen, Contributing Editor

When a relative gave Dan Jamison a late 1970's Cadillac, he decided to turn the car's 425 cu. in. engine into a powerful air compressor/sandblaster like the one built by Harold Witulski and featured in FARM SHOW (Vol. 31, No. 2).

"I called Harold a couple times, and he was real helpful," says Jamison. "I pulled the engine and discarded the transmission, but kept the flexplate and torque converter. I stripped the front fenders, bumper, radiator support, etc. from the front clip and cut it free from the engine."

He made an "A" frame hitch from rectangular tubing and welded it to the front axle. He then reinstalled the engine, radiator and alternator on the trailer.

Jamison stripped the rocker arms, push rods, intake valves, exhaust manifold and carburetor from the engine. In place of the carburetor, he attached a steel plate to the intake manifold and connected it to the original air cleaner housing and filter with a short, large diameter pipe.

He left the exhaust valves in place, but he replaced the factory intake springs with light springs from a hardware store. He welded flat washers to the tops on the intake valves to act as "keepers". Once he drilled the porcelain centers out of the stock spark plugs, the four-stroke engine was effectively converted into a two-stroke compressor.

"Each downward piston move overcomes the light intake valve springs, letting air in," explains Jamison. "Each upward piston movement forces air out of the spark plug holes. A large amount of heat is produced when the air in the cylinder is forced through the spark plug hole. It's important to drill the plugs out as much as possible to reduce heat buildup."

To capture the air, Jamison welded a short piece of 3/8-in. diameter water pipe to each hollow spark plug. He mounted one-way check valves to each pipe.

"The larger the check valves and the closer they are mounted to the spark plugs, the less airflow is restricted," notes Jamison.

To complete the manifold, he ran 1/2-in. diameter steel pipes from the check valves on each cylinder to larger 1-in. common rail pipes. The two rails were in turn connected to a single 1 1/2-in. pipe.

"I installed a quick-coupler for a 1-in. airline in the pipe, as well as a 125 psi pop-off safety valve," says Jamison.

To drive the compressor, he used a pto driveline and stub shaft from a 1209 Deere haybine. He ground the hex stub shaft to fit into the torque converter and welded it in place.

"My 40-hp, 1955 60 Deere is able to handle the load, but I wouldn't recommend anything smaller," says Jamison.

Dan Jamison converted the engine out of a late 1970's Cadillac into this powerful air compressor/sandblaster.

For a sandblasting pot, Jamison welded three tube steel legs on one end of a 60-gal. LP tank. Also, on the bottom end he installed a 1-in. ball valve with a T fitting. A 20-ft., 1-in. air hose connects the compressor to the fitting. A 15-ft. blast hose connects to the other end of the T. A 20-ft., 3/8-in. air hose runs from the compressor to the top of the blast pot to pressurize the tank. Jamison also installed a 3-in. pipe and cap for sand fill at the top end of the tank.

Since getting the compressor/sandblaster operating, Jamison has used it to sandblast 4-H projects like lawn mowers and a 3-bottom plow. "It's a two-man operation," he says. "One holds onto the blast tip and hose. The other adjusts the 1-in. ball valve at the bottom of the tank to adjust the flow of sand into the air stream."

Jamison is considering other uses for the compressor, including putting a ball valve on the pump discharge to create a "poor man's dyno".

"It would provide a steady load for engine break-in on smaller antique tractors," says Jamison, who estimates he has only about $500 in the entire rig after selling off spare parts from the Cadillac.

"My biggest expense was the 8 one-way air valves," he says. "Most other parts were donated or already in my shop."

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New Way To Run Air Through A Shop

Setting up a shop for air-powered tools is fast and easy with Duratec Airline from IPEX. An aluminum core with inner and outer layers of high-density polyethylene (HDPE) combines the best features of metal and plastic. The inner and outer linings eliminate problems common to metal air lines.

The rigid aluminum core bends and holds position where desired. The exterior and interior HDPE layers protect the aluminum core from rusting, scale, pitting, corrosion and even light impact.

The unique design is 75 percent lighter than traditional copper or schedule 40 carbon steel pipe. The HDPE resistance to scale and lack of rust or corrosion eliminates clogging of lines, as well as tools and fixtures. It also reduces friction that can cause pressure drops and airflow restrictions.

The composite airline is available in 4 sizes from 3/8-in. to 1-in. and can handle air pressure from 200 psi at 73°F to 160 psi at 140° F. It comes in 100 and 300-ft. rolls for longer runs without connections.

Line installation and installation of fittings is simple. The nickel-plated brass or stainless steel fittings use double O-ring seals for extended life. The fittings are both quickly assembled or removed. No threading, fusing or cementing is required.

To install a fitting, simply remove the nut and split ring from the fitting and push them onto the pipe. Using a Duratec beveling tool, enlarge the pipe for the fitting and slip the fitting into the pipe. Slide the O-ring and the nut back over the end of the pipe and tighten down over the fitting.

Duratec airline distributors in Canada and North America can be located by contacting the company directly by email at marketing@ipexna.com or calling 866 473-9462. A 3/8-in., 100-ft. airline starts at $120.50 (U.S.). Fittings start at $9.65 (U.S.) for the smallest male thread adapter and increase with size and complexity.

Contact: FARM SHOW Followup, American Customers: IPEX USA LLC, 10100 Rodney St., Pineville, N.C. 28134 (ph 704 889-2431; toll free 800 463-9572; www.ipexamerica.com) or Canadian customers: IPEX Inc., 50 Valleybrook Drive, Don Mills, Ont., Canada M3B 2S9 (ph 416 445-3400; toll free: 866 473-9462; www.ipexinc.com).

The Duratec Airline makes setting up a shop for air-powered tools a fast and easy job.

"Sandable" Repair Compound Fixes Almost Anything

We were recently looking through a beekeeping magazine and noticed an ad for Fixit®, a synthetic repair compound that some beekeepers are using to repair wood beehives and frames. Turns out, the product has been around for more than a decade, but inventor David Brummel is still discovering uses for it in many different industries.

He recently started raising bees and found it can be used to repair cracks, holes, animal damage, even some wood rot in hives," says Erin Gerlach, Brummel's daughter and sales director for the family's business, Aves. "Scrape away the rotted wood and repair it with Fixit. For $20 (1 lb.) you can repair many beehives."

Fixit is activated when two puttylike parts are mixed together. Gerlach says it differs from other repair products because it doesn't puddle and is easily manipulated to hold form and shape. It's safe and easy to use, doesn't shrink or crack, hardens without baking and is very durable. It has a two-hour window to shape, and it dries as hard as a rock in 24 hours. It sands up beautifully and can be drilled, filed and carved.

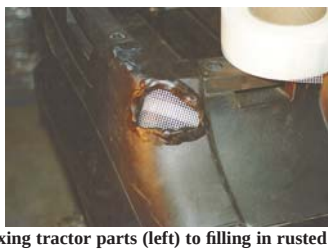
Customers use it for all types of repairs — outdoor statues, antiques, fixing tractor parts, water tanks, filling in rusted spots on vehicles, cracks in cement, and repairs on all types of materials from wood to plastic to cast iron.

"It's permanent," Gerlach says. "And it's water and weatherproof."

Fixit comes in white, black, aluminum, and bronze colors and various sizes starting at 1/4-lb. for $10, with discounts for large orders.

Contact: FARM SHOW Followup, Aves, P.O. Box 344, River Falls, Wis. 54022 (ph 715 386-9097; www.avesstudio.com).

Fixit, a synthetic repair compound, was originally designed to repair damaged wood (left) in beehives and frames. It can be easily manipulated to hold form and shape.



Product can be used for everything from fixing tractor parts (left) to filling in rusted or worn spots on vehicles.