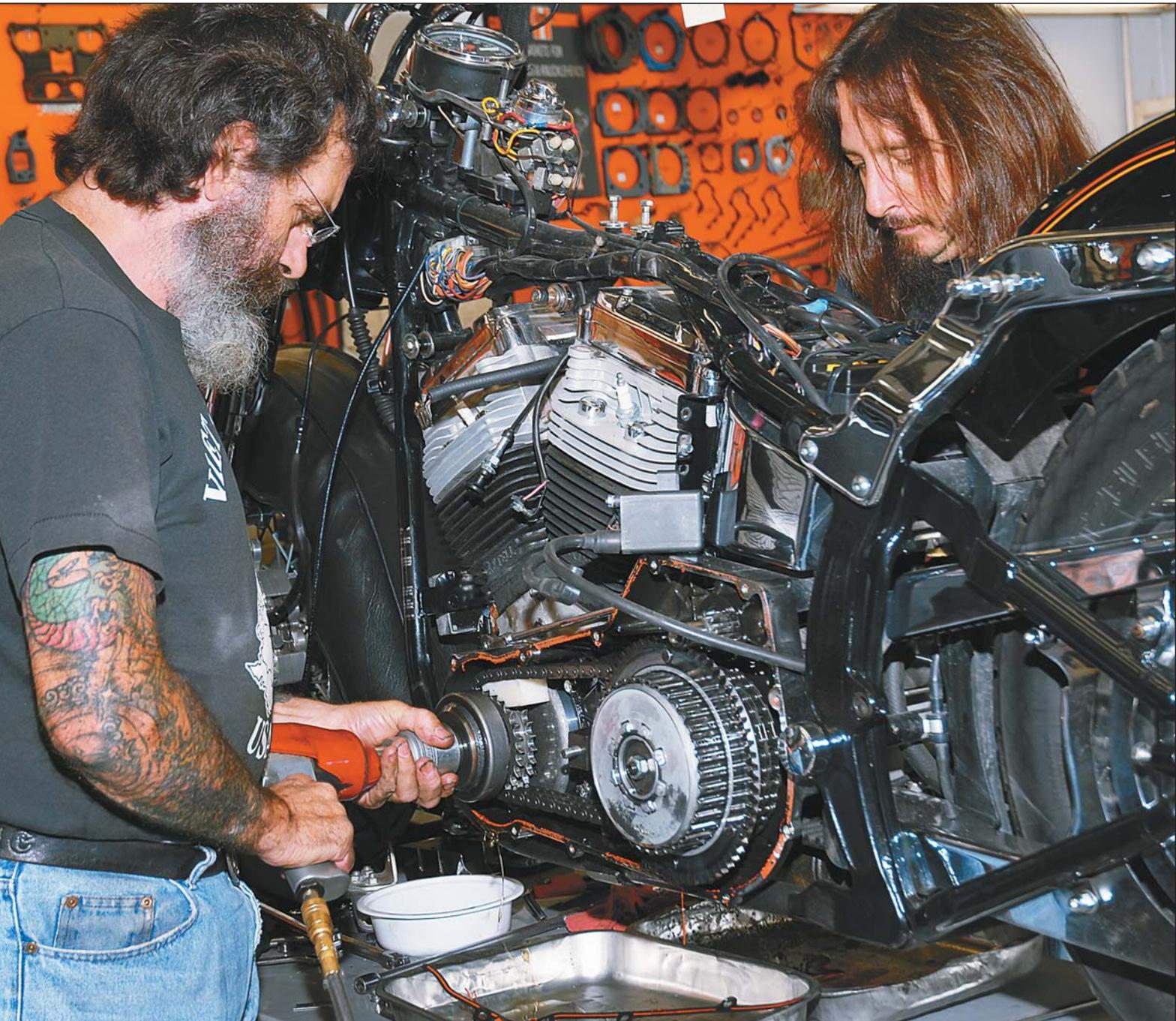


Heart Transplant **Part 1**

Replacing a tired Evo with Delkron's 120

story by Jerry Smith • photos by Dana Shirey



First step in a transplant is to remove the old heart, in this case a well-worn Evo motor. The primary case can remain in place during the operation.

In the March 2006 issue of *IronWorks* we looked at an alternative to rebuilding a tired Evo engine. One solution is to replace the Evo with a Delkron 120-cubic-inch long-block, a single-cam design that fits Evo-based frames. In fact, Delkron intends the 120 to be purchased by customers *but it should be installed by professional mechanics*. That last qualifier is for a reason: As we pointed out in our March issue, Delkron sells the 120 without some vital parts, among them a cam and cam cover; lifters and lifter blocks; pushrods and tubes; rocker arms, shafts, and supports; and a carb and ignition. Delkron reasons that the 120 can then be tailored to the specific style of riding (and performance) it's intended for. And to do that usually requires an experienced engine builder to see the job through.

Posie, the head honcho at P&M Powertrain in Dillsburg, Pennsylvania, is not only an experienced engine builder, but some of the parts that his company manufactures are used with the Delkron 120 long block, too. For instance, the flywheels and rods

are manufactured by him under the name HSE, which stands for Hayseed Engineering, a moniker Posie and his friend Frank, who runs Blackhawk Motorworks in Florida, adopted with pride after a memorable meeting with some young engineers at a

struggling motorcycle manufacturer a few years ago.

"The HSE came about when we were at a meeting with the powertrain guys from Indian," Posie recalls, "where we showed them what was wrong with their Powerplus

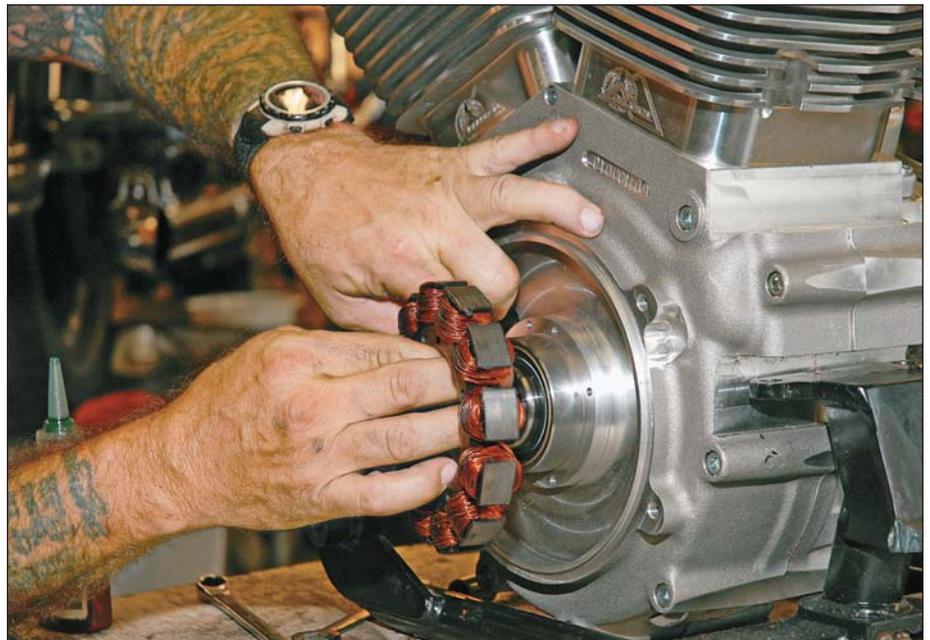
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This being major surgery, an extra pair of hands is useful to manage the heavy lifting. Care must be exercised to not drop or scratch anything.



With the old heart (okay, engine) removed, the patient remains stable. Tying the bike down on a raised, level working surface makes the job easier.



The Delkron long block is designed to accept a stock Evo ignition. Your riding needs might dictate using a high-performance ignition.

motor. They had a bunch of young pups out of MIT. A couple of them looked across the table at us and told us we were hayseeds, and they don't do things hayseed style." The hayseeds, by the way, are still in business producing motorcycle parts and components. We all know

what happened to Indian and the legacy of its Powerplus engine.

P&M sells its own version of the Delkron 120 long block, finished off with its own selection of parts that are tailored to the type of riding the customer wants to do. Choosing those parts is an important job—just

being able to assemble an engine and bolt it into a frame isn't enough. "There are a lot of guys out there who don't work for a shop, who are very capable engine builders and mechanics who can put this thing in. But they need some kind of engine background, because it's up to them to finish the long block the way they want it," Posie says.

"When we're helping out one of our customers with this engine, one of the first things I ask them is how they're going to ride it. The type of riding style you have will dictate carburetion, cams, ignition, the exhaust system—they all play a major role in the type of performance you're going to get from the finished product. If you have a guy who's a long-hauler, building this engine to get out and run the interstates, he has to run a totally different cam and exhaust system and intake system from the guy who's just a bar-hopper and only wants to ride around town," says Posie.

Some big-inch aftermarket motors can be big trouble when you try to shoehorn them into a stock chassis. Longer stroke, a different rocker-box design, even variations in manufacturing tolerances can add up, turning what ought to be a routine job into an almost-impossible task. As Posie points out, though, if there's a single problem encountered while installing the Delkron 120, it's usually with the motorcycles themselves.

"The long block and our 120 motor are both designed to be a direct replacement for a Harley Evo engine, with no chassis modifications. Some Softails are the only ones (motorcycle frames) we've run into a bit of an issue with, where you have to do a little bit of relieving on the front downtube to get it in, only because of the way the chassis is welded up on a Softail," warns Posie. Older Softails are likely to have the most variation from frame to frame, Posie adds. "With the new Betas (TC88B engines), they changed the way they weld the chassis together. But with the Evo, whether the envelope has a lot of

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Guiding the Delkron 120 into the frame takes patience, and sometimes a bit of grinding for clearance. Some frames have a tighter fit than others.



Make sure all of the bike's electrical wires are out of the way when you install the Delkron 120. Pinching a wire now can mean hours of troubleshooting later.



Aligning the crankshaft with the primary assembly sometimes can be tricky. An assistant here is worth all the beer he wants to consume later. Emphasis on later.

room or is closed up depends on what day it was, what time of day, and who the welder was." In short, a frame that was built on Wednesday might have different tolerances than one built on, say, Friday.

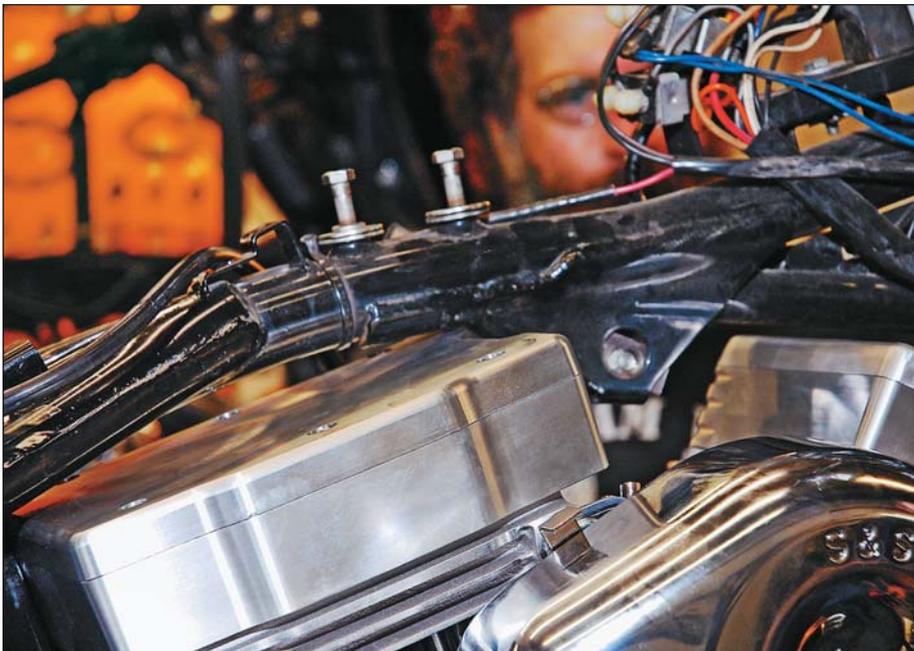
Of all the Evo frames, the Softail

is going to be the tightest fit, too. "We're running right around .080-inch clearance between the frame and the rocker boxes," continues Posie. "Because their engines are rubber-mounted, the FXRs and FLTs have a mile of clearance."

For some parts of the Delkron installation, such as lifting the engine into the frame or aligning the crank's output shaft with the primary, Posie prefers to have an extra set of hands to avoid dropping and scratching what amounts to the project's crown jewel. "One guy can actually do it, it just takes a bit longer," he points out. "Two guys who know their way around a bike and a tool box should be able to swap this engine out in four to six hours. Some of the Softails may need to have a little clearance work. Depending on how the backbone was welded, it might close the envelope a little bit." The installation shown in the accompanying photos went smoothly—apparently this Softail frame was welded mid-week by an alert and rested welder.

With everything in the engine room looking good and running strong, the next installment of our Evo upgrade saga will highlight another transplant, this time replacing the stock 5-speed transmission with a Baker 6-speed. After all, if we're going to give your bike bigger muscles, you should also give it longer legs. We'll see you next issue.

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Clearance between rocker boxes and frame tubes is tight, but sufficient. There should be clearance even after the engine warms up and expands slightly.



The Delkron engine is in the frame, but not yet bolted. This is the last chance to make sure everything fits right. Examine every angle before tightening nuts and bolts.



The front downtube clearance is tight on Softails with the Delkron 120. On rubber-mount frames for FLs and Dynas, the gap is much wider, so the engine can rock on its mounts.

"I'll go get the 6-pack."



Resources

P&M Powertrain, Ltd.
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