

BUB 7 TRUE DUALS

The right exhaust system can make your pipe dreams come true

Our opening shot shows our 2002 Road King up on Rob's dyno with the entire exhaust system, the right floorboard, and starter exhaust bracket removed. The baseline runs have already been done.



PERHAPS THE MOST EXPENDABLE ORIGINAL-equipment component found on a Harley-Davidson is its exhaust system. Who among the chosen few to own a bike bearing the Bar & Shield logo has retained the bike's stock exhaust system for more than, say, 60 seconds? Okay, that's an exaggeration, but you get the picture. Harley owners like their aftermarket exhaust systems, and they're quick to make the switch from plain Jane pipes to something more revealing. Three primary factors motivate owners to upgrade from the stock exhaust to an aftermarket system. They are, in no particular order: sound, performance, and styling (looks). Alter (read: improve) any or all of these elements and your bagger becomes a whole new animal.

If you leaf through the pages of any Harley enthusiast publication — *Motorcycle Bagger* included — you're bound to see that the aftermarket is rife with exhaust system manufacturers. And one of the top, well-respected brands is BUB, a company that's been bending and welding pipes since the 1960s when owner Denis Manning began tinkering with systems to make his Harley-Davidson, Honda, and Triumph motorcycles go faster. And through the years Denis learned more than a few things — by way of land speed racing — about increasing a bike's performance via its exhaust system. As chief designer of more LSR streamliners to hold world land speed records than any other person, Denis also had to design and build his own exhaust systems; nobody offers off-the-shelf pipes for those cigar-shaped motorcycles. Developing exhausts for his racers led

Denis to form his own exhaust pipe company, BUB Enterprises. You've probably seen the name on more than a few Bonneville streamliners, most recently the red Lucky 7 that Chris Carr rode to the absolute motorcycle land speed record of 367.382 mph in 2009.

Now, what does a 367-mph motorcycle that's shaped like a salmon have to do with your bagger that, in comparison, resembles a land yacht at full sail? Plenty, really, because the same basic principles essential to get exhaust gases out of a racing engine's combustion chambers also apply for touring engines. "No matter what the application," says Denis, "an exhaust system's primary function is to [vent] the burnt fuel and air from the cylinders as quickly and as efficiently as possible."

But developing an exhaust system that's suitable for street applications on Harley-Davidson Big Twin engines requires more than applying knowledge gained from going fast over a large table of salt such as the Salt Flats. There are also emissions and noise laws to consider, and that's where BUB recently spent a lot of time and money to create the first CARB (California Air Resources

TOOLS NEEDED

- Clean rags
- Glass cleaner
- Blue Loctite
- Large expanding ring pliers
- 18mm-1.5 tap
- Wire cutter
- 5/16" nutdriver
- 3/16" Allen
- 1/4" Allen
- 3/8" Allen
- 5/16" Allen
- 1/2" socket
- Torque wrench (ft-lbs.) ■



2 Rob starts by attaching the new BUB starter exhaust bracket using the stock hardware, some blue Loctite, and a 1/4" Allen.

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3 The rear pipe’s BUB L-bracket goes on next via BUB-supplied hardware, some blue Loctite, and a 1/2” socket. Be sure you position it as shown.



4 After removing the stock flanges from the old header pipes, Rob installs them onto the new BUB headers, using large expanding ring pliers.



5 Although not a necessary step, Rob then runs an 18mm-1.5 tap through both BUB header pipe O₂ sensor bungs to ensure that the plugs will go in smoothly.

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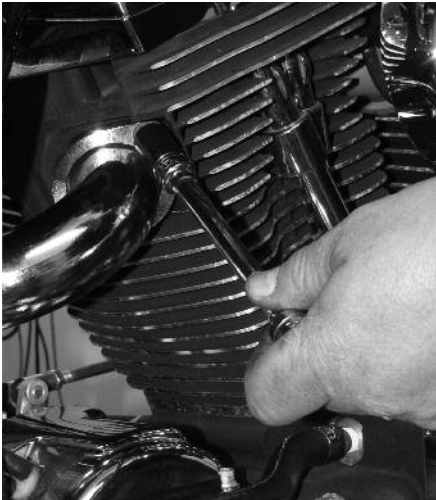
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6 After putting a little anti-seize on their threads, Rob secures the BUB-supplied O₂ sensor bung plugs into both header pipes using a 5/16" Allen. He then torques them to 32 ft-lbs.



7 After replacing the exhaust gasket, Rob can now loosely attach the rear BUB header to the rear head using the stock hardware and a 1/2" socket.



8 Next, the stock rear header pipe transmission clamp is slipped over the end of the BUB front header. Rob also slips BUB clamp #2764 over the end of the rear header pipe.

hhi

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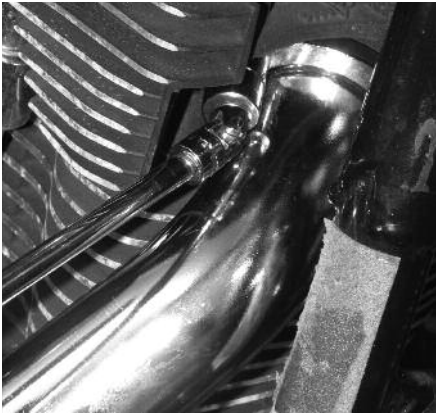
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9 After replacing the exhaust gasket, Rob loosely attaches the front BUB header to the front head using the stock hardware and a 1/2" socket.



10 Rob positions a BUB-supplied muffler clamp over the open end of both header pipes. He then slips the right BUB muffler over the end of the front header pipe.



11 Rob positions a BUB-supplied spacer on the muffler and sends one of the BUB-supplied bolts, with a flat washer and some blue Loctite, through the stock muffler support.

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12 He then does the same with the left muffler and rear header pipe. You may want to have a buddy hold the header pipes in position while you install the mufflers.



13 After tightening the front head flange nuts, Rob works his way down the exhaust system, tightening the transmission clamp, muffler clamp (3/16" Allen), and the rear muffler support (1/2" socket).



14 After tightening the rear head flange nuts, Rob tightens the starter mount clamp using a 3/16" Allen.



15 Before tightening the rear pipe's muffler clamp and rear support, Rob makes sure the ends of both mufflers are protruding the same distance from the rear of the bike and are not tilted sideways.



16 Here's how the rear of the bike looks with the new BUB 7 True Dual exhaust system installed.



17 After wiping down the entire system with glass cleaner and a clean rag to remove smudges and fingerprints from the pipes, Rob slips the BUB-supplied clamps into the BUB heat shields.

mtc

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rider’s eye



18 Rob then installs the rear header heat shield using a 5/16" nutdriver. The best way to do this is to feed the heat shields in from the left side of the bike.



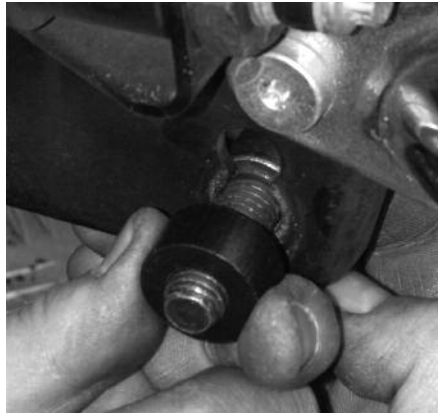
19 The front header's heat shield is the next (and last) to go on. Rob installs it using a 5/16" nutdriver. Position the clamps behind the heat shield so they do not show.

TIPS & TRICKS

ROB LIKES TO COAT THE ENDS of both header pipes with Walker acoustic sealant (muffler cement) to eliminate the chance of any annoying deceleration pops that can occur if there's a small air leak in the system. Not that the BUB pipes are known for, or we had any issue with leaks or decel pops. Putting this additional sealing onto the pipes is simply a precaution Rob does on all the exhausts he installs. ■

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20 After putting some blue Loctite and a BUB-supplied lock washer on the BUB-supplied bolt, Rob slips the bolt through the frame before slipping on the BUB-supplied spacer.



21 Once both BUB-supplied bolts are in place with their spacers, Rob torques the bolts to 30-35 ft.-lbs. using a 3/8" Allen.



22 Our initial air/fuel mixture tests find that the bike runs much leaner with the BUBs, so Rob disconnects the stock ECM and opens its connector to install a Daytona Twin Tec fuel tuner.



23 Following the fuel tuner's instructions, Rob hooks up the Twin Tec's wires to the stock ECM connector and then closes it back up. He secures the connector halves together with a wire-tie.



24 Once he has connected the rest of the Daytona Twin Tec's wiring, Rob uses the dials and buttons on the tuner to adjust the mixture.



25 Here's how the Daytona Twin Tec looks fully installed and properly secured to the bike, where it will be hidden by the right-side cover. Be sure to cut the tails off all wire-ties with a wire cutter.

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Board)-certified aftermarket systems for Harley-Davidson engines to comply with the state’s unparalleled emissions standards. And while the remaining 49 states may not require aftermarket exhaust systems to meet specific clean-air restrictions, the federal government’s Department of Transportation has rules and regulations that address noise levels.

And that brings us to the BUB 7 True Duals that we’re featuring here on a 2002 Road King. These systems include stepped headers that combine 1-3/4” tubing to match the engine’s exhaust ports with 2”-diameter tubing that feed directly into the 4”-diameter true dual mufflers. The systems carry O2 sensors in their header pipe sections so they can benefit from an engine’s closed-loop electronic fuel injection system (if so equipped), or the O2 sensor bungs can be capped (as with our featured engine) when a carburetor feeds the intake.

The BUB 7 True Dual systems (and their companion Straight 8 system with 2”-diameter mufflers) fit 1995-2012 Touring models. The cans and headers are sold as separate packages, so you can use either the BUB 7 or Straight 8 mufflers. And while CARB-compliant systems (for California only) use catalytic converters to comply with that state’s laws, the BUB 7 mufflers used on our Road King (and for bikes in the remaining 49 states) use conventional sound-baffling systems without the catalytic converter packing. Either way, the BUB 7

mufflers produce a pleasing, mellow tone without restricting exhaust flow to keep you entertained while you motor down the highway.

But what about the power gains? We gained 2 hp and 6 ft-lbs. of torque by just bolting on the BUB system. However, and this is a big however, since this bike does not have O2 sensors to adjust the ECM for the new pipes, the engine was running way too lean after the installation. Rob then installed a Daytona Twin Tec fuel tuner and made some adjustments and dyno runs to dial it in. The end result was another 3 hp and 3 ft-lbs. of torque, for a final gain of 5 hp and 9 ft-lbs! **MB**

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