



US008122866B2

(12) **United States Patent**  
**Fonville et al.**

(10) **Patent No.:** **US 8,122,866 B2**  
(45) **Date of Patent:** **Feb. 28, 2012**

(54) **ACOUSTIC BUMPERS WITH ENGINE FRONT COVER HIDDEN MOUNTING**

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(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 695 days.

(21) **Appl. No.:** **12/260,109**

(22) **Filed:** **Oct. 29, 2008**

(65) **Prior Publication Data**

US 2010/0101528 A1 Apr. 29, 2010

(51) **Int. Cl.**  
**F02B 77/00** (2006.01)  
**F02B 77/13** (2006.01)  
**B60G 11/22** (2006.01)

(52) **U.S. Cl.** ..... **123/195 C; 181/204; 267/293**

(58) **Field of Classification Search** ..... **123/195 C, 123/198 E; 181/204; 267/292–294**  
See application file for complete search history.

(57) **ABSTRACT**

The present invention provides novel acoustic bumpers that can dampen vibrations and control noise transmission from an engine front cover, or other component. In one embodiment, the front cover carries a water pump and internal water distribution passages and covers an overhead camshaft drive mechanism and an oil pump mounted on the engine block. Noise control of unsupported cover central portions is provided by acoustic bumpers carried on inside cover bosses and engaging surfaces in accessible locations on the engine block front face or on associated components. The acoustic bumpers may be doughnut shaped annular rings having identical coaxial locating recesses on opposite sides for error-free installation. A central web between the recesses includes an axially located retainer hole. Each bumper may be mounted on a pillar on the inside cover face that includes a fastener receiving blind hole centrally located on a raised circular boss.

**16 Claims, 4 Drawing Sheets**

