

Title (en)  
An engine and exhaust manifold assembly

Title (de)  
Motor- und Abgaskrümmernanordnung

Title (fr)  
Moteur et ensemble de tubulure d'échappement

Publication  
**EP 2075429 B1 20120523 (EN)**

Application  
**EP 08169335 A 20081118**

Priority  
GB 0723055 A 20071126

Abstract (en)  
[origin: GB2454927A] An exhaust manifold 17 is secured to a cylinder head by setbolts 25 extending through holes 33 in a mounting flange 19. The mounting flange 19 is interrupted by parallel-sided gaps 31 between the exhaust ports 14 so that for each exhaust port 14 there is a separate flange section 19A, 19B. The mounting flange 19 is formed as one and the gap 31 is formed by machining (e.g. milling). Between each set bolt 25 and the respective flange section 19A, 19B there is a tubular spacer, a first type being a plain tubular spacer 37 having a cylindrical outer surface and a stepped bore and a second type being a dual function spacer 39 which has a stepped bore 41, a part cylindrical outer surface and an offset lug 43 which extends into and fills the gap 31 with an easy push fit. In use, the exhaust manifold 17 becomes very much hotter than the cylinder head 11 and free thermal expansion of the manifold between the flange sections 19A, 19B is prevented by the set bolts 25. This creates significant compressive plastic deformation in the manifold. When the manifold cools the lug 43 prevents contraction at the flange 19 and other parts of the manifold can deform elastically.

IPC 8 full level  
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CPC (source: EP)  
**F01N 13/10** (2013.01); **F01N 13/1805** (2013.01); **F01N 13/1811** (2013.01); **F01N 13/1855** (2013.01); **F01N 2450/24** (2013.01)

Cited by  
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