

Title (en)  
V-type internal combustion engine for vehicle

Title (de)  
Fahrzeugsbrennkraftmaschine in V-Bauart

Title (fr)  
Moteur à combustion interne à cylindres en pour un véhicule

Publication  
**EP 0987414 A3 20001213 (EN)**

Application  
**EP 99116978 A 19990827**

Priority  
JP 26069598 A 19980914

Abstract (en)  
[origin: EP0987414A2] Object: To provide a V-type internal combustion engine for a vehicle, which is capable of connecting a primary transmission unit, a starting transmission unit, first and second timing transmission units, and a generator to a crank shaft in a reasonable layout, thereby improving the assembling characteristic and the maintenance characteristic and maintaining a good balance in weight between right and left sides of a vehicular body when the engine is mounted on the vehicle. Solving Means: First and second timing transmission units 461 and 462 adjacent to each other in the axial direction, and a generator 30 adjacent to the outer side of the first and second timing transmission units 461 and 462 are connected to one end portion, projecting outwardly from a first journal 17, of a crank shaft 15, and a primary transmission unit 54 and a starting transmission unit 94 are connected to the other end, projecting outwardly from a second journal 18, of the crank shaft 15. <IMAGE>

IPC 1-7  
**F02B 75/22**; F02B 61/00; F02B 61/02

IPC 8 full level  
**B62M 7/02** (2006.01); **F02B 61/02** (2006.01); **F02B 67/00** (2006.01); **F02B 75/22** (2006.01); **F02B 75/02** (2006.01); **F02B 75/18** (2006.01); **F02F 1/24** (2006.01)

CPC (source: EP)  
**F02B 61/02** (2013.01); **F02B 75/22** (2013.01); **F02B 2075/027** (2013.01); **F02B 2075/1808** (2013.01); **F02B 2275/20** (2013.01); **F02F 2001/245** (2013.01)

Citation (search report)  
• [XA] US 4903483 A 19900227 - ATSUUMI MAMORU [JP], et al  
• [XA] US 4960081 A 19901002 - ATSUUMI MAMORU [JP]  
• [X] US 4589382 A 19860520 - TSUBOI MASAHARU [JP]  
• [X] PATENT ABSTRACTS OF JAPAN vol. 007, no. 227 (M - 248) 7 October 1983 (1983-10-07)

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)  
**EP 0987414 A2 20000322**; **EP 0987414 A3 20001213**; **EP 0987414 B1 20030806**; CN 1113159 C 20030702; CN 1247936 A 20000322; DE 69910136 D1 20030911; DE 69910136 T2 20040609; JP 2000087756 A 20000328; JP 4021069 B2 20071212

DOCDB simple family (application)  
**EP 99116978 A 19990827**; CN 99118579 A 19990909; DE 69910136 T 19990827; JP 26069598 A 19980914