4,407,132

Kawakatsu et al.

[45]

Oct. 4, 1983

### [54] CONTROL APPARATUS AND METHOD FOR ENGINE/ELECTRIC HYBRID VEHICLE

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Toyonaka, both of Japan

[73] Assignee: Daihatsu Motor Co., Ltd., Ikeda,

Japan

[21] Appl. No.: 330,433

[22] Filed: Dec. 14, 1981

## Related U.S. Application Data

[63] Continuation of Ser. No. 123,057, Feb. 25, 1980, Pat. No. 4,305,254.

[51]	Int. Cl.3	F02B 73/00
		<b>60/716;</b> 60/718;
		180/65 B

# [56] References Cited U.S. PATENT DOCUMENTS

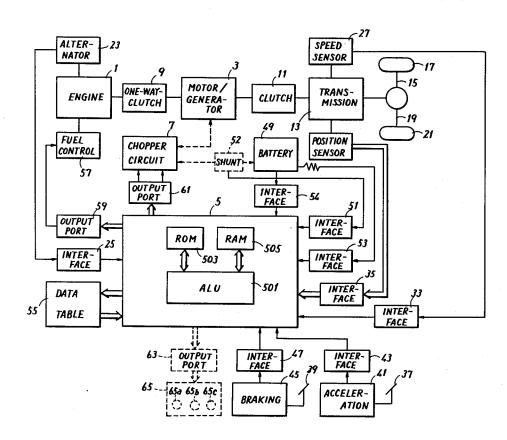
3,503,464	3/1970	Yardney 180/65.2
3,923,115	12/1975	Helling 180/65.2
4,042,056	8/1977	Horwinski 180/65.2 X

Primary Examiner—Allen M. Ostrager Assistant Examiner—Stephen F. Husar Attorney, Agent, or Firm—Darby & Darby

#### [57] ABSTRACT

A hybrid vehicle comprises an internal combustion engine and a motor/generator, which are controlled by a microcomputer. The internal combustion engine is rendered capable of a running operation in a region of a better fuel consumption characteristic. Outside the above described region, the motor is cooperatively driven with the internal combustion engine to provide a driving torque or only the motor is energized by a battery to provide a driving torque. On the other hand, when the hybrid vehicle is driven with a torque smaller than a predetermined lower limit value of the torque of the internal combustion engine, the redundant torque is used to drive the generator, so that a regenerative power is absorbed by the battery.

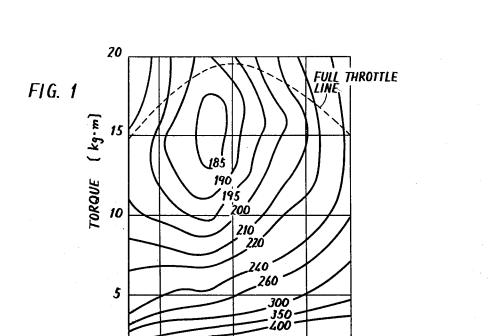
#### 1 Claim, 22 Drawing Figures

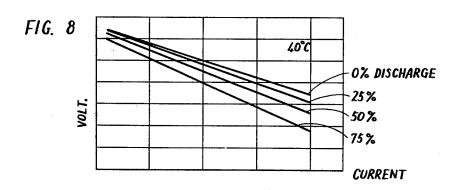




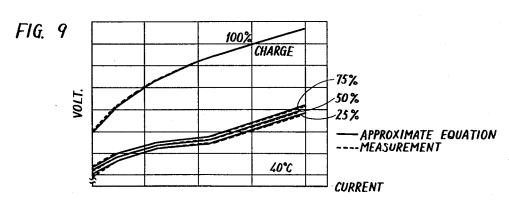
Unit gr/PS·h

REVOLUTION (×10<sup>3</sup> rpm)

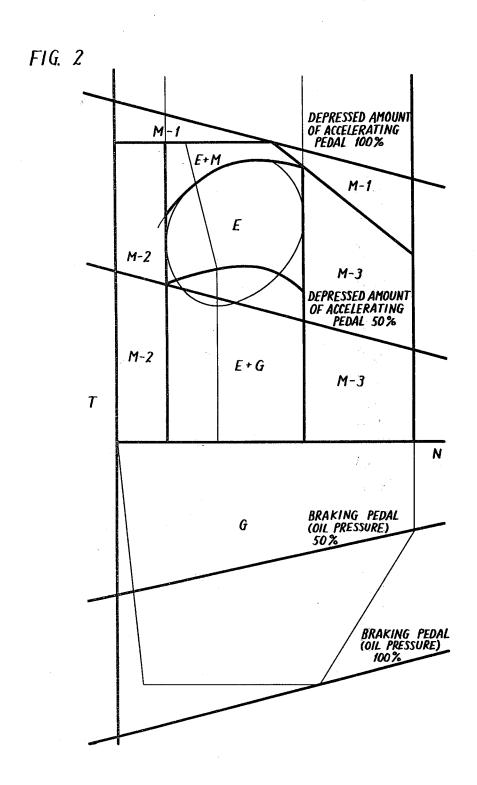




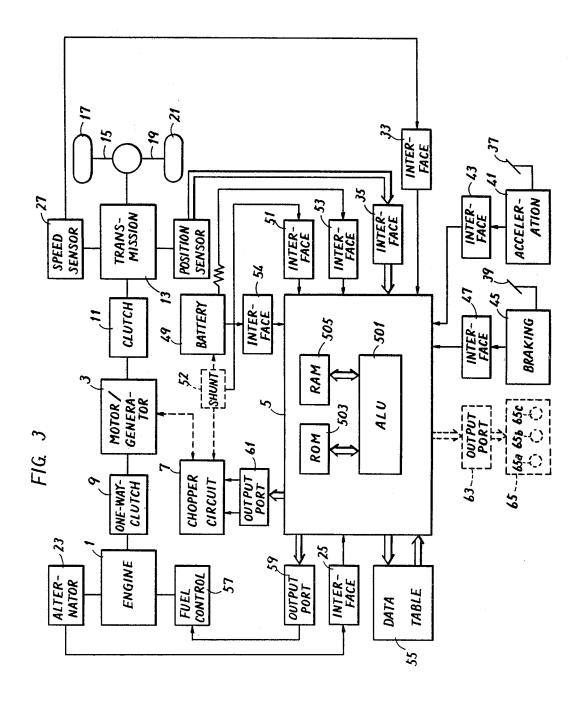
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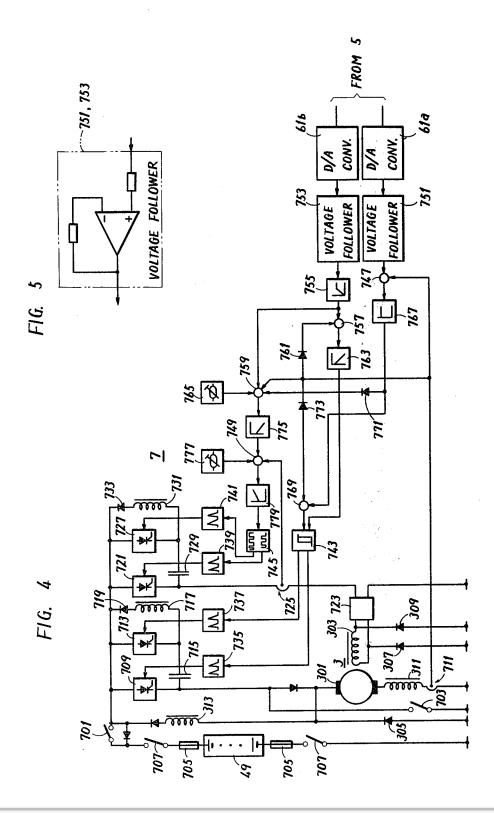












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