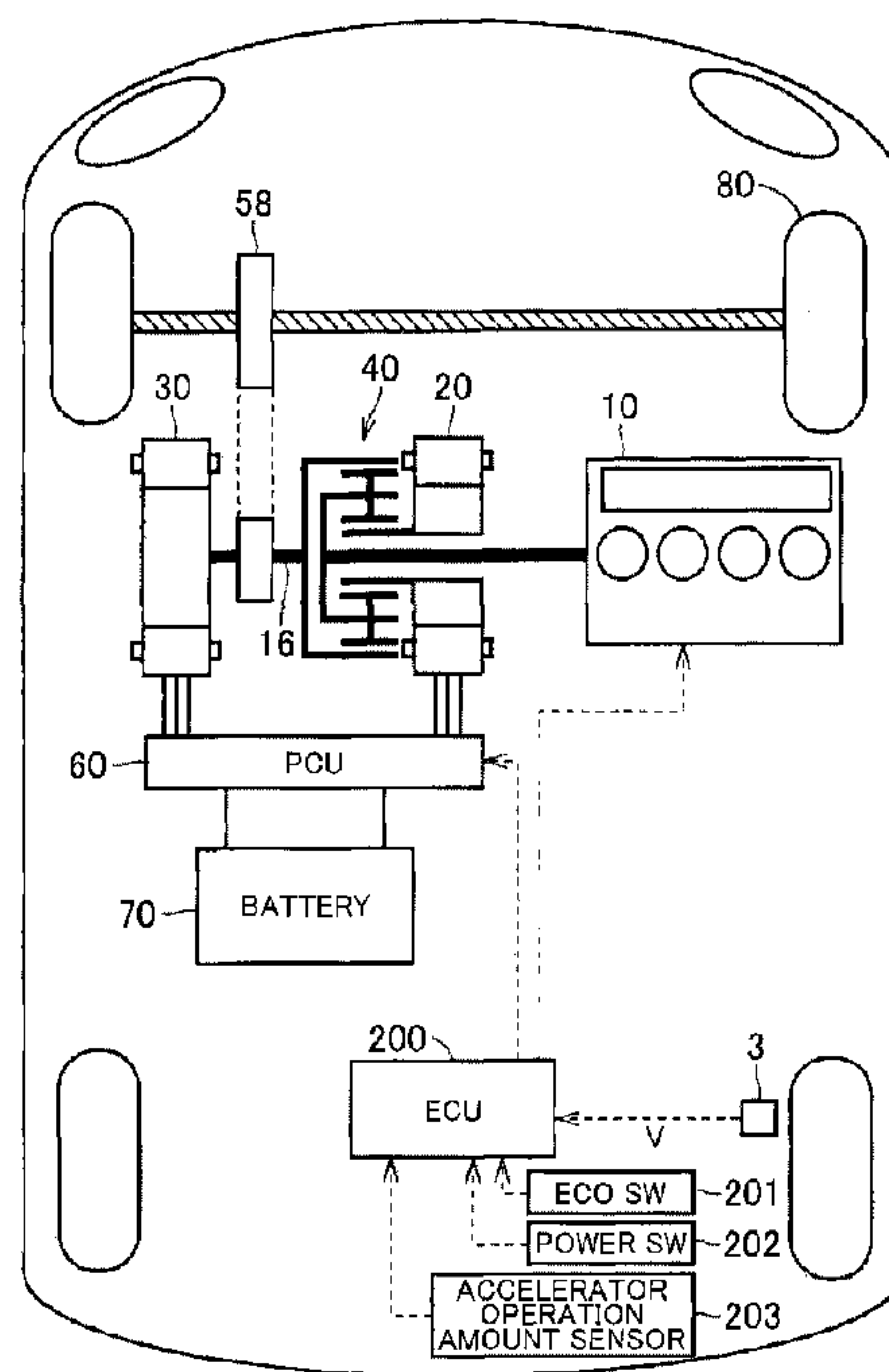




(86) Date de dépôt PCT/PCT Filing Date: 2014/12/30
(87) Date publication PCT/PCT Publication Date: 2015/07/23
(45) Date de délivrance/Issue Date: 2018/05/22
(85) Entrée phase nationale/National Entry: 2016/07/07
(86) N° demande PCT/PCT Application No.: IB 2014/002899
(87) N° publication PCT/PCT Publication No.: 2015/107381
(30) Priorité/Priority: 2014/01/15 (JP2014-004901)

(51) Cl.Int./Int.Cl. *F16H 61/66* (2006.01),
B60W 10/06 (2006.01), *B60W 10/08* (2006.01),
B60W 30/182 (2012.01)
(72) Inventeurs/Inventors:
TSURUTA, YOSHIKI, JP;
BABA, MASAYUKI, JP
(73) Propriétaire/Owner:
TOYOTA JIDOSHA KABUSHIKI KAISHA, JP
(74) Agent: GOWLING WLG (CANADA) LLP

(54) Titre : VEHICULE EQUIPE D'UN DISPOSITIF DE TRANSMISSION A VARIATION CONTINUE
(54) Title: VEHICLE PROVIDED WITH CONTINUOUSLY VARIABLE TRANSMISSION DEVICE



(57) **Abrégé/Abstract:**

A vehicle (1) is provided with a continuously variable transmission device (20, 40) and an electric control unit (200) controlling an engine (10), a motor generator (30), and the continuously variable transmission device (20, 40). The electric control unit (200) selects any one of a plurality of operation modes, having different correlations between a driver's accelerator operation amount and a control throttle opening, to suit driver's requests, and performs a number-of-revolutions increase control for increasing an engine rotation speed according to at least one of elapsed time from a time point of a vehicle speed increase and elapsed time from a time point of an acceleration request in a case where the control throttle opening exceeds a predetermined threshold. The electric control unit (200) controls the engine (10) to suppress the engine rotation speed change due to a change of the operation mode in a case where the control throttle opening is changed across the predetermined threshold in response to the change of the operation mode.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property

Organization

International Bureau

(43) International Publication Date

23 July 2015 (23.07.2015)



(10) International Publication Number

WO 2015/107381 A1

(51) International Patent Classification:

F16H 61/66 (2006.01) B60W 10/08 (2006.01)
B60W 10/06 (2006.01) B60W 30/182 (2012.01)

(21) International Application Number:

PCT/IB2014/002899

(22) International Filing Date:

30 December 2014 (30.12.2014)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2014-004901 15 January 2014 (15.01.2014) JP

(71) Applicant: TOYOTA JIDOSHA KABUSHIKI KAISHA [JP/JP]; 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP).

(72) Inventors: TSURUTA, Yoshiaki; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, of 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). BABA, Masayuki; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, of 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT

VEHICLE PROVIDED WITH CONTINUOUSLY VARIABLE TRANSMISSION DEVICE

BACKGROUND OF THE INVENTION

5

1. Field of the Invention

[0001] The invention relates to a vehicle that is provided with a continuously variable transmission device and, more particularly, to a hybrid vehicle that is provided with a continuously variable transmission device.

10

2. Description of Related Art

[0002] Japanese Patent Application Publication No. 2002-243031 (JP 2002-243031 A) discloses a shift control device for an automatic transmission. The control device obtains a shift target value from an operational point that is determined by a throttle opening and a vehicle speed, and executes continuously variable gear ratio control for controlling an automatic transmission gear ratio.

[0003] Techniques for determining whether to perform fixed gear ratio control or optimum fuel efficiency control depending on whether a control throttle opening is equal to or higher than a predetermined threshold have been studied for a vehicle that is provided with a continuously variable transmission (hereinafter, also referred to as a “continuously variable transmission device”).

[0004] Also, techniques for controlling a vehicle having a plurality of modes, such as a power mode and an eco mode, present for a relationship between the amount of an accelerator operation by a driver and a control throttle opening and allowing mode switch by the driver have been known.

[0005] A vehicle in which these controls are executed in combination is studied. The mode switch by the driver causes the relationship between the accelerator operation amount and the control throttle opening to be switched. Then, the control throttle opening is changed across a predetermined threshold by the mode switching operation, even if the amount of the accelerator operation by the driver is not changed. In this case, control switching may occur between the fixed gear ratio control and the optimum fuel efficiency control.

[0006] In this case, an engine rotation speed may fluctuate and the driver may feel a sense of discomfort if the control switching occurs between the fixed gear ratio control and the optimum fuel efficiency control in a state where the engine rotation speed of the fixed gear ratio control and the engine rotation speed of the optimum fuel efficiency control deviate from each other.

FIG. 2

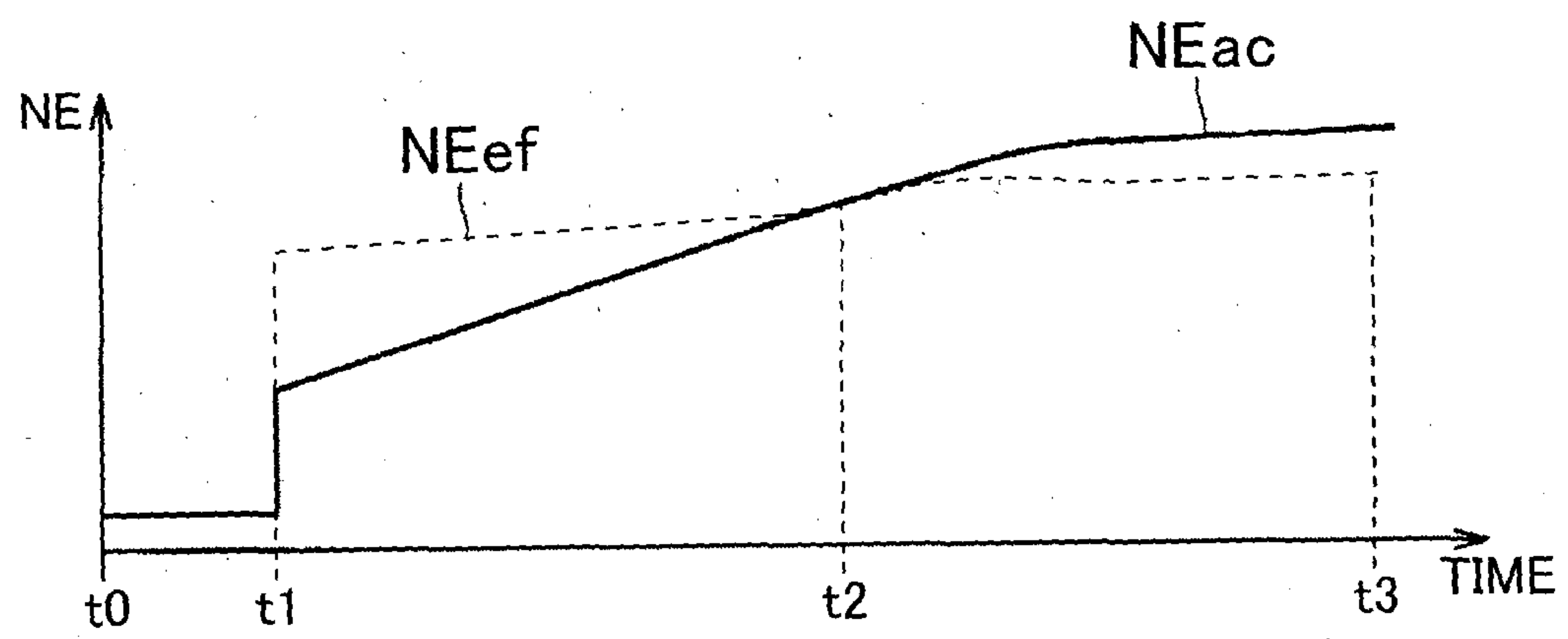


FIG. 4

<FLOWCHART SHOWING PROCESSING IN S1 IN DETAIL>

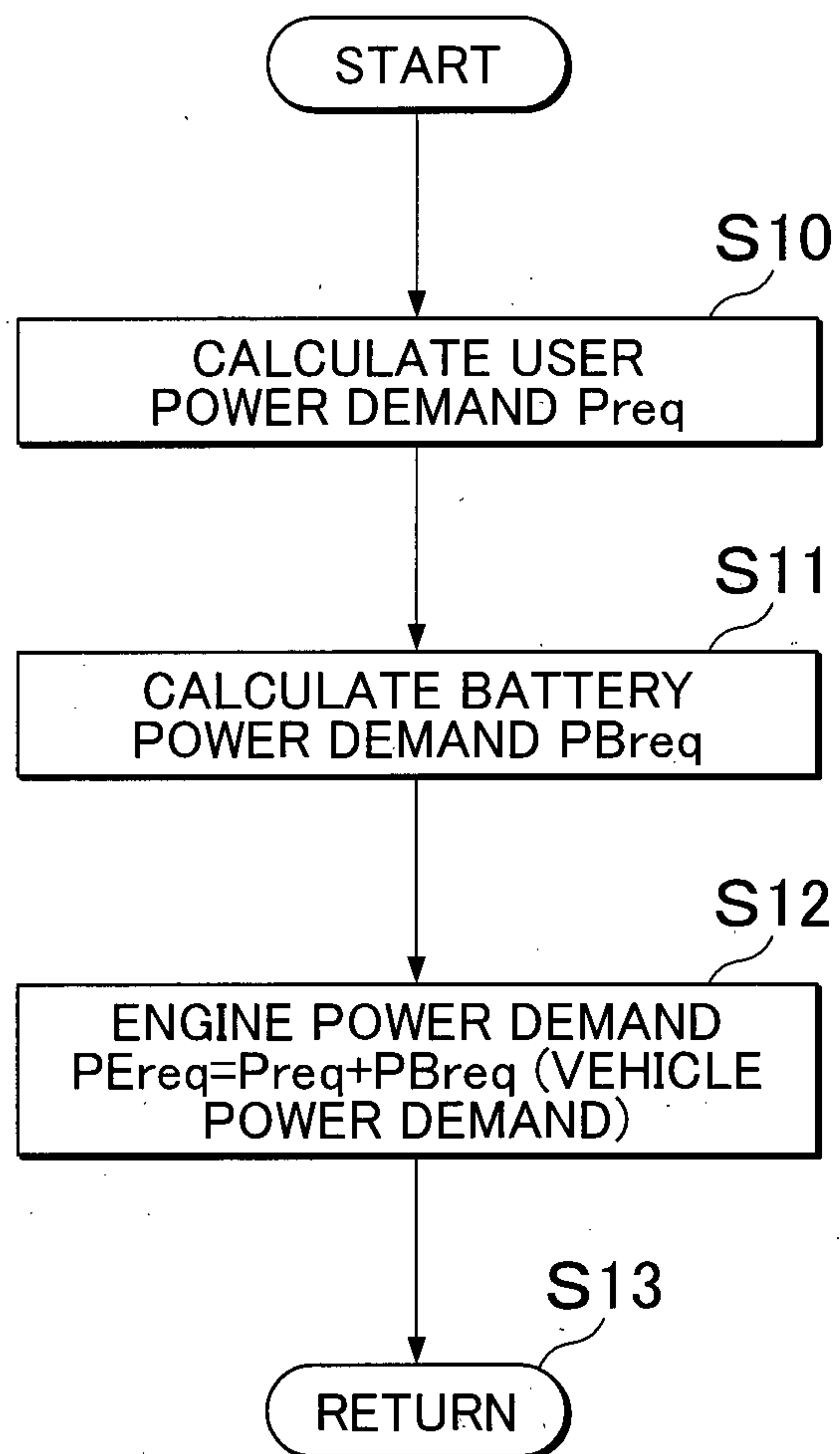


FIG. 5

<FLOWCHART SHOWING PART (S2A) OF PROCESSING IN S2>

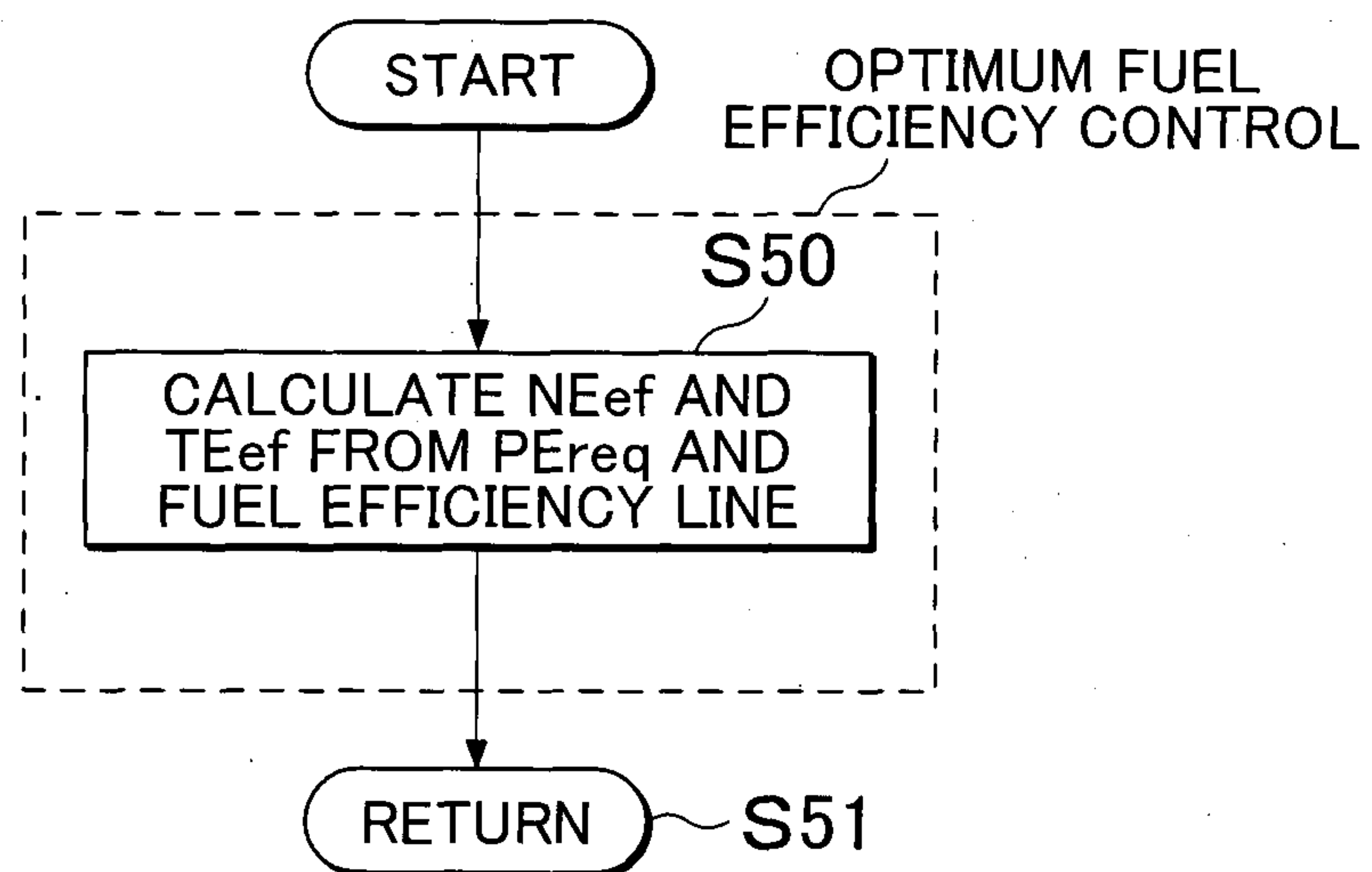


FIG. 6

<OPTIMUM FUEL EFFICIENCY CONTROL>

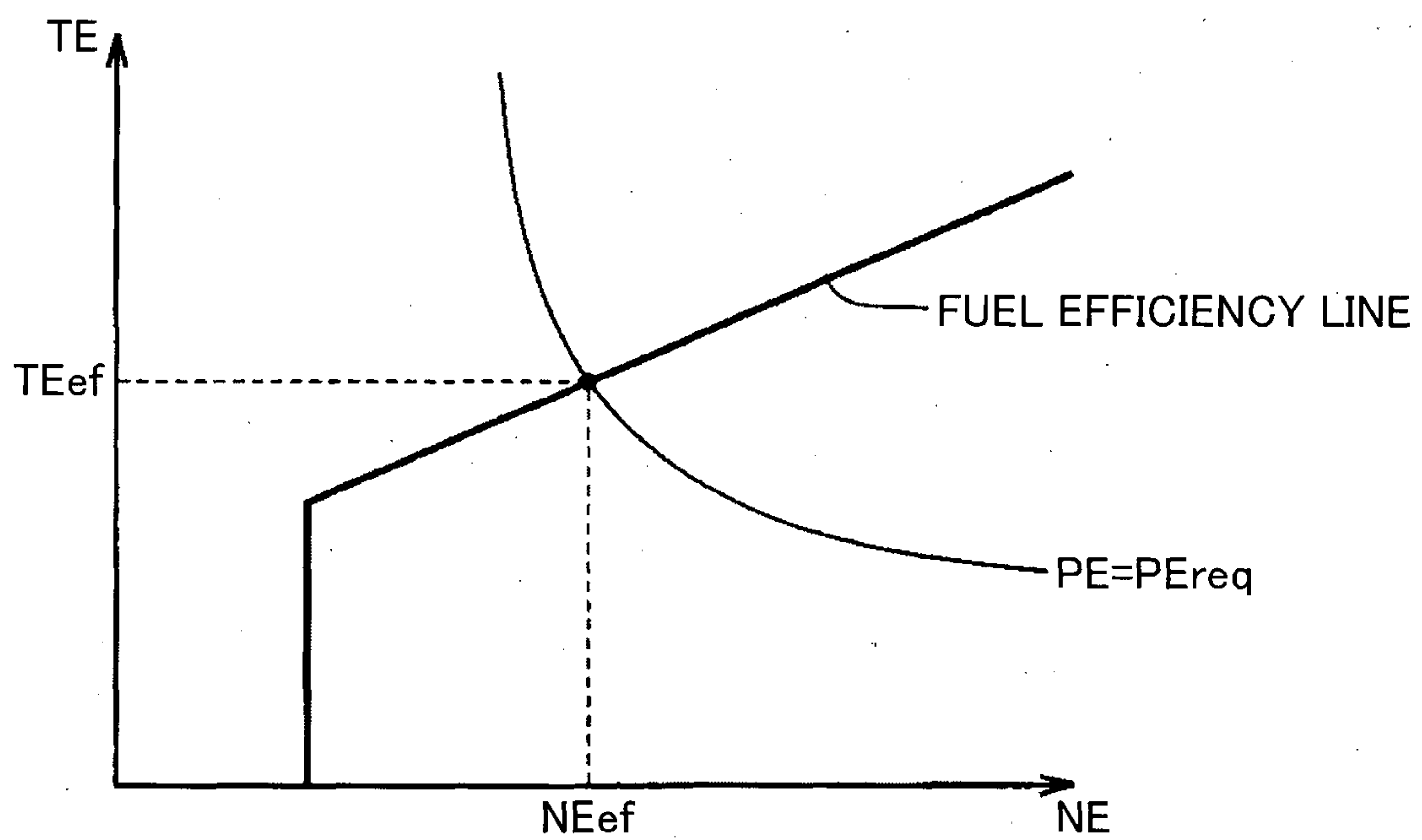


FIG. 8

<ACCELERATION FEELING PRODUCTION CONTROL>

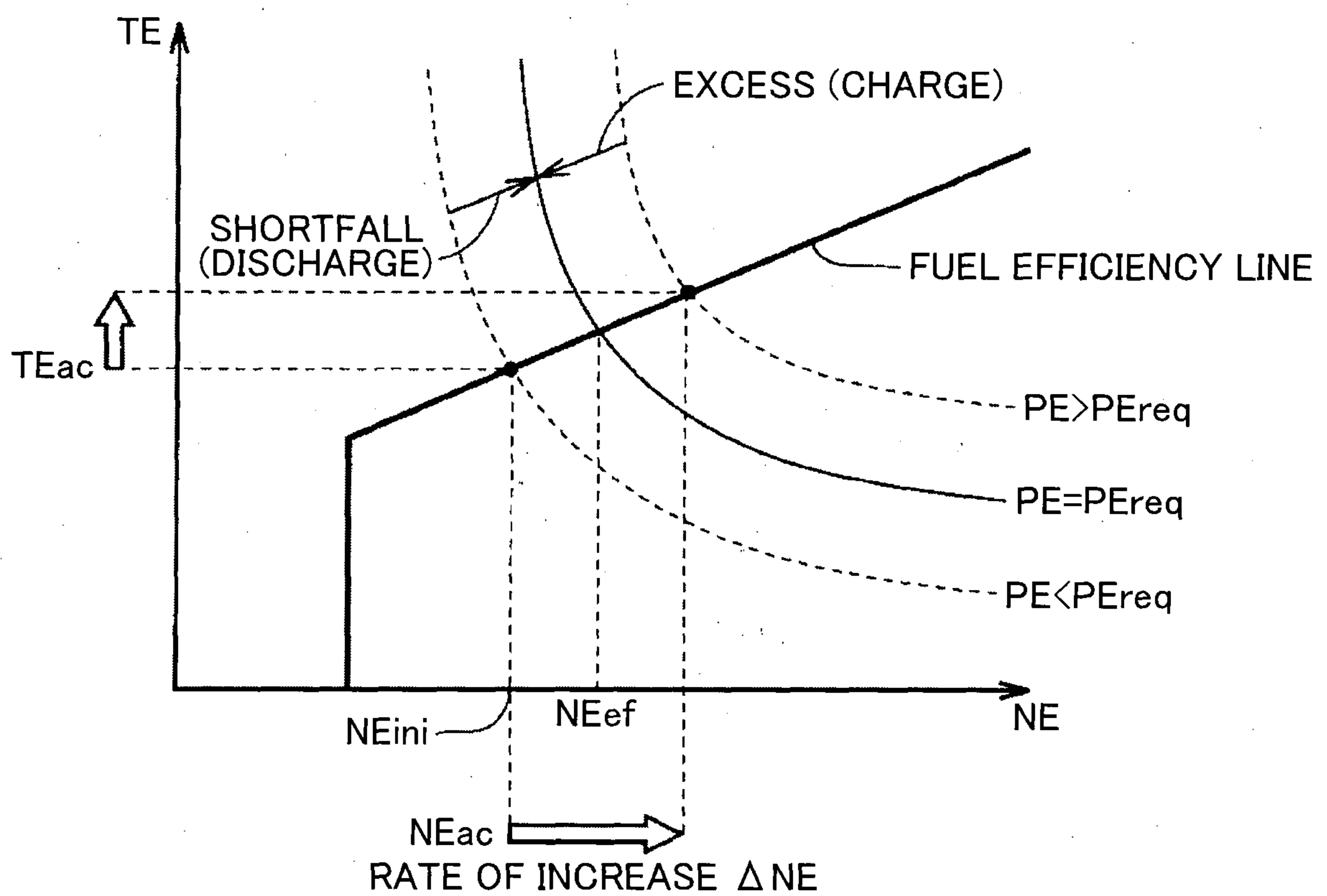


FIG. 12

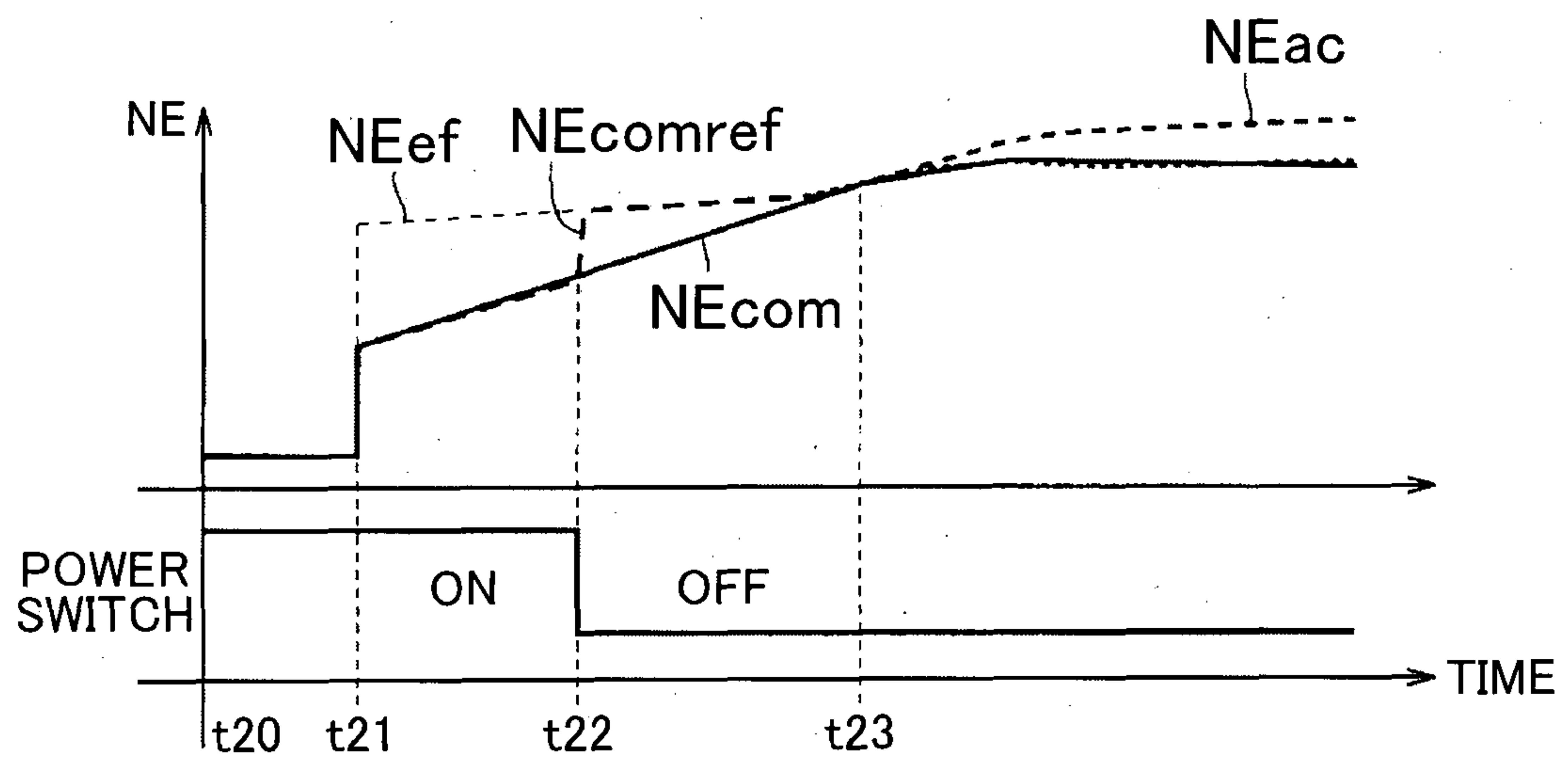


FIG. 16

<FLOWCHART SHOWING PROCESSING IN S4 IN DETAIL>

