Voltage Amplitude Control Circuit (50)

Voltage amplitude control circuit (50) of Figure (3-5) performs several functions simultaneously:

First, regulates car **battery electrical voltage potential** (32) of Figure (3-15) being applied to **primary coil** (26) of Figure (3-21); and secondly, regulates **gas pressure** of **Fuel Cell** (120) of Figure (3-22), as graphically depicted in Figure (3-15).

Figure (3-21)

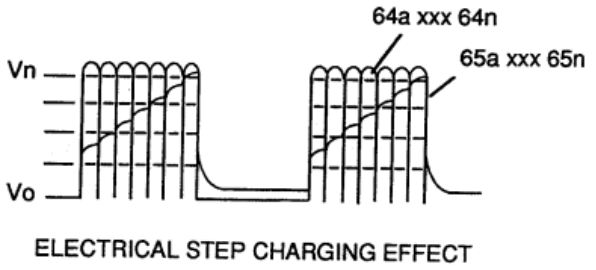

Figure (3-22)

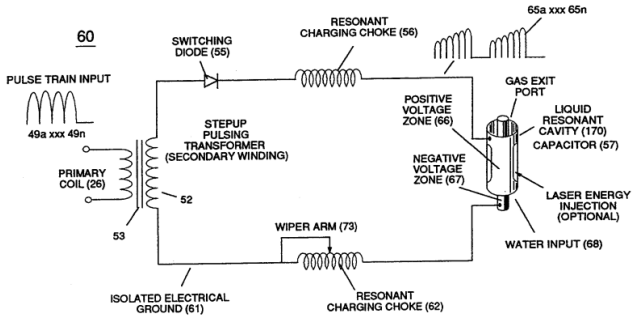

FIGURE 3-22: VOLTAGE INTENSIFIER CIRCUIT

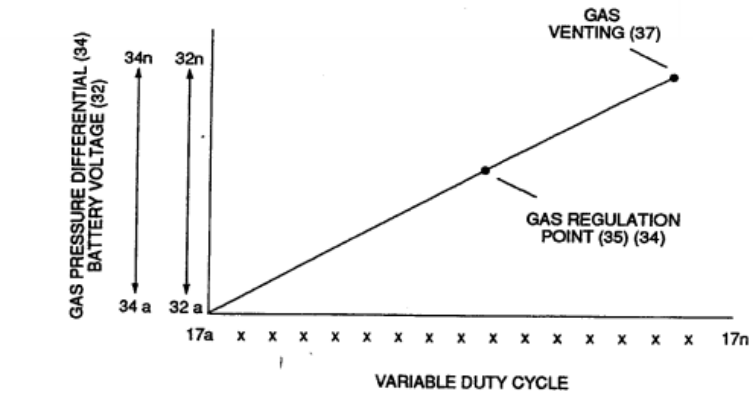

FIGURE 3-15: GAS REGULATOR CONTROL

Each **regulatory stage** (27) and (28)

works separately and independent of each other but are! electronically linked or coupled together to produce a common **analog signal** (32) having a **predetermined voltage level** (32a xxx), as further shown in Figure (3-15).

> **Regulator stage** (27) of **circuit** (50) converts **battery voltage potential** (29) of Figure (3-6) via **electrical terminal** (31) of Figure (3-5) as to Figure (3-6) into a **analog voltage signal** (32) of Figure (3-15) which corresponds to but is **electrically isolated** (*crossover voltage from two separate power supplies*) from incoming **gas volume signal** (23) of Figure (3-14), as shown in Figure (35).

Variable voltage range (32a xxx 32n) from **one** (1) up to **twelve** (12) volts (regulating battery voltage) is applied across **primary coil** (26) of **Voltage Intensifier Circuit** (60) of Figure (3-21).

Second **regulator stage** (28) simply acts and function as a **gas regulator** (33) by preventing **Fuel Gas** production beyond a predetermined **gas pressure level** (34) of Figure (3-15) during **Fuel Cell** operations and, as such, maintains constant gas pressure to **Fuel Injectors** (36) of Figure (3-1) regardless of engine performance (R.P.M. response).

> If for example, **Fuel Gas** production is greater than demand, then, **analog signal** (32) is reduced to proper **voltage level** (35) (voltage level directly determines gas pressure via **Resonant Action**) required to maintain **gas pressure** (34).

Conversely, **analog signal** (32) is always allowed to exceed **voltage level** (35) during **injection** (36) of Figure (3-1) until **gas-point** (34) is reached.

> In cases where **linear voltage** (32) drops (descending value) below **gas-point** (35) then **gas regulator stage** (28) increases **voltage amplitude** (32a xxx 32n) (analog voltage) to **voltage point** (35).

If **gas pressure** (34a xx) should exceed **gas point** (35) during injector off-time, **gas pressure release valve** (75) of Figure (3-24) (**gas venting** 37 of Figure 3-15) expels **Fuel gases** (88) until **gas point** (34) is either reached or a delay timing circuit activates **Safety Control Circuit** (14) of Figure (3-6) which, in turns, switches off or disconnects **applied electrical power** (28) to **Fuel Cell electrical system** (400) of Figure (3-6).

Figure (3-15)

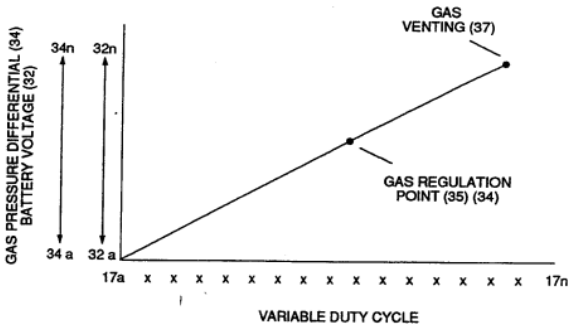

FIGURE 3-15: GAS REGULATOR CONTROL

Figure (3-6)

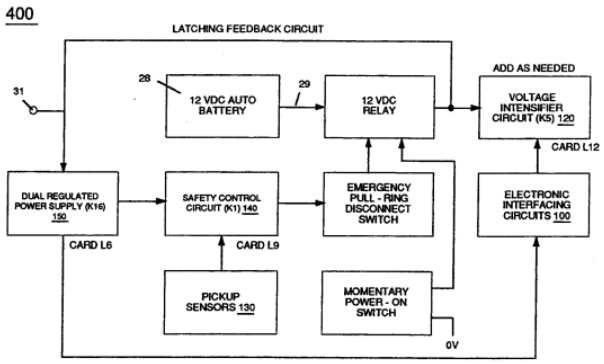

FIGURE 3-6: SAFETY INTERLOCK CIRCUIT

Gas logic circuit (310) of Figure (3-5) supplies logic function to **Voltage amplitude control circuit** (50) to maintain proper gas pressure to **gas injector** (36) of Figure (3-1) by electronically monitoring achieved gas pressure via **pressure sensor** (73) of Figure (3-24).

Figure (3-1)

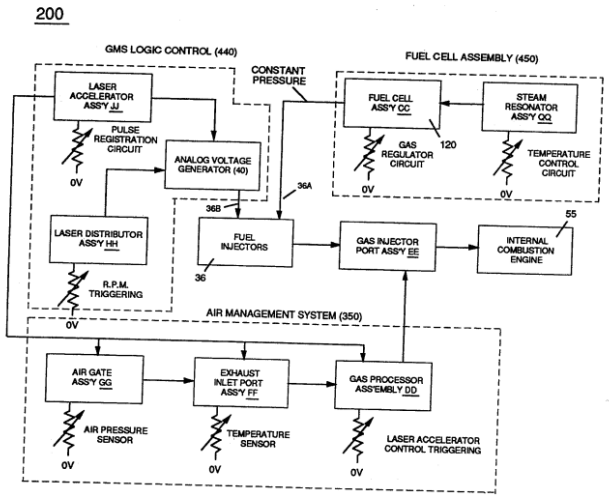

FIGURE 3-1: HYDROGEN GAS MANAGEMENT SYSTEM

Figure (3-24)

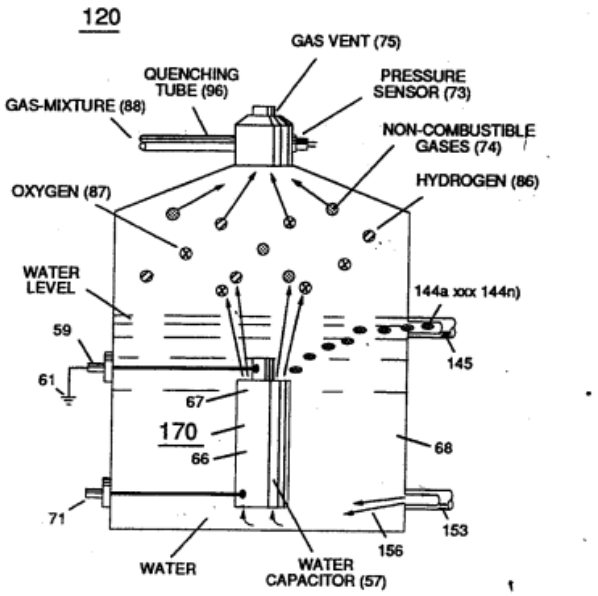

FIGURE 3-24: FUEL CELL

In terms of operability, **Laser Accelerator Assembly** (20) of Figure (3-5) is, now, attenuating **battery voltage potential** (32a xxx 32n) which is electrically connected to **Voltage Intensifier Circuit** (60) of Figure (3-5).

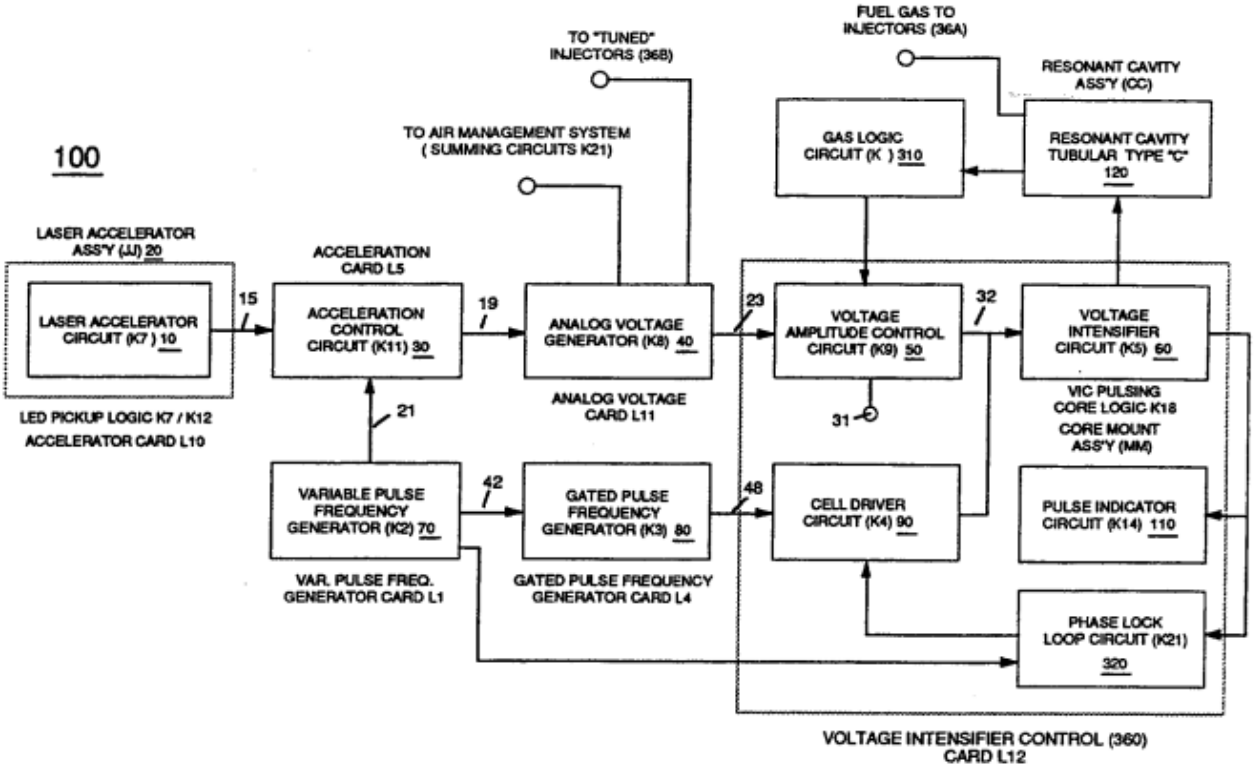

FIGURE 3-5: HYDROGEN GAS CONTROL CIRCUIT

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