CLAIMS

[Claim 1]

A mobile power supply vehicle comprising:

a base vehicle capable of traveling;

a diesel engine mounted on the base vehicle;

a PTO connected to the diesel engine;

a first pulley connected to the PTO;

a second pulley connected to the first pulley via a belt;

an AC generator connected to the second pulley and mechanically connected to the PTO via the first pulley, the belt, and the second pulley;

an automatic voltage regulator connected to the AC generator and the diesel engine;

an engine control unit provided in the base vehicle;

a choke controller connected to the diesel engine; and

a power generation control circuit connected to the AC generator and configured to supply AC power generated by the AC generator to a power-receiving-side device,

wherein the diesel engine is used both for traveling of the base vehicle and for power generation by the AC generator,

the PTO is connected to the engine control unit and is configured to switch use of the diesel engine between use for traveling of the base vehicle and use for driving the AC generator,

the automatic voltage regulator outputs, when a load of the power-receiving-side device fluctuates, a maintenance request for maintaining a rotational speed of the AC generator at a prescribed rotational speed so as to maintain a frequency and a voltage set in the automatic voltage regulator,

the engine control unit detects, in response to the maintenance request, whether the rotational speed of the diesel engine is excessive or insufficient and issues a command to the choke controller,

the choke controller increases or decreases an engine rotational speed of the diesel engine in response to the command from the engine control unit so that the rotational speed of the AC generator is maintained at the prescribed rotational speed, and

the power generation control circuit supplies the AC power generated by the AC generator to the power-receiving-side device without converting the AC power into DC and then converting the DC back into AC.

[Claim 2]

The mobile power supply vehicle according to claim 1, wherein the automatic voltage regulator, the engine control unit, the choke controller, the diesel engine, and the PTO each comprise an ECU, and communication between the ECUs is performed by CAN communication.

[Claim 3]

The mobile power supply vehicle according to claim 1 or 2, wherein the choke controller increases or decreases the rotational speed of the diesel engine so as to maintain the rotational speed of the AC generator within ±7% of the prescribed rotational speed.

[Claim 4]

The mobile power supply vehicle according to claim 1 or 2, wherein the PTO is actuated by electronic control using a changeover switch provided in the base vehicle while a gear of the base vehicle is in neutral, and switches use of the diesel engine from use for traveling of the base vehicle to use for driving the AC generator.

[Claim 5]

The mobile power supply vehicle according to claim 1 or 2, wherein the first pulley, the second pulley, or both are configured to be replaceable with pulleys having a shaft diameter, a number of belts, or both adapted to an output of the diesel engine and power generation capability of the AC generator.

[Claim 6]

The mobile power supply vehicle according to claim 1 or 2, wherein the power generation control circuit is configured to output power in a single-phase three-wire system, a three-phase three-wire system, or a combination thereof.

[Claim 7]

The mobile power supply vehicle according to claim 1 or 2, wherein the power generation control circuit is configured to output 100 V/200 V in a single-phase three-wire system and 200 V in a three-phase three-wire system, 100 V/200 V in a single-phase three-wire system and 200 V/400 V in a three-phase three-wire system, or 200 V/400 V in a three-phase three-wire system.

[Claim 8]

The mobile power supply vehicle according to claim 1 or 2, further comprising a storage battery, wherein the storage battery is configured to store DC power obtained from an external power source and to supply AC power to the power-receiving-side device.