

Umpqua Energy, Inc.

INSTALLATION PROCEDURES For HYDROGEN GENERATOR

This system should be installed by an authorized installer or by a person totally versed in automotive circuitry, otherwise, damage to the components and/or vehicle can occur.

The Hydrogen Cell circuit should be connected to a 12 volt 30 amp circuit at the fuel pump relay or a suitable source that is activated and deactivated when the engine is turned on and off.

This prevents the Hydrogen Cell from operating while the engine is turned off as a safety precaution. For safety reasons, all unsupplied wiring should have a 30 amp automotive rating.

UNIT PLACEMENT and MOUNTING

1. The most common place for mounting the H₂ Generator Canister Assembly is under the hood, however, alternate locations are acceptable. The unit must be mounted in an upright position, with the outlet slightly below the intake of the air filter connection source, with appropriate bottom support or proper strapping.
2. (See Figure 1) One end of the hydrogen supply hose is to be attached to the WHITE ½" barbed "Straight" fitting on the top of the H₂ Generator unit and the other end of the hydrogen supply hose should be attached to the air intake system, after the **MAF** (Mass Air Flow) Sensor and before the Throttle Plate using supplied ½" barbed "L" fitting.

NOTE: IT IS RECOMMENDED THAT AUTOMOTIVE RATED FUEL LINE HOSE BE USED. IT CAN BE PURCHASED AT MOST AUTO PARTS DEALERS. ONE RECOMMENDED TYPE IS:

GOODYEAR EP SAE 30R9 CARB APPROVED (C-U-06-011)

(OTHER EQUIVELANTS ARE ACCEPTABLE)

WARNING: DO NOT TAP HOSE FITTING HOLES IN AIR INTAKE PARTS WHILE STILL ATTACHED TO ENGINE. THE AIR INTAKE ENGINE AIR SUPPLY SYSTEM MUST BE REMOVED TO PREVENT SHAVINGS AND OTHER PARTICLES FROM ENTERING THE ENGINE -- POSSIBLE ENGINE DAMAGE COULD OCCUR

3. The Air Resources Board **E. O. No. Label** supplied (or to be supplied in future) with the system must be placed on or near the H₂ Generator. In some areas this is a requirement for passing Smog Check inspection.

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SYSTEM WIRING

(Refer to drawing 101035-System Wiring Diagram-with Relay)

1. **For safety reasons, be sure ignition switch is “OFF” and battery is disconnected.**
2. Wire the Ammeter Panel “HOT” wire (Inline 30 amp fuse) to supplied 30 amp relay, terminal #30.
3. The Ammeter Panel “GROUND” wire should be attached to a suitable ground source under the dashboard or other suitable location.
4. Connect the Ammeter Panel (**RED**) “GENERATOR” wire to the (**RED**) “GENERATOR” wire from the H₂ Generator canister.
5. Connect the Ammeter Panel “SENSOR” wire to the “SENSOR” on the H₂ Generator
6. Wire 30 amp relay terminal #87 to Positive battery terminal.
7. Wire 30 amp relay terminal # 86 to ground.
8. Wire 30 amp relay terminal #85 to “switched” 12 volt source (i.e., fuel pump).
“Switched” 12 volt source refers to power that is “ON” when engine is running and “OFF” when engine is turned off.

INSTALLATION NOTES

1. There should be three wires leaving the vehicle cab from the Ammeter Panel through a 1/4” rubber grommet hole at the bulkhead. (SENSOR, GENERATOR and HOT wires)
2. This hole must drilled away from any exhaust manifold location to prevent possibly overheating wires. If required, a variety of commercially available heat sink materials can be used.

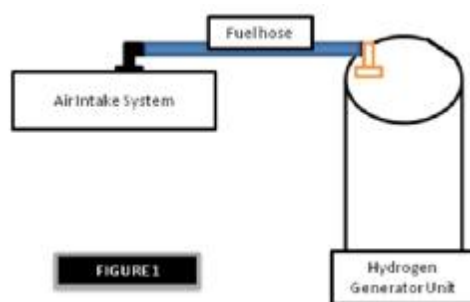
SYSTEM CHARGING AND STARTUP

After installation of all wiring, supplied air filter, H₂ Generator canister and supply hoses, the system must be charged.

1. At the H₂ Generator unit, remove FILLER CAP on top of unit. Fill canister with approximately ½ liter (500 ml/17 oz) of **“S. PELLEGRINO SPARKLING NATURAL MINERAL WATER”** AND 1 liter (1000 ml/35 oz) PURE DISTILLED WATER.
2. Reconnect the vehicle battery and turn ignition “ON” and turn power switch at Ammeter Panel “ON”.

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3. With someone to assist, slowly fill the canister with water until the “GREEN” LED on the Ammeter Panel starts to glow. At this point, the canister needs only an additional 1 ½ cups of water to complete the filling process. **“DO NOT OVER FILL THE CANISTER”**
4. Turn the Ammeter Panel switch to “OFF” and start the engine. Turn the Ammeter Panel switch to “ON” and the ammeter should read between 3 – 7 amps.
5. As a safety measure, “Never Operate the H₂ Generator without the Engine Running”.
6. After the initial filling with mineral drinking water the canister should be topped of periodically with distilled water unless the amperage reading drops below 4 amps. At this point, the canister should be topped off with mineral water again until the amperage settles into an average operating range of 4 to 10 amps.
7. **Caution:** if you add too much water, the system might need to be drained off (using drain cap at bottom-side of canister unit) until the level is just visible approximately ½ inch below the “Filler” fitting on top of unit.
8. **BE SURE to tighten filler cap and drain cap securely.** If the caps are not tightened securely, the intake vacuum system may be adversely effected possibly causing the engine to operate inefficiently.
9. After a few minutes of operation with the engine running, the amperage reading will settle to an ideal operating range of 4 – 10 amps.
10. The GREEN LED water level indicator on the Ammeter Panel will begin to dim and eventually go off when the system needs more water. This will generally occur once between or at fuel tank fill-ups, depending on gas tank size, engine displacement, ambient temperatures, etc...



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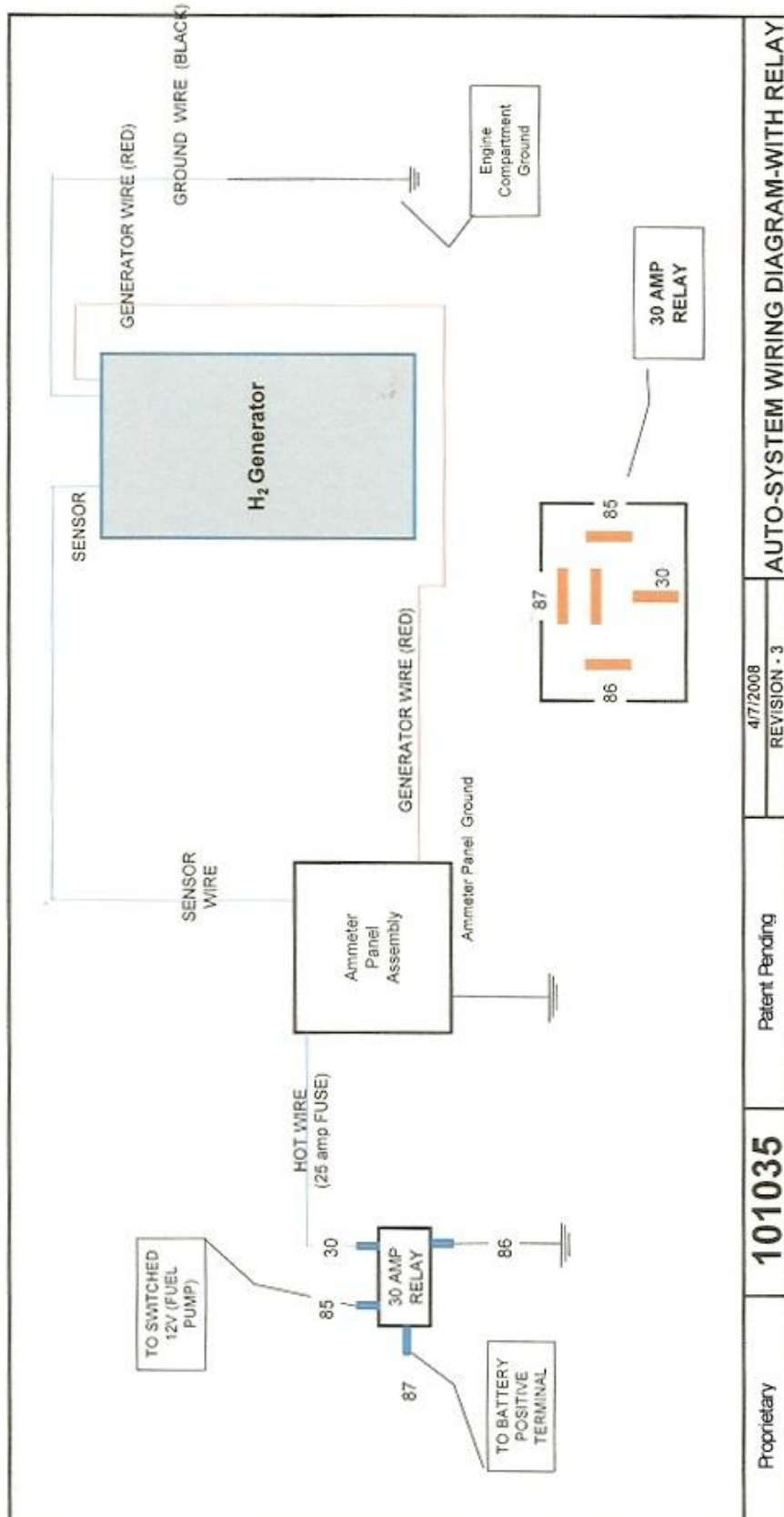
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101034

Umpqua Energy, Inc.



101035 AUTO-SYSTEM WIRING DIAGRAM-WITH RELAY

4/7/2008
REVISION - 3

Patent Pending

101035

Proprietary

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ICSC: 0001

HYDROGEN

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LEGAL
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