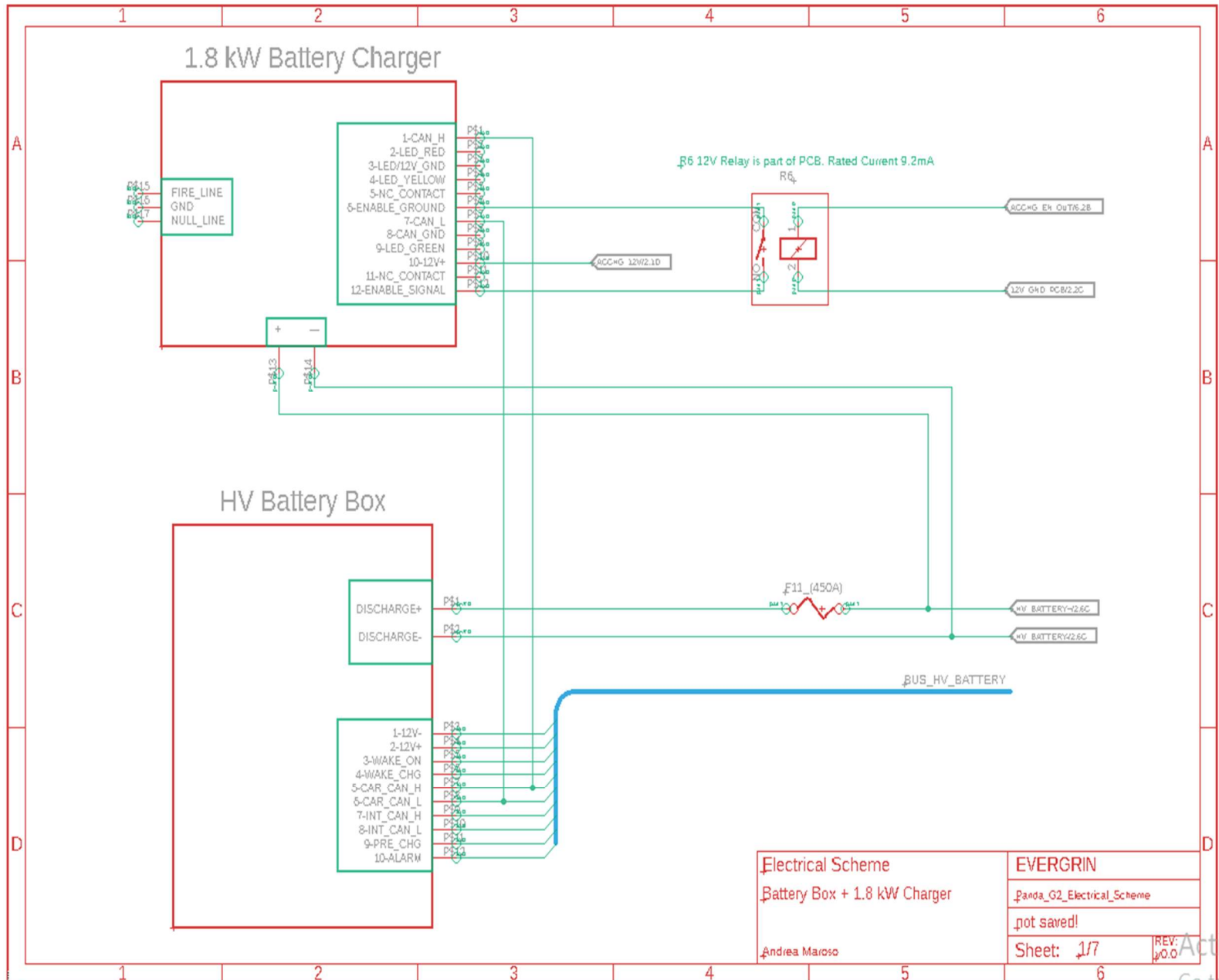


ELECTRICAL SCHEMATIC VERSION_3 REPORT

This is the Version_3 report of Electrical Schematic. The difference between Version_2 and Version_3 is that in 3rd version, from VMU we sent Enable signal for one of the Input and Analog Torque signal to Throttle Input of Inverter to meet requirements to unlock CAN network control of Inverter.

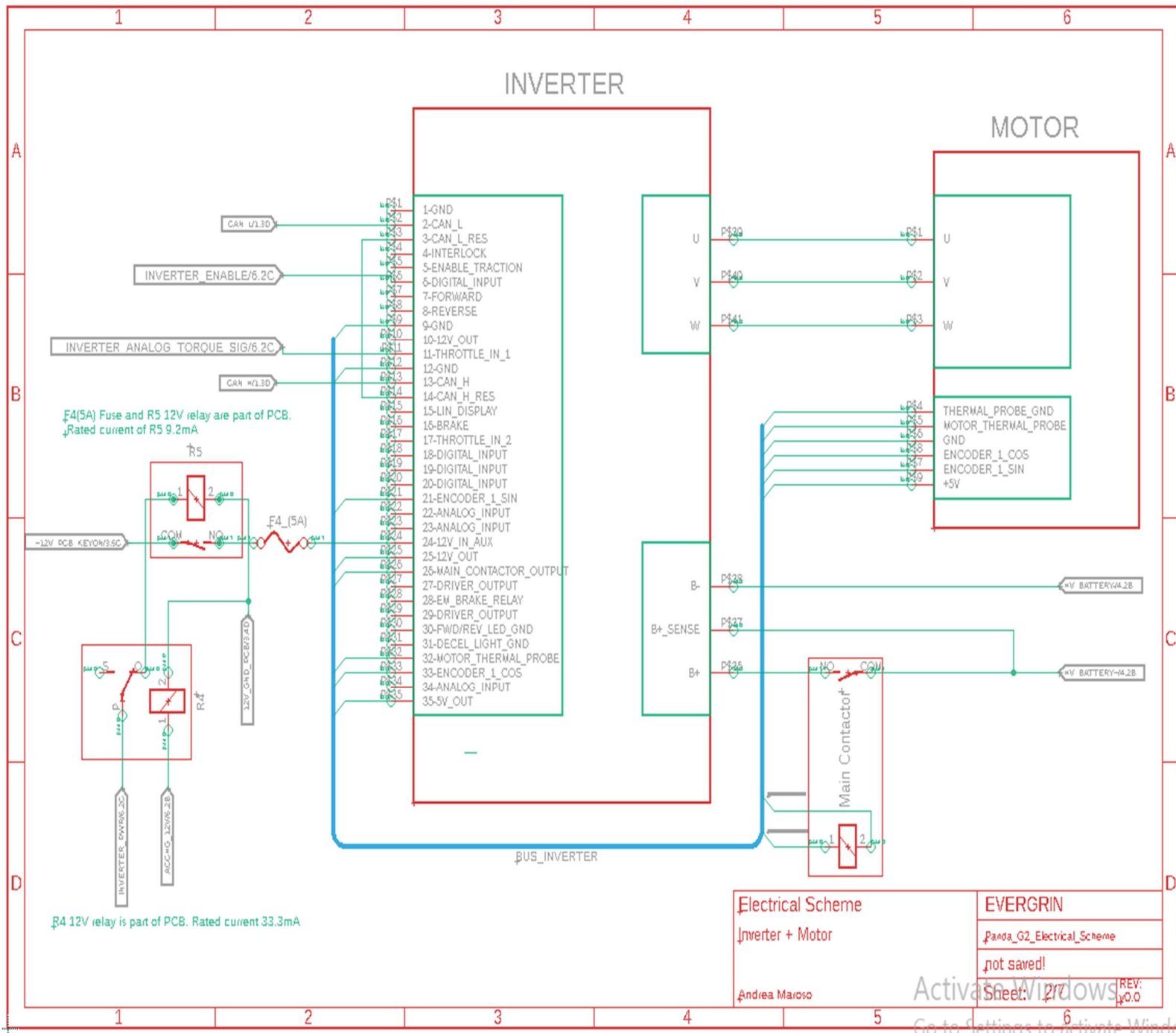
Sheet1:



R6 12V relay with 9.2mA rated current used to enable charging. When the signal from VMU at ACCCHG_EN_OUT/6.2B applied at the coil of relay, relay enables Battery charger for charging. At 12V+ pin 10 of Battery Charger, ACCCHG_12V/2.1D signal when applied means Battery is at charging state which

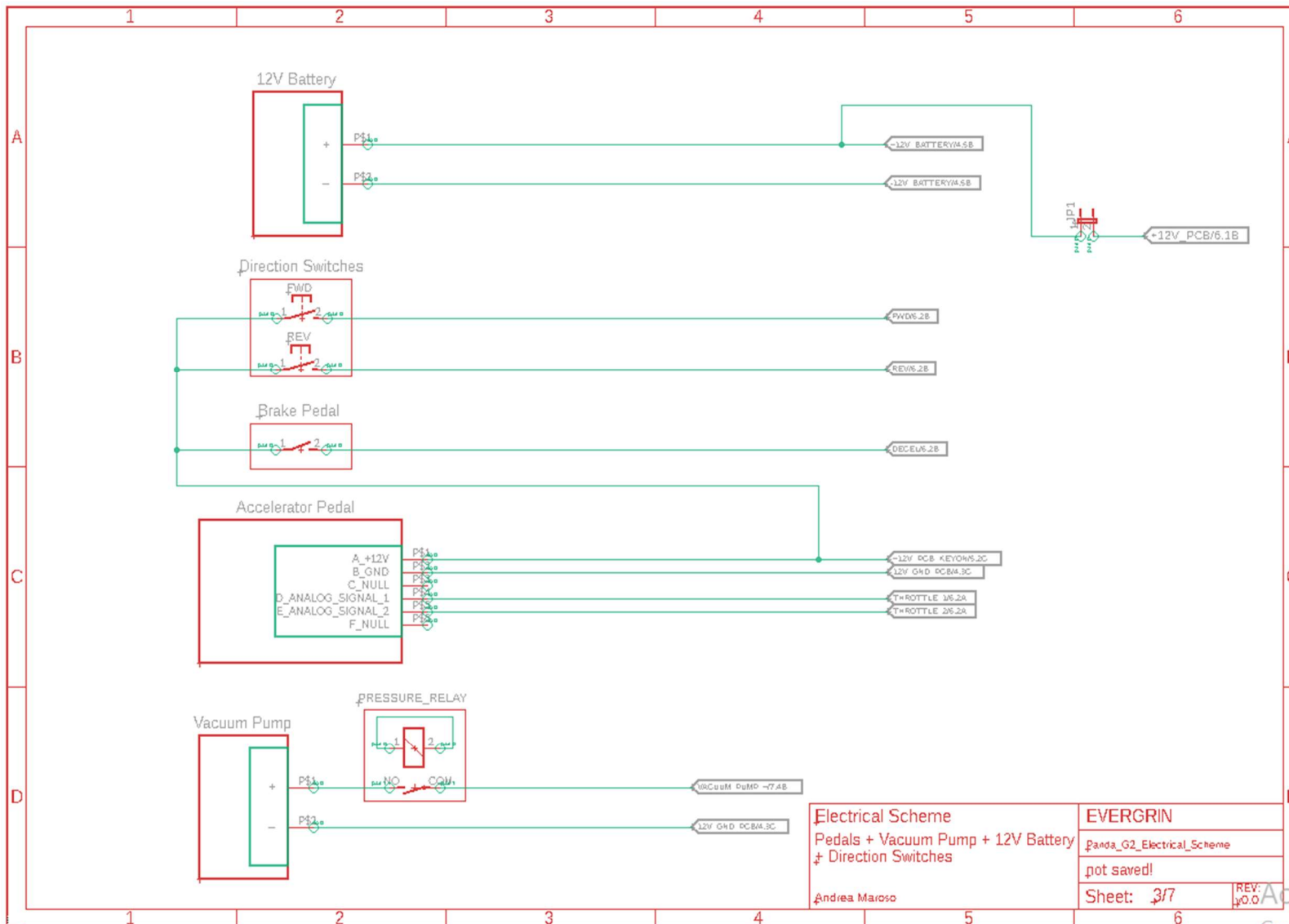
stops the inverter working as, R4 relay of inverter with 33.3mA rated current is also, attached with ACCHG_12V/6.2B signal which at the time of battery charging, stops inverter. Battery charger +- terminals are connected to HV Battery Box for charging. HV Battery Box +- terminals are also connected to High voltage terminals B- and B+ of Inverter and to the Inputs of DC/DC converter. The other pins of High voltage HV battery Box like, Wake_On for enabling purpose, CAN_H,CAN_L etc are connected to VMU through BUS_HV_Battery to control HV Battery.

Sheet2:



SME Inverter is used in this schematic. R5 12V relay with 9.2mA rated current and R4 12V relay with 33.3mA rated current are parts of PCB. Coil of R4 is attached to ACCHG_12V/6.2B and NC of relay is connected to the Inverter_PWR/6.2C which is further connected to the coil of R5 relay. So, these connections stops working of Inverter at the time of Charging of battery and continue supplying 12V_IN_AUX pin of Inverter when Inverter_PWR/6.2C signal applied at R4 from VMU. Then, Can_L and CAN_H pins of Inverter connected to CAN network. Inverter_Enable/6.2C is connected to one of the Input of Inverter, from VMU we sent Enable signal for the Input and Analog Torque signal to Throttle Input of Inverter to meet requirements to unlock CAN network control of Inverter. Then, U,V,W are 3- phase output terminals connect to motor. B- and B+ are for Inverter's high voltage connections to HV battery controlled by Main Contactor relay whose coil is connected to Main_contactor_output pin of Inverter to control connection to HV battery. And according to inverter's standard configuration, Encoder_1_sin, 12V_out, Encoder_1_cos, motor_thermal_probe pins of inverter connects to Motor through Bus_Inverter.

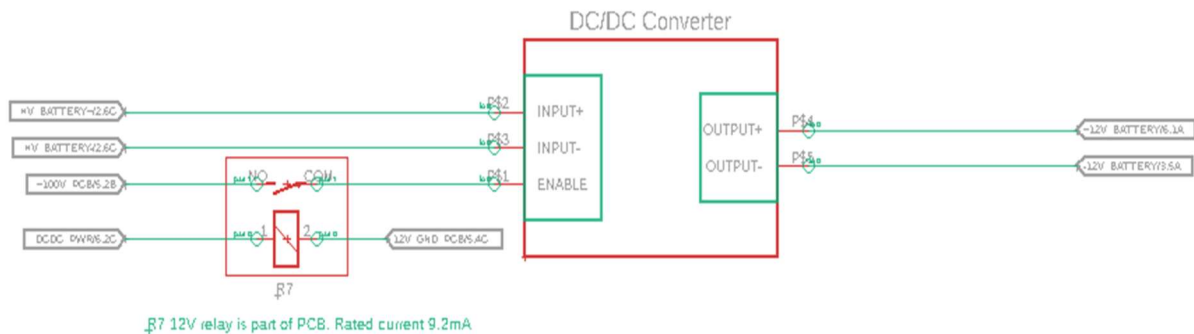
Sheet3:



Direction switches connects to FWD/6.2B and REV/6.2B to apply signal to Forward and Reverse pin of VMU. Similarly, Brake pedal connected to DECEL/6.2B of VMU. +12V is given for FWD, REV and Brake from Accelerator pedal. And same +12V_PCB_KEYON/5.2C is applied for 12V_In_Aux of inverter through R5. And to Liquid heater pump to control Liquid heater R8 relay coil. Analog signal_1&2 from accelerator pedal goes to Throttle_1&2 of VMU to inform VMU about how much pedal is pressed.

Output of DC/DC converter gives 12V which is further connected to 12V battery and +12V_PCB/6.1B for VMU to apply +12V at SW_Heater pin of VMU.

Sheet4:



Electrical Scheme

DC/DC Converter

Andrea Maroso

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Panda_G2_Electrical_Scheme

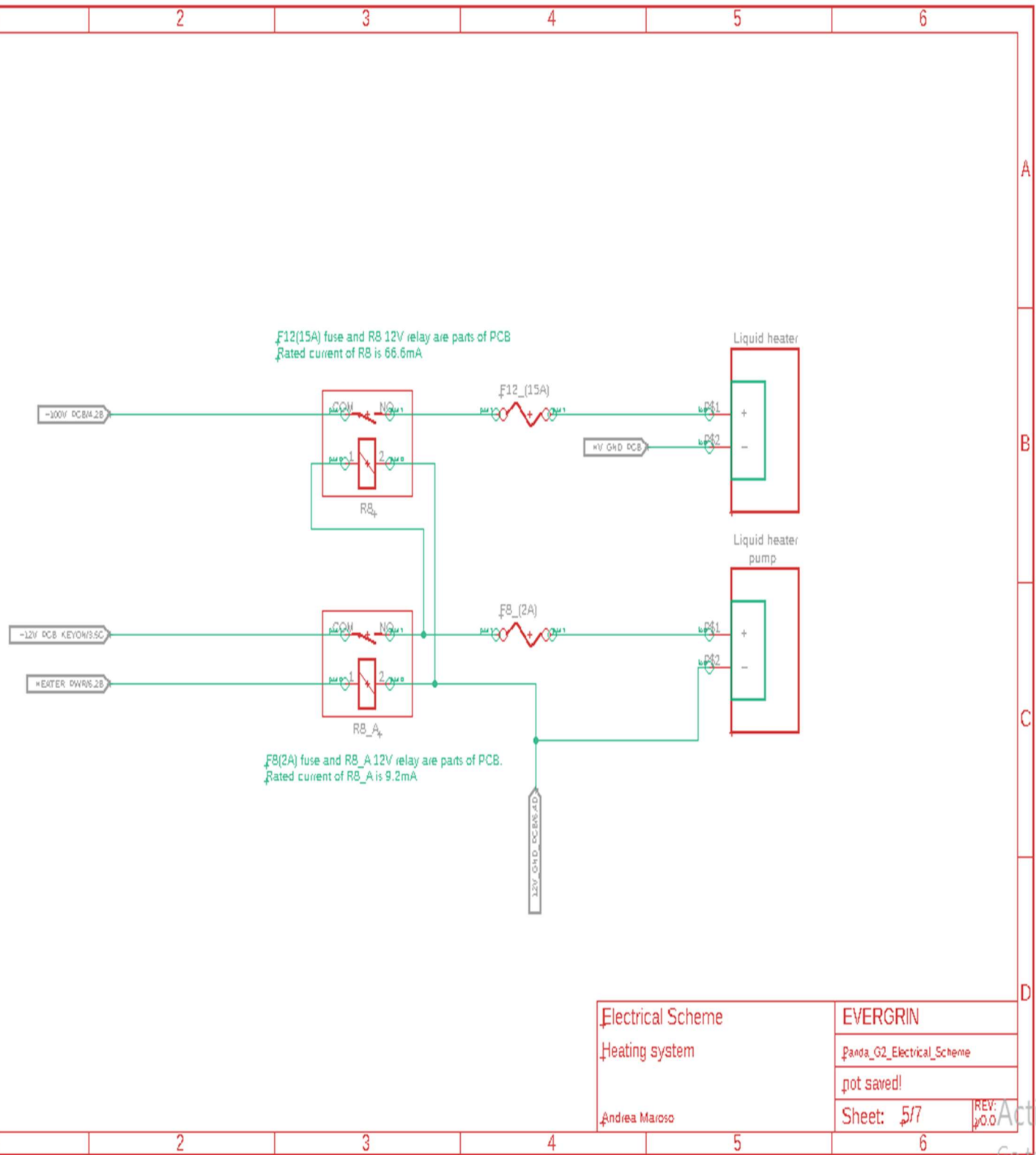
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Sheet: 4/7

REV: 1.00

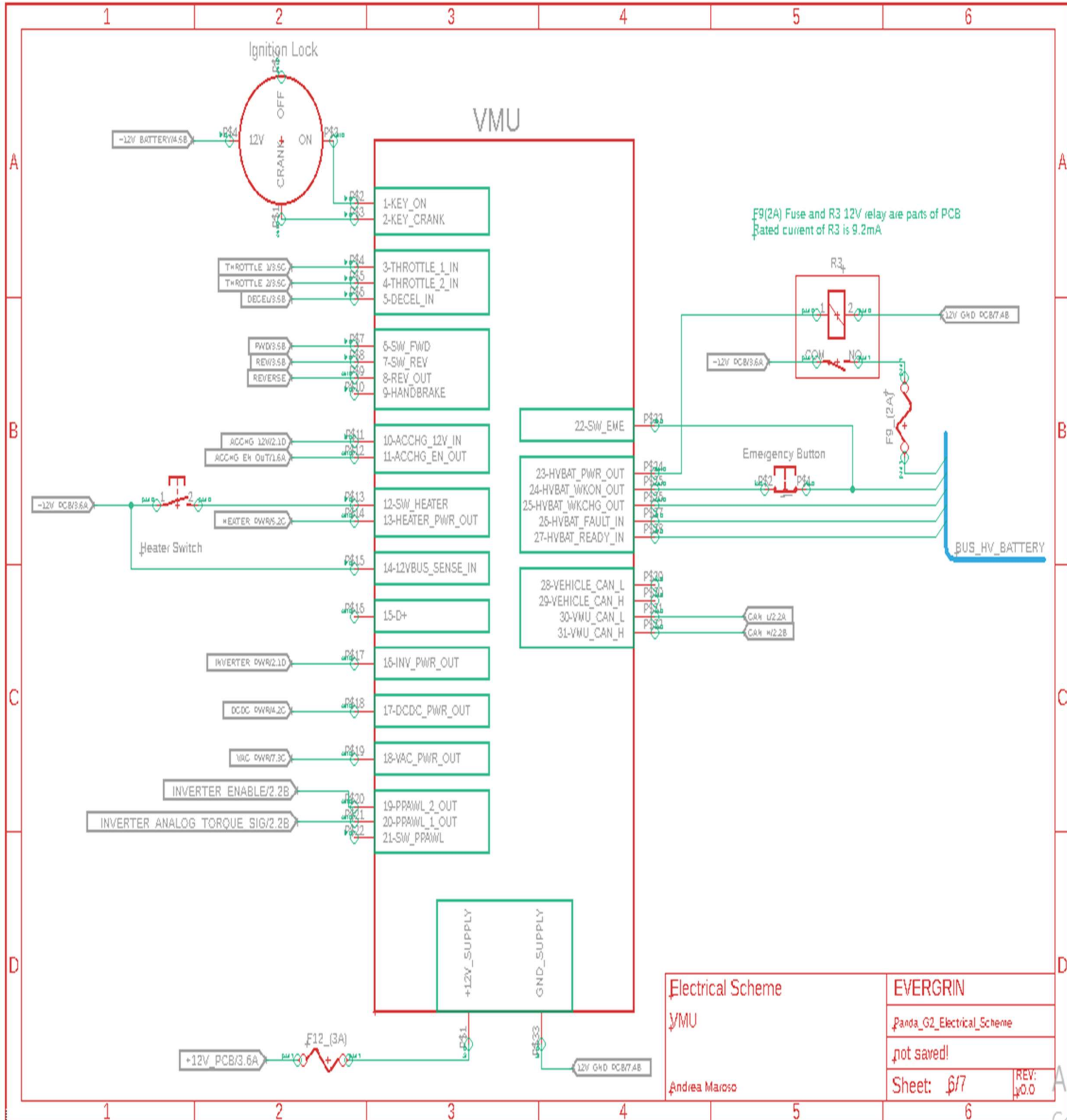
High voltage from HV_Battery is applied at the inputs of DC/DC Converter to convert to 12V which will be provided to 12V pin of Ignition Lock(Key) etc. R7 12V relay with 9.2mA rated current is part of PCB. At the coil of this relay DCDC_PWR/6.2C signal when applied from VMU, enable pin applies High voltage to do DC/DC Conversion.

Sheet5:



F12(15A) and F8(2A) fuses, R8_A and R8 12V relays are parts of PCB. Rated current of R8 is 66.6mA and of R8_A is 9.2mA. When Heater_PWR/6.2B signal is applied from VMU to the coil of R8_A, the +12v_PCB_KeyOn/3.5C connects which goes to Liquid heater pump and also, it goes to the coil of R8 which connects the Liquid Heater to high voltage supply.

Sheet6:



Electrical Scheme

VMU

Andrea Maroso

EVERGRIN

Panda_G2_Electrical_Scheme

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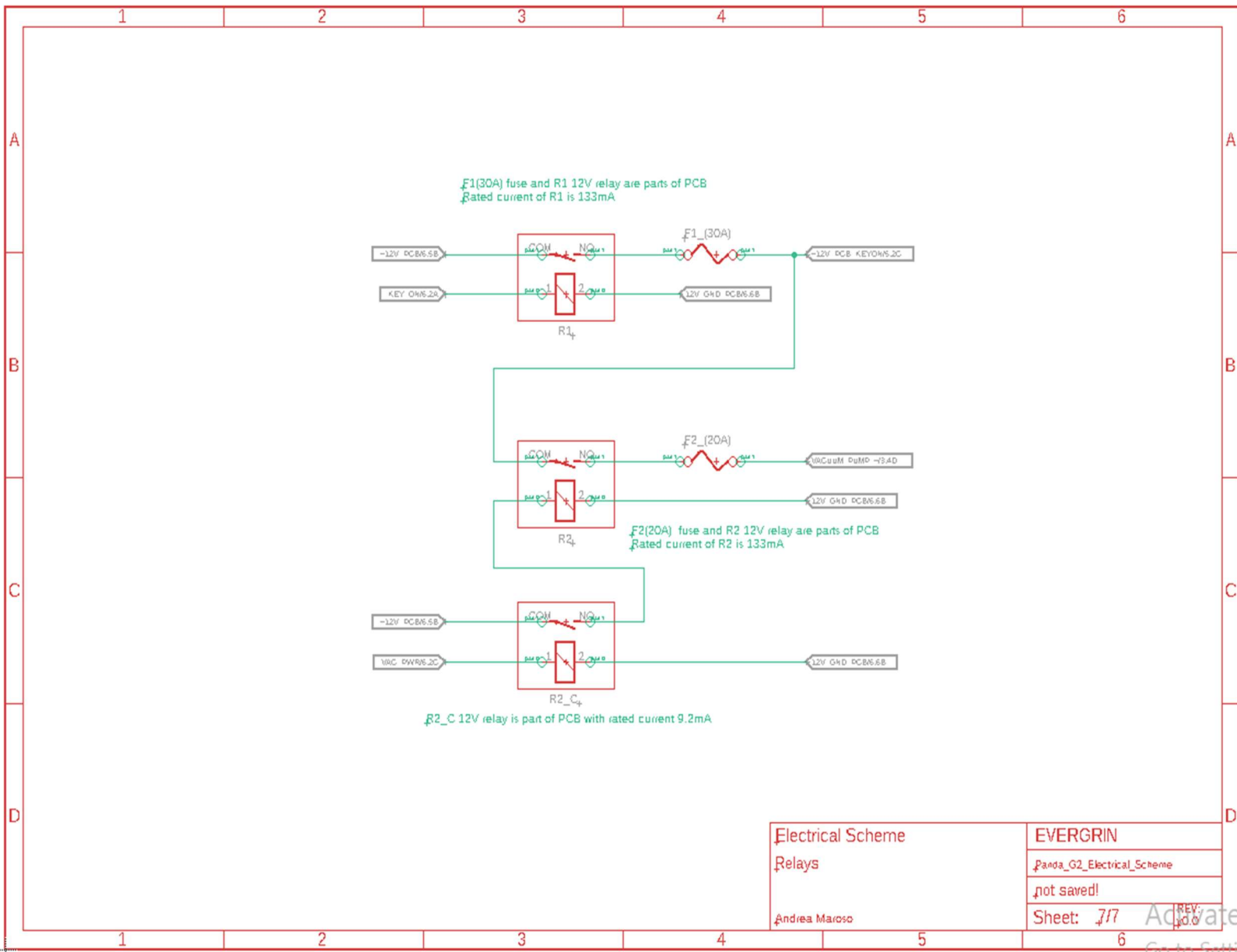
Sheet: 6/7

REV: 0.0

On the VMU, Key_On and Key_Crank connected to On and Crank and +12V applied from battery. Throttle_1_In & Throttle_2_In used to get analog signal from Accelerator pedal informing about, how much pedal pressed. Decel_In, FWD,REV signals applied for Forward, reverse direction switches and brakes. ACCHG_12V signal is used at the time of Battery Charging, stops the inverter from working by turning off the relay. SW_Heater and 12V bus_sense_In are connected to +12V_PCB/3.6A. Heater_PWR is output type which turns on the coil of R8_A relay and controls the +12V_PCB_KeyOn/3.5C connection to Liquid Heater pump and also, this controls the further R8 relay which, when the signal at the coil applied, connects the high voltage to Liquid heater. Inverter_PWR, DC/DC_PWR, VAC_PWR signals controls the relays used for inverter, DC/DC convertor and Vacuum pump. And from VMU we sent Enable signal for one of the Input and Analog Torque signal to Throttle Input of Inverter to meet requirements to unlock CAN network control of Inverter. +12V_PCB supply and 12V_GND_PCB for VMU applied from PCB.

R3 12V relay is part of PCB with rated current 9.2mA. When HVBat_PWR_Out signal applied at coil of relay, it sends 12V for HV battery box. HVBat_WKON_Out, HVBat_WKCHG_Out etc applied to HV Battery box through Bus HV_battery according to configuration for enabling battery and fault checking in case of any issue. Then Can_L and Can_H used for Can Network.

Sheet7:



In this sheet, F1(30A), F2(20A) fuses and R1,R2,R2_C 12 V relays are parts of the PCB. With R1,R2 rated currents are 133mA and rated current of R2_C is 9.2mA. When signal from Key_On applied at coil of R1, it applies +12V_PCB which passes through fuse to reach the Vacuum_Pump_+/3.4D. Relay R2's coil is controlled by R2_C which operates when VAC_PWR/6.2C signal applies from VMU.

This is the report of Electrical schematic version 3 and last version will be uploaded soon.