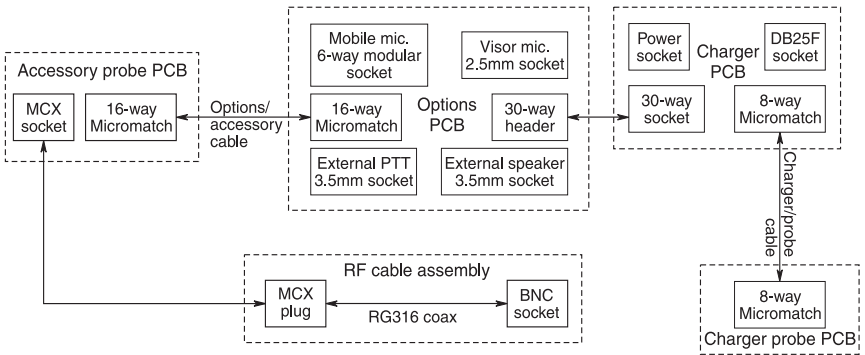


Figure F-10: Vehicle kit interconnection diagram



### Vehicle Kit Circuit Descriptions

This section provides an outline of the design and describes the modular assembly of the vehicle kit. The vehicle kit contains four PCBs:

- the accessory probe and charger probe PCBs, interfacing to the radio and battery; and
- the charger and options PCBs, containing the electronic circuitry.

A block diagram showing how the four PCBs interconnect and naming the connectors on each PCB is shown in Figure F-10.

The following subsections and their associated diagrams expand on the functionality of each vehicle kit PCB.

### Vehicle Kit Accessory Probe PCB (IPN 220-01506-xx)

This PCB provides the interface to the handportable accessory connector. The audio/control signals connect to the options PCB via a 16-way Micromatch ribbon cable. The RF signal is routed via an MCX connector and coaxial cable to a BNC connector on the rear of the vehicle kit. A block diagram of this PCB is shown in Figure F-11.

Figure F-11: Vehicle kit accessory probe PCB block diagram

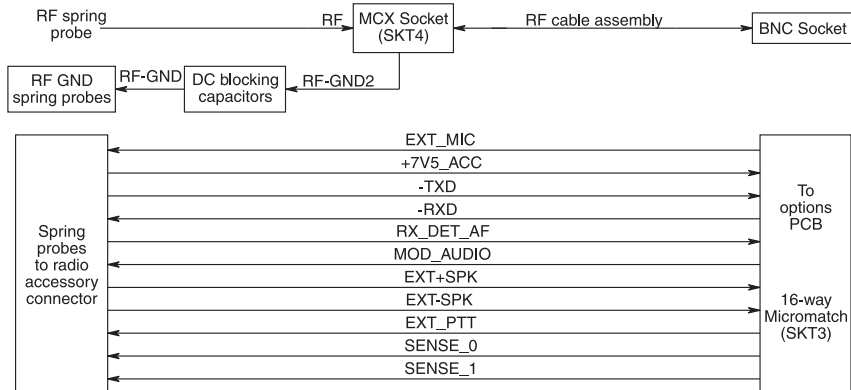
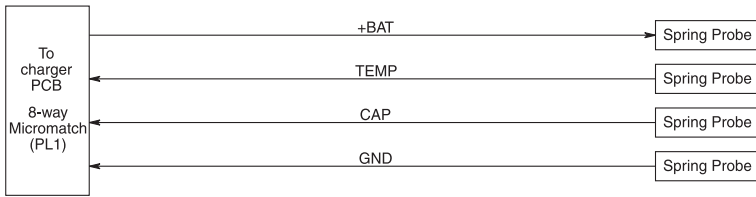


Figure F-12: Vehicle kit charger probe PCB block diagram



### Vehicle Kit Charger Probe PCB (IPN 220-01564-xx)

This PCB provides the interface to the radio battery for charging and is connected to the charger PCB via an 8-way Micromatch ribbon cable. A block diagram of this PCB is shown in Figure F-12.

### Vehicle Kit Charger PCB (IPN 220-01504-xx)

This PCB contains the fast charger circuit module, the majority of the power supply module and about half of the power save module. A block diagram of this board is shown in Figure F-13.

#### Current Source

The switch mode current source is based around a Maxim MAX1627 100% duty cycle,

high efficiency, step down DC-DC controller (IC4). The core of the current source is a Buck converter consisting of Q9, L2, C46, C47 and D5. The feedback for the controller (IC4) is via current sense resistors (R58, R59) and a differential amplifier (IC5:B).

In steady state, approximately 0.8 A flows through R58 and R59, generating a voltage which is amplified by the differential amplifier, IC5:B. The output of this is fed into pin 2 of IC4 (FB). The threshold of the feedback input (IC4 pin 2) is 1.3 V, relative to VGND. When the feedback signal on pin 2 is above 1.3 V, the controller (IC4) turns off Q9. Similarly, when the feedback signal is below 1.3 V, the controller turns on Q9.

Figure F-13: Vehicle kit charger PCB block diagram

