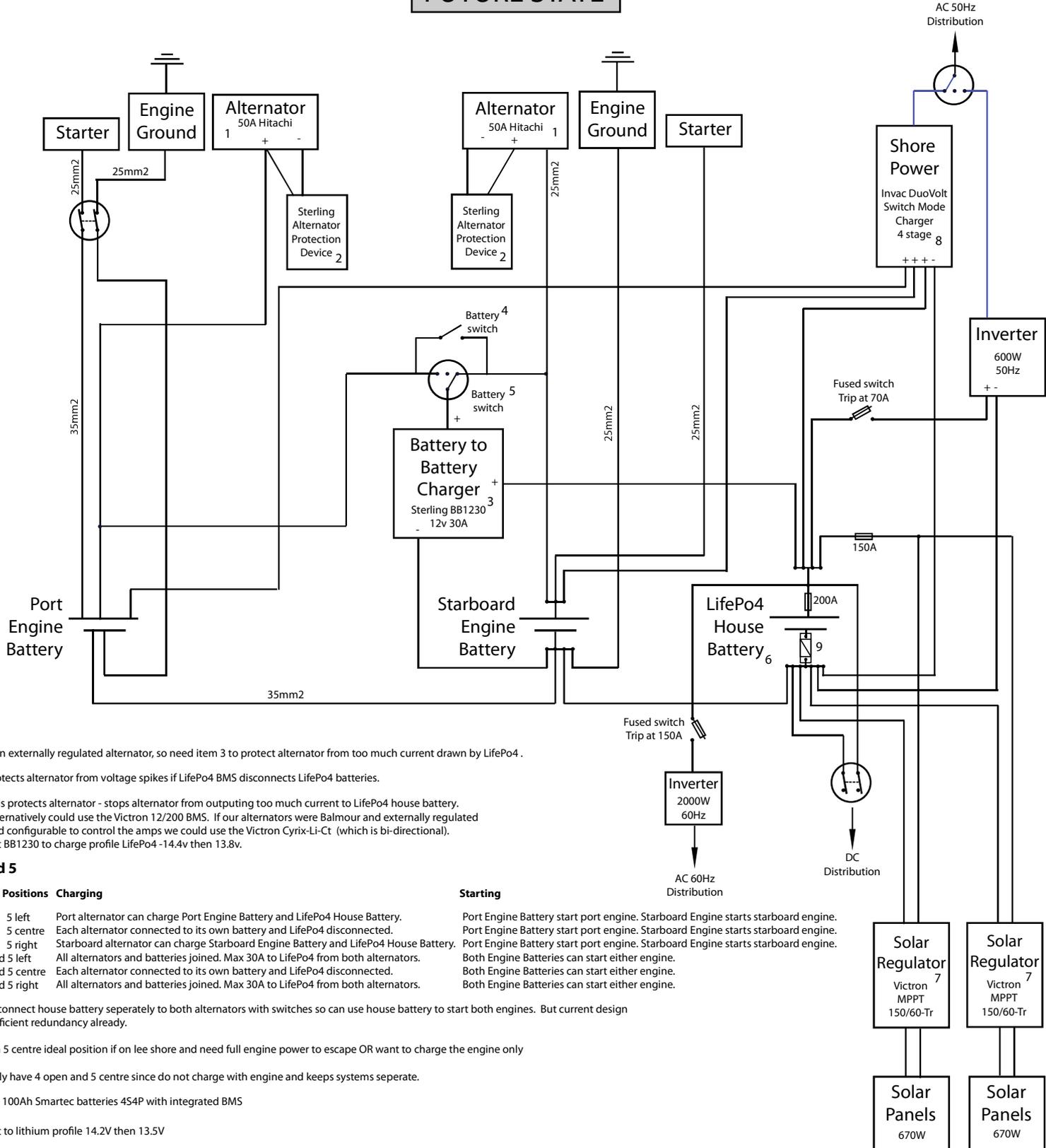


PORT

STARBOARD

FUTURE STATE



- 1 Non externally regulated alternator, so need item 3 to protect alternator from too much current drawn by LifePo4.
- 2 Protects alternator from voltage spikes if LifePo4 BMS disconnects LifePo4 batteries.
- 3 This protects alternator - stops alternator from outputting too much current to LifePo4 house battery. Alternatively could use the Victron 12/200 BMS. If our alternators were Balmour and externally regulated and configurable to control the amps we could use the Victron Cyrix-Li-Ct (which is bi-directional). Set BB1230 to charge profile LifePo4 - 14.4v then 13.8v.

4 and 5

Switch Positions Charging

- 4 open 5 left Port alternator can charge Port Engine Battery and LifePo4 House Battery.
- 4 open 5 centre Each alternator connected to its own battery and LifePo4 disconnected.
- 4 open 5 right Starboard alternator can charge Starboard Engine Battery and LifePo4 House Battery.
- 4 closed 5 left All alternators and batteries joined. Max 30A to LifePo4 from both alternators.
- 4 closed 5 centre Each alternator connected to its own battery and LifePo4 disconnected.
- 4 closed 5 right All alternators and batteries joined. Max 30A to LifePo4 from both alternators.

Starting

- Port Engine Battery start port engine. Starboard Engine starts starboard engine.
- Port Engine Battery start port engine. Starboard Engine starts starboard engine.
- Port Engine Battery start port engine. Starboard Engine starts starboard engine.
- Both Engine Batteries can start either engine.
- Both Engine Batteries can start either engine.
- Both Engine Batteries can start either engine.

Could connect house battery separately to both alternators with switches so can use house battery to start both engines. But current design has sufficient redundancy already.

4 Open 5 centre ideal position if on lee shore and need full engine power to escape OR want to charge the engine only

Typically have 4 open and 5 centre since do not charge with engine and keeps systems separate.

6 4 x 100Ah Smartec batteries 4S4P with integrated BMS

7 Set to lithium profile 14.2V then 13.5V

8 Can be set to 14.3V or 14.9V - set to 14.3V

9 Victron 500A shunt for connection to Victron Battery Monitor

Other notes

Could add second Battery to Battery charger so have redundancy and also have 30 amps charging from each alternator (rather than 30 amps charging from both), but don't often charge from engine

If boat let in marina for period of time less than 6 months, may want to let lithium sit at 60% charge and turn off DC distribution and DC charge. Engine batteries could then be charged firstly by another Battery to Battery charger from LifePo4 House Battery OR a mains car mains car charger coming from the 600W inverter OR 700W genset feeding shore power.

A 700W generator feeding the mains charger would give greater redundancy.