If a shield is required, holes should be added for ventilation purposes. In this case, using several small holes instead of few larger holes is preferable, because holes reduce the shielding capabilities (remember that reduction in shielding is a function of the longest linear dimension of a hole rather than the area).

The same concept applies to seams or joints segments of a shielded enclosure: it is important to minimize the open length between the points where good ohmic contact is made.

If the ohmic contact itself is not continuous, the shielding effectiveness can be maximized by making the joints between adjacent pieces overlapping rather than abutted.

The shielding effectiveness of an enclosure is further reduced when a wire passes through a hole in the enclosure, because RF energy on the wire from an external field is radiated into the interior of the enclosure.

A known countermeasure to this is to connect a series inductor (or ferrite bead). If a capacitor between the shield and the cable is used instead of the inductor, the capacitor must have a voltage rating and leakage characteristics that will allow the end product to meet applicable safety regulations.

The +B (and -B, if applicable) wires that supply power to control panels —such as an electronic throttle, or control wires such as keyswitch, direction, etc.— should be bundled with the other control wires to the panel so that all these wires are routed together.

If the wires to the control panel are routed separately, a larger loop area is formed.

Larger loop areas produce more efficient antennas which will result in decreased immunity performance.

All low power I/O should be kept separate from the motor and battery leads.

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