Installing MyLocoSound in a Ride-On Locomotive

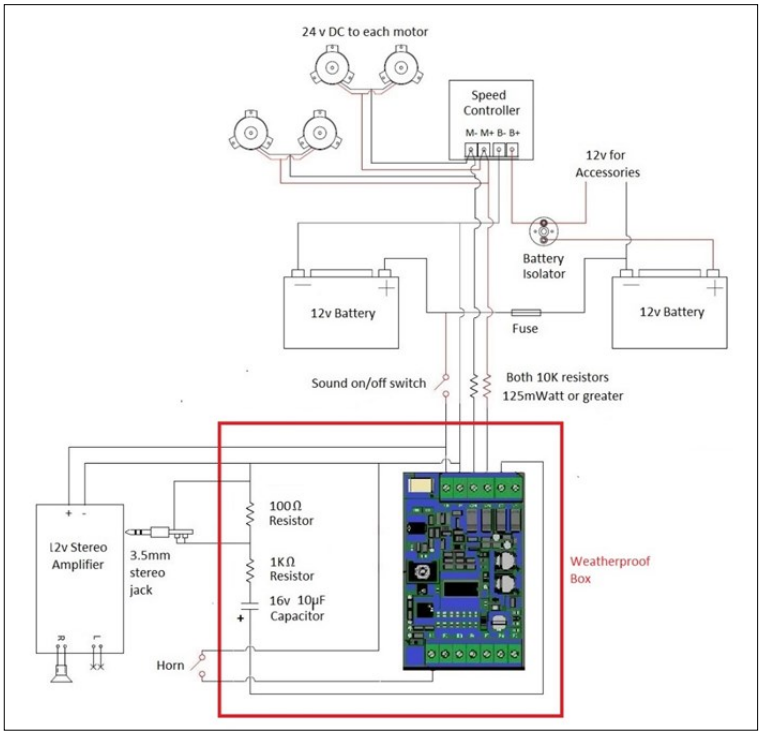
From the MyLocoSound Instructions …

When used in 5 inch and 7¼ inch ride on railways there is a lot of environmental noise. The output of the soundcard alone is not sufficient for these environments and an external amplifier needs to be used. The wiring diagram overleaf shows how the soundcard can be interfaced to a commercial stereo amplifier in a loco with 24v motors powered by two 12 V batteries.

Note that the soundcard can handle a maximum of 24 volts DC. A battery which is labelled as 24 volts will typically output 28 volts when fully charged and will therefore damage the soundcard if connected directly. The two 10K resistors on the M1/M2 terminals keep the voltage down to 24v.

A 2x15 watt stereo amplifier is suitable. Other amplifiers may require the 100Ω resistor to be changed. If the output volume is too low then raise the value of the 100Ω resistor.

A single speaker can be used on the right output or two speakers on the left and right outputs.



Any of the five functions can be used by means of a pushbutton between the function terminal and ground. The sound functions available are horn, bell, “All aboard”, airbrake release and engine start/stop. Only the horn wiring is shown in the diagram. The installation can be made more robust by enclosing the soundcard, capacitor and two resistors into a plastic project box as shown in the diagram.

The whole can then be fixed to the top of the amplifier using silicon. Select a speaker which matches the impedance and power output of the amplifier. It is also important to make a soundbox which is an airtight fit to the back of the speaker. This will improve both volume and sound quality.

Audio Output Impedance Converters

The resistor capacitor network shown in the above wiring diagram can be purchased as a separate module. It will convert MyLocoSound’s high level speaker output to a low level compatible with low level amplifier inputs.
Search for “High to low impedance converters”.

See additional info next page ...

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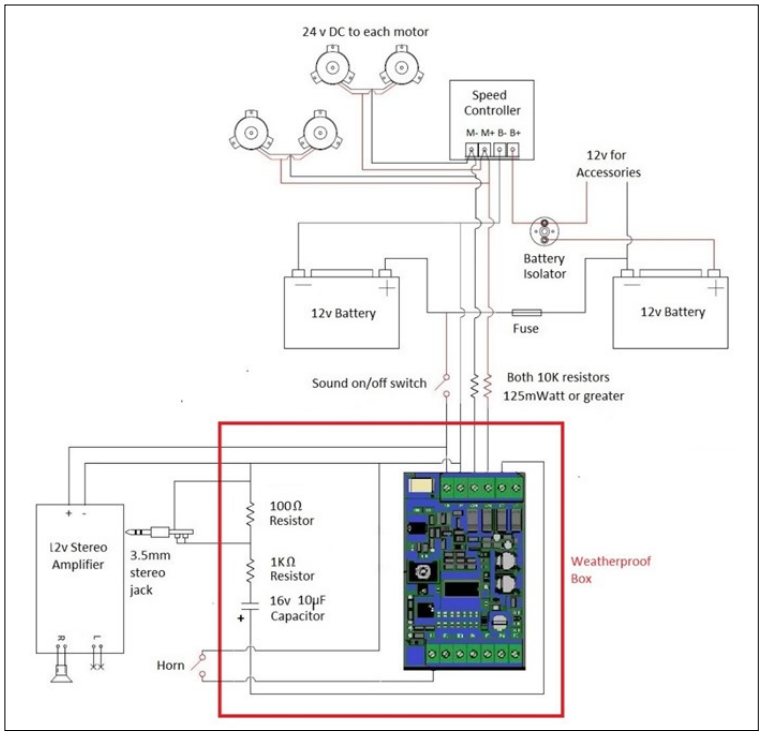
Amendment to the MyLocoSound Instructions

Battery Power
Power to the MyLocoSound B+, B– terminals must be 12VDC.

Motor Connections
Connections from the brushed DC motor(s) are often a higher voltage than the MyLocoSound board can take. Series resistors installed in the lines between the motor and the MyLocoSound MM terminals will limit the voltage to an acceptable level. See the chart.

Motor Voltage ***	Series Resistors in MM lines
12V	None required
24V	10K 1/8W or greater
36V	22K 1/8W or greater
48V	33K 1/8W or greater



Audio Amplifiers
Many audio amplifiers have only a “Low Level” input, in which case the resistor/capacitor network in the above diagram or a High to Low Impedance Converter is required. However, there are audio amplifiers that have both “Low Level” and “High Level” inputs. High level inputs accept speaker output signals, which means you can connect the SS speaker terminals of the MyLocoSound directly to the High Level inputs on the amplifier.

MyLocoSound Terminals	Function	Specifications
M1, M2	Motor/Speed Input	From motor terminals ***
B+, B-	Battery Input	12VDC
S1, S2	Audio Output	To “High Level” input of 12V Audio Amplifier
	Speakers	To one or two channels of audio amplifier
F1 to B-	Horn Switch Input	Momentary SPST switch
F2 to B-	Bell Switch Input	SPST on/off switch