

Adapting KW Trams motors for DCC

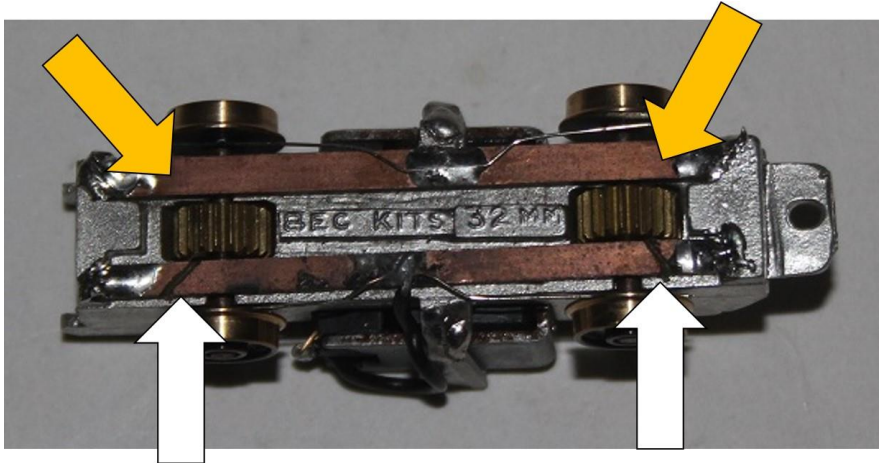
By default, all KW Trams motors are built for standard 2 rail operation.

But, they can be easily converted for DCC or live overhead.

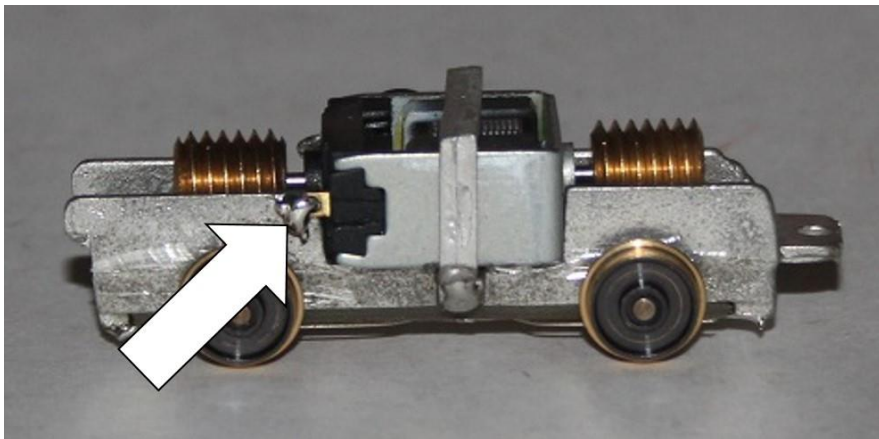
If notified in advance, they can also be built as “DCC ready”.

To convert a standard KW Trams motor to DCC, the following steps need to be taken.

1. Looking at the base of the motor, you can see that one of the PCB strips has been cut to isolate it from the chassis (as shown by the white arrows).



2. The second PCB strip needs to be isolated in the same way by cutting through the copper cladding at the points marked by the yellow arrows. This can be done with a fine saw blade.
3. Looking at the side of the motor, you can see that one of the motor connectors is soldered directly to the white metal chassis (as shown by the white arrow).



4. This connection needs to be cut so that the chassis is completely isolated from the rails and the motor.
5. If wishing to test running with DC at this stage, then connect a wire between the newly cut PCB and the newly isolated motor connection.
6. If connecting directly to DCC, then break the wire between the other PCB strip and the motor and then connect to the DCC module as per standard DCC connections.

Basic wiring and description of related wire colour codes

Whilst locomotive manufacturers may not always follow correct colour codes they do generally comply with the standards covering the use of “DCC ready” decoder sockets within locomotives, all OPTI Series decoder harnesses and connectors do meet standards, so you can approach their installation with confidence.

This illustration shows the correct connection structure for an NMRA compatible 8 pin plug when it is viewed from the top (wire side) of the decoder plug, and therefore also represents the socket viewed from the top.



To make it easier for you to correctly insert the plug first time, manufacturers will usually mark the #1 or Orange pin with an asterisk, a star or the number 1. Look carefully... it’s not always obvious!

Accidentally inserting the plug wrong way round will not harm the locomotive or decoder, however the loco will run backwards when the control system indicates forwards and lighting will not work correctly.

If this happens simply remove carefully, rotate it 180 degrees and re-insert.

Where we mention left or right side of the loco, it is relative to the view from the loco drivers cab.

Pin 1 - **Orange**: Motor wire, usually the top or right brush.

Pin 4 - **Black**: To track/Loco pickups. By convention usually the left side of the loco

Pin 5 - **Gray**: Motor wire, usually the lower or left brush

Pin 8 - **Red**: To track/Loco pickups. By convention usually the right side of the loco

Note, for a bogie car with 2 powered bogies, just attach the motor wires to both motors. If using pickups on both bogies, attach both to the pickup pins.

Live overhead

If wishing to use live overhead rather than 2 rail, then break the wire between the PCB and the motor, and instead connect this wire to the trolley pole. If required, connect the cut PCB to the chassis to allow return to use either rail.