# XPT Decoder Installation

1. Lighting:

1.1 The function mapping set on the decoder will allow for the operation of headlight, marker lights and ditch lights together, independent operation of strobes and independent operation of red marker lights. This is how an un-modified Auscision XPT model will operate.

1.2 The function mapping also allows for separate operation of headlight and white marker lights, if modified as per 1.3.

1.3 To separate the headlights from the white marker lights and ditch lights (white marker lights and ditch lights are connected), remove the yellow wire from the XPT OEM circuit board FL and solder to pin 14 of the 21 pin interface connector. **This can be a little fiddly and will most likely void your XPT's warranty**. Please check with the manufacturer.

2. Fitting decoders:

2.1 The decoders come as a pair. One decoder is to be fitted into the leading car and one into the trailing car. I have found using them with the same DCC address works well.

2.2 Please check your XPT set to ensure that you are happy with the direction in which they travel. I found that I needed to swap the motor wires around on both XPT OEM circuit boards, black wire to ML, red wire to MR. Both XP power cars should move in the forward direction (drivers cab leading) when forwards is selected on the DCC throttle. The next step (step 2.3) will allow the cars to be marshalled end to end on the train.
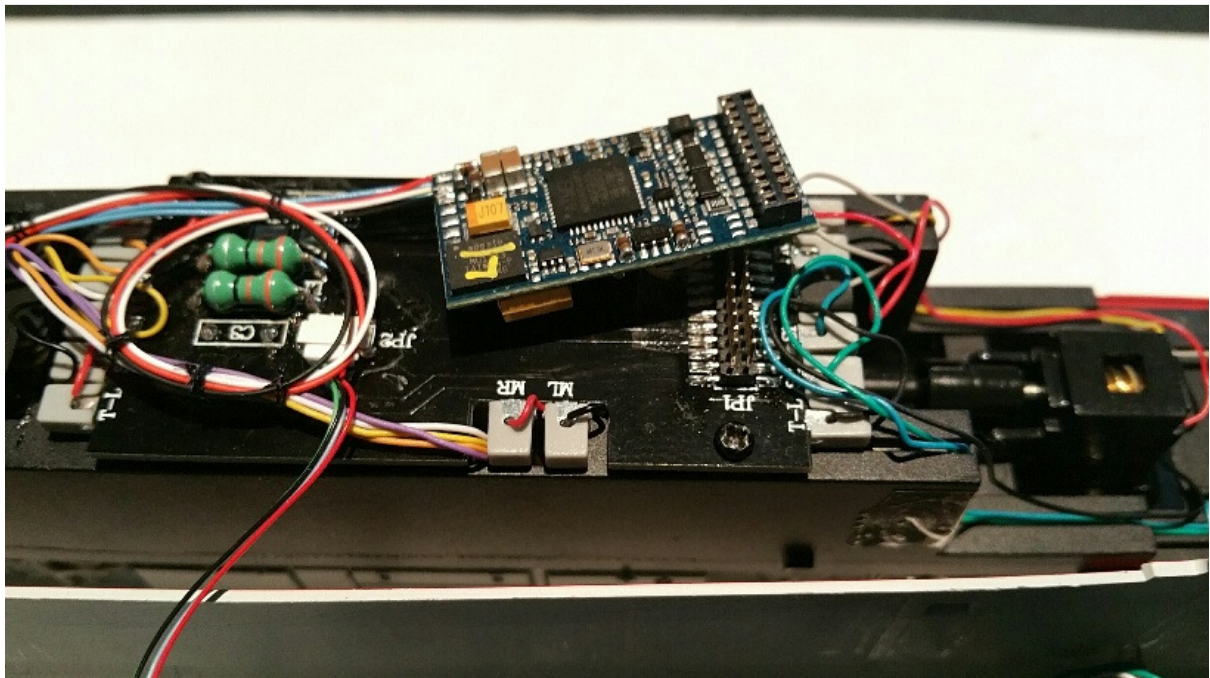
2.3 One decoder needs to have its direction reversed by changing Bit 0 of CV 29 to 1. This ensures correct operation of lights, horns and service mode. This can also be carried out by using the LokProgrammer under the Driving Characteristics tab.
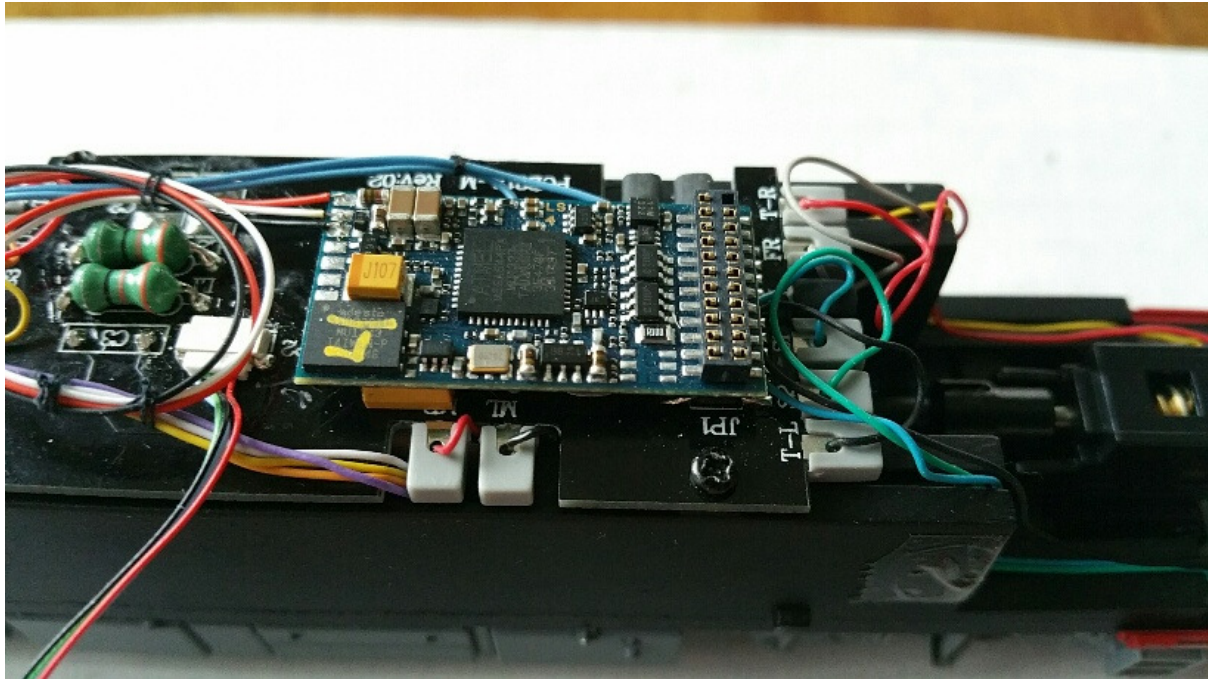
3. XPT operation:

3.1 The prototype XPT has five throttle notch settings.

3.2 The prime mover start-up sequence takes time. You will hear a short air release and after this the XPT will respond to throttle inputs.

3.3 The decoder features a coasting and throttle notching capability. I recommend using DCC throttles set at 28 speed steps when operating the XPT.

3.4 Coasting – operate the XPT at speed (i.e. speed step 22), wait for the XPT speed to remain constant. To coast, drop the throttle by one speed step (i.e. from speed step 22 to 21). The prime mover sound will begin to drop to notch 1 and the model will coast while track speed remains relatively constant.

3.5 Throttle notch selecting - if for instance the XPT is travelling at speed step 22 again and we want to decrease the throttle to four notch, you simply move the throttle to speed step 21, listen for the decrease in engine speed (four notch) and then reselect speed step 22. The XPT will then remain in four notch while track speed remains constant (at speed step 22). If three notch is then required move the throttle to speed step 21 again, listen for the decrease in engine speed and then reselect speed step 22 on the throttle. The engine sound will then remain in three notch however as before track speed will remain constant.

3.6 To increase engine speed once again, simply increase the throttle by one speed step. The engine will once again move to five notch.

N.B. - If you do prefer to use DCC throttles set at 128 speed steps, rather than make one step adjustments to the throttle, make adjustments of ten for above sound features to operate.

3.7 The XPT sound project also features a braking function. When selected the deceleration time is greatly reduced. Using the brake function allows the brake squeal and train air brake sounds to play. Ensure that the brake function is switched off when trying to accelerate the XPT from a standing start. If the brake function is left on, the XPT will not move and only the engine sounds will increase in speed.

3.8 The brake function will not completely stop the XPT if the throttle is left open. For the train to come to a stop the throttle must be shut (speed step 0).

3.9 Prototype XPT sets run one of the XP Power Cars at two notch for the supply of train auxiliary power. The driver is able to select which power car he wants in two notch based on personal preference.
The XPT sound project is set up so as the trailing unit is set into two notch. This feature is function selectable under 'service mode' by the operator. If this function is selected, the XPT set will automatically place the trailing power car in two notch based on direction selection.

3.10 For a video showing the above feature in action please visit:

https://www.youtube.com/watch?v=fXk-nvRwsYY

Please note that there are slight function mapping differences between the video and decoder supplied by DCC Sound.

4. **Final Testing:**

4.1 If the decoders have been installed correctly into the Auscision XPT the following things should occur when FWD is selected on the throttle:

- When the throttle is opened, both power cars should head in the same direction. One leading and one trailing in reverse
- When selected on, the headlights, white marker lights and ditch lights should illuminate on the leading XP power car
- When selected on, the red marker lights should illuminate on the trailing unit
- When playing the horns, these should only be heard on the leading unit
- When playing the guards whistle, this should only be heard on the trailing unit
- When 'Service Mode' is selected on, the trailing unit engine sound should speed up to two notch and remain there

4.2 When the train direction is reversed on the DCC throttle, all of the above points should be observed to swap ends.

5. **Function Mapping:**

    F0 – Head Light
    F1 – Prime mover start-up & shutdown / sound on-off
    F2 – City Horn
    F3 – Country Horn
    F4 – Combined Horn
    F5 – Guards Whistle
    F6 – Brake application and squeal
    F7 – Service Mode (Trailing Unit - Notch 2)
    F8 – Head Light Dimmer
    F9 – White Marker lights – Requires yellow wire soldered to Pin 14 (Aux 2). Will operate with head lights when yellow wire is not modified
    F10 – Red Marker lights
    F11 – Ditch Lights – Requires separating from white marker lights and amplifier circuit (Aux 3) The ditch lights will operate with white marker lights if not modified.
    F12 – Manual Diesel Notching Up (for those that still like this method)
    F13 – Manual Diesel Notching Down (for those that still like this method)
    F14 – Sound Fade