Remote Control Systems
2.4 Ghz RADIO CONTROL

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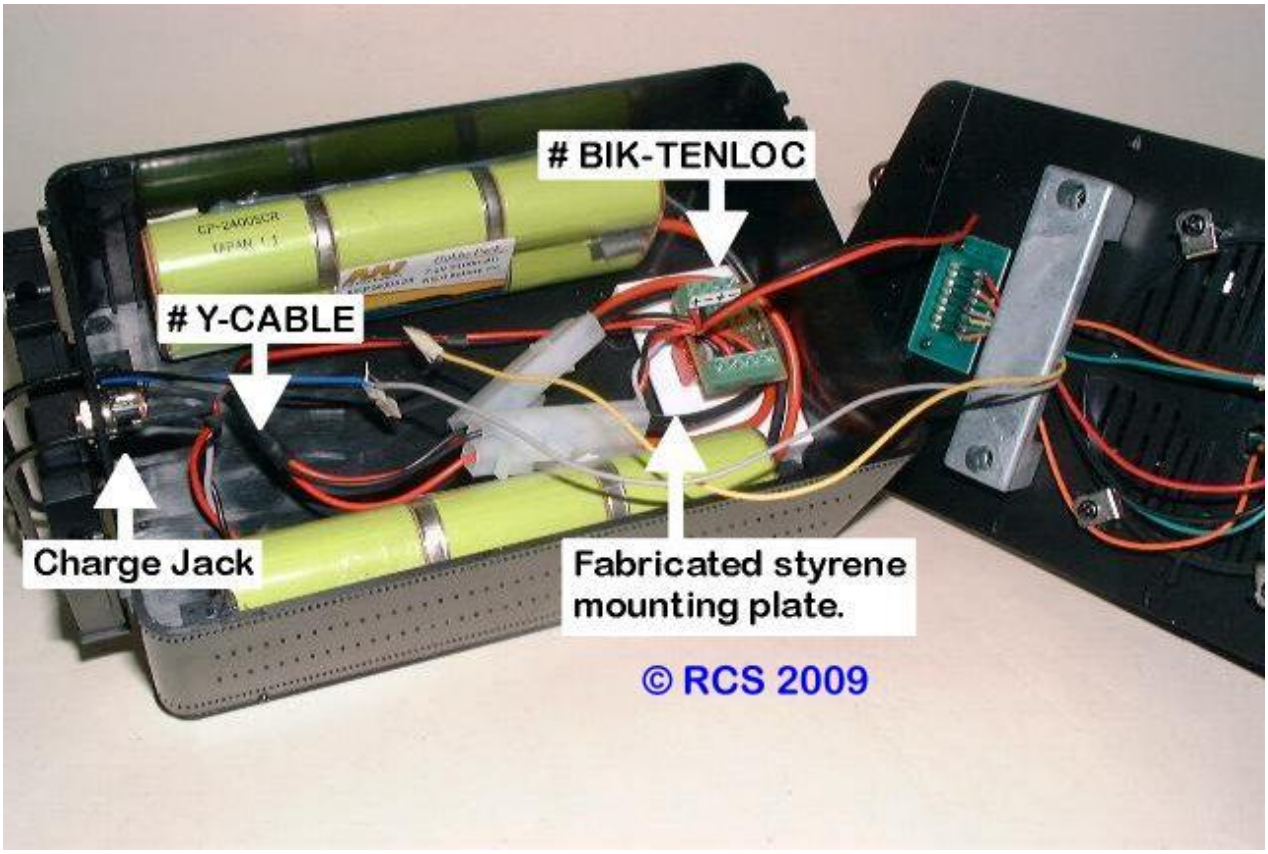
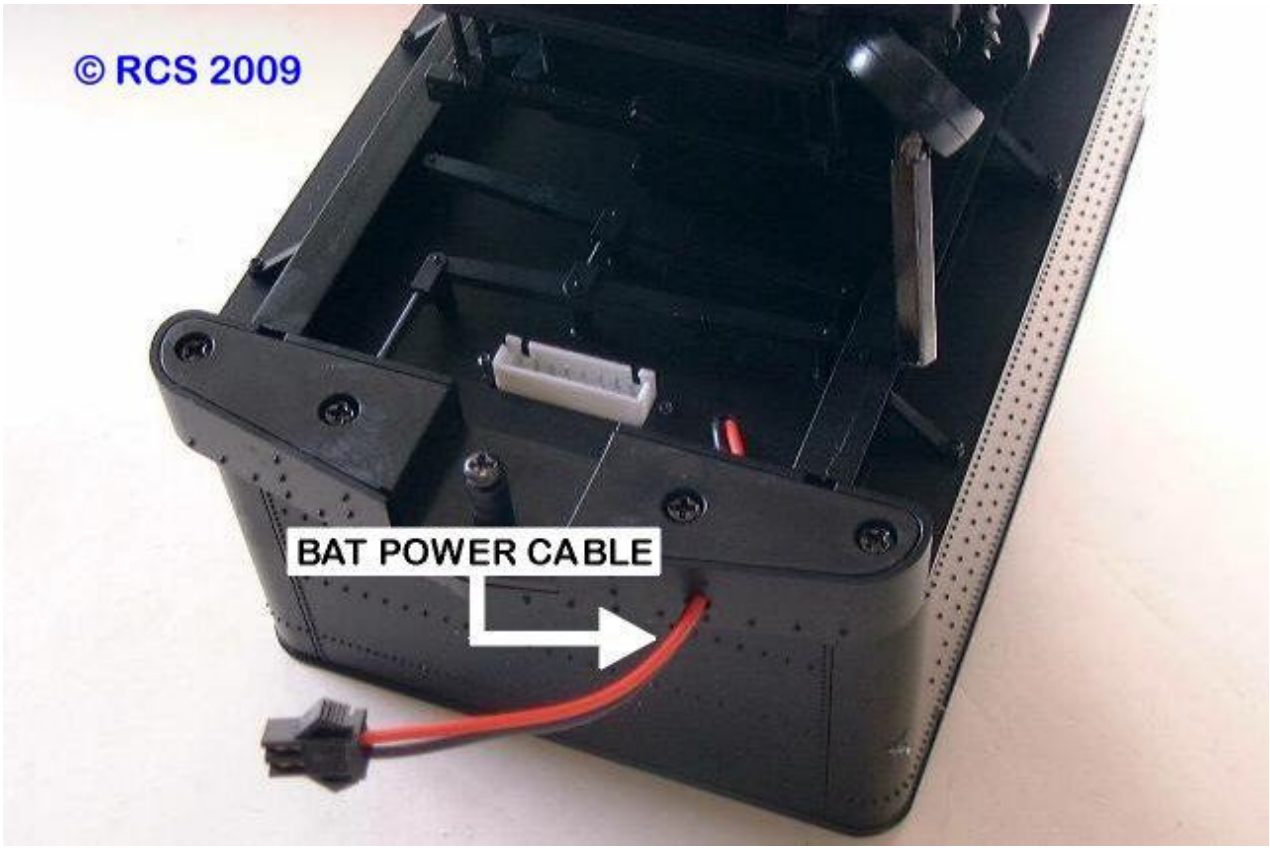
INSTALLING RCS INTO THE BACHMANN 3 TRUCK SHAY.

I have just finished installing the newest version # 3 ***RCS-PRO*** **ESC** battery R/C into the Bachmann 3 truck Shay. A superb loco that benefits greatly from the conversion.
Installation is much the same as for earlier RCS systems but is actually a lot simpler thanks to 2.4 GHz radios having the ability to work correctly in unfriendly environments without requiring motor "noise" suppression. There is plenty of room in the rear tank for the batteries, charge jack and main power ON-OFF switch.
Here is how I did it.



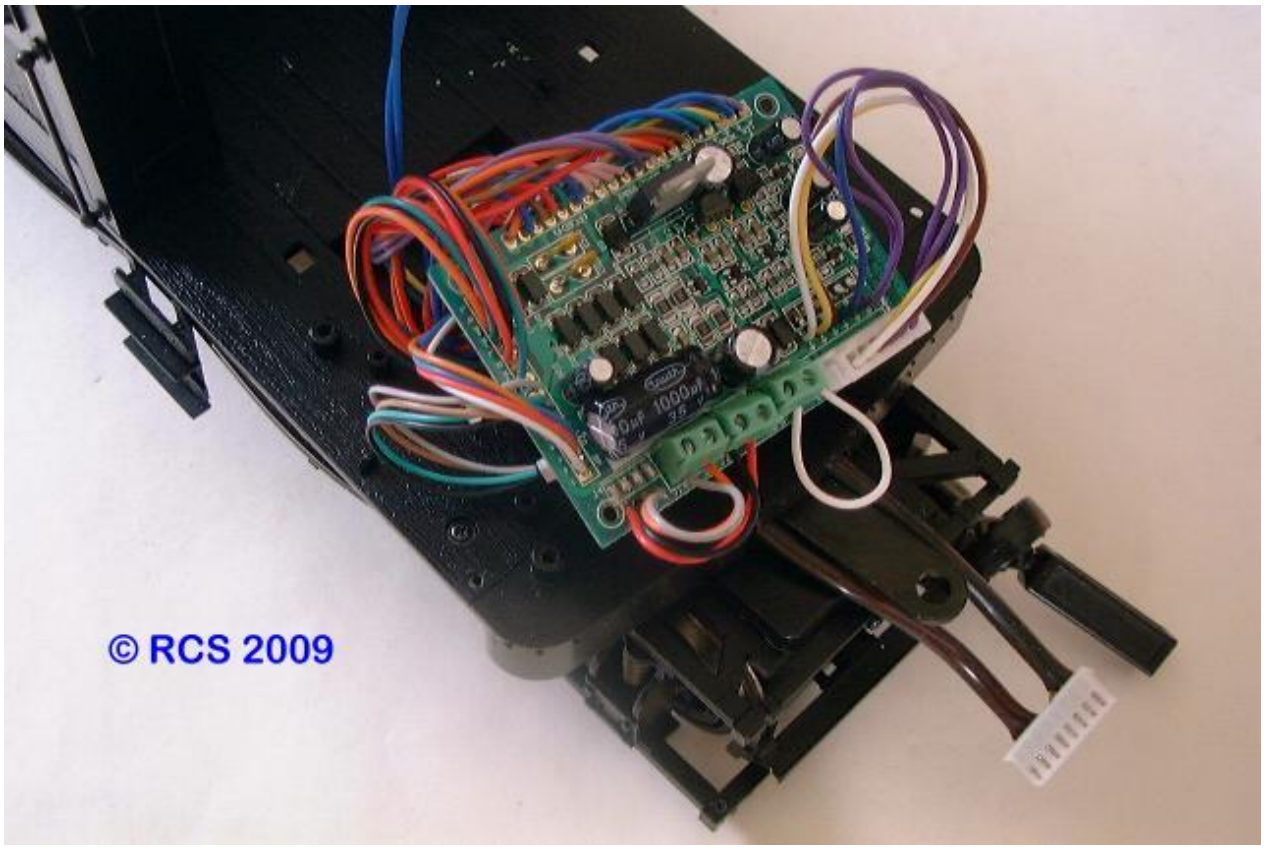
First of all remove the two small screws at the rear of the underneath of the tender.
I used the RCS # BIK-TENLOC-6v2 installation kit I normally use with the Bachmann Connie and other tender locos. The charge jack is mounted down low at the back as this will permit extra run time batteries to be plugged in to the jack. It is pretty well hidden by the step ladder. I had to make a styrene platform to lower the switch so that it could be mounted under the water hatch for easy operation.

I drilled a small hole through the floor for the battery cable to pass through to the underside.
Then I drilled a hole right through the buffer beam on the front of the tender so that the cable came out the front at a convenient height. Nowadays I actually cover the cable that goes through the holes with some heat shrink tubing to protect it against chafing.

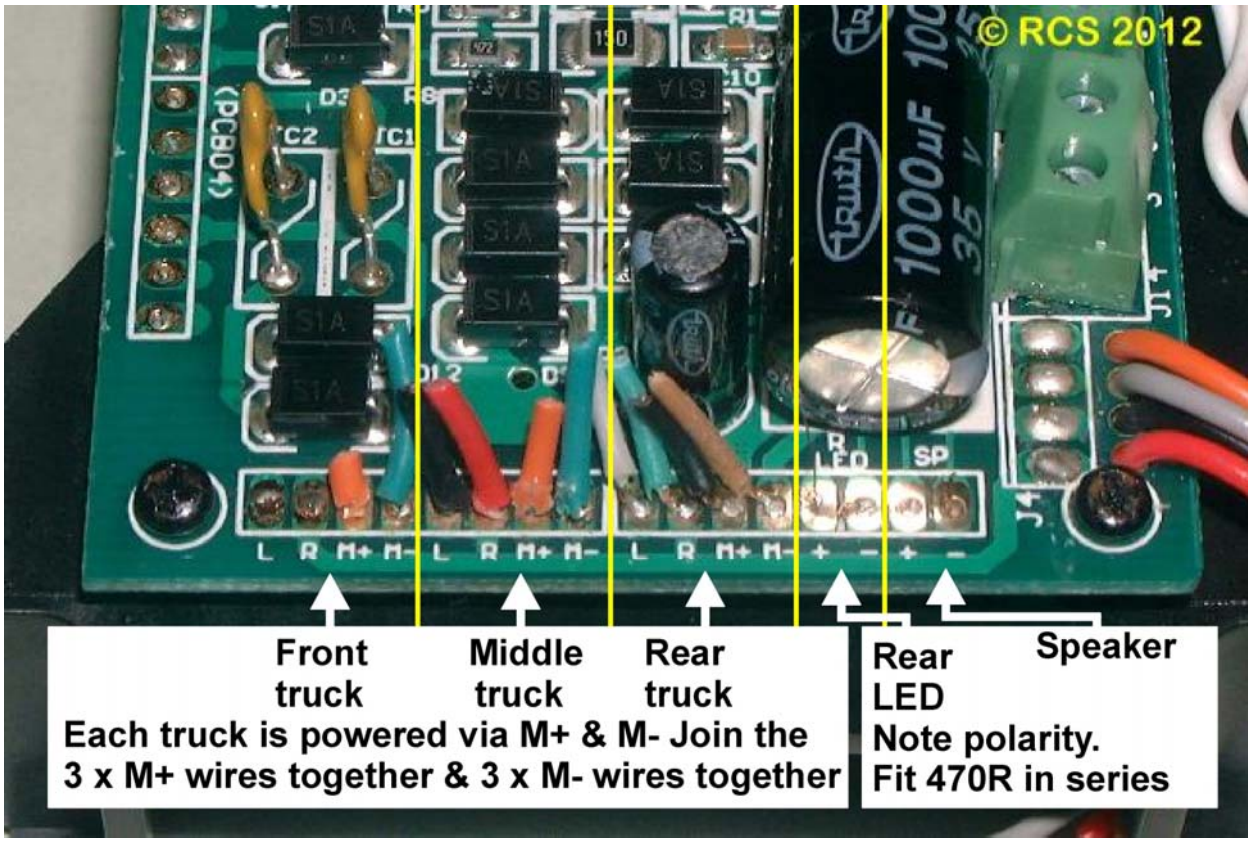


The switch and cable are also shown here.

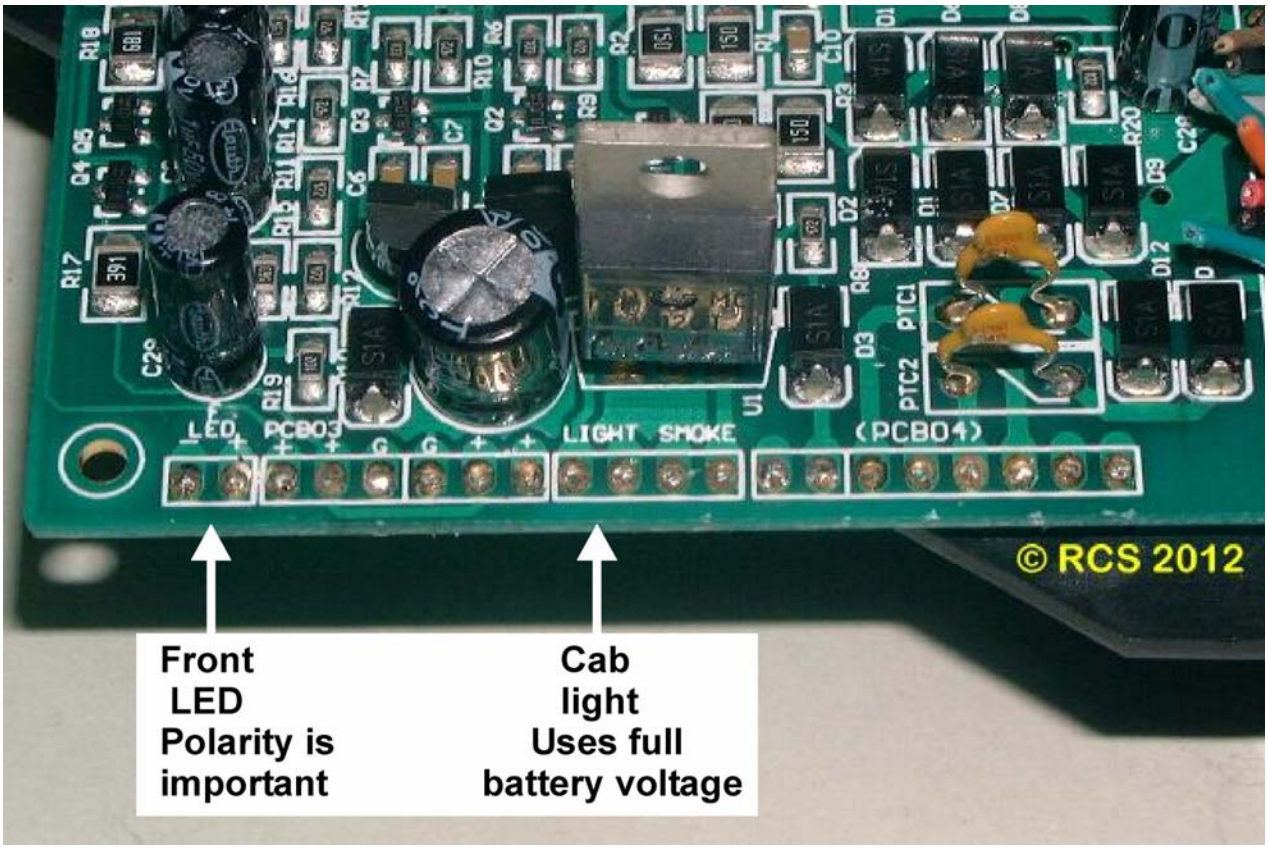
The next job was to remove the frame that holds the stock Bachmann pcb in the small water tank behind the cab. I was left with this.



I removed all the wiring from the pcb, bundled the various common wires together and tagged them. Following are guides as to which wires are saved for later use.



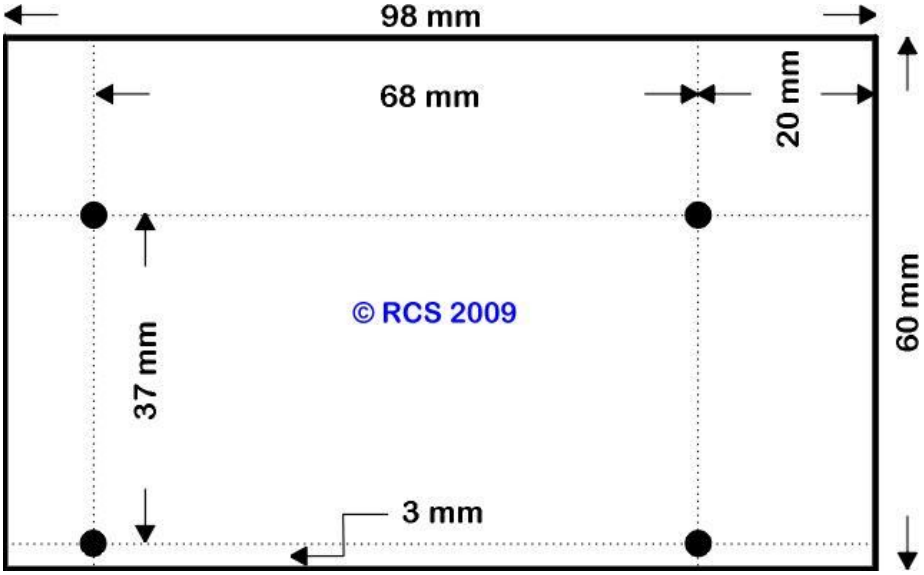
Colour wise Bachmann have correctly wired the front and rear trucks, but managed to use incorrect colours for the third truck. Be extra careful when selecting which wires to bundle. Match M + with M + only. Likewise only join M – with M – wires as indicated above.



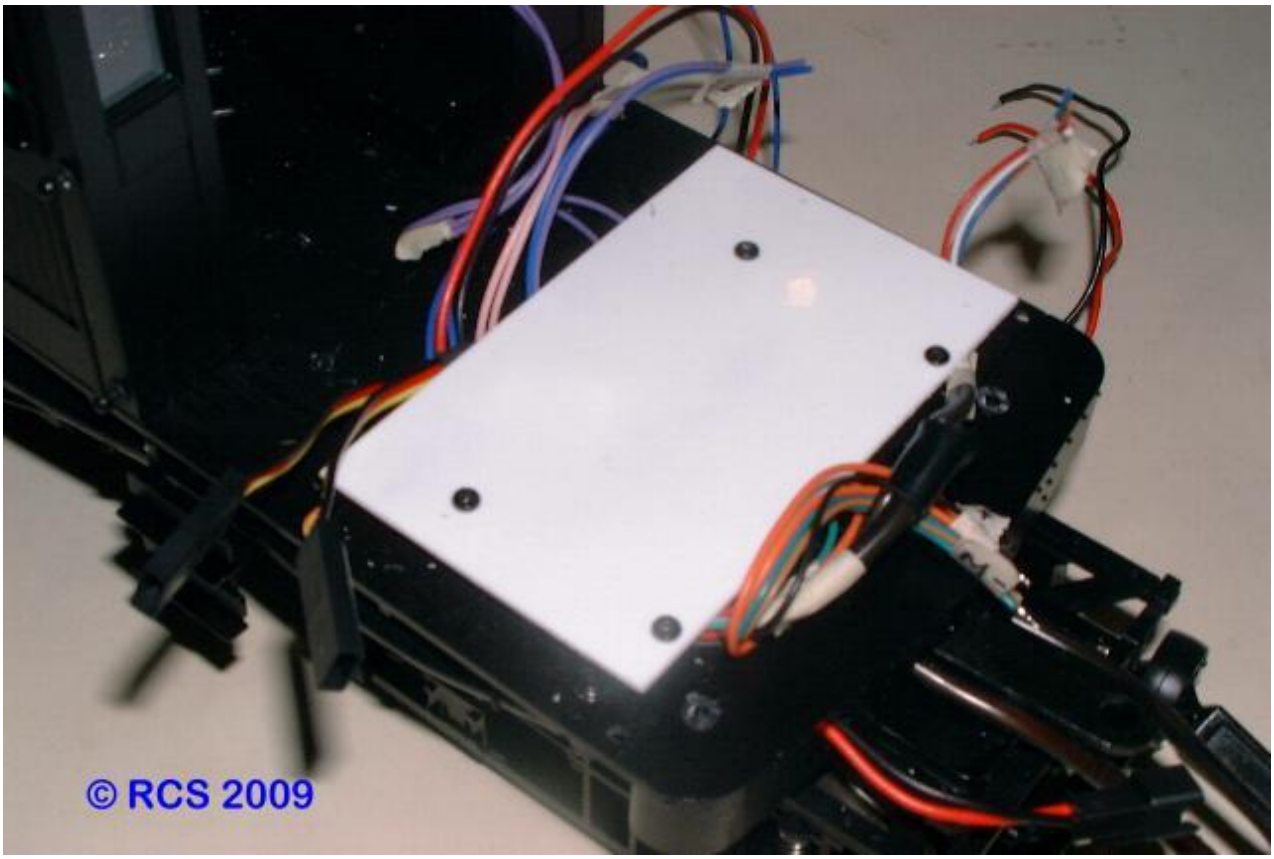
Those wires that are not needed were tucked down into the tray under the floor.
This left me with the wires bundled together like this.

Then I made a styrene plate upon which I could mount the RCS components.

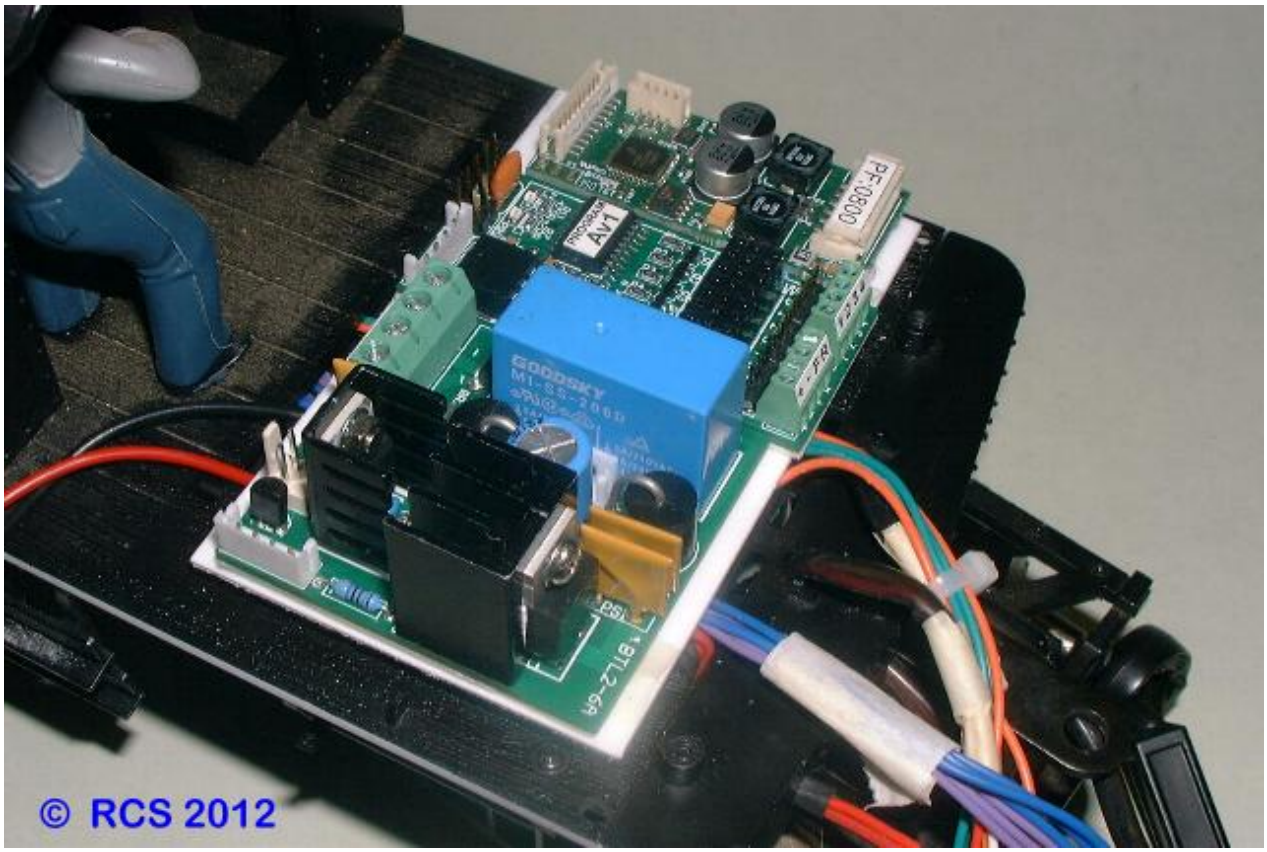
This shows the measurements in mm.



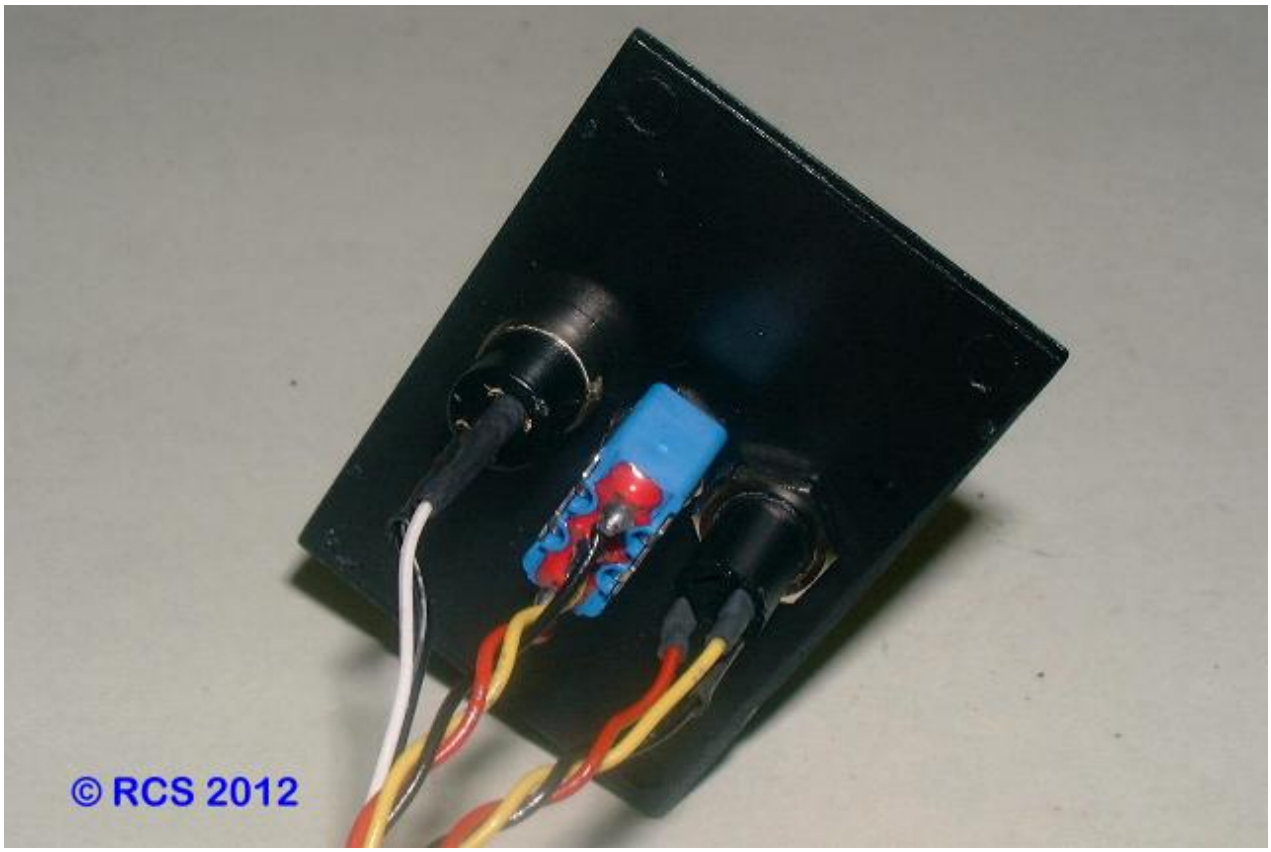
I removed the tall mounts from the floor and found some small self tapping screws to mount the plate on the low mounts. Any other wires not being used were tucked out of the way under the plate.
This is an old photo and shows servo extension leads which are no longer necessary for the RX.



The two part RCS # PRO-6B ESC was stuck to the styrene platform with silicone adhesive. Next to these two items is the Phoenix P8 sound system. There is just enough room for all three items to fit side by side. Ensure the screw heads holding the platform don't touch the back of the ESC.
I reconnected the front and rear headlights to the lighting outputs of the RCS decoder part. Make sure you place a 470 ohm ½ watt resistor in each of the + leads.
The cab light runs off the regular battery voltage and is on when the system is turned ON.
I could not reconnect the 5 volt smoke unit. Although it can be done with a separate 5 volt voltage regulator. The smoke unit uses about ½ amp so the 5 volt regulator needs to have a heat sink.
The flickering fire box and ash pan lights are not connected any more. They may be reactivated at a later date.



I used the slide out coal load front to mount the RCS programming pushbutton, P8 volume control & programming jack.



It looks like this from the outside and is easily accessible through the space between the cab and the coal bunker.

Here is the list of RCS components I used in this installation:
1 x # PRO-6B ESC.
1 x # BIK-TENLOC6-v2 installation kit.
1 x # Y-CABLE. Puts 2 x 7.2 volt SubC packs in series to give 14.4 volts.