Fitting ZTC 302mk 2 only.

Understanding the 302 point motor.

All of our point motors are fully tested before posting to you, and we thank you for your order and wish you many years of happy operation.

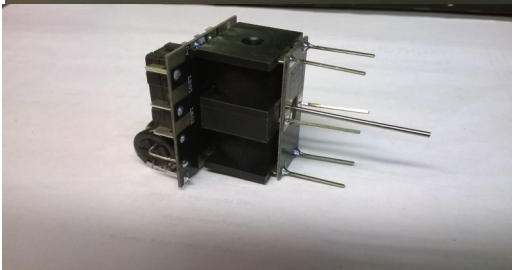Our helpline is open 6 days a week from 9 am to 9 pm, we close on Wednesday's. 01823 327155. **For use with electro frog points only.**

The 302mk2 was designed to reduce wiring and work with any NMRA compatible controller. The 302mk2 has many features to help you install it simply, without having to run 3 wires to each point, and operate from your controller without an accessory decoder as a chip is built into the unit along with a CDU. If you wish to install led's on your display panel this also can be done.

At the moment, to use this point motor you will have to make solder joints and we do not guarantee your mistakes so please understand the instructions we issue with this product before you make a start.
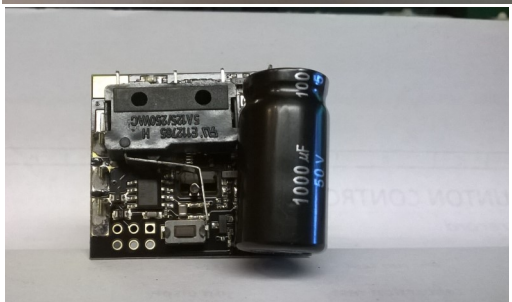

TAUNTON CONTROLS Ltd.
POINT MOTOR TESTED
ALL WORKING OK
Tested by Graham
helpline 01823327155

This is the 4 pack and the label will say the testers name

We call this the bottom of the point motor.
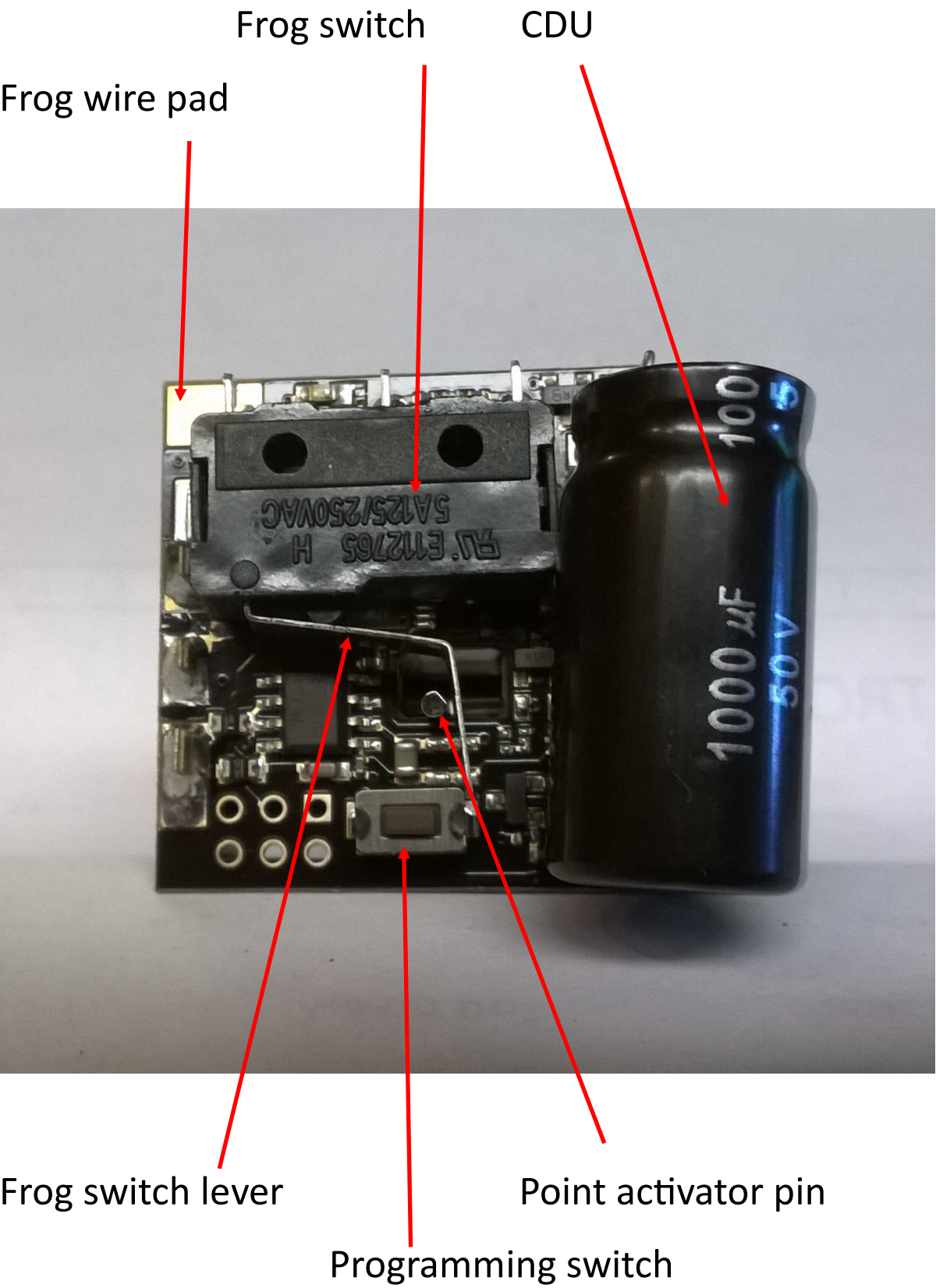The point motor showing the 6 pins and the actuator rod

We call this the top of the point motor.
The point motor control board showing the frog switch ,the CDU and the programing switch.

Part identification.

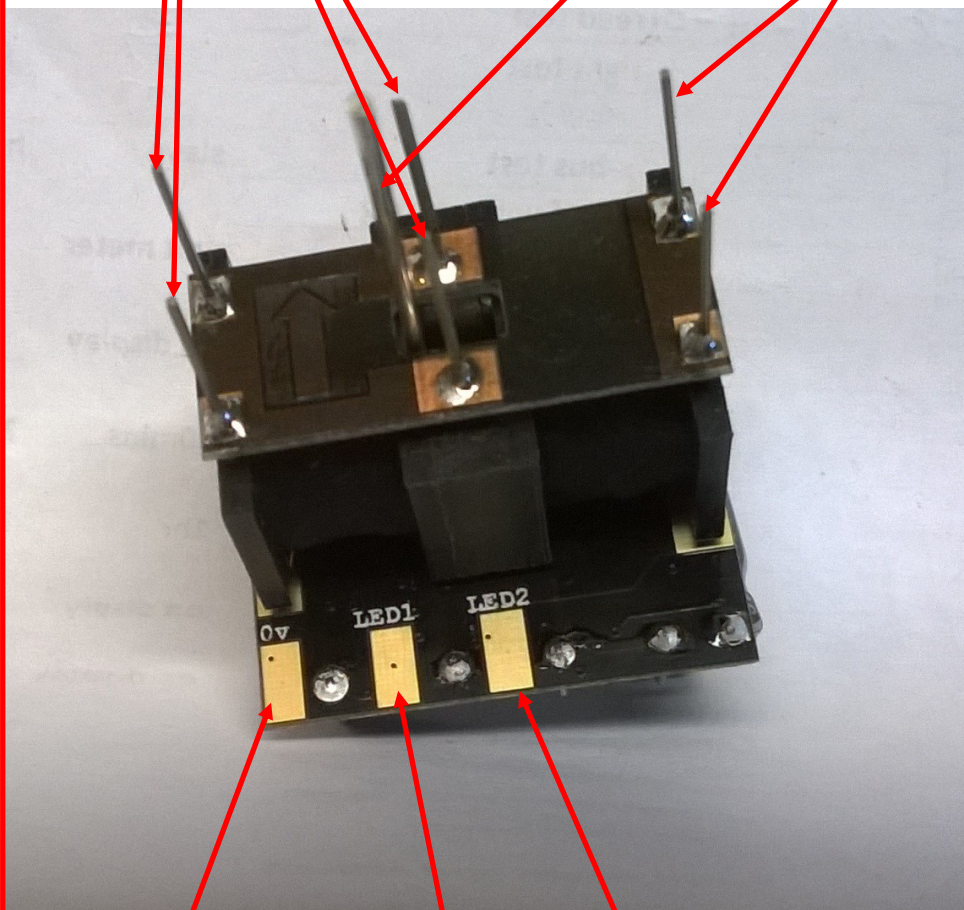Frog switch

CDU

Frog wire pad

Frog switch lever

Point activator pin

Programming switch

Part identification.

4 Power supply pins all connected

2 power supply pins both connected

Actuator pin

Ov   LED 1   LED 2

How to install the ZTC 302 mk2 point motor.

Step 1. UNDER 9mm

4/1/1/1   When you understand these instructions and only when! Make a start.

4/1/1/2   How thick is your baseboard ?

4/1/1/3   If it under 9mm thick you can use instructions **Under 9mm**

4/1/1/4   If it is over 9mm thick then you must use instruction **Over 9mm**

4/1/1/5   mount point motors on top of the baseboard then use **On Board** instruction

4/1/1/6   These instructions cover 2mm, 4mm and 7mm scales installations.

4/1/1/7   Please remember that at all parts of the installation your health and safety must be uppermost in your mind as cutting and soldering need care for yourself and others.

Step 2. UNDER 9mm.

4/1/2/1   installing through up to 9mm thick baseboards

Tools required   1 x 2mm drill bit

1 x 10mm drill bit

1 x drill for the above.

1 x Soldering iron

1 x Flux

1 x solder

1 x sharp pencil

1 pair strong side cutters

Other items required

40mm of wire for the frog.

How to install the ZTC 302 mk2 point motor.

Step 3. UNDER 9mm.

5/1/1/1 After you have set the position for the point, then mark around the point base and locate and mark the point motor fixing holes in the point base, make sure that you can see the hole marks clearly. Draw a line from each mark diagonally across the marks and where the 2 diagonal meet this is where you drill a 10mm hole, then you can drill a 2mm hole at each of the 4 marks motor fixing points see sketch below

2mm holes

10mm hole
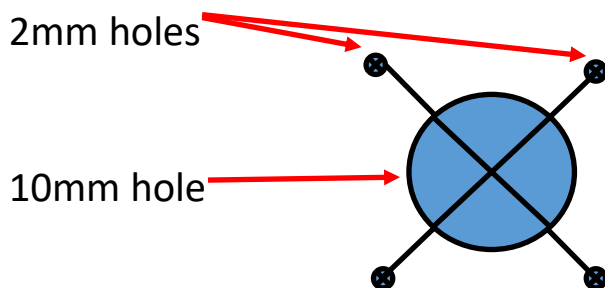
 Clean all the holes with sand paper or a file to remove all bits and leave smooth

5/1/2/1 At this point you should add the 40mm of cable to the frog wire pad and if you wish to add Led's at a later stage, lengths of cable can be soldered to Led 1, Led 2 and Ov and these run to a terminal block for later connection to the Led's on your panel.

 5/1/2/2 Remove the unwanted power pins. For **2mm** remove the 2 pins at the arrow end of the motor.

For 4mm remove the middle pair of power pins

7mm remove the **XXXXXXXXXXXXXXX**

 5/1/2/3 Place the point in position and offer up the point motor, you must locate the actuator pin first, (the CDU should be furthest away from the track) then the 4 power pins and turn 1 power pin (from each side of the track) over the track to hold the point motor in place during the time you solder the other 2 power pins in, then solder the holding pair after realigning into position .

How to install the ZTC 302 mk2 point motor.

Step 4. UNDER 9mm

6/1/4/1 Turn the track power ON. Change the point a few times by hand to test for free movement, please note which direction the point is in when the red light comes on.

6/1/4/2 Set the point with the red light ON, Press and hold down the programming switch until the red light flashes quickly, the point motor is in programing mode and you can go to your controller and program your new point, (for ZTC Controller Owners this is the key sequence you need. POINT -> *YOUR NUMBER FOR THIS POINT* -> ENTER RIGHT

This is the programing completed, return to the new point and press the button once to take it out of programing mode.

6/1/4/3 Testing your new point motor.

 6/1/4/4 Press the programing switch button once and the point should change route.

6/1/4/5 after 10 seconds press the programing switch button again the point should change back

6/1/4/6 repeat 4 and 5 a few times and if all is working ok, return to your Master controller. If the motor is sluggish then work by hand to free up the motion.

6/1/5/1 from your controller test the point as your instructions says (for ZTC Controller Owners this is the key sequence you need. POINT -> *YOUR NUMBER FOR THIS POINT* -> ENTER RIGHT or LEFT as required. Please remember that the CDU needs at least 10 seconds to recharge so do NOT hold left or right down as this will damage the point motor.

Your new point motor is ready to work for you. If you leave your layout for a long between operations, a few hand operations before you start to operate will help to prolong the life of your point motors.

How to install the ZTC 302 mk2 point motor.

Step 1. OVER 9mm

7/2/1/1   When you understand these instructions and only when! Make a start.

7/2/1/2   How thick is your baseboard ?

7/2/1/2   If it is under 9mm thick you can use instructions **UNDER 9mm**

7/2/1/3   If it is over 9mm thick then you can use instruction **OVER 9mm**

7/2/1/4   mount point motors on top of the baseboard then use **ON TOP** instruction

7/2/1/5   These instructions cover 2mm, 4mm and 7mm scales installations.

7/2/1/6   Please remember that at all parts of the installation your health and safety must be uppermost in your mind as cutting and soldering need care for yourself and others.

Step 2. OVER 9mm

7/2/2/1   installing through over 9mm thick baseboards

Tools required   1 x 2mm drill bit

1 x 10mm drill bit

1 x drill for the above.

1 x Soldering iron

1 x Flux

1 x solder

1 x sharp pencil

1 pair strong side cutters

Other items required

40mm of wire for the frog.

How to install the ZTC 302 mk2 point motor.

Step 3 OVER 9mm

8/2/3/1 After you have set the position for the point, then mark the 4 point motor fixing holes with a dot in each hole. make sure that you can see the dot marks clearly. Remove the point . Draw 2 lines joining the external dots diagonally ,where the 2 lines meet is your centre point. (line 1 and line 2) . From here draw a line in line with the rails (line 3) and another at right angles through the centre point. (line 4).

8/2/4/1 on the line across the track (line 4) from the centre point measure and mark a dot at 18mm in each direction. On the line along the track, (line 3) from the centre point measure and mark a dot 15mm in both directions, now with a square, draw a rectangle as in the diagram below, with the four dots marking the sides of the rectangle. This rectangle must be cut out and removed, the hole will take the   point motor.

Line 1

cL Line 4

Line 2

rail

cL

Line 3
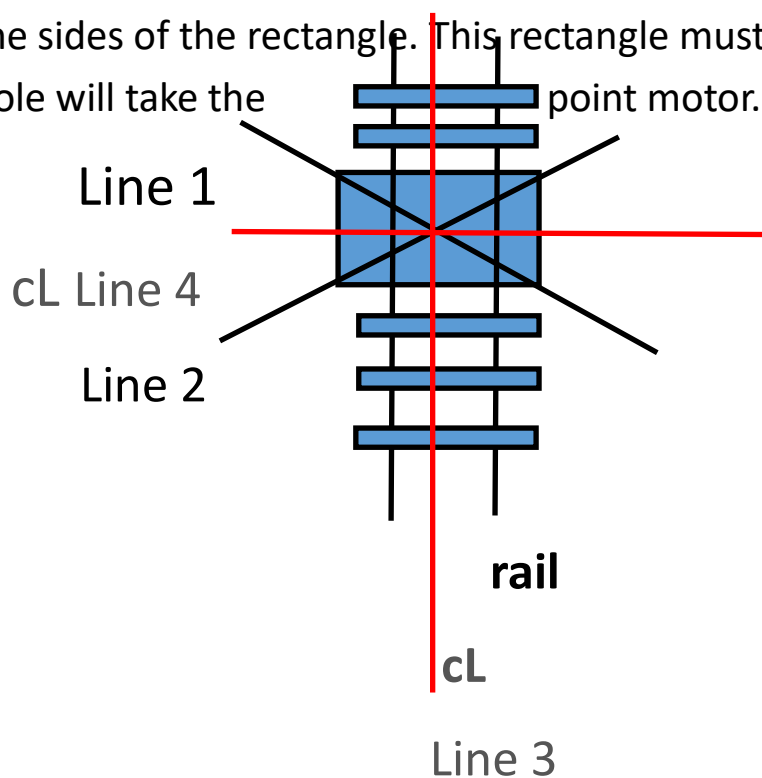
8/2/4/2 If you need help on cutting the hole please call our helpline.

There are so many ways to achieve this with new tools we can not list all methods here.
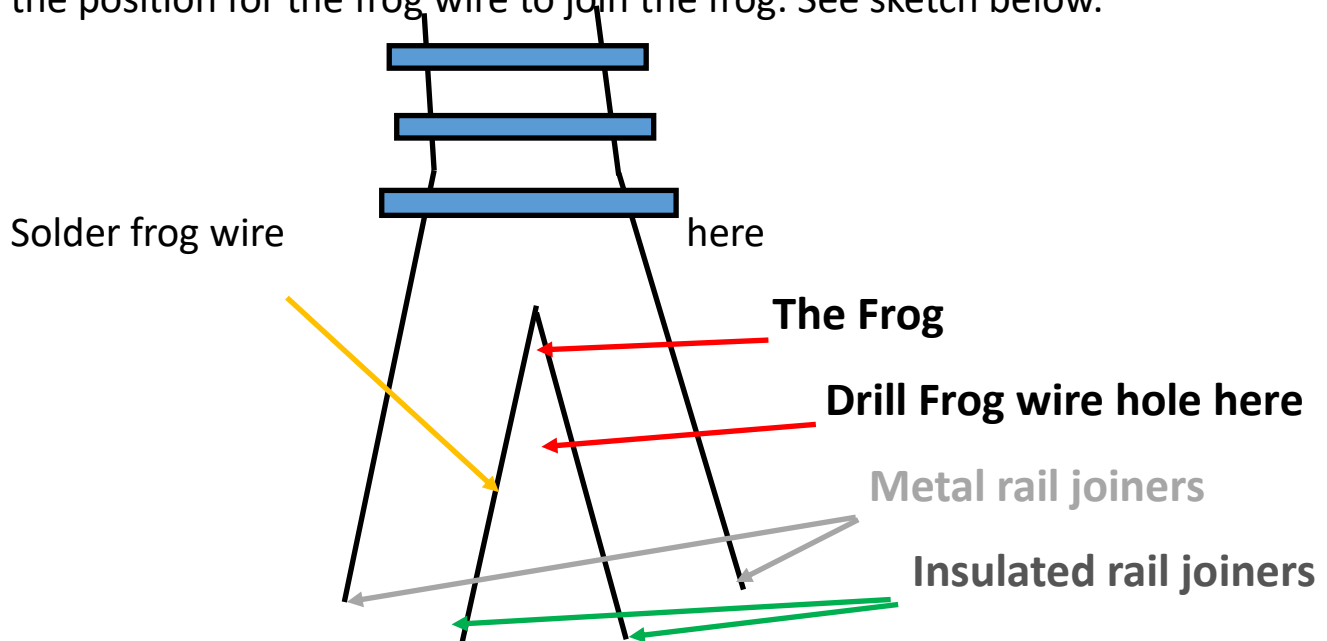
How to install the ZTC 302 mk2 point motor.

Step 4 OVER 9mm

9/2/4/1 Solder all required wires to the p.c.b. and then fit the 302 to the point underside.   First locate the actuator pin into the tie bar of the point and then locate the 4 power pins, bend the power pins and cut to fit along the outside of the rail and solder into place.

9/2/4/2 Test fit the point and motor into its position, if the fit is ok then mark the position for the frog wire to join the frog. See sketch below.

Solder frog wire   here

The Frog

Drill Frog wire hole here

Metal rail joiners

Insulated rail joiners

9/2/4/3   Fix the point into position and then cut the actuator pin off above the tie bar. ** DO NOT USE A DRILL AND CUTTING DISC FOR THIS as the heat will DAMAGE the tie bar and destroy the point.**

How to install the ZTC 302 mk2 point motor.

Step 5 OVER 9mm

10/2/5/1 Turn the track power ON. Change the point a few times by hand to test for free movement, please note which direction the point is in when the red light comes on.

10/2/5/2 Set the point with the red light ON, Press and hold down the programing switch until the red light flashes quickly, the point motor is in programing mode and you can go to your controller and program your new point, (for ZTC Controller Owners this is the key sequence you need. POINT -> *YOUR NUMBER FOR THIS POINT* -> ENTER RIGHT

This is the programing completed, return to the new point and press the button once to take it out of programing mode.

10/2/5/3 Testing your new point motor.

10/2/5/4 press the programing button once and the point should change route.

10/2/5/5 after 10 seconds press the button again the point should change back

10/2/5/6 repeat 1 and 2 a few times and if all is working ok return to your Master controller. If the motor is sluggish then work by hand to free up the motion.

10/2/5/7 from your controller test the point as your instructions says (for ZTC Controller Owners this is the key sequence you need. POINT -> *YOUR NUMBER FOR THIS POINT* -> ENTER RIGHT or LEFT as required. Please remember that the CDU needs at least 10 seconds to recharge so do NOT hold left or right down as this will damage the point motor.

Your new point motor is ready to work for you. If you leave your layout for a long time between operations, a few hand operations before you start to operate will help to prolong the life of your point motors.

How to install the ZTC 302 mk2 point motor.

Step 1 ON TOP

11/3/1/1   When you understand these instructions and only when!

Make a start.

11/3/1/2   How thick is your baseboard ?

11/3/1/3   If it under 9mm thick you can use instructions UNDER 9mm

11/3/1/4   If it is over 9mm thick then you must use instruction OVER 9mm

11/3/1/5   mount point motors on top of the baseboard use instruction ON TOP

11/3/1/6   These instructions cover 2mm, 4mm and 7mm scales installations.

11/3/1/7 Please remember that at all parts of the installation your health and safety must be uppermost in your mind as cutting and soldering need care for your self and others.

Step 2. ON TOP

11/3/2/1 installing on top of the base board.

Tools required   1 x Soldering iron

                     1 x Flux

                     1 x solder

                     1 x sharp pencil

                     1 pair strong side cutters

                     1 small screw driver

Other items required

                     40mm of wire for the frog.

                     1 PECO point motor base (PL 12).

How to install the ZTC 302 mk2 point motor.

Step 3 ON TOP

12/3/3/1

Solder any led leads you require to the pcb

12/3/3/2

Test fit the 302 to the PL12 the CDU needs to be away from the point (see photo below) and then mark the length of the activator pin, care here will save you time later, the pin must not extend below the activator rod of the PL12, as this will snag on the baseboard and strain the point motor. After cutting the 302 activator pin (DO NOT USE A CUTTING DISC AS THIS WILL OVER HEAT THE PIN AND DESTROY THE PIN HOLDER, THIS DAMAGE IS NOT COVERED BY OUR WARRANTY). Time to fit the 302 to the PL12, first locate the 4 long power pins into the PL12 and slowly lower the point motor onto the base, the activator pin needs to be located into the activator rod, when the 302 is sitting on the PL12 bend the power pins over towards the activator pin BUT in line with the PL12 base, DO NOT CUT OFF THE POWER PINS.

The point motor is ready to install.

12/3/4/3
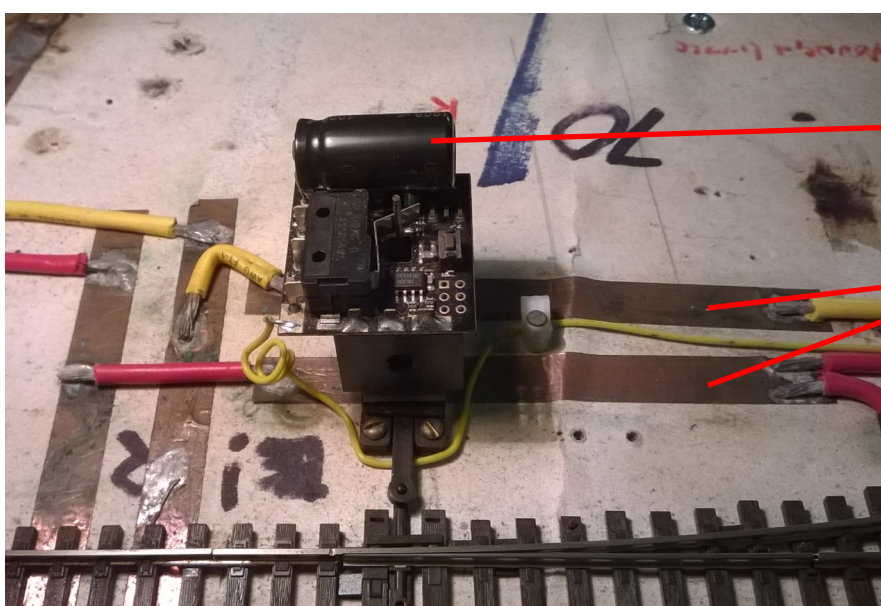
CDU.

Copper tapes

How to install the ZTC 302 mk2 point motor.

Step 1 ON TOP

13/3/4/1

Base board and point preparation.

13/3/4/2

With the point in place, place a steel rule across the point and, in line with the tie bar, draw a line from the point for about 100mm (4inches) or as far as you can. This line is your centre line, your tie bar and the back fixing screw hole will be on the centre line.

13/3/4/3

Take your point motor and base, place the tie bar hole over the point tie bar pin and align the base back fixing hole, mark all three fixing holes and then mark where the power pins are on the base board, remove the point motor and base.

13/3/4/4

So that the point motor can be removed simply, I use copper tape as the power supply for my point motors.   THE TRACK IS THE supply and you must keep your supply parallel to the track.
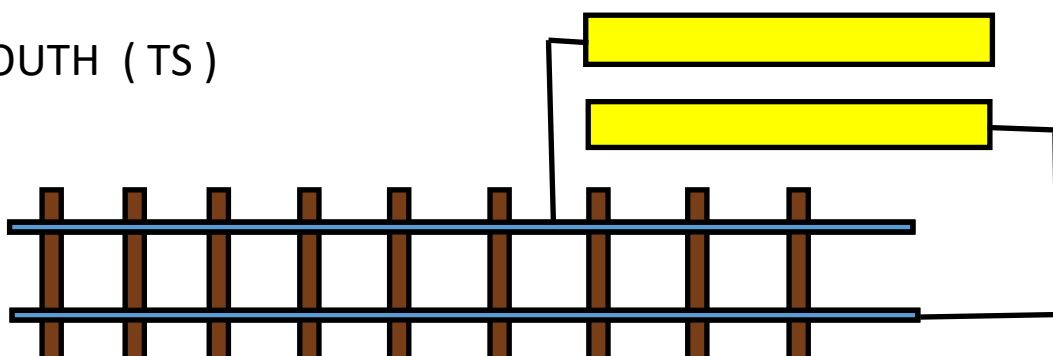
TRACK NORTH (TN)   copper tapes

TRACK SOUTH (TS)

TN

track

TS

How to install the ZTC 302 mk2 point motor.

Step 1 ON TOP

14/3/4/5

Where the power pin marks are, draw 2 lines at right angles to your centre line and after checking with the point motor that the lines line up with the power pins then lay the copper tape and firm down, solder dropper wires to the copper tape and to the track or your power bus ring main.

14/3/4/6

Turn the track power on.

Place the point motor over the copper tape and check the alignment is ok then place the point motor into position and screws in the 3 screws check the alignment as you go, at first just do up the screws lightly and test the movement is free and when the light comes on stop the tightening and test again.

14/3/4/7

Test the movement a few times by hand then try pressing the button once testing the motor action is all free.

14/3/4/8

If it works set the point so that the red light comes on, then press the button and hold until the red light flashes quickly, this puts the point motor into programing mode. Go to your controller and press POINT -> *the number you want to call that point* -> ENTER RIGHT

Return to the point motor and press the button again, this will take the point motor out of programing mode.

How to install the ZTC 302 mk2 point motor.

Step 1 ON TOP

15/3/4/8

Return to the controller and test this point motor.

15/3/4/9

Remember that it takes about 10 seconds for the cdu to recharge so do not keep asking the motor to work more than once in that time.