

Fitting a Rotatone module to a GPO type 332 telephone.

Adapting a GPO 332 phone using a Rotatone is very straightforward and has the advantage that you can easily return the phone to its original state later. Below are instructions how to carry out the conversion together with a plan of the terminal blocks and circuit diagram.

Preparation.

1. Before converting the phone it should be working properly.
2. You should consider changing the transmitter (microphone) to a modern type 21A if you want to be heard clearly. Details can be found at www.britishtelephones.com
3. If the phone has not already been converted to the modern plug system you will need the following items:
 - a. A new line cord with PST plug – you can get cloth covered braided ones to suit the phone,
 - b. A modern equivalent to the No.205 rectifier element to prevent acoustic shock in the earpiece. The 205 itself may not be suitable as the connecting forks are made for the 700 series of phones,
 - c. A resistor to reduce the REN rating of the phone, otherwise other phones on your line may not ring, the ratings are as follows:
 - i. no Resistor = REN4 – only one phone will ring,
 - ii. 3.3K = REN1 – you can use up to 4 phones on the line if they are all REN1, but the ring of your 332 will be reduced,
 - iii. 1k = REN2 – a useful compromise, you can use your 332 with 2 other REN1 phones and its ring should be a bit stronger than REN1, - the choice is yours.

All these items are readily available, search the internet for “telephone conversions”.

4. It is not essential but some preparation such as soldering the eyelet rings supplied with the Rotatone to some of the components and insulating their leads will make the conversion much easier as follows:
 - a. Bridge Rectifier (BR1), you need to put insulating sheathing on each wire to prevent shorting out as it is a snug fit. As an alternative you can on solder extension wires and locate BR1 away from the terminal block. Solder a larger eyelet to each of the 4 wires or extensions.
 - b. Rotatone module, solder the wires as follows: Orange/Red and Blue wires to larger eyelets; Brown, White and Orange wires to smaller eyelets.
 - c. Zener diode, REN padder resistor and Rectifier Element, put insulating sheathing on the lead out wires leaving enough bare wire to go around the terminal block screw.
5. You will need 2 links for the main terminal block, if you have none to re-use after dismantling (see 1b below) use solid tinned/copper wire to make some.
6. Have a soft surface area to work on otherwise the body of the phone will get scratched.

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Fitting the Rotatone.

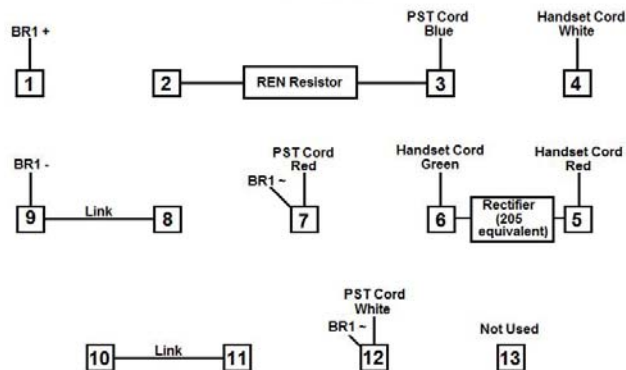
1. Disconnect the phone, take the handset off the cradle and turn the phone upside down.
 - a. Undo the 4 captive securing screws and remove the bottom plate.
 - b. Remove all wires, components and links from the terminal block, including any added if the phone has been converted to PST. Keep the screws and washers in a safe place for re-use.
 - c. Undo the 3 captive screws holding the chassis into the body and gently lift the chassis out.
 - d. Turn the chassis over and remove the dial cable wires from the Dial terminal block, keeping the screws and washers safe. You will not need terminals 2 and 3, so you can put the screws back and tighten them.
 - e. Remove the wires from the back of the dial keeping the screws safe. You will not need terminals 1 and 2, so you can put the screws back and tighten them.
 - f. Clean the dial contacts by gently opening them, putting the cleaning strip between them, allowing the contacts to close and then gently move the cleaning strip backwards and forwards to remove the dirt.
2. Connect the Rotatone wires to the dial as follows:
 - a. Orange to terminal 5
 - b. White to terminal 4
 - c. Brown to terminal 3.
3. Now connect the Rotatone wires and Zener diode to the Dial terminal block on the chassis as follows:
 - a. Orange/Red Rotatone wire to terminal 1
 - b. Cathode end of Zener diode to terminal 4
 - c. Anode end of Zener diode and Brown Rotatone wire to terminal 5.
4. Find a place to locate the Rotatone module inside the body of the phone and attach it using the double sided sticky pads provided. Make sure the wires to the dial do not get caught in the bell mechanism, dial or cradle switches. Turn the chassis over and refit it to the body. Do not overtighten the screws.
5. Connect the cables and components to the main terminal block, making sure that they do not short out on adjacent terminals. Take care with the components, particularly BR1, do not bend the wires close to their bodies.
 - a. Fit a link between terminals 10 and 11.
 - b. Fit an AC wire (symbol ~) from BR1 and the White wire from the line cord to terminal 12.
 - c. Fit the – (DC minus) lead from BR1 to terminal 9 together with a link between terminals 9 and 8.
 - d. Fit the other AC wire (symbol ~) from BR1 together with the Red wire from the line cord to terminal 7.
 - e. Fit one end of the Rectifier Element (No.205 equivalent) together with the Green wire from the handset cord to terminal 6.
 - f. Fit the other end of the Rectifier Element (No.205 equivalent) together with the Red wire from the handset cord to terminal 5.
 - g. Fit the White wire from the handset to terminal 4.

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- h. Fit one end of the REN resistor together with the Blue wire from the line cord to terminal 3.
 - i. Fit the other end of the REN resistor to terminal 2.
 - j. Fit the + (DC Positive) wire from BR1 to terminal 1.
 - k. If you have a Green wire left from the line cord, insulate the end and tuck it away, alternatively you can cut it off where it comes out of the outer cover.
 - l. If you have a braided line cord it may have cord ends to tie round the chassis posts to stop the cord from being pulled out. Otherwise tie a knot in it and make sure the handset cable is also secure and cannot be pulled out.
6. Check all your connections to make sure none are shorting.
 7. If you have added extension wires to BR1 find a place to locate it in the phone's body and secure it. Otherwise very carefully bend the wires of BR1 near to the terminals and get it to lie flat, between terminals. You should place some insulating tape over the terminals and the underside of the metal bottom plate to ensure there is no risk of BR1 shorting out.
 8. Now you can replace the bottom plate, turn your phone over, replace the handset, plug the phone in and use it as described in the User Instructions.

GPO Type 332 Telephone Rotatone and PST Connections

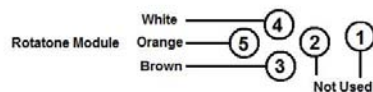
Main Terminal Block



Dial Terminal Block on Chassis



Terminals on back of Dial



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GPO Type 332 Telephone - modified

- 1 - Rotatone DTMF convertor module fitted for tone dialling and enhanced facilities
- 2 - PST line cord fitted for plug and socket working
- 3 - Rectifier element fitted to prevent acoustic shocks
- 4 - REN padder resistor fitted to reduce REN - see note below
- 5 - Polarity protection and Voltage drop stability to allow Rotatone to work properly

