

Western Electric B1 Rotatone® Installation with an AE Mini-network and 2AB Dial

The external finger stop of a 2HB dial may look cool on a B1, but these dials are pricey and hard to come by. As an alternative, a 2AB dial can be made to work with an AE mini-network and with Rotatone. This suggested installation is for those who want a self-contained DTMF B1 without the need of a subset.



First, use electrical tape to insulate the contacts between the **BK** and **Y** terminals **ONLY**. The **GN** and **W** contacts will be used for the switch hook. The **BK** and **Y** contacts will be used for the transmitter. These later two need to be electrically isolated because the 5.1v Zener must be placed in series for the transmitter. The **Y** terminal screw will also be used to mount the polarity guard.

Second, fit the polarity guard at **Y**. This needs to be in place when checking that everything fits inside.

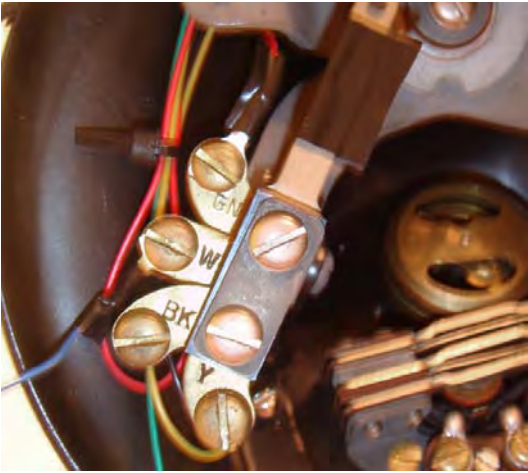


Now secure the AE mini-network and Rotatone module to the base plate as shown. 3M Outdoor Mounting Tape (double side) works nicely. Two layers are recommended for the AE mini-network so that solder points don't short against the base plate.

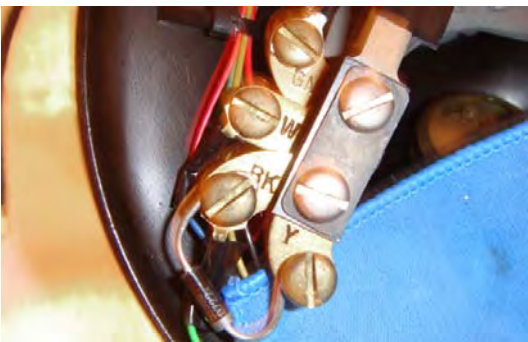


Screw the bottom plate onto the phone body and check that nothing is hitting the internal architecture. Check that the cradle freely springs up and down. Note that the network was mounted at an angle so as to make room for the polarity guard. Place the dial over the opening to make sure it clears. Once assured that everything fits and nothing hits, you're ready to start wiring.

Now remove the base plate and polarity guard, mount the 2AB dial, and the handset and line cords.

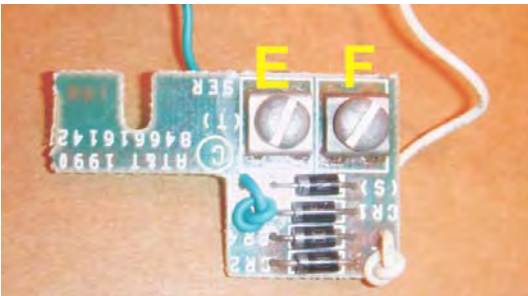


At terminal **GN** attach RED line cord (L2).
At terminal **W** attach switch hook jumper.



AE network Green mounts on **BK**.
Mount the Zener to bridge **BK** to **Y**.

Note polarity – the Zener banded end is toward **Y**.



Wiring the Polarity Guard:

At screw point **E** attach GREEN line cord (L1).

At screw point **F** attach switch hook jumper from terminal **W**.

Wrap the polarity guard with electrical tape so the screw points don't short against the base plate. One secure layer will do it.



Mount the polarity guard to **Y** and the handset BLACK wire.

If you have a multimeter this is a good time to check the make/break of the switch hook and that you are measuring the Zener resistance between **BK** and **Y**.



Attach the Rotatone wires to the 2AB dial:

Rotatone ¹ORANGE to dial "Y".

Rotatone WHITE to dial "B".

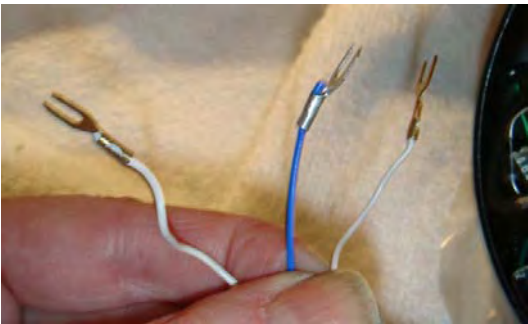
Rotatone BROWN to dial "BB".

The Rotatone BROWN wire must go to "BB" on a 2AB dial so it can detect the shunt position.

Handset RED and the AE network Red attach at terminal "B".



The handset White attaches to the AE network Yellow. The dial "W" is not used. "Popping" in the receiver is not an issue with a Rotatone installation because pulse signals are no longer sent into the line.



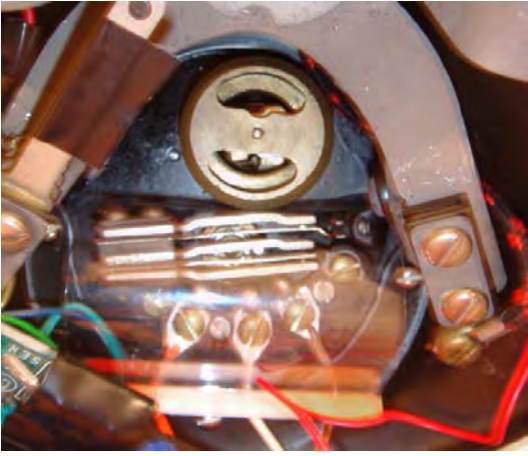
Wire the appropriate polarity guard, Rotatone, and AE network wires together:

White polarity guard negative (Left) + BLUE Rotatone (Center) + White AE network (Right) wires connect together.



Green polarity guard positive (Left) + ¹RED/ORANGE Rotatone (Center) + Pink AE network (Right) wires connect together.

If you were fortunate to find an AE mini-network with spade or screw terminals (rare), this job is easier. However, the vast majority of these networks have wires. This installation stripped off some insulation and joined the three wires with small wire nuts and electrical tape.



The typical AE mini-network will, unfortunately, result in a tangle of pasta and the possibility of this tangle catching the dial contacts². To prevent this, a “shield” was custom manufactured from the finest available translucent material and precision fitted over the contacts as shown.

Close up the phone and you're done! Your dog of a 2AB dial has just learned some new tricks!



Notes:

¹ Wire colors on individual Rotatone units may vary. On the Rotatone shown here, the polarity+ wire was orange and the dial Y wire was red. Check the wire coding instructions that came with your particular Rotatone module.

² Wires may be cut shorter to reduce bulk, but it is recommended that enough length be left on should it be necessary to replace a network or module. No disrespect intended toward the ingenuity of the Rotatone or mini-network designers, but these units just don't have the decades-long track record of durability as the Western Electric phones they go into.

Compiled by Marie Prewett
New York, NY, USA
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