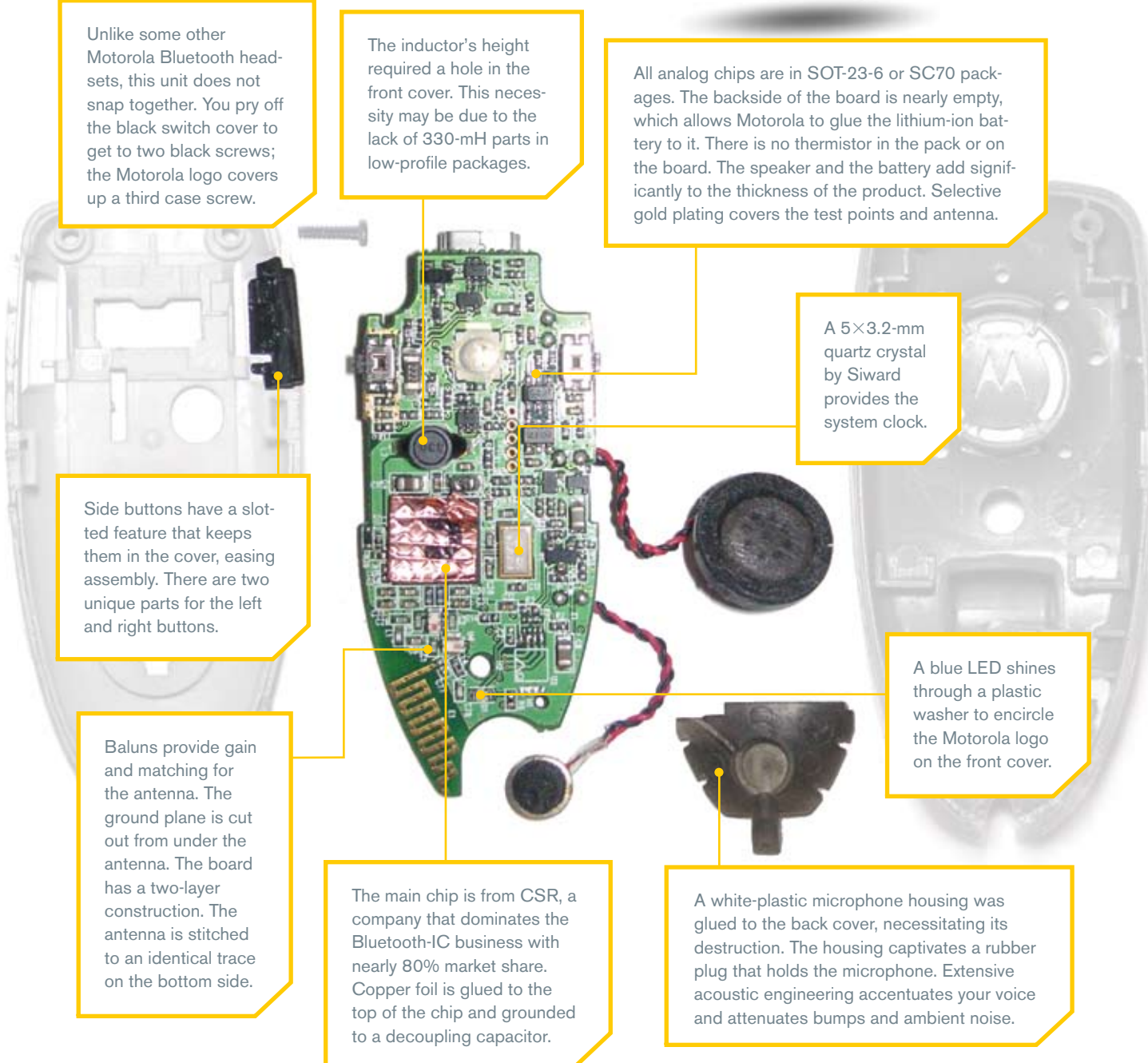


The Motorola H500 Bluetooth headset

While raking some leaves recently, I uncovered a fully charged Bluetooth headset. Someone's loss is someone else's gain, I thought as I pried into the interior of this popular consumer-electronics device.



Unlike some other Motorola Bluetooth headsets, this unit does not snap together. You pry off the black switch cover to get to two black screws; the Motorola logo covers up a third case screw.

The inductor's height required a hole in the front cover. This necessity may be due to the lack of 330-mH parts in low-profile packages.

All analog chips are in SOT-23-6 or SC70 packages. The backside of the board is nearly empty, which allows Motorola to glue the lithium-ion battery to it. There is no thermistor in the pack or on the board. The speaker and the battery add significantly to the thickness of the product. Selective gold plating covers the test points and antenna.

A 5×3.2-mm quartz crystal by Siward provides the system clock.

Side buttons have a slotted feature that keeps them in the cover, easing assembly. There are two unique parts for the left and right buttons.

A blue LED shines through a plastic washer to encircle the Motorola logo on the front cover.

Baluns provide gain and matching for the antenna. The ground plane is cut out from under the antenna. The board has a two-layer construction. The antenna is stitched to an identical trace on the bottom side.

The main chip is from CSR, a company that dominates the Bluetooth-IC business with nearly 80% market share. Copper foil is glued to the top of the chip and grounded to a decoupling capacitor.

A white-plastic microphone housing was glued to the back cover, necessitating its destruction. The housing captivates a rubber plug that holds the microphone. Extensive acoustic engineering accentuates your voice and attenuates bumps and ambient noise.