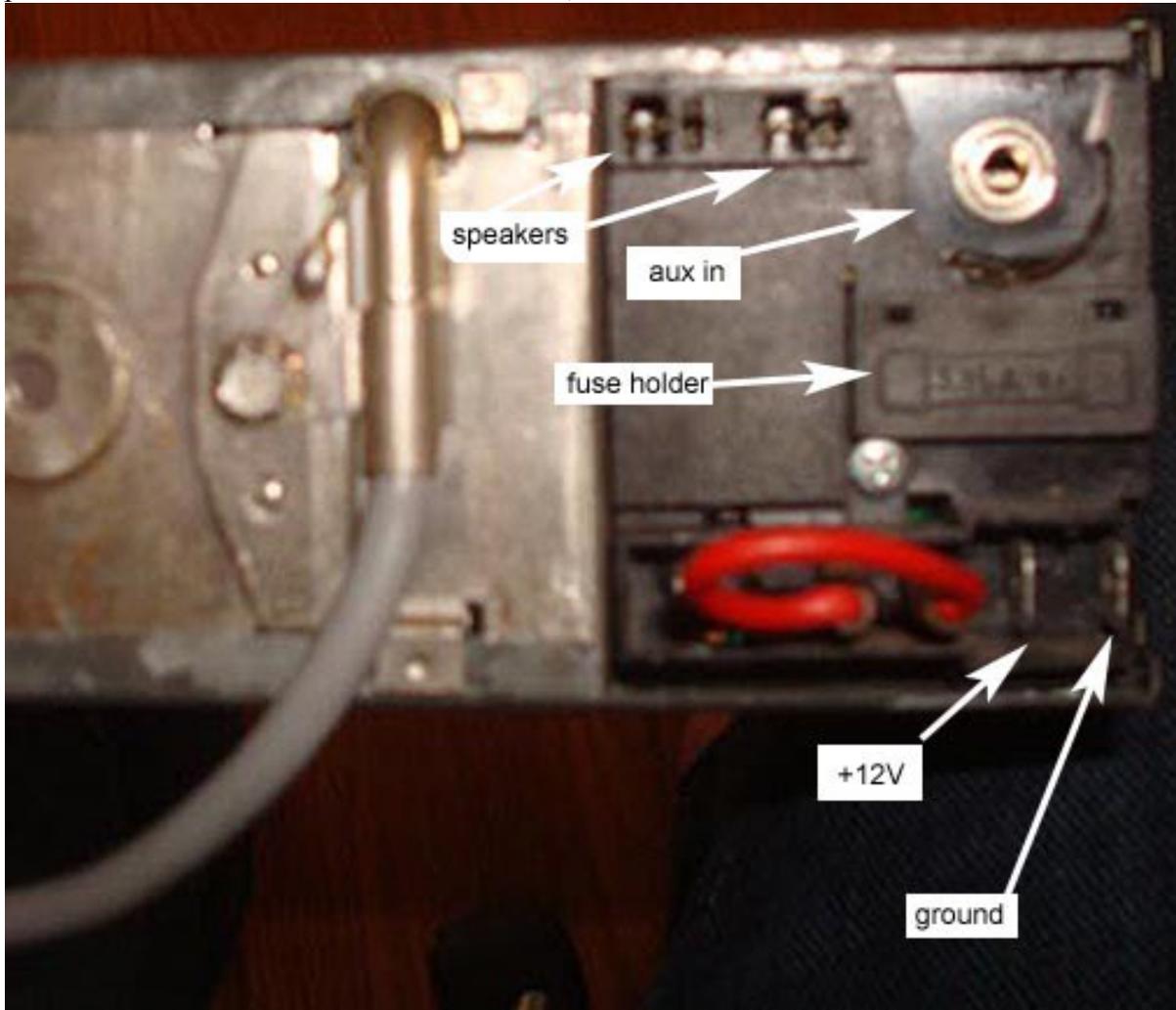


Add an Aux input to your stock Blaupunkt Monterey SQR-23

This modification will add an aux input to your Blaupunkt Monterey SQR-23 or equivalent, without permanently modifying the unit itself. Note, however, that this will disable the cassette tape unit. This modification was developed and tested on the Monterey SQR-23, but should work on any Blaupunkt which uses a similar cassette controller, PL-51.



Rear view of the unit showing phone jack added to blanking plate.

Materials

- 1 - [1/8" stereo panel mount jack](#)
- 4 - [Breadboard jumper wires](#)

Note: To avoid permanently changing the unit itself, we are using premium breadboard jumpers, which will be a nice friction fit into the sockets. If you would rather make your own, you will need to use wire that is a friction fit into the plug sockets, loose enough to insert but tight enough to stay in place. 22AWG is probably the best fitting wire for this.

Tools

- A set of small 'jewelers' screwdrivers
- Wire strippers
- Soldering iron and solder

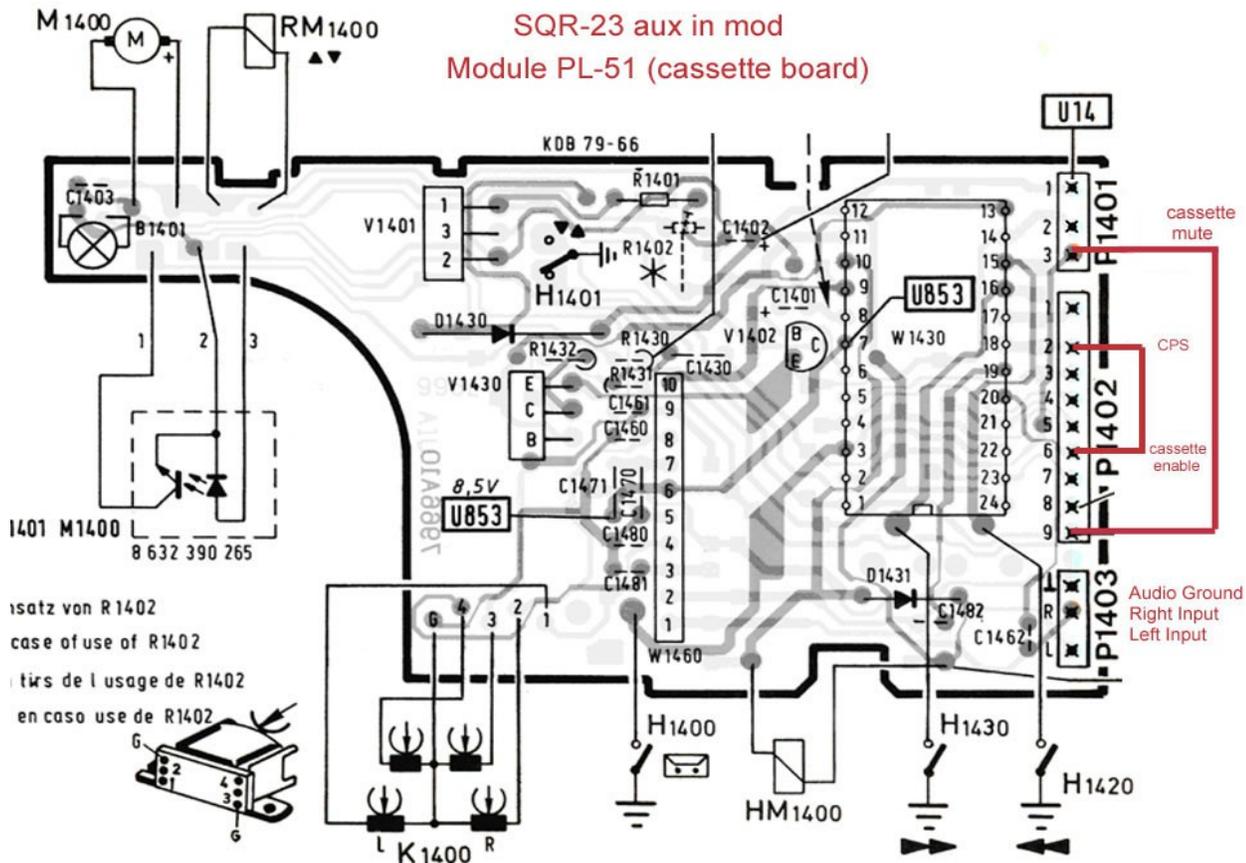
Theory of operation

When you insert a tape into the unit, two signals are sent from the cassette unit (PL-51) to the rest of the circuitry.

One signal is to the audio switching unit to switch the pre-amp audio input from radio to tape. This is the signal labeled '**cassette enable**' on the following diagram, which is broken out to pin 6 on header N1402. PL-51 will ground this pin when a cassette is inserted, to signal the audio switch. Also present on N1402 is a pin from the CPS button on the front panel, which grounds the CPS pin when on. By removing P1402 (the plug for N1402) and jumpering pin 2 to pin 6, the CPS button will now switch the audio in to the cassette unit.

Once PL-51 is ready to play audio, it sends a second signal to the audio board to unmute the audio. (to prevent unwanted crackles and pops while the cassette is locked in and playing, the audio is automatically muted) This signal is labeled '**cassette mute**' in the diagram, and it is broken out to pin 3 of header N1401, right next to N1402. PL-51 sets this pin to 8.5 volts to signal the audio switch. If we jumper this pin to pin 9 on P1402, it will permanently unmute the cassette input. This should not interfere with the unit's operation in radio mode, since the audio switch is not seeing the cassette audio in that mode anyway.

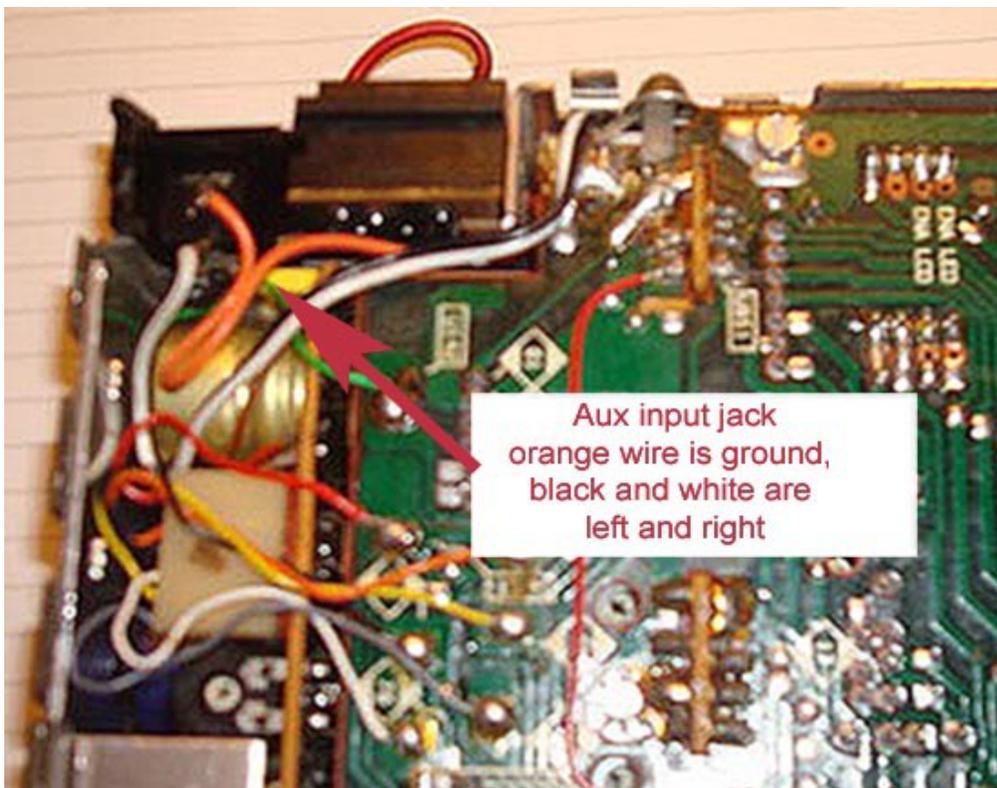
Of course, we also need a place to inject our audio signal into the pre-amp. Conveniently, there is N1403, right next to the other two headers, and it has Left in, Right in and audio ground.



Module PL-51, which is the board screwed directly to the top of the cassette transport mechanism

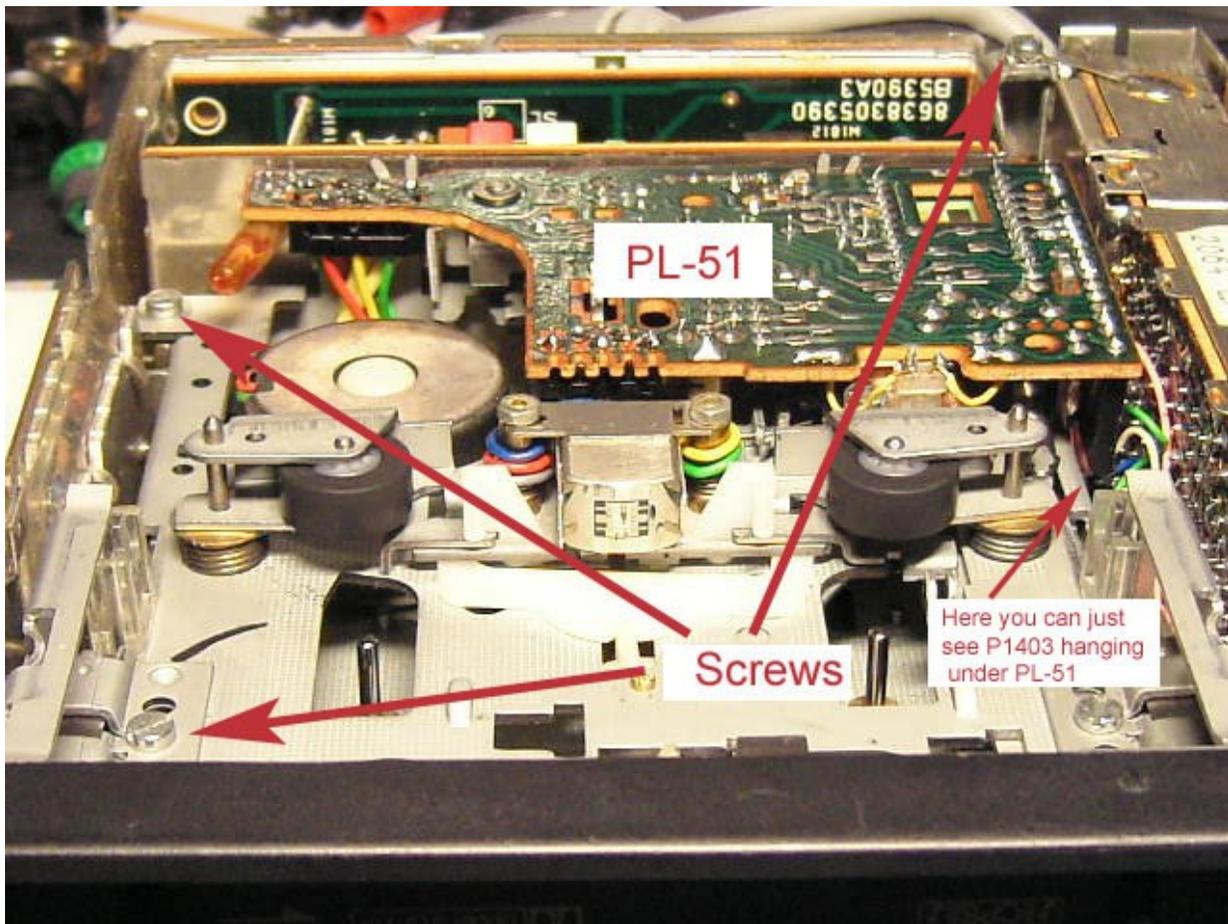
How to perform the modification

1. Remove the top and bottom covers of the unit by carefully prying around the edges. Work slowly all the way around the three sides.
2. Carefully pry out the plastic blanking plate that fills the spot where the DIN connector goes on similar units. This is just above the built in fuse holder and to the right of the speaker sockets. (Note: This fuse is available at radio shack as a 3.15 amp 5×20 mm slow blow fuse.)
3. To preserve your original blanking plate, make a new blanking plate from scrap plastic, using the old one as a pattern. Drill a hole for the 1/8 stereo jack and insert the jack into the hole, but don't tighten it all the way yet.
4. Clip the ends off of 3 wires that are long enough to route through the radio and connect to P1403. It is probably wisest to use three different colors for this.
5. Solder the 3 wires to the 1/8" stereo jack.
6. Re-insert the blanking plate and route the three input wires to the other side of the unit near P1403. Tighten the jack in place.



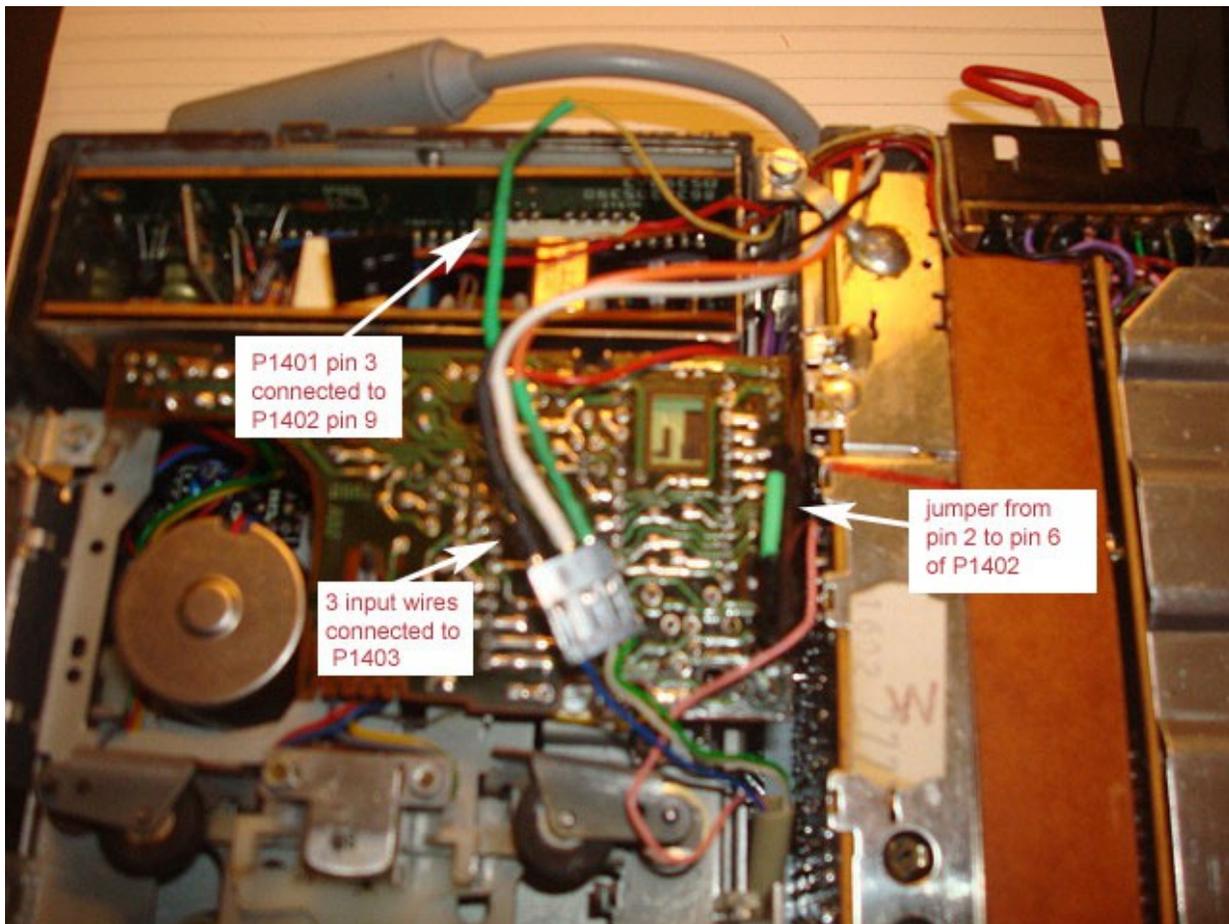
Input jack in place.

7. On the other side of the unit, remove 3 screws that retain the cassette transport. There is a ground tab on the rear screw that will need to be bent slightly, then you can lift the transport mechanism. You don't need to remove it completely, just enough to disconnect the three plugs on the underside of PL-51.



Cassette Transport Mechanism, also showing PL-51

8. Disconnect plugs P1401, P1402 and P1403 from PL-51.
9. Connect the three input wires to the three pins of P1403. Make sure the 'sleeve' or outer contact of the jack is wired to audio ground, the 'tip' is wired to the left input (pin 1) and the 'sleeve' is wired to the right input (pin 2).
10. Place an insulated jumper from pin 2 to pin 6 of P1402. A small scrap of 1/8 watt resistor lead wire, with a bit of shrink tubing, works well for this, rather than the breadboard jumpers.
11. Place a jumper from P1401 Pin 3 to P1402 Pin 9.
12. Route the wires so that they will allow re-inserting the transport mechanism and screw it back in place.



13. Recheck all of your connections and replace the covers.

That's it!

The unit should now operate normally in radio mode, and depressing the CPS button should switch to aux input.

Releasing the CPS button should return to radio mode.

Parts links:

1/8" stereo panel jack

<http://www.radioshack.com/product/index.jsp?productId=2103452>

Premium jumper wires

<http://www.adafruit.com/products/153>