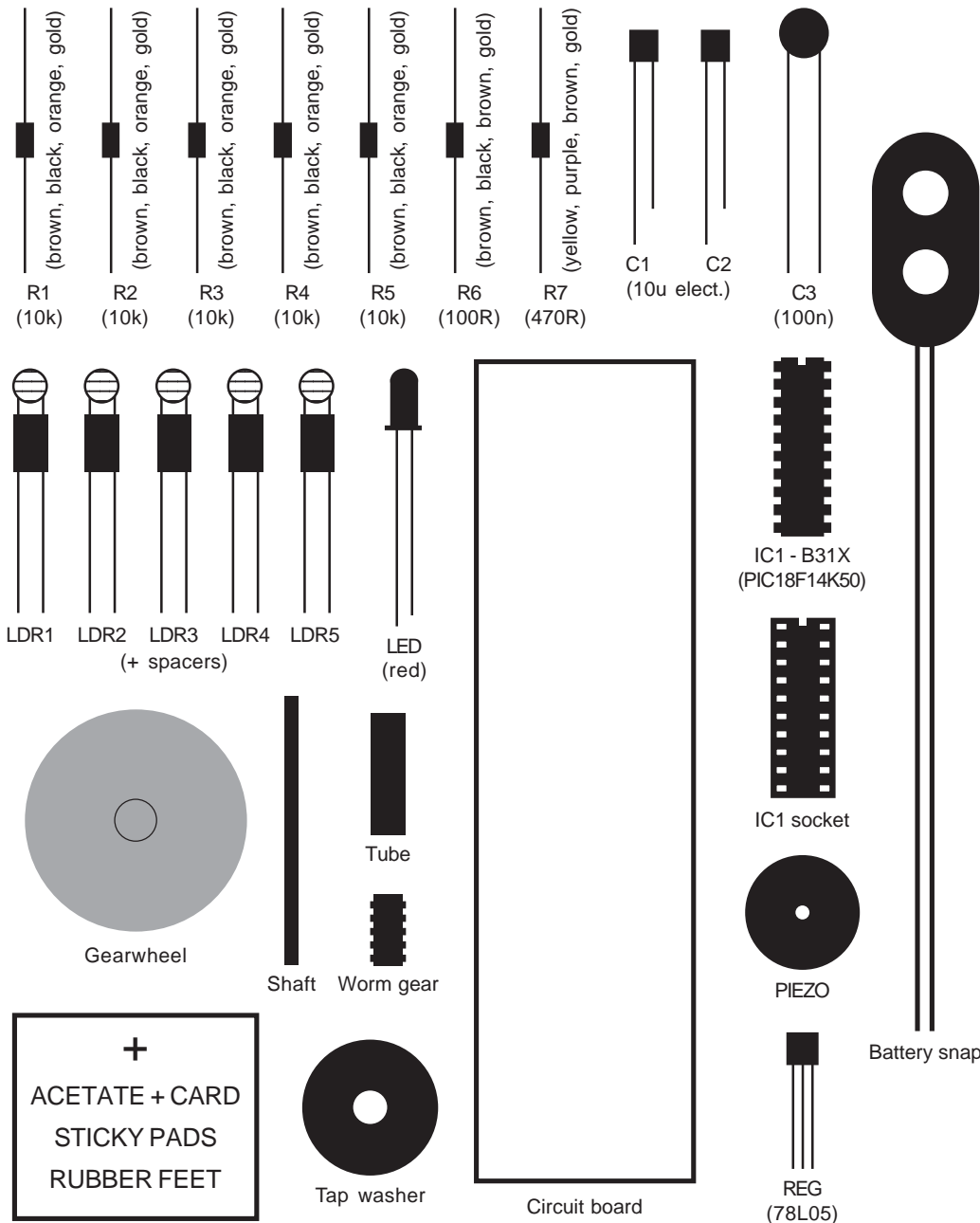


DISCOLA



CONSTRUCTION

1. Identify the different components using the spotter chart.
2. Find the resistors (R1 to R7) telling them apart by the coloured bands around their bodies. Fit the resistors flat onto the picture side of the circuit board either way around. Solder the legs of the resistors to the metal side of the board then clip the legs close to each solder joint.
3. Fit and solder the electrolytic capacitors (C1 and C2) to the board putting the shorter leg (the leg by the stripe on the body) into the hole with the – sign. Solder the other capacitor (C3) either way around.
4. Solder the light (LED) to the board putting the shorter leg (the leg by the flattened edge on the rim) into the hole with the line.
5. Fit the light sensors (LDR1 to LDR5) through their spacers then solder them to the board either way around. They should form a neat line, evenly spaced and at right angles to the board. See diagram overleaf.
6. Solder the speaker (PIEZO) to the board either way around.
7. Solder the regulator (REG) matching the half-circle shape of the regulator to the half-circle shape on the board (flat side against flat).
8. Solder the chip socket (IC1) matching the notch in the socket to the notch on the board. Do not solder the chip directly to the board.
9. Push the battery snap leads up through the larger holes in the board from the metal side of the board. Fit the metal tip of the red lead into the BATTERY + hole, and the tip of the black lead into the BATTERY – hole. Solder the metal tips to the tracks on the board then pull the wire loops back.
10. Carefully bend the legs of the chip inwards a little with your fingers. Fit the chip into its socket matching the small notch in the chip to the notch in the socket.
11. Using a reamer, slightly enlarge the large hole in the board then push the plastic tube through from the component side such that it protrudes by a few mm on the solder side. It should be a tight fit. Push the tap washer onto the tube from the solder side so that it's flush with the board. If the tube is at all loose then it should be glued firmly in place.

continued overleaf

CONSTRUCTION (continued)

12. Using a small hammer, tap the shaft into the pillar of the gearwheel (i.e. the opposite side to the flat face) so that about 10mm protrudes from the flat side.

13. Tap the worm gear onto the top of the shaft (the same side as the pillar of the gearwheel).

14. Cut out the large circle from the acetate sheet and the small circle from the card sheet. Glue the two together with the acetate on top.

15. Push the shaft through the centre of the card/acetate disc and secure it in place with the sticky pads. Make sure it goes through the exact centre of the disc otherwise the black dots won't line up exactly with the light sensors as the disc rotates.

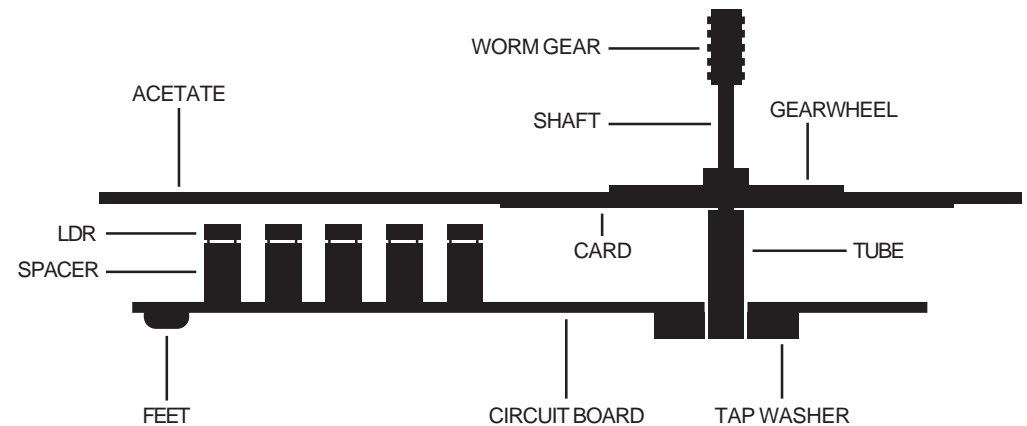
16. Stick the two rubber feet to the corners of the board at the opposite end from the battery snap.

17. Place the shaft in the tube. Adjust the height of the tube if needs be such that the disc just touches the tops of the light sensors. See diagram.

18. Make sure the black dots on the acetate sheet line up accurately with the light sensors. You can bend the sensors slightly if needed.

19. Connect a battery (9V PP3) to the battery snap.

20. If *Discola* is working properly the red light should flash and the speaker should beep twice.



HOW TO USE

Line up the start arrow on the disc with the light sensors.

Rotate the disc slowly clockwise and *Discola* should play a song.

If the notes don't play properly then try adjusting the light level, either darker or lighter, until the tune plays correctly.