

78-RPM RECORDS LIVE AGAIN!

Easy-to-make turntable modifications allow you to play all your old collector records

BY RAYMOND BINTLIFF

THE collector of 78-rpm records is faced with a problem when purchasing a new turntable. Only a few of them provide 78-rpm operation today: inexpensive record changers or variable-speed audiophile units priced beyond the average pocketbook.

This problem can be solved by modifying an otherwise satisfactory two-speed turntable. Belt-driven platters re-

quire a mechanical change, while direct-drive designs need electrical modification. The mechanical approach requires machine-shop facilities and precision workmanship. But an electrical conversion is relatively simple and easily implemented, as presented here.

The Technics SL-D1 direct-drive turntable is used as an example of how such a unit may easily be converted to

78-rpm operation. (The same change can be made to the Technics SL-D2, SL-D3 and SL-D5.) To keep the conversion simple, that portion of the speed control circuit used for 45-rpm operation was modified. This approach sacrifices the 45-rpm capability but avoids the addition of a switch and subsequent defacement of the turntable chassis.

A brief look at how the Technics SL-



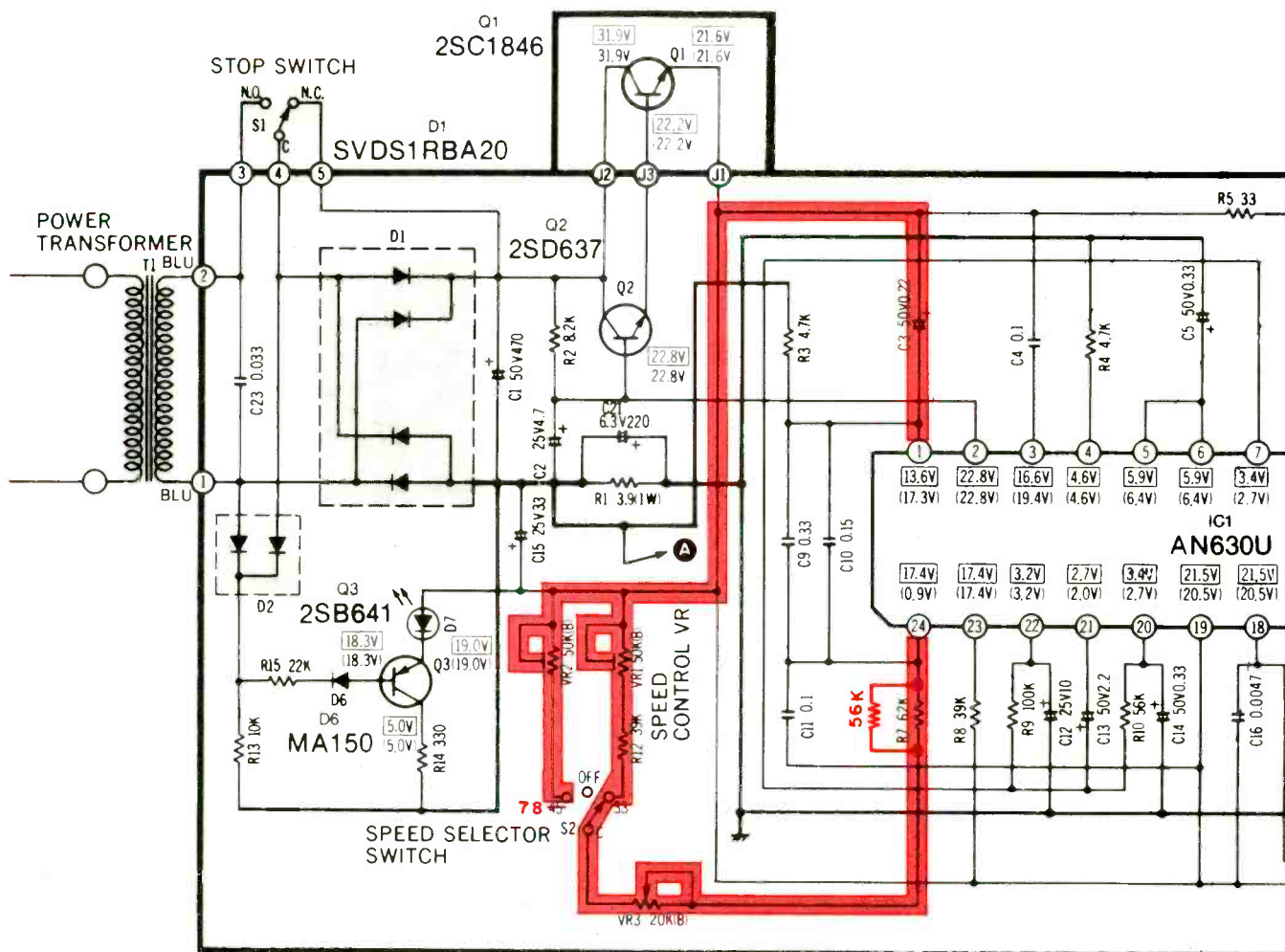


Fig. 1. Portion of speed-control circuit of the SL-D1 with new 56-kilohm resistor added for 78 rpm.

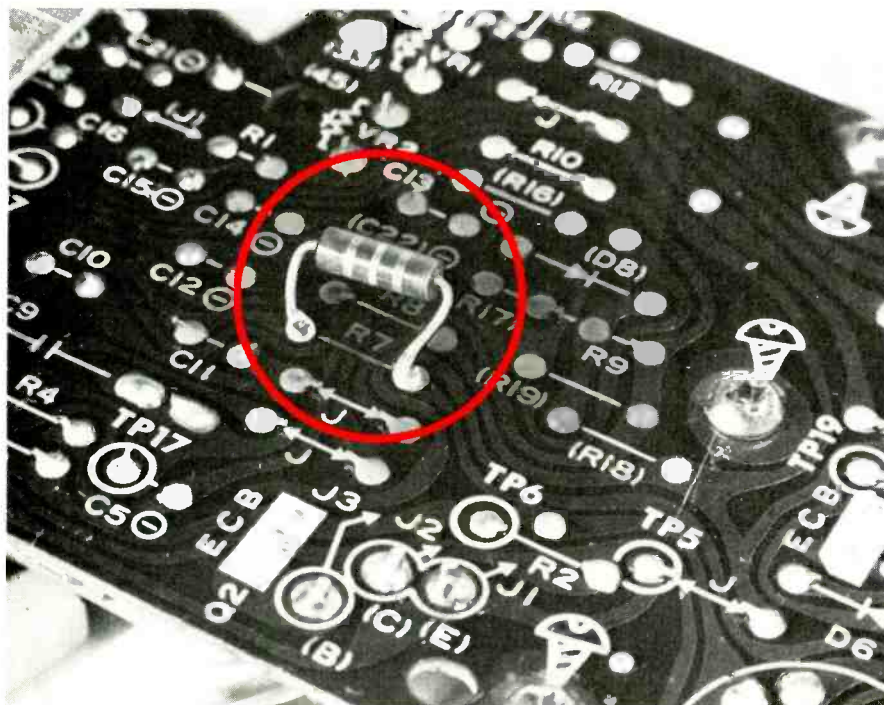


Fig. 2. Detail of pc board with addition of new resistor.

D1 direct-drive turntable operates shows why a simple modification can be effected. There are two sets of coils within the turntable platter assembly. One set applies torque to the platter, while another set generates a position signal with a frequency directly related to platter speed.

The position signal is compared to a reference frequency by a custom IC within the turntable chassis. Current to the drive coils is automatically adjusted until the reference frequency and the position signal "lock" together. A dc feedback path external to the IC is part of the circuit that determines the reference frequency. Different resistances are switched in and out of this feedback path, providing the desired two-speed turntable operation.

The schematic in Fig. 1 shows the SL-D1 speed-control circuit, including the additional 56-kilohm resistor which permits turntable operation at 78 rpm. Both S2 and VR3 are front-panel controls. Switch S2 is the SPEED selector and potentiometer VR3 is the PITCH ADJUSTMENT. Potentiometers VR1 and VR2 are

screwdriver adjustments that trim turntable speed. They are located under the turntable platter. To obtain operation at 78 rpm, a 56-kilohm resistor is added in parallel with *R7*. The position of *R7* is clearly marked on the SL-D1's printed circuit board.

Prepare the turntable for modification by making certain that its line cord is disconnected. Then lock the tonearm in place with the arm clamp and remove the mat and turntable platter. With the dust cover in place, carefully invert the unit. Use cloth or newspapers to protect the dust cover from scratches.

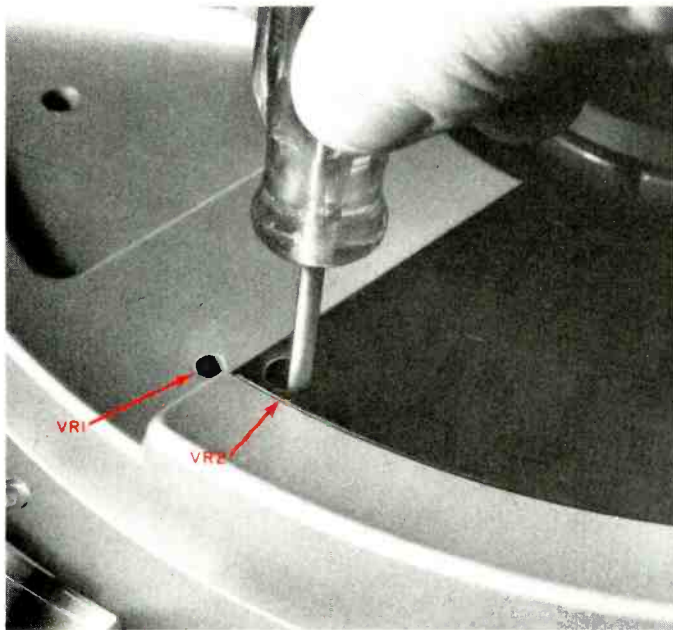


Fig. 3. Potentiometers *VR1* and *VR2* can be adjusted with a screwdriver through access holes underneath the turntable platter.

Now remove the seven screws which retain the isolators (bottom feet) and the bottom cover. (The front and rear isolators use different springs. During reassembly be certain to install the isolators in their correct positions.) Detach the bottom cover and four isolators.

Next, locate resistor *R7* on the printed circuit board (Fig. 2) and solder a 56-kilohm resistor in parallel with it. Do not use excessive heat.

Finally, replace the bottom cover and isolators, install the seven mounting screws, and return the unit to its upright position. Speed adjustments must now be performed before the modified turntable is ready for use.

First, turn *VR2* to the maximum clockwise position (Fig. 3) and replace the turntable platter. Then plug in the line cord and place the turntable's SPEED switch in the "45" position. Reidentify this position as "78" with Presstype numerics and set *VR3* at its midposition.

Now turn on the unit and count the number of revolutions per minute.

(Place a small piece of masking tape on the rim of the platter as a counting aid). Turn *VR2* counterclockwise until an approximate speed of 78 rpm is obtained. (When the turntable is fully assembled, *VR2* is accessible through either of the two holes in the platter).

With the speed approximately set, place a stroboscope disc on the turntable and adjust *VR2* for exactly 78 rpm. Now place the SPEED switch at "33" and adjust *VR1* (again use platter access holes) for correct speed (marks on the turntable rim serve as a strobe). Replace the mat, and the turntable unit is ready

for use. The unit will "spin-up" to 78 rpm in just under three revolutions.

The turntable must be shut off when adjustment is made to *VR1* or *VR2*. Do not leave the power on and stop the platter by hand to make these speed adjustments. Correct speed adjustment is a trial-and-error process. Potentiometers *VR1* and *VR2* can also be adjusted from beneath the unit when the bottom cover is removed.

If correct speed cannot be obtained within the range of either *VR1* or *VR2*, a slight offset from midpoint may be necessary for *VR3*. Returning the turntable to 33 rpm/45 rpm operation is easily accomplished by removing the 56-kilohm resistor and readjusting *VR1* and *VR2*.

A modified SL-D1 turntable has been operated satisfactorily by the author for one year. To date, there has been no evidence of excessive heat dissipation or mechanical wear. However, it should be remembered that the manufacturer's warranty does not apply to user-modified products. ♦

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