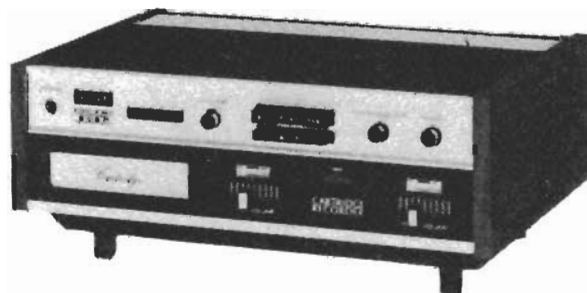


ROBERTS MODEL 808D 8-TRACK RECORDER

by H. Burrell Hadden



The 3/4 ips tape cartridge system was originally designed as an entertainment medium for use in the automobile, for the playing of cartridge tape records. For some time it was not possible to obtain equipment to play these records in the home via the home stereo system, much less to be able to make one's own cartridge tape records. This has now been rectified by several manufacturers, and one of these, Roberts, has produced the subject of the present *Techni-Guide*, The Model 808D. This machine falls into the category of tape deck, in that it is intended to be used with a home stereo system, and does not have output amplifiers or loudspeakers.

The equipment is attractively styled in a walnut case, with all the operational controls on the front panel, and the input and output connectors on the back. To the bottom left of the front panel is the "mail box" slot into which the tape cartridge is inserted for eight track stereo playback or recording. To the right of this are the two record level controls, one for each of the left and right channels. These are of the straight line type, with convenient scales for easy repetition of the settings. VU meters for level setting are mounted above each of these recording controls, and the red Record light is placed between them.

The top part of the panel carries a jack for stereo headphones, the four lights giving indication of which of the four pairs of tracks is in use, and a button for selecting any one of these at will. Also on this part of the panel are the tape transport controls, in the form of push buttons. These cover the record, play, fast forward, and stop functions. In the cartridge system fast rewind is not possible. Two other controls complete the complement; a switch to enable continuous repetition of the four programmes on the tape, and the power on/off switch.

The rear panel is exceedingly simple; apart from the power cord, there are only six connectors. These are two standard quarter inch jacks for microphone input, left and right, and four phono plugs for line in and line out. Roberts thoughtfully provide one cable with four ways to connect to these last connectors; so much more sensible than the four separate cords so often provided. The

sensitivities of the inputs are: microphone, less than 0.5mV at an input impedance of 4.7 kilohms, and line, less than 50mV. No line impedance is specified. The line output level for 0 VU on the meters is 1.23 volt at 250Hz. The circuit diagram shows a DIN connector, but this was not present on the machine that was sent for review. I feel this is an unfortunate omission, since this type of connection, present on most European equipment, and much equipment made elsewhere, is very convenient to use.

Circuit

The circuit is relatively simple, consisting of two identical record/playback amplifiers mounted on one printed board, an oscillator for bias and erase on a second board, a power supply board, a relay board, and a printed circuit function switch. On record, the microphone is applied directly to the input of the amplifier, the line input being fed to the same input via an attenuator which

Manufacturers Specifications

Tape Speed:	Play — 3-3/4 ips 50 Hz to 15 Hz
Wow and Flutter	Less than .35% RMS
Frequency Response	50 to 15KHz
Record-Playback Level	0 VU (+4dbs \pm 1.5db @ 1 Hz)
Distortion	Less than 4% @ 1 Hz, 0 VU
Signal To Noise Ratio	Better than 44db
Cross-Talk Ratio	Better than 40db (between channels)
Erase Ratio	Better than -55db (1 Hz +3 VU)
Bias Frequency	65 Hz \pm 5%
Microphone Input Impedance	4.7K
Microphone Input Sensitivity	Better than 0.5mV
Line Input Sensitivity	Better than 50mV
Line Output	0 VU (1.23V) \pm 1db (250 Hz) (250Hz)
Power Consumption	808D — 25 Watts (Stop) — 55 Watts (F. Fwd.)

is switched out of circuit by the microphone plug. The first two stages are discrete transistors, and a feedback loop round these provides record equalisation. The signal then passes via the record level control to an integrated circuit amplifier, and thence to the record output stage, which also provides some high frequency equalisation. The signal then passes via a bias trap to the record head. The output from the IC is also fed to the VU meter circuit, and to the headphone jack via an output transformer.

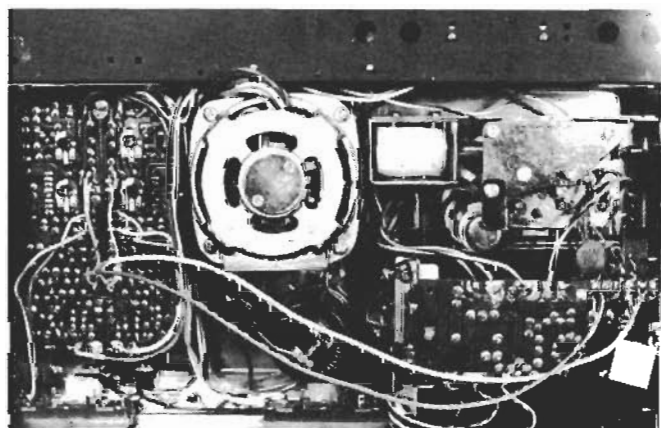
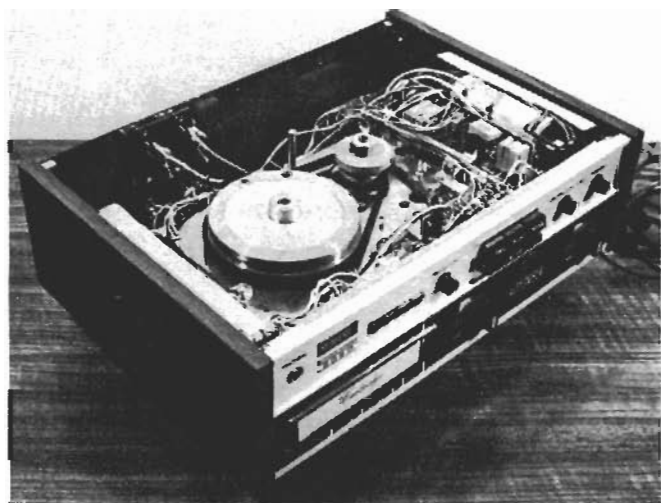
On playback, the tape head is fed to the same input amplifiers, and the record/play switching converts the equalisation to the playback mode. The IC now acts as an output amplifier, feeding the signal to the line out socket. The meter amplifier and the headphone output transformer are also fed from this stage, as before. The erase and bias oscillator is a push pull type for low harmonic content, and is built around two discrete transistors. No adjustment for bias level is provided, except for the possibility of changing the feed resistors to the record heads. The oscillator printed board also contains the transistor which operates the track changing solenoid on receipt of the end of track signal from the tape.

The mode of operation of the motor start relay is interesting. On switching on the power to the machine, but with the tape stationary, this relay pulls up. In this position the motor is switched off. When the tape is set in motion by any of the transport buttons, the base voltage is removed from the transistor controlling the relay, and the relay falls out, starting the motor. The motor continues

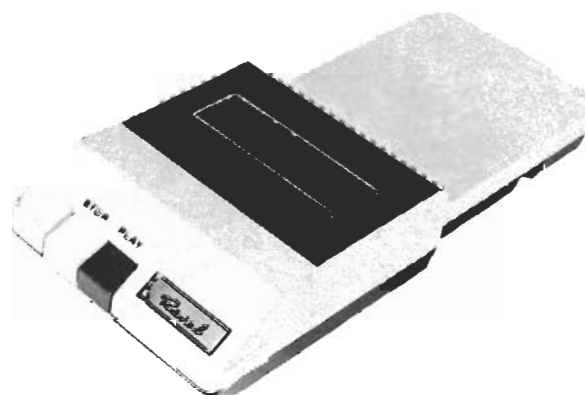
to run through all four tracks, but at the commencement of the fourth track, collector voltage is applied to the two switching transistors on the relay board. At the end of track four, the track signal moves the track selector back to track one, and also, via the transistor switch, applies voltage to the transistor controlling the motor relay, causing it to pull up, and thus stop the motor. The continuous play button prevents this happening by depriving the switching transistors of their collector voltage in the track four position, allowing the motor relay to remain in the motor on position. (The 8-track format and an example of a track changing mechanism is shown in the article on page 30).

The internal construction of the machine is good and workmanlike, and the top, bottom, and sides are easily removable for servicing purposes. The service manual is comprehensive, giving full details of all the tests necessary to ensure proper operation of the unit.

No laboratory tests are made for a *Techni-Guide* report, but the machine performed all its functions well, and appeared to be reliable in every way. Price, \$239.95. ☒

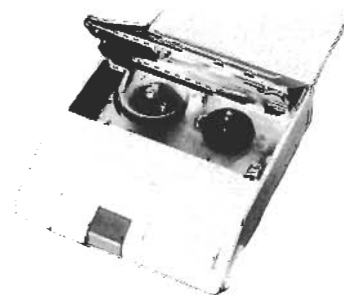


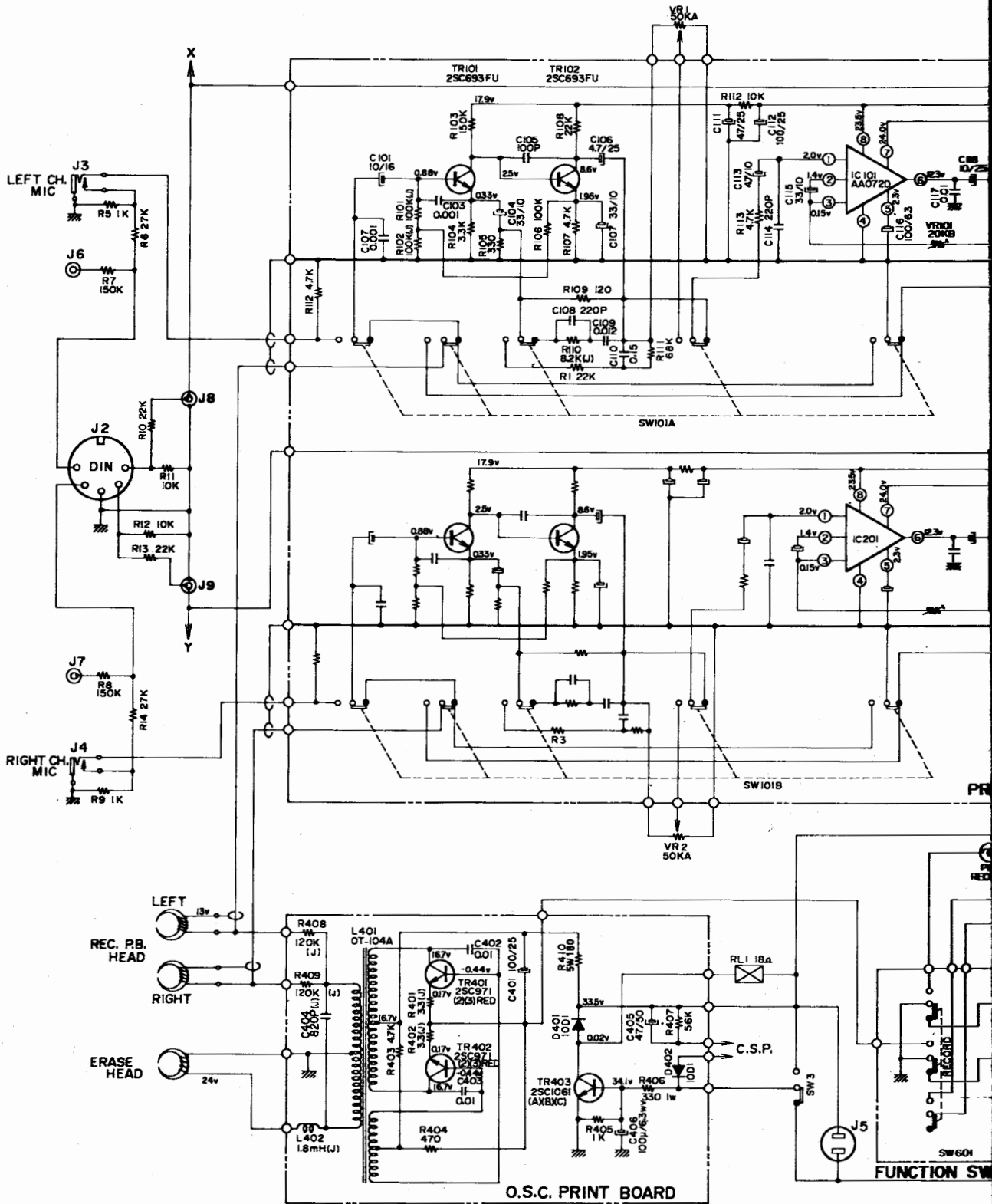
CASSETTE TO 8-TRACK ADAPTER



When there are two systems going in anything, there's always room for an adapter. This Japanese unit tackles the problem of playing cassettes on an eight track machine. It does it by playing the cassette and feeding the output to a magnetic head that mates with the playback head in the eight track machine.

The motor in the adapter is either 12 V DC or 115V AC depending on what kind of 8-track machine it is to be used with. Power for the motor is picked up from the host unit. Six transistors and six diodes are used in the electronics feeding the head. Wow and flutter of the cassette transport is claimed as 0.5% or less, a slightly higher figure than claimed for a standard 8-track player, such as the one reviewed on this page. Price \$39.95, distributed in Canada by S. H. Parker Ltd., 67 Lesmill Road, Don Mills, Ont.





ROBERTS MODEL 808D 8-TRACK RECORDER

