

B.R.C.

Model TA 27

General Description: A pre-amplifier designed to operate in conjunction with a four-track mono tape recorder incorporating the B.R.C. tape deck. The tape recorder is fitted with a six-pin accessory (A.C.C.) socket which feeds signals and operating power to the pre-amplifier to provide the following facilities:

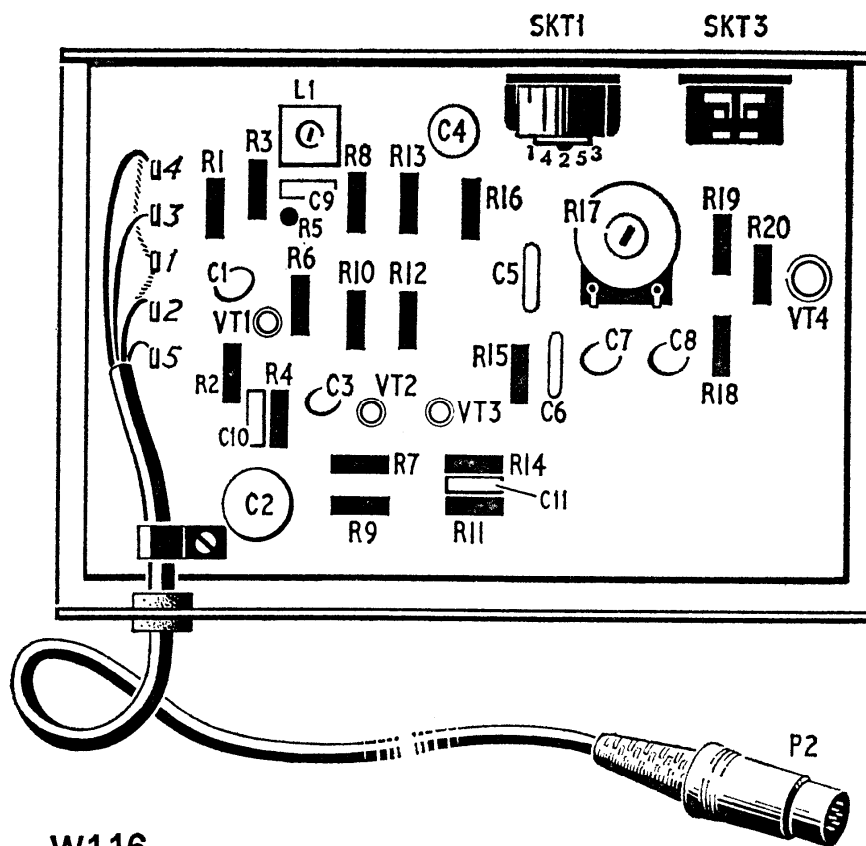
(1) Stereo pre-amplification, equalised at $3\frac{3}{4}$ i.p.s., for playing back the second channel of pre-recorded stereo tapes through a mono record player, radiogram or high-quality amplifier.

(2) Playing back both channels of stereo tapes through a stereophonic record player, stereo radiogram or a high-quality stereo amplifier. The separate lead supplied with the TA27 is ready-fitted with connectors at each end to fit the five-pin socket of the pre-amplifier and the five-pin socket of the tape recorder.

(3) Second-track monitoring (using the earphone) to enable two separate recordings to be synchronised for simultaneous playback.

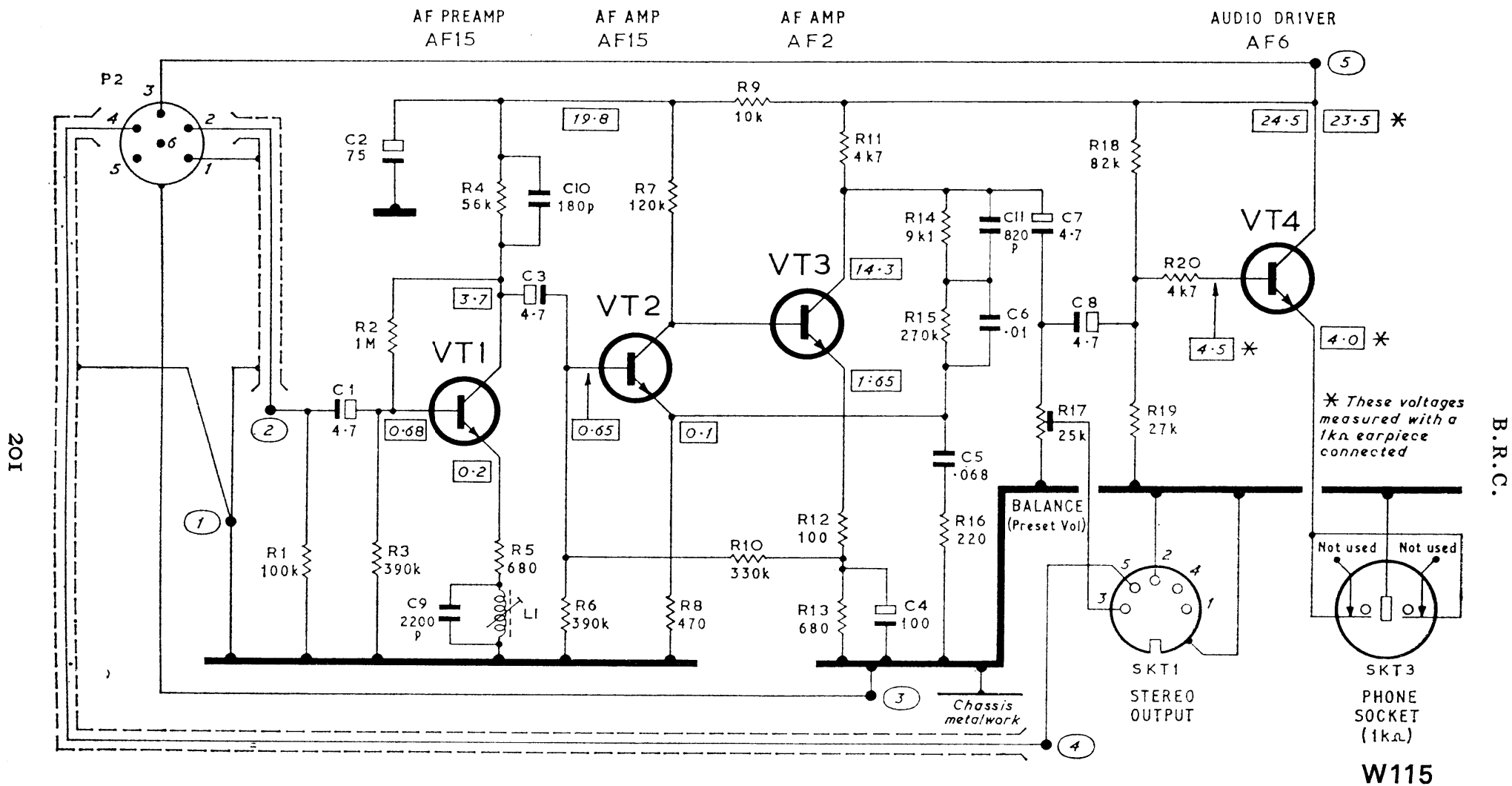
Circuit Notes

Second Channel Tape Playback: The Preamplifier is used with a B.R.C. four-track tape recorder with P2 connected to the six-pin A.C.C. socket. The signal from the "unselected" head winding of the tape recorder, appearing at pin 2 of the A.C.C. socket, is amplified by the TA27 to provide either earphone



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(W116) COMPONENT LAYOUT—MODEL TA27



(W115) CIRCUIT DIAGRAM—MODEL TA27

TAPE RECORDER SERVICING

monitoring or an equalised output for feeding into a power amplifier to reproduce the second channel of stereo pre-recorded tapes.

The signal at pin 2 of P₂ is connected to VT₁ base via C₁. The amplified output from VT₁ is coupled to the base of VT₂ via C₃. Bias trap L₁-C₉ provides negative feedback to suppress any bias breaking through from the "selected" head circuit of the recorder. VT₂ and VT₃ operate as directly coupled amplifiers with equalisation for tape replay provided by network R₁₄, R₁₅ and C₆, C₁₁, C₅ and R₁₆. The output from VT₃ collector is taken to the Stereo output socket (SKT₁) pin 3 via C₇ and the present volume control R₁₇.

To facilitate direct connection to a stereo amplifier, the output from the tape recorder available at pin 4 of P₂ is also taken to SKT₁, pin 5.

Bias Trap Adjustment (L₁): Record a tone (300 Hz–1 kHz), or music of fairly constant programme level, on one track of the associated recorder. Plug in TA₂₇ and, with the other track of the recorder switched to the Record mode, adjust L₁ for maximum output of programme signal from the earphone socket (SKT₃).

Access for Service: Take out screw from underside and slide off moulded cover. To remove printed board for access to copper side, lever off plastic feet from underside of chassis and disconnect earthing lead on solder tag riveted to chassis. Raise board into a convenient position whilst feeding plug lead through grommet.

Alternative Transistors: VT₃–BC101, VT₄–BC107

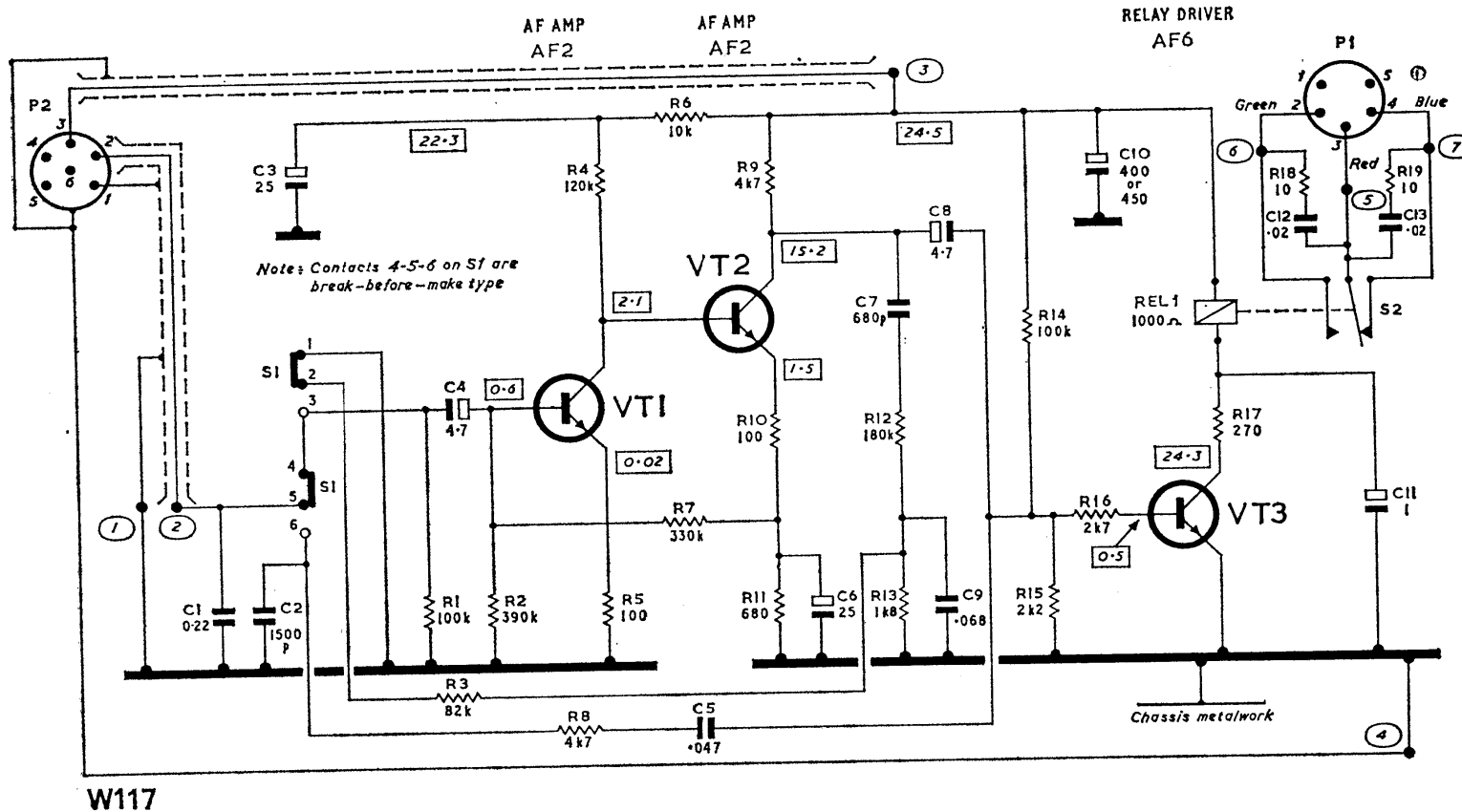
Circuit Diagram Notes: Figures in rectangles are D.C. voltage readings taken under "no signal" conditions with a 20000 Ω/volt meter. They were taken relative to negative chassis line and are based on the 24 V (nominal) supply derived from the tape recorder via pin 3 of the accessory socket. This voltage should be checked initially and allowance made for tolerance variations of up to 10 per cent. Ringed figures indicate printed board tag connections.

B.R.C.

Model TA 28

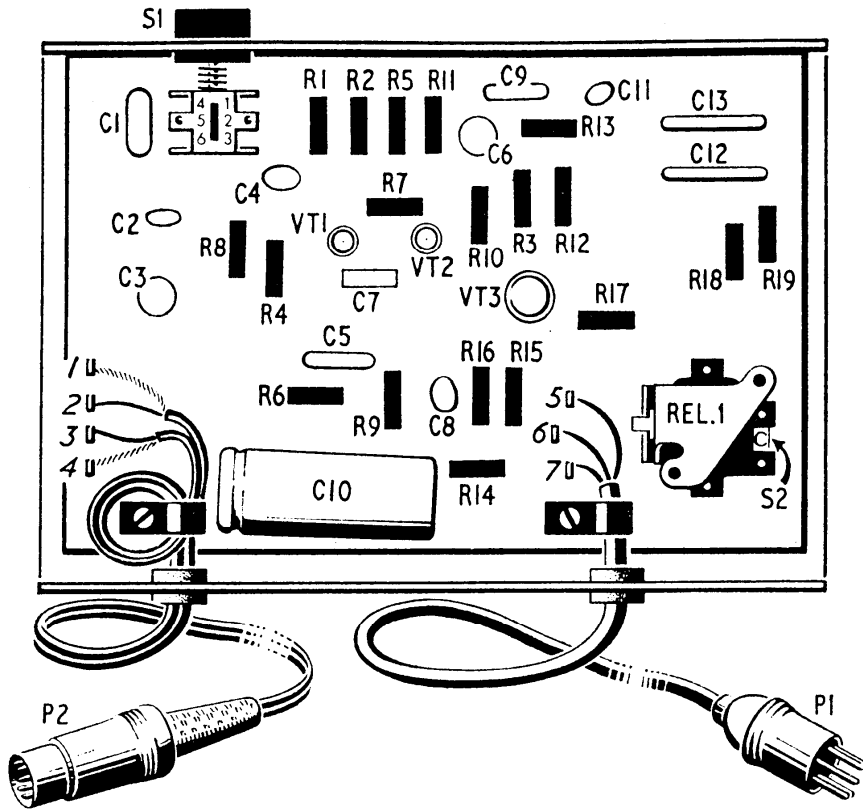
General Description: A slide synchronising device for use with B.R.C. four-track tape recorders. Power supplies are derived from the machine to which it is connected.

Operation: Plug P₂ is connected to the six-pin A.C.C. socket of a B.R.C. four-track tape recorder. Plug P₁ is plugged into the remote control socket of an automatic slide projector.



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(W117) CIRCUIT DIAGRAM—MODEL TA28



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(W118) COMPONENT LAYOUT—MODEL TA28

Circuit Notes

Record: VT₁ and VT₂ operate as an 800Hz audio oscillator with feedback from VT₂ output to VT₁ input via C₇, R₁₂, R₃, S₁ contacts 2 and 3 and C₄.

When the Sync Pulse button is depressed, the oscillator output appearing at the junction of C₈, R₁₄, R₁₅, R₁₆ is applied through C₅, R₈, S₁ contacts 5 and 6 and pin 2 of P₂ to the unselected head of the tape recorder, forming the recorded synchronising pulse.

The oscillator output is also fed through R₁₆ to the base of relay driver VT₃. This drives VT₃ on, energising the relay and initiating slide change. C₁₁ filters the signal ripple current to prevent chattering of the relay.

Playback: The synchronising pulses recorded on the unselected track of the tape are applied via pin 2 of P₂ to the audio amplifier VT₁/VT₂. The output from the amplifier is fed to the base of VT₃, the relay driver, via C₈ and R₁₆. This pulse triggers the relay, initiating slide change.

Access for Service: Remove cover, earthing lead and plastic feet as previously described for TA₂₇. To remove printed board for access to copper side, depress push-button whilst at the same time carefully springing the front chassis wall outward and raising the front edge of the printed board to release it. Hinge over the printed board and feed the leads through grommets.

Alternative Transistor Types: VT₁—BC109, VT₂—BC101, VT₃—BC107.