
MARCONIPHONE

Model 4248

General Description: A two-speed four-track mains operated tape recorder employing the B.R.C. DF422 Tape Deck which is fully detailed in the 1970-71 volume. Maximum spool diameter is 7 in. and Long Play or Double Play tape is recommended.

Power Supplies and Fuses: The instrument operates from A.C. mains 230V-250V and is fitted with a two-core mains lead; Brown—Live, Blue—Neutral.

Two fuses are fitted: F1, 500mA, surge proof, in the mains input; F2, 1.25A, surge proof, in the rectifier feed circuit. Power consumption is approximately 40 watts.

Access to Tape Heads: Access to tape heads and capstan drive, for cleaning, etc., is obtained by removal of the triangular clip-on cover—pull forward and lift to release. Recommended cleaning fluid is methylated spirits.

Dismantling for Service

Models 3248 and 4248: With lid in position place recorder upside down on protective surface and free four screws (accessible through deep holes in corners of base moulding), also one screw situated in the centre of the bottom front edge.

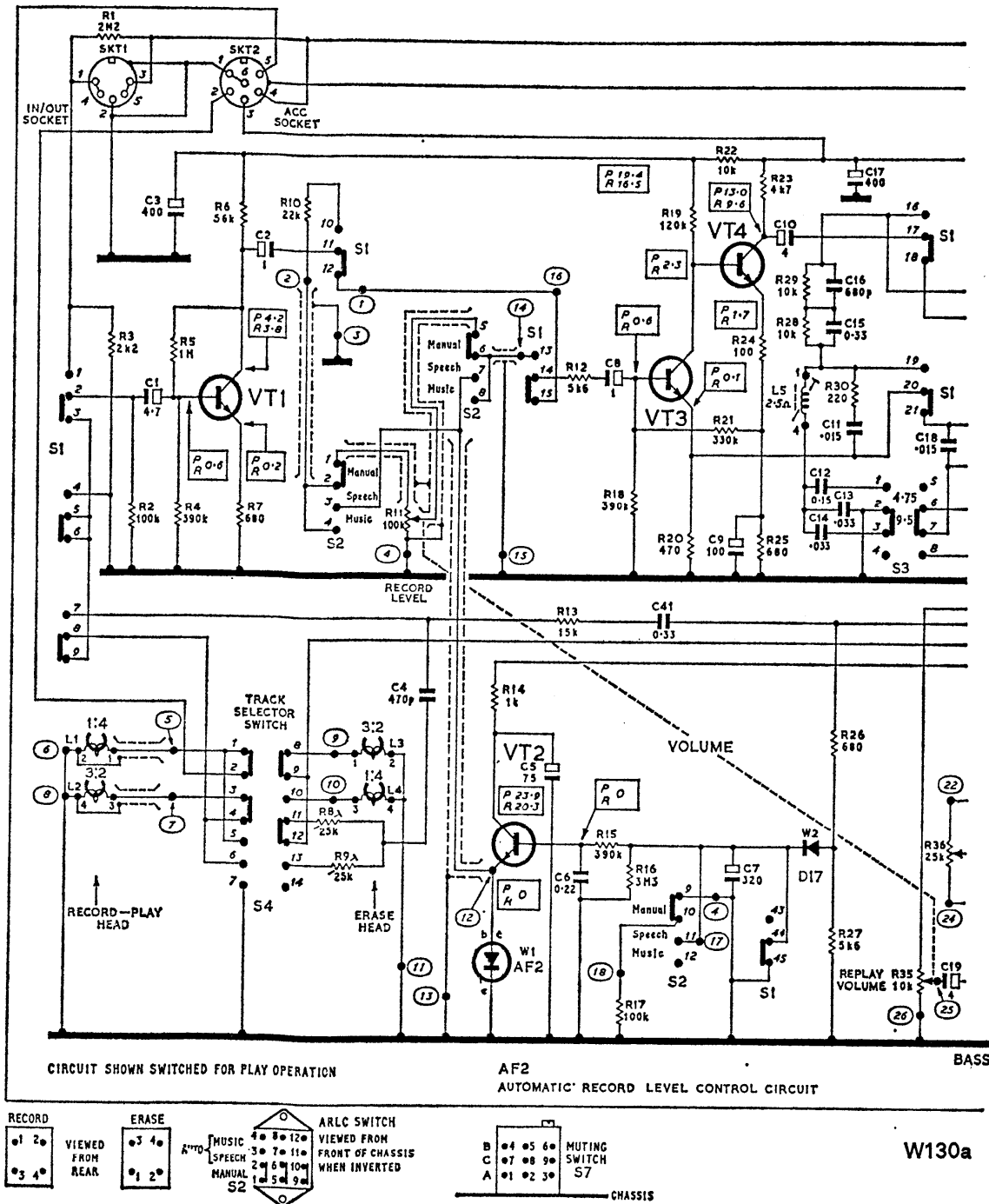
Turn recorder right-way up, gripping top and bottom, and the freed screws and washers will drop out. Remove lid, release tape reels, pull off control knobs and lift off top cover. Lift off wooden surround.

This provides access to fuses, motor connections and parts of the printed board with the tape recorder fully operational for servicing. For complete access, the recorder may be lifted off its base after removing four spacer-rings

TAPE RECORDER SERVICING

AF PRE-AMP
AF15

AF AMP
AF15 AF AMP
AF15 AF2

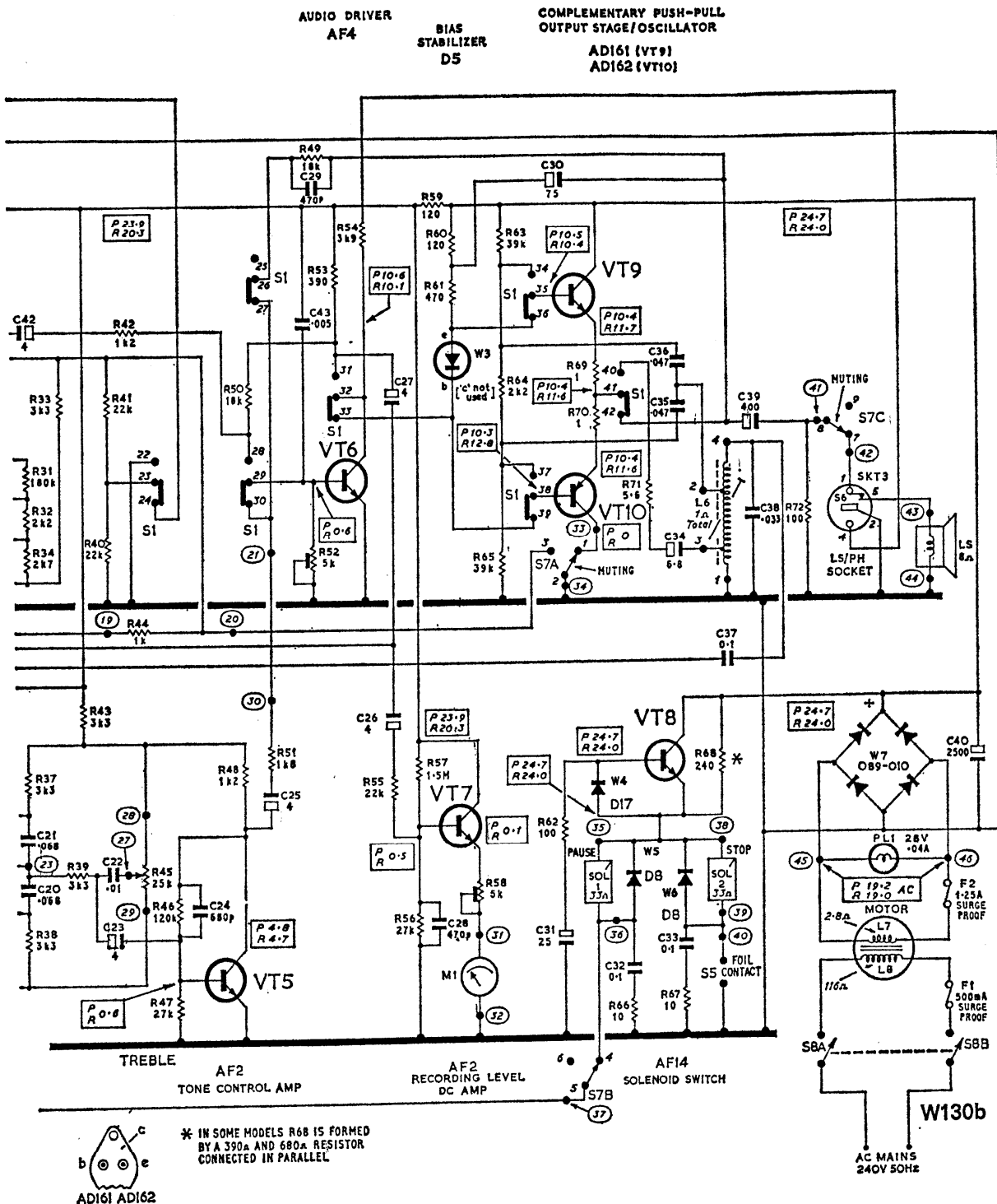


(W130a) CIRCUIT DIAGRAM—MODEL 4248 (Part)

Circuit Diagram Notes: Figures in rectangles are D.C. voltages. They were taken on a mains input of 240V A.C. using a 20,000Ω/volt meter. The meter was set to the 25 V range and measurements were made relative to chassis. Oscillator voltages were taken with a valve voltmeter.

Figures in ellipses are soldered connection points on copper side of printed board. With the exception of the magnetic head windings, D.C. resistances are given for coils where these are 1Ω or greater.

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(W130b) CIRCUIT DIAGRAM—MODEL 4248 (Continued)

The following differences from the circuit diagram may be found in some recorders: R8 and R9—50kΩ; S7C—not fitted.

Except for the output transistors (AD161, AD162) the numbers given in the circuit diagram for transistors and diodes are BRC classification numbers. Output Transistors, AD161-AD162. For best performance, high gain transistors coded A or B should be used for service replacements.

Note.—In Model 3249 the input/output sockets (SKT1, SKT2 and SKT3) are connected via plugs and extension leads (not shown) to duplicate sockets fixed to the cabinet.

from the corner location bushes. If necessary, the loudspeaker may be unplugged.

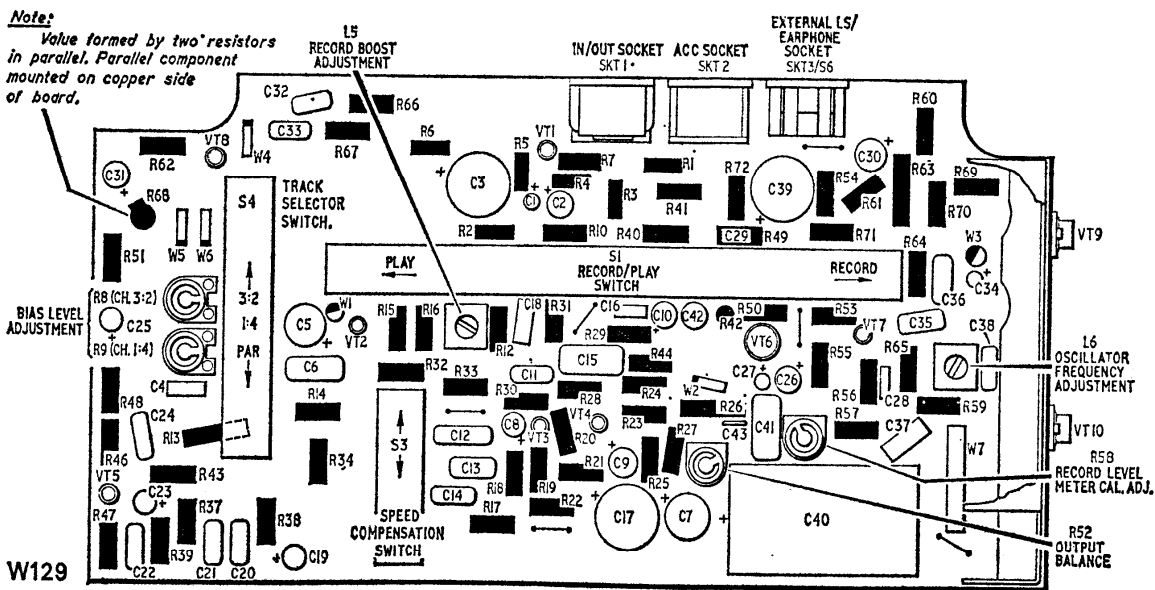
Model 3249: Lift off top cover and pull off control knobs, then place cabinet on to one of its sides. Take off bottom cover (four screws). Release loudspeaker leads from dressing lugs and free mains lead cleat from chassis. Pull out plugs from socket panel on printed board and take out four screws and washers securing chassis to cabinet. Return cabinet to its correct position and carefully lift out chassis—taking care not to lose stand-off bushes and washers.

Note: A slightly longer deck spacing bush is fitted in the position nearest the speed change operating lever—ensure that this bush is returned to this position when refitting the chassis into the cabinet.

Access to Printed Board: Most meter checks and adjustments can be made with the printed board in position. Holes are provided in the board for access to the variable resistors. The printed board screening plate can be removed by taking out two screws and stand-off pillars to expose screened lead connections. The two screws are also part of the fixing for the printed board in conjunction with a long 4BA screw situated at the output transistor end of the board.

After the removal of screws, disengage socket panel assembly from chassis; the board can now be lifted off and inverted within the limits of the interconnecting leads for access to the component side.

In the event of a complete board change, unsolder all external soldered connections on the copper side of the board; when the replacement board is in position ensure correct location of the interconnecting leads.



(W129) COMPONENT LAYOUT—MODEL 4248

Pre-set Adjustments: These will not normally require attention except when the pre-set component itself or one of the associated components is replaced:

Replacement of C₁₂, C₁₃ or C₁₄ will necessitate adjustment of L₅; R₈ and R₉ will need readjustment if C₄ or Record/Play head is replaced; R₅₈ will need to be reset if transistor VT₇, record level meter (M₁), or R₅₅, R₅₆ or R₅₇ is replaced.

The tuning of oscillator coil L₆ (55 kHz) should be checked and, if necessary, retuned if a replacement erase head is fitted, or if C₃₈ has been replaced.

Record Equalisation (L₅): Depress "Record" key and inject 150 mV, 15 kHz signal from an audio oscillator into SKT₁ (pins 3 and 2) and adjust core of L₅ for maximum output indication on Record Level Meter.

Record Level Meter Calibration (R₅₈): Connect an A.C. electronic voltmeter between "phone" pin (tag 4) and chassis (tag 2) of SKT₃. Inject a 1 kHz signal from an audio oscillator into SKT₁. Depress "Record" key and adjust signal input level to obtain a reading of 1.2 V r.m.s. on meter. This represents peak recording level, and pre-set resistor R₅₈ should be adjusted so that the Record Level Meter registers at the junction of the red and black sections of the scale.

Bias Level (R₈, R₉): Connect an A.C. electronic voltmeter with low input capacity (i.e. using shortest practical leads) across track 1 tags of Record/Play head. Set track selector switch to tracks 1:4, depress "Record" and "Play" keys. Resistor R₈ should then be set initially to give a reading of 14 V r.m.s. across the head.

At a level 20 dB below peak recording level, make a frequency response recording, then switch to "Play" and check that the frequency response falls within the following limits relative to level at 1 kHz: 8 kHz: +10 -3 dB; 14 kHz: +10 -6 dB.

If the result is not within these limits, R₈ must be readjusted. If the response is too high, readjust R₈ to increase bias: if too low, readjust to reduce bias. If, in order to obtain a frequency response level within stated limits, it is necessary to adjust the bias voltage to a value outside the limits 10 V-18 V, it must be assumed that either the Record/Play head is faulty or that a fault exists which affects the normal frequency response of the record amplifier—such as misalignment of L₅. In any case, the fault must be corrected before attempting to readjust R₈.

Repeat procedure using tracks 3:2 and R₉.

Replacement Transistors: VT₂, VT₄, VT₅ and VT₇—BC109. VT₆—BFY52.