Fit keyboard to case with screws loose. Fit cover and ensure
sufficient clearance around keys. Adjust as necessary. Remove
cover and tighten threaded spacers to support bars in correct
position. Remove keyboard by removing the top screws from the
threaded spacers. The keyboard should now be easy to refit.
Place keyboard in safe place.

POWER BOARD

1.   Solder capacitors onto P.C.B. ensuring correct polarity.

2.   Solder on resistors and plug pins.

3.   Solder on diodes.

4.   Bolt regulators to P.C.B. ensuring that the heat sinks are
      sandwiched between P.C.B. and regulators. Add a smear of
      silicone grease or heat sink compound between regulator
      and heat shunt. Solder power transistor flying leads to
      board.

PARTS LIST

POWER SUPPLY

Resistors (all ¼w, 5%)

|	
R1, 2	10R
R3	100R
R4	4R7

Capacitors

C1, 7, 11, 15	100n polyester
C2-4	4700u 16v axial electrolytic
C16, 17	4700u 25v axial electrolytic
C8, 12	2200u 25v axial electrolytic
C5, 6, 9, 10, 13, 14, 18, 19	1n 35v tantalum

Semiconductors

IC1	7805
IC2, 4	7812
IC3	7912
Q1, 2	TIP2955
D1-4, 9, 10	1N5402
D5-8	1N4002
ZD1	BCW70 5v6

Miscellaneous

PCB; one off three way connector; two off five way connectors;
transformer (13.5-0-13.5 at 3A, 9V at 4A); fuse holder clips;
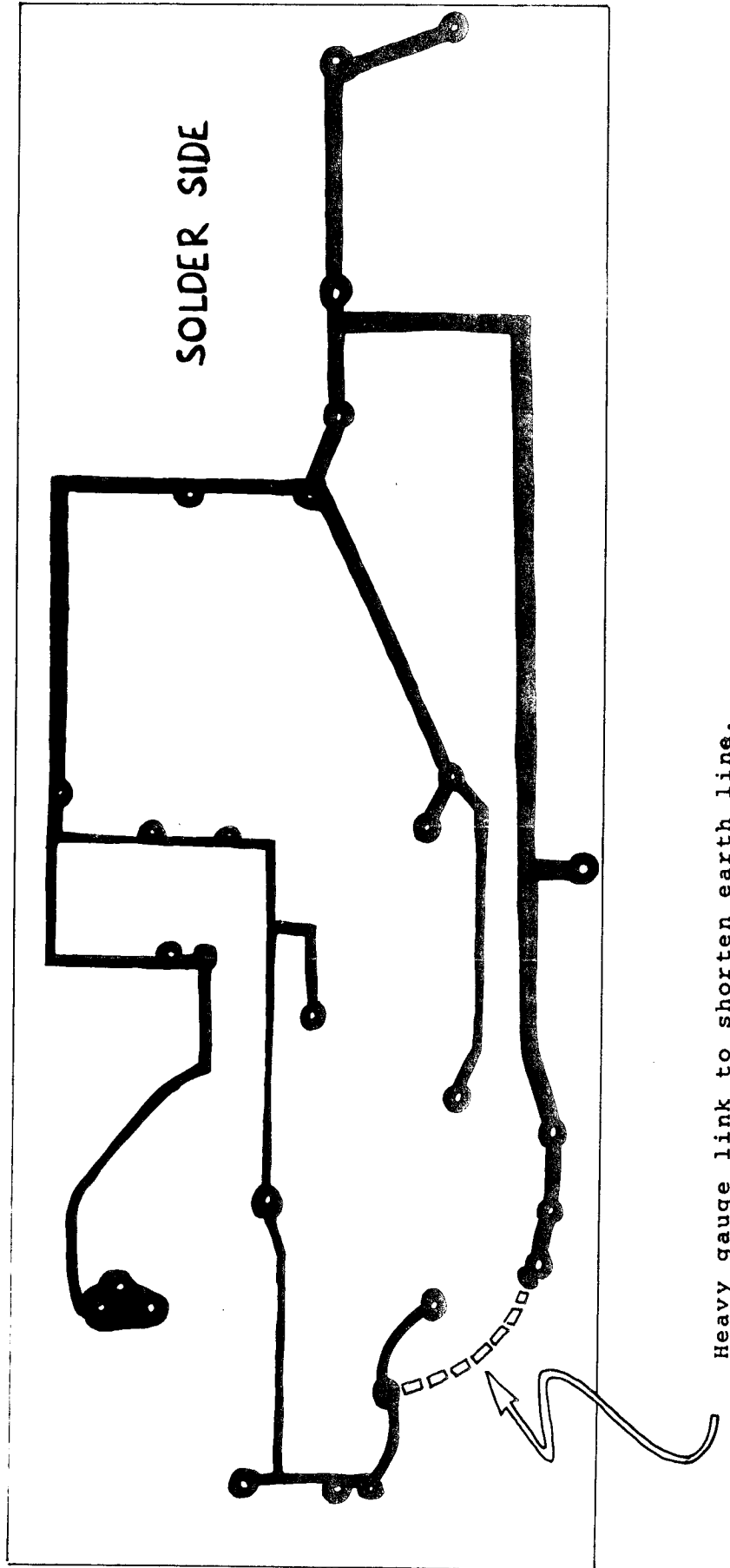four off TV5 heatsinks.

POWER SUPPLY BOARD

CHASSIS MOUNTED
TIP 2955
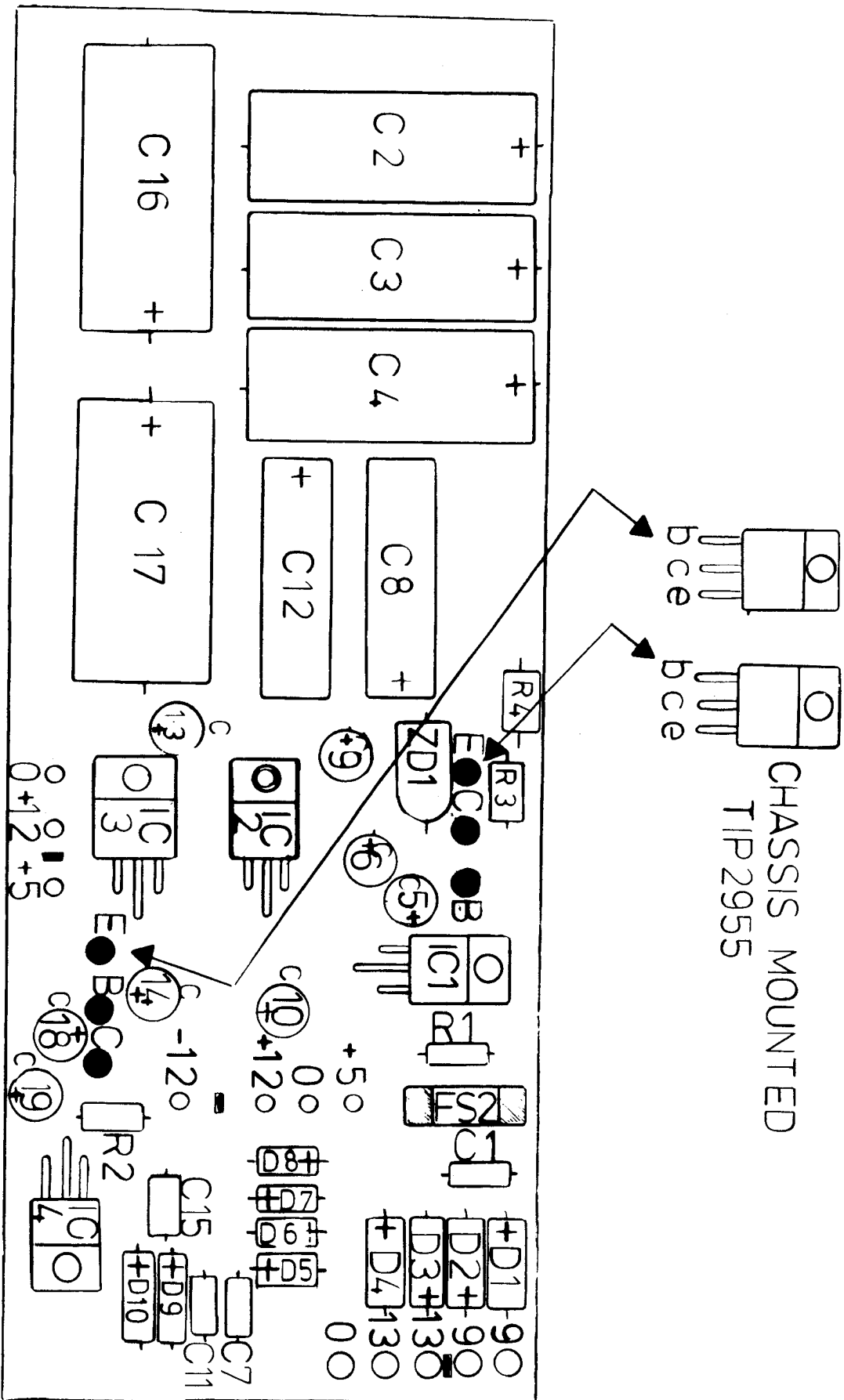
CORTEX II POWER SUPPLY BOARD

The tracks shown should be liberally tinned to reduce earth line voltage drop.

This ripple reduction eliminates bars on TV or monitor.

SOLDER SIDE

Heavy gauge link to shorten earth line.

CASE

Fit Power Board P.C.B. to case using six 3 x 16mm screws. These screws should be pushed up through the bottom of the case and attached with <u>two</u> 3mm nuts, to give P.C.B. sufficient clearance. Place P.C.B. over screws and attach with 3mm nuts and serrated washers. Main board is similar but screws are reversed.

Fit transformer. Cut down and solder onto 5 way plug the heavy transformer cables, as shown. Fit switch fuse holder and T.V. socket to cover. Ensure that the earthing tage is fitted under the T.V. socket mounting screw and that the paint is scraped away; to ensure good case earth. Wire up mains supply through the switch and fuse to Power Board as shown in diagram. Mains wire to Power Board should be approximately 400mm long.

Bolt Power transistor to case ensuring that the mica washer and plastic bushes are used. Silicone grease or heat sink compound should be used on all contacting faces of power transistors and regulators.

Solder on T.V. cable to T.V. socket.

Fit 4 red L.E.Ds and the two push buttons (P/Bs).

Solder the long leads of each L.E.D. together keeping the lead as short as possible. Solder one side of each P/B together. Solder the eight differently coloured wires to the L.E.Ds and P/Bs as shown on diagram:-

P/Bs	Left	Reset button	Blue
"	Centre	Warm start button	Green
"	Right	Both buttons	Black
IAQ		RUN LED (short lead)	White
MAP		**MAP** LED " "	Orange
TIME		**TIME** LED " "	Pink
IDLE		IDLE LED " "	Yellow
+5V		ALL LEDs(Long leads)	Red

Gather up wires and using a nylon tie and adhesive holder attach the loom to the underside to the cover about 50mm from the L.E.Ds. Twist the loom slightly and add a nylon tie every 75mm. For the last 120mm split the loom into P/Bs and L.E.Ds and slide over sheathly. Solder or crimp the 0.1" shell connectors onto the end of each lead. Press into the shells until connectors click home.

Wire the other 5 way Power Board connector using the 350mm wires as shown. Twist these wires together and solder onto 4 way connectors in this order:-

+12V	Orange
+5V	Red
0V	Black
-12V	Blue

Plug these leads onto Power Board. Solder the two 225mm orange leads to the loud speaker. Twist wires together and solder 0.1 connector onto to end. Push connector into 3 way shell using the outer two slots. Using the double-sided adhesive pads (3) stick the loudspeaker down to the case next to the transformer.

POWER SUPPLY BOARD

RUN

RED
YELLOW
PINK
ORANGE
WHITE

W
Y
O
R
P

B
Bk
G

P/Bs

BLUE
GREEN
BLACK

C8
C12
C17

ZD1
R4
R3
IC3
IC2
IC1
R1
FS2
R2
IC4

+0 +12 +5

-12

+5 0 0
+12 0

0
+12
+5

+9

-12

+9

ZD1
E C B
R4 R3

E B C

IC1
R1
FS2

IC4
R2

C15
D8
D7
D6
D5

D9
D10
C11
C7

D4
D3
D2
D1
13
9
9
9

0

GREEN/YELLOW

GREEN + GRAY

VIOLET

BLUE

RED

YELLOW

T.V.

G/Y

BROWN

BLUE

GREEN /YELLOW

SWITCH

BROWN

BLUE

FUSE

MAINS IN

SHEATH

ORANGE

TRANSFORMER

Cortex II - page 31

MAIN BOARD

Before starting ensure that you have a reasonably large, clean and well lit working area. Work slowly and methodically. A mistake at this pint can be very time consuming to rectify.

1. Refering to the magazine article note the I.Cs used in the basic computer they are marked with a B. Solder on all these I.C. holders ensuring that all the end cutouts are to the right hand side. Do not over solder.

2. On the under side of the board on I.C. 70:-
    A) Link pins 3 and 16 using insulated wire.
    B) Solder 1nf ceramic capacitor acress pins 1 and2, keeping leads as short as possible. Press capacitor flat against board. (C31).

3. Solder on all resistors. Solder C32 in parallel with R77.

4. Wire in links 1 - 4 using insulated wire.

5. Solder on crystals (XTAL 1 - 12MHz, XTAL 2 - 10.7MHz)
    Push the body flat against the board and wire into place.

6. Solder on modulator.

7. Solder on cassette port.

8. Solder on 4 way power connector.

9. Solder on 5 way LED connector and 3 way P/B connector.

10. Using the remaining 3 way connector clip out the short centre tag. Solder into the Piezo hole connector.

11. Solder on inductors (L1 = 4uH7, L2 = 22uH, L3 = 33uH)

12. Solder on capacitors. (Suggest make disc capacitor the last item to be soldered as they are easily bent over).

13. Solder on diodes. Broad yellow band is cathode.

14. **Solder on transistors**

15. **Fill each through plated hole (hole connecting only tracks on each side of board) on wide (power) tracks, with solder.**

16. **Examine board carefully to ensure that there are no components missing and that there are no solder errors.**

17. **Do NOT put I.Cs in.**

18. Place seven, M3 screws through the board, place two nuts on the underside to act as spacers from the chassis. The board is attached to the chassis by placing the seven screws through the slots and securing with a third nut and washer.