

# Replacement Components

## From SinclairFAQ

Many components used in the Sinclair hardware, peripherals, etc. are no longer manufactured. However for most of these components there are modern alternatives. Much research was conducted by DEATH and others on the World of Spectrum forums (<http://www.worldofspectrum.org/forums/showthread.php?t=14018>)

### Contents

- 1 Transistors
  - 1.1 ZX Spectrum 48k
  - 1.2 Spectrum +3
- 2 Integrated Circuits
  - 2.1 RAM
  - 2.2 Logic
  - 2.3 CPU
- 3 Suppliers

## Transistors

### ZX Spectrum 48k

- *This table may be unclear or confusing because it lacks a key.*

Component	Replacement	Issue						
		1	2	3	3B	4	5	6A
TR1 & TR2  ZTX313	BC172	?	?	?	?	?	?	?
	BC183	?	?	?	?	?	?	?
	BC238	?	?	?	?	?	?	?
	BC383	?	?	?	?	?	?	?
	BC547		Y	Y	Y	Y	Y	Y
	BC548		Y	Y	Y	Y	Y	Y
	BC549		Y	Y	Y	Y	Y	Y
	MPS 2369				Y			
	ZTX312				Y			
TR3 & TR6	BC172	?	?	?	?	?	?	?

ZTX313	BC183	?	?	?	?	?	?	?
	BC238	?	?	?	?	?	?	?
	BC383	?	?	?	?	?	?	?
	MPS 2369				Y			
	ZTX312				Y			
TR4 ZTX650	BC487	?	?	?	?	?	?	?
	BC489	?	?	?	?	?	?	?
	BC537	?	?	?	?	?	?	?
	BC538	?	?	?	?	?	?	?
	BC737	?	?	?	?	?	?	?
	ZTX651		Y	Y	Y	Y	Y	Y
	TIPP31				Y	Y	?	?
TR5 ZTX213	BC251	?	?	?	?	?	?	?
	BC307	?	?	?	?	?	?	?
	BC512	?	?	?	?	?	?	?
	BC557	?	?	?	?	?	?	?
	ZTX750		Y	Y	Y	Y	Y	Y
TR7 ZTX450	ZTX650			Y	Y	Y	Y	Y
	ZTX651			Y	Y	Y	Y	Y
TR8 & TR9 BC184	BC384			?	?	?	?	?
	BC413			?	?	?	?	?
	BC550			?	?	?	?	?
	BC549							Y

## Spectrum +3

The transistors in the +3 PSU are H1061s. Possible alternatives include the BD243C and TIP41C

## Integrated Circuits

### RAM

MM5920N (national Semiconductors) chips are equivalent to 4116 RAM chips AM9016EDC (AMD) chips are the same as 4116 chips. IMS2600P-12 (Inmos) chips work in any upper RAM position (IC15-22) 41256

chips work in place of 4164 upper RAM chips V53C256P80L chips work in any upper RAM position (IC15-22) MN41257-12 chips work in any upper RAM position (IC15-22)

## Logic

74LSxx series chips can be replaced with 74HCTxx series chips

## CPU

Various makes of Z80 processor are used on Spectrums. Zilog Z80 CPU NEC D780C

## Suppliers

Companies who supply suitable components

- Cricklewood Electronics (<http://www.cricklewoodelectronics.com/Cricklewood/home.php>) specialise in hard to find/obsolete components.
- Rapid Electronics (<http://www.rapidonline.com/>)
- Farnell (<http://uk.farnell.com/>) Large supplier with a huge product range.

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