

TELEVISION TECHNICAL BULLETIN

MODELS 51AT15H

SYMPTOM Vertical stage problems

ACTION Listed below are a few fault conditions and their suggested remedies

Fault	Counter measure
Output transistors running hot	R508 high or open circuit
No front button operation	D506 leaky
Will not come out of standby	R508 open circuit
Top of frame distorted	C501 and/or C514
Too much height	Change R520 to 68k Ω (was 56k Ω) or R508
Fold over at the top of the frame	Scanning coils (should read 9.9 Ω)
Cramping (top or bottom)	D709, C713 and check all semiconductors in vertical stage
Loss of picture (may be intermittent)	D504 and/or C502 leaky

Notes

1. When replacing semiconductors in the vertical output stage, it is strongly recommended that all parts are purchased from the Sharp Spare Parts Center or Willow Vale Electronics using the part numbers in the service manual (reproduced on page two).
2. C713 must be replaced with a high temperature type (use the part number given on page two).
3. Always check the +5Vb line fed into the bias network of Q507. If Q708 (+5Vb regulator/switch) goes leaky it may cause intermittent operation problems, but the fault symptom appears to be the vertical stage.
4. If the vertical pulse to the microprocessor is missing or distorted (pin 46 of IC1001), then the key scan will not work.
5. Q509 must be the correct device.
6. When R508 is open circuit, both vertical output transistors turn on, thus overloading the power supply. This can cause the power supply to buzz.
7. Q503 (BC828) may be a BD830 supplied as an alternative under part number RH-TX0204BMZZ.
8. Q509 (BC635) may be supplied under an alternative part number – RH-TX0118BMZZ. This is an identical device.

Sharp Electronics (UK) Limited

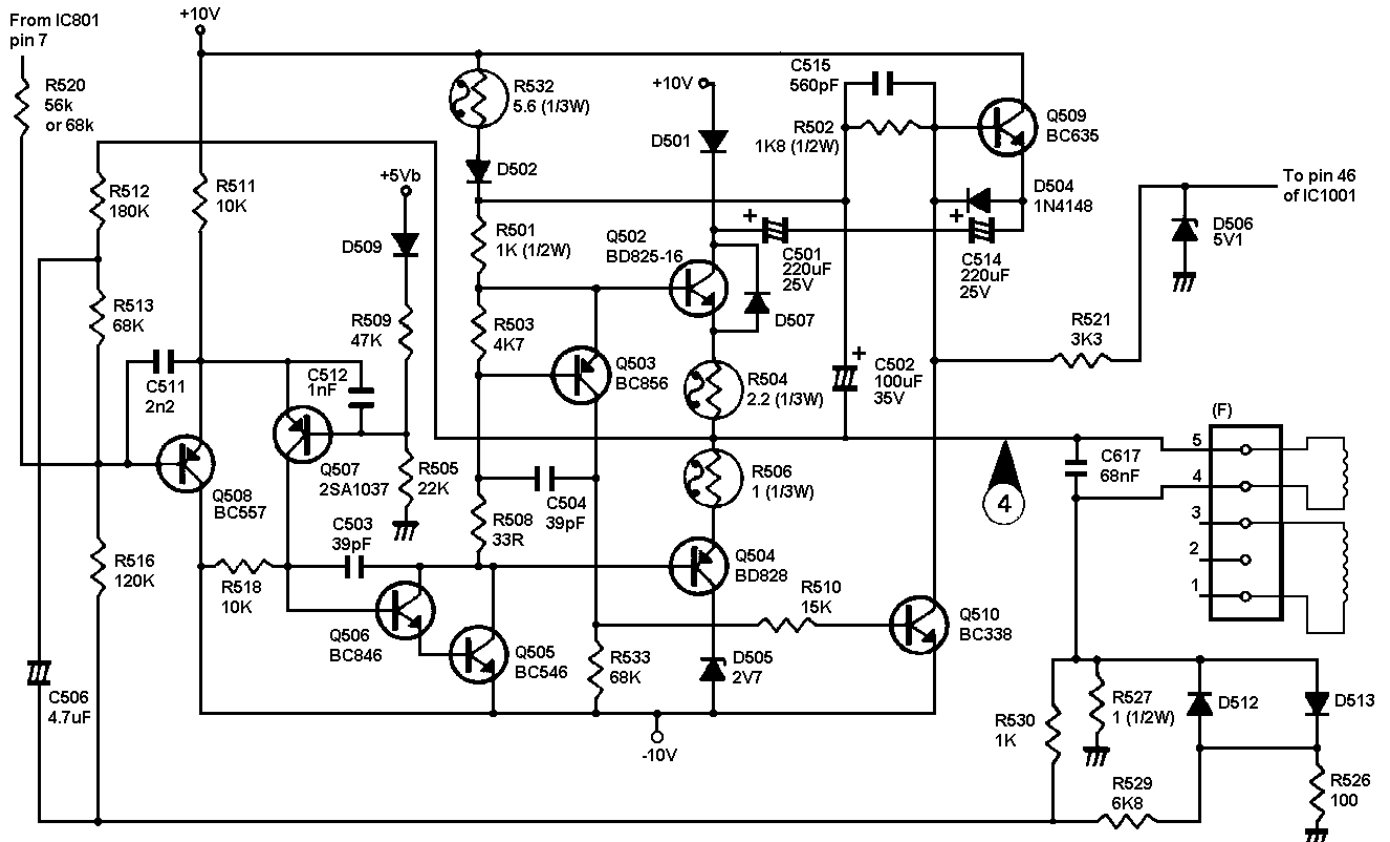
Reference JCJR070799

Revision 2



TELEVISION TECHNICAL BULLETIN

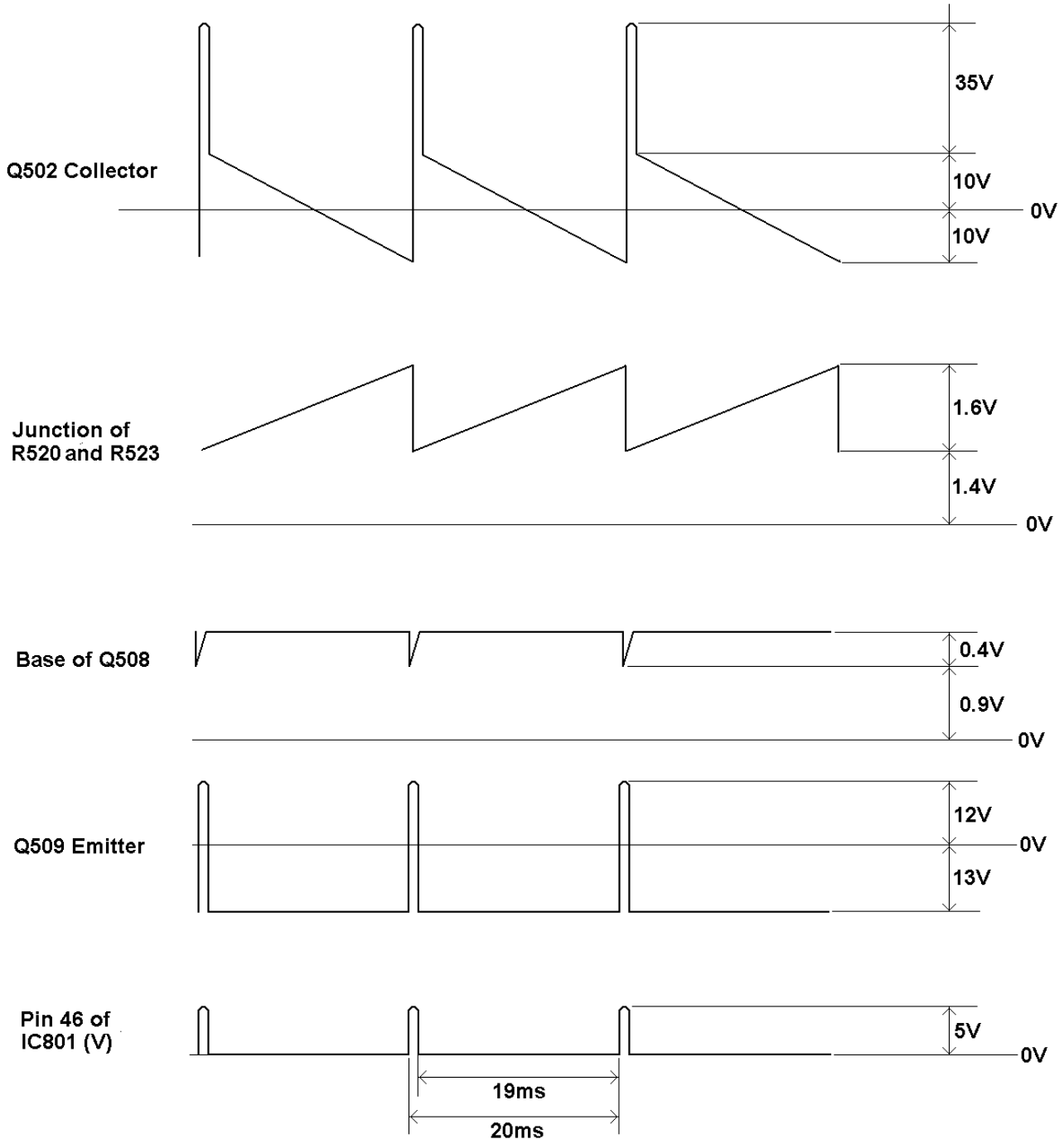
<u>REF NO</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>PRICE CODE</u>
C501	Capacitor 220 μ F, 25V	VCEAGA1EW227M	AB
C502	Capacitor 100 μ F, 35V	VCEAGA1VW107M	AC
C514	Capacitor 220 μ F, 25V	VCEAGA1EW227M	AB
C713	Capacitor 1000 μ F, 16V 105°C	VCEAHA1CN108M	AD
D504	Diode, 1N4148	RH-DX0045BMZZ	AA
D506	Diode, BZX79C5V1	RH-EX0408BMZZ	AB
D709	Diode, 1N4935	RH-DX0529BMZZ	AB
Q502	Transistor, BD825-16	RH-TX0140BMZZ	AE
Q503	Transistor, BC856	RH-TX0153BMZZ	AB
Q504	Transistor, BD828	RH-TX0141BMZZ	AC
Q505	Transistor, BC546	RH-TX0154BMZZ	AA
Q506	Transistor, BC846	RH-TX0152BMZZ	AA
Q507	Transistor, 2SA1037	VS2SC1037KQ-1	AA
Q508	Transistor, BC557	RH-TX0143BMZZ	AA
Q509	Transistor, BC635	RH-TX0108BMZZ	AC
R508	33 Ω SMD	Source locally	-
R520	56k Ω or 68k Ω 0.5W	Source locally	-



51AT15H Vertical Stage Schematic Diagram

Reference	Type	Location	Collector	Base	Emitter
Q502	BD824-16	Component Side	11.5V	1.2V	0.7V
Q503	BC856	Print Side	-1.2V	0.3V	1.1V
Q504	BD828	Component Side	-11.2V	0.4V	0.2V
Q505	BC546	Component Side	0.0V	-12.6V	-13.0V
Q506	BC846	Print Side	0.0V	-12.0V	-12.5V
Q507	2SA1037	Print Side	-12.0V	1.5V	2.0V
Q508	BC557	Component Side	-13.0V	1.3V	2.0V
Q509	BC635	Component Side	11.1V	-11.9V	-11.3V
Q510	BC338	Component Side	-11.9V	-12.4V	-13.0V

51AT15H Vertical Stage Typical Voltages



Typical 51AT15H Vertical Stage Waveforms

Sharp Electronics (UK) Limited

Reference JCJR070799

Revision 2

