

**MODEL 66GS62H****East/west faults**

Faults in the east/west stage of this set can be complicated to find due to the type of circuit being used. A problem in this stage can also lead to a dead set. It is recommended that when fault finding in this area, to follow the guidelines given below. Note that as this part of the circuit operates during the flyback period, it is very difficult to 'scope' any waveforms.

The east/west control transistor (Q602) has to be turned on to provide voltage to the collector of the line output transistor (Q601), without this voltage, the line will not come up. During the flyback period, the on time of Q602 is varied to give more or less scan and therefore east/west correction. The timing of this is critical and is controlled by the microprocessor.

When the set starts up, there is no east/west correction; therefore Q602 will not be turned on. As Q602 needs to be turned on, there is a small circuit that provides this function. R638 (100k $\Omega$ ) is connected to the +5V line which connects to the gate of Q602 via R657, D607, D604, D617, R612 and R616, pulling it high and turning it on at start up. When the set is running, the east/west control signal keeps turning Q602 on when necessary.

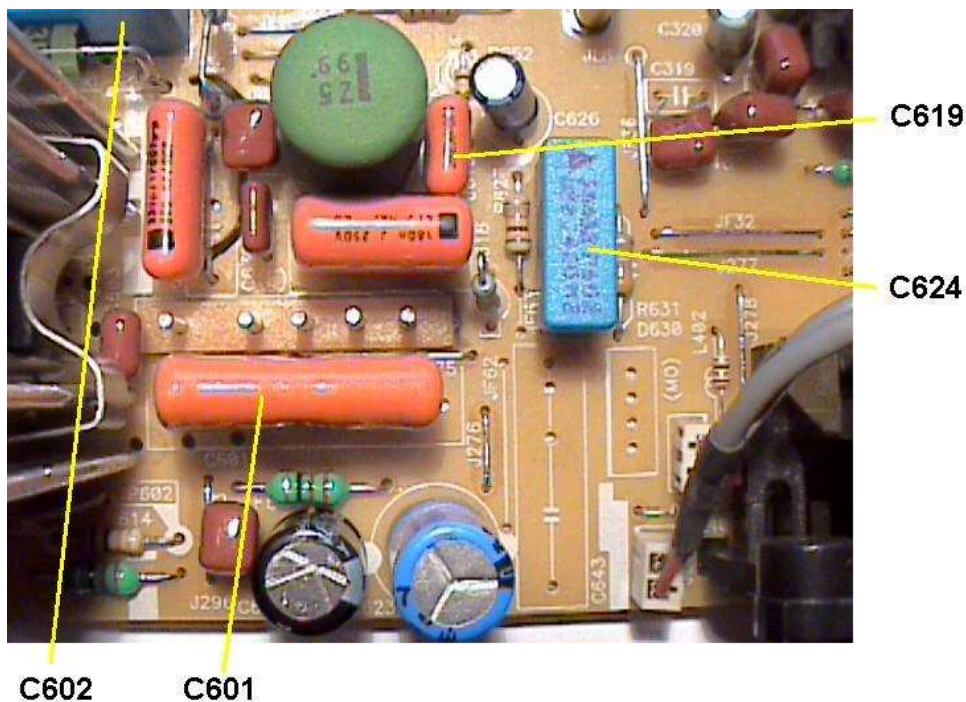
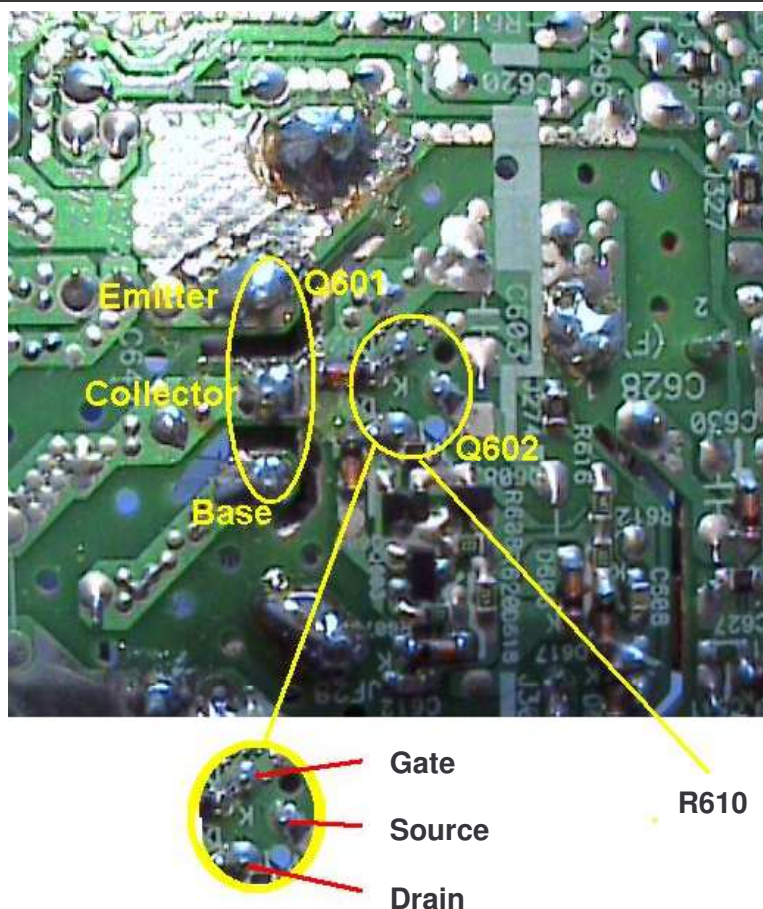
If it is suspected that there is a fault with the drive to Q602, not allowing it to turn on at start up, short out the source to drain of this device and turn on. Note that the picture will be extra large when this is done. The next step is to see if the driver circuit is faulty. Disconnect R657 (D616 end) and apply 2.5V from a DC power supply to this end. When the set is turned on, it should start up. If the voltage is varied between about 1.5V and 4.5V, the width should vary. If it does not there could be a problem with the drive circuitry. Another component that will cause this fault is the line output transistor. If it has been replaced with a BUH515, the flyback pulse will not be high enough to provide any east/west correction. It is therefore very important to ensure that a BUH515D is used in Q601 position. This device must be ordered from Sharp Parts Centre as it has been known for transistors supplied from other sources not to work, or work incorrectly.

If the driver stage appears to be alright, examine the waveform on pin 99 of IC1001, this should be a parabola at 50Hz; this will change as the east/west controls are adjusted. If there is no waveform, or it does not adjust, blank the EEPROM (IC1003) using the appropriate jig (see the Memory and Processor Technical Bulletin for the 66GS62H). If this does not restore the output from IC1001, suspect IC1001. Note that the type of IC1001 depends on the size of the EEPROM fitted - see The GA10 Parts Technical Bulletin for more details. If the waveform changes when adjusted, then the output circuit is probably faulty.

When fault finding in the east/west drive circuit, it is often found that one of the SMD diodes is faulty, normally caused by failure of Q602. When replacing Q602 be careful not to accidentally wipe R610 off the board. R610 is in the control circuit and if it is missing, Q602 will never turn on. It is possible for any of the three driver transistors to fail (Q603, Q604 and Q608). It is recommended that if any of these transistors are suspect that all three are replaced together.

**Large picture**

For a large picture or east/west problems (sometimes can occur after replacing a short circuit line output transistor) can be caused by Q602 going short circuit or leaky. Also ensure that C601, C602, C619 and C624 are not dry jointed or faulty in any way



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Reference AvW 10 03 2004 - 3

Revision - 3

White – Carry out as required

Yellow – Carry out as required and whenever the unit comes in for service

Red – Carry out on all units

### Changes to the circuit during production

A number of changes were made to the east/west output circuit during production as follows:

1. A larger heatsink was used for Q601 and Q602 to help reduce the operating temperature of these devices. The original heatsink is 65mm in height; the new one is 110mm in height. If the heatsink has already been changed for the larger type, it is not necessary to change it again. See the picture relating to the new Q602 for new heatsink.
2. Q602 was changed for a more powerful device.
3. The inner pincushion correction transistor, Q610 was up rated from a SMD device to a wire ended type. The new transistor is now mounted on the component side of the PWB. If a set comes into the workshop, and this resistor has not been changed, it is advisable to do so, using the part number for Q610 given below:



Original Q610 Transistor



New Q610 Transistor

<u>REF NO</u>	<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>PRICE CODE</u>
-	Heatsink	PRDARA018WJFW	AC
C601	Capacitor, 10nF 1.6kV	RC-FZ0158BMZZ	AF
C602	Capacitor, 4.7nF 1.5kV	RC-FZ0148BMZZ	AD
C619	Capacitor, 100nF 250V	RC-FZ0198BMZZ	AG
C624	Capacitor, 220nF 400V	RC-FZ7224BMNJ	AE
R610	SMD Resistor, 68Ω	VRS-TV1JD680J	AA
Q601	Transistor, BUH515D	RH-TX0226BMZZ	AK
Q602	Transistor, 2SK2843	RH-TX0236BMZZ	AE
Q603	SMD Transistor, 2SC2412	VS2SC2412KQ-1	AA
Q604	SMD Transistor, 2SC2412	VS2SC2412KQ-1	AA
Q608	SMD Transistor, 2SA1037	VS2SA1037KQ-1	AA
Q610	Transistor, IFR640A	RH-TX0246BMZZ	AG

Note that the list of components given above **IS NOT** a parts list to cure all geometry problems in this chassis. It has been compiled to show all the part numbers for items referred to in this document. If the parts noted in the text are not faulty, carry out fault finding procedures to locate the problematic part.

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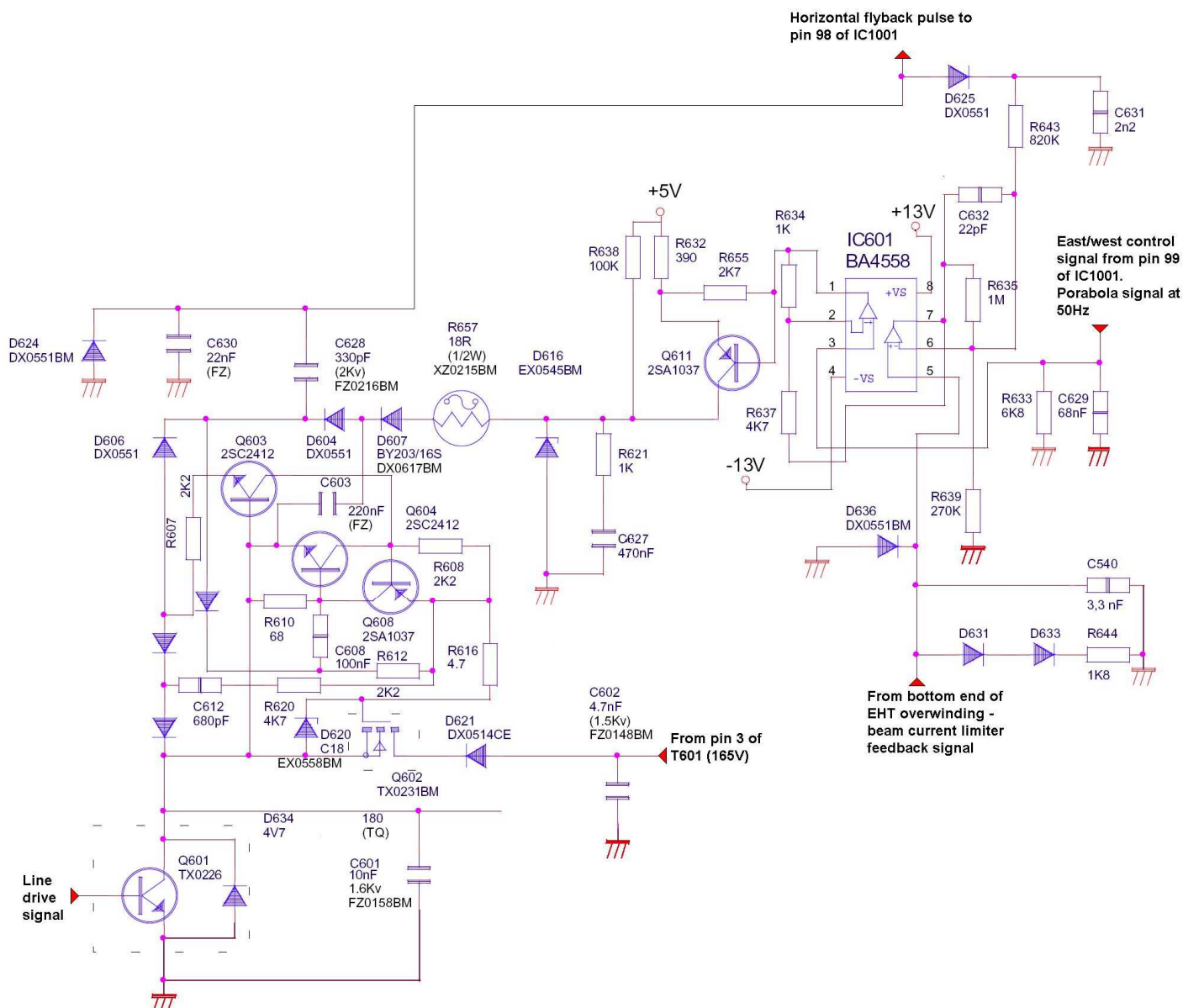
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Circuit Diagram of the GA10 East/West Stage

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