



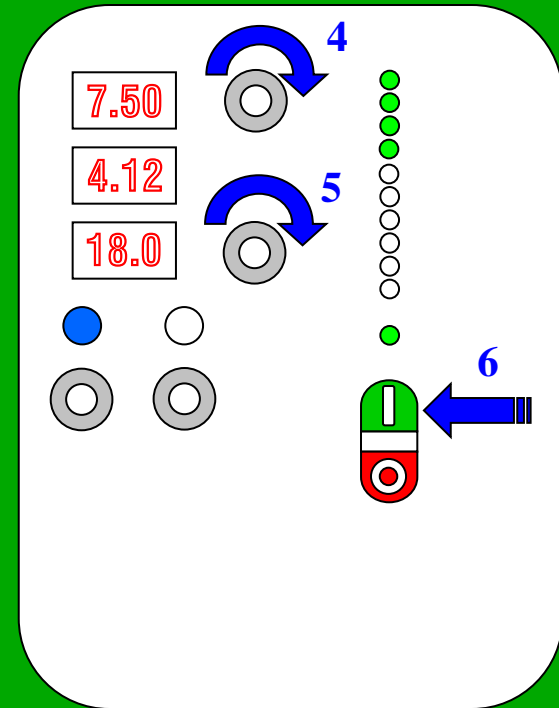
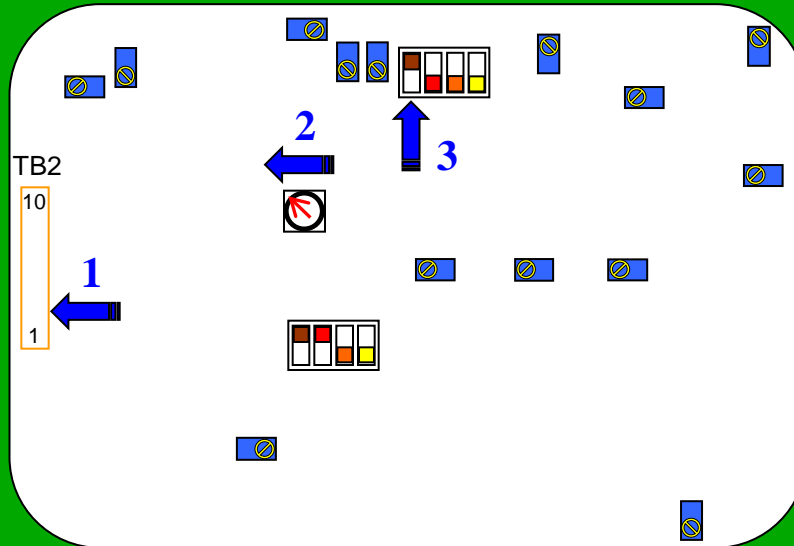
TROUBLE SHOOTING & FAULT FINDING

Inverter Heatsink Assembly



Fault Finding

Inverter heatsink assy – PWM circuit test



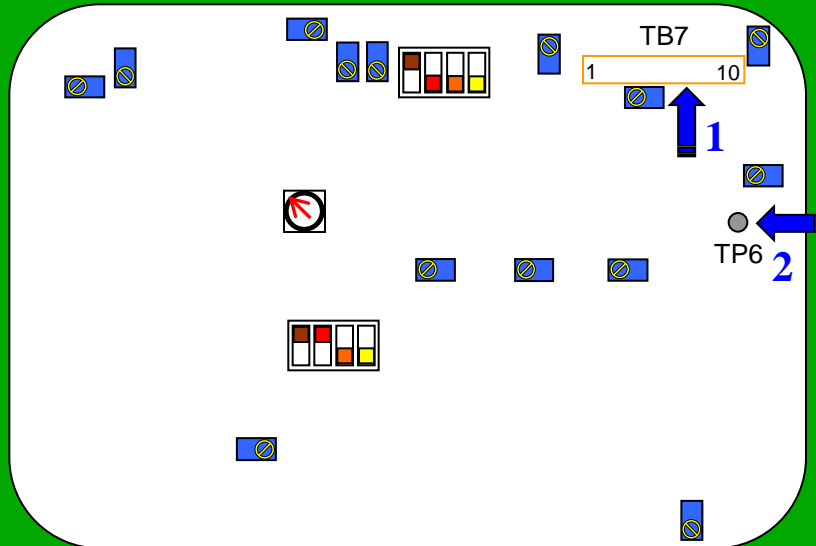
- 1 – Remove wire 22 from TB 2
- 2 – Put SW2 into position 1 (local control)
- 3 – Put SW1 A in up position (manual frequency)
- 4 – Set power dial to half power
- 5 – Set frequency dial to half
- 6 – Press start button (interlocks must be closed & UTS must be OK)

NOTE:
With wire 22 disconnected K1 will not energise therefore no 3 phase will be present on the inverter heatsink assy



Fault Finding

Inverter heatsink assy PWM circuit test



CAUTION

Ensure Oscilloscope ground has been removed.

Inputs must be isolated from each other

If possible use a portable scope meter with isolated inputs i.e.

Fluke 123 scopemeter

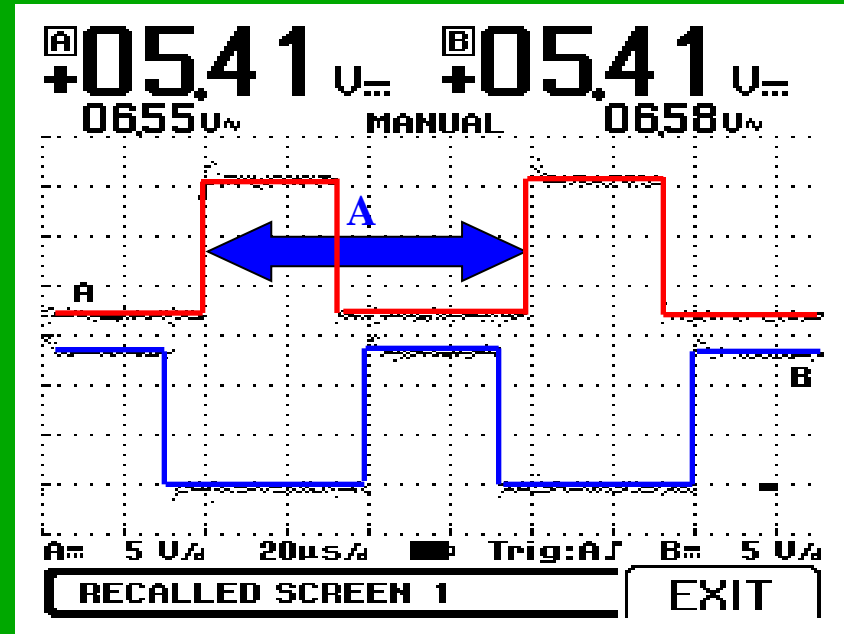
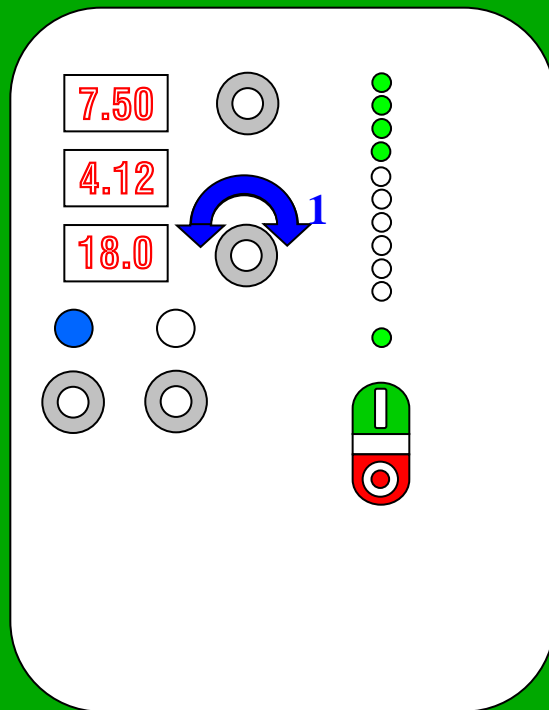
1 – Connect oscilloscope probes to TB7 pins 5 / 6

2 – Connect ground clips to TP6 (0v B)



Fault Finding

Inverter heatsink assy – PWM circuit test (cont)



1 – Adjust the frequency up & down. Frequency of pulses should change (A)

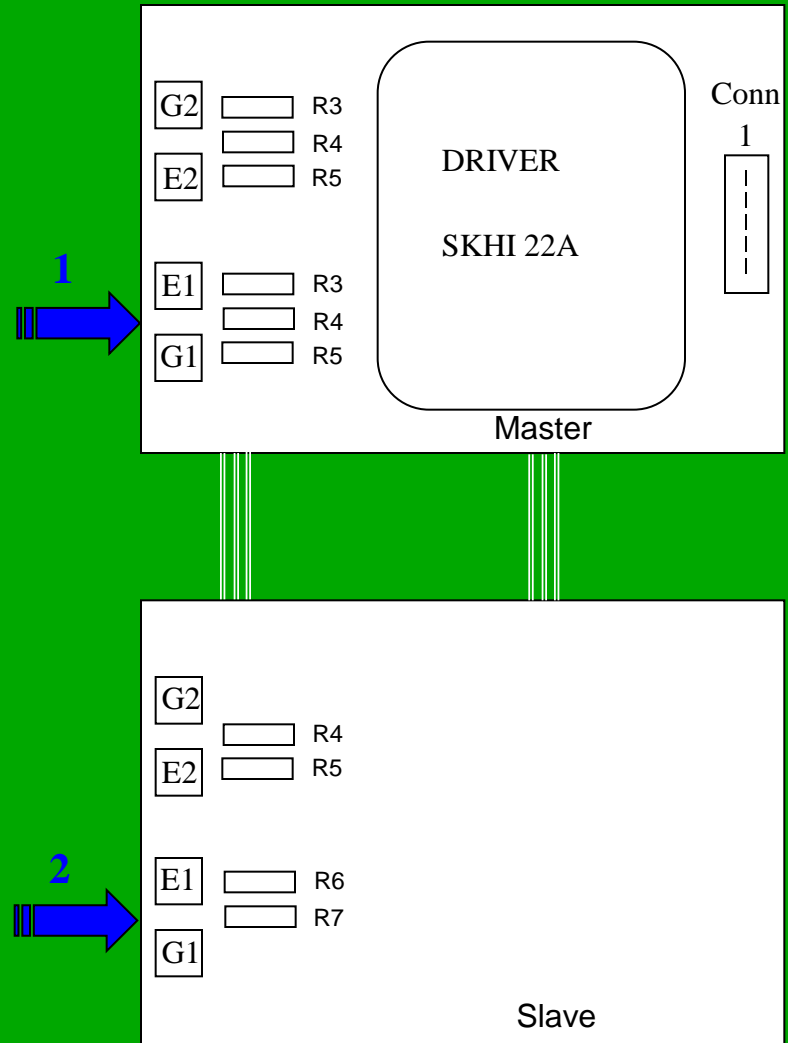
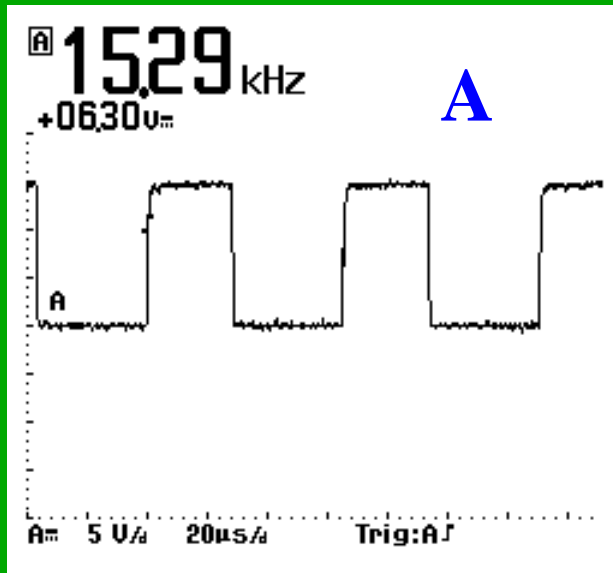
- If frequency stays fixed ensure generator is in manual frequency
- If no waveform check PWM circuit DWG A4.500001.05/06 paying attention to IC1,16
- As can be seen from the waveform the pulses are 180 degrees out of phase
- I waveform OK then go to pulse driver test



Fault Finding

1/2 Inverter heatsink assy – Pulse driver test

- 1 – Connect oscilloscope probe on G1 & ground clip to E1 on master driver PCB. Check for square wave (A)
- 2 – Connect oscilloscope probe on G1 & ground clip to E1 on Slave driver PCB. Check for square wave (A).



- If no waveform present go to next step 2/2
- If waveform present go to IGBT test

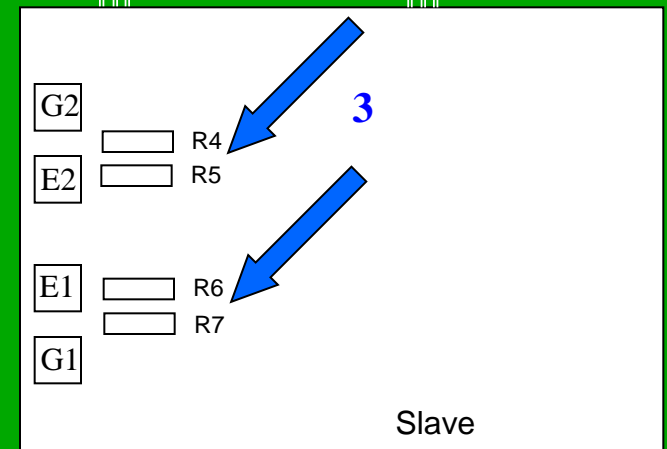
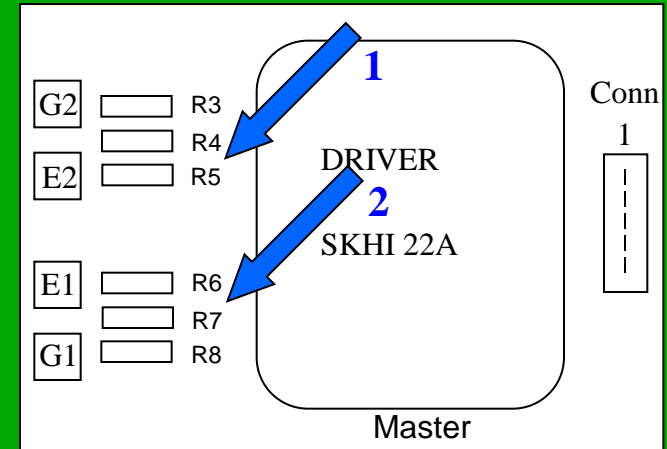


Fault Finding

2/2 Inverter heatsink assy – Pulse driver test

- 1 – Connect oscilloscope probe on right hand side of R4 & ground clip to E2 on master driver PCB. Check for square wave. Repeat for R5
- 2 – Connect oscilloscope probe on right hand side of R6 & ground clip to E1 on master driver PCB. Check for square wave. Repeat for R7
- 3 – Repeat above for slave PCB

- If no square wave present driver device (SKHI 22A) faulty – Replace driver or complete driver PCB assembly
- If square wave OK, resistors failed – Replace resistors and return to step 1/2



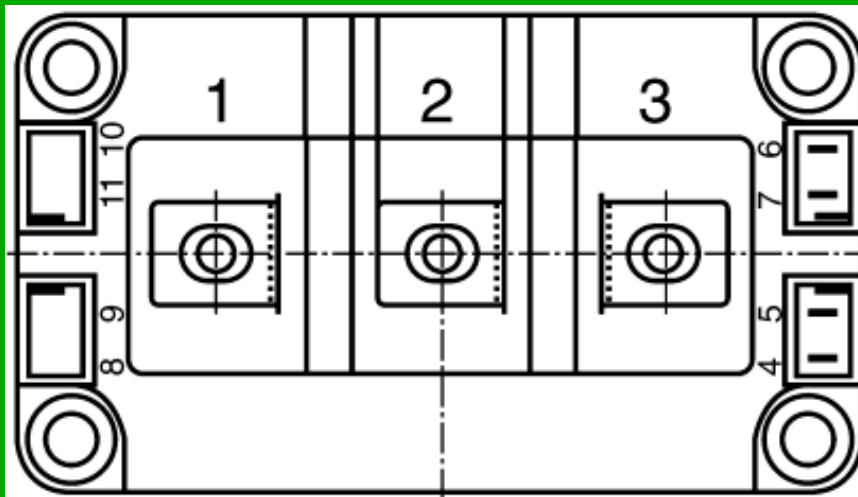
Resistor values		
Resistor	Generator	
	GX 100R	GX 150R
R3, R8	15KΩ	15KΩ
R4 - R7	56Ω	10Ω



Fault Finding

Inverter heatsink assy – IGBT test

NOTE: If testing IGBT's in inverter, DC smoothing capacitors must be removed prior to testing
Use a Digital multi meter (diode function) to measure between the following points



IGBT types		
Generator	GX 100R	GX 150R
IGBT	SKM 150	SKM 200

OC – Open circuit

SC – Short circuit

FD – Forward diode (0.3v dc)

Red Lead +	Black Lead -	Result	Red Lead +	Black Lead -	Result
1	2	OC	1	5	SC
2	1	FD	1	4	OC
1	3	FD	7	1	FD
3	2	OC	6	1	OC
1	7	OC	5	1	SC
1	6	OC	4	1	OC