

Chapter 10 Testing and fault finding

With the televisor fully assembled we are now in position to commission the unit. Before we power the unit up several things are essential. Firstly decide which disc you intend to use. The televisor will accept the standard 12-inch manila disc but others using a stiffer card may be made available to club members. Whichever you decide to use offer the plastic hub up to the disc and drill through the three holes and bolt the hub to the disk. The central 2mm hole is a 'push fit' to the motor so offer the disc up to the motor and secure. Using a small piece of black insulating tape cover any one of the 32 synchronising ring holes. This may require moving later as it determines the pictures' horizontal location within the viewing frame.

Next decide upon the media you wish to use on the player, USB or MicroSD card. A microSD adapter will be required to put this in your laptop or PC. You will need to erase any existing files on both types of media and in some cases, you may need to reformat. You then need to create a new folder named MP3 and, in that folder you will store the .WAV NBTV files you wish to play. These files need to have inverted NBTV video signals which can easily be transposed if using Gary Millard's video to NBTV program. This is because the player output signals are in reverse to the club standard. However external NBTV signals feeding the televisor are as per standard club format. Insert the playing media into the player unit.

If we now power up the televisor and we assume no smoke has been generated from within the unit the motor should start to turn uncontrollably and the player should start playing NBTV files and the display LEDs should appear to flicker. Here follows the procedure for testing.

- Measure the voltage across IC3 pins 1 positive with respect to pin 8 and you should see five volts dc. This proves the LD271 is correctly fitted.
- To stop the motor noise becoming a nuisance temporarily disconnect and isolate wire from Con7/2.
- Place some double-sided stick backed plastic under the base of the LD271 sensor module. Place this facing forward behind the ring of synchronising holes on the disc.
- With a digital camera or mobile(cell) phone (not iPhone) pointing towards the disc look for a blue radiance from the LED one powered up. Rotate the disc manually and position the sensor module so this light can be seen through the synchronising holes. When in position secure the module to the base using the sticky tape.
- Next connect either a voltmeter or if you have one an oscilloscope across R17 on the control board the positive to IC3 pin 7 end. Position the TIL100 sensor module facing the disc and move its position around until to have a zero to roughly a zero to 5 Volt signal as disc passes one of the synchronising holes when you rotate the disc manually. Once the optimum position is found temporarily secure the sensor to the base using the sticky tape.
- Temporally place the display module facing forward behind the disc on the right-hand side of the televisor. Reconnect the isolated motor lead then power up the televisor and once the player is working the motor should lock itself to the video and with some adjustment of the front panel mounted video input and contrast pots you should get a steady picture. By fine adjustment repositioning the two modules you will achieve optimum positioning when you hear the motor slowing down and locking with the video. Those of you lucky enough to have an oscilloscope handy the optimum setting can be seen as a regular stream of pulses appearing across R17 with a missing pulse every 31 pulses.
- Adjustment of the front panel framing pot will centralise the display. Fine adjustment of the PCB mounted black level pot will enhance the picture and can be set later.

- An inverted picture is corrected by transposing the motor cables. A picture the wrong way would left to right indicates the disc is facing the wrong way round.
- Once the two sensor holders, display and lens assembly's positions have been optimised the base can be drilled for fixing and cabling and the wires can be rerouted internally. By initially drilling cable holes larger than required a fine adjustment can be made before fixing holes are drilled.
- Should the picture not be centralised horizontally then by experimentation move the position of the 'blanked hole' until it is correct.