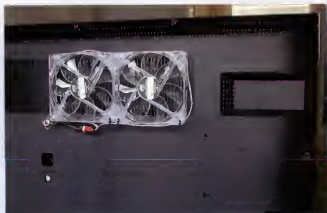
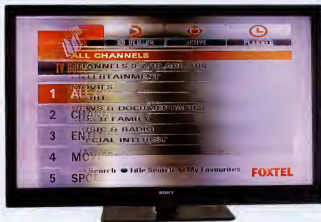


## Serviceman's Log – continued



Left: the fault condition was triggered in the LCD panel of the Sony set about 40 minutes after switch-on. Fitting a couple of fans to the rear cover helped cure the problem.

## Fan-Cooling For A Sony LCD TV

Cooling fans were commonly used in the plasma sets of yesteryear but in this instance, retrofitting fans to a 132cm Sony LCD TV saved it from the scrapheap. G. S. of Castle Hill, NSW was the retrofitter . . .

The Sony KDL52Z5500 LCD TV was a top-of-the-range model costing over \$3000 back in 2009. However, after just five few years of use, the 132cm LCD panel in my set suddenly began giving trouble.

Initially, the problem showed up as a narrow vertical flickering band on the lefthand side of the screen at power up. This would then disappear after a few minutes as the set warmed up and so the fault was initially considered trivial.

It didn't stay that way though and over the next few weeks, the switch-on fault progressively became more serious. It eventually got to the point

where the entire lefthand side of the screen would take on a reddish hue with very dark shading, picture tearing and vertical ghosting. It would then invariably come good and display a perfect picture after 30 or 40 minutes (when the panel had warmed up) until one day it didn't, despite leaving it running for several hours.

This sort of problem is often due to faulty "tab" connections between external flat ribbon cables and the transparent electrodes just inside the edge of the LCD panel. With repeated thermal cycling, the bonding contacts inside the LCD can become intermittent and a panel failure of this sort generally means that the set is a write-off.

However, there's one neat trick you can pull to try to save it: remove the metal frame that runs around

the outside of the LCD panel (and secures it in position), run draught excluder around the inside of the frame and reassemble it. The idea here is that the draught excluder applies extra pressure to the tabs when the metal frame is fastened back into place and will hopefully "cure" the problem.

This fix initially worked a treat for my Sony set, as detailed in Serviceman's Log in the November 2014 issue. However, after a few months, the problem reappeared but with one important difference: the timing of its appearance had been "transposed". Now, instead of the fault occurring when the set was cold, it was appearing about 40 minutes after switch-on, after the panel had thoroughly warmed up.

What was frustrating was that the picture was perfect for those first 40 minutes or so. After that, the dark shading, ghosting and reddish hue would suddenly appear and it

was so bad that the picture was unwatchable.

Clearly, the fault was heat-sensitive; the LCD panel had to get nice and warm in order to trigger it. So what could be done about it? The obvious answer was to somehow keep the panel from reaching the critical "trigger" temperature and using computer fans to extract the set's warm interior air seemed to be the way to go.

After some hunting around on the internet, I came across a CoolerMaster 120mm case fan from a local retailer that seemed ideal for the job. It ran at 1200 RPM, had a quoted noise level of just 19.3dBA (so it would be nice and quiet) and came in a dual pack for just \$19.00. Mounted together side-by-side, the two fans would be just large enough to cover a large ventilation panel towards the top righthand side of the rear cover.

## Inside or outside

When I got the fans home, the first thing to do was to figure out whether to mount them inside the rear cover or on the outside. After some thought, I decided to mount them on the outside and power them from an external 12V DC plugpack. That way, they wouldn't block the airflow to the horizontal ventilation slots at the very top of the rear cover.

With that decided, I undid the umpteen-dozen screws that secured the rear cover, laid it flat on the floor and used one of the fans as a template to drill two diagonally-opposite mounting holes. This fan was then secured in position using Nylon M4 x 15mm screws, nuts and wash-

ers, after which the second fan was mounted in position, butted hard up against the first. Nylon mounting screws were used at all four mounting positions because I didn't want metal screws protruding into the chassis, with the risk that they might contact a high voltage or short something out.

Once the fans were in place, I replaced the rear cover, then sorted through my spare parts and found a 2.5mm DC socket. This was mounted on a small Perspex bracket which in turn was attached to an outside corner mounting hole of one of the fans. The DC socket itself was wired to two paralleled 3-pin polarised pin headers and the two fans then plugged directly into these headers. Several cable ties were then used to tidy up the wiring and secure it all in place.

Now for a power supply. A quick ferret around in my workshop soon turned up a 12V DC plugpack supply rated at 600mA – more than enough to power the two 160mA fans. I plugged it in, switched on and the two fans whirled into action. And just as their noise specification indicated, they were nice and quiet – so quiet in fact that you weren't aware they were running from a normal viewing position.

So did the idea work? It sure did – well almost! The set now runs for 3-4 hours before giving trouble, as opposed to the measly 30-40 minutes before the fans were fitted. Running the fans at a higher speed (eg, by increasing the supply voltage by 1-2V) or adding extra fans would probably solve the problem completely.