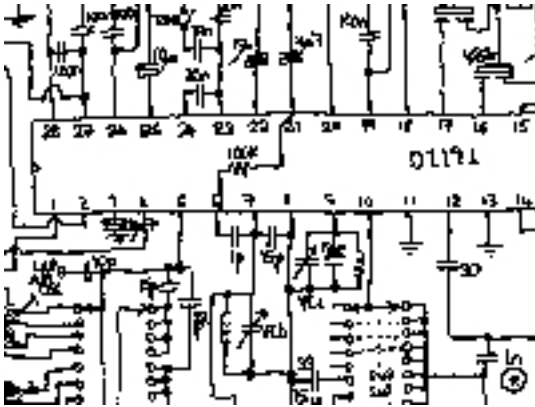


Circuit diagram

Written by Hans Summers

Saturday, 11 July 2009 08:52 -



I have traced the circuit diagram of the main radio PCB, [Click Right](#) .

NOTES

Definitive cores listing:

RED CORE covers the Medium Wave band

BLUE CORE covers short wave bands SW1-4

PINK CORE covers short wave bands SW5-8

YELLOW CORE is a 455kHz IF transformer

GREEN CORE is the FM discriminator

There are a number of air wound coils, and also several fixed "choke" inductors which look like resistors.

The band switch has 4 poles and 9 positions. In the circuit diagram, see the labelling at the bottom SWa to SWd to see the circuit diagram locations of the four poles of the switches. I've drawn the Medium Wave position at the bottom, and the highest frequency SW8 band at the top. The ferrite rod is used as antenna on the MW band. The signal from pin 10 is used to derive the frequency counter range select signal. The variable capacitor is 4-gang, these are labelled VCa to VCd in the circuit diagram and track in parallel from the same shaft.

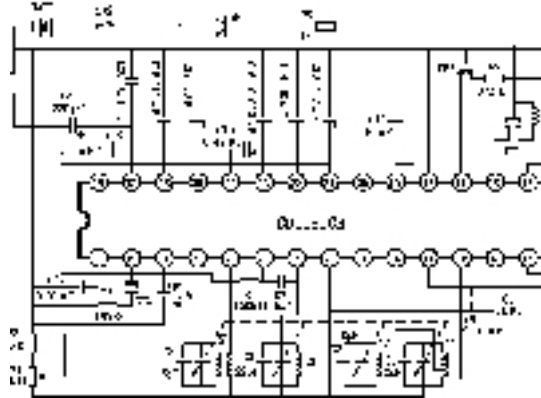
Notice that the AM/FM selector input pin 15 of the IC is controlled by a set/reset latch made from two transistors. Clive Hollins M5CHH says that the RF pre-amplifier transistor connecting the aerial to the input circuit for SW and FM, is a Chinese copy of [Fairchild's SS9014 low noise preamplifier](#)

Much of the "ground" for the tuned circuits is actually the regulated 1.25V output from the D1191 IC, from its pin 8. In my radio, some of the circuit's V+ is straight from the ON/OFF switch, while some of it comes via an inductor. However, in my particular circuit the inductor is shorted out by a solder blob. I'm not sure if this is intentional or not. A similar solder blob exists at the 1nF capacitor at the collector of the RF amplifier transistor, and shorts out that capacitor. Again, is this common to all Superdrg radios? Or just mine? The radio works so presumably if this is a fault, it would not have been noticed by quality control.

Circuit diagram

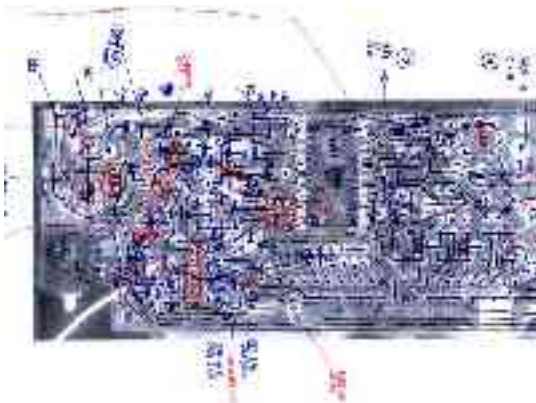
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ABOUT THE SOLDER BLOB: John Seager G0UCP reports: "Two of my sets worked on FM but showed the default readings of 9545kHz/99.54mHz on the AM ranges. The regulated output at pin 8 of the IC was unduly high at 2.54 volts. As Hans had found, the 1nf capacitor coupling the pre amp 'Q1' to the antenna side of the short wave selector switch, SWd, was shorted with a solder blob. On removing this the output at pin 8 fell to 1.6v. The MW range now worked normally and the freq. counter registered correctly on the SW bands. There still seemed to be an RF block somewhere in the front end but a 47pf capacitor bypassing 'Q1' gave lively reception across



the entire SW range. Hans' excellent diagram makes it clear that the shorted capacitor would effectively 'pull' pin 8 up towards the supply voltage. The curious thing is that another set also had the solder blob but worked completely normally and had a normal regulated output at pin 8. 72, John G0UCP "

The headphone jack contains a switch which disconnects the internal loudspeaker. I have not drawn the 3V power input jack. It also contains an internal switch so that when power is applied, the internal battery of the radio is disconnected.



Compare the circuit diagram of the superdrg radio to the application circuit from the datasheet ([Right](#)). Fundamentally, it's very similar:

[Left:](#) here's how I traced the circuit diagram. First I photocopied the PCB track-side down. I found that the tracks weren't as nicely visible as I had hoped, so I had to draw them in black ink. Next I labouriously went through every component and worked out which tracks it connected to. These are drawn in blue, with occasional red so I didn't get too lost. Final stage was to transfer this to a real circuit diagram, which took several iterations to arrive at something vaguely neat.

Circuit diagram

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