

## INTRODUCTION

This receiver is specifically designed to receive F.M. A.P.T. (automatic picture transmissions) from N.O.A.A. and other orbiting weather satellites in the 136 to 138 MHz band. It will also function as an I.F. receiver when used in conjunction with a down converter for reception of Geostationary weather satellites in the 1.69 GHz band.

The receiver is a double superhet design with a 1st I.F. of 10.7 MHz using 3 cascaded ceramic filters to provide an I.F. bandwidth of 50 KHz, and a second I.F. of 455KHz.

The RF amplifier and 1st mixer use low noise BF981 dual gate MOS FET's with an SL6601 2nd mixer, I.F., and demodulator. This is followed by active high and low pass filters to provide an optimum AF bandwidth for reception of A.P.T. signals.

The synthesizer can provide 10KHz steps with specific individual channels stored in an EPROM.

A 1 watt AF output stage provides audio to drive an 8 ohm loudspeaker with two additional low level AF outputs for driving a cassette recorder.

A further AF output is provided to drive the YU30MV frame store. This level is set using an on board preset.

## FEATURES

1. 1600 channel capability divided into 16 pages internally preset using a DIL switch with 100 channels per page. Maximum scan per page can be preset from 10 to 100 channels in steps of 10. i.e. 10,20,30,etc.  
· Scan halts when signal received above squelch threshold.  
Channel is held for approx. 5 seconds after loss of signal after which scan continues.
2. Fully adjustable squelch.
3. Two low level AF outputs, one squelched the other unsquelched, (approx. 80mv R.M.S at 17KHz deviation), for driving a cassette recorder. A further output of 1v RMS is provided to drive the YU30MV frame store either squelched or unsquelched. (Link selectable).
4. Remote control of cassette recorder by a volts free c/o contact of a relay which is controlled by the receiver squelch.
5. "S" meter output with sensitivity adjustment. (100 to 250uA meter required).

6. D.C. feed to aerial feeder available by on board linking to provide up feeder power for mast head pre-amp / down converter.
7. Unit supplied fully programmed for all known satellite A.P.T. and Beacon channels.
8. Channel indication using 7 segment LED displays ie 00 to 99.
9. Up/down scan switch can be connected to provide quick selection of a wanted channel.
10. Scan halt and channel override facilities.
11. Optional direct frequency readout using LCD display module.

This unit is available as an assembled and tested module less squelch pot, volume control, loudspeaker, up/down scan switch, "S" meter and scan halt switch from:-

DARTCOM,  
Postbridge,  
Yelverton,  
Devon,  
PL20 6SP

Tel:- 01822 880253

# SPECIFICATION

POWER REQUIREMENTS:- 11.5 to 13.5 volts D.C. at 500mA max.

SENSITIVITY:- 0.2uV pd for 12 dB SINAD at 10 KHz deviation.  
0.3uV pd for 20 db quieting.  
S/N ratio at 1uV pd for 17 KHz deviation > 40dB  
S/N ratio at 5uV pd for 17 KHz deviation > 46dB

RF BANDWIDTH:- 3 MHz @ -3 dB points.

I.F. BANDWIDTH:- 50 KHz

I.F. RESPONSE:- > - 60dB at  $\pm$  400KHz from wanted channel.  
> - 50dB at  $\pm$  175KHz from wanted channel.

IMAGE REJECTION:- > 70 dB

AF FILTERS:- High pass filter cut off freq. = 700 Hz  
Low pass filter cut off freq. = 4000 Hz  
AF bandwidth 400 Hz to 4000 Hz ( - 6dB points).

AF OUTPUTS:- a). 1 watt R.M.S. into 8 ohm load for less than 10% distortion.  
200 mW R.M.S. into 8 ohm load for less than 5% distortion.  
b). 80 mV R.M.S. into 50 K.ohm load from both squelched and  
unsquelched outputs for 17 KHz dev. @ less than 3% distortion.  
c). 1 Volt RMS into 1K. ohm load for less than 5% distortion link  
selectable, squelched or unsquelched.

MEMORY ORGANISATION:- The unit is supplied pre-programmed as follows:-

PAGE 0:- All known A.P.T. frequencies including U.S. and U.S.S.R.  
weather satellites.(10 channels)

PAGE 1:- Geostationary and orbital beacon frequencies, which  
contain the phase modulated split phase data from  
the low bit rate instruments and space craft telemetry.  
(5 channels)

PAGE 2:- A selection of frequencies in the 136 to 138 MHz band  
known to be used or have been used by A.P.T. and non  
A.P.T. satellites. (58 channels)

PAGE 3:- All 10 KHz steps between 136.000 to 136.990 MHz .  
(100 channels)

PAGE 4:- All 10 KHz steps between 137.000 to 137.990 MHz .  
(100 channels)

DIMENSIONS:- 210 mm x 95 mm.

# WIRING AND ASSEMBLY NOTES FOR DARTCOM 136 - 138 MHz SATELLITE RECEIVER. -----

Depending on your application you will need the following items to complete the receiver :-

## PARTS REQUIRED -----

| QTY | DESCRIPTION   | SUGGESTED SUPPLIER | ORDER CODE. |
|-----|---|--------------------|-------------|
| 1   | Single pole ON-OFF-ON switch  | RS COMPONENTS LTD  | 332-048     |
| 1   | Single pole ON-OFF switch   | RS COMPONENTS LTD  | 332-026     |
| 1   | Loudspeaker 8 ohms imp.   | CIRKIT             | 43-22508    |
| 1   | Meter 100 or 250uA F.S.D.   | CIRKIT             | 37-09007    |
| 2   | Pot. 10k log.   | RS COMPONENTS LTD  | 161-694     |
| 1   | Pot. 100k lin.  | RS COMPONENTS LTD  | 161-818     |
| 1   | Aerial connector depending on your requirements.                    |                    |             |
| 1   | Single pole 5 WAY switch<br>(Optional for memory<br>page selection) | RS COMPONENTS LTD  | 327-658     |
| 1   | 14 pin DIL header plug cut down to 8 way.(For mem.page option).     |                    |             |
| 1   | Connector for TAPE/FRAME STORE OUTPUTS as required.                 |                    |             |
| 1   | 1 amp fuse and holder. (optional)                                   |                    |             |

None of the above items are critical and any supplier of good electronic components (or a good junk box) will be able to provide these.

The wiring drawing is self explanatory and it is important to use screened cable for the volume control and low level AF outputs.

**PLEASE NOTE THAT IT IS NOT ADVISEABLE TO RUN WIRING AND COAX CABLES UNDER THE P.C. BOARD SINCE THIS CAN AFFECT THE PERFORMANCE OF THE RECEIVER.**

If the L.C.D. optional frequency readout module has been supplied then this can be mounted on the front panel of the receiver case by means of the two fixing holes using 6 BA bolts and nuts used as spacers. **This unit should not be fixed directly in front of the three green coils as interference from the logic on this module may occur.**

The receiver should be powered from a good regulated power supply , which can be built using usual regulator I.C.'s such as the 7812 series. Should the power unit be built in the same case then it is advisable to use a **TOROIDIAL MAINS TRANSFORMER** to prevent magnetic field coupling from the mains transformer to the Voltage Controlled Oscillator (V.C.O.) which can degrade the signal to noise performance of the receiver. **A SUPPLY VOLTAGE OF 12 VOLTS  $\pm$  0.5V** is recommended as the receiver has an optimum performance at this level.



5.  
It is important to terminate the aerial input to the receiver with short inner and braid connections the latter being soldered direct to the terminal pin at the P.C.B. aerial input.

The various controls and facilities are terminated on P.C.B. connectors which are included with the receiver module. The whole unit then becomes easily removable with only one soldered connection (aerial input).

The connector pins are made off using small pliers to crimp the previously tinned wire in place and then finally applying a small quantity of solder to the crimp point.

This is then pushed into the appropriate position in the connector shell so that the small tab on the pin locks it into place in the small slot of the shell. **PLEASE NOTE THAT PL2 HAS A POLARISING PIN FITTED TO POSITION 8** to prevent against accidental reversal of this connector which supplies power to the module.

#### ADJUSTMENTS TO THE RECEIVER

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The receiver has been fully aligned and tested for maximum performance and will not require any adjustments. However user preset pots/links can be adjusted as follows:-

a) An "S" meter sensitivity control is provided to enable you to set the indication to your requirements. The range of the "S" meter can be further extended by soldering a GERMANIUM diode (e.g. OA47 or OA91) across the meter to act as a current shunt at high signal levels.

b) D.C. can be applied to the aerial feed to supply mast head pre-amps. or a down converter. This is done by linking the two P.C.B. pins together as shown on the wiring diagram.

c) The maximum number of channels scanned can be set using wire links to the 4 way link terminals. The receiver module is supplied set to scan 0 to 99 channels. Link details for increments of 10 channels are detailed below:-

| CHANNELS | SELECT LINKS     |
|----------|------------------|
| -----    | -----            |
| 0 to 9   | Q1               |
| 0 to 19  | Q2               |
| 0 to 29  | Q1 and Q2        |
| 0 to 39  | Q3               |
| 0 to 49  | Q1 and Q3        |
| 0 to 59  | Q2 and Q3        |
| 0 to 69  | Q1 and Q2 and Q3 |
| 0 to 79  | Q4               |
| 0 to 89  | Q1 and Q4        |
| 0 to 99  | Q2 and Q4        |

d) The AF output for the frame store has been set to 1volt p-p for 10KHz deviation but can be adjusted in level using the on board preset. The receiver is supplied with this output linked for squelched A.F. and can be altered to unsquelched A.F. by means of the link located below the frame store output preset.

b.

e) The memory page switch can be set to give the required frequency coverage using the 4way DIL switch. All switches OFF gives page 0. Switch 1 ON and ALL others OFF gives page 1. Switch 2 ON and ALL others OFF gives page 2 etc. PLEASE NOTE THAT WE DO NOT RECOMMEND SCANNING THE WHOLE BAND USING PAGES 3 OR 4 SINCE IT IS LIKELY THAT THE RX WILL LOCK ON TO A SIDE BAND OF THE WANTED A. P. T. SIGNAL AND PRODUCE POOR RESULTS. These pages are designed to enable you to set a specific frequency of any new satellite channels used.

#### DESCRIPTION OF CONTROL FUNCTIONS

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##### Volume

-----

Controls the level of audio from the loudspeaker.

##### Squelch

-----

Controls the signal level at which the receiver will activate and is normally adjusted till the noise under no signal conditions just disappears from the loudspeaker. The relay to control the remote control facility found on most cassette recorders is controlled by the squelch, and is held energised for approx. 5 seconds after squelch closure.

##### Tape Output Level

-----

Most cassette recorders have automatic level controls built into them, (A.L.C.) . This is a form of audio compression which tends to provide a constant volume level. Since A.P.T. signals from weather satellites work on the basis that the the 2400 Hz sub carrier gets louder for a "whiter" picture, and quieter for a "blacker" picture, then any form of compression will result in a poor contrast range of taped signals.

The Tape Output Level control enables the correct level to be supplied to your cassette recorder and is set to provide AF drive which is just below the recorder's compression threshold by trial and error.

##### Scan Up/Down

-----

With the switch open then the channel count increments upwards. With the switch closed the scan increments downwards.

With the switch in the HALT SCAN position then the current displayed channel will be held irrespective of the condition of the receiver squelch.

With the switch in the SCAN NORMAL position then the channel scan will continue till a signal is received which is greater than the squelch threshold set. When the signal is received then the channel is held until the signal falls below the squelch threshold. The channel scan will continue after a pause of about 5 secs. to allow for short fades in satellite signals.

With the switch in the CHANNEL OVERRIDE position then the scan will advance irrespective of the receivers squelch condition.

#### Memory Page

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The DIL switch fitted enables the 5 programmed "PAGES" in the EPROM to be selected. A further 11 pages are available and are not programmed with any data, (all spare pages contain HEX FF). The DIL switch controls the EPROM address lines A8, A9, A10, and A11. The other 11 pages can be selected by a binary combination of the switches. The switches control the address lines as follows:-

SWITCH 1 controls A10  
SWITCH 2 controls A11  
SWITCH 3 controls A9  
SWITCH 4 controls A8

Memory blocks currently programmed in the 2732 EPROM are as follows:-

PAGE 0 = HEX 000 to 099  
PAGE 1 = HEX 400 to 499  
PAGE 2 = HEX 800 to 899  
PAGE 3 = HEX 200 to 299  
PAGE 4 = HEX 100 to 199

The DIL switch can be removed and replaced by a front panel rotary switch connected by a ribbon cable to the 8 pin DIL socket via a header plug as shown on the wiring diagram notes.



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DEVON, PL20 6SP, UK**

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| CHANNEL No. | FREQ. MHz            | CHANNEL No. | FREQ. MHz |
|-------------|----------------------|-------------|-----------|
| 0           | 137.060 (MET 1/30)   | 50          | 137.060   |
| 1           | 137.100              | 51          | 137.100   |
| 2           | 137.130 (MET 30)     | 52          | 137.130   |
| 3           | 137.150 (MET 30)     | 53          | 137.150   |
| 4           | 137.300              | 54          | 137.300   |
| 5           | 137.400 (COSMOS1500) | 55          | 137.400   |
| 6           | 137.500 (NOAA 10)    | 56          | 137.500   |
| 7           | 137.620 (NOAA 9)     | 57          | 137.620   |
| 8           | 137.700              | 58          | 137.700   |
| 9           | 137.850 (MET 3/1)    | 59          | 137.850   |
| 10          | 137.060              | 60          | 137.060   |
| 11          | 137.100              | 61          | 137.100   |
| 12          | 137.130              | 62          | 137.130   |
| 13          | 137.150              | 63          | 137.150   |
| 14          | 137.300              | 64          | 137.300   |
| 15          | 137.400              | 65          | 137.400   |
| 16          | 137.500              | 66          | 137.500   |
| 17          | 137.620              | 67          | 137.620   |
| 18          | 137.700              | 68          | 137.700   |
| 19          | 137.850              | 69          | 137.850   |
| 20          | 137.060              | 70          | 137.060   |
| 21          | 137.100              | 71          | 137.100   |
| 22          | 137.130              | 72          | 137.130   |
| 23          | 137.150              | 73          | 137.150   |
| 24          | 137.300              | 74          | 137.300   |
| 25          | 137.400              | 75          | 137.400   |
| 26          | 137.500              | 76          | 137.500   |
| 27          | 137.620              | 77          | 137.620   |
| 28          | 137.700              | 78          | 137.700   |
| 29          | 137.850              | 79          | 137.850   |
| 30          | 137.060              | 80          | 137.060   |
| 31          | 137.100              | 81          | 137.100   |
| 32          | 137.130              | 82          | 137.130   |
| 33          | 137.150              | 83          | 137.150   |
| 34          | 137.300              | 84          | 137.300   |
| 35          | 137.400              | 85          | 137.400   |
| 36          | 137.500              | 86          | 137.500   |
| 37          | 137.620              | 87          | 137.620   |
| 38          | 137.700              | 88          | 137.700   |
| 39          | 137.850              | 89          | 137.850   |
| 40          | 137.060              | 90          | 137.060   |
| 41          | 137.100              | 91          | 137.100   |
| 42          | 137.130              | 92          | 137.130   |
| 43          | 137.150              | 93          | 137.150   |
| 44          | 137.300              | 94          | 137.300   |
| 45          | 137.400              | 95          | 137.400   |
| 46          | 137.500              | 96          | 137.500   |
| 47          | 137.620              | 97          | 137.620   |
| 48          | 137.700              | 98          | 137.700   |
| 49          | 137.850              | 99          | 137.850   |



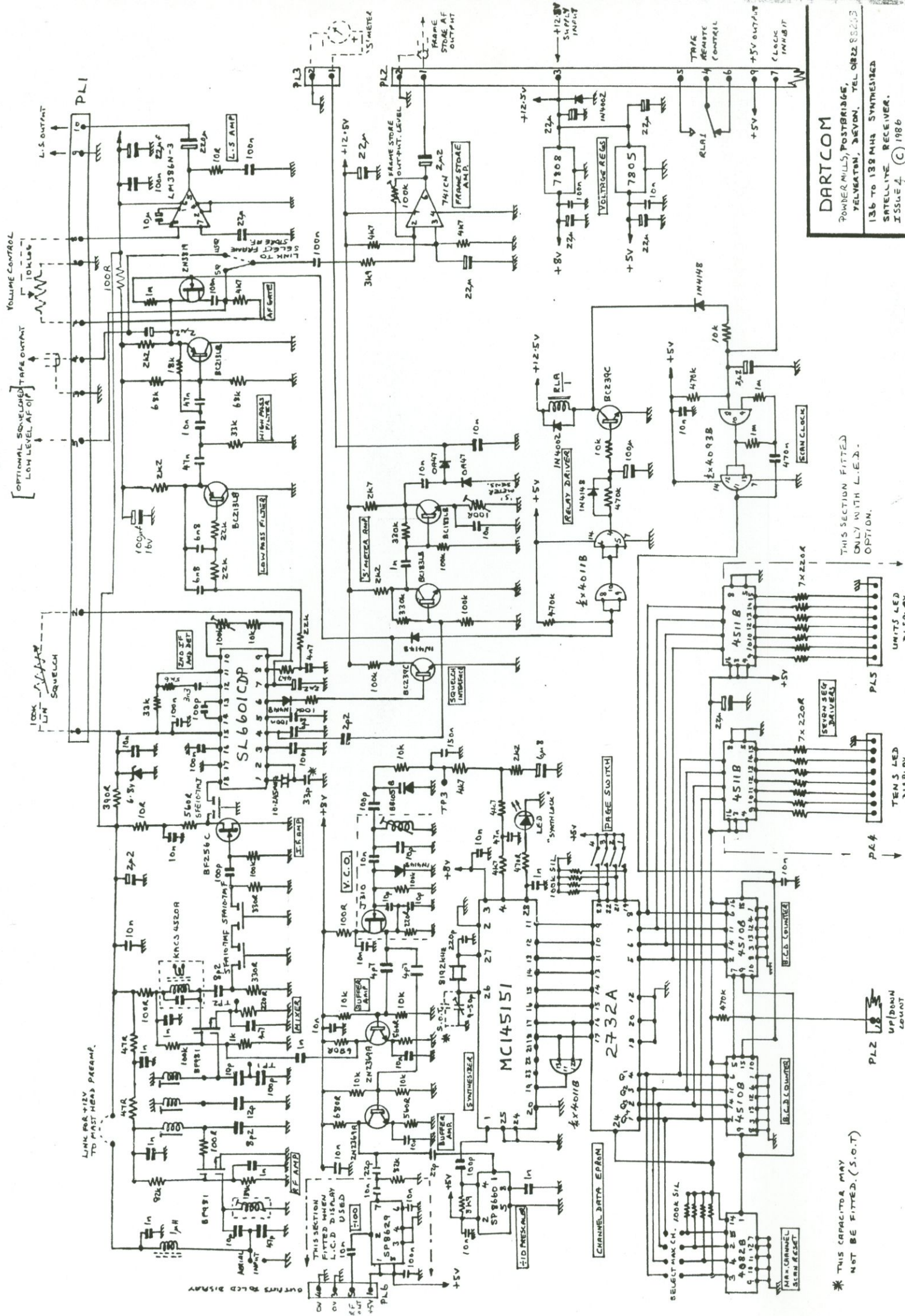
| CHANNEL No. | FREQ. MHz | CHANNEL No. | FREQ. MHz |
|-------------|-----------|-------------|-----------|
| 0           | 136.380   | 50          | 136.380   |
| 1           | 136.770   | 51          | 136.770   |
| 2           | 137.080   | 52          | 137.080   |
| 3           | 137.200   | 53          | 137.200   |
| 4           | 137.770   | 54          | 137.770   |
| 5           | 136.380   | 55          | 136.380   |
| 6           | 136.770   | 56          | 136.770   |
| 7           | 137.080   | 57          | 137.080   |
| 8           | 137.200   | 58          | 137.200   |
| 9           | 137.770   | 59          | 137.770   |
| 10          | 136.380   | 60          | 136.380   |
| 11          | 136.770   | 61          | 136.770   |
| 12          | 137.080   | 62          | 137.080   |
| 13          | 137.200   | 63          | 137.200   |
| 14          | 137.770   | 64          | 137.770   |
| 15          | 136.380   | 65          | 136.380   |
| 16          | 136.770   | 66          | 136.770   |
| 17          | 137.080   | 67          | 137.080   |
| 18          | 137.200   | 68          | 137.200   |
| 19          | 137.770   | 69          | 137.770   |
| 20          | 136.380   | 70          | 136.380   |
| 21          | 136.770   | 71          | 136.770   |
| 22          | 137.080   | 72          | 137.080   |
| 23          | 137.200   | 73          | 137.200   |
| 24          | 137.770   | 74          | 137.770   |
| 25          | 136.380   | 75          | 136.380   |
| 26          | 136.770   | 76          | 136.770   |
| 27          | 137.080   | 77          | 137.080   |
| 28          | 137.200   | 78          | 137.200   |
| 29          | 137.770   | 79          | 137.770   |
| 30          | 136.380   | 80          | 136.380   |
| 31          | 136.770   | 81          | 136.770   |
| 32          | 137.080   | 82          | 137.080   |
| 33          | 137.200   | 83          | 137.200   |
| 34          | 137.770   | 84          | 137.770   |
| 35          | 136.380   | 85          | 136.380   |
| 36          | 136.770   | 86          | 136.770   |
| 37          | 137.080   | 87          | 137.080   |
| 38          | 137.200   | 88          | 137.200   |
| 39          | 137.770   | 89          | 137.770   |
| 40          | 136.380   | 90          | 136.380   |
| 41          | 136.770   | 91          | 136.770   |
| 42          | 137.080   | 92          | 137.080   |
| 43          | 137.200   | 93          | 137.200   |
| 44          | 137.770   | 94          | 137.770   |
| 45          | 136.380   | 95          | 136.380   |
| 46          | 136.770   | 96          | 136.770   |
| 47          | 137.080   | 97          | 137.080   |
| 48          | 137.200   | 98          | 137.200   |
| 49          | 137.770   | 99          | 137.770   |

| CHANNEL No. | FREQ. MHz | CHANNEL No. | FREQ. MHz |
|-------------|-----------|-------------|-----------|
| 0           | 136.080   | 50          | 137.600   |
| 1           | 136.140   | 51          | 137.620   |
| 2           | 136.230   | 52          | 137.680   |
| 3           | 136.260   | 53          | 137.700   |
| 4           | 136.320   | 54          | 137.770   |
| 5           | 136.350   | 55          | 137.780   |
| 6           | 136.380   | 56          | 137.850   |
| 7           | 136.410   | 57          | 137.860   |
| 8           | 136.440   | 58          | 137.980   |
| 9           | 136.470   | 59          | 136.080   |
| 10          | 136.500   | 60          | 136.140   |
| 11          | 136.530   | 61          | 136.230   |
| 12          | 136.560   | 62          | 136.260   |
| 13          | 136.590   | 63          | 136.320   |
| 14          | 136.610   | 64          | 136.350   |
| 15          | 136.620   | 65          | 136.380   |
| 16          | 136.630   | 66          | 136.410   |
| 17          | 136.650   | 67          | 136.440   |
| 18          | 136.710   | 68          | 136.470   |
| 19          | 136.740   | 69          | 136.500   |
| 20          | 136.770   | 70          | 136.530   |
| 21          | 136.800   | 71          | 136.560   |
| 22          | 136.830   | 72          | 136.590   |
| 23          | 136.840   | 73          | 136.610   |
| 24          | 136.860   | 74          | 136.620   |
| 25          | 136.920   | 75          | 136.630   |
| 26          | 136.950   | 76          | 136.650   |
| 27          | 136.980   | 77          | 136.710   |
| 28          | 137.020   | 78          | 136.740   |
| 29          | 137.050   | 79          | 136.770   |
| 30          | 137.060   | 80          | 136.800   |
| 31          | 137.080   | 81          | 136.830   |
| 32          | 137.100   | 82          | 136.840   |
| 33          | 137.110   | 83          | 136.860   |
| 34          | 137.130   | 84          | 136.920   |
| 35          | 137.140   | 85          | 136.950   |
| 36          | 137.150   | 86          | 136.980   |
| 37          | 137.170   | 87          | 137.020   |
| 38          | 137.200   | 88          | 137.050   |
| 39          | 137.230   | 89          | 137.060   |
| 40          | 137.260   | 90          | 137.080   |
| 41          | 137.300   | 91          | 137.100   |
| 42          | 137.350   | 92          | 137.110   |
| 43          | 137.380   | 93          | 137.130   |
| 44          | 137.400   | 94          | 137.140   |
| 45          | 137.410   | 95          | 137.150   |
| 46          | 137.440   | 96          | 137.170   |
| 47          | 137.500   | 97          | 137.200   |
| 48          | 137.530   | 98          | 137.230   |
| 49          | 137.560   | 99          | 137.260   |

| CHANNEL No. | FREQ. MHz                     | CHANNEL No. | FREQ. MHz |
|-------------|-------------------------------|-------------|-----------|
| 0           | 136.000                       | 50          | 136.500   |
| 1           | 136.010                       | 51          |           |
| 2           | 136.020 etc.                  | 52          |           |
| 3           | Channels are all 10 KHz steps | 53          |           |
| 4           |                               | 54          |           |
| 5           |                               | 55          |           |
| 6           |                               | 56          |           |
| 7           |                               | 57          |           |
| 8           |                               | 58          |           |
| 9           |                               | 59          |           |
| 10          | 136.100                       | 60          | 136.600   |
| 11          |                               | 61          |           |
| 12          |                               | 62          |           |
| 13          |                               | 63          |           |
| 14          |                               | 64          |           |
| 15          |                               | 65          |           |
| 16          |                               | 66          |           |
| 17          |                               | 67          |           |
| 18          |                               | 68          |           |
| 19          |                               | 69          |           |
| 20          | 136.200                       | 70          | 136.700   |
| 21          |                               | 71          |           |
| 22          |                               | 72          |           |
| 23          |                               | 73          |           |
| 24          |                               | 74          |           |
| 25          |                               | 75          |           |
| 26          |                               | 76          |           |
| 27          |                               | 77          |           |
| 28          |                               | 78          |           |
| 29          |                               | 79          |           |
| 30          | 136.300                       | 80          | 136.800   |
| 31          |                               | 81          |           |
| 32          |                               | 82          |           |
| 33          |                               | 83          |           |
| 34          |                               | 84          |           |
| 35          |                               | 85          |           |
| 36          |                               | 86          |           |
| 37          |                               | 87          |           |
| 38          |                               | 88          |           |
| 39          |                               | 89          |           |
| 40          | 136.400                       | 90          | 136.900   |
| 41          |                               | 91          |           |
| 42          |                               | 92          |           |
| 43          |                               | 93          |           |
| 44          |                               | 94          |           |
| 45          |                               | 95          |           |
| 46          |                               | 96          |           |
| 47          |                               | 97          |           |
| 48          |                               | 98          |           |
| 49          |                               | 99          | 136.990   |

| CHANNEL No. | FREQ. MHz                     | CHANNEL No. | FREQ. MHz |
|-------------|-------------------------------|-------------|-----------|
| 0           | 137.000                       | 50          | 137.500   |
| 1           | 137.010                       | 51          |           |
| 2           | 137.020 etc.                  | 52          |           |
| 3           | Channels are all 10 KHz steps | 53          |           |
| 4           |                               | 54          |           |
| 5           |                               | 55          |           |
| 6           |                               | 56          |           |
| 7           |                               | 57          |           |
| 8           |                               | 58          |           |
| 9           |                               | 59          |           |
| 10          | 137.100                       | 60          | 137.600   |
| 11          |                               | 61          |           |
| 12          |                               | 62          |           |
| 13          |                               | 63          |           |
| 14          |                               | 64          |           |
| 15          |                               | 65          |           |
| 16          |                               | 66          |           |
| 17          |                               | 67          |           |
| 18          |                               | 68          |           |
| 19          |                               | 69          |           |
| 20          | 137.200                       | 70          | 137.700   |
| 21          |                               | 71          |           |
| 22          |                               | 72          |           |
| 23          |                               | 73          |           |
| 24          |                               | 74          |           |
| 25          |                               | 75          |           |
| 26          |                               | 76          |           |
| 27          |                               | 77          |           |
| 28          |                               | 78          |           |
| 29          |                               | 79          |           |
| 30          | 137.300                       | 80          | 137.800   |
| 31          |                               | 81          |           |
| 32          |                               | 82          |           |
| 33          |                               | 83          |           |
| 34          |                               | 84          |           |
| 35          |                               | 85          |           |
| 36          |                               | 86          |           |
| 37          |                               | 87          |           |
| 38          |                               | 88          |           |
| 39          |                               | 89          |           |
| 40          | 137.400                       | 90          | 137.900   |
| 41          |                               | 91          |           |
| 42          |                               | 92          |           |
| 43          |                               | 93          |           |
| 44          |                               | 94          |           |
| 45          |                               | 95          |           |
| 46          |                               | 96          |           |
| 47          |                               | 97          |           |
| 48          |                               | 98          |           |
| 49          |                               | 99          | 137.990   |

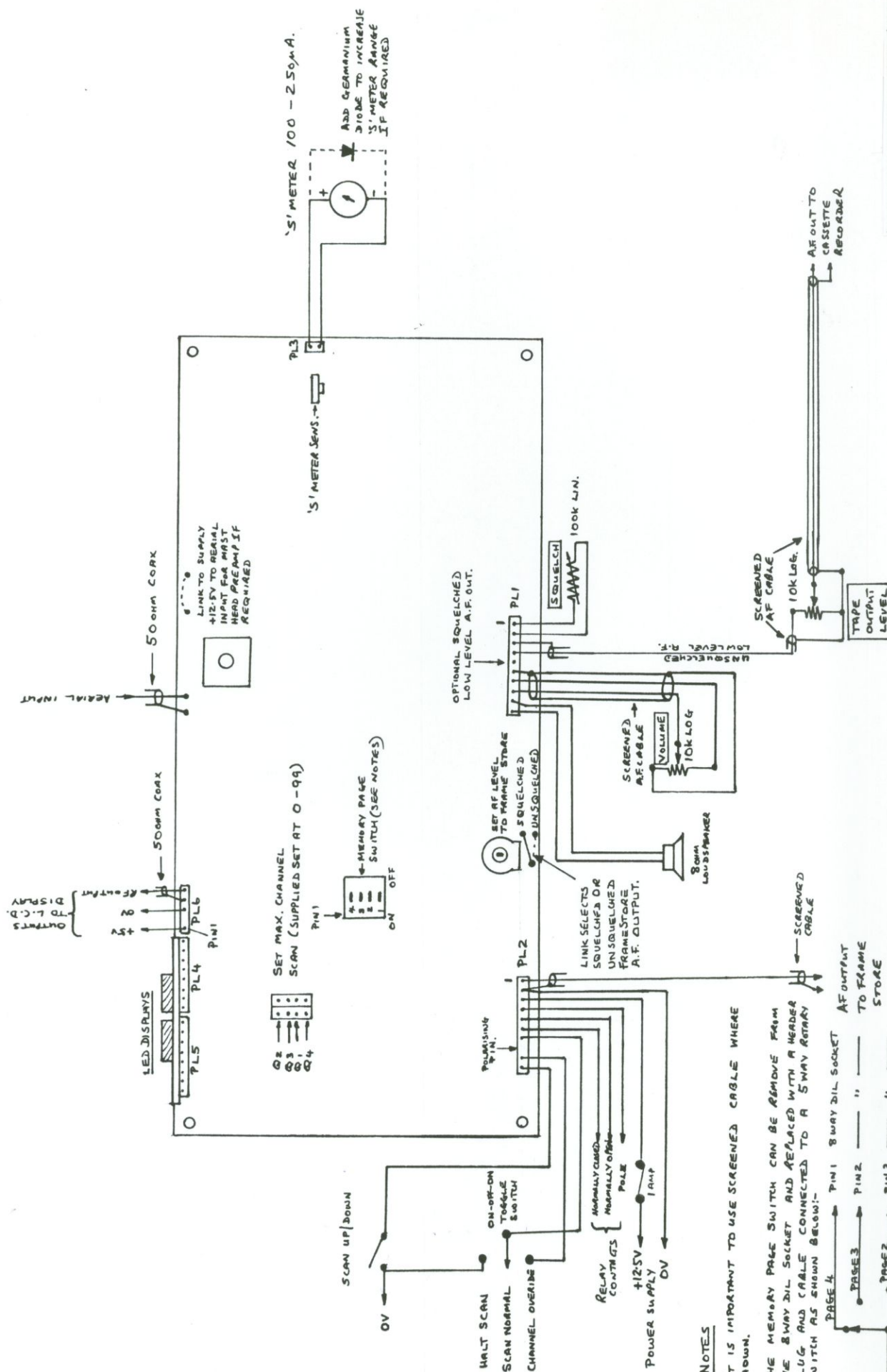




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136 TO 138 MHz SYNTHESIZED  
SATELLITE RECEIVER.  
ISSUE 4 (C) 1986

SUGGESTED WIRING DIAGRAM FOR DARTCOM SYNTHESIZED SATELLITE RX.



## NOTES

- ② THE MEMORY PAGE SWITCH CAN BE REMOVED FROM THE 8WAY DIL SOCKET AND REPLACED WITH A HEADER PLUG AND CABLE CONNECTED TO A 5WAY RETAY SWITCH AS SHOWN BELOW:-

Timing diagram for the 8-way DIL socket. The diagram shows the relationship between the PAGE signals and the 8-way DIL socket. The signals are labeled PAGE 4, PAGE 3, PAGE 2, PAGE 1, and PAGE 0. The 8-way DIL socket is labeled 8 WAY DIL SOCKET. The diagram shows that PAGE 4 is active (high) during the first two time intervals, PAGE 3 is active during the next two, PAGE 2 is active during the third, PAGE 1 is active during the fourth, and PAGE 0 is active during the fifth. The 8-way DIL socket is active (high) during the first four time intervals and inactive (low) during the fifth.

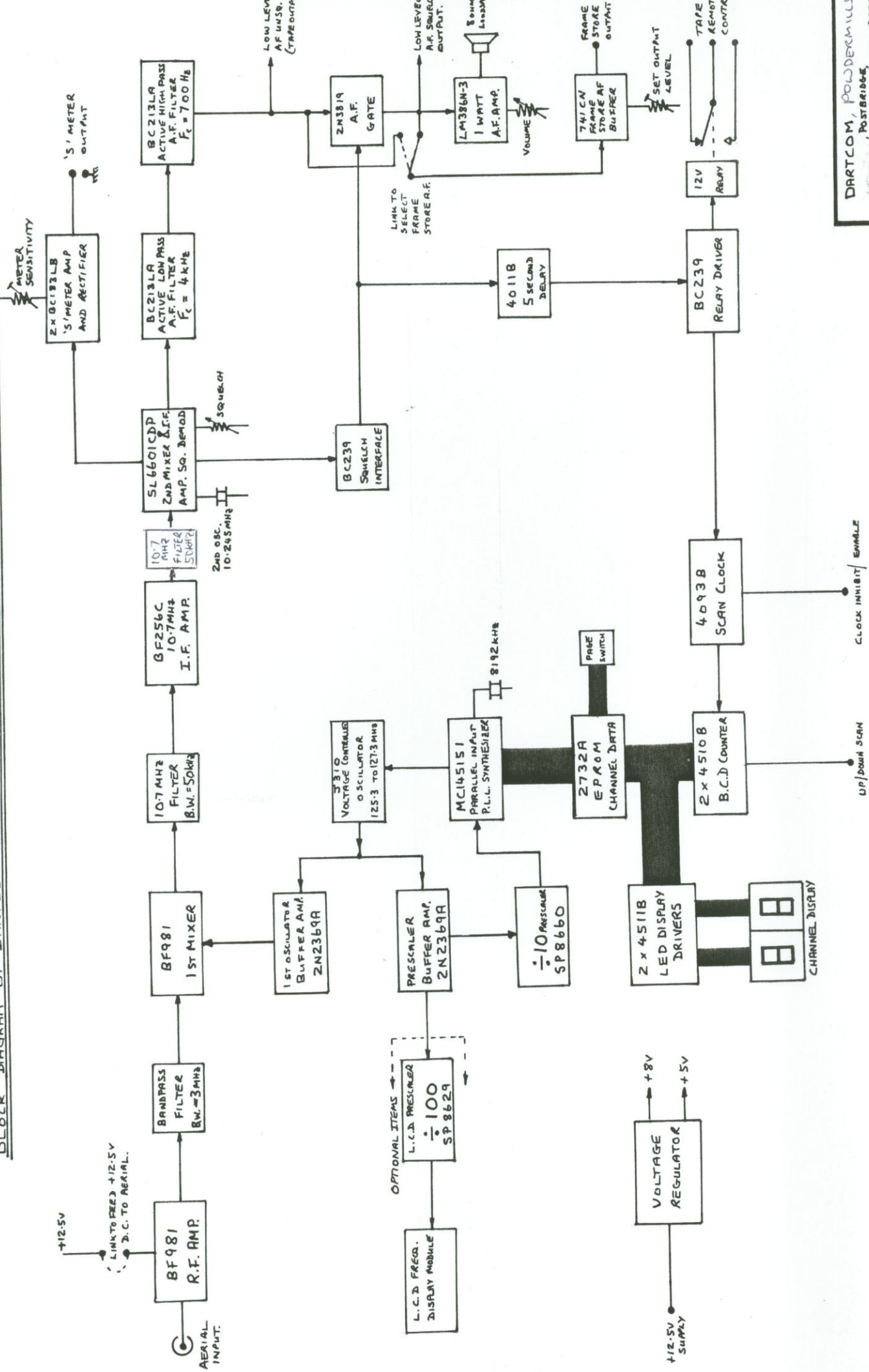
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# Block Diagram of Dartcom 136 to 138 MHz Synthesized Satellite Receiver



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