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T525 Mobile Two Way Radio

VHF FM 66-88MHz

(M525-00)

Issue A

TECHNICAL INFORMATION

For further information about this Manual or the equipment it describes, contact the Product Distribution Group, Tait Electronics Ltd, at the above address.

UPDATING EQUIPMENT AND SERVICE MANUALS

In the interests of improving performance, reliability or servicing, Tait Electronics Ltd reserve the right to update their equipment and/or Service Manuals without prior notice.

SCOPE OF MANUAL

This Manual covers the General, Technical and Servicing Information on the T525 mobile two way radio.

Ordering Tait Service Manuals

When ordering Tait Service Manuals quote the Tait Internal Part Number (IPN) (and where applicable the version) viz;

IPN M525-00 T525 Service Manual (All Versions)

Provisional Issue published September 1988
Issue A published May 1990

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SECTION 1 GENERAL INFORMATION

1.1 INTRODUCTION

The T525 is a high performance, synthesised mobile two way radio with a nominal RF power output of 25 watts. It is intended for operation in the 66 to 88MHz frequency range with 12.5 or 25kHz channel spacing, and transmitter deviation of up to ±5kHz. The standard set has provision for two channels.

Operation of the T525 is by hand held microphone and press-to-talk switch, plus five front panel mounted controls: 'Volume', 'Squelch', 'Channel Change', 'Call' and 'On/Off Switch'. Visual indication of 'Channel Selected', 'Transmit', 'Busy' and 'Call' (if selective calling is fitted) is by illuminated front panel display.

Provision is made for selective calling or CTCSS to be incorporated within the case of the T525.

Two injection moulded plastic covers and the plastic front panel can be easily removed to expose both sides of the printed circuit board for ease of servicing.

The T525 employs the dual modulus system of frequency synthesis. Channel information is held on a plug-in diode matrix board which can be field programmed with a soldering iron.

The dual conversion receiver employs both discrete components and integrated circuits. It also includes a signal-to-noise ratio operated squelch circuit. The receiver delivers approximately 4 watts of audio power to a 3.5 ohm speaker.

The transmitter VCO provides about 40mW of frequency modulated RF drive to the four stage broad band RF amplifier. An audio processor provides modulation level control, deviation limiting and a transmit timer which returns the T525 to receive after approximately one and a half minutes of transmission.

The T525 is light and compact and is supplied with a versatile mounting system to allow easy installation in any vehicle. Mains operation is possible when the T525 is used with the T508 Power Supply.

The DC supply to the set must be negative earth and may be between 10.8 and 16 volts. The T525 is protected against reversal of the DC supply connections.

1.2 SPECIFICATIONS

1.2.1 GENERAL

The performance figures given are typical figures, unless otherwise indicated, for equipment tuned with the maximum switching band and operating at standard room temperature (22°C to 28°C).

Two versions of the T525 are available (Wide Band and Narrow Band) and separate performance figures are provided for several parameters.

Where applicable, the test methods used to obtain the following performance figures are those described in the UK Specification MPT1301.

Details of test methods and the conditions which apply for type approval testing can be obtained from Tait Electronics Ltd.

Modulation System	.. Frequency Modulation
Frequency Range	.. 66 to 88MHz
Channel Separation	.. 12.5kHz (minimum)
Frequency Increment	.. 5 or 6.25kHz
Number Of Channels	.. 2, 10, 40 or 80 (to order)
Switching Range:	
Transmitter And Receiver	.. 3MHz (receiver 2.5MHz in Singapore)
Supply Voltage:	
Operating Range	.. 10.8 to 16V DC
Standard Test Voltage	.. 13.8V DC
Polarity	.. negative earth only
Protection	.. internal crowbar diode
Supply Current:	
Receiver - Squelched	.. 150mA
Receiver - Full Audio	.. 700mA
Transmitter	.. 4.5A (at 25W)
Antenna Cable Impedance	.. 50 ohms (nominal)
T/R Changeover Switching	.. solid state
Operating Temperature Range (refer to Section 1.2.4)	.. -30°C to +60°C
Dimensions:	
Length	.. 238mm
Width	.. 150mm
Height	.. 45mm
Weight	.. 1.2kg

1.2.2 RECEIVER

Type	.. dual conversion superhet
12dB Sinad Sensitivity	.. -118dBm
IF Amplifiers:	
Frequencies	.. 10.7MHz and 455kHz
Bandwidth:	
Narrow Band	.. 7.5kHz
Wide Band	.. 15kHz
Signal+Noise-To-Noise Ratio:	
Narrow Band	.. 32dB
Wide Band	.. 35dB
Selectivity: (adjacent channel)	
Narrow Band	.. 80dB
Wide Band	.. 85dB
Spurious Response Attenuation	.. 80dB
Intermodulation Response Attenuation	.. 75dB
Spurious Emissions:	
Conducted	.. -80dBm
Radiated ($\frac{1}{2}$-wavelength dipole)	.. -67dBm
Audio:	
Output into internal 8 ohm speaker	.. 2W
Output into external 3.5 ohm speaker	.. 4W
Distortion (at rated power)	.. 3%
Minimum Load Impedance	.. 2 ohms
Audio Response	.. within +1dB, -3dB of a 6dB/octave de-emphasis characteristic (ref. 1kHz)
Audio Bandwidth	.. 300Hz to 3kHz
Squelch:	
Threshold	.. -126dBm (0.11µV pd)/6dB Sinad
Hard Setting	.. -115dBm (0.4µV pd)/25dB Sinad
Ratio	.. 70dB

1.2.3 TRANSMITTER

Power Output	.. 25W
Transmit Timer	.. 1.5 minutes
Mismatch Capability	
Stability	.. VSWR <5:1 (all phase angles)
Ruggedness	.. 2 minute transmit into infinite VSWR (all phase angles)

Spurious Emissions:

Conducted	.. -36dBm
Radiated (½-wavelength dipole)	.. -40dBm

Adjacent Channel Power:

Narrow Band	.. 70dB below carrier
Wide Band	.. 80dB below carrier

Modulation System:

Type	.. direct FM
Deviation Limiting	.. ±5kHz (peak) maximum
Bandwidth	.. 300Hz to 3kHz
Responses:	
In Limiting	.. within +0, -4dB of maximum system deviation
Below Limiting	.. within +1, -3dB of 6dB/octave pre-emphasis (ref. 1kHz)
Frequencies Above 3kHz	.. greater than 25dB/octave roll-off

Audio:

Input for 60% Maximum Deviation (at 1kHz)	.. 6mV rms
Distortion	.. 2%
Hum And Noise	.. 45dB

1.2.4 FREQUENCY REFERENCE

Stability:

±5ppm (-10°C to +60°C)	.. TE/9
±3ppm (-10°C to +60°C)	.. T500-26/27 TCXO
±5ppm (-30°C to -10°C)	.. T500-27 TCXO

Oscillator Frequency:

5kHz Reference Frequency	.. 10.24MHz
6.25kHz Reference Frequency	.. 12.8MHz

1.3 VERSIONS

Version	15kHz IF Bandwidth	7.5kHz IF Bandwidth	5kHz Freq. Increments	6.25kHz Freq. Increments	CTCSS
T525-20	+		+		
T525-21		+	+		
T525-22	+		+		+
T525-23		+	+		+
T525-30	+			+	
T525-31		+		+	
T525-32	+			+	+
T525-33		+		+	+

1.4 OPERATING INSTRUCTIONS

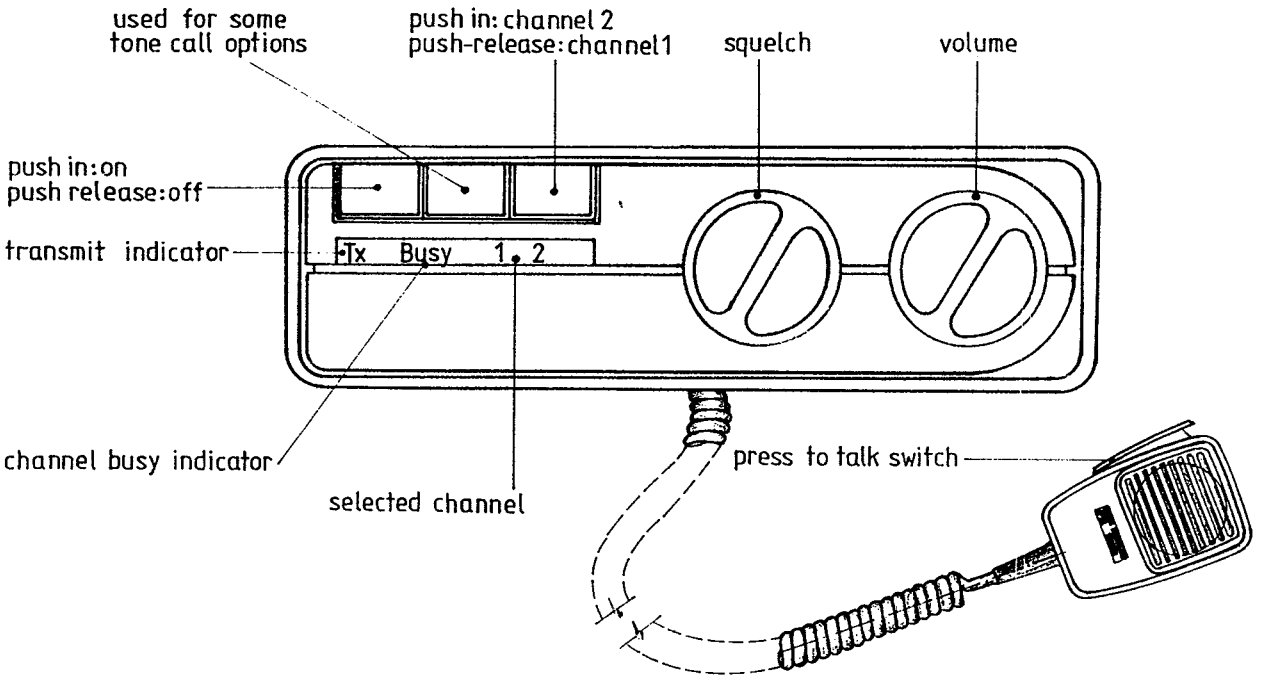


Figure 1 Front Panel Layout

To Receive:

a) The front panel display will indicate which channel has been selected.

b) Turn the squelch control clockwise until noise is heard, then turn it anticlockwise 5° beyond the point at which the receiver quietens.

Note: Where CTCSS is used without a hook monitoring facility, it will be necessary to view the 'Busy' indicator when setting the squelch.

To Transmit:

a) Check that the channel is vacant before transmitting.

b) Close the press-to-talk switch before beginning to speak.

c) The T525 will automatically revert to receive after 1.5 minutes of transmission. To continue transmitting, release, then close the press-to-talk switch.

d) Always replace the microphone in the clip when not in use.

SECTION 2 CIRCUIT OPERATION

Refer to the Block and Circuit Diagrams at the rear of this Manual.

2.1 SYNTHESISER

The dual modulus synthesiser of the T525 features separate on-frequency VCOs for receive and transmit. Each VCO consists of a J-FET Hartley oscillator buffered by a dual gate MOSFET. The transmit VCO is frequency modulated by the application of audio to the varicap diode D51.

A crystal provides a stable reference frequency of 12.8MHz which is divided down to 6.25kHz and fed to one input of a phase comparator within IC8. For applications which require high frequency stability over a wide temperature range, a crystal heater is added. The crystal and heater are mounted on the LED board. Alternatively, a 10.24MHz crystal is used to give a 5kHz reference where channel spacing in multiples of 5kHz is required.

The VCO frequency is divided by the 40/41 prescaler, IC9, and then further divided within IC8 to provide the other input to the phase comparator. The division ratio in IC8, and hence the channel frequency, is determined by the diode matrix board.

The phase comparator output (pins 7 & 8 of IC8) is fed to the speedup circuit (Q27, Q28) and the loop filter (R181, C177, R183, C178, R186), and then to either R187, C185 and D35 for receive, or R227, C226 and D50 for transmit.

2.2 RECEIVER

The RF signal from the PIN switch is amplified by Q15 and fed to the balanced mixer (Q16, Q17) via a triple tuned circuit. 10mW from the VCO is fed in antiphase to the gates of the two mixer J-FETs.

The IF output from the mixer passes through the 10.7MHz crystal filter and is amplified by Q18 before being fed to IC7.

IC7 provides the following functions: IF conversion from 10.7MHz to 455kHz with external crystal X1 (CF1 sets the 455kHz IF bandwidth); amplitude limiting; quadrature detection with CD1; and squelch. Q19 provides additional limiting gain.

Audio from pin 9 of IC7 is de-emphasised by R68 and C55 and is fed through the audio processor (see Section 2.4.2) to the audio output amplifier, IC4.

2.3 SQUELCH

An input signal to the squelch circuit is obtained from the audio output of IC7 via RV149. This signal has a noise level which is inversely related to the level of an RF signal at the receiver input.

An op-amp within IC7 is used in a band pass filter configuration to select and amplify noise frequencies above the audio band. The centre frequency is approximately 8kHz in the wide band T525 and 4.5kHz in the narrow band T525.

The band-pass filter output is rectified by Q20 to give a positive going DC voltage which is an inverse function of the RF signal strength.

This DC voltage is then fed to a threshold detector within IC7, in such a way that pin 14 of IC7 is high in the presence of noise and low in the absence of noise. The threshold point occurs at approximately 0.7 volts.

The switching signal from the threshold detector is then inverted by Q7. C17 and R26 provide an extended tail time (to prevent squelch closure during rapid fades) while maintaining a fast opening time. C17 may be removed to reduce the squelch tail time.

Q6 drives the squelch element, which is part of the audio processor, and the 'Busy' LED.

2.4 TRANSMITTER

2.4.1 RF STAGES

The 40mW output of the frequency modulated VCO is amplified to a level of 25 watts by a 4 stage broad band amplifier (Q39, Q40, Q41 & Q47). High level RF then passes via the PIN diode aerial changeover switch through the low pass filter to the aerial connector.

The transmit power output is set at 25 watts by RV256 which controls the collector voltage of Q40, and hence the gain of the broad band amplifier. The circuit utilises a power detector (D61) and a feed back loop to hold the transmitter power to 25 watts under conditions of varying supply voltage.

The current sense transistor (Q46) can also reduce the gain of the broadband RF amplifier to limit dissipation in the driver transistor (Q41) under conditions of severe antenna mismatch.

Transistor Q43 prevents the transmitter turning on when the synthesiser is out of lock.

2.4.2 AUDIO PROCESSOR

Transistor Q10 provides microphone preamplification while IC2 provides the necessary gain limiting and filter functions for the audio signal. An automatic level control (ALC) function is performed by detector Q11 and shunt elements D15 and D16. The analogue switches within IC3 allow either transmit or receive audio to be directed through the audio processor. Connection points for CTCSS or selective calling options are shown on the Circuit Diagram.

2.5 POWER SUPPLY

2.5.1 GENERAL

Note: The T525 is suitable for negative earth applications only.

The unit is protected by a crowbar diode (D1) which will blow the fuse if the supply is reverse connected.

DC is connected to the audio output IC and the transmitter final, driver, and power turn-down stages whenever the T525 is connected to a supply.

2.5.2 CONTINUOUS SUPPLIES

DC from the on/off switch supplies the audio output IC enable and the short circuit protected 9 volt regulator. A continuous 9 volts is applied to the audio processor and synthesiser.

2.5.3 RECEIVE

When the PTT switch is open, IC1 turns Q5 on and Q4 off, enabling the following circuits:

that part of the diode matrix board containing receive channel information
receive VCO
receiver
squelch control
IC3 pin 5
receive diode in the aerial switch.

2.5.4 TRANSMIT

When the PTT switch is closed, IC1 turns Q4 on and Q5 off, enabling the following circuits:

that part of the diode matrix board containing transmit channel information
transmit VCO
low power transmitter stages
IC3 pins 12 and 13
transmit diode in the aerial switch

Closing the PTT switch also initiates a timer circuit around IC1 which will return the T525 to receive after 1.5 minutes of transmission.

2.5.5 FREQUENCY INFORMATION

The diode matrix board has four rows of diodes. A row is selected by D44 to D47 and R216 to R219, according to the channel switch position and whether the T525 is in the receive or transmit mode. The channel frequency is selected by soldering between pads as described in Table 1, such that the correct pattern of '0's and '1's is presented to IC8.

SECTION 3 ANCILLARY EQUIPMENT

3.1 T508-01/02 POWER SUPPLY

The T508 Power Supply will allow the operation of a T500 Series I or II two way radio from a 230V (nominal) 50Hz or a 115V (nominal) 60Hz mains supply. The radio can be mounted on the T508 to give a compact desk top installation, or they can be separately wall mounted to save desk space.

The T508 provides a 13.8V DC 5.5A (intermittent) regulated supply for the T500 Series I and II two way radios and incorporates current limiting and thermal protection.

Type Numbers:

230V Supply	.. T508-01 (previously designated T508)
115V Supply	.. T508-02 (previously designated T508/115)

3.2 T508-21/22 SWITCH MODE REGULATOR

The T508-21/22 Power Supply uses switch mode technology to control the regulation of the output voltage. This results in a power supply with a higher temperature rating, improved efficiency and greater reliability.

The T508-21/22 provides a 13.8V DC 6.5A (intermittent) regulated supply for the T500 Series I and II two way radio and incorporates current limiting and thermal protection.

Type Numbers:

230V Supply	.. T508-21
115V Supply	.. T508-22

3.3 T220-02 REMOTE SPEAKER ASSEMBLY

The T220-02 (previously designated the T220/2) is a remote speaker assembly which may be used with the T525. It comprises a heavy duty speaker mounted in a rugged enclosure which pivots on its mounting bracket. The 3.5 ohm voice coil of the speaker is connected by a short lead terminated in a 2 pin cord mounted connector. The enclosure is compact and easily mounted in any convenient position.

3.4 T500-01 CTCSS

The T500-01 CTCSS unit (previously designated the TA-500/CTCSS) is a plug-in option designed to fit T500 Series I and II two way radios.

It requires no wiring to install and will encode and decode CTCSS tone frequencies within the range 67Hz to 250Hz with separate adjustment for each channel. Hook switch monitoring and transmit inhibit on "busy" may be field selected.

Refer to TI-343 for fitting and servicing details.

3.5 T500-11 CTCSS

The T500-11 is a plug-in CTCSS encoder/decoder designed to fit T500 Series II radios. All functions and specifications of the T500-11 are the same as the T500-01, but the T500-11 has an additional alert tone ("beep") circuit.

This feature gives an audible indication of a busy channel when transmit inhibit is active. The operator no longer needs to look at the radio for a busy indication (which may be unsafe in a motor vehicle), as is the case with the T500-01.

Refer to TI-336A for fitting and servicing details.

3.6 T500-02 MULTICHANNEL CTCSS

The T500-02 (previously designated TA-500MC/CTCSS) is a high performance CTCSS encoder/decoder for use with T500 Series I and II radios equipped with any one of the following multichannel conversion kits:

T500-03 (previously designated TA-500/10)
T500-04 (previously designated TA-500/40)
T500-55

It will encode and decode all 37 standard tones from groups A, B and C, permitting the use of all 37 tones on one repeater. Encode and decode tones many be the same or different on each radio channel programmed. No tone on transmit and no CTCSS mute on receive may also be programmed on any radio channel.

Hook switch monitoring is also programmable on any channel. Transmit inhibit on busy is fitted as standard.

For further details refer to TI-328.

3.7 T500-03/04 MULTICHANNEL

The T500-03 and T500-04 (previously designated TA-500/10 and /40 respectively) are add-on kits which convert a T500 Series I or II two way radio to 10 or 40 channel operation. Compatibility is maintained with all other Tait T500 accessories.

An Erasable Programmable Read Only Memory (EPROM) is used to store channel and CTCSS data. The EPROM is field programmable using a Tait T601 Programmer.

For further details refer to TI-292B.

3.8 T500-55 MULTICHANNEL

The T500-55 is a retrofit kit which converts a T500 Series II two way radio to 10, 20, 40 or 80 channel operation. Compatibility is maintained with all other Tait T500 Series II accessories.

An Erasable Programmable Read Only Memory (EPROM) is used to store channel and CTCSS data. The EPROM is field programmable using a Tait T601 Programmer.

Channel selection is made by the front panel mounted up/down push buttons. A squelch defeat button is also provided.

For further details refer to TI-323.

3.9 T500-07 RUGGED CRADLE

The T500-07 (previously designated the TA-500/RC) is a rugged cradle affording a higher level of environmental and mounting security than the standard cradle. It comes complete with mounting screws and cradle unlocking key.

3.10 T500-22 MEMORY MODULE

The T500-22 (previously designated the TA-500/M2) is a plug-in memory unit using surface mount devices.

3.11 T500-26/27 TCXO

The T500-26 or -27 TCXO PCB's are 12.8MHz reference oscillators with ±3.0ppm temperature stability over the temperature range of -10°C to +60°C. The T500-27 is additionally specified to be within ±5.0ppm from -30°C to -10°C.

These optional PCB's are fitted in place of the T500 LED PCB, and employ temperature sensing and compensation techniques to achieve the ±3.0ppm stability without the high current consumption normally associated with crystal heaters.

Refer to TI-316B for servicing and fitting instructions.

3.12 T500-56/57 MULTICHANNEL TCXO

The T500-56 or -57 TCXO PCB's are 12.8MHz reference oscillators with ±3.0ppm temperature stability over the temperature range of -10°C to +60°C. The T500-57 is additionally specified to be within ±5.0ppm from -30°C to -10°C.

These add-on PCB's are used when the T500 Series II two way radio is fitted with a T500-55 Multichannel PCB, and employ temperature sensing and compensation techniques to achieve the ±3.0ppm stability without the high current consumption normally associated with crystal heaters.

Refer to TI-338 for servicing and fitting instructions.

SECTION 4 INSTALLATION

4.1 VEHICLE INSTALLATION

Installation instructions (IPN 409-50001-00) are packed with each radio.

CAUTION: The T525 is suitable for negative earth installation only.

SECTION 5 SERVICING

5.1 GENERAL

5.1.1 NOTES

If further information is required about the T525 or this Manual, it may be obtained from Tait Electronics Ltd or accredited agents. When requesting this information, please quote either the equipment type number (e.g. T525-30), or serial number (found adjacent to the aerial connector at the back of the set). In the case of the Circuit Diagrams quote the 'Title' and 'Issue' and for the Service Manual quote the internal part number (IPN) and Issue, e.g. M525-00, Issue A.

CAUTION: CLEANING

This is a plastic based product with a secondary finish on the front panel. Use a cloth dampened with warm, soapy water to clean. If solvent cleaners are to be used for stubborn stains, test first on a part of the set normally out of sight. Do not use solvent cleaners on the front panel.

CAUTION: AERIAL LOADING

The equipment has been designed to operate over a wide range of aerial loading conditions. However, it is strongly recommended that the transmitter is not operated in the absence of a suitable load. Failure to observe this precaution may result in damage to the transmitter power output stage.

CAUTION: BERYLLIUM OXIDE & POWER TRANSISTORS

The RF power transistors in current use all contain some beryllium oxide. This substance, while perfectly harmless in its normal solid form, can become a severe health hazard when it has been reduced to dust. For this reason the RF power transistors should not be scratched, mutilated, filed, machined, or physically damaged in any way that can produce dust particles.

CAUTION: CMOS DEVICES

The equipment contains CMOS devices which are susceptible to damage from static charges. Care when handling these devices is essential. For correct handling procedures refer to the manufacturers data books, e.g. Philips data books covering CMOS devices, or Motorola CMOS data books, Section 5 'Handling', etc.

5.1.2 TECHNICAL INSTRUCTIONS

From time to time 'Technical Instructions' (TI's) are issued by Tait Electronics Engineering Division. These TI's may be used to update equipment or information, or to meet specific operational requirements.

5.2 MECHANICAL

5.2.1 POZIDRIV RECESS HEAD SCREWS

Pozidriv screws are the preferred standard on all Tait manufactured equipment. The very real advantages of this type of screw will not be realised unless the correct screwdrivers are used by servicing personnel.

Pozidriv No 1 screwdrivers will fit the pozidriv screws used in the T525. Philips cross-head screwdrivers are not satisfactory for use on these screws.

5.2.2 DISASSEMBLY INSTRUCTIONS

Note: To assist in separating the top and bottom covers, a thin plastic strip (such as a plastic rule) may be inserted between the covers and used as a lever.

5.2.2.1 To Gain Access To The Component Side Of The PCB

Place the T525 upside down on the bench.

Remove the 4 bottom cover retaining screws.

Gently lift both ends of the bottom cover until it clears the front panel and heatsink.

Lift away the bottom cover.

5.2.2.2 To Gain Access To The Track Side Of The PCB

Remove the bottom cover as in 5.2.2.1 above.

Turn the T525 over on the bench.

Remove the 2 top cover retaining screws.

Gently raise both ends of the top cover until it clears the front panel and heatsink.

5.2.2.3 To Remove The Front Panel

Remove the bottom and top covers as instructed above.

Slide the front panel forward.

It is not necessary to remove the knobs, they may be left in place.

5.2.2.4 To Gain Access To The PA Components

To gain access to the PA, remove the screws retaining the two PA cavity lids.

Remove the component side lid towards the right hand side of the PCB (as viewed from the front of the set) so that it clears the power supply feedthrough capacitor.

5.2.2.5 Speaker Removal/Refitting

The speaker in the T525 is held in place with four "push-on fix" spring clips (IPN 357-00010-09, Spire No. SFP 3253) which may cause problems when the speaker is removed.

To remove the speaker, cut the spring clips off the plastic locating pegs with wire cutters. Do not attempt to prise off the spring clips as this will damage the pegs.

Fit four new clips when refitting the speaker.

5.2.3 VCO CAN

CAUTION: When loosening or tightening the 4 retaining screws of the VCO can, support the can from the component side.

5.2.4 REASSEMBLY

Reassembly is carried out in the reverse order of the above.

Replace the PA covers.

Slide on the front panel, taking care to guide the four LEDs into their respective channels in the plastic moulding.

Press the microphone cord into its retaining slot.

Fit the top cover:

Gently press the cover into position, taking care to position the rim at the rear of the cover into the heatsink groove. Ensure that the rim of the front panel fits into the groove round the front of the top cover.

Replace the two "Taptite" screws at the rear of the cover.

Fit the bottom cover:

Invert the T525.

Gently press the cover into position, taking care to position the rim at the rear of the cover into the heatsink groove. Ensure that the rim of the front panel fits into the groove round the front of the bottom cover.

While fitting the bottom cover, check that the right hand retaining screw pillar slides into the hole in the LED PCB.

Replace the two "Taptite" screws at the rear of the cover and the two "Plastite" screws at the front of the cover.

5.3 REPAIR

5.3.1 COMPONENT CHECKS

If a transistor is suspected of faulty operation, an indication of its performance can be assessed by measuring the forward and reverse resistance of the junctions. First make sure that the transistor is not shunted by some circuit resistance (unless the device is completely unsoldered). An AVO model 8 or equivalent meter should be used for taking the measurements, using only the medium or low resistance ranges.

The collector current drawn by multijunction transistors is a further guide to their operating performance.

If an integrated circuit (IC) is suspect, the most reliable check is to measure the DC operating voltages. Due to the catastrophic nature of most IC failures, the pin voltages will usually be markedly different from the recommended values in the presence of a fault. These values can be found on the Circuit Diagram, or in the component data catalogue.

5.3.2 LEADED COMPONENT REPLACEMENT

Whenever components are removed from, or fitted to the printed circuit track, care must be taken to avoid damage to the track. If it is necessary to remove a component from the track, the following procedure is recommended:

Remove the solder from the component leads using a solder wick.
Loosen the individual leads from the printed track.
Withdraw the component from the top of the PCB.

Because of the delicate nature of the printed track, the use of solder suckers is not recommended.

Do not remove the component from the PCB while the solder is still molten.

Keep all soldering operations, and the heat and solder applied, to a minimum. A thermally controlled, fine tip soldering iron should be used. Ensure that the iron is earthed back to the frame of the set.

5.3.3 CHIP COMPONENT REMOVAL/REPLACEMENT

Note 1: **The following procedure applies only to chip capacitors, resistors and transistors. Do not attempt to remove surface mount IC's by hand with a soldering iron. These devices must be serviced only with appropriate desoldering equipment or by an Approved Tait Dealer.**

Note 2: The temperature of the soldering iron must be maintained at 320-370°C (600-700°F) and a low temperature solder should be used.

5.3.3.1 Component Removal

1. Place the soldering iron tip directly on the component in order to melt the solder and glue as shown in Figure 5. Remove the component with tweezers or long nose pliers.

2. Completely remove the old solder from the PCB, using a solder wick. Application of a small amount of flux will greatly aid in the removal of old solder. The use of 'solder suckers' is not recommended.

5.3.3.2 Replacement

1. After a component has been removed and the PCB pattern cleaned, apply a small amount of solder on the PC pattern and allow to cool, as shown in Figure 6.

2. Insert the new components and apply the soldering iron tip to the PC pattern as shown in Figure 7 (a), (b) and (c).

CAUTION: As patterns and components are close to each other, extreme care must be excercised when soldering so as not to damage components or bridge the PCB pattern paths. High soldering iron temperatures can cause component damage. Do not apply the soldering iron tip to the new component during installation.

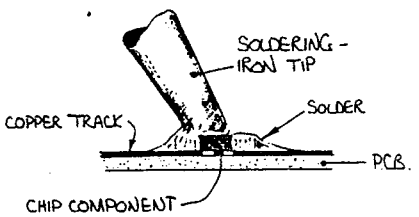


Figure 5

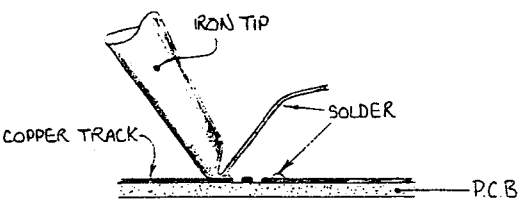


Figure 6

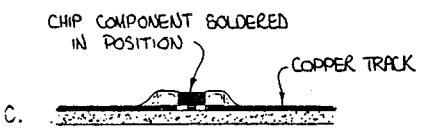


Figure 7

5.3.4 COMPONENT REMOVAL FROM PTH PCB's

The two satisfactory methods of removing components from PTH PCB's are detailed below.

Note: The first method requires the use of a desoldering station, e.g. Philips SBC 314 or Pace MBT-100E.

5.3.4.1 Desoldering Iron Method

Place the tip over the lead and, as the solder starts to melt, move the tip in a circular motion.

Start the suction and continue the movement until 3 or 4 circles have been completed.

Remove the tip while continuing suction to ensure that all solder is removed from the joint, then stop the suction.

Before pulling the lead out, ensure it is not stuck to the plating.

If the lead is still not free, resolder the joint and try again.

Note: The desoldering iron does not usually have enough heat to desolder leads from the ground plane. Additional heat may be applied by holding a soldering iron on the tip of the desoldering iron (this may require some additional help).

5.3.4.2 Component Cutting Method

Cut the leads on the component side of the PCB.

Heat the solder joint sufficiently to allow easy removal of the lead by drawing it out from the component side: do not use undue force.

Fill the hole with solder and then clear with solderwick.

5.3.5 CRYSTAL FILTER REPLACEMENT

Should it become necessary to replace the crystal filter, both cans should be replaced together as the new parts are supplied as matched pairs. Each can is marked with a dot and the correct polarity should be maintained when the replacement crystal filter pair is fitted.

5.3.6 PA - SPECIAL INSTRUCTIONS

CAUTION: As the location of certain components in the PA is critical to performance, it is important that any components removed or disturbed be refitted in exactly the same location.

5.3.6.1 To Replace The PA Transistors

Unsolder the tabs by heating them with a soldering iron, then lifting them up towards the transistor with a thin stainless steel spike or screwdriver. Unscrew the transistor mounting screws or stud nuts and remove the transistor.

Trim the tabs of the replacement to make them similar to the faulty item, then lightly tin the underside of the tabs.

Smear the underside of the transistor with heatsink compound.

Screw the transistor tightly to the heatsink then solder the tabs.

CAUTION: Do not solder the tabs before tightening the screws or nut, as this will fracture the device.

5.4 SETTING UP

5.4.1 TEST EQUIPMENT REQUIRED

1. Multimeter (e.g. AVO Model 8)
2. DC electronic voltmeter (e.g. Tech TE65)
3. RF power meter 50 ohm, 30 watts FSD usable to 100MHz (e.g. Bird Model 6154 or 611)
4. Power Supply - output adjustable between 9 and 16 volts DC with a capacity of at least 8 amps.
5. Modulation meter (e.g. Sayrosa 252)
6. Sinad meter (e.g. Helper Instruments Sinadder)
7. VHF signal generator. Good quality FM 50 ohm. Useable from 0.1µV (-127dBm) to 200mV (0dBm) pd. (e.g. HP 8640B)
8. VHF frequency counter accurate to within 2ppm.
9. 10.7MHz crystal marker.
10. Audio oscillator, 10Hz to 10kHz (e.g. HP 204C/D)
11. Tone Box: Audio amplifier, with about 1.5 watts output, to drive a small speaker which can be coupled to the T525 microphone. An adaptor should be made whch will hold the speaker and microphone close together.
12. AC millivoltmeter
13. Calibrated oscilloscope
14. Speaker 3.5 ohm voice coil
15. RF power attenuator 50 ohm, total attenuation 50dB (e.g. Weinschel 40-20-33 30dB 150W, plus Coline 1200 85 20dB 1W)
16. RF diode probe (e.g. Coline M12DM modular RF detector probe)

5.4.2 TUNING HINTS

1. Diagram 1 shows the test set-up for receiver and transmitter alignment. Diagram 2 shows the tuning points.
2. For accurate tuning, the test cable connecting the signal generator or power meter to the T525 should be as short as practical and fitted with a 'mating' BNC connector. Do not use adaptors, 'sniffer' couplings, etc, which introduce changes to cable impedance and errors in test results.
3. Non-metallic tuning tools must be used for the alignment of all coil slugs to avoid the tuning errors introduced by the use of metallic tools. Tuning tools need to be of correct size to avoid the damage to slugs which results from the use of incorrect tuning tools.

4. When using the RF diode probe, the earth return should be kept as short as possible and connected as close as possible to the point at which the measurement is being taken. This is to minimise stray pick-up which may affect the reading.

5. The front panel 'on/off' switch removes power from the regulated supplies only. The RF power amplifier, the audio output IC and the DC hash filter are not controlled by this switch.

6. Check the Circuit Diagrams for frequency or bandwidth dependent component changes or linking details.

7. Check for obvious mechanical faults in the printed circuit board, controls, microphone etc.

5.4.3 CHANNEL PROGRAMMING

5.4.3.1 Reference Frequency Selection

For 12.5kHz or 25kHz channel spacing use a 6.25kHz reference (12.8MHz crystal).

For 30kHz channel spacing use a 5kHz reference (10.24MHz crystal).

5.4.3.2 Programming

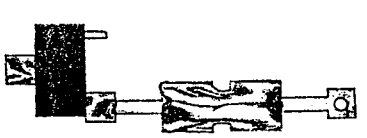
Note 1: VCO operation is restricted to a 3MHz switching range within the band covering 66 to 88MHz. Do not programme frequencies outside these limits.

Switching range is defined as the change in frequency to obtain a loop voltage between 1.75 and 6.5 volts.

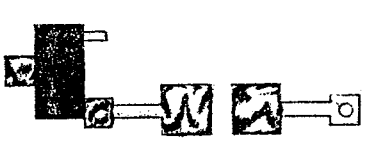
Note 2: For single channel applications, channel 2 should be programmed to the same frequencies as channel 1.

Note 3: The supplied diode programming PCB will have several low value chip resistors fitted as standard for production testing. These must be removed (from both channels) before any programming is attempted.

The programming of each of the two transmit and receive channels is accomplished by soldering between the required pads on each row of surface mount diodes (see Figure 8).



A connected pad pulls IC8 input low and deletes the frequency increment.



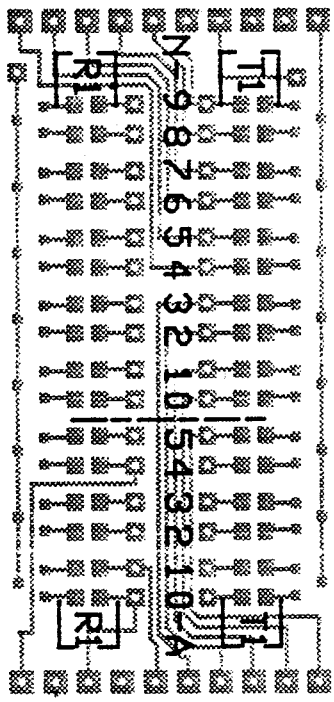
An unconnected pad allows IC8 input to go high and adds the frequency increment.

Figure 8

Table 1 shows how, when starting with A0, each successive diode influences the synthesiser frequency by a multiple of 6.25kHz (or 5kHz) in an ascending binary sequence (note the discontinuity between A5 and N0).

Table 1

Frequency Increment 6.25kHz Ref.	5kHz Ref.	Code
128MHz	102.4MHz	N9
64MHz	51.2MHz	N8
32MHz	25.6MHz	N7
16MHz	12.8MHz	N6
8MHz	6.4MHz	N5
4MHz	3.2MHz	N4
2MHz	1.6MHz	N3
1MHz	800kHz	N2
500kHz	400kHz	N1
250kHz	200kHz	N0
200kHz	160kHz	A5
100kHz	80kHz	A4
50kHz	40kHz	A3
25kHz	20kHz	A2
12.5kHz	10kHz	A1
6.25kHz	5kHz	A0



When a pad is solder bridged, its corresponding N or A value is subtracted from the maximum frequency count.

When a pad is left open, the corresponding value is incremented from zero.

The following examples show a simple method of calculating the correct diode programme.

Example 1: Tx frequency = 81.18MHz, 30kHz channel spacing.

VCO frequency:	81.18	
subtract	51.20	pad N8 unconnected
	29.98	
subtract	25.60	pad N7 unconnected
	4.38	
subtract	3.20	pad N4 unconnected
	1.18	
subtract	0.80	pad N2 unconnected
	0.38	
subtract	0.20	pad N0 unconnected
	0.18	
subtract	0.16	pad A5 unconnected
	0.02	
subtract	0.02	pad A2 unconnected
	0.00	

In each case subtract the largest value from Table 1 which yields a positive result. Continue the process until zero is reached.

To check: The sum of the extracted values should equal the required VCO frequency.

N8 + N7 + N4 + N2 + N0 + A5 + A2 = VCO

51.2 + 25.6 + 3.2 + 0.8 + 0.2 + 0.16 + 0.02 = 81.18

Note: All these N and A values have pads left open. The remainder, i.e. N9, N6, N5, N3, N1, A4, A3, A1 & A0, are all solder shorted.

Example 2: Rx frequency = 85.875MHz; 25kHz channel spacing.
The receiver has a 10.7MHz IF and is high side injection.
$f_{VCO} = f_{Rx} + 10.7 = 96.575$

VCO frequency:	96.575	
subtract	64.0	pad N8 unconnected
	32.575	
subtract	32.0	pad N7 unconnected
	0.575	
subtract	0.5	pad N1 unconnected
	0.075	
subtract	0.05	pad A3 unconnected
	0.025	
subtract	0.025	pad A2 unconnected
	0.0	

In each case subtract the largest value from Table 1 which yields a positive result. Continue the process until zero is reached.

Check: N8 + N7 + N1 + A3 + A2 = VCO
64 + 32 + 0.5 + 0.05 + 0.025 = 96.575

Note: All the above N and A values have pads left open. The remainder, i.e. N9, N6, N5, N4, N3, N2, N0, A5, A4, A1 & A0, are solder shorted.

Once the correct diode programme has been calculated, remove the diode matrix board from the T525 and solder the pads as required.

Figure 10 shows where to solder the diode programming pads and Table 1 shows the matrix board with one channel. The other channel is identical and is on the other side of the board.

When programming is complete, replace the diode matrix board in the T525.

5.5 VCO ALIGNMENT

Connect the T525 to a dummy RF load.

Ensure that a correctly programmed diode matrix PCB is fitted.

Connect 13.8 volts of the correct polarity.

Monitor the loop voltage (centre pin of TP2) with a high impedance voltmeter (0-10 volt range).

5.5.1 SINGLE CHANNEL OPERATION

Receive mode:

Adjust CV191 for 4 volts at TP2.

Transmit mode (PTT switch closed):

Adjust CV232 for 4 volts at TP2.

5.5.2 DUAL CHANNEL OPERATION

Receive mode:

Adjust CV191 so that when switching between channel 1 and channel 2, the loop voltages are symmetrically placed around 4 volts, but within the limits of 1.75 and 6.5 volts.

Transmit mode:

Adjust CV232 so that when switching between channel 1 and channel 2, the loop voltages are symmetrically placed around 4 volts, but within the limits of 1.75 and 6.5 volts.

Note: A loop voltage of 0 volts or 8 volts indicates the VCO is out of lock.

5.6 REFERENCE FREQUENCY ADJUSTMENT

The 6.25kHz (5.0kHz) reference frequency must be accurately set. This is measured indirectly by monitoring the VCO frequency.

Connect a frequency counter to the VCO output (TP3).

Select channel 1.

Adjust L30 for the correct VCO frequency (±100Hz).

Repeat this measurement for receive and transmit on both channels to verify the diode programming.

5.7 TRANSMITTER ADJUSTMENTS

5.7.1 ALIGNMENT

Note: In this and the following sections, measurements are given which differ for wide band and narrow band sets. In these cases figures for wide band sets are given first, followed by figures for narrow band sets in square brackets [ ].

Connect a power meter to the aerial socket.

Set RV256 (power control) fully clockwise (viewed from component side).

Close the PTT switch.

Adjust CV254 for maximum power.

Adjust CV287 for maximum power (normally greater than 25 watts).

Note: For two channel operation, tune CV254 and CV287 for optimum performance on both channels.

Adjust RV256 to reduce the output power to 25 watts or to reduce the power by one watt in cases where the maximum power is less than 25 watts.

Check that the transmit current does not exceed 4.5 amps for 25 w[illegible] output with 13.8 volts at the set.

5.7.2 MODULATION ADJUSTMENT

Connect the T525 antenna output through a 50dB power attenuator (see Section 5.4.1) to a modulation meter.

Short circuit C49 to disable the ALC circuitry.

Connect the microphone to the tone box (see Section 5.4.1) or connect the audio oscillator to the microphone pads on the PCB.

Apply a 1kHz sine wave to give -30dBm (25mV rms) at the microphone pads.

Set the channel switch to the lowest frequency channel.

Set the modulation meter to read '-' deviation.

Close the PTT switch and adjust RV79 for approximately -5kHz [-2.5kHz] deviation.

Reduce the audio input to obtain -3kHz [-1.5kHz] deviation, and then increase it by 20dB.

Sweep the audio frequency 300Hz to 3kHz and find the frequency of maximum '-' deviation.

Set RV79 to give -5kHz [-2.5kHz] deviation at this frequency.

Set the modulation meter to read '+' deviation.

Sweep the audio signal 300Hz to 3kHz and readjust RV79 if a peak exceeding +5kHz [+2.5kHz) is found.

Set the channel switch for the other channel and check that ±5kHz [±2.5kHz] deviation is not exceeded for any modulation frequency.

Remove the short from C49.

5.8 RECEIVER ALIGNMENT

Note 1: Use only a non-metallic tuning tool.

Note 2: The coil slugs must not protrude beyond the tops of the coil cans. Maximum inductance occurs when the top of a slug approaches the top of the coil can. Minimum inductance occurs when a slug is tuned inwards to the PCB.

Connect a signal generator modulated to ±5kHz [±2.5kHz] at 1kHz AF.

Connect a Sinad meter across the speaker terminals.

Select the lowest frequency channel.

Increase the signal generator output until 12dB Sinad is reached.

Tune L17, L16, L15, L14, L13, L12 and L11 for best Sinad while reducing the signal generator output level to maintain approximately 12dB Sinad.

Note: The signal generator frequency must be accurately set (zero beat) when tuning L16 and L17.

Reduce the signal generator deviation to ±3kHz [±1.5kHz].

Check that the signal generator output does not exceed -118dBm for 12dB Sinad.

For a two channel application readjust L15, L14, L13, L12 and L11 for equal sensitivity on both channels.

Note: Sensitivity will degrade towards -116dBm (worst case) as the channel separation extends to 3MHz.

5.9 FAULT FINDING

5.9.1 GENERAL

During servicing it may be necessary to measure specific performance parameters as a means of verifying the presence of a fault condition.

The following performance tests provide a means for checking the various two way radio parameters.

To assist circuit tracing, all plugs and connections are shown on the outer edge of the Wiring Diagram, where the "Function" is shown.

5.9.2 RECEIVER PERFORMANCE TESTS

Carry out the following checks only after the alignment has been completed.

5.9.2.1 Squelch

(a) TO CHECK THE SQUELCH OPERATION

Connect a Sinad meter across the speaker terminals.

Connect a VHF signal generator to the aerial input terminal.

Set the signal generator output level to zero and the modulation to ±3kHz [±1.5kHz] deviation at 1kHz.

Adjust the front panel squelch control until the noise just disappears.

Slowly increase the signal generator output level until the squelch gate 'opens'; this should be at about 6dB Sinad.

(b) TO CHECK THE SQUELCH RATIO

Set the signal generator output level to -47dBm (20mV), modulated to ±5kHz [±2.5kHz] deviation at 1kHz.

Replace the Sinad meter with a mV/meter across the speaker terminals.

Turn the squelch control fully anti clockwise.

Adjust the volume control to give a reading of 3 volts on the mV/meter.

Reduce the signal generator output level to -127dBm.

The fall in output is the "squelch ratio" and this should be at least 70dB.

5.9.2.2 To Check The Audio Output Level

Connect an AC mV/meter and an oscilloscope across the speaker terminals.

Connect a VHF signal generator to the aerial input socket, with the output set to -107dBm (1µV) modulated to ±5kHz [±2.5kHz] deviation at 1kHz.

Set the volume control to the onset of clipping.

The receiver output should exceed 3.7V across 3.5 ohms at +13.8V supply.

Check the distortion with the aid of a distortion analyser connected across the speaker terminals.

The distortion should not exceed 5%.

5.9.2.3 To Check The Sinad Sensitivity

Connect a Sinad meter across the speaker terminals.

Connect the signal generator to the aerial input terminal.

Set the signal generator accurately on the receive frequency.

Couple a 10.7MHz reference oscillator loosely into the receiver IF stage, tune the signal generator for a zero beat, then uncouple the reference oscillator.

Set the signal generator deviation to ±3kHz [±1.5kHz] at 1kHz.

Note: It is important that the modulating frequency matches the notch of the Sinad meter.

Set the signal generator output level to zero.

Increase the signal generator output level until a Sinad of 12dB is reached.

The signal generator output should not be greater than -118dBm and is typically -121dBm for single channel use or two channels separated by less than 1MHz. As the channel separation extends towards 3MHz the Sinad sensitivity will degrade towards -116dBm (worst case).

5.9.2.4 To Check The Signal+Noise To Noise Ratio

Set up the signal generator and mV/meter as in section 5.9.2.1 (b).

Set the squelch control fully clockwise.

Set the volume control for a reading of 0.8V ('0'dB) on a convenient scale on the mV/meter.

Switch the signal generator modulation off.

Note the reading on the mV/meter.

The fall in reading when the modulation is switched off should be at least 35dB [32dB] for single channel use or two channels separated by less than 1MHz. As the channel separation extends towards 4MHz, the signal+noise to noise ratio will degrade towards 32dB [29dB].

5.9.2.5 To Check The Ultimate Signal to Noise Ratio

Note: A good quality low noise RF signal generator should be used for this check (e.g. HP8640B or 8656).

Set the signal generator to give an 'on channel' signal, modulated to ±5kHz [±2.5kHz] with a 1kHz tone.

Set the signal generator output level to -47dBm.

Connect an AC mV/meter across the speaker terminals.

Adjust the volume control for a reading of 0.8V ('0'dBm) on a convenient scale.

Turn the signal generator modulation off.

Note the reading on the mV/meter.

The fall in reading when the modulation is switched off should be at least 45dB (a low reading could be caused by a faulty IC7 or a noisy VCO).

5.9.2.6 VCO Injection To The Mixer

Monitor the DC voltage at the junction of R107 and C112, using a high impedance DC voltmeter (0-5 volt range) with a 10k isolating resistor at the positive probe tip.

Tune L15 for maximum DC.

Short the junction of C114 and C115 to ground and check that the DC reading is approximately 2V.

Remove the short and check that the voltage increases by 0.5 to 2.5V.

5.9.3 TRANSMITTER PERFORMANCE TESTS

5.9.3.1 Audio Processor

(a) TO CHECK THE LIMITER CIRCUIT

Connect an oscilloscope to monitor the waveform at pin 14 of IC2d.

Provide an audio signal to the audio processor as in Section 5.7.2.

Set the frequency of the audio signal generator to 1kHz.

Slowly increase the signal generator output level until the waveform begins to distort (squaring), indicating that limiting has commenced.

Any further increase in signal generator output level should not increase the amplitude of the waveform.

(b) TO CHECK THE AUDIO ALC OPERATION

Set up the audio signal as described above (Section 5.7.2).

Set the oscilloscope to monitor the waveform at pin 1 of IC2a.

Connect an EVM to the junction of C49/R52.

Increase the output level of the signal generator to 10dB above the limiting level [Section 5.9.3.1 (a)]. Note the amplitude on the oscilloscope, then increase the signal generator output level by another 10dB.

Check that the amplitude of the waveform does not increase or distort significantly.

The EVM should show a 'positive DC' reading.

(c) TO CHECK THE GAIN OF THE AUDIO PROCESSOR

Provide an audio signal to the audio processor as in Section 5.7.2.

Connect an RF power meter and a modulation meter via a 50dB attenuator to the transmitter output terminal.

Connect a mV/meter across the microphone terminals on the PCB (to monitor the input to the audio processor).

Set the frequency of the audio signal generator to 1kHz.

Check the deviation control (RV79) as in Section 5.7.2.

Slowly increase the output level of the audio signal generator until a deviation of ±3kHz [±1.5kHz] is reached.

Check that the mV/meter reads approximately 6mV rms.

Note: The audio processor gain must be checked at a level below that at which the audio ALC or limiting are influencing the measurements.

5.9.3.2 Modulation Characteristics

(a) TO CHECK THE ABOVE LIMITING RESPONSE

Connect the T525 aerial output through a 50dB attenuator to a modulation meter.

Provide an audio signal to the audio processor.

Increase the audio signal generator output level to 20dB above the limiting level [Section 5.9.3.1 (a)].

Vary the frequency of the signal generator between 0.3 and 10kHz.

Note the deviation on the modulation meter.

Between 300Hz and 3kHz the deviation should be within +0, -4dB of the level at 1kHz.

Above 3kHz the deviation should decrease in excess of 25dB/octave.

(b) TO CHECK THE BELOW LIMITING RESPONSE

Decrease the audio signal generator output level to 10dB below the limiting level [Section 5.9.3.1 (a)].

Vary the frequency of the audio signal generator between 0.3 and 10kHz.

Note the reading on the modulation meter.

From 300Hz to 3kHz the deviation should increase at the rate of 6dB/octave (+1, -3dB relative to 1kHz).

Above 3kHz the deviation rate of decrease should be in excess of 25dB/octave.

5.9.3.3 To Check The RF Power Control Circuit

Connect an RF power meter to the transmitter output.

Close the PTT switch.

Ensure that the transmitter is correctly tuned (Section 5.7).

Vary the supply voltage between 10 and 16 volts.

Above 13.8 volts the RF power output should not increase by more than 2 watts.

At 10.8 volts the RF power output should be more than 10 watts.

5.9.3.4 To Check The Transmission Timer

Connect an RF power meter to the transmitter output.

Close the PTT switch.

Check that the T525 reverts to 'receive' after approximately 1.5 minutes of transmission time (+15, -45 seconds).

The transmission time may be set accurately by changing the value of either C16 (100µF) and/or R17 (1M).

To increase the transmission time increase the value of resistance or capacitance as required.

5.9.3.5 To Check The VCO Control Range

Plug a frequency counter onto the VCO test plug (TP2).

Short the middle pin on TP2 alternately to each of the outer pins of TP2.

The frequency shift should be more than 5MHz.

SECTION 6 PARTS LIST

INTRODUCTION

The 10 digit numbers (000-00000-00) in this Parts List are "internal part numbers" (IPN's). Your spare parts orders can be handled more efficiently if you quote: equipment type, circuit reference and IPN, along with a brief description of the part.

The components listed in this Parts List are divided into two main categories. Those listed under the heading "Subassemblies" are common to all versions (variants), while those listed under the heading "Variants" are unique to the particular version.

When seeking the IPN of a particular component, we suggest you check the listings in the following order:

1 - variant list for the particular version
2 - common SMD or manual insertion lists for the appropriate PCB
3 - mechanical lists.

Refer to page 6.2 for a complete index.

INDEX

signed ft
15/10/93

CRYSTAL FILTER CHART

T525 ONLY

NARROW BAND - 7.5kHz

TAIT I.P.N. 276-00010-37

Manufacturer	Crystal number	C124
NDK	10F7.5B	10p
Hy-Q	QMF10M7B or QMF10744	6p8
Toyocom	10M2F2	10p

WIDE BAND - 15kHz

TAIT I.P.N. 276-00010-36

Manufacturer	Crystal number	C124
NDK	10F15B	3p9
Hy-Q	QMF10772A	not fitted
Toyocom	10M2B2	3p9

VARIANT T525-20 12 TRANSCEIVER,FM,66-88MHZ,5KHZ DEV,5KHZ INC,RC,AUST

011-01100-02	CAPACITOR,CERAMIC,1PO,+/-0.25P,P100,50V,5MM L/S C300 MOUNT IN ADJACENT UNUSED XTAL HOLES.
011-01390-01	CAPACITOR,CERAMIC,3P9,+/-0.5P,NPO,50/63V C124
011-04470-03	CAPACITOR,CERAMIC,4N7 10% T/C B,50V DISC C18
011-54100-01	CAPACITOR,CERAMIC,AUTOINSERT,1N 10% T/C B,63V C142
022-54330-01	CAPACITOR,MYLAR AUTOINSERT,3N3 10% 50V C140, C141
022-55220-10	CAPACITOR,MYLAR AUTOINSERT,22N 10% 63V POTTED C52
030-53330-20	RESISTOR,FILM,AUTOINSERT,330E,5%,0.4W,4X1.6MM R141
030-53680-20	RESISTOR,FILM,AUTOINSERT,680E,5%,0.4W,4X1.6MM R127
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R117
030-54680-20	RESISTOR,FILM,AUTOINSERT,6K8,5%,0.4W,4X1.6MM R76
030-54820-20	RESISTOR,FILM,AUTOINSERT,8K2,5%,0.4W,4X1.6MM R148
030-55100-20	RESISTOR,FILM,AUTOINSERT,10K,5%,0.4W,4X1.6MM R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R77
030-55470-20	RESISTOR,FILM,AUTOINSERT,47K,5%,0.4W,4X1.6MM R78
030-56120-20	RESISTOR,FILM,AUTOINSERT,120K,5%,0.4W,4X1.6MM R140
030-56270-20	RESISTOR,FILM,AUTOINSERT,270K,5%,0.4W,4X1.6MM R147
050-00016-39	COIL TAIT NO 639,10.7MHZ MIX,7MM CAN L16
056-00021-07	INDUCTOR,FIXED,33UH AXIAL L18
274-00010-08	CRYSTAL 10.24MHZ,SPEC TE/9 X3
276-00010-14	FILTER,CERAMIC,455KHZ,15KHZ B/W,CFW455E CF1
276-00010-36	FILTER,CRYSTAL,10.7MHZ,15KHZ B/W,4 POLE,10F15B XF1
303-20041-00	COVER,TOP,A1M2375,TEXTURED,UNPROCESSED T5X5
303-20043-00	COVER,BOTTOM,A1M2376,TEXTURED,UNPROCESSED,T5X5
316-06376-00	PANEL FRONT COMPLETE NON-METALISED A4M2310 T500 S2
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

VARIANT T525-21 12 TRANSCEIVER,FM,66-88MHZ,2.5K DEV,5KHZ INC,RC,AUST

011-01100-02	CAPACITOR,CERAMIC,1PO,+/-0.25P,P100,50V,5MM L/S

	LED 1
011-01680-01	CAPACITOR,CERAMIC,6P8 +/-0.5P,NPO,50/63V C124A Xtal dependent component.
011-02100-01	CAPACITOR,CERAMIC,10P +/-0.5P NPO,50/63V C124 Xtal dependent component.
011-51820-01	CAPACITOR,CERAMIC,AUTOINSERT,8P2 5% NPO 50/63V C66
011-54470-03	CAPACITOR,CERAMIC,AUTOINSERT,4N7 10% T/C B,50V C140, C141, C142
022-55100-10	CAPACITOR,MYLAR AUTOINSERT,10N 10% 63V POTTED C52
030-53390-20	RESISTOR,FILM,AUTOINSERT,390E,5%,0.4W,4X1.6MM R141
030-54100-20	RESISTOR,FILM,AUTOINSERT,1K,5%,0.4W,4X1.6MM R127
030-54220-20	RESISTOR,FILM,AUTOINSERT,2K2,5%,0.4W,4X1.6MM R117
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R148, R76
030-55220-20	RESISTOR,FILM,AUTOINSERT,22K,5%,0.4W,4X1.6MM R77
030-55390-20	RESISTOR,FILM,AUTOINSERT,39K,5%,0.4W,4X1.6MM R78
030-56150-20	RESISTOR,FILM,AUTOINSERT,150K,5%,0.4W,4X1.6MM R140
030-56180-20	RESISTOR,FILM,AUTOINSERT,180K,5%,0.4W,4X1.6MM R147
050-00016-34	COIL TAIT NO 634,10.7MHZ MIX,7MM CAN L16
274-00010-08	CRYSTAL 10.24MHZ,SPEC TE/9 XTAL.
276-00010-13	FILTER,CERAMIC,455KHZ,9KHZ B/W,CFW455G CF1
276-00010-37	FILTER,CRYSTAL,10.7MHZ,7.5KHZ B/W,4 POLE,10F7.5B XF1
303-20041-00	COVER,TOP,A1M2375,TEXTURED,UNPROCESSED T5X5
303-20043-00	COVER,BOTTOM,A1M2376,TEXTURED,UNPROCESSED,T5X5
316-06376-00	PANEL FRONT COMPLETE NON-METALISED A4M2310 T500 S2
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

VARIANT T525-22 12 TRANSCEIVER,FM,66-88M,5K DEV,5K INC,CTCSS,RC,AUST

P500-01	CTCSS,2 CHANNEL,500 SERIES
011-01100-02	CAPACITOR,CERAMIC,1P0,+/-0.25P,P100,50V,5MM L/S C300 MOUNT IN ADJACENT UNUSED XTAL HOLES.
011-01390-01	CAPACITOR,CERAMIC,3P9,+/-0.5P,NPO,50/63V C124
011-54100-01	CAPACITOR,CERAMIC,AUTOINSERT,1N 10% T/C B,63V

	C142
022-54330-01	CAPACITOR,MYLAR AUTOINSERT,3N3 10% 50V C140, C141
022-55220-10	CAPACITOR,MYLAR AUTOINSERT,22N 10% 63V POTTED C52
030-53330-20	RESISTOR,FILM,AUTOINSERT,330E,5%,0.4W,4X1.6MM R141
030-53680-20	RESISTOR,FILM,AUTOINSERT,680E,5%,0.4W,4X1.6MM R127
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R117
030-54680-20	RESISTOR,FILM,AUTOINSERT,6K8,5%,0.4W,4X1.6MM R76
030-54820-20	RESISTOR,FILM,AUTOINSERT,8K2,5%,0.4W,4X1.6MM R148
030-55100-20	RESISTOR,FILM,AUTOINSERT,10K,5%,0.4W,4X1.6MM R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R77
030-55470-20	RESISTOR,FILM,AUTOINSERT,47K,5%,0.4W,4X1.6MM R78
030-56120-20	RESISTOR,FILM,AUTOINSERT,120K,5%,0.4W,4X1.6MM R140
030-56270-20	RESISTOR,FILM,AUTOINSERT,270K,5%,0.4W,4X1.6MM R147
050-00016-39	COIL TAIT NO 639,10.7MHZ MIX,7MM CAN L16
056-00021-07	INDUCTOR,FIXED,33UH AXIAL L18
274-00010-08	CRYSTAL 10.24MHZ,SPEC TE/9 X3
276-00010-14	FILTER,CERAMIC,455KHZ,15KHZ B/W,CFW455E CF1
276-00010-36	FILTER,CRYSTAL,10.7MHZ,15KHZ B/W,4 POLE,10F15B XF1
303-20041-00	COVER,TOP,A1M2375,TEXTURED,UNPROCESSED T5X5
303-20043-00	COVER,BOTTOM,A1M2376,TEXTURED,UNPROCESSED,T5X5
316-06376-00	PANEL FRONT COMPLETE NON-METALISED A4M2310 T500 S2
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

VARIANT T525-23 12 TRANSCEIVER,FM,66-88M,2.5K DEV,5K INC,CTCSS,RC,AUS

P500-01	CTCSS,2 CHANNEL,500 SERIES
011-01100-02	CAPACITOR,CERAMIC,1P0,+/-0.25P,P100,50V,5MM L/S LED 1
011-01680-01	CAPACITOR,CERAMIC,6P8 +/-0.5P,NPO,50/63V C124A Xtal dependant component.
011-02100-01	CAPACITOR,CERAMIC,10P +/-0.5P NPO,50/63V C124 Xtal dependant component.

011-51820-01	CAPACITOR,CERAMIC,AUTOINSERT,8P2 5% NPO 50/63V C66
011-54470-03	CAPACITOR,CERAMIC,AUTOINSERT,4N7 10% T/C B,50V C140, C141, C142
022-55100-10	CAPACITOR,MYLAR AUTOINSERT,10N 10% 63V POTTED C52
030-53390-20	RESISTOR,FILM,AUTOINSERT,390E,5%,0.4W,4X1.6MM R141
030-54100-20	RESISTOR,FILM,AUTOINSERT,1K,5%,0.4W,4X1.6MM R127
030-54220-20	RESISTOR,FILM,AUTOINSERT,2K2,5%,0.4W,4X1.6MM R117
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R148, R76
030-55220-20	RESISTOR,FILM,AUTOINSERT,22K,5%,0.4W,4X1.6MM R77
030-55390-20	RESISTOR,FILM,AUTOINSERT,39K,5%,0.4W,4X1.6MM R78
030-56150-20	RESISTOR,FILM,AUTOINSERT,150K,5%,0.4W,4X1.6MM R140
030-56180-20	RESISTOR,FILM,AUTOINSERT,180K,5%,0.4W,4X1.6MM R147
050-00016-34	COIL TAIT NO 634,10.7MHZ MIX,7MM CAN L16
274-00010-08	CRYSTAL 10.24MHZ,SPEC TE/9 XTAL.
276-00010-13	FILTER,CERAMIC,455KHZ,9KHZ B/W,CFW455G CF1
276-00010-37	FILTER,CRYSTAL,10.7MHZ,7.5KHZ B/W,4 POLE,10F7.5B XF1
303-20041-00	COVER,TOP,A1M2375,TEXTURED,UNPROCESSED T5X5
303-20043-00	COVER,BOTTOM,A1M2376,TEXTURED,UNPROCESSED,T5X5
316-06376-00	PANEL FRONT COMPLETE NON-METALISED A4M2310 T500 S2
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

VARIANT T525-30 12 TRANSCEIVER,FM,66-88MHZ,5KHZ DEV,6.25KHZ INC,RC,

011-01390-01	CAPACITOR,CERAMIC,3P9,+/-0.5P,NPO,50/63V C124
011-54100-01	CAPACITOR,CERAMIC,AUTOINSERT,1N 10% T/C B,63V C142
022-54330-01	CAPACITOR,MYLAR AUTOINSERT,3N3 10% 50V C140, C141
022-55220-10	CAPACITOR,MYLAR AUTOINSERT,22N 10% 63V POTTED C52
030-53330-20	RESISTOR,FILM,AUTOINSERT,330E,5%,0.4W,4X1.6MM R141
030-53680-20	RESISTOR,FILM,AUTOINSERT,680E,5%,0.4W,4X1.6MM R127

030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R117
030-54680-20	RESISTOR,FILM,AUTOINSERT,6K8,5%,0.4W,4X1.6MM R76
030-54820-20	RESISTOR,FILM,AUTOINSERT,8K2,5%,0.4W,4X1.6MM R148
030-55100-20	RESISTOR,FILM,AUTOINSERT,10K,5%,0.4W,4X1.6MM R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R77
030-55470-20	RESISTOR,FILM,AUTOINSERT,47K,5%,0.4W,4X1.6MM R78
030-56120-20	RESISTOR,FILM,AUTOINSERT,120K,5%,0.4W,4X1.6MM R140
030-56270-20	RESISTOR,FILM,AUTOINSERT,270K,5%,0.4W,4X1.6MM R147
050-00016-39	COIL TAIT NO 639,10.7MHZ MIX,7MM CAN L16
056-00021-07	INDUCTOR,FIXED,33UH AXIAL L18
274-00010-07	CRYSTAL 12.8MHZ,SPEC TE/9 X3
276-00010-14	FILTER,CERAMIC,455KHZ,15KHZ B/W,CFW455E CF1
276-00010-36	FILTER,CRYSTAL,10.7MHZ,15KHZ B/W,4 POLE,10F15B XF1
303-20042-00	COVER,TOP,COMPLETE,A1M2375,TEXTURED,METALISED 5X5
303-20044-00	COVER,BTTM,COMPLETE,A1M2376,TEXTURED,METALISED 5X5
316-06359-00	PANEL,FRONT,MTLSD,COMPLETE,SERIES 2 A4M2295 T500
319-01097-00	SHIELD A2M1589,FRONT,505 SERIES
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

VARIANT T525-31 12 TRANSCEIVER,FM,66-88MHZ,2.5KHZ DEV,6.25KHZ INC,RC

011-01680-01	CAPACITOR,CERAMIC,6P8 +/-0.5P,NPO,50/63V C124A Xtal dependant component.
011-02100-01	CAPACITOR,CERAMIC,10P +/-0.5P NPO,50/63V C124 Xtal dependant component.
011-51820-01	CAPACITOR,CERAMIC,AUTOINSERT,8P2 5% NPO 50/63V C66
011-54470-03	CAPACITOR,CERAMIC,AUTOINSERT,4N7 10% T/C B,50V C140, C141, C142
022-55100-10	CAPACITOR,MYLAR AUTOINSERT,10N 10% 63V POTTED C52
030-53390-20	RESISTOR,FILM,AUTOINSERT,390E,5%,0.4W,4X1.6MM R141
030-54100-20	RESISTOR,FILM,AUTOINSERT,1K,5%,0.4W,4X1.6MM R127
030-54220-20	RESISTOR,FILM,AUTOINSERT,2K2,5%,0.4W,4X1.6MM R117
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM

	R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R148, R76
030-55220-20	RESISTOR,FILM,AUTOINSERT,22K,5%,0.4W,4X1.6MM R77
030-55390-20	RESISTOR,FILM,AUTOINSERT,39K,5%,0.4W,4X1.6MM R78
030-56150-20	RESISTOR,FILM,AUTOINSERT,150K,5%,0.4W,4X1.6MM R140
030-56180-20	RESISTOR,FILM,AUTOINSERT,180K,5%,0.4W,4X1.6MM R147
050-00016-34	COIL TAIT NO 634,10.7MHZ MIX,7MM CAN L16
274-00010-07	CRYSTAL 12.8MHZ,SPEC TE/9 XTAL.
276-00010-13	FILTER,CERAMIC,455KHZ,9KHZ B/W,CFW455G CF1
276-00010-37	FILTER,CRYSTAL,10.7MHZ,7.5KHZ B/W,4 POLE,10F7.5B XF1
303-20042-00	COVER,TOP,COMPLETE,A1M2375,TEXTURED,METALISED 5X5
303-20044-00	COVER,BTTM,COMPLETE,A1M2376,TEXTURED,METALISED 5X5
316-06359-00	PANEL,FRONT,MTLSD,COMPLETE,SERIES 2 A4M2295 T500
316-06359-00	PANEL,FRONT,MTLSD,COMPLETE,SERIES 2 A4M2295 T500
319-01097-00	SHIELD A2M1589,FRONT,505 SERIES
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

VARIANT T525-32 12 TRANSCEIVER,FM,66-88M,5K DEV,6.25K INC,CTCSS,RC

P500-01	CTCSS,2 CHANNEL,500 SERIES
011-01390-01	CAPACITOR,CERAMIC,3P9,+/-0.5P,NPO,50/63V C124
011-54100-01	CAPACITOR,CERAMIC,AUTOINSERT,1N 10% T/C B,63V C142
022-54330-01	CAPACITOR,MYLAR AUTOINSERT,3N3 10% 50V C140, C141
022-55220-10	CAPACITOR,MYLAR AUTOINSERT,22N 10% 63V POTTED C52
030-53330-20	RESISTOR,FILM,AUTOINSERT,330E,5%,0.4W,4X1.6MM R141
030-53680-20	RESISTOR,FILM,AUTOINSERT,680E,5%,0.4W,4X1.6MM R127
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R117
030-54680-20	RESISTOR,FILM,AUTOINSERT,6K8,5%,0.4W,4X1.6MM R76
030-54820-20	RESISTOR,FILM,AUTOINSERT,8K2,5%,0.4W,4X1.6MM R148
030-55100-20	RESISTOR,FILM,AUTOINSERT,10K,5%,0.4W,4X1.6MM R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R77

030-55470-20	RESISTOR,FILM,AUTOINSERT,47K,5%,0.4W,4X1.6MM R78
030-56120-20	RESISTOR,FILM,AUTOINSERT,120K,5%,0.4W,4X1.6MM R140
030-56270-20	RESISTOR,FILM,AUTOINSERT,270K,5%,0.4W,4X1.6MM R147
050-00016-39	COIL TAIT NO 639,10.7MHZ MIX,7MM CAN L16
056-00021-07	INDUCTOR,FIXED,33UH AXIAL L18
274-00010-07	CRYSTAL 12.8MHZ,SPEC TE/9 X3
276-00010-14	FILTER,CERAMIC,455KHZ,15KHZ B/W,CFW455E CF1
276-00010-36	FILTER,CRYSTAL,10.7MHZ,15KHZ B/W,4 POLE,10F15B XF1
303-20042-00	COVER,TOP,COMPLETE,A1M2375,TEXTURED,METALISED 5X5 X3 fitted to led assy
303-20044-00	COVER,BTTM,COMPLETE,A1M2376,TEXTURED,METALISED 5X5
316-06359-00	PANEL,FRONT,MTLSD,COMPLETE,SERIES 2 A4M2295 T500
319-01097-00	SHIELD A2M1589,FRONT,505 SERIES
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

VARIANT T525-33 12 TRANSCEIVER,FM,66-88M,2.5K DEV,6.25K INC,CTCSS,RC

P500-01	CTCSS,2 CHANNEL,500 SERIES
011-01680-01	CAPACITOR,CERAMIC,6P8 +/-0.5P,NPO,50/63V C124A Xtal dependant component.
011-02100-01	CAPACITOR,CERAMIC,10P +/-0.5P NPO,50/63V C124 Xtal dependant component.
011-51820-01	CAPACITOR,CERAMIC,AUTOINSERT,8P2 5% NPO 50/63V C66
011-54470-03	CAPACITOR,CERAMIC,AUTOINSERT,4N7 10% T/C B,50V C140, C141, C142
022-55100-10	CAPACITOR,MYLAR AUTOINSERT,10N 10% 63V POTTED C52
030-53390-20	RESISTOR,FILM,AUTOINSERT,390E,5%,0.4W,4X1.6MM R141
030-54100-20	RESISTOR,FILM,AUTOINSERT,1K,5%,0.4W,4X1.6MM R127
030-54220-20	RESISTOR,FILM,AUTOINSERT,2K2,5%,0.4W,4X1.6MM R117
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R115, R116
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R148, R76
030-55220-20	RESISTOR,FILM,AUTOINSERT,22K,5%,0.4W,4X1.6MM R77
030-55390-20	RESISTOR,FILM,AUTOINSERT,39K,5%,0.4W,4X1.6MM R78
030-56150-20	RESISTOR,FILM,AUTOINSERT,150K,5%,0.4W,4X1.6MM

	R140
030-56180-20	RESISTOR,FILM,AUTOINSERT,180K,5%,0.4W,4X1.6MM R147
050-00016-34	COIL TAIT NO 634,10.7MHZ MIX,7MM CAN L16
274-00010-07	CRYSTAL 12.8MHZ,SPEC TE/9 XTAL.
276-00010-13	FILTER,CERAMIC,455KHZ,9KHZ B/W,CFW455G CF1
276-00010-37	FILTER,CRYSTAL,10.7MHZ,7.5KHZ B/W,4 POLE,10F7.5B XF1
303-20042-00	COVER,TOP,COMPLETE,A1M2375,TEXTURED,METALISED 5X5
303-20044-00	COVER,BTTM,COMPLETE,A1M2376,TEXTURED,METALISED 5X5
316-06359-00	PANEL,FRONT,MTLSD,COMPLETE,SERIES 2 A4M2295 T500
316-06359-00	PANEL,FRONT,MTLSD,COMPLETE,SERIES 2 A4M2295 T500
319-01097-00	SHIELD A2M1589,FRONT,505 SERIES
365-00100-03	LABEL BLANK 10.8X30MM S/A METALISED POLYESTER

T525 COMMON PARTS IN ALL VARIANTS

P500-22	T500 MEMORY,2CHAN SMD ASEMBLY
P500-28	T500 LED AND XTAL ASSY
P525-01	T525 COMMON AUTO INSERTED COMPONENTS
P525-03	T525 COMMON MANUALLY INSERTED COMPONENTS
P525-04	T525 COMMON MECHANICAL ASSEMBLY COMPONENTS
012-04100-01	CAPACITOR,CERAMIC,FEEDTHRU 1N LESS LEAD C301, C302
012-04100-02	CAPACITOR,CERAMIC,FEEDTHRU 1N,300V,LEADED C303
051-00006-03	LEAD,FEEDTHRU 0.7MM TCW, A4M2230
200-00010-04	WIRE,TINNED COPPER,0.7MM 15mm BNC SKT,x3 30mm L69 L70 L63
201-00030-04	WIRE,REMIT,7/0.2MM PVC YELLOW 195mm SPKR/ULTREX connector 85mm PCB EXT SPKR
201-00030-10	WIRE,REMIT,7/0.2MM PVC BLACK 170mm SPKR/ULTREX connector I/O pad 80mm PCB feedthru BRKT
205-00010-06	CABLE,TWIN,AUTO 153,2/28/0.3 RED & BLACK
220-01110-01	PRINTED CIRCUIT BOARD T525
240-00010-60	PLUG HOUSING,4 WAY,MOLEX
240-00010-61	PLUG TERMINAL,MALE,SOLDER TAG,MOLEX
240-00100-13	PLUG COAXIAL,BNC CORD MTG,CRIMP URM76
240-02010-60	SOCKET HOUSING,4 WAY,MOLEX
240-02010-61	SOCKET RECEPTACLE,152 AUTO CRIMP,MOLEX
240-02010-62	SOCKET RECEPTACLE,7/0.2 WIRE CRIMP,MOLEX
240-02100-11	SOCKET,COAXIAL,BNC,3.5MM BULKHEAD LESS EARTH TAG
240-04020-72	SOCKET HOUSING,2 WAY,CORD MTG,ULTREX
240-04020-74	SOCKET HOUSING,4 WAY,CORD MTG,ULTREX
240-04020-76	SOCKET RECEPTACLES,WIRE CRIMP,FOR ULTREX HOUSING
250-00010-14	SPEAKER 8 OHM,92MM SQ,A3M1799
252-00010-02	CLIP,MICROPHONE MTG
252-00010-12	MICROPHONE,600 OHM WITH HANGER CONNECTION,FOSTER
265-00010-17	FUSE 10A CARTRIDGE 6*32MM 32V NON SPEC
302-40042-00	BUTTON,A3M1585,PUSH,MOULDED PLASTIC T500
303-30047-00	CRADLE A2M1920,A3M1955,RUGGED ASSEMBLY T500
303-30049-00	CLIP A2M1922,RUGGED CRADLE,T500
303-30052-00	KEY A4M1925,RUGGED CRADLE,T500
303-50071-00	CLIP,A4M2008,FEEDTHRU MTG,5*5 SERIES
308-13071-00	HEATSINK A1M1931,DIECAST,500 SERIES
311-01033-00	KNOB,COMPLETE WITH DOT,A3M1584,T500 SERIES
312-01035-00	LENS,COMPLETE,A3M1586,A4A630,T500 SERIES
319-01110-00	SHROUD A4M1587,INDICATOR,500/5X5 SERIES

319-01132-00	SHIELD A4M1951,POWER SKT,5X5 SERIES
340-00010-10	FUSEHOLDER,INLINE,BOOK HOUSING
340-00010-11	TERMINAL,CRIMP,BOOK FUSEHOLDER
349-00010-25	SCREW NO.4*3/8 PAN SUPA POLYMATE
349-00010-49	SCREW,SELFTAP,NO 10X1/2 IN,TYPE AB,PAN POZI,BZ Cradle mtg
349-00020-31	SCREW,TAPTITE,M3X10MM,PAN,POZI,BZ
353-00010-32	WASHER M5 SHAKEPROOF,EXT BZ Cradle mtg
357-00010-09	FIX,PUSH ON,SFP 3253 speaker mounting
365-00011-54	LABEL,WHITE,QUIKSTIK RW1556/2
365-00013-47	LABEL,T5X5 SERIES,SCREW DETAILS,A4A603
365-00100-04	LABEL BLANK 30X6.7MM S/A METALLISED POLYESTER
369-00010-27	TIE,CABLE,NYLON,140*2.6MM Battery lead tie
399-00010-51	BAG,PLASTIC 75*100MM
399-00010-56	BAG,PLASTIC 200*250MM
409-50000-00	HANDBOOK,500 SERIES OPERATORS HANDBOOK
410-00010-37	SLEEVE,CARD,500 SERIES,A1A361 A4M1814
410-00010-50	PACKAGING,POLY FOAM,2 PCS,5*5 SERIES,A1M2027
410-00010-55	PACKAGING,CARTON,10 T500 RADIOS,UEB 31561

SUBASSEMBLY P500-22 11 T500 MEMORY,2CHAN SMD ASEMBLY

001-10000-70	DIODE,SMD,BAV70,DUAL SWITCH SOT-23 COMMON CATHODE DB11, DB12, DB13, DB14, DB15, DB16, DB17, DB18, DB19, DB20 DB21, DB22, DB23, DB24, DB25, DB26, DB27, DB28, DB29, DB30 DB31, DB32, DB33, DB34, DB35, DB36, DB37, DB38, DB39, DB40 DB41, DB42.
225-01171-00	PRINTED CIRCUIT BOARD T500 SMD DIODE 2CH MATRIX
240-00020-57	HEADER,10 WAY 1 ROW,PCB MTG PL1
240-04020-57	SOCKET,10 WAY 1ROW,PCB MTG,TOP ENTRY PL2

SUBASSEMBLY P500-28 11 T500 LED AND XTAL ASSY

008-00011-32	LED,3MM RED,HIGH INTENSITY,LESS MOUNTING D302, D303, D304, D305
225-01136-00	PRINTED CIRCUIT BOARD T500 SERIES LED & XTAL MTG
240-04020-61	SOCKET,7 WAY 1 ROW,PCB MTG,TOP ENTRY SKT2
240-04020-69	SOCKET 3WAY 1ROW PCB MTG,GOLD PLATE SKTS,TOP ENTRY SKT1
369-00020-36	TAPE,VINYL FOAM,2 SIDE S/A,25.4*3MM,3M 4408

SUBASSEMBLY P525-01 13 T525 COMMON AUTO INSERTED COMPONENTS

000-50010-60	TRANSISTOR AUTO INSERT,BC327 PNP TO-92 AF POWER Q4, Q5
000-50011-10	TRANSISTOR,AUTO INSERT,BC547B,NPN,TO-92,AF S/SIG Q1, Q10, Q19, Q2, Q20, Q27, Q29, Q31, Q43, Q44, Q7
000-50011-30	TRANSISTOR,AUTO INSERT,BC557B,PNP,TO-92,AF S/SIG Q11, Q25, Q26, Q28, Q30, Q32, Q35, Q46, Q6
000-50020-18	TRANSISTOR,AUTO INSERT,BF247A JFET,TO-92 VHF (S) Q16, Q17
000-50031-95	TRANSISTOR,AUTO INSERT,MPS3646 NPN,TO-92 SWITCH(S) Q39
001-50012-00	DIODE,AUTO INSERT,1N4148 SI GEN PURPOSE D15, D16, D2, D22, D23, D24, D25, D30, D31, D32, D42, D43, D44, D45, D46, D47, D6, D60, D7, D8
001-50015-09	DIODE,ZENER,AUTOINSERT,3V9 0.4W BZX79/C3V9 D3
001-50015-11	DIODE,ZENER,AUTOINSERT,5V1 0.4W BZX79/C5V1 D48
001-50015-14	DIODE,ZENER,AUTOINSERT,6V8 0.4W BZX79/C6V8 D21
011-51150-01	CAPACITOR,CERAMIC,AUTOINSERT,1P5 5% P100,50/63V C231, C282
011-51220-01	CAPACITOR,CERAMIC,AUTOINSERT,2P2 5% NPO 50/63V C108, C110, C192, C234
011-51270-01	CAPACITOR,CERAMIC,AUTOINSERT,2P7 5% NPO 50/63V C114
011-51680-01	CAPACITOR,CERAMIC,AUTOINSERT,6P8 5% NPO,50/63V C237
011-51820-01	CAPACITOR,CERAMIC,AUTOINSERT,8P2 5% NPO 50/63V

	C103
011-52100-01	CAPACITOR,CERAMIC,AUTOINSERT,10P 5% NPO 50/63V C196, C198, C245, C253, C99
011-52150-01	CAPACITOR,CERAMIC,AUTOINSERT,15P 5% NPO 50/63V C109, C109A, C190, C244
011-52150-06	CAPACITOR,CERAMIC,AUTOINSERT,15P 5% N750,50/63V C174
011-52180-01	CAPACITOR,CERAMIC,AUTOINSERT,18P 5% N150,50/63V C100, C104
011-52220-01	CAPACITOR,CERAMIC,AUTOINSERT,22P 5% N150,50/63V C101, C102, C111, C230, C266A, C266B
011-52220-06	CAPACITOR,CERAMIC,AUTOINSERT,22P 5% N750,50/63V C173
011-52270-01	CAPACITOR,CERAMIC,AUTOINSERT,27P 5% N150 50/63V C229, C243
011-52330-01	CAPACITOR,CERAMIC,AUTOINSERT,33P 5%,50/63V C116, C228, C251, C63
011-52390-01	CAPACITOR,CERAMIC,AUTOINSERT,39P 5% N150,50/63V C113, C130
011-52470-01	CAPACITOR,CERAMIC,AUTOINSERT,47P 5% N150,50/63V C115, C48
011-52560-01	CAPACITOR,CERAMIC,AUTOINSERT,56P 5% N150,50/63 C250, C258, C259, C67
011-52680-01	CAPACITOR,CERAMIC,AUTOINSERT,68P 5% N150,50/63V C131
011-52820-01	CAPACITOR,CERAMIC,AUTOINSERT,82P 5% N150 50/63V C112, C266, C267
011-53100-01	CAPACITOR,CERAMIC,AUTOINSERT,100P 5% N150 50/63V C133, C45, C46
011-53150-01	CAPACITOR,CERAMIC,AUTOINSERT,150P 5% N150,50/63V C135
011-53470-02	CAPACITOR,CERAMIC,AUTOINSERT,470P 10% T/C B,63V C175, C93
011-54100-01	CAPACITOR,CERAMIC,AUTOINSERT,1N 10% T/C B,63V C105, C11, C129, C15, C194, C195, C222, C225, C235, C236 C240, C246, C261, C262, C265, C40, C7, C8
011-54470-03	CAPACITOR,CERAMIC,AUTOINSERT,4N7 10% T/C B,50V C1, C100A, C107, C118, C121, C122, C123, C125, C128, C132 C172, C180, C193, C197, C220, C224, C233, C241, C242, C248 C249, C252, C281, C286, C42, C56, C6, C65, C9
020-57100-02	CAPACITOR,ELECTRO,AUTOINSERT RDL,1M 50V 5X11MM C17, C4, C41, C85, C86, C87
020-57330-01	CAPACITOR,ELECTRO,AUTOINSERT RDL,3M3 50V 5X11MM C143
020-58100-03	CAPACITOR,ELECTRO,AUTOINSERT,RDL,10M 50V 5X11MM C106, C183, C227
020-58100-04	CAPACITOR,ELECTRO,AUTOINSERT RDL,10M 16V 4X7MM C181
020-58470-02	CAPACITOR,ELECTRO,AUTOINSERT RDL,47M 16V 6X11MM C127, C171, C257, C273, C44, C49, C5
020-58470-05	CAPACITOR,ELECTRO,AUTOINSERT RDL,47M 16V 6.3X7MM C179, C182, C90
020-59100-03	CAPACITOR,ELECTRO,AUTOINSERT RDL,100M 16V 8X11MM C16

022-54220-10	CAPACITOR,MYLAR,AUTOINSERT,2N2 10% 63V POTTED C239, C50, C88
022-54470-10	CAPACITOR,MYLAR,AUTOINSERT,4N7 10% 63V POTTED C178
022-55100-10	CAPACITOR,MYLAR AUTOINSERT,10N 10% 63V POTTED C185, C226, C238, C263, C51, C53, C64
022-55220-10	CAPACITOR,MYLAR AUTOINSERT,22N 10% 63V POTTED C47, C61
022-55470-10	CAPACITOR,MYLAR AUTOINSERT,47N 10% 63V POTTED C134, C136, C170, C177, C223, C264, C43, C54, C55, C68
022-55680-10	CAPACITOR,MYLAR AUTOINSERT,68N 10% 63V POTTED C62
022-56100-10	CAPACITOR,MYLAR,AUTOINSERT,100N 10% 63V POTTED C91
030-51220-20	RESISTOR,FILM,AUTOINSERT,2E2,5%,0.4W,4X1.6MM R261, R271, R34, R60, R89
030-51330-20	RESISTOR,FILM,AUTOINSERT,3E3,5%,0.4W,4X1.6MM R250, R260
030-51470-20	RESISTOR,FILM,AUTOINSERT,4E7,5%,0.4W,4X1.6MM R263, R264
030-52100-20	RESISTOR,FILM,AUTOINSERT,10E,5%,0.4W,4X1.6MM R101, R102, R110, R111, R113, R243, R252, R253, R253A, R255 R266, R99
030-52220-20	RESISTOR,FILM,AUTOINSERT,22E,5%,0.4W,4X1.6MM R245
030-52470-20	RESISTOR,FILM,AUTOINSERT,47E,5%,0.4W,4X1.6MM R112, R225, R249, R254, R262
030-53100-20	RESISTOR,FILM,AUTOINSERT,100E,5%,0.4W,4X1.6MM R185, R191, R230, R242, R268, R268A, R268B, R268C
030-53150-20	RESISTOR,FILM,AUTOINSERT,150E,5%,0.4W,4X1.6MM R119, R199, R226
030-53220-20	RESISTOR,FILM,AUTOINSERT,220E,5%,0.4W,4X1.6MM R15, R244, R246, R254B, R262B
030-53330-20	RESISTOR,FILM,AUTOINSERT,330E,5%,0.4W,4X1.6MM R100, R107, R118, R224, R254A, R262A, R272
030-53470-20	RESISTOR,FILM,AUTOINSERT,470E,5%,0.4W,4X1.6MM R251
030-53680-20	RESISTOR,FILM,AUTOINSERT,680E,5%,0.4W,4X1.6MM R10, R103, R215, R259, R269, R32, R44, R5
030-54100-20	RESISTOR,FILM,AUTOINSERT,1K,5%,0.4W,4X1.6MM R177, R18, R186, R198, R220, R236, R267, R3, R43, R52, R8, R84
030-54120-20	RESISTOR,FILM,AUTOINSERT,1K2,5%,0.4W,4X1.6MM R2
030-54150-20	RESISTOR,FILM,AUTOINSERT,1K5,5%,0.4W,4X1.6MM R120, R121, R188, R195, R216, R217, R218, R219
030-54180-20	RESISTOR,FILM,AUTOINSERT,1K8,5%,0.4W,4X1.6MM R239
030-54220-20	RESISTOR,FILM,AUTOINSERT,2K2,5%,0.4W,4X1.6MM R11, R123, R145, R16, R172, R222, R240, R248, R257, R41, R45, R73, R9
030-54330-20	RESISTOR,FILM,AUTOINSERT,3K3,5%,0.4W,4X1.6MM R106, R175, R190, R192, R231, R66A

030-54390-20	RESISTOR,FILM,AUTOINSERT,3K9,5%,0.4W,4X1.6MM R170, R7
030-54470-20	RESISTOR,FILM,AUTOINSERT,4K7,5%,0.4W,4X1.6MM R1, R150, R173, R221, R234, R241, R27, R270, R29, R40, R6, R63, R80
030-54560-20	RESISTOR,FILM,AUTOINSERT,5K6,5%,0.4W,4X1.6MM R67A, R71
030-54680-20	RESISTOR,FILM,AUTOINSERT,6K8,5%,0.4W,4X1.6MM R171, R182, R74
030-54820-20	RESISTOR,FILM,AUTOINSERT,8K2,5%,0.4W,4X1.6MM R223
030-55100-20	RESISTOR,FILM,AUTOINSERT,10K,5%,0.4W,4X1.6MM R104, R108, R109, R124, R126, R142, R144, R146, R176, R178 R179, R180, R184, R21, R30, R42, R47, R53, R54
030-55120-20	RESISTOR,FILM,AUTOINSERT,12K,5%,0.4W,4X1.6MM R105
030-55150-20	RESISTOR,FILM,AUTOINSERT,15K,5%,0.4W,4X1.6MM R75
030-55220-20	RESISTOR,FILM,AUTOINSERT,22K,5%,0.4W,4X1.6MM R187, R189, R196, R197, R20, R227, R228, R237, R238, R258 R274, R61, R66
030-55330-20	RESISTOR,FILM,AUTOINSERT,33K,5%,0.4W,4X1.6MM R50, R86
030-55390-20	RESISTOR,FILM,AUTOINSERT,39K,5%,0.4W,4X1.6MM R181, R67, R81
030-55470-20	RESISTOR,FILM,AUTOINSERT,47K,5%,0.4W,4X1.6MM R125, R183, R25, R31, R33, R4, R46, R68, R88
030-56100-20	RESISTOR,FILM,AUTOINSERT,100K,5%,0.4W,4X1.6MM R19, R235, R64, R82, R87
030-56120-20	RESISTOR,FILM,AUTOINSERT,120K,5%,0.4W,4X1.6MM R26
030-56150-20	RESISTOR,FILM,AUTOINSERT,150K,5%,0.4W,4X1.6MM R70
030-56220-20	RESISTOR,FILM,AUTOINSERT,220K,5%,0.4W,4X1.6MM R122
030-56470-20	RESISTOR,FILM,AUTOINSERT,470K,5%,0.4W,4X1.6MM R143, R232, R48, R49, R51, R65, R72
030-57100-20	RESISTOR,FILM,AUTOINSERT,1M,5%,0.4W,4X1.6MM R17, R174, R28, R62
365-00100-10	BARCODE LABEL & LAMINATE,2 PARTS,3/8 WIDE

SUBASSEMBLY P525-03 13 T525 COMMON MANUALLY INSERTED COMPONENTS

000-00011-70	TRANSISTOR BD136 PNP TO-126 AF POWER Q3
000-00011-70	TRANSISTOR BD136 PNP TO-126 AF POWER Q45
000-00020-35	TRANSISTOR BF324 PNP TO-92 RF SMALL SIG (S) Q15
000-00022-30	TRANSISTOR 2N4427 NPN TO-39 VHF POWER DRIVE Q40
000-00023-13	TRANSISTOR,MRF237,NPN,TO-39,VHF POWER,4W Q41
000-00031-10	TRANSISTOR,BF981 DG MOSFET,XPACK,VHF (S) Q18

000-00031-75	TRANSISTOR 3SK87K DG MOSFET, X PACK, VHF Q34, Q37	(S)
000-00033-09	TRANSISTOR JF1033-S,JFET,TO-92,VHF Q33, Q36	(S)
001-00011-60	DIODE SR2607 6A/30V D1	
001-00012-00	DIODE 1N4148 SILICON,SMALL SIGNAL,GENERAL PURPOSE D14	
001-00012-50	DIODE,PIN,UM9401,UHF POWER SWITCH D62, D63	
001-00012-53	DIODE,VARICAP,BB405B D51	
001-00012-63	DIODE,VARICAP,BB809 D35, D50	
001-00013-45	DIODE,SCHOTTKY,1SS97/2 D61	(S)
002-00013-70	INTEGRATED CCT TDA1020 AF POWER AMP 9PIN SIL IC4	
002-00014-40	INTEGRATED CCT 324P QUAD OP AMP IC2	(S)
002-00014-70	INTEGRATED CCT 3357P FM IF,DET,LOW POWER IC7	(S)
002-00014-91	INTEGRATED CCT 4001B QUAD 2 I/P NOR GATE IC1	(S)
002-00015-70	INTEGRATED CIRCUIT 4066B QUAD BILATERAL SWITCH IC3	(S)
002-00017-50	INTEGRATED CCT MC12016 VHF 40/41 PRESCALER IC9	(S)
002-00017-60	INTEGRATED CCT MC145152 FREQ SYNTHESIZER IC8	(S)
010-01560-01	CAPACITOR CERAMIC,5P6 +/-0.5P,NPO,500V C293A	
010-02150-01	CAPACITOR,CERAMIC,15P 5% N150,500V C291A	
010-02270-01	CAPACITOR,CERAMIC,27P 5% N150,500V C290, C295	
010-02390-04	CAPACITOR,CERAMIC,39P 5% N750,500V C293	
010-02470-03	CAPACITOR,CERAMIC,47P 5% N750,500V C285, C291	
010-02560-01	CAPACITOR,CERAMIC,56P 5% N750,500V C294	
010-04100-01	CAPACITOR,CERAMIC,1N 10% T/C B,500V C268, C288, C289	
011-02560-01	CAPACITOR,CERAMIC,56P 5% N150,50/63V C126	
011-03470-01	CAPACITOR,CERAMIC,470P 10% N1K5,63V C117, C119	
011-03680-01	CAPACITOR,CERAMIC,680P 10% N1K5,50/63V C120, C256, C270, C274	
011-04100-01	CAPACITOR,CERAMIC,1N0 10% T/C B,63V C137	

017-15470-01	CAPACITOR,CERAMIC SURFACE BARRIER,47N 20% 50V C255, C260, C269, C272, C275
020-08470-05	CAPACITOR,ELECTRO,RADIAL,47M 16V 6.3X7MM C179, C182, C90
020-09220-01	CAPACITOR,ELECTRO,RADIAL,220M 16V 10X12.5MM C92
020-19100-02	CAPACITOR,ELECTRO,RADIAL,1000M 16V 12X20MM C10, C2
022-07100-02	CAPACITOR,MYLAR,1M 20% 50V POTTED C176
032-33180-00	RESISTOR,M/F,POWER,180E,5%,1W,12X4.5MM R265
042-04220-01	RESISTOR,PRESET,2K2,CARBON,10MM,FLAT RV256, RV79
050-00016-35	COIL TAIT NO 635,WHITE,LESS SLUG,10MM L36, L51
050-00016-48	COIL TAIT NO 648 20-120MHZ 7MM CAN L11, L12, L13, L14, L15
050-00016-52	COIL TAIT NO 652,4UH,7MM BASE,WITH CAN L17
052-08125-15	COIL A/W 1.5T/2.5MM HOR 0.8MM WIRE L74
052-08130-25	COIL A/W 2.5T/3.0MM HOR 0.8MM WIRE L67
052-08130-55	COIL A/W 5.5T/3.0MM HOR 0.8MM WIRE L75
052-08130-65	COIL A/W 6.5T/3.0MM HOR 0.8MM WIRE L60
052-08135-25	COIL A/W 2.5T/3.5MM HOR 0.8MM WIRE L62
052-08140-25	COIL A/W 2.5T/4.0MM HOR 0.8MM WIRE L86
052-08140-65	COIL A/W 6.5T/4.0MM HOR 0.8MM WIRE L61, L81
052-08140-75	COIL A/W 7.5T/4.0MM HOR 0.8MM WIRE L56
052-08150-45	COIL A/W 4.5T/5.0MM HOR 0.8MM WIRE L84
052-08155-45	COIL A/W 4.5T/5.5MM HOR 0.8MM WIRE L82, L85
052-08160-55	COIL A/W 5.5T/6.0MM HOR 0.8MM WIRE L66
052-08240-95	COIL A/W 9.5T/4.0MM VERT 0.8MM WIRE L73
056-00021-00	INDUCTOR,FIXED,3.3UH AXIAL L10, L58, L76, L80 Inductor 100 -- Horizontal
056-00021-01	INDUCTOR,FIXED,1.5UH AXIAL L2 Inductor 101
056-00021-02	INDUCTOR,FIXED,100UH AXIAL L23, L31, L33, L45 Inductor 102
056-00021-04	INDUCTOR,FIXED,330NH AXIAL

	L54, L64 Inductor 104
056-00021-56	INDUCTOR,FIXED,3.3UH,AXIAL,10X4.2MM,PHENOLIC L35, L37, L50, L52 Inductor 100 -- Vertical
065-00010-08	BEAD,FERRITE,4S3,3*0.7*10MM,RED L63,65,69,70
065-00010-11	BEAD,FERRITE,4S3,3*1*4MM,RED L71, L72
240-00020-58	HEADER,5 WAY 1 ROW,PCB MTG PL1, PL2
240-00020-59	HEADER,3 WAY 1 ROW,PCB MTG TP2, TP3
240-00020-60	HEADER,18 WAY 1 ROW,PCB MTG PL3
240-00020-69	HEADER 3WAY 1ROW PCB MTG,GOLD PLATE PINS PL7
240-00020-72	HEADER,2 WAY,PCB MTG,ULTREX PL6
240-04020-57	SOCKET,10 WAY 1ROW,PCB MTG,TOP ENTRY SKT4
274-00010-10	CRYSTAL 10.245MHZ,SPEC TE/4 X1
276-00010-12	DISCRIMINATOR,CERAMIC,455KHZ,CDB455C7 CD1
362-00010-08	GASKET,SILICONE,INSULATING,TO-5,TO-39 Q40
400-00020-03	SLEEVING 1MM SILICONE RUBBER 4 * 26mm, L37,L52,L35,L50

SUBASSEMBLY P525-04 13 T525 COMMON MECHANICAL ASSEMBLY COMPONENTS

000-00030-70	TRANSISTOR,2N6082,NPN,STUD MTG,VHF POWER,25W Q47
010-02560-01	CAPACITOR,CERAMIC,56P 5% N750,500V C280
015-03270-02	CAPACITOR,CERAMIC,HIQ 1210 CHIP,270P 5% NPO,100V CC284
015-03560-02	CAPACITOR,CERAMIC,HIQ 1210 CHIP,560P 5% NPO,100V CC271
028-02180-01	CAPACITOR,TRIMMER,2/18P,FILM,6X8MM,2TAG PH 809 CV191, CV232
028-02300-03	CAPACITOR,TRIMMER,5/30P,N750,TOP ADJ,GREEN,MUR TZ CV254, CV287
040-05100-13	POTENTIOMETER,10K,LOG,LESS SW,PCB MOUNTING RV85 Volume.
040-05100-14	POTENTIOMETER,10K,LIN,LESS SW,PCB MTG RV149 Squelch.
050-00016-17	COIL TAIT NO 617,4UH,7MM BASE,SLEEVED,LESS CAN L30
065-00010-07	BEAD,FERRITE,4S3,5*2*4MM,RED L301, L302.
065-00010-07	BEAD,FERRITE,4S3,5*2*4MM,RED

	For L301, L302.
232-00010-19	SWITCH,PUSH,DPDT LATCHING,PCB MOUNT SW1, SW3
232-00010-20	SWITCH,PUSH,DPDT MOMENTARY,PCB MOUNT SW2
240-00020-68	HEADER 2WAY,PCB MOUNTING,STANDARD PL-4
240-00020-74	HEADER,4 WAY,PCB MTG,ULTREX PL5
274-00010-37	CRYSTAL, 12.8MHZ,TE-37,HY-Q,3LD XL1
302-45035-00	BOSS A4M2148 THREADED M5 OD,M3 ID,5X5 SERIES
306-01041-00	CLIP - PLASTIC WIRE HARNESS
308-12028-00	HEATSINK,CLIP ON,REDPOINT 5F,TO-39 XSTRS Q41
312-01014-00	LID,A2M1932,DIECAST,PA SOLDER SIDE,5X5 SERIES
312-01015-00	LID A2M1933,DIECAST,PA COMPONENT SIDE,5X5 SERIES
316-85094-00	PLATE A4M2160 BNC MTG,UK 5X5 SERIES
319-01109-00	SHIELD A2M1655,VCO LID,500/5X5 SERIES
319-01149-00	SHIELD BOX A1M2229 VCO,T5X5 SERIES
345-00040-08	SCREW M3*12MM PAN POZI ST BZ IC4.
349-00020-31	SCREW,TAPTITE,M3X10MM,PAN,POZI,BZ Q3 x 1.
349-00020-31	SCREW,TAPTITE,M3X10MM,PAN,POZI,BZ VCO lid x 4.
349-00020-32	SCREW,TAPTITE,M3X8MM,PAN,POZI,BZ Bnc mtg plate x 2.
349-00020-32	SCREW,TAPTITE,M3X8MM,PAN,POZI,BZ PA covers x 16, heatsink x 2.
352-00010-08	NUT,M3,COLD FORM,HEX,ST,BZ IC4 x 1, Q3 x 1.
352-00010-35	NUT,8-32 UNC,HEX,RF POWER TRANSISTOR,MOUNTING Q47 MTG.
353-00010-10	WASHER,M3,FLAT,ST BZ,6.75MM OD,A4M1215 Q3 x 1.
353-00010-10	WASHER,M3,FLAT,ST BZ,6.75MM OD,A4M1215 IC4 x 1.
353-00010-11	WASHER,M3,FLAT,ST BZ,9.5MM OD,A4M1216 1xIC4
353-00010-13	WASHER,M3 SHAKEPROOF,INT,BZ Q3 x 1, IC4 x 1.
356-00010-01	TAG,SOLDER,3MM,SHORT,M6132/3.2
365-00100-20	LABEL,WHITE S/A,28X11MM,QUIKSTIK RW718/4
369-00010-12	FOOT,FURNITURE,RUBBER,BLACK VCO
400-00020-03	SLEEVING 1MM SILICONE RUBBER 3 x 26mm L37 L52 L35

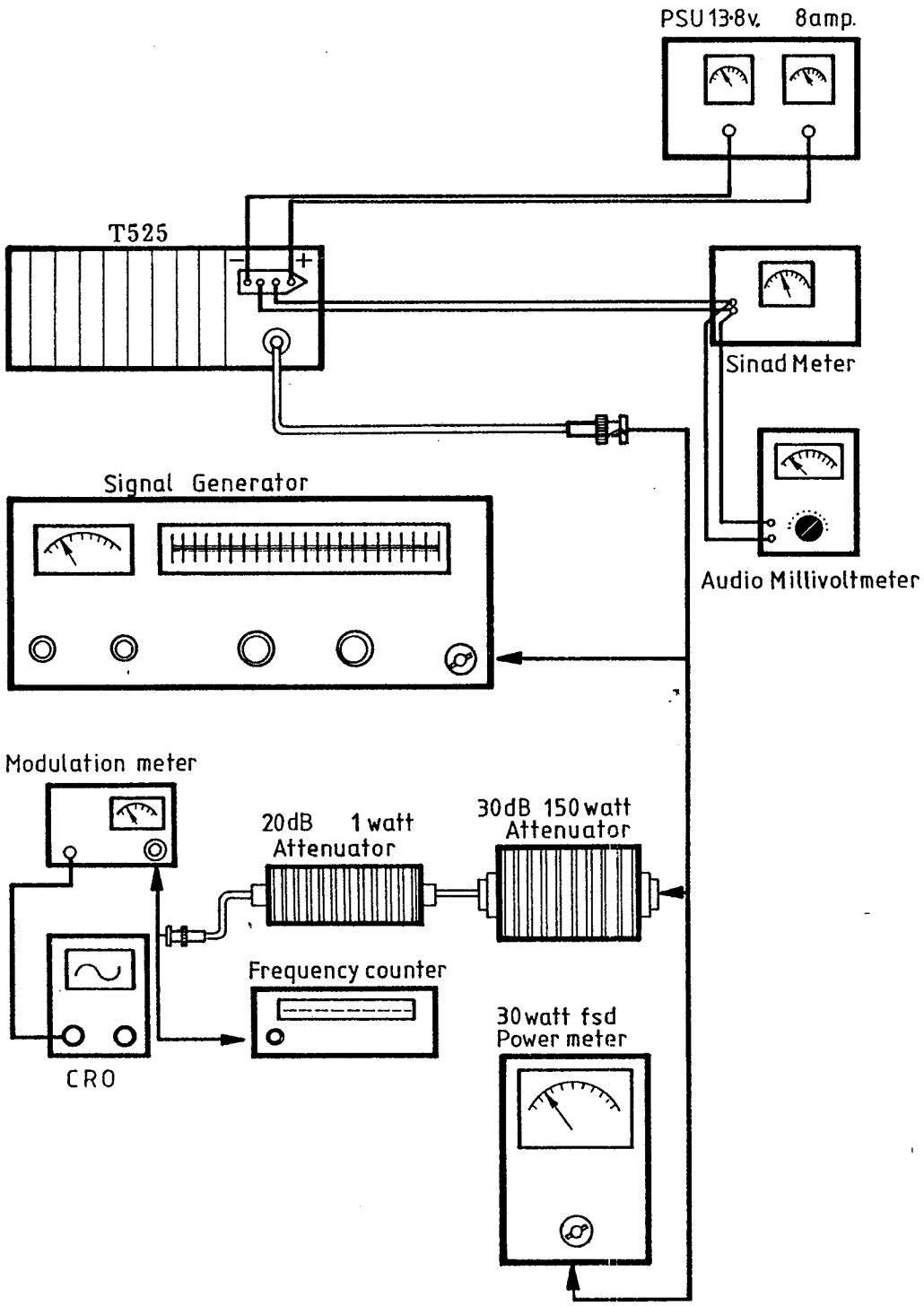


Diagram 1 Suggested Test Equipment Set-Up

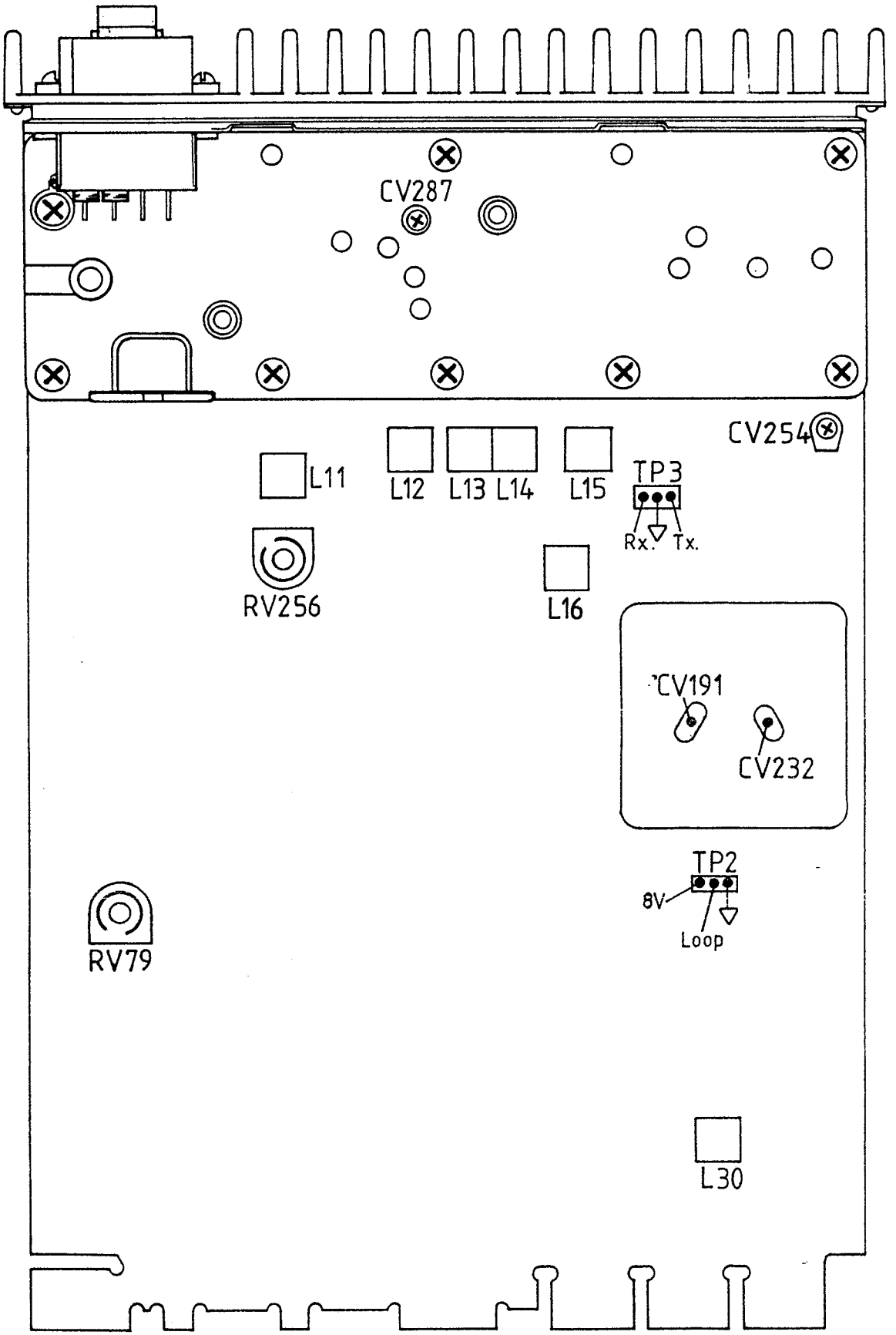


Diagram 2 T525 Tuning Points

220-01110-01 A

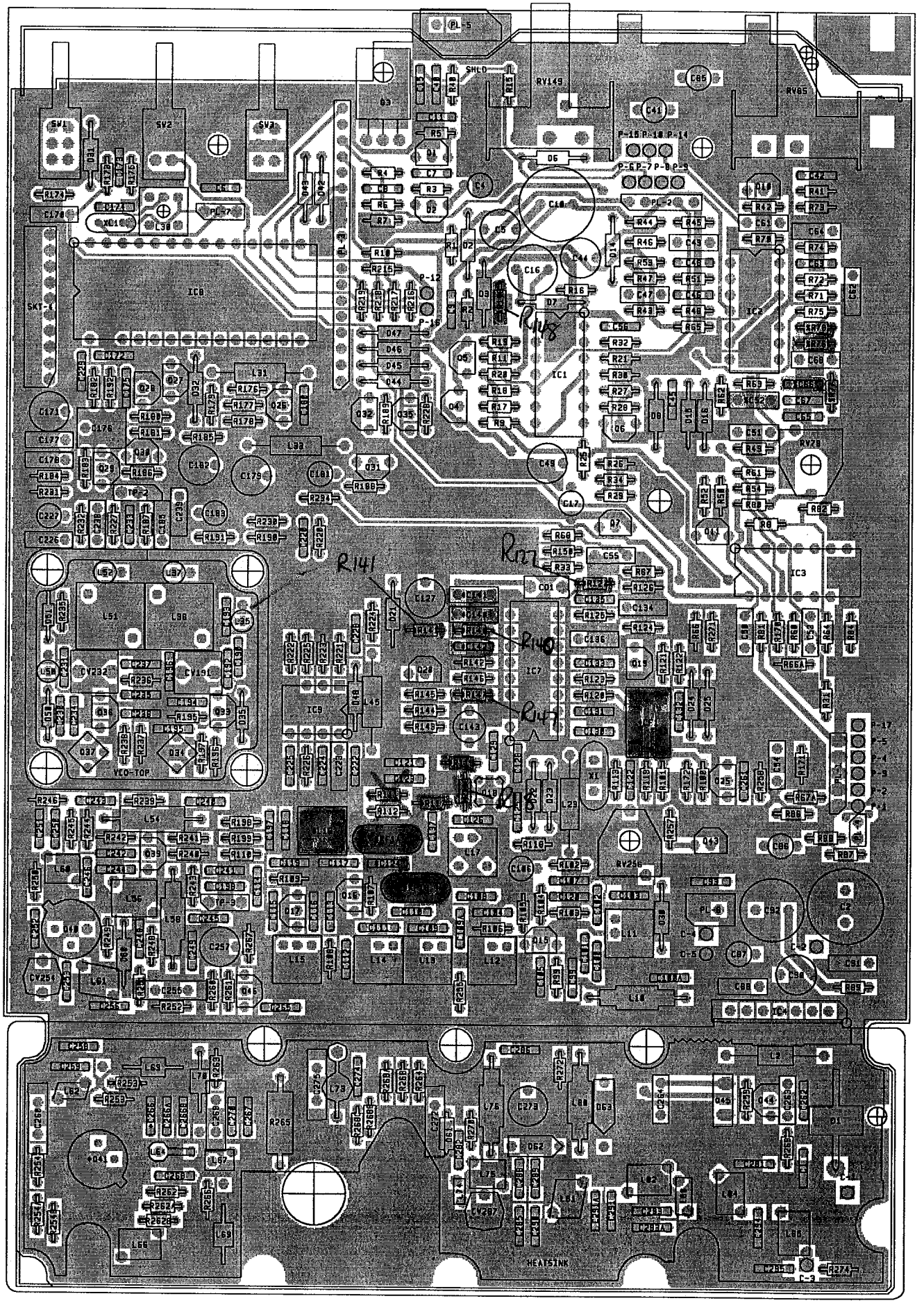


DIAGRAM 3 T525 PCB LAYOUT - TOP SIDE.

220-01110-01 A

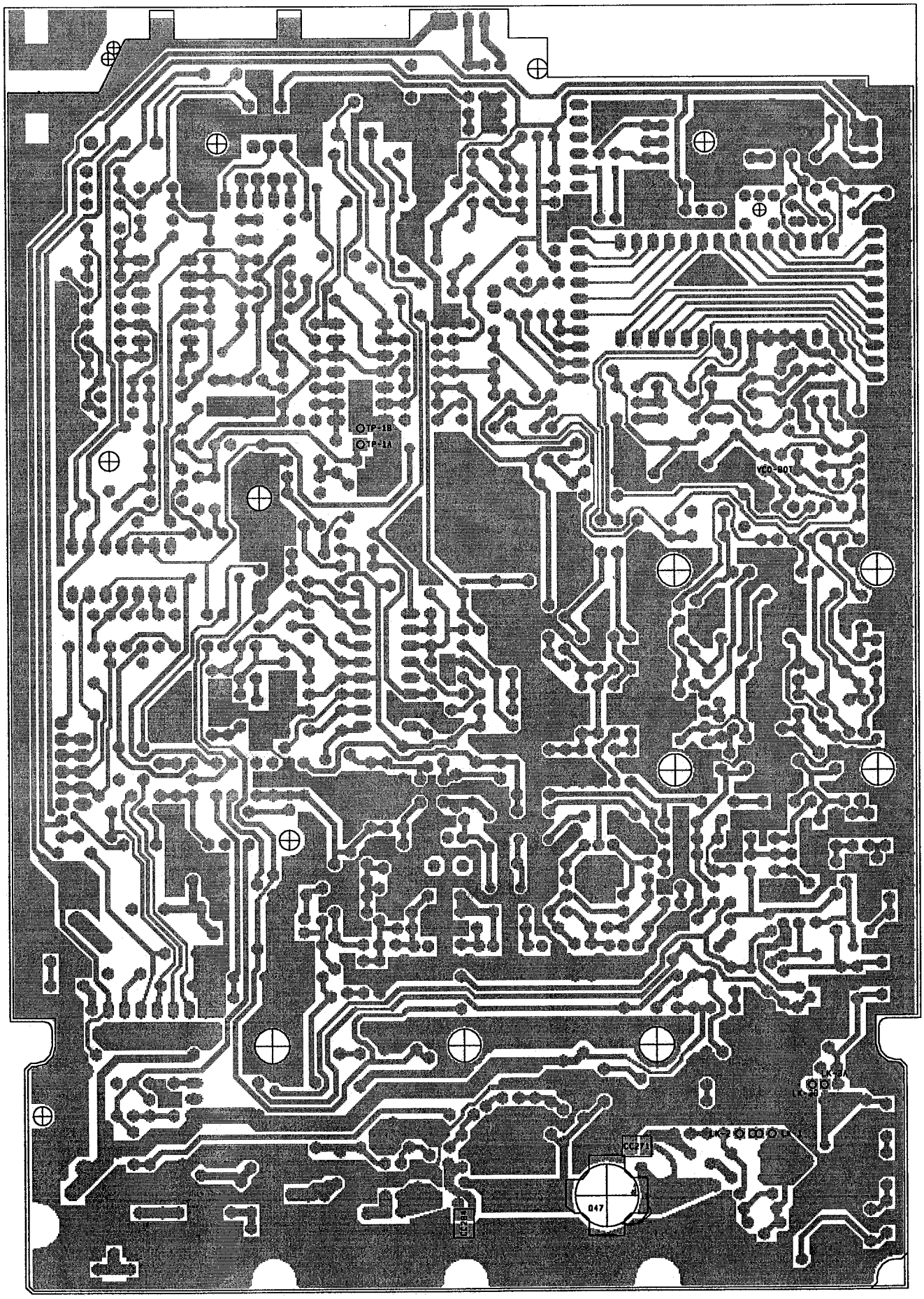


DIAGRAM 3A T525 PCB LAYOUT - BOTTOM SIDE.

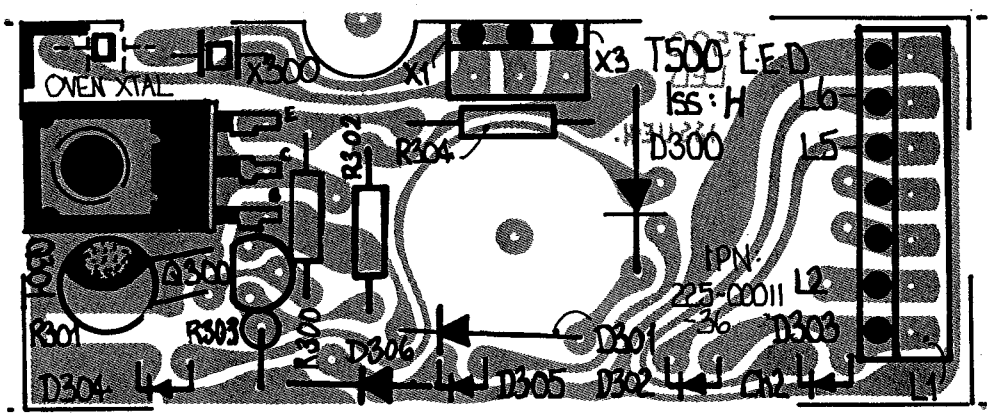
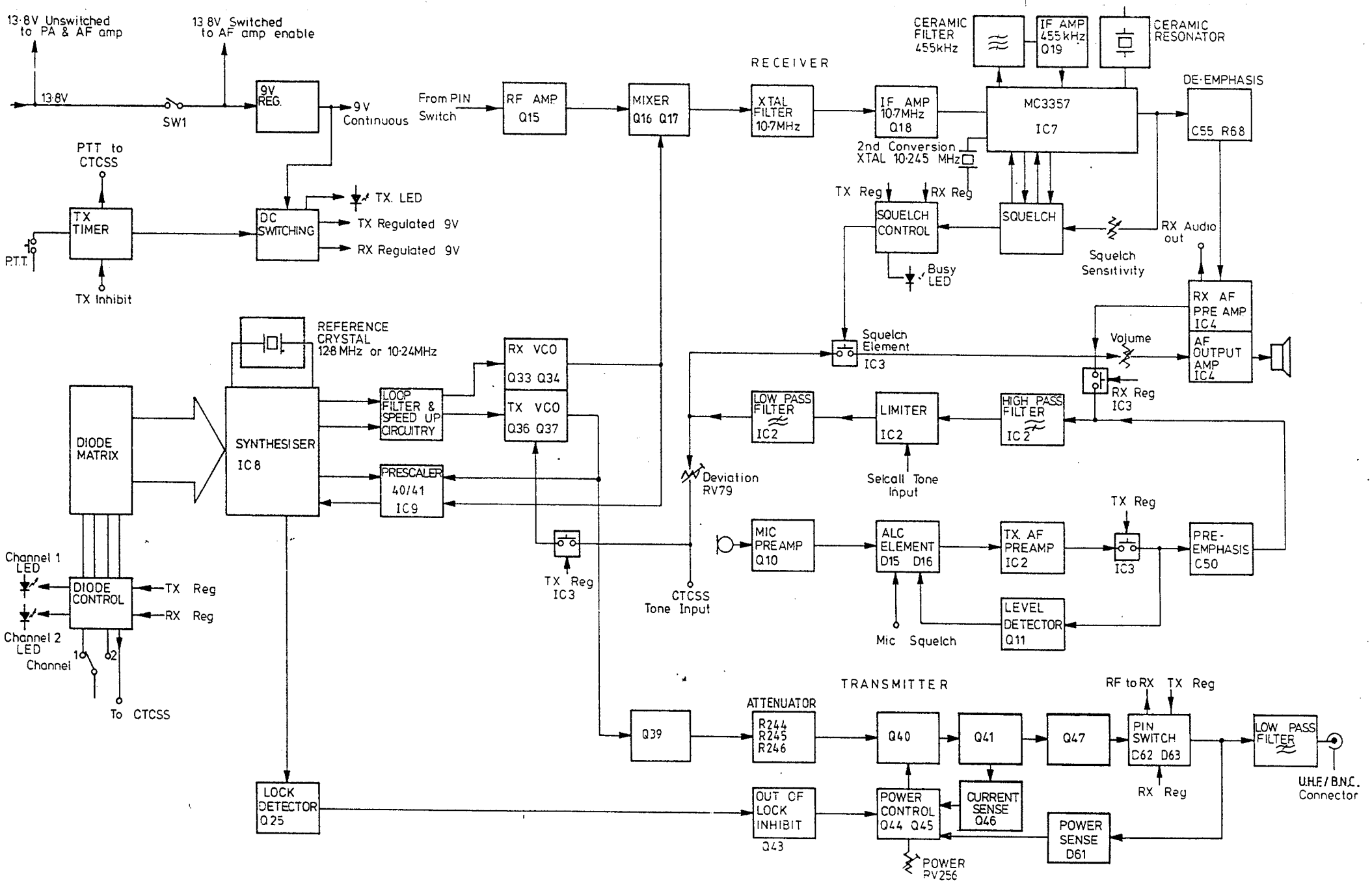


Diagram 4 T500 LED & Crystal Heater PCB Layout

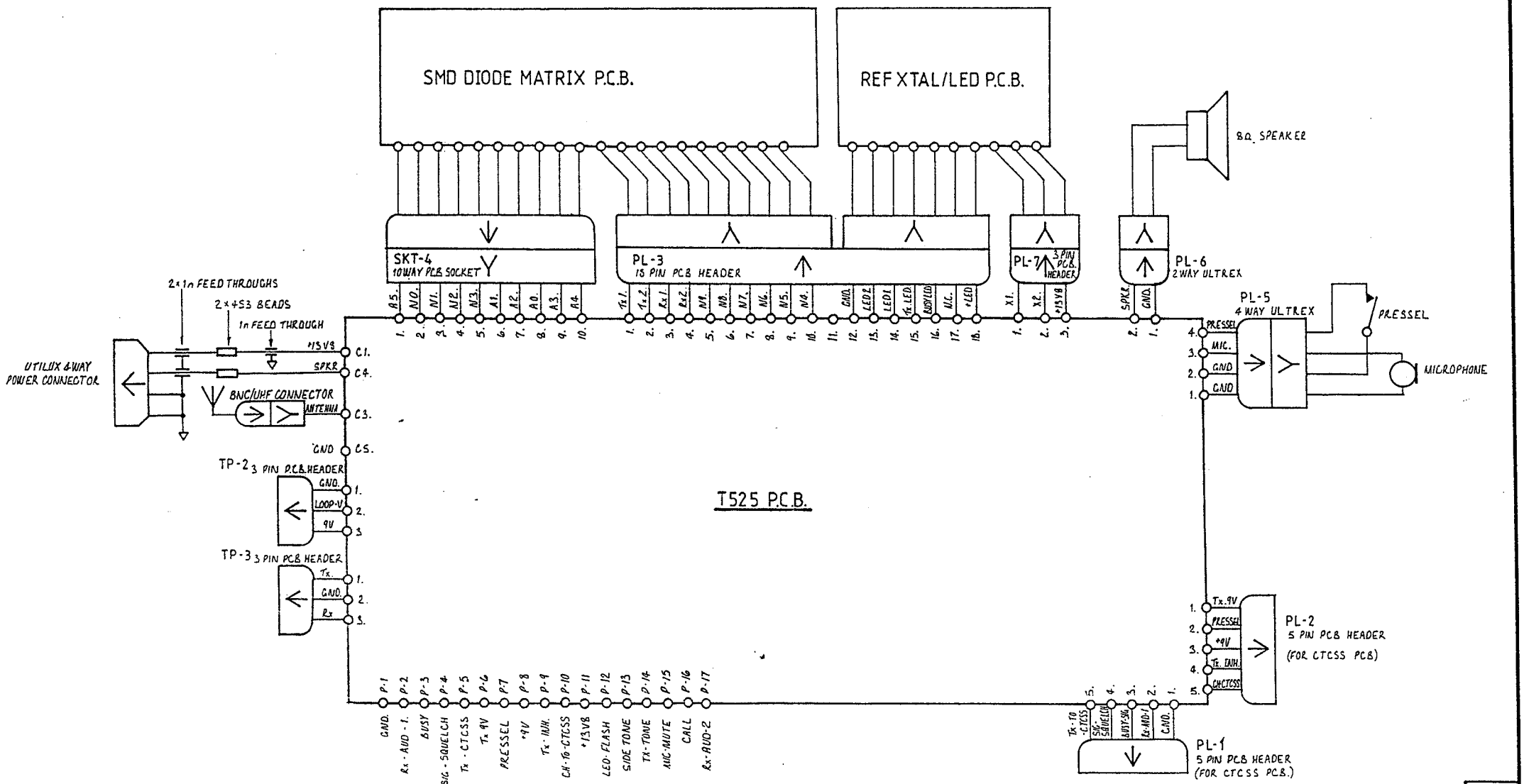


ISSUE	AMENDMENTS	DRN	CHKD	APVD	DATE
		G.G.B.	D		22·9·82

DO NOT SCALE THIS DRAWING

BLOCK DIAGRAM T525

DRAWING NUMBER A2 C637



THIRD ANGLE PROJECTION

ARTWORK	IPN	USED ON
	T525	

ISSUE	AMENDMENTS	DRN	CHKD	APVD	DATE
A	ORIGINAL				
B	CN 38/11 : 322				27-1-88 17-6-88

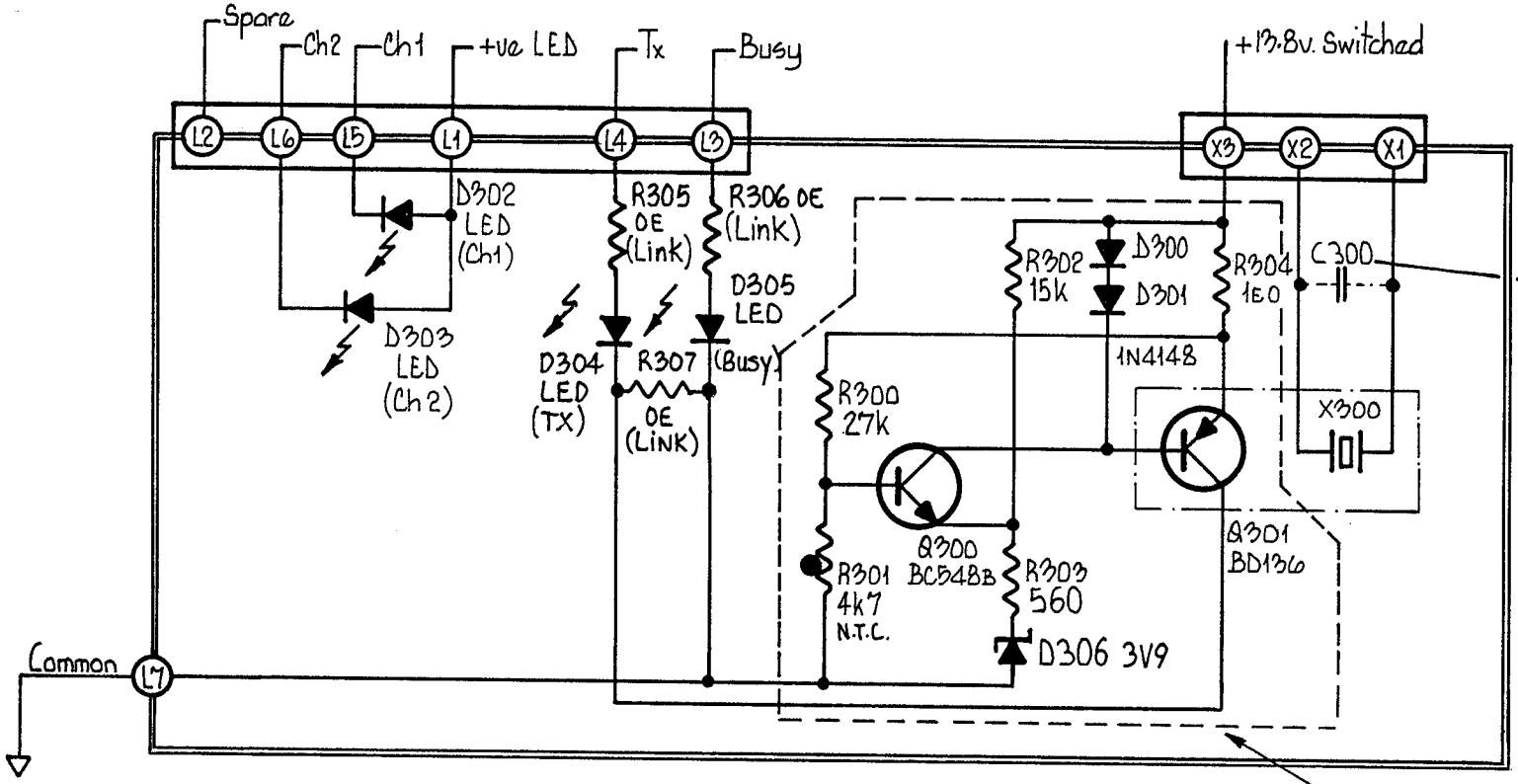
ISSUE	AMENDMENTS	DRN	CHKD	APVD	DATE

T525 WIRING DIAGRAM

TAIT ELECTRONICS Ltd.
Christchurch New Zealand

DRAWING NUMBER A2 C631

ISSUE A B



CH. SPACE	X300	C300
6.25 KHz	12.8	not fitted
5kHz	10.24	1p0

USED ON
T510
T520
T530
T540
T550

SCALE :
MATERIAL :
FINISH :
GEN. LIMITS :

E	ChN: 86-12-379	Julie 18.6.8	S.C.	S.C.	19.1.87
F	Ch/N 88/05-227			S.C.	9.5.88

IPN

ISS	AMENDMENTS	DRN	CHKD	APVD	DATE
A	ORIGINAL	W.W.	MM	[illegible] S.C.	30-11-88
B	Ch/N 85/08 304, 09 353 TO 374, 10 384	D.H.	H.O.	S.C.	21.10.88
C	ChN: 86-07-175	Julie	D.C	S.C.	5.9.86
D	Ch/N: 86-07-165	Julie	[illegible]	S.C.	7.10.86

DO NOT SCALE OFF DRAWING

CIRCUIT DIAGRAM — T500/LED & OPTIONAL CRYSTAL HEATER.

TAIT ELECTRONICS LTD.

DRAWING NUMBER A4 C509

ISSUE A B C D E F

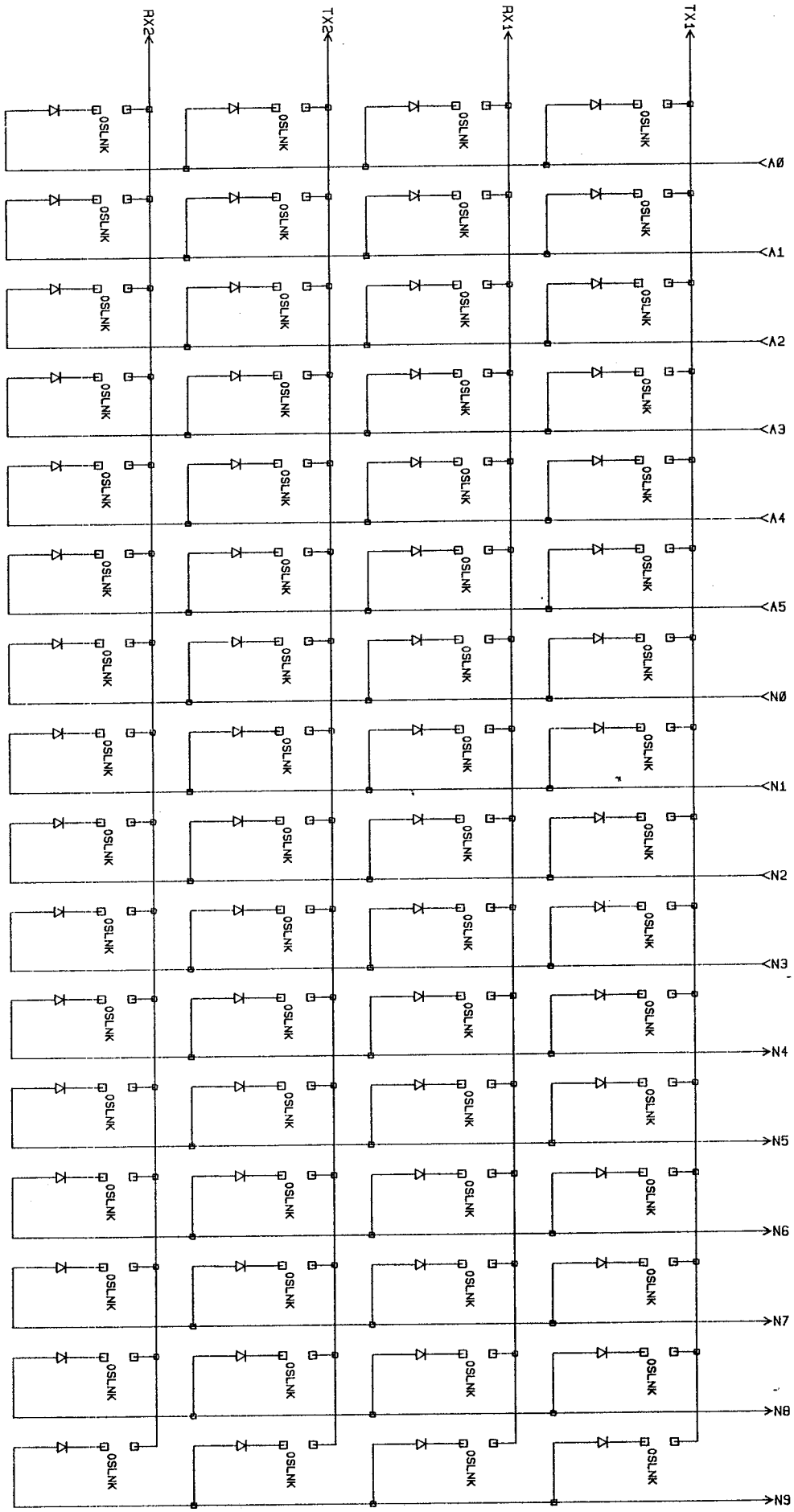


Diagram 8 T500-22 Diode Matrix Circuit Diagram