
maxon[®]

**DATA RADIO
MODEL DM-0530**

SERVICE MANUAL

MAXON DM-0530

General

Power supply	11.0VDC \pm 10%
Antenna impedance	50 Ohms, unbalanced.
Temperature range	- 30 degrees C. to +60 degrees C.
Humidity	90%, non-condensing.
Frequency range	450 MHz to 470 MHz.
Frequency stability	+ / - 0.0005%
Frequency control	quartz crystal, installed.
Channel capacity	1 channel, simplex or half duplex.
Required FCC compliance	Part 15, 21, 90, 95

Receiver Performance Specifications

Sensitivity	0.35 μ V or better (12dB SINAD) 1.
Noise quieting	20dB or better at 0.5 μ V 1.
Receiver recovery after transmit PTT released	18 milliseconds or less.
Modulation acceptance bandwidth	+ / - 7.0KHz.
Spurious and image rejection	at least - 70dB.
Intermodulation rejection	at least - 60dB.
Selectivity	at least - 75dB for frequencies at + / - 25KHz of channel frequency.
Audio output	at least 200mV RMS into 30K ohms @ 2.6KHz deviation with a 1KHz modulation tone.
Audio frequency response	- 4dB maximum @ 4.8KHz, down no more than - 10dB at 7KHz 2.
Audio harmonic distortion	4% or less with a 10 microvolt input RF level, 1KHz modulating tone at + / - 2.6KHz deviation 1.
Receiver current	20mA maximum

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Transmitter Performance Specifications

Carrier power output	2 watts, $\pm 10\%$
Audio harmonic distortion	no more than 5% for a 1KHz modulating tone at $\pm 3.0\text{KHz}$ deviation.
Maximum deviation capability	at least $\pm 5\text{KHz}$.
Modulation limiting	Instantaneous peak clipping with low pass audio filter.
Audio input level	250 to 350mV RMS for 5.0KHz deviation @ 1KHz, adjustable.
Deviation vs. temperature	$\pm 0.2\text{KHz}$ over operating temperature range.
FM hum and noise	at least -50dB down.
Output protection	Shall withstand for 5 minutes all VSWR around Smith chart of 20:1 without failure or damage.
Input current	not more than 850mA with 2 watts average power output at 11.0V nominal.
Spurious & harmonic emissions	less than -60dB
Attack time	Time from PTT to full power, frequency within tolerance, and full modulation capability shall be less than 50 milliseconds.
PTT input	Floating the PTT line enables the receive mode, grounding the PTT line enables the transmit mode. Maximum current sourced from the PTT line during transmit mode with the line tied to ground shall be (30mA. Maximum low voltage threshold shall be 0.4V.)

- * 1. These measurements shall be made using a CCITT weighed filter.
- 2. These measurements shall be made without filtering.

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Specification of Quartz Crystal Unit

TRANSMIT

1. Holder Type HC-18/U Wire Lead
2. Operating Temperature -30 C to 80 C
3. Temperature Stability $\pm 0.0010\%$ (-30 C to +60 C)
..... $\pm 0.0005\%$ (-10 C to +60 C)
4. Characteristics at 25 C \pm 2 C unless otherwise specified.
 - 4.1 Frequency (MHz) $F \div 27$
 - 4.2 Frequency Tolerance ($\pm \%$) 0.0005
 - 4.3 Load Capacitance (pf) 32 pf
 - 4.4 Equivalent Resistance (ohm) 20 Max
 - 4.5 Drive Level (mw) 2
 - 4.6 Shunt Capacitance (pf) 7 Max
 - 4.7 Oscillation Mode Fund
 - 4.8 Test Circuit RFL5950A/460A
 - 4.9 Motional Capacity 0.0025 pf \pm 10%

RECEIVE

1. Holder Type HC-18/U Wire Lead
2. Operating Temperature -30 C to 80 C
3. Temperature Stability $\pm 0.0010\%$ (-30 C to +60 C)
4. Characteristics at 25 C \pm 2 C unless otherwise specified.
 - 4.1 Frequency (MHz) $(F-21.4) \div 9$
 - 4.2 Frequency Tolerance ($\pm \%$) 0.0005
 - 4.3 Load Capacitance (pf) 32
 - 4.4 Equivalent Resistance (ohm) 35
 - 4.5 Drive Level (mw) 2
 - 4.6 Shunt Capacitance (pf) 7 Max
 - 4.7 Oscillation Mode 3rd Overtone
 - 4.8 Test Circuit RFL5950A/460A
 - 4.9 Motional Capacity 0.0025 pf \pm 10%

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Theory of Operation

RECEIVER

RF AMPLIFIER

Incoming signals from the antenna jack are switched by send-receive diode D13 to RF amplifier Q1 via helical resonators T1 and T2. Q1's output is amplified and filtered by resonators T3 and T4.

MIXER AND LOCAL OSCILLATOR

Q5 is a third overtone crystal oscillator* which feeds tripler Q6. The output of Q6 is doubly tuned by T5 and T6 and injected at the emitter of mixer Q2, thus converting the incoming signal to 21.4MHz. The 21.4MHz IF output of Q2 is filtered by two monolithic crystal filters.

IF AMPLIFIER

The 21.4MHz IF signal is amplified by Q3 and fed into IC-1, which functions as the 2nd oscillator and mixer to 455KHz. The 455KHz IF signal is filtered by ceramic filter CF-1 and applied to the amplifier and limiter portions of IC-1, which also included the quadrature detector, noise amplifier and squelch control switching circuitry.

AUDIO OUTPUT

IC-1's audio output is de-emphasized and fed to J2.

RECEIVER VOLTAGE REGULATOR

Q16 is a voltage regulator to provide a stable 5-volt supply to receiver RF and IF circuitry. Its base is connected to the PTT switch through a diode to disable receiver stages in the transmit mode.

MAXON DM-0530

Theory of Operation

TRANSMITTER

CRYSTAL OSCILLATOR AND MODULATOR

Q8 is a fundamental frequency crystal oscillator with temperature compensating circuitry. At low temperatures TH3 becomes effective and compensates for negative crystal frequency drift. Q7 is the microphone amplifier. Its output is differentiated and fed into IC-3, which is used as an amplifier and clipper. IC-3's output is filtered and fed via a deviation control into varactor D8, for direct frequency modulation.

Q9 triples the crystal frequency. Its output is double-tuned. Q10 is a second tripler with double-tuned output feeding third tripler Q11, which has output at the channel frequency.

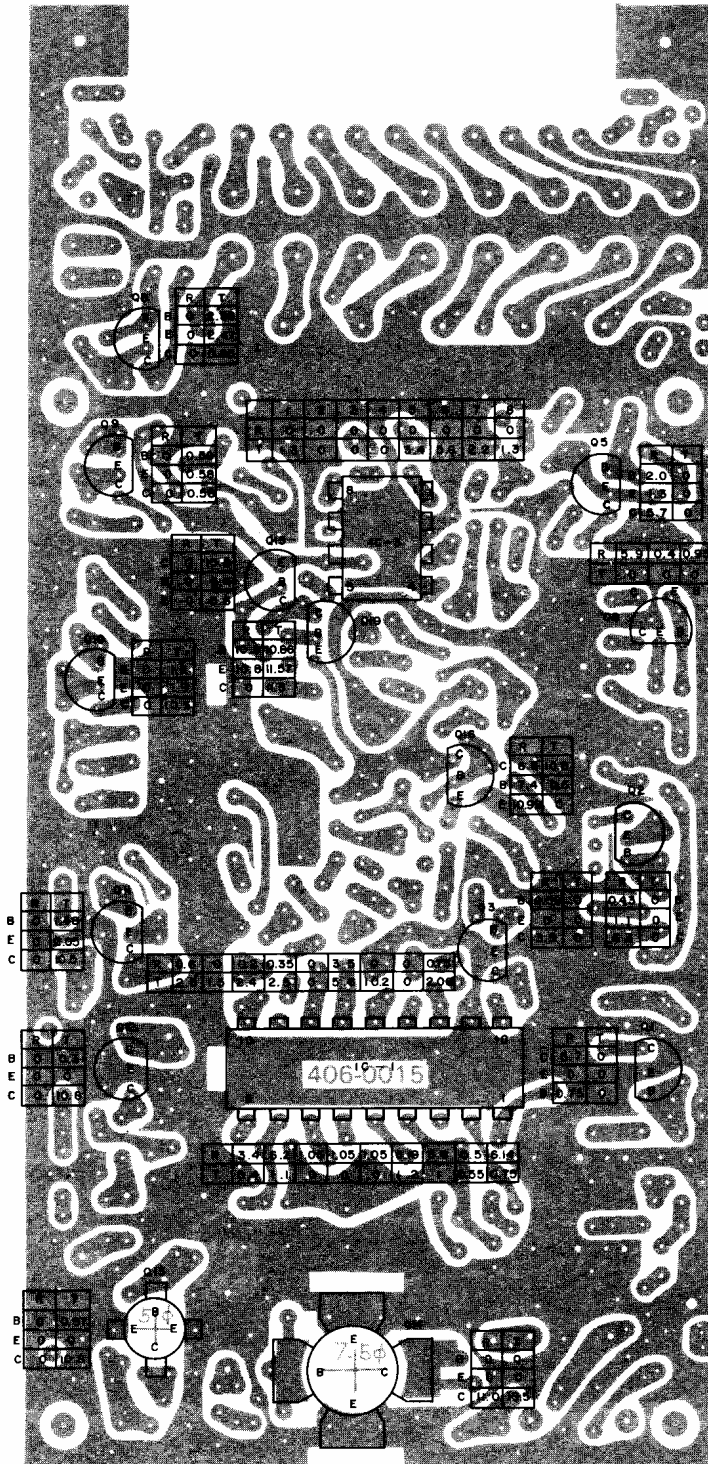
DRIVER AND FINAL AMPLIFIER

Q11 is a buffer amplifier exciting pre-driver Q12. Drive Q13 produces about 700MW of power to final transistor Q14, which delivers up to 5 watts of RF power output.

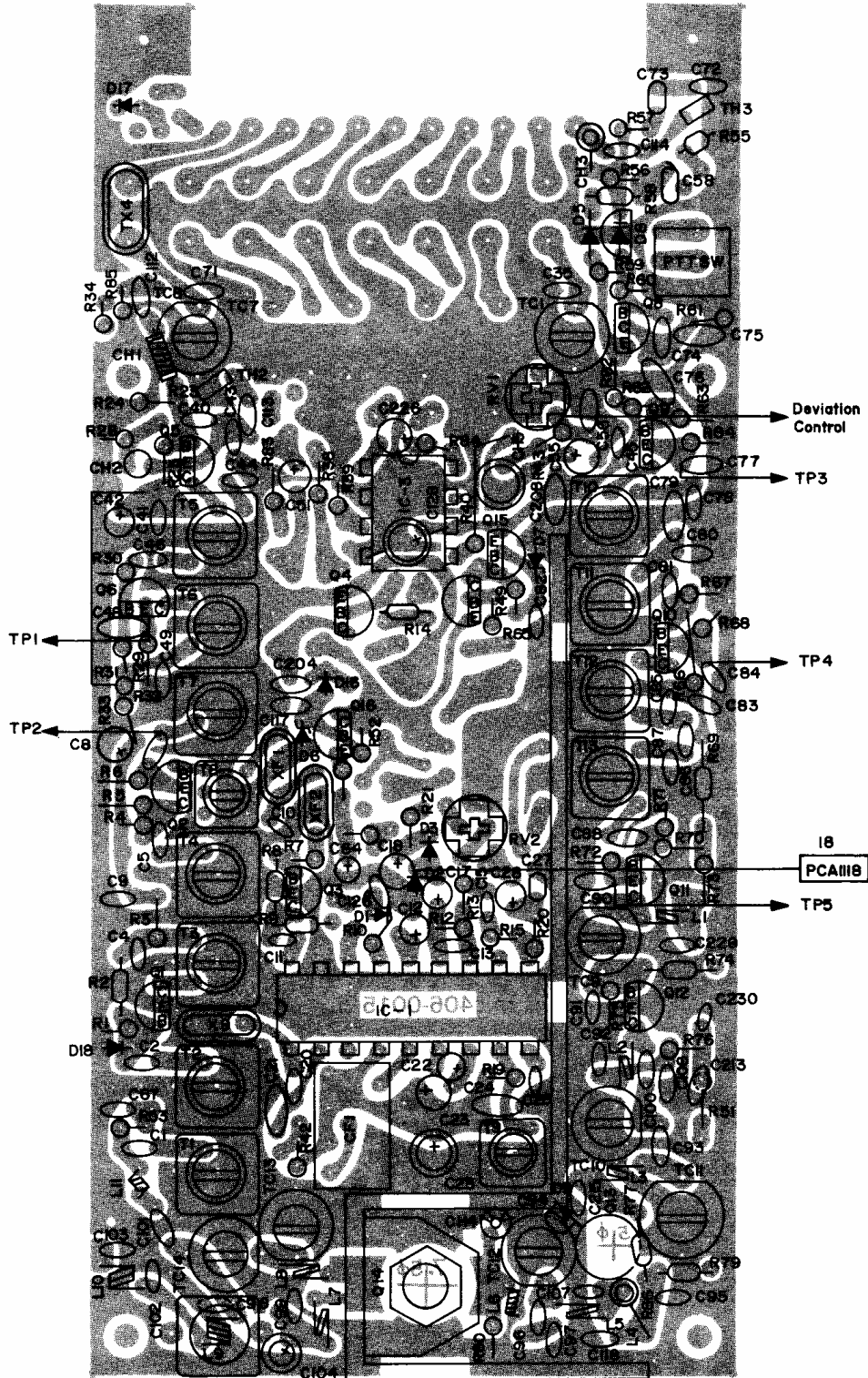
SEND-RECEIVE SWITCHING

Q19 is a switching transistor. When PTT is activated, Q19's base will be forward biased, causing it to conduct, delivering voltage to the low-level transmitter stages, and to regulator Q15 which supplies stable voltage to oscillator Q8 and modulator Q9. Q19 also applies a positive voltage to send-receive antenna switching diode D13 in the transmit mode, causing it to conduct, thus switching the RF input signal to the receiver to a very low level.

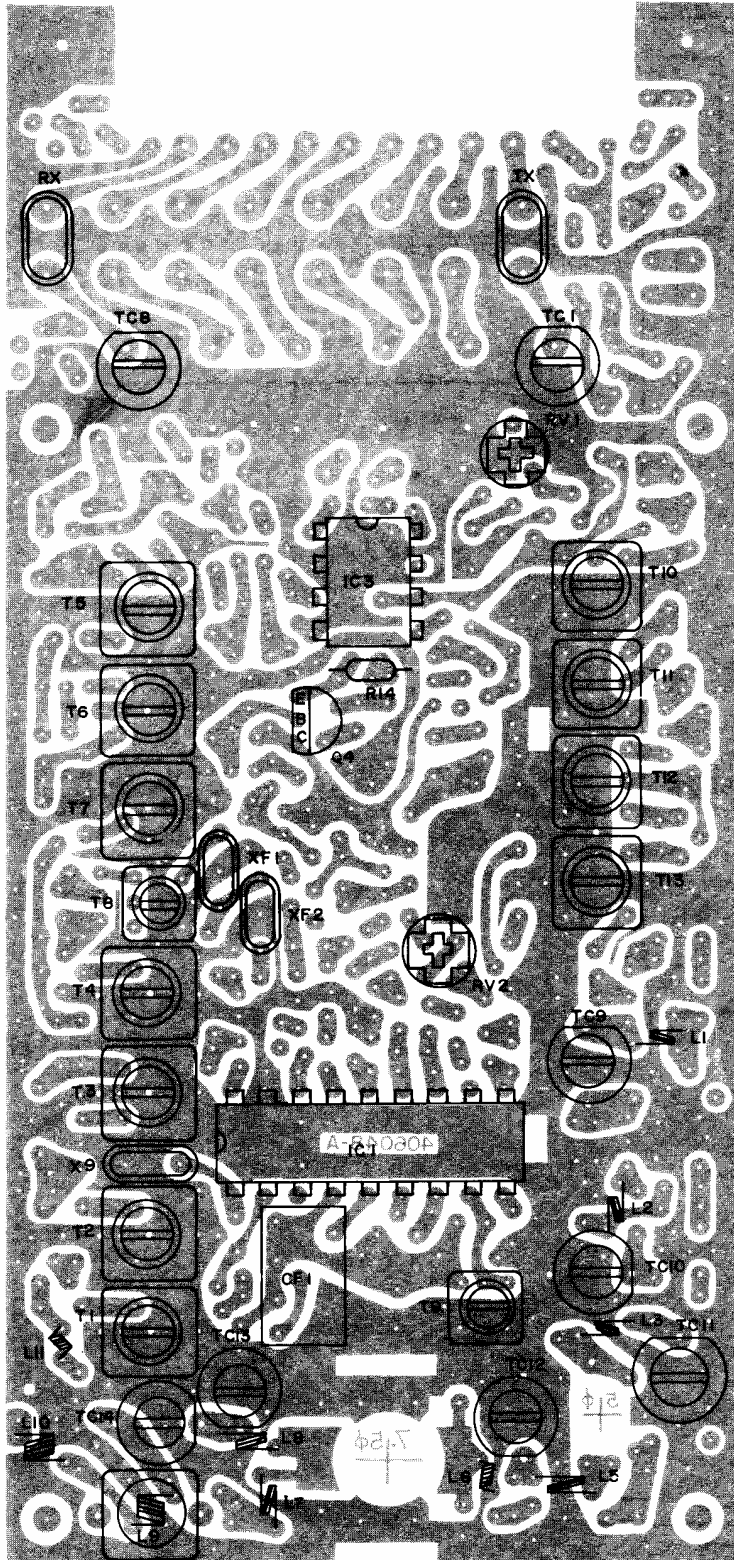
MAXON DM-0530 Voltage Chart



MAXON DM-0530 Top View



MAXON DM-0530 Alignment Point

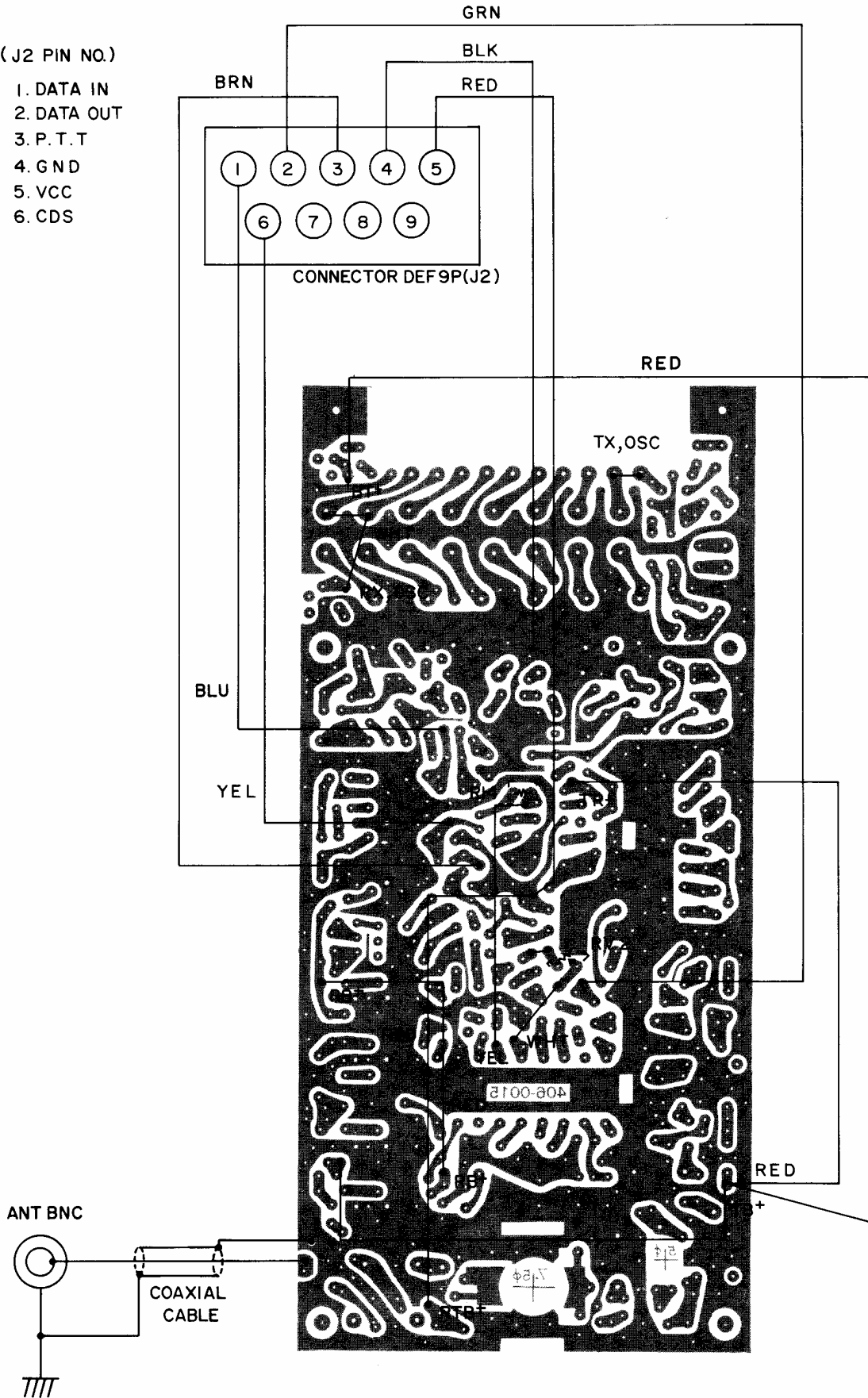


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Wiring Diagram

(J2 PIN NO.)

- 1. DATA IN
- 2. DATA OUT
- 3. P. T. T
- 4. GND
- 5. VCC
- 6. CDS



MAXON DM-0530

Transmitter Alignment Instructions

TRANSMITTER PERFORMANCE TESTS

POWER OUTPUT

Power output should be in excess of the advertized specification with a power supply input voltage of the required level (11VDC), measured at the power supply. Reducing the supply voltage by 15% should produce a power output of approximately 50% of the advertized specification.

AUDIO RESPONSE

Connect an audio generator set up for 1KHz to the EXT MIC jack. Adjust the generator output to 1KHz deviation on the deviation meter. Retune the audio generator to 500Hz. The deviation should now be approximately 500Hz as observed on the monitor. Retune the audio generator to 2KHz. The deviation should now be approximately 1KHz.

LIMITING TEST

Adjust the audio generator output to 1KHz deviation at 1KHz audio frequency tone output and observe the waveform on an oscilloscope connected to the communications monitor. Set the attenuator on the audio generator to show slight clipping on the oscilloscope. Increase the generator by 20dB (twice voltage) and sweep the band from 300Hz to 3KHz. At any frequency within that band the deviation should not exceed plus/minus 5KHz.

SPLATTER FILTER TEST

SPLATTER FILTER TEST

With the test equipment set up as for the LIMITING TEST, note the reading on the AC VTVM connected across the audio output of the deviation meter at 3KHz deviation. Tune the audio generator to 6KHz. The AC VTVM reading should decrease more than 18dB.

SPECTRUM TEST

With the input attenuator of the spectrum analyzer protected by 30 to 40dB of attenuation, all spurious and harmonics should be down more than 60dB.

ANTENNA TEST

Reassemble the radio into its case and install a fully-charged battery pack. Connect a properly trimmed (to frequency) flexible antenna. Key to transmit and check the frequency, deviation and spectral purity. All should be the same as tested with the 50-ohm dummy load.

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Transmitter Alignment Instructions

TRANSMITTER

CRYSTAL INSTALLATION

Soldering of the crystals must be accomplished quickly to avoid damage to the crystal itself.

POWER SUPPLY VOLTAGE

Set the power supply voltage to the proper level, measured at the radio, not at the power supply. If measured at the power supply, voltage drop in the connecting leads will result in erroneous readings.

MULTIPLIER TUNING

Connect an RF wattmeter (0-5W scale) to the antenna jack and a 0-3VDC voltmeter to TP-4 and press the PTT switch. Tune T10, T11, T12 for maximum and T13 for a dip. Move the meter to TP-5 and touch up the coils mentioned above for maximum reading.

AMPLIFIER TUNING

Press the PTT switch and observe some reading on the RF wattmeter. Tune TC9, TC10, TC11, TC12 and TC13 for maximum RF output as indicated on the wattmeter, while observing the spectrum analyzer to ensure that all spurious emissions are down at least 60dB relative to the carrier level.

CHANNEL SETTING

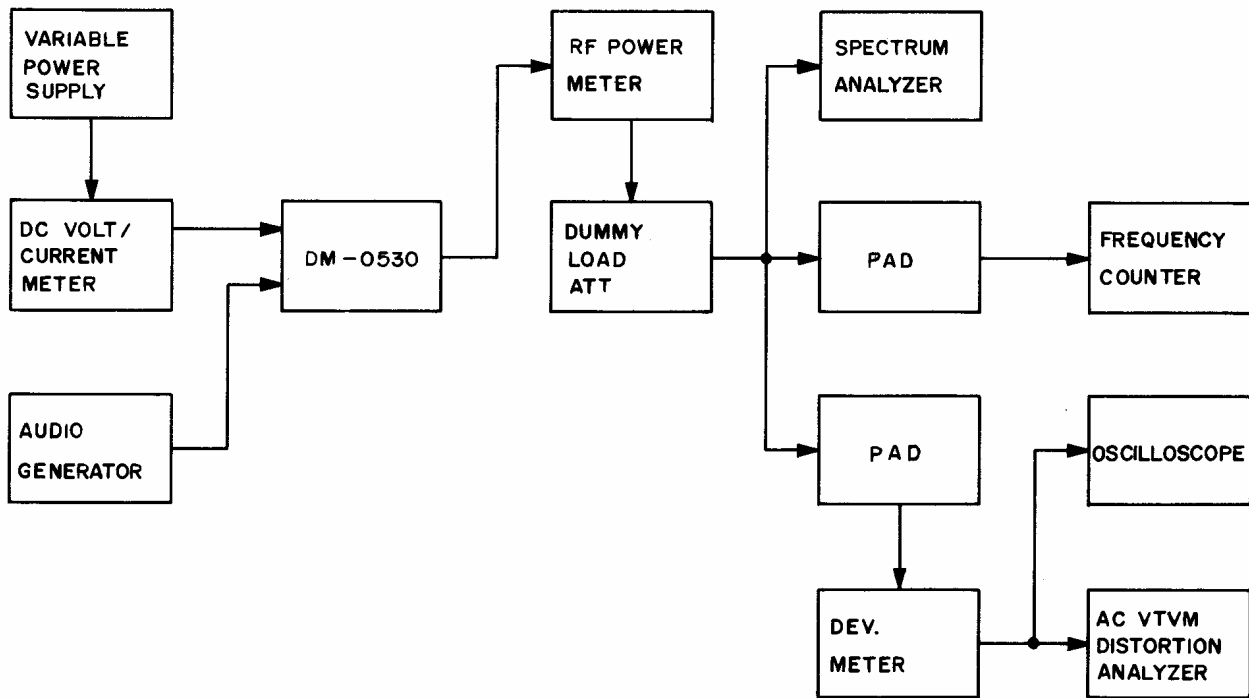
Adjust the trimmer capacitor for transmitter crystal to the exact channel frequency, as measured on a communications monitor or suitable frequency counter.

DEVIATION ADJUSTMENT

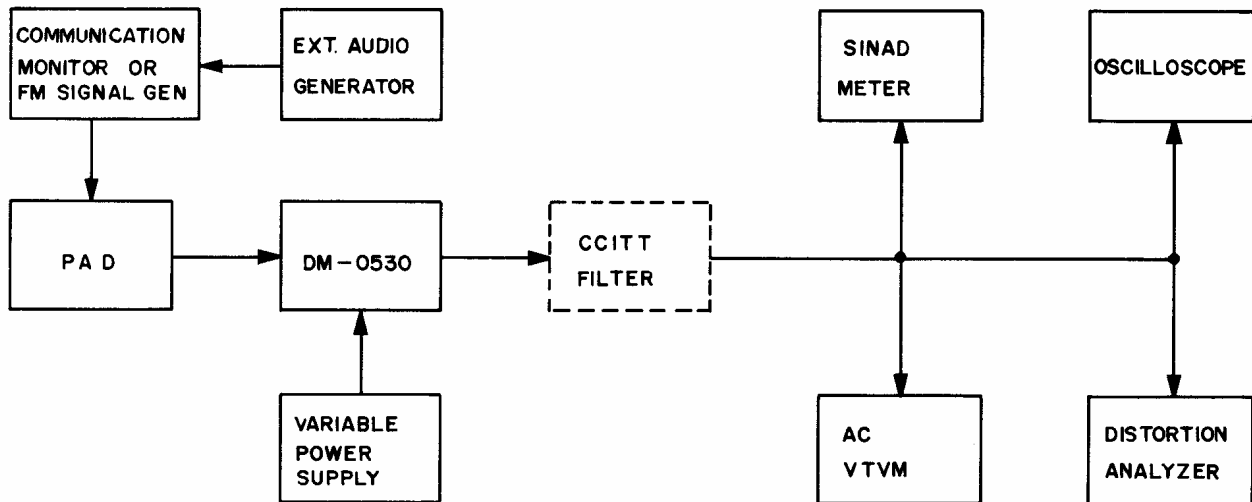
Using an external audio generator connected to the radio's external mike jack, set the deviation control (RV1) to indicated plus/minus 5KHz on the communications monitor, observing the waveform for proper positive and negative peak deviation. Note that when the modulation limiter is overdriven, slight "carrier shift" will result. This will not occur at normal speech levels. Also note that when crystals for more than one channel are installed, there will be a slight difference in maximum deviation for a given setting of RV1. This is caused by slight variation in individual crystal parameters and can be minimized by using crystals from the same manufacturer. Always adjust RV1 for 5KHz deviation on the channel which shows maximum deviation.

MAXON DM-0530 Test Equipment Connection

TRANSMITTER



RECEIVER



MAXON DM-0530

Receiver Alignment Instructions

RECEIVER

CRYSTAL INSTALLATION

Soldering of the crystals must be accomplished quickly to avoid damage to the crystal itself.

OSCILLATOR TUNING

Connect VOM (0-3VDC range) at TP-1, tune T5 for maximum reading.

FRONT END TUNING

Connect a SINAD indicating meter across the audio output connections using a CCITT weighted filter. Tune the signal generator to the proper frequency and increase its output until the signal (3KHz deviation, 1KHz audio tone) can be heard. Tune T1, T2, T3, T4, T6 and T7 for best SINAD. Adjust the channel trimmer capacitor for best SINAD at the indicated channel frequency, using the minimum possible output from the signal generator. Go back and touch up the tuning of T1 through T7, above, as well as T5 and T8. The final SINAD reading for any selected channel within the 5MHz permissible spread should be 0.35 microV or less for 12dB. T9 is factory-tuned and does not normally require adjustment.

RECEIVER PERFORMANCE TESTS

SINAD SENSITIVITY

Adjust the signal generator output to the lowest level which will provide a good sinusoidal pattern on the oscilloscope. At 12dB SINAD the signal generator output should be less than 0.35 microV.

CARRIER DETECT SWITCH SENSITIVITY

With the signal generator set for 1KHz modulation, 3KHz deviation and the RF attenuator at minimum output setting, adjust the control to its threshold, ie. to where Q4 collector just goes high. The collector of Q4 should go low as the output of the signal is increased to 0.25 microV. Set the control to its maximum clockwise position. Increase the RF attenuator setting until Q4 collector goes low. The point of opening should be 10 to 20dB greater than 0.25 microV.

AUDIO OUTPUT

With the signal generator set at 1000 microV output, audio output should be approximately 50 to 150MV.

STANDBY CURRENT

Squelch the receiver (no signal input) and connect a VOM (0-30mA scale) in series with one of the power supply leads. The meter reading should be less than 20mA at a supply voltage of 11 volts.

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Parts List

Seq.	Part-No.	Part Name and Description	Q'ty	Reference-No.
	310-093-0	Coil Choke MK-3(R)	2	L3, 9
	310-094-1	Coil Choke MK-17	1	L11
	310-108-1	Coil Choke MK-16 1UH/1k ohm	2	CH1, 3
	310-122-3	Inductor MK-23 (1UH)	1	CH2
	310-124-5	Choke Coil MK-2(L)	2	L2, 8
	310-125-6	Choke Coil MK-3(L)	1	L10
	310-139-9	Inductor MK-21 (1K 1/5W) t6	1	L4
	320-232-2	Coil 455-KHz Defector	1	T9
	320-235-5	Coil RX OSC MUL	1	T5
	320-253-1	Bead Core FC 3x2	10	FB1, 2, 3, 4, 5, 6, 8, 9, 10, 11
	320-259-7	Coil TX OSC	1	T10
	320-305-5	Coil TX Tripler 50 MHz	1	T11
	320-307-7	Coil TX Tripler 150 MHz	1	T12
	320-308-8	Coil TX Tripler 150 MHz	1	T13
	320-356-1	Coil 21.4 MHz Mixer	1	T8
	406-001-5	P.C.B Main 115x54xt1 1/1 FR-4 SN/PB PTH	1	
	406-902-9	P.C.B MT 4x10.4xt1	1	
	423-503-3	Dial Cord t0.3 1M	0.7	
	650-047	Nut UNC-NO8-32 Ni-Plate	1	
	660-740	Teflon Ring Teflon 4.6Dia x 3Dia x t0.6 CP0520	6	
	750-990	Spacer CUP 11x9.5xt2.4 CP-0520, 0521	1	
	760-555	Heat Sink (Drive TR MTG) SPTE 23x18xt0.3	1	
	760-731	Heat Sink (Power TR MTG) (UP 116x15xt1.5 Sn-Plate)	1	
	770-196	Shield Case 7x7MM (Metal Case) No. 7	1	
	770-412	Shield Plate (P.C.B Bottom MTG) SPTE-N	1	
	860-024	PIN (Test Point)	1	
	901-837	Insulation Plate (X-TAL Filter) Fiber 7.8x3xt0.25	1	
	902-091	Insulation Plate Fiber t0.25 Sticker	1	
	902-140	Insulation Plate Fiber 6.2x5.6xt0.25 CP-0520, 0521	2	
	903-640	Insulation Plate Fiber 10x10xt0.25 Sticker	2	
	903-641	Insulation Plate Fiber 10x5xt0.25	2	
3	565-31P-A	Packing Ass'y	1	
	910-214-A	Snow Box	1	
	910-215-A	Snow Pad Styropol 144.6x70x10	1	
	910-218-B	Carton Box (Inner) SW1 388(W)x461(D)x54(H)	0.1	
	910-219-B	Carton Box (Out) DW1 358(W)x481(D)x294(H)	0.02	
	921-525-P	Polybag P.P 150x250xt0.05	1	
4	565-31S-MA	Sub Material Ass'y	1	
	427-179-4	Wire Braid	0.07	
	002-102-9	Resistor Carbonfilm 1k ohm 1/16W +5% "S"	2	R23, 54
	427-174-9	Wire Strip 0.5Dia	10	
	701-740	Modified Poly Phenylene Oxide Resin Noryl N190J-7021	0.102	
	960-007	Tube Vinyl (Clear) 3ø	0.1	
	960-274	Tube UL/CSA Keit-30 Vinyl AWG 12 (2ø) Clear	0.1	
	964-201	Tube Tefion 0.5Dia (TFT200-24 Alpha)	0.1	
	965-039	Tape Packing PVC (0.05x25M)	1	
	966-007	Solder Bar 63:37	20	
	966-016	Solder Rosin Core Wire 60:40 0.04"-0.05"	50	
	966-061	Silicon Grease YG-6111 or XG-6111	2	
	966-098	Flux Thinner For T.M.C.	110	
	966-104	Solder Rosin Core Wire 62:36:2	5	
	966-113	Solder Wick	0.05	
	967-011	Bond #201	5	
	967-039	Bond #601	5	

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Parts List

Seq.	Part-No.	Part Name and Description	Q'ty	Reference-No.
	967-066	Wax Poly	3	
	967-084	Screw Locking Paint AGP	5	
	967-136	Staple 18M/M	1	
	967-190	Molding Compound (TC-459)	3	
	967-233	80 Column Printer Sheet	3	
5	565-31W-MP	Wire Main PCB Ass'y	1	
	427-188-2	Wire Vinyl 080D (7/0.12) BLK	0.065	J2(4)—GND 0.5:0.5
	427-189-3	Wire Vinyl 080D (7/0.12) BRN	0.095	R49—J2(3) 0.5:0.5
	427-191-4	Wire Vinyl 080D (7/0.12) ORG	0.15	D11—R51 0.5:0.5
	427-192-5	Wire Vinyl 080D (7/0.12) YEL	0.09	C62—J2(6) 0.5:0.5
	427-197-0	Wire Vinyl 080D (7/0.12) WHT	0.08	R53—R51 0.5:0.5
	427-241-6	Coaxial Cable 178U W/O Cover	0.19	
	427-190-3	Wire Vinyl 080D (7/0.12) RED	0.36	
	427-193-6	Wire Vinyl 080D (7/0.12) GRN	0.16	
	427-194-7	Wire Vinyl 080D (7/0.12) BLU	0.13	
6	566-01M-B	Helical Coil MID Band	1	
	509-620	Helical Coil Ass'y 7 3/4 "L"	2	T1, 4
	310-187-2	Coil Eanamel 0.45MM AWG 25	0.15	
	508-550	Shield Case Ass'y (Helical Coil)	1	
	770-196	Shield Case 7 x 7MM (Metal Case) No. 7	1	
	851-680	Bobbin (Helical Coil) Teplon	1	
	851-920	Ring (Helical Coil Bobbin) BSP 5Dia x 2	1	
	509-657	Helical Coil Ass'y 6 3/4 "R"	1	T2
	310-187-2	Coil Eanamel 0.45MM AWG 25	0.14	
	508-550	Shield Case Ass'y (Helical Coil)	1	
	770-196	Shield Case 7 x 7M (Metal Case) No. 7	1	
	851-680	Bobbin (Helical Coil) Teplon	1	
	851-920	Ring (Helical Coil Bobbin) BSP 5Dia x 2	1	
	509-675	Helical Coil Ass'y 7 3/4 "R"	1	T3
	310-187-2	Coil Eanamel 0.45MM AWG 25	0.15	
	508-550	Shield Case Ass'y (Helical Coil)	1	
	770-196	Shield Case 7 x 7MM (Metal Case) No. 7	1	
	851-680	Bobbin (Helical Coil) Teplon	1	
	851-920	Ring (Helical Coil Bobbin) BSP 5Dia x 2	1	
	509-718	Helical Coil Ass'y t8 "R"	2	T6, 7
	310-187-2	Coil Eanamel 0.45MM AWG 25	0.17	
	508-550	Shield Case Ass'y (Helical Coil)	1	
	770-196	Shield Case 7 x 7MM (Metal Case) No. 7	1	
	851-680	Bobbin (Helical Coil) Teplon	1	
	851-920	Ring (Helical Coil Bobbin) BSP 5Dia x 2	1	
7	964-201	Tube Tefion 0.5Dia (TFT200-24 Alpha)	0.1	

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Parts List

Seq.	Part-No.	Part Name and Description	Q'ty	Reference-No.
1	565-31E-A	Enclosure Ass'y	1	
	425-036-8	Connector Plug (UG-1094/U)	1	
	421-047-8	Connector DEF-9P (W/Lock Screw)	1	
	600-330	(+) Machine Screw (P.H) UNF2-56 x 1''/8 Ni-Plate	4	PCB & Case MTG
	631-030	(+) Tap Tite Screw (P.H) 2.6 x 2.6 Ni-Plate	4	Case MTG
	650-120	Nut BSBM UNF2-56 Ni-Plate	4	Case & Spacer MTG
	664-200	Washer (Lock "A" Type) M2 Ni-Plate	4	Case & NUT MTG
	716-860	Enclosure Cover SPTE 72 x 133 x t0.5	1	
	716-871	Enclosure Lower Case SPC t0.5 Ni-Plate	1	
	752-021	Spacer (2.5) BSBM2 5 x 4 UNF2-56 Ni-Plate	4	Case & PCB MTG
	794-292	Name Plate ALP3 40 x 21 x t0.4	1	
	892-640	Rubber Sponge Rubber 57 x 16 x t1.5	1	
	905-011	Insulation Plate	1	
2	565-31M-P	Main PCB Ass'y	1	
	001-101-3	Resistor Carbonfilm 100 ohm 1/16W + 5% "F"	6	R3, 84, 69, 73, 80, 79
	001-102-4	Resistor Carbonfilm 1k ohm 1/16W + 5% "F"	4	R6, 34, 85, 86
	001-103-5	Resistor Carbonfilm 10k ohm 1/16W + 5% "F"	4	R25, 24, 56, 59
	001-122-2	Resistor Carbonfilm 1.2k ohm 1/16W + 5% "F"	3	R7, 40, 101
	001-153-0	Resistor Carbonfilm 15k ohm 1/16W + 5% "F"	2	R2, 4
	001-181-5	Resistor Carbonfilm 180 ohm 1/16W + 5% "F"	4	R32, 64, 68, 72
	001-220-7	Resistor Carbonfilm 22 ohm 1/16W + 5% "F"	3	R31, 33, 76
	001-222-9	Resistor Carbonfilm 2.2k ohm 1/16W + 5% "F"	5	R21, 39, 75, 77, 65
	001-223-0	Resistor Carbonfilm 22k ohm 1/16W + 5% "F"	7	R13, 29, 87, 62, 66, 70, 74
	001-229-6	Resistor Carbonfilm 2.2 ohm 1/16W + 5% "F"	1	R51
	001-272-4	Resistor Carbonfilm 2.7k ohm 1/16W + 5% "F"	1	R20
	001-332-5	Resistor Carbonfilm 3.3k ohm 1/16W + 5% "F"	1	R15
	001-333-6	Resistor Carbonfilm 33k ohm 1/16W + 5% "F"	2	R55, 57
	001-334-7	Resistor Carbonfilm 330k ohm 1/16W + 5% "F"	1	R12
	001-393-0	Resistor Carbonfilm 39k ohm 1/16W + 5% "F"	1	R19
	001-471-7	Resistor Carbonfilm 470 ohm 1/16W + 5% "F"	2	R49, 53
	001-472-8	Resistor Carbonfilm 4.7k ohm 1/16W + 5% "F"	8	R1, 5, 9, 14, 52, 63, 67, 71
	001-474-0	Resistor Carbonfilm 470k ohm 1/16W + 5% "F"	1	R8
	001-479-5	Resistor Carbonfilm 4.7 ohm 1/16W + 5% "F"	3	R42, 48, 82
	001-562-6	Resistor Carbonfilm 5.6k ohm 1/16W + 5% "F"	1	R30
	001-682-1	Resistor Carbonfilm 6.8k ohm 1/16W + 5% "F"	1	R60
	002-224-6	Resistor Carbonfilm 220k ohm 1/16W + 5% "S"	1	R11
	002-473-4	Resistor Carbonfilm 47k ohm 1/16W + 5% "S"	1	R58
	002-561-0	Resistor Carbonfilm 560 ohm 1/16W + 5% "S"	1	R28
	002-821-5	Resistor Carbonfilm 820 ohm 1/16W + 5% "S"	2	R43, 61
	074-103-1	Resistor Semifixed RH0421C14J-10KB 4Dia	1	RV1
	074-223-6	Resistor Semifixed RH0421CJ4J-22KB 4Dia	1	RV2
	098-201-2	Thermistor 200 ohm	2	TH2, 3
	101-043-5	Capacitor Elect 10µF 16WV (4Dia x 7)	1	C104
	104-739-6	Capacitor Elect 47µF 16WV 6Dia x 7	2	C25, 128
	112-207-5	Capacitor Mylar 0.022µF 50WV "S" Type	1	C56
	130-101-8	Capacitor Ceramic 0.001µF 50WV	1	C41
	130-110-6	Capacitor Ceramic 0.01µFZ 5φ x 7	4	C24, 65, 45, 208
	130-183-3	Multilayer Ceramic CRC220Z57104M050:0.1µF	1	C73
	130-189-9	Multilayer Ceramic CRC215Z5U103M100:0.01µF	1	C27
	130-306-5	Multilayer Ceramic CRC220Z5U393M050:0.039µF	1	C55
	130-502-7	Capacitor Ceramic 0.5pF SL 4φD	3	C79, 86, 93
	131-010-4	Capacitor Ceramic 1pF (NPO) 4φD	3	C44, 78, 80
	131-011-5	Capacitor Ceramic 10pF (NPO) 4φD	5	C35, 81, 100, 102, 215
	131-012-6	Capacitor Ceramic 100pF SL 5φDJ	4	C49, 26, 15, 4
	131-013-7	Capacitor Ceramic 100pF (N750) 6φD	4	C76, 20, 21, 77
	131-028-1	Capacitor Ceramic Monolithic RPE110COG101J50V	1	C112

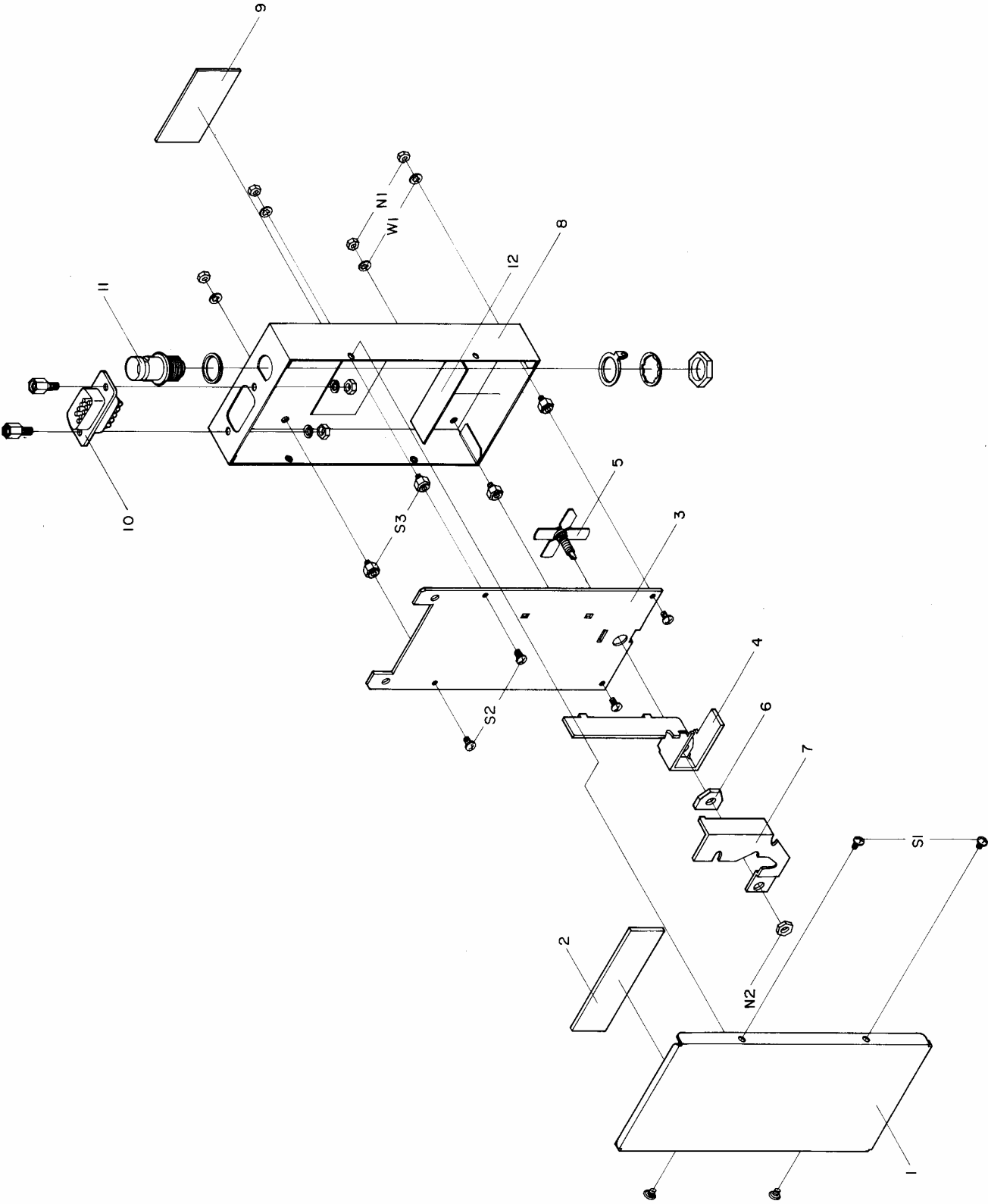
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Parts List

Seq.	Part-No.	Part Name and Description	Q'ty	Reference-No.
	131-044-5	Capacitor Ceramic Monolithic RPE113COGX7R105K50:1 μ F	2	C58, 133
	131-508-8	Capacitor Ceramic 15pF (NPO) 4 ϕ D	1	C91
	131-805-6	Capacitor Ceramic 180pF 50WV (SL) 4 ϕ D	1	C7
	132-004-4	Capacitor Ceramic 2pF 50WV NPO "C"	2	C85, 107
	132-206-0	Capacitor Ceramic 22pF (NPO) 5 ϕ D	4	C46, 92, 96, 108
	132-209-3	Capacitor Ceramic Chip RPN710COG220J200V (22PF200V)	1	C219
	133-002-7	Capacitor Ceramic 3pF (NPO) 50WV	1	C87
	133-303-9	Capacitor Ceramic 33pF (NPO) 5 ϕ D	3	C40, 43, 13
	134-709-8	Capacitor Ceramic 47pF (N750) 5 ϕ D	8	C2, 5, 48, 84, 90, 95, 101, 229
	134-710-8	Capacitor Ceramic 470pF SL 4 ϕ D	11	C9, 11, 34, 53, 67, 72, 82, 83, 94, 117, 118
	134-711-9	Capacitor Ceramic Monolithic (GR40SL471J50) 470pF 50WV	19	C57, 66, 115, 122, 123, 127, 129, 132, 203, 204, 205, 217, 220, 221, 227, 233, 234, 236, 237
	134-716-4	Capacitor Ceramic 47pF SL 5 ϕ D	3	C213, 99, 230
	135-007-2	Capacitor Ceramic 5pF (NPO) 4 ϕ D	3	C1, 88, 98
	135-008-3	Capacitor Ceramic Monolithic (GR40CH050D50) 5pF 50WV	1	C232
	135-605-2	Capacitor Ceramic 56pF 50WV NPO	1	C68
	137-002-7	Capacitor Ceramic 7pF (NPO) 4 ϕ D	2	C10, 113, 114
	138-003-3	Capacitor Ceramic 8pF (NPO) 4 ϕ D	2	C97, 103
	138-208-2	Capacitor Ceramic Monolithic PRE110COG082J50V	2	C74, 75
	140-101-1	Capacitor Tantalum 0.1 μ F 16WV DA1C0RIM	3	C22, 23, 17
	141-001-9	Capacitor Tantalum 1.0 μ F 16WV DA1C010M	3	C12, 18, 28
	141-003-1	Capacitor Tantalum 10 μ F 16WV (DN1C100MIS)	2	C64, 226
	144-701-3	Capacitor Tantalum 4.7 μ F 16WV	2	C8, 42
	172-002-4	Capacitor Trimmer 20pF TZ03R200E	1	TC1
	172-008-0	Capacitor Trimmer 10pF MPF TZ03R110E	4	TC9, 10, 12, 14
	173-004-1	Capacitor Trimmer 30pF (TZ03R300F)	1	TC5
	175-002-9	Capacitor Trimmer 5pF (TZ03Z05F)	2	TC11, 13
	203-005-2	Transistor MPS9426 (C)	4	Q3, 5, 8, 9
	203-040-3	Transistor LP1001	3	Q10, 11, 12
	203-046-9	Transistor SRF1886	1	Q14
	203-054-6	Transistor LSP966	1	Q19
	203-055-7	Transistor MRF581	1	Q13
	203-065-6	Transistor LP1983	3	Q1, 2, 6
	203-070-0	Transistor MPS9600 (F)	3	Q4, 16, 15
	223-010-2	I.C MC3359P	1	IC1
	231-008-4	I.C LM386 (803-N-3)	1	IC3
	241-016-4	Diode BZX83-C6V2	2	D6, 7
	242-006-0	Diode Varicap MV2209	1	D8
	243-004-3	Diode SI 1S2473	1	D18
	243-008-7	Diode 1N4148	6	D2, 3, 5, 9, 16, 17
	243-012-0	Diode MMBV3401	1	13
	245-013-1	Diode 1N4001 (1A50V)	1	D19
	260-055-0	Crystal 20.945 MHz UM-1	1	X9
	260-227-9	Crystal 464.550 MHz RX	1	XR1
	260-228-0	Crystal 464.550 MHz TX	1	XT1
	270-009-2	Ceramic Filter CFW455E	1	CF1
	271-002-0	Crystal Filter 21M15B	2	XF1, 2
	310-085-3	Coil Choke MK-8	1	CH4
	310-087-5	Coil Choke MK-13	1	CH5
	310-090-7	Coil Choke MK-2(R)	2	L1, 7

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Exploded View

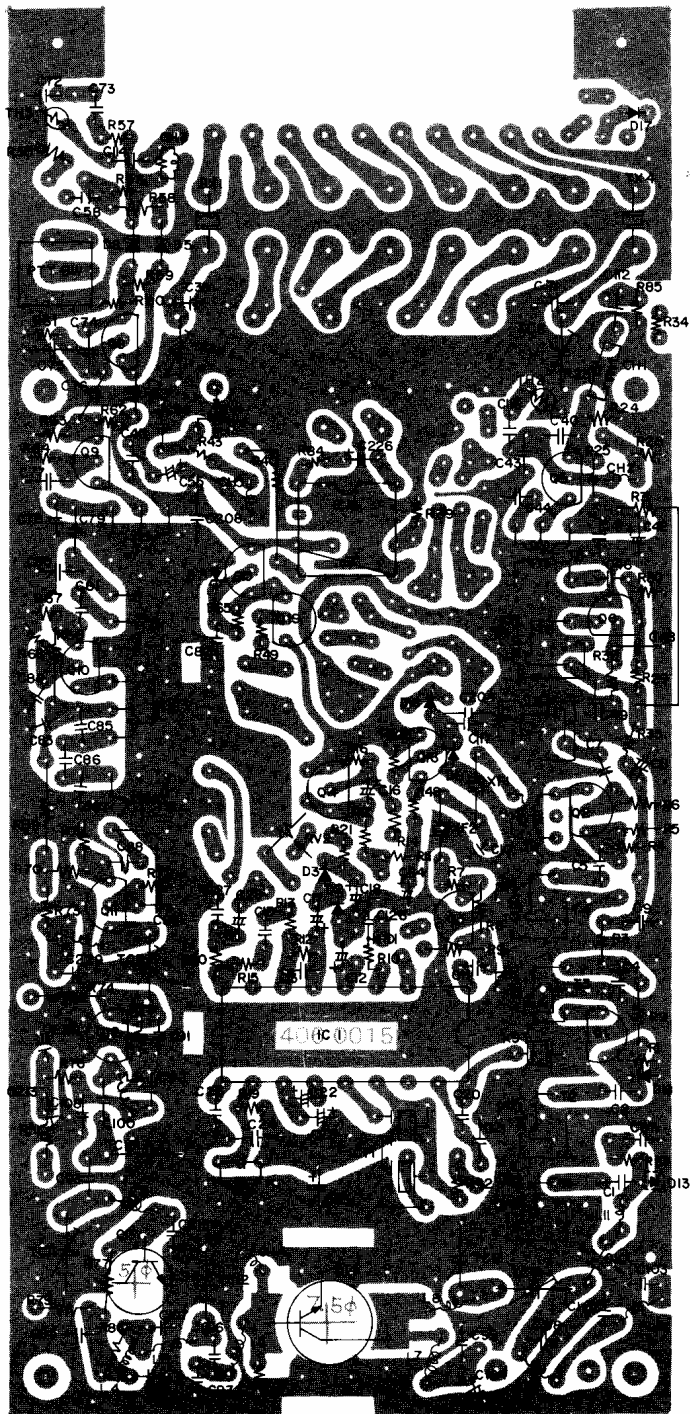


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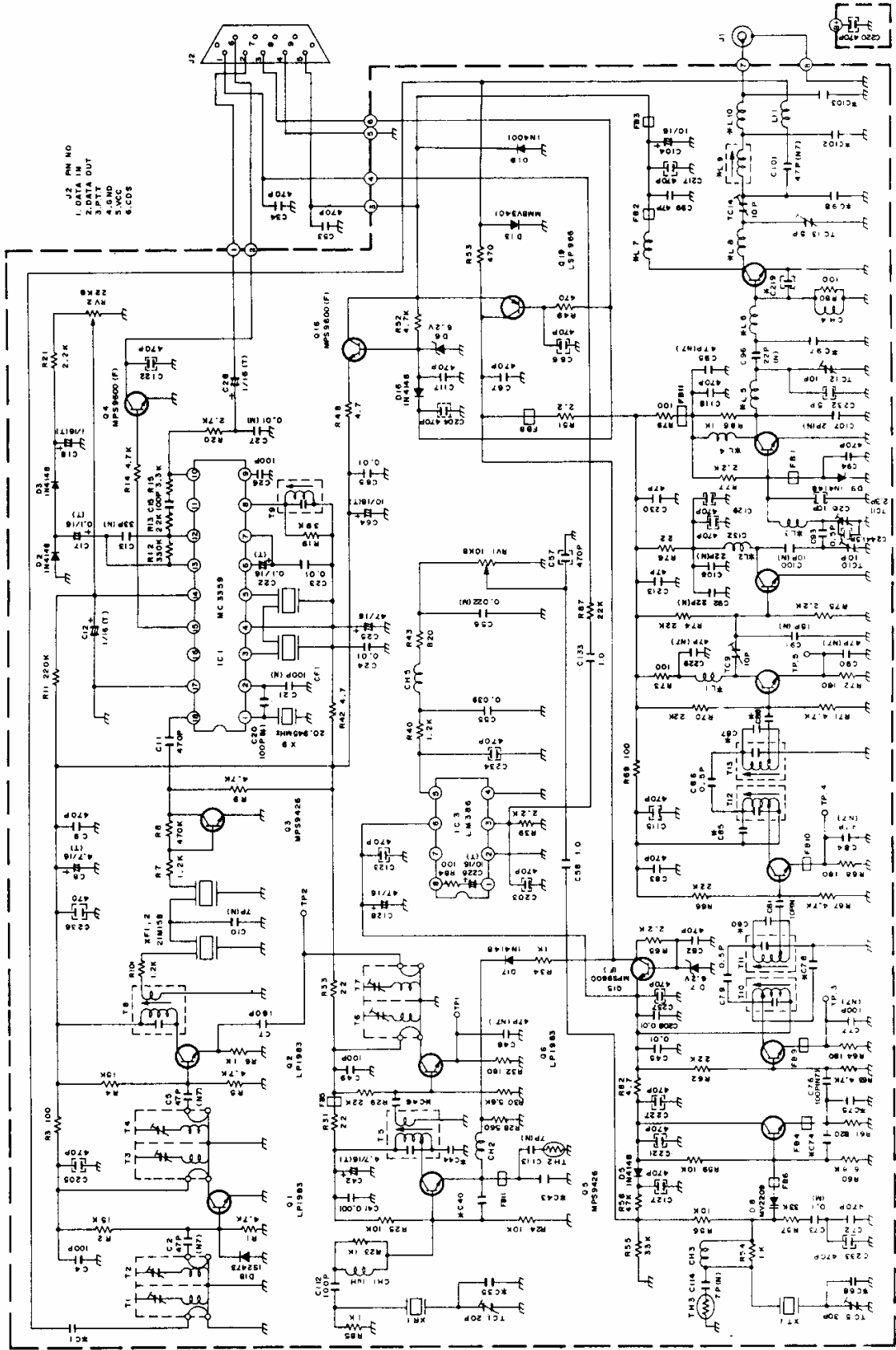
Exploded View Parts List

No.	Part-No.	Part Name and Description
1	716-860	Enclosure Cover
2	892-640	Rubber Sponge
3	406-001-5	PCB Main
4	760-731	Heat Sink (Power TR MTG)
5	203-046-9	Transistor
6	750-990	Speacer
7	760-950	Heat Sink ("L" Type)
8	716-871	Enclosure Lower Case
9	794-292	Name Plate
10	421-047-8	Connector (DEF-9P)
11	421-036-8	Connector Plug (UG-1094/U)
N1	650-120	Nut UNF2-56
N2	650-047	Nut UNC-NO. 8-32
W1	664-200	Washer (Lock "A" Type)
S1	631-030	(+) Tap Tite Screw (P.H)
S2	600-330	(+) Machine Screw (P.H)
S3	752-021	Spacer (2.5)

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Bottom View



**MAXON DM-0530
Schematic Diagram**



05 PM NO
 1. DATA IN
 2. DATA OUT
 3. PTT
 4. LOAD
 5. GND
 6. CDS