

uniden®

CB TRANSCEIVER
MODEL : PRO 810e

**SERVICE INFORMATION
MANUAL**

UNIDEN CUSTOMER SERVICE
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P.O. Box 501368
Indianapolis, IN 46250
(317) 842-2483

UNIDEN PARTS DEPT.
9900 Westpoint Dr.
P.O. Box 50463
Indianapolis, IN 46250
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SAFETY PRECAUTIONS

Before returning any units of this model to the customer, a safety check of the entire instrument should be made. The service technician must be sure that no protective device built into the instrument by the manufacturer has become defective or inadvertently degraded during servicing.

1. WARNING:

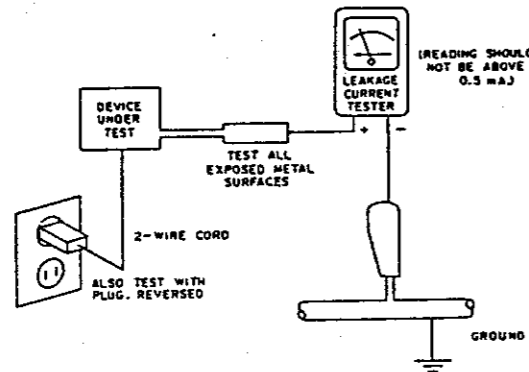
Alterations of the design or circuitry of this unit should not be made.

Any design alterations or additions such as, but not limited to, circuit modifications, auxiliary speaker jacks, switches, grounding, active or passive circuitry, etc. may alter the safety characteristics of this unit and potentially create a hazardous situation for user.

Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

2. LEAKAGE CURRENT HOT CHECK:

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check) Use a Leakage Current Tester or a metering system which complies with American National Standards Institute (ANSI C101.1 "Leakage Current for Applicable"), and Underwriters Laboratories (UL) 1270, (40.7) and/or 1409 (45.7) Measure for current with the switch "on" and repeat with the switch "off" from all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screwheads, metal overlays, etc.), to a known earth ground (waterpipe, conduit etc.); particularly, any exposed metal part having a return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse plug in the AC outlet and repeat test. ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND CORRECTIVE ACTION MUST BE TAKEN BEFORE RETURNING THIS UNIT TO THE CUSTOMER.



3. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by a Δ in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

CB TRANSCEIVER

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BLOCK DIAGRAM	
SCHEMATIC DIAGRAM(1/2)	(E12-2724)
SCHEMATIC DIAGRAM(2/2)	(E13-2725)
P.C. BOARD VIEW	
MAIN	PCB TOP(1/2) (E22-7153)
FRONT CH SW	PCB (E22-7154)
PWR SUPPLY	PCB (E23-7155)
ADD PARTS	PCB BOTTOM (E23-7156)
SR	PCB (E24-7157)
WIRING DIAGRAM	(E32-2801)

Note: Circuit design and specifications are subject to change without notice.

1. SPECIFICATIONS

GENERAL CB AM/SSB TRANSCEIVER MODEL : PRO 810e (UT-552)

- 1. Channels : 40
- 2. Frequency Range : 26.965 MHz~27.405 MHz
- 3. Semiconductors : 44 Transistors, 76 Diodes, 6 IC's, 2 LED's, 2 Digits Channel LED
- 4. Crystal Oscillators : 2
- 5. Microphone : 500 Ω , Dynamic Type
- 6. Speaker : 16 Ω , 7 W Max.
- 7. Antenna Connector : M-Type
- 8. Jacks & Connectors : MIC 4P Metal
EXT SP 3.5 ϕ
PA SP 3.5 ϕ
AC Power Cable & Plug
- 9. Controls : Channel Selector, Mode Selector (AM-USB-LSB), Power ON/OFF-Volume Control, Squelch Control, Clarifier Control, Mic Gain Control, RF Gain Control, CH9 Switch, HI CUT Switch, ANL/NB Switch, PA Switch
- 10. Meter : RF Output Power, Signal Strength
- 11. Illumination Indicators (LED) : Channel Readout, TX, RX
- 12. Illumination (Pilot Lamp) : Meter Back Light
- 13. Cabinet Size : W : 340 mm
H : 98 mm
D : 200 mm
- 14. Weight : 3.7 kg
- 15. Accessories : Microphone, Microphone Hanger

MEASUREMENT CONDITIONS

- 1. Power Source : 120V AC 60 Hz
- 2. Antenna Impedance : 50 Ω
- 3. Test Temperature : 25°C \pm 5°C
- 4. AM Modulation Frequency : 1 kHz
- 5. SSB Modulation Frequency, Transmit Two Tone : Between 500 Hz & 2400 Hz
- 6. Standard RF Input Level : 1000 μ V

7. Reference AM Modulation Percentage	: 1 kHz, 30%
8. Reference Audio Output Power	: 0.5 W
9. Audio Frequency, SSB Receive	: 1 kHz
10. Audio Output Load	: 8 Ω Resistive
11. Measureing Channel	: 19
12. Standard Method of Measurement	: EIA RS-382 (ISS : 8-26-86)

TRANSMITTER SECTION

ITEMS		UNIT	NOMINAL	LIMIT	
1. Frequency Tolerance at 25°C (5 minutes after Switch on)	AM	Hz	± 130	± 800	
	SSB	Hz	± 130	± 800	
2. Carrier Power at No Modulation	AM	W	4.0	3.6~4.4	
3. PEP Power, Two Tone, SSB	SSB	W _{pep}	12	10.8~13.2	
4. Spurious & Harmonic Emission	AM	dB	-65	-60	
	SSB	dB	-65	-60	
5. Carrier Suppression	SSB	dB	-55	-40	
6. Unwanted Sideband Suppression (at 2500 Hz 4 W _{pep} 16 dB up Single tone)	SSB	dB	-50	-40	
7. AC Current at No Modulation	AM	mA	600	700	
	SSB	mA	250	350	
8. AC Current					
	AM : MAX Mod.	mA	600	700	
	SSB : MAX W _{pep} , Two Tone	mA	550	700	
9. Modulation Frequency Response (1 kHz, 0 dB Reference)					
	Lower at 450 Hz, (EIA)	AM	dB	-4	-8
		SSB	dB	-4	-8
	Upper at 2.5 kHz, (EIA)	AM	dB	-4	-8
	SSB	dB	-4	-8	
10. Microphone Sensitivity					
	AM : For 50% Mod.	mV	1.0	2.0	
	SSB : For 6 W _{pep}	mV	1.0	2.0	
	AM : For 80% Mod.	mV	2.0	4.0	
	SSB : For 10 W _{pep}	mV	2.0	4.0	
11. AMC Range					
	AM : 50~100% Modulation	dB	60	40	
	SSB : 9~13.2 Watts PEP	dB	60	40	
12. Hum and Noise in Transmit	AM	dB	50	40	

RECEIVER SECTION

ITEMS		UNIT	NOMINAL	LIMIT	
1. Max. Sensitivity	AM	μ V	0.5	1.0	
	SSB	μ V	0.25	0.5	
2. Sensitivity for 10 dB S/N	AM	μ V	0.5	1.0	
	SSB	μ V	0.25	0.5	
3. AGC Figure of Merit 50 mV for 10 dB Change in Audio Output	AM	dB	80	70	
	SSB	dB	80	70	
4. Overall Audio Fidelity at 6 dB down					
	Upper Frequency	AM	Hz	2000	1500~3000
		SSB	Hz	3000	2000~4000
	Lower Frequency	AM	Hz	300	200~500
	SSB	Hz	300	100~500	
5. Cross Modulation, (D-S Method)					
	AM	dB	50	40	
6. Adjacent Channel Rejection (D-S Method) (± 10 kHz)	AM	dB	60	50	
	SSB	dB	70	60	
7. Maximum Audio Output Power					
	AM	W	3.5	2.5	
	SSB	W	3.5	2.5	
8. Audio Output Power at 10% THD					
	AM	W	2.5	2	
	SSB	W	2.5	2	
9. RF Gain Control Range	AM	dB	50	30	
	SSB	dB	50	30	
10. S/N Ratio at 1 mV Input	AM	dB	35	30	
11. Squelch Sensitivity at Threshold	AM	μ V	0.5	1.0	
	SSB	μ V	0.5	1.0	
12. Squelch Sensitivity at Tight	AM	μ V	1000	300~3000	
	SSB	μ V	1000	300~3000	
13. "S-9" Sensitivity (No Modulation AM)					
	AM	μ V	100	25~250	
	SSB	μ V	100	25~250	
14. Image Rejection Ratio	AM	dB	75	65	
	SSB	dB	75	65	
15. IF Rejection Ratio	AM	dB	85	70	
	SSB	dB	85	70	

ITEMS		UNIT	NOMINAL	LIMIT
16. Oscillator Dropout Voltage	AM	V	-	95
	SSB	V	-	95
17. AC Current at No Signal	AM	mA	150	200
	SSB	mA	150	200
18. AC Current at Max. Audio Output Power	AM	mA	200	300
	SSB	mA	200	300
19. Clarifier Range	AM	kHz	±1.5	±0.6~±2.5
	SSB	kHz	±1.5	±0.6~±2.5
20. ANL/NB Performance	AM	dB	1	3
	SSB	dB	1	3
21. Desensitization (D-S Method)	AM	dB	76	60
	SSB	dB	76	60
22. Blocking (D-S Method)	AM	dB	80	70
23. 1/2 IF Rejection Ratio	AM	dB	80	70
	SSB	dB	80	70
24. Hi Cut Ratio @ 2 kHz	AM	dB	-8	-3
	SSB	dB	-8	-3

PUBLIC ADDRESS

1. Output Power at 10% Distortion	W	3	2
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OVERALL PERFORMANCE

- Output Protection : Shall meet for 5 minutes for all VSWR's (around the Smith Chart) of 20:1 without damage.
- Output stability of all VSWR'S (around the Smith Chart) of up to 5:1 under continuous operation of a duty cycle of 5 minutes transmitting, and 1 minute receiving.
- Standard Operating Temperature : -30°C~+50°C
- Storage Temperature : -40°C~+70°C
- Electrostatic Discharge Protection : All external case and component parts shall withstand the application of 15 kV ESD without causing failure or malfunction to the unit.

Test Conditions - Probe : 150 pF with 500Ω in series
Temp. : 25°C

2. ALIGNMENT PROCEDURE

ALIGNMENT OF POWER SUPPLY PORTION

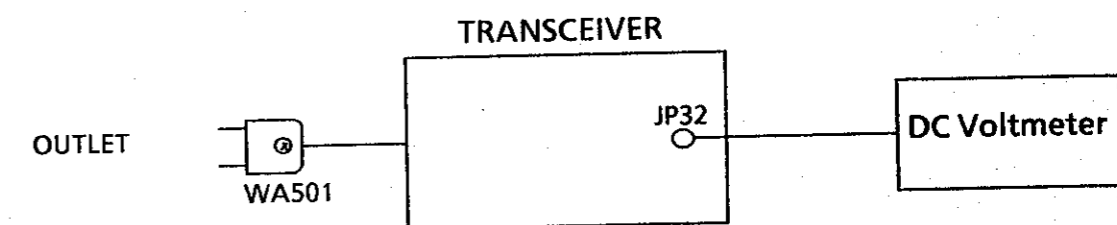
1. Test Equipment Required

Power Supply 120V 60Hz (AC)
DC Voltmeter

2. Alignment Procedure

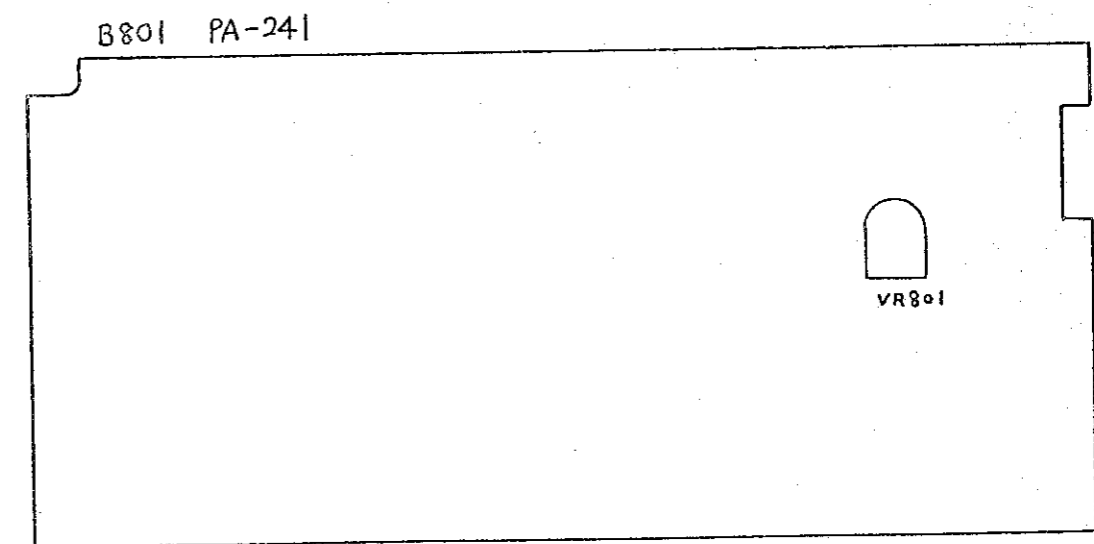
Step	Preset to	Adjustment	Remarks
1	RX STAND BY	VR 801	Connect a DC voltmeter to JP 32 and WA 501 to outlet (120V 60 Hz). Adjust VR 801 for 13.8 V ± 0.1 reading on the DC voltmeter.

3. Test Equipment Connection



4. Alignment Point

B801 PA-241



ALIGNMENT OF P.L.L. AND CARRIER OSCILLATOR PORTION

1. Test Equipment Required

Power Supply (AC) : 120 V 60 Hz
 Frequency Counter
 Oscilloscope

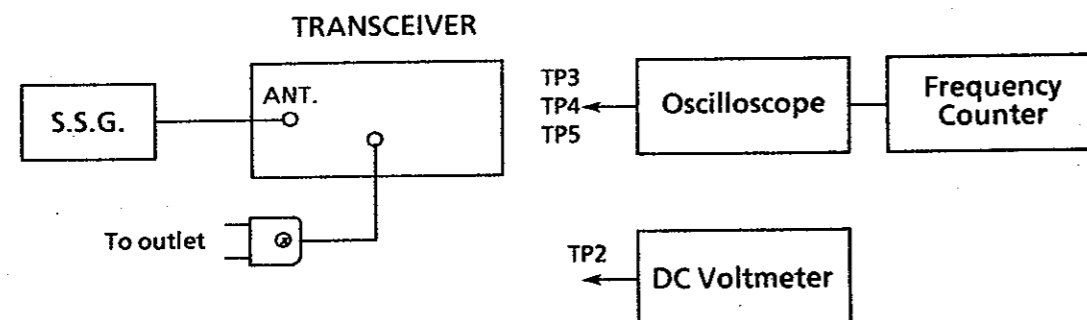
2. Preparation for Alignment

PA SW : OFF
 Adjustment Channel : 19
 CH 9 SW : OFF
 Clarifier : Middle Position

3. Alignment Procedure

Step	Preset to	Adjustment	Remarks
1	RX AM 40 CH	L 38	Connect an oscilloscope to TP 4. Adjust L 38 for maximum reading on the oscilloscope.
2	RX AM 40 CH	L 13	Connect the DC voltmeter to TP 2. Adjust L 13 for 4.5 V \pm 0.1 V reading on the DC voltmeter.
3	RX AM 1 CH	ditto	Check if the voltage level is more than 2 V at TP 2.
4	ditto	L 14	Connect the oscilloscope to TP 3. Adjust L 14 for maximum reading on the oscilloscope.
5	RX AM 19 CH	L 15	Connect a frequency counter to TP 3. Adjust L 15 for 16.490 MHz \pm 20 Hz reading on the frequency counter.
6	RX USB 19 CH	L 16	Adjust L 16 for 16.4925 MHz \pm 20 Hz reading on the frequency counter.
7	RX LSB 19 CH	L 17	Adjust L 17 for 16.4875 MHz \pm 20 Hz reading on the frequency counter.
8	TX LSB 19 CH	VR 3	Adjust VR 3 for 16.4875 MHz \pm 20 Hz reading on the frequency counter.
9	TX AM 19 CH	L 18	Connect the frequency counter to TP 9. Adjust L 18 for 10.695 MHz \pm 20 Hz reading on the frequency counter.
10	RX USB 19 CH	L 19	Connect the frequency counter to TP 5. Adjust L 19 for 10.6925 MHz \pm 20 Hz reading on the frequency counter.
11	RX LSB 19 CH	L 20	Adjust L 20 for 10.6975 MHz \pm 20 Hz reading on the frequency counter.

4. Test Equipment Connection



ALIGNMENT OF TRANSMITTER PORTION

1. Test Equipment Required

Power Supply (AC) : 120 V 60 Hz
 Standard Signal generator : AM 1KHz
 Dummy Load 50 Ω
 DC Amper meter
 SSB 500 Hz & 2400 Hz
 RF VTVM
 RF power meter
 AF oscillator

2. Preparation for Alignment

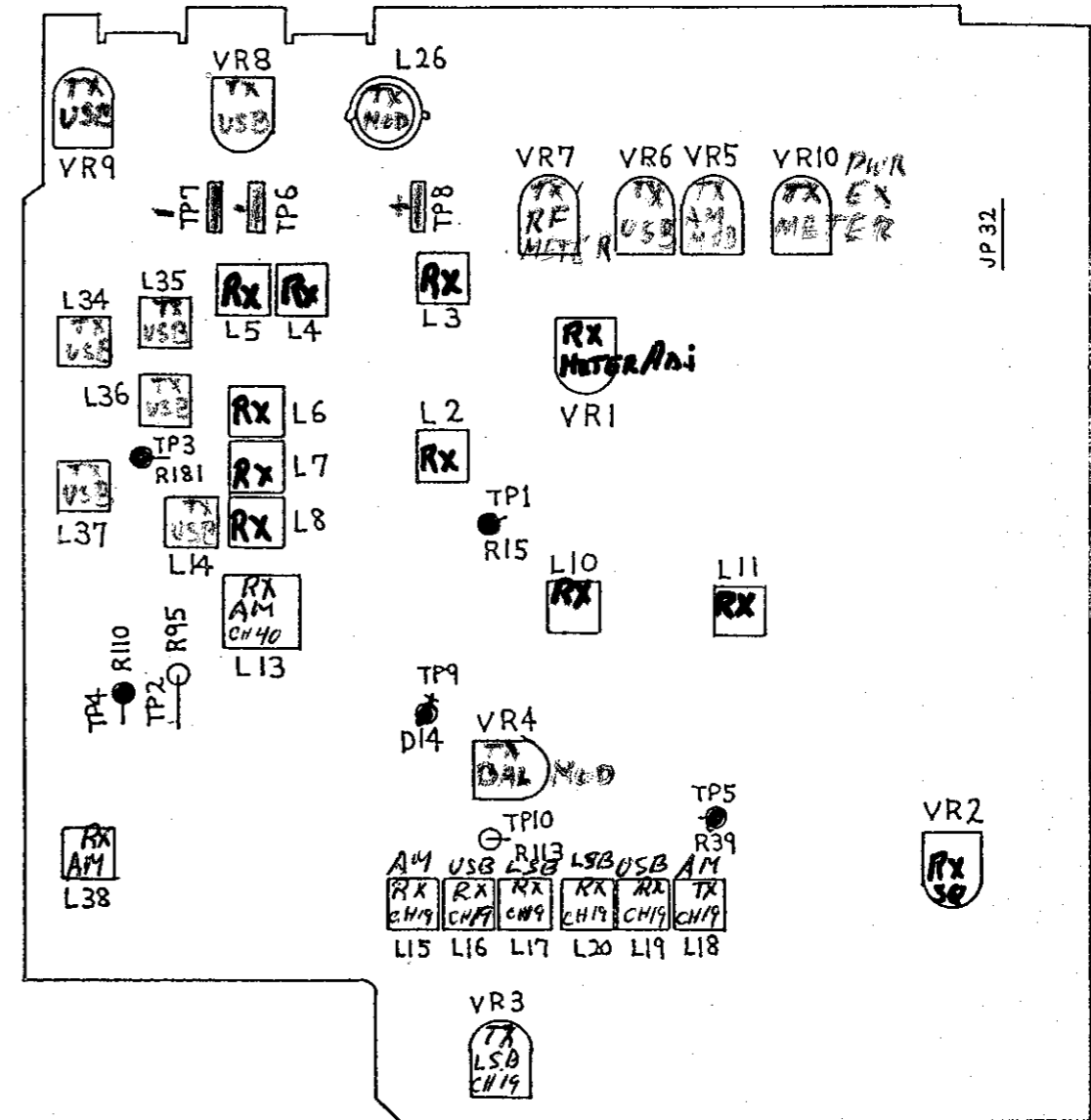
CB-PA : CB
 MIC GAIN : MAX

3. Alignment Procedure

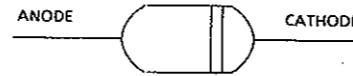
Step	Preset to	Adjustment	Remarks
1	USB 19CH NO MOD	VR 9	Remove the B 002 (PB-100) from Main PCB. Connect the DC amper mere to both TP 8 (+) and TP 7 (-). Adjust VR 9 for 65 mA reading on the DC amper meter
2	ditto	VR 8	Connect the DC amper meter to both TP 8 (+) and TP 6 (-). Adjust VR 8 for 70 mA reading on the DC amper meter.
3	USB 19 CH MOD IN	L 34, 35, 36, 37, 14	Disconnect the DC amper meter. Reinstall the B 002 to the main PCB. Connect an RF power meter to antenna jack. Connect an RF VTVM, the oscilloscope and an FM linear detector across an RF dummy load to the RF power meter. Adjust coils for maximum reading on the RF VTVM. During this step, set the AF oscillator so that the output is less than 20V. Repeat this step two times.
4	USB MOD IN	L 36	Adjust L 36 to obtain minimum variation between power level at CH 1 and CH 40 reading on the power meter.
5	AM 19 CH	L 26	Adjust modulation input and/or VR5 to obtain the 90% negative reading on the oscilloscope. Adjust L 26 for maximum reading on the RF VTVM.
6	USB 19 CH 30 mV MOD IN	VR 6	Adjust VR 6 for 24.5V reading on the RF VTVM.
7	ditto	VR 4	Adjust VR 4 so that the carrier leakage at USB and LSB become minimum and almost equal.

3. ALIGNMENT POINTS

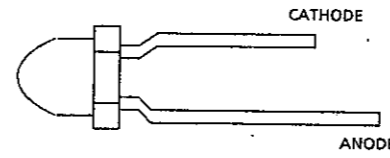
PB-122



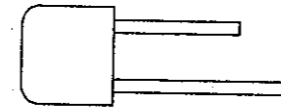
4. SEMICONDUCTOR LEAD IDENTIFICATION



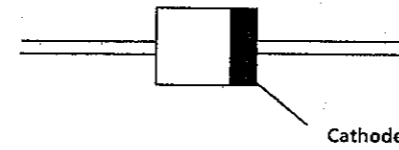
1N60 AM
1N4003
HZ3B3
HZ6C2
HZ5C-1
1S1555
MC-301
1SV73-EB



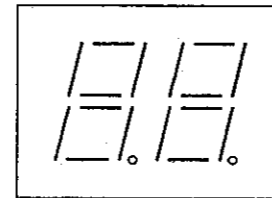
GL-9HD4



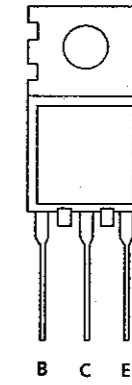
GL-9NG4



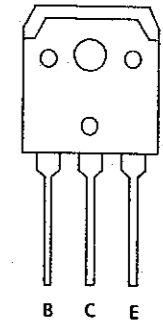
6A1



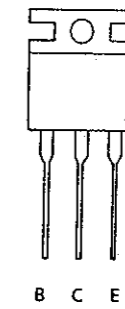
25C2166-C



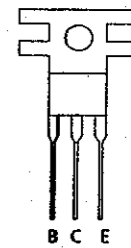
25D895-E



25A1012-O



25C2312-C



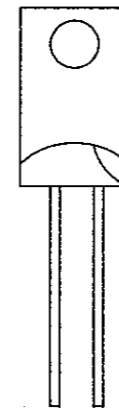
25D1348-R

25C1973-SSB

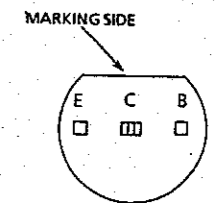
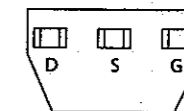
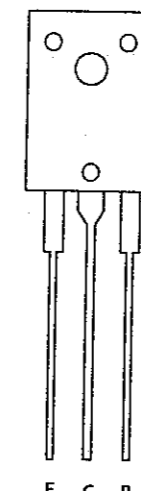
25K192A-BL

25C3242A-E

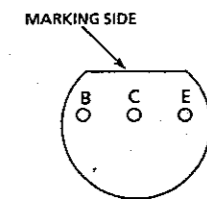
LL-2253YL



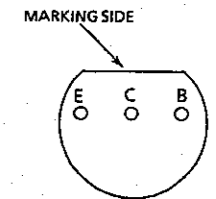
MV-1Y



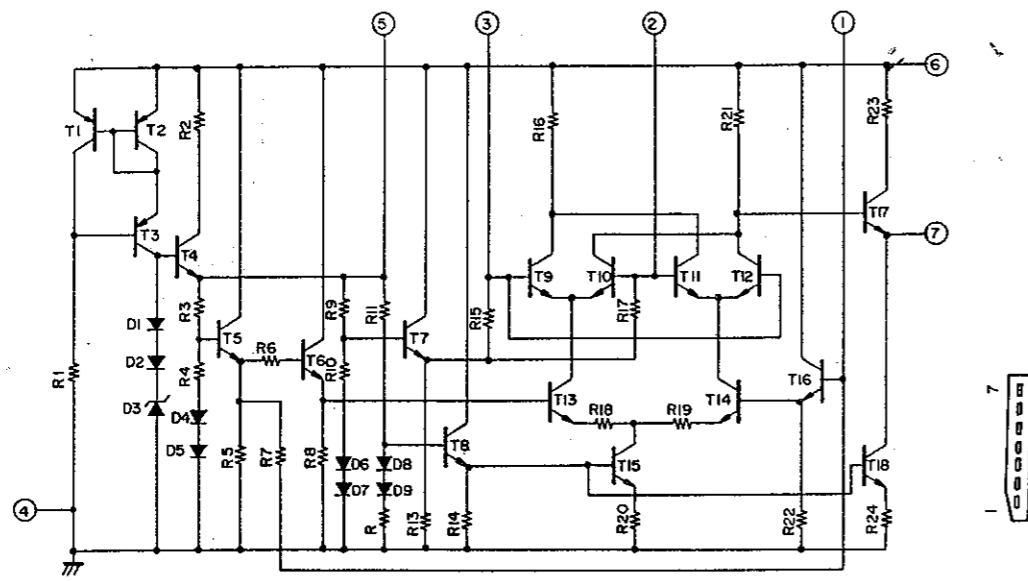
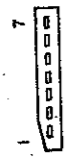
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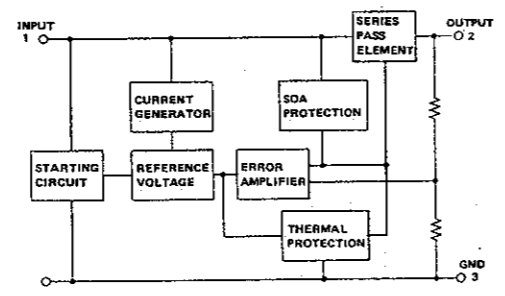
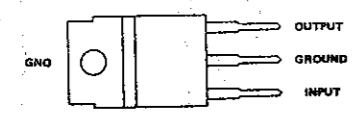
25C1675-L
25C1730-L
25C945A-Q
25C1674-L
25A733A-PB



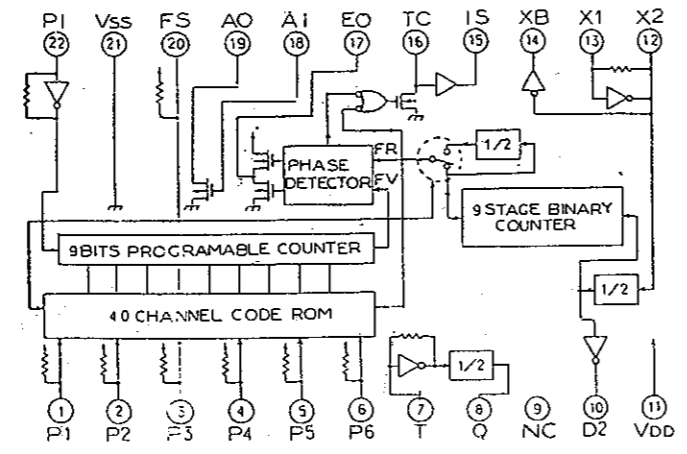
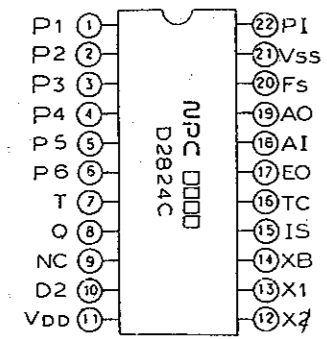
AN612



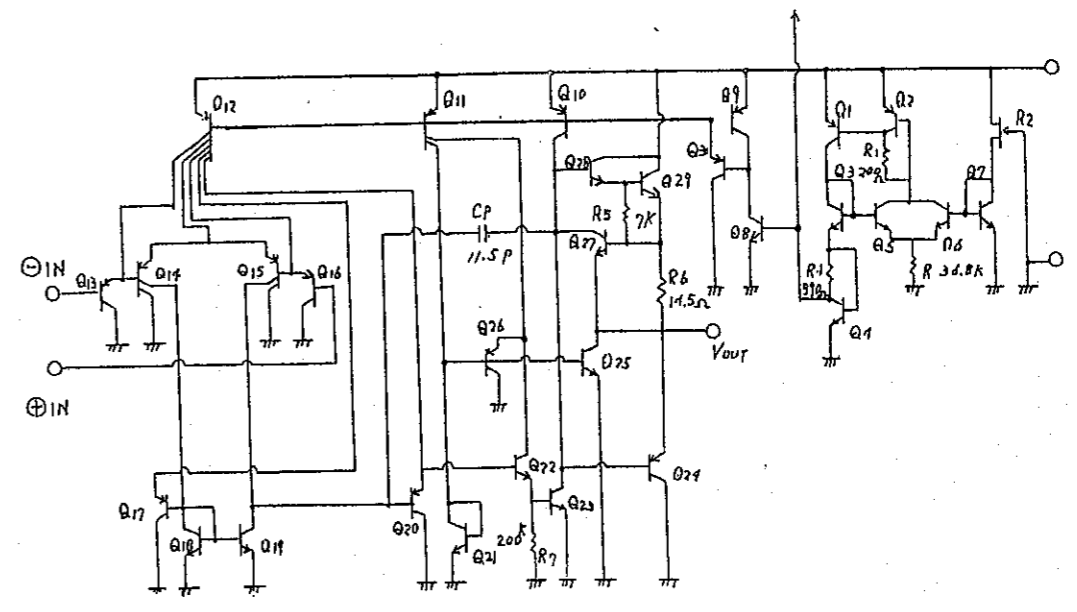
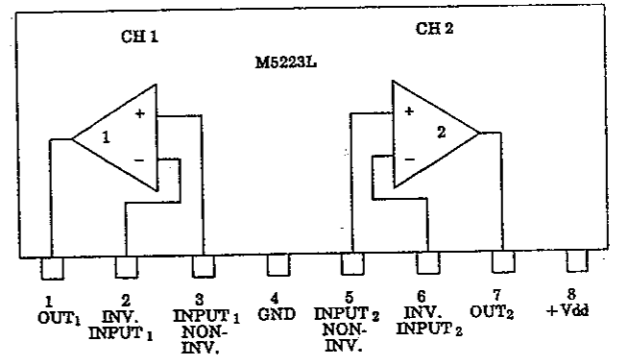
L7808CV



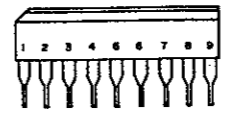
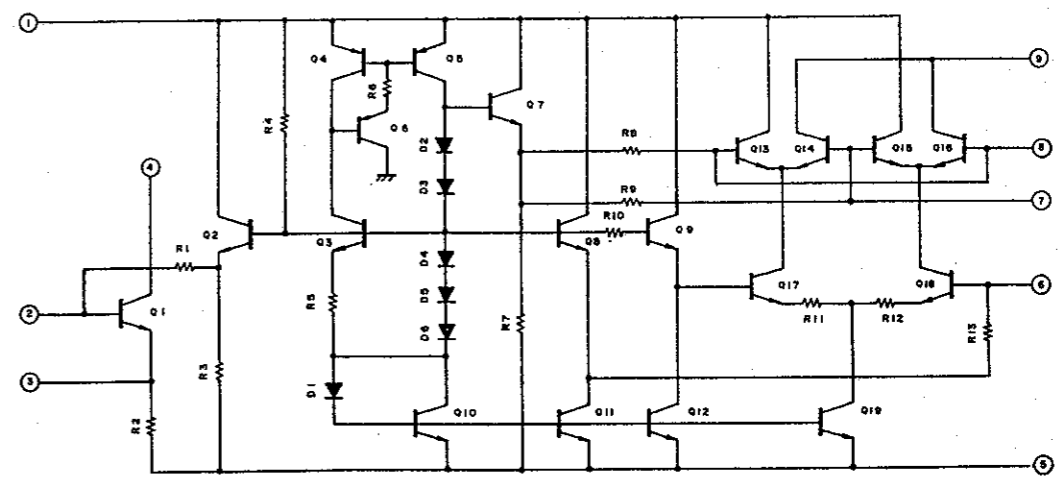
D2824C



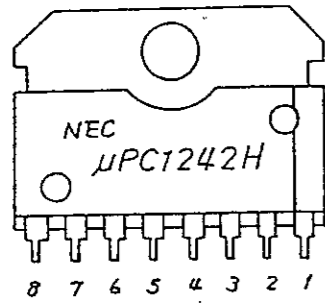
M5223L



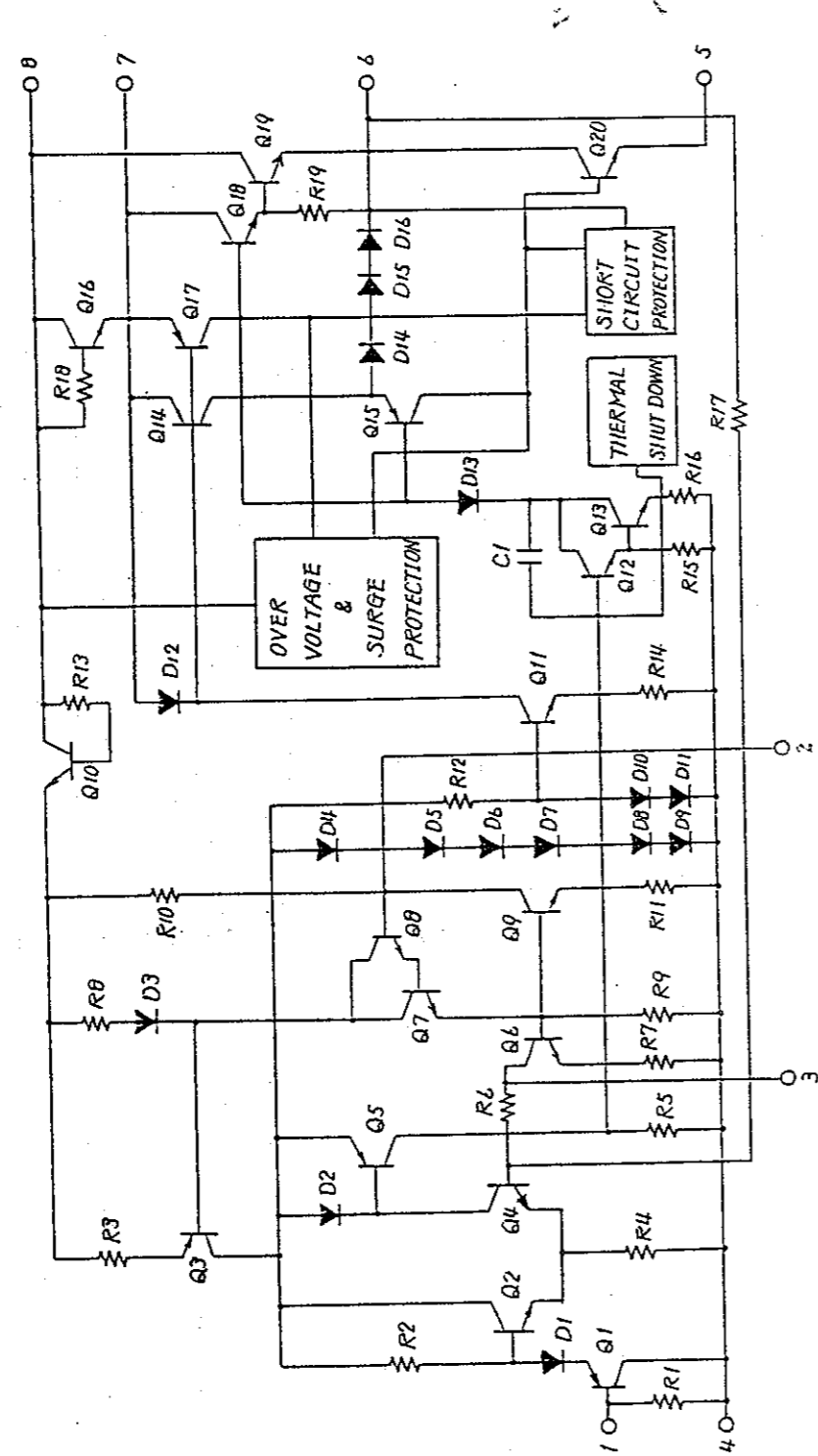
TA7320P
BALANCED MODULATOR-DEMULATOR



μPC1242H



Terminal No.	μPC1242H
1	IN
2	Ripple filter
3	N.F.B.
4	GND
5	GND
6	OUT
7	Bootstrap
8	V _{DD}



5. PARTS PRICE LIST

Parts price is subject to change without notice.

(SYMBOL)	(PARTS CODE)	(DESCRIPTION)	(QTY)	(LIST PRICE)	(SYMBOL)	(PARTS CODE)	(DESCRIPTION)	(QTY)	(LIST PRICE)	(SYMBOL)	(PARTS CODE)	(DESCRIPTION)	(QTY)	(LIST PRICE)
Y501	Y1-052 17.5MM	Y1-052 17.5MM	1	0.03	Y501	Y1-052 17.5MM	1	0.03	Y501	Y1-052 17.5MM	1	0.03	1	0.23
Y501	MK-353	MK-353	1	24.44	Y501	MK-353	1	24.44	Y501	MK-353	1	24.44	1	0.84
Y501	PZ-027	PZ-027	1	0.83	Y501	PZ-027	1	0.83	Y501	PZ-027	1	0.83	1	3.04
Y501	SP-167	SP-167	1	0.83	Y501	SP-167	1	0.83	Y501	SP-167	1	0.83	1	0.71
Y501	TP-044	TP-044	1	9.96	Y501	TP-044	1	9.96	Y501	TP-044	1	9.96	1	0.45
Y501	RT-182 TT24R 10X8	RT-182 TT24R 10X8	1	0.19	Y501	RT-182 TT24R 10X8	1	0.19	Y501	RT-182 TT24R 10X8	1	0.19	1	0.53
Y501	RT-182 TT24R 30X8	RT-182 TT24R 30X8	1	0.19	Y501	RT-182 TT24R 30X8	1	0.19	Y501	RT-182 TT24R 30X8	1	0.19	1	0.26
Y501	RT-182 TT24R 10X8	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	1	0.07
Y501	RT-182 TT24R 10X8	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	1	0.09
Y501	RT-182 TT24R 10X8	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	1	0.17
Y501	RT-182 TT24R 10X8	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	Y501	RT-182 TT24R 10X8	1	0.41	1	0.17
Y501	RV-642 K1611R06F 50KA W/S	RV-642 K1611R06F 50KA W/S	1	4.25	Y501	RV-642 K1611R06F 50KA W/S	1	4.25	Y501	RV-642 K1611R06F 50KA W/S	1	4.25	1	0.81
Y501	RV-643 K1611R028F 50K8	RV-643 K1611R028F 50K8	1	2.48	Y501	RV-643 K1611R028F 50K8	1	2.48	Y501	RV-643 K1611R028F 50K8	1	2.48	1	0.17
Y501	RV-645 K1611R028 1K8	RV-645 K1611R028 1K8	1	2.63	Y501	RV-645 K1611R028 1K8	1	2.63	Y501	RV-645 K1611R028 1K8	1	2.63	1	0.19
Y501	RV-641 K1611R0452 1KA	RV-641 K1611R0452 1KA	1	2.48	Y501	RV-641 K1611R0452 1KA	1	2.48	Y501	RV-641 K1611R0452 1KA	1	2.48	1	0.90
Y501	WZ-494 2010 W/P	WZ-494 2010 W/P	1	3.31	Y501	WZ-494 2010 W/P	1	3.31	Y501	WZ-494 2010 W/P	1	3.31	1	0.49
Y501	WZ-554 220 W/P	WZ-554 220 W/P	1	3.91	Y501	WZ-554 220 W/P	1	3.91	Y501	WZ-554 220 W/P	1	3.91	1	0.12
Y501	WZ-673 330 W/P	WZ-673 330 W/P	1	1.02	Y501	WZ-673 330 W/P	1	1.02	Y501	WZ-673 330 W/P	1	1.02	1	0.05
Y501	WZ-674 300 W/P	WZ-674 300 W/P	1	1.10	Y501	WZ-674 300 W/P	1	1.10	Y501	WZ-674 300 W/P	1	1.10	1	0.09
Y501	YY-172	YY-172	1	0.26	Y501	YY-172	1	0.26	Y501	YY-172	1	0.26	1	1.97
Y501	YY-027	YY-027	1	0.26	Y501	YY-027	1	0.26	Y501	YY-027	1	0.26	1	0.03
Y501	Y0-041 AC223	Y0-041 AC223	1	12.03	Y501	Y0-041 AC223	1	12.03	Y501	Y0-041 AC223	1	12.03	1	0.72
Y501	Y0-060 1S-3MP8	Y0-060 1S-3MP8	1	26.68	Y501	Y0-060 1S-3MP8	1	26.68	Y501	Y0-060 1S-3MP8	1	26.68	1	9.78
Y501	ABS-D-GRAY PAINT	ABS-D-GRAY PAINT	1	3.34	Y501	ABS-D-GRAY PAINT	1	3.34	Y501	ABS-D-GRAY PAINT	1	3.34	1	11.33
Y501	ABS-D-GRAY PAINT	ABS-D-GRAY PAINT	1	0.45	Y501	ABS-D-GRAY PAINT	1	0.45	Y501	ABS-D-GRAY PAINT	1	0.45	1	2.93
Y501	ABS-BLACK	ABS-BLACK	1	0.26	Y501	ABS-BLACK	1	0.26	Y501	ABS-BLACK	1	0.26	1	0.98
Y501	ABS-BLACK	ABS-BLACK	1	0.38	Y501	ABS-BLACK	1	0.38	Y501	ABS-BLACK	1	0.38	1	
Y501	ABS-BLACK	ABS-BLACK	1	0.30	Y501	ABS-BLACK	1	0.30	Y501	ABS-BLACK	1	0.30	1	
Y501	SEC, 1.0T	SEC, 1.0T	1	3.95	Y501	SEC, 1.0T	1	3.95	Y501	SEC, 1.0T	1	3.95	1	
Y501	VINYTOP, SB-KOB, 1.0T, BLACK	VINYTOP, SB-KOB, 1.0T, BLACK	1	22.05	Y501	VINYTOP, SB-KOB, 1.0T, BLACK	1	22.05	Y501	VINYTOP, SB-KOB, 1.0T, BLACK	1	22.05	1	
Y501	COVER, BOTTOM	COVER, BOTTOM	1	1.04	Y501	COVER, BOTTOM	1	1.04	Y501	COVER, BOTTOM	1	1.04	1	
Y501	COVER	COVER	1	0.44	Y501	COVER	1	0.44	Y501	COVER	1	0.44	1	
Y501	FRONT CHASSIS	FRONT CHASSIS	1	0.69	Y501	FRONT CHASSIS	1	0.69	Y501	FRONT CHASSIS	1	0.69	1	
Y501	HOLDER, 1C(B)	HOLDER, 1C(B)	1	0.23	Y501	HOLDER, 1C(B)	1	0.23	Y501	HOLDER, 1C(B)	1	0.23	1	
Y501	HOLDER, 1C(A)	HOLDER, 1C(A)	1	0.23	Y501	HOLDER, 1C(A)	1	0.23	Y501	HOLDER, 1C(A)	1	0.23	1	
Y501	STOPPER	STOPPER	1	7.56	Y501	STOPPER	1	7.56	Y501	STOPPER	1	7.56	1	
Y501	HOLDER, TRANSFORMER	HOLDER, TRANSFORMER	2	0.44	Y501	HOLDER, TRANSFORMER	2	0.44	Y501	HOLDER, TRANSFORMER	2	0.44	1	
Y501	HEAT SHK	HEAT SHK	1	2.71	Y501	HEAT SHK	1	2.71	Y501	HEAT SHK	1	2.71	1	
Y501	HANGER, MICROPHONE	HANGER, MICROPHONE	1	0.33	Y501	HANGER, MICROPHONE	1	0.33	Y501	HANGER, MICROPHONE	1	0.33	1	
Y501	PUNCHING METAL	PUNCHING METAL	1		Y501	PUNCHING METAL	1		Y501	PUNCHING METAL	1		1	
Y501	SHIELD PLATE	SHIELD PLATE	1		Y501	SHIELD PLATE	1		Y501	SHIELD PLATE	1		1	

6. VOLTAGE CHART

SYMBOL NO.	RX, TX	BASE GATE	COLLECTOR DRAIN	EMMITER SOURCE	SYMBOL NO.	RX, TX	BASE GATE	COLLECTOR DRAIN	EMMITER SOURCE
Q1	RX	1.5	6.9	0.8	Q28	RX	7.8	6.6	8.0
	NB ON					TX	7.8	0	8.0
Q2		0.7	2.6	0	Q29	TX	1.0	7.8	1.4
Q3		2.6	6.8	1.9					
Q4		0.1	7.2	0.8	Q30	PA	2.5	4.5	1.8
Q5		0.1	6.6	0	Q31	RX	7.8	8.0	7.2
Q6		6.6	0	7.2		TX	0	8.0	0
Q7		0	0	0	Q32		5.0	7.9	4.7
Q8	RX	0.4	8.0	0			0.7	0	0
Q9	RX	0.7	0	0	Q33		8.0	0	8.0
	SSB						8.0	7.8	7.2
Q10	RX	0.7	0	0	Q34	TX	0	7.8	1.4
Q11		1.6	4.7	0.9		SSB			
Q12	SQ MIN	0	0	0	Q35	TX AM	1.2	5.7	0.5
	SQ MAX	0.7	0	0		SSB	1.2	7.8	0.5
Q13	RX	2.1	6.8	1.4	Q36		6.2	12.2	5.7
Q14		0	6.5	3.4			12.6	13.2	13.1
Q15		1.4	7.9	0.7	Q37		12.8	5.7	12.3
Q16		0.7	3.4	0			13.0	13.7	13.2
Q17		3.4	6.2	2.7	Q38		0.3	12.9	0
Q18		2.7	6.4	1.9			0.7	0	0
Q19	RX AM	0.7	0	0	Q501		0.5	5.6	0
	SSB	0	2.9	0			0.6	13.7	0
Q20	RX	1.3	4.7	0.8	Q502		0.6	5.5	0
	TX	1.3	4.7	0.8			0.7	13.7	0
Q21		2.9	6.8	2.5	Q503		12.8	5.7	13.5
Q22		0.7	4.3	0			13.0	13.7	13.7
Q23		4.2	5.6	3.5	Q504	RX	14.4	21.4	13.8
Q24	RX SSB	2.8	6.9	2.1		TX	14.4	21.4	13.8
	TX	2.8	6.7	2.1	Q801	RX	6.8	6.2	15.0
Q25	TX	1.7	3.4	1.1		TX	6.8	6.2	15.0
Q26		0.9	1.7	0.3	Q802	RX	15.0	21.4	14.4
	TX	0	0	0		TX	15.0	21.4	14.4

7. FREQUENCY CHART

FREQUENCIES OF LOCAL OSCILLATORS AND IF STAGE IN RECEIVING STATE

SYMBOL NO.	PIN NO.	RX/TX	VOLTAGE	SYMBOL NO.	PIN NO.	RX/TX	VOLTAGE	
IC1	1	RX	0.2	IC3	1	RX	0	
	2		0.1		2		3.3	
	3		0.1		3		3.2	
	4		0		4		0	
	5		1.2		5		5.8	
	6		1.5		6		7.3	
	7		0		7		6.6	
	8		8.0		8		3.6	
IC2	1	RX	5.1	IC4	1	RX	8.0	
		TX			2		0	
	2		0		3		13.7	
	3		0	IC5	1	RX	0.1	
	4		5.1		2		1.9	
	5		5.1		3		1.3	
	6		0		4		0	
	7		5.1		5		0	
	8		-		6		7.0	
	9		-		7		12.7	
	10		2.0		8		13.7	
	11		5.1		IC6	1	TX	7.6
	12		2.5			2		-
	13		2.5			3		-
14		-	4			-		
15		5.2	5			0		
16		5.1	6			2.6		
17		1.6	7		4.2			
18		1.6	8		4.2			
19		3.9	9		7.4			
20		-						
21		0						
22		2.4						

CHANNEL NO.	RECEPTION FREQUENCIES (MHz)	DIVIDE RATIO (N)	LOCAL OSCILLATOR FREQUENCIES (MHz)			IF FREQUENCY (MHz)
			AM mode	USB mode	LSB mode	
1	26.965	91	16.270	16.2725	16.2675	10.695
2	26.975	92	16.280	16.2825	16.2775	10.695
3	26.985	93	16.290	16.2925	16.2875	10.695
4	27.005	95	16.310	16.3125	16.3075	10.695
5	27.015	96	16.320	16.3225	16.3175	10.695
6	27.025	97	16.330	16.3325	16.3275	10.695
7	27.035	98	16.340	16.3425	16.3375	10.695
8	27.055	100	16.360	16.3625	16.3575	10.695
9	27.065	101	16.370	16.3725	16.3675	10.695
10	27.075	102	16.380	16.3825	16.3775	10.695
11	27.085	103	16.390	16.3925	16.3875	10.695
12	27.105	105	16.410	16.4125	16.4075	10.695
13	27.115	106	16.420	16.4225	16.4175	10.695
14	27.125	107	16.430	16.4325	16.4275	10.695
15	27.135	108	16.440	16.4425	16.4375	10.695
16	27.155	110	16.460	16.4625	16.4575	10.695
17	27.165	111	16.470	16.4725	16.4675	10.695
18	27.175	112	16.480	16.4825	16.4775	10.695
19	27.185	113	16.490	16.4925	16.4875	10.695
20	27.205	115	16.510	16.5125	16.5075	10.695
21	27.215	116	16.520	16.5225	16.5175	10.695
22	27.225	117	16.530	16.5325	16.5275	10.695
23	27.255	120	16.560	16.5625	16.5575	10.695
24	27.235	118	16.540	16.5425	16.5375	10.695
25	27.245	119	16.550	16.5525	16.5475	10.695
26	27.265	121	16.570	16.5725	16.5675	10.695
27	27.275	122	16.580	16.5825	16.5775	10.695
28	27.285	123	16.590	16.5925	16.5875	10.695
29	27.295	124	16.600	16.6025	16.5975	10.695
30	27.305	125	16.610	16.6125	16.6075	10.695
31	27.315	126	16.620	16.6225	16.6175	10.695
32	27.325	127	16.630	16.6325	16.6275	10.695
33	27.335	128	16.640	16.6425	16.6375	10.695
34	27.345	129	16.650	16.6525	16.6475	10.695
35	27.355	130	16.660	16.6625	16.6575	10.695
36	27.365	131	16.670	16.6725	16.6675	10.695
37	27.375	132	16.680	16.6825	16.6775	10.695
38	27.385	133	16.690	16.6925	16.6875	10.695
39	27.395	134	16.700	16.7025	16.6975	10.695
40	27.405	135	16.710	16.7125	16.7075	10.695

8. TECHNICAL DRAWINGS