KENWOOD

SERVICE MANUAL

TR-3600A/E

BC-2,BT-3,DC-26,EB-3, HMC-1,MS-1,PB-26,SC-9, SMC-30,ST-2,TU-35A/B

70cm FM SYNTHESIZED HAND-HELD TRANSCEIVER

CONTENTS

CIRCUIT DESCRIPTION

• DESTINATION

TR-3600A : K,M1,M2,X
TR-3600E : T,W

• DESTINATION ABBREVIATION

K : U.S.A. M1 : General
M2 : Latin America, Canada
T : England W : Europe
X : Australia

• DESTINATION CODE FOR PARTS LIST REFERENCE

General TR-3600A/E

011	021	022	051	061	071
K	M1	M2	T	W	X

RX unit X55-140X-XX

011	021	051	061	071
K	M1	T	W	M2 · X

TX unit X56-149X-XX

011	051	061	071
K · M1	T	W	M2 · X

DCL unit X57-111X-XX

010
K · M1 · M2 · T · W · X

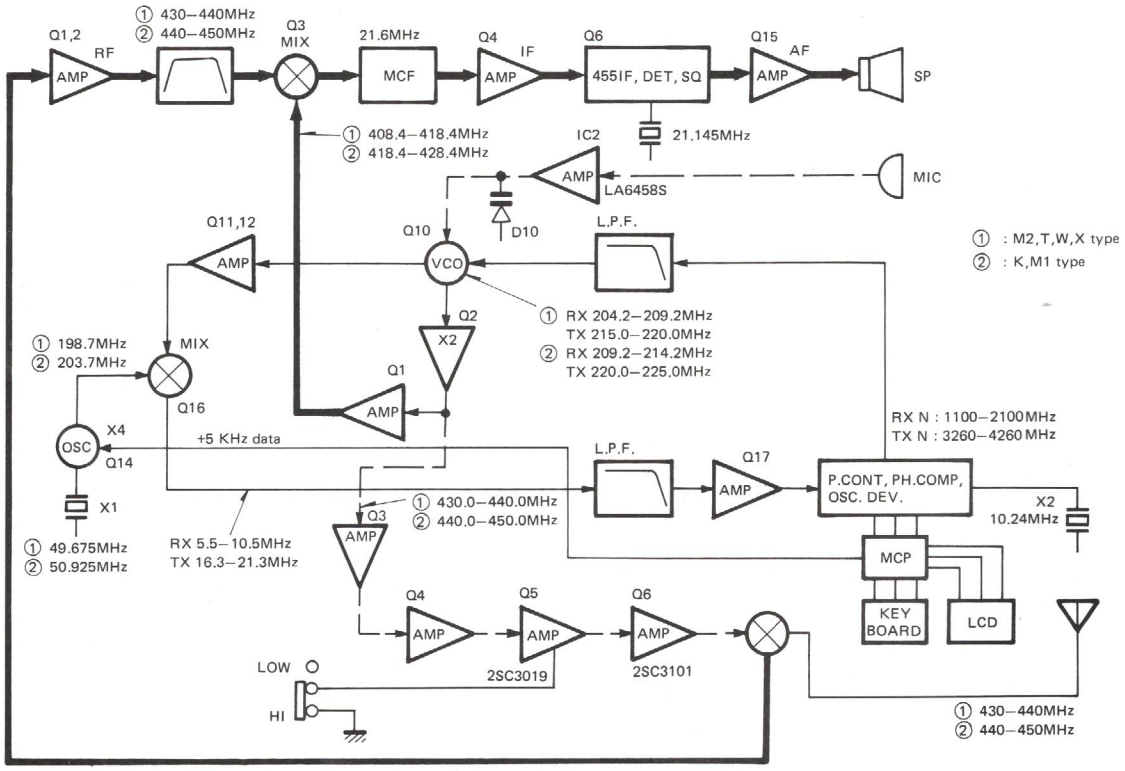


Fig. 1 Frequency-related block diagram

CIRCUIT DESCRIPTION

RX UNIT (X55-1400-XX)

The RX unit basic configuration employs a double conversion superheterodyne reception system in which the first IF is 21.6MHz and the second IF is 455kHz.

- **Signal system**

A received signal supplied through the Low Pass Filter circuit from the TX unit is amplified by RF amplifiers Q1,Q2 : 2SC2671(H). It is then converted by the first mixer Q3 : 2SC2570A to the first IF at 21.6MHz. The VCO injection signal is supplied from the TX unit.

The converter output is filtered through MCF F1 at 21.6 MHz, and is then 1st IF amplified by Q4 : 2SC2668(Y) before being fed to Q6 : MC3359P, where the signal is converted to 455kHz by oscillator X1 (21.145MHz), passed through the 455kHz ceramic filter F2, amplified, limited, and finally detected. Q6 also contains the squelch circuit. Part of the signal sampled from F2 is fed to the S meter amplifiers Q11 and Q12 : 2SC2603(E).

The S meter circuit is energized and operates only when the squelch circuit is open via voltage switch Q10 : 2SC2603(E).

The detected signal, after passing through the AF gain control, is power amplified by Q15 : BA526 and is fed to the speaker. Q7 : DTC124ES cuts the audio signal by means of the AFC signal from the Control unit. Q16 : DTC124ES provides "Beep" tone injection to the speaker while Q15 is off.

Item	Rating
Nominal center frequency	21.6MHz
Pass bandwidth	±7.5kHz or more at 3dB
Attenuation bandwidth	±25kHz or less at 40dB ±45kHz or less at 60dB
Guaranteed attenuation	70dB or more within ±1MHz Spurious level = 40dB or more at fo–fo+500kHz, 80dB or more at fo–(900–920kHz)
Ripple	1.0dB or less
Loss	1.5dB or less
Input and output impedance	3kΩ/0pF

Table 1 MCF (L71-0228-05) (RX unit F1)

Item	Rating
Center frequency of 6dB bandwidth	Within 455kHz±1.5kHz
6dB bandwidth	±7.5kHz or more
40dB bandwidth	±15kHz or less
Ripple (within 455±1.5kHz)	1.5dB or less
Guaranteed attenuation (Within 455±100kHz)	27dB or more
Loss	6dB or less
Input and output impedance	1.5kΩ

Table 2 Ceramic filter (L72-0335-05) (RX unit F2)

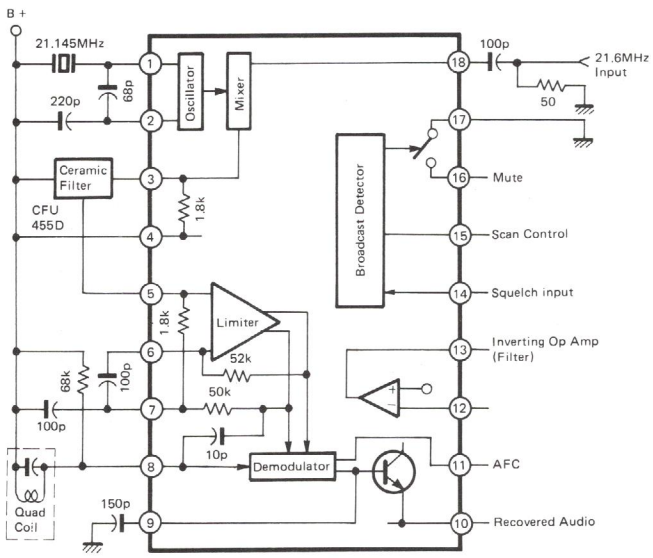


Fig. 2 MC3359P Block diagram (RX unit Q6)

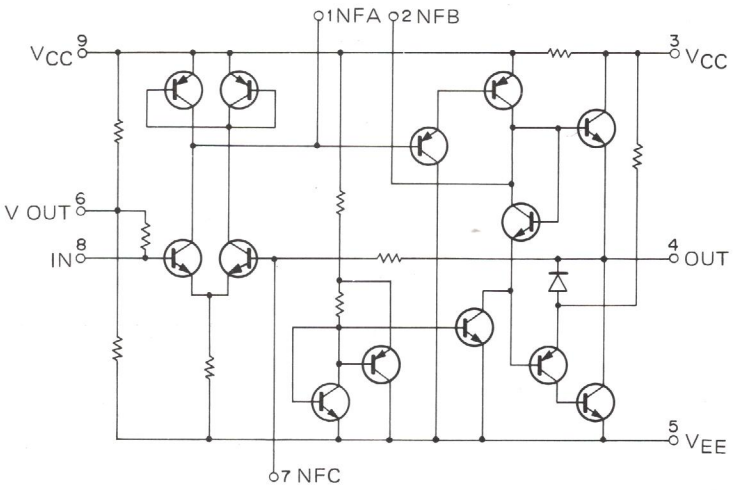


Fig. 3 BA526 Equivalent circuit (RX unit Q15)

Item	Symbol	Rating	Unit
Operating voltage	Vcc	9	V
Power dissipation	Pd	700	mW
Operating temp.	Topr	–10~+65	°C
Storage temp.	Tstg	–30~+125	°C

Table 3 BA526 Max. rating

Item	Symbol	Condition	Rating			Unit
			Min.	St.	Max.	
Current W/O signal	ICC	VIN = 0V	–	12	24	mA
Voltage gain	GVC	RNF = 47Ω, VIN = 2.5mV	48	52	54	dB
Max output	PO MAX	VIN = 25mV	600	700	–	mW
Rated output	PO	T.H.D = 10%	350	430	–	mW
Output noise voltage	VNO	Rg = 0Ω	–	0.25	0.7	mV
Distortion	T.H.D	PO = 50mW	–	0.4	2	%
Input impedance	ZIN	1kHz, PO = 50mW	–	22	–	kΩ

Table 4 BA526 Electrical characteristic

CIRCUIT DESCRIPTION

• Power supply circuit

The C5 line (common 5V) is a regulated power supply consisting of Q32 : LVC517 and Q20 : 2SB698 and is derived from the CB (common B+) line. Q32 is a compact 3-pin regulator and Q20 is a current booster.

Item	Symbol	Rating	Unit
Operating temp.	Topr	−20 ~ +60	°C
Stage temp.	Tstg	−30 ~ +125	°C
Input current	Vin	15	V
Output current	I_L	100	mA
Power consumption	P_D	300	mW

Table 5 LVC517 Max. rating (RX unit Q32)

Item	Symbol	Condition	Rating			Unit
			Max.	St.	Min.	
Input current	Ii	Vi = 9.0V, Io = 0mA	0.5	–	2.5	mA
Output voltage	Vo	Vi = 9.0V, Io = 20mA	4.8	5.0	5.2	V
Output voltage temp. coefficient	Δ V01	Ta = −20~ +60°C Vi = 9.0V, Io = 20mA	–	0.01	–	%/°C
Input regulation	Δ V02	Vi = 5.6~10V, Io = 30mA	–	–	±0.2	%/V
Load regulation	Δ V03	Vi = 9.0V, Io = 0~30mA			±0.1	%/mA
Ripple compressibility	RegIN	Vi = 9.0V, Io = 20mA f = 100Hz, 1V P–P	50	–	–	dB

Table 6 LVC517 Electrical characteristic

• Squelch Control circuit

To minimize battery power consumption, power to the AF output IC and S meter amplifiers is shut off during reception when the squelch is closed, when the DCS is on, and during transmission. In the **K, M** and **X** models, (the AF IC is activated during TX) to DTMF (Dual tone Multi Frequency) tones when the key pad is used. The logic level for each section in each state is as follows.

1) During reception mode (R6 → H, T5 → L)

a) Squelch open/close

	BSY	A	B	C
SQ OPEN	L	H	H	H
SQ CLOSE	H	L	L	L

b) DCS ON/OFF

	CL	E	D	A	B	C
DCS ON	H	L	L	*	*	*
	L	H	H	L	L	L
DCS OFF	L	L	L	*	*	*

* State depending on whether squelch is open or closed.

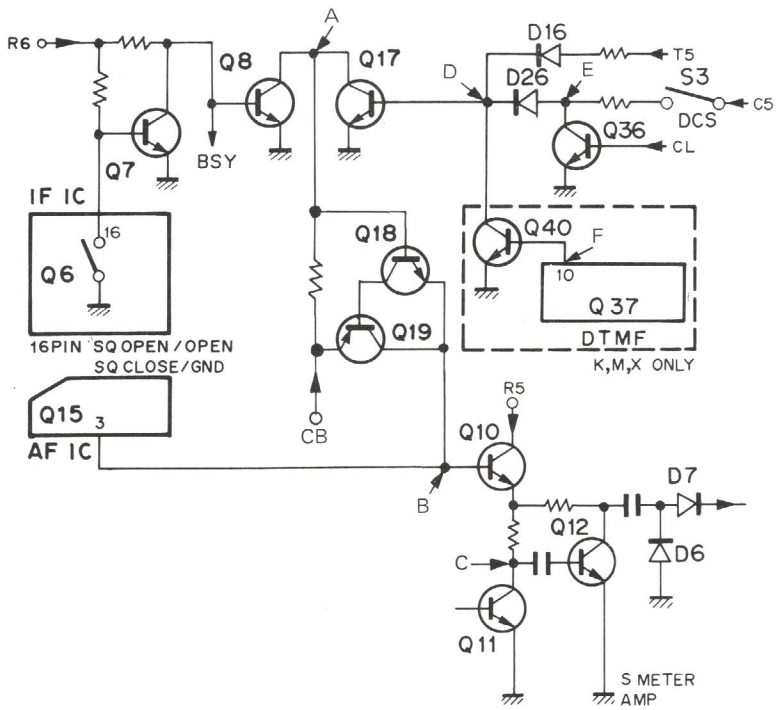


Fig. 4 Control circuit (squelch) RX unit

CIRCUIT DESCRIPTION

2) During transmission mode (R6 → L, T5 →H)

○ Because of T5 is ON, Q17 turns on and (A) and (B) go low, and Q15 turns off.

○ DTMF operation (**K,M,**and **X** models only)

The MUTE signal from the DTMF IC turns Q40 on, (D) goes low, and (A) and (B) go high, with the result that Q15 turns on to DTMF.

3) Standby control circuit

○ During reception

Since Q29 is off, TC is low. Therefore, Q23 turns on, and Q22 and Q21 turn on, thereby generating R6. At the same time, since Q28 is off, Q27 stays off and T5 is not generated.

○ During transmission

Since Q29 is on, TC is high. Therefore, Q23 turns off, and Q22 and Q21 turn off, therefore R6 is not generated. At the same time, since Q28 turns on, Q27 turns on, thereby generating T5.

○ TX stop

Whether in receive or transmit, when a logic high (H) is sent from S1 or the TXS line, Q25 and Q26 turn on, Q23 is on and Q28 is off. The result is that only the receive state is available.

○ During digital code transmission

A logic high signal is sent to the ATX and MED lines from the microprocessor and Q24 turns on, the audio input from the microphone is muted, and Q29 is turned on. The result that the transmission mode is entered.

○ DTFM operation (**K,M,X** models only)

When any key on the keyboard is depressed during transmission, DTMF modulation is available. At this time, Q37 pin 10 goes high, Q24 turns on through D27 and D28 and mutes the microphone input. The charge on C202 maintains the transmission state for approximately 2 seconds after completion of a key press.

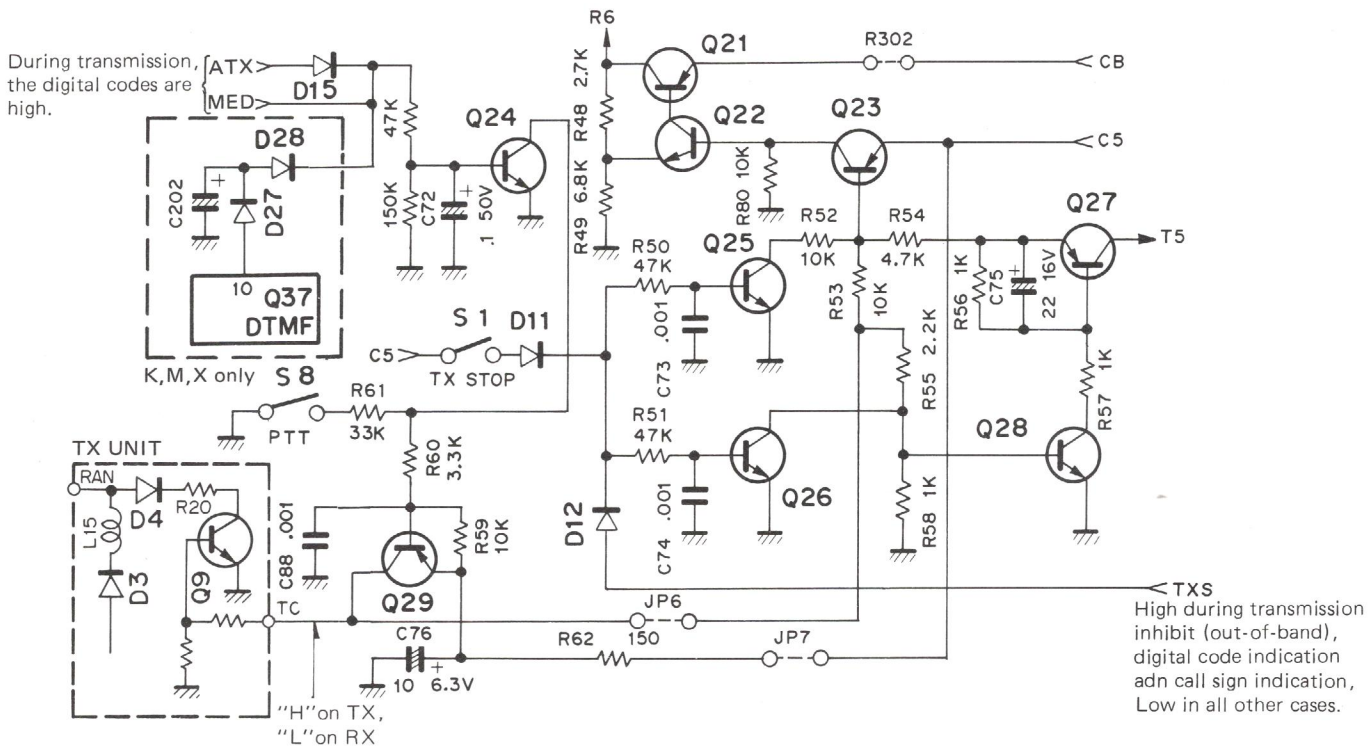


Fig. 5 Control circuit (standby) RX unit

CIRCUIT DESCRIPTION

TX UNIT (X56-1490-XX)

The signal from the MIC is amplified by IC2 on the TX unit, then applied to voltage variable diode D10 : MA856 to directly modulate the VCO.
PLL output signal is amplified by Q3–Q5, and then fed directly to the final stage.

	VCBO	VEBO	VCEO	IC	PC	PC	Tj	Tstg	Ta
Test Conditions			RBE = ∞ Ω		Tc = 25°C	Ta = 25°C			25 ±3°C
Maximum Rating	35V	4V	17V	1A	10W	1W	+175°C	−65 ~ +175°C	

Table 7 2SC3101 Max. rating (TX unit Q6)

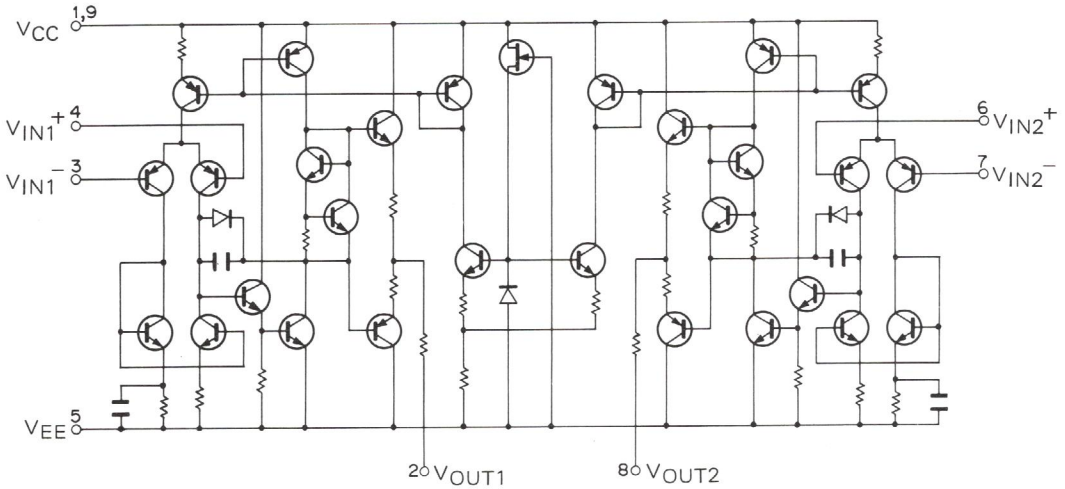


Fig. 6 LA6458S Equivalent circuit (TX unit IC2)

• PLL section

PLL operates at half the final operates frequency, and this output signal goes to both the RX 1st mixer and the TX broad band amplifier stage through doubler Q2.
The VCO (Q10 : 2SK192A) is a common-drain Colpitts oscillator. During reception, D7 and D8 conduct and C49 is connected into the oscillator circuit, with the result that the VCO shifts down in frequency. The heterodyne oscillator circuit consists of Q14 and X1 (49.675MHz : **M2,T, W,X**/50.925MHz : **K,M1**). This operates at the crystal's 4th harmonic frequency.

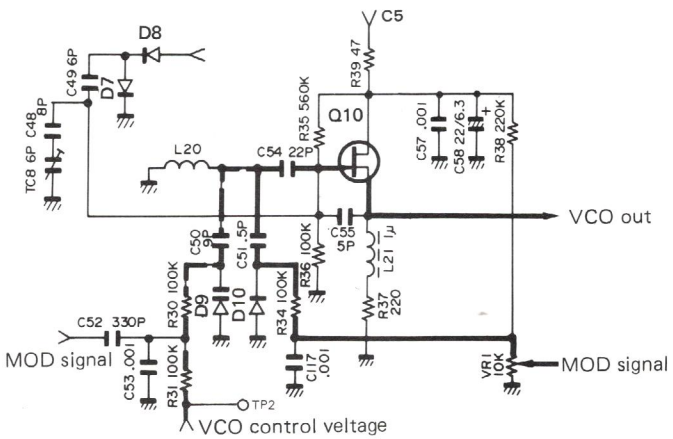


Fig. 7 VCO circuit

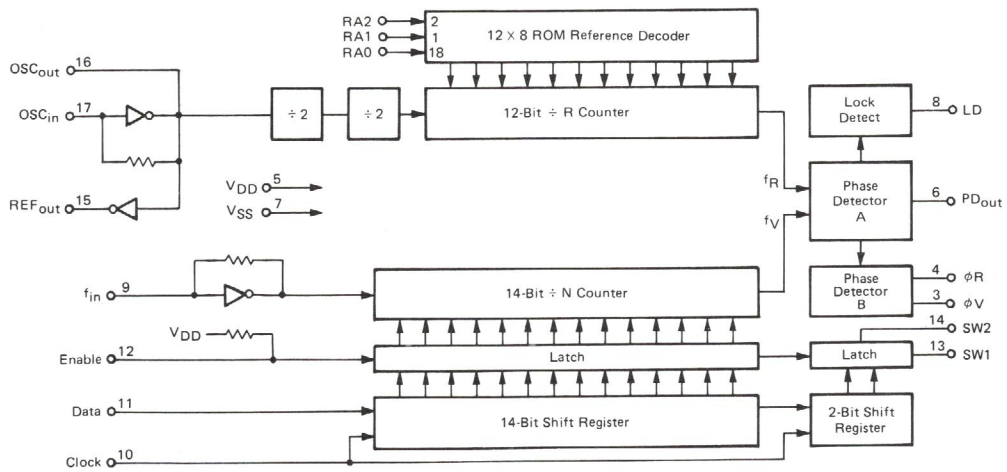
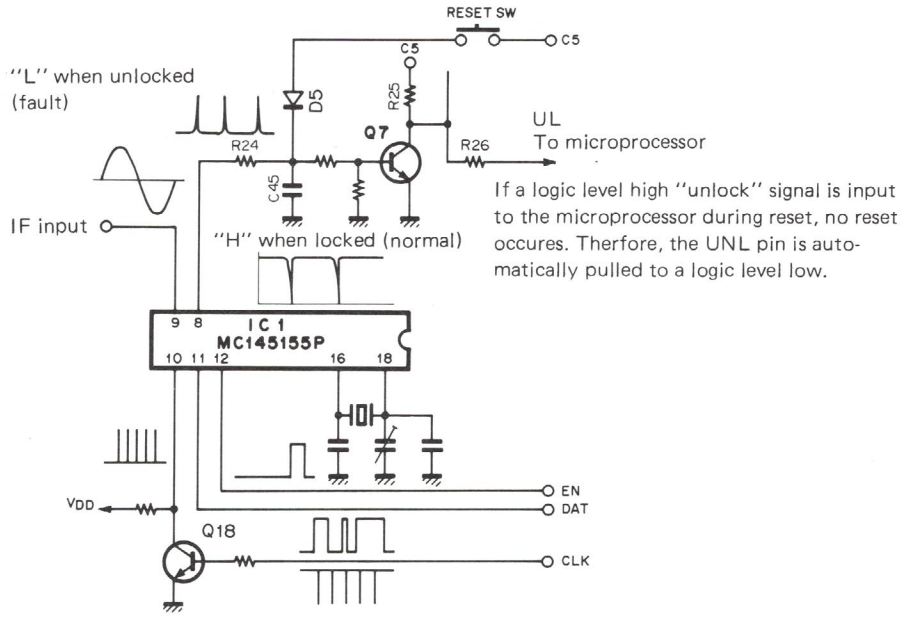


Fig. 8 MC145155P Block diagram (TX unit IC1)

CIRCUIT DESCRIPTION



If a logic level high "unlock" signal is input to the microprocessor during reset, no reset occures. Therfore, the UNL pin is automatically pulled to a logic level low.

Relation between respective waveforms
→ On completion of keyboard input, one cycle is output (approx. 5 to 10 msec.)

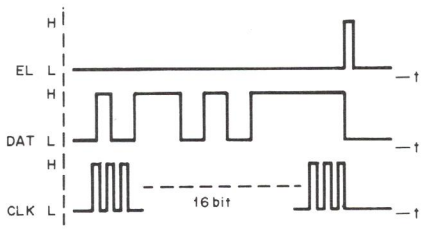


Fig. 9 MC145155P Operation

Item	Symbol	Condition	Rating			Unit
			Min.	St.	Max.	
Input voltage	V1 (off)	Vcc = 5V, Io = 100μA	–	–	0.5	V
	V1 (on)	Vo = 0.3V, Io = 2mA	3.0	–	–	V
Output voltage	Vo (on)	Io = 10mA, Ii = 0.5mA	–	0.1	0.3	V
Input current	Ii	V1 = 5V	–	–	0.18	mA
Output current	Io (off)	Vcc = 30V, V1 = 0V	–	–	10	μA
DC current gain	GI	Io = 5mA, Vo = 5V	68	–	272	–
Input impedance	R1		–	47	–	kΩ
I/O impedance	R1/R2		0.8	1.0	1.2	–

Table 8 DTC144ES Electrical characteristic (TX unit Q7, 18)

- **PLL IF section**

The IF, after being mixed by Q16, has a frequency of from 5.5 to 10.5MHz in RX mode, and in the TX mode, a frequency of 16.3 to 21.3MHz. L28 and C28 in the collector circuit of Q17 serves as a peaking circuit to extend the frequency response. A switching circuit in Q17's emitter circuit (D11, and C83 across R57) increases the gain of Q17 during transmission.

When the PLL is working under normal circumstances, (when locked) IC1 : MC145155P pin 8 goes high. However, if the PLL should malfunction (when unlocked), it goes low. When low, switching circuit Q7 turns off, which in turn shuts off the emitter circuits of both Q2 and Q3, with the result that both transmission and reception are stopped.

An MC145155P is the phase-locked loop (PLL) IC, which includes a reference oscillator, divider and phase comparator as well as latches and program counter. In this transceiver, it operates as shown in Fig. 9.

CIRCUIT DESCRIPTION

DCL UNIT (X57-1110-10)

The Digital Coded Squelch (DCS) circuit consists of IC3 slave microprocessor : μPD7507G, IC2 modem : MN6127A and IC1 op amp : NJM4558M. Pin assignments of IC2 and IC3 are shown in **Tables 11** and **12**. The μPD7507G microprocessor clock operates at approximately 200kHz (pin 5&9 (CL1, CL2)) and is internally divided by 2 to operate at approximately a 10μsec. machine cycle.

- **DCS Reception operation**

A received signal supplied from the RX unit (X55-1400-XX) audio stage is amplified by IC1 to approximately a 0.35V input level for the modem, and is then input to pin 5 (RI) of the modem. In the modem, the MSK (Minimum Shift Keying) modulated input signal is bandpass filtered to attenuate any of out-band noise, and is then demodulated to an NRZ (Non Return Zero) signal by delay detection. The demodulated signal is output to pin 25 (RD) and the playback clock (1200 baud) is output to pin 26 (RT).

IC2 outputs data to RD at the leading edge of RT. At the leading edge of RT, IC3 interrupts INT0 and retrieves data from IC2 RD to IC3 P10. During this time, frame sync detection (15 bits) is performed. Once all 15 bits coincide, Hagelburger decode processing begins. At completion of the decoding process, a check is performed to ascertain whether the frequency data (See **Fig. 11**) is decimal or all F (Hexadecimal).

MTC (pin 25 (P40)) is then sent high to transfer data to the microprocessor. The master microprocessor always detects communication requests from the slave microprocessor; if it detects a communications request (MTC = High), the master microprocessor retrieves data at an 8 bit preset data length via a serial interface (SCK, SI and SO). The input data is processed according to the DCS system conditions.

- **DCS Transmission operation**

In contrast to reception mode operation, when the master microprocessor detects the transmission mode, it brings the transmission request line CTM (pin 43 (P12)) to IC3 high. Upon detection of this transmission request, IC3 retrieves data via the serial interface.

When all data is retrieved, IC3 performs Hagelburger encode processing, at the completion of which IC3 makes the ME line (pin 29 (P43)) high and modulator enable ME (pin 21) active.

Because IC2 retrieves the level at the SD pin at the leading edge of the transmission clock (ST pin), and in order to lock, IC2 interrupts using INT1 at the leading edge of the ST pin, thus allowing data to be transferred from P42 to the SD pin during this interrupt routine. IC2 is capable of obtaining the MSK-modulated signal by sync-inputting the NRZ signal in lock with the transmission clock. When data is to be transmitted, all the frequency data should be F (Hexadecimal).

- **Reset function**

Since slave microprocessor IC2 does not have any data to be backed up in RAM, no back-up is performed. Therefore, because it is always necessary to reset when power is switched on, this is automatically achieved by means of a reset circuit consisting of lambda diode D3 : MA522(Q) and Q1 : 2SC2712(Y). The reset switch on the main unit permits manual resetting as well.

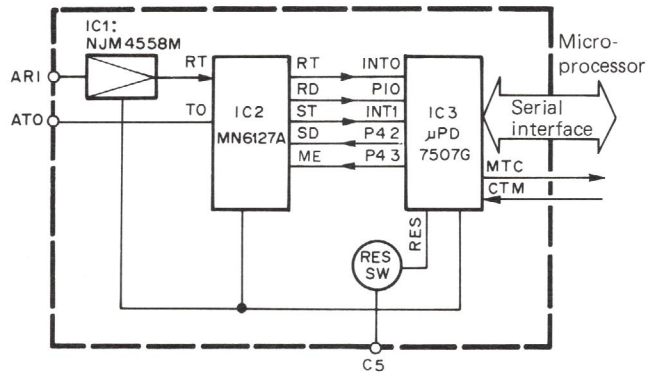


Fig. 10 DCL unit block diagram

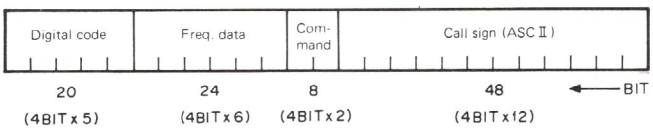


Fig. 11 Data structure

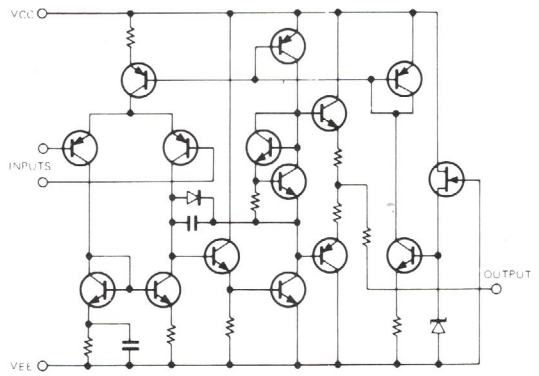


Fig. 12 NJM4558M Equivalent circuit (DCL unit IC1)

Item	Symbol	Condition	Rating			Unit
			Min.	St.	Max.	
Input offset voltage	V_{IO}	Rs ≤ 10kΩ	–	–	6.0	mV
Input offset current	I_{IO}		–	–	200	nA
Input Bias current	I_I		–	–	500	nA
Voltage gain	GV	RL ≥ 2kΩ, Vo = ±10V	20000	–	–	–
MAX output voltage	VOM	RL ≥10kΩ	±12	–	–	V
In-phase input voltage range	VICM		±12	–	–	V
In-phase signal elimination	CMR	Rs ≤10kΩ	70	–	–	dB
Power source regulation eliminate	SVR	Rs ≤10kΩ	–	–	150	μV/V
Power consumption	PT		–	–	170	mW

Table 10 NJM4558M Electrical characteristic

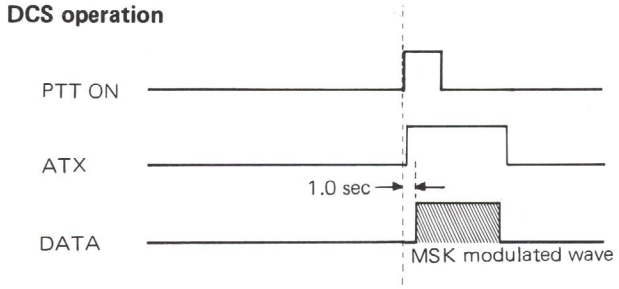
CIRCUIT DESCRIPTION

Data transmission

Before the main microprocessor transfers the data to the DCS microprocessor, the main microprocessor outputs the communication request signal. When the DCS microprocessor receives this signal, the microprocessor enters the transfer routine.

The data is output at the leading edge and is received by the DCS microprocessor at the trailing edge of the CLK signal. An signal is transferred 8-bit in units, according to its length.

DCS operation



The data is transferred in 8 bit units, according to its length.

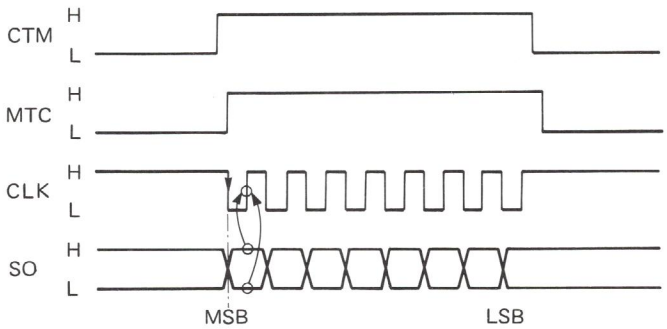


Fig. 13 Timing chart

Pin No.	Pin Name	Function	Pin No.	Pin Name	Function
1	V_{DD}	Power supply +5V	15	1/2 V_{DD}	Op amp center point voltage
2	RO	Internal reception filter output signal	16	V_{SS}	GND
3	DI	Demodulator inverting input	17	TO	Transmission filter output signal
4	DN	Demodulator non-inverting input	18	MO	Not used
5	RI	Reception signal input	19	RF	Center point reference voltage
6	L4	GND	20	$\overline{TS}$	Not used
7	L3	Open	21	ME	Modulator enable
8	L2	Open	22	SD	Transmission data input pin
9	L1	GND	23	ST	Transmission clock
10	$\overline{EX}$	Not used	24	DE	Not used
11	D0	Not used	25	RD	Reception data output pin
12	L0	Low-pass filter output signal	26	RT	Reception clock
13	CI	Clock playback circuit inverting input	27	XO	Crystal oscillator connection pin
14	CN	Clock playback circuit non-inverting input	28	XI	Crystal oscillator conneciton pin

Table 11 MN6127A Terminal function (DCL unit IC2)

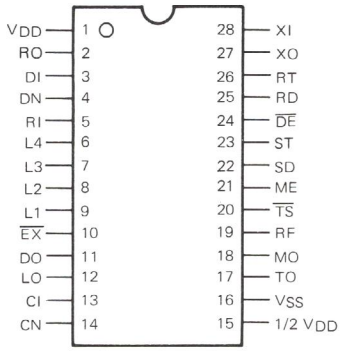


Fig. 14 MN6127A (DCL unit IC2)

CIRCUIT DESCRIPTION

Pin No.	Pin Name	I/O	Function	Pin No.	Pin Name	I/O	Function
1	NC			27	NC		
2	P73	I	GND	28	P42	O	SD transmission data
3	RESET		RESET input	29	NC		
4	NC			30	P43	O	ME modulator enable
5	CL1		System clock oscillator pin	31	VSS		GND
6	NC			32	X1		GND
7	VDD		Power supply + 5V	33	VDD		Power supply (connected to pin 7)
8	NC			34	X2		Open
9	CL2		System clock oscillator pin	35	NC		
10	INT1	I	ST transmission clock	36	P20		Open
11	INT0	I	RT reception clock	37	P21		Open
12	$\overline{SCK}$		CK clock for communication	38	P22		Open
13	NC			39	P23		Open
14	NC			40	NC		
15	SO	O	SO data output for communication	41	P10	I	RD reception data
16	SI	I	SI data input for communication	42	P11	I	Pull-up
17	P60	I	GND	43	P12	I	CTM communication request signal
18	P61	I	GND	44	P13	I	Pull-down
19	P62	I	GND	45	NC		
20	P63	I	GND	46	P30		Open
21	P50	O	Open	47	P31		Open
22	P51	O	Open	48	P32		Open
23	P52	O	Open	49	P33		Open
24	P53	O	Open	50	P70		Pull-up
25	P40	O	MTC communication request signal	51	P71		GND
26	P41	O	Open	52	P72		Pull-up

Table 12 μPD7507G-575-00 Terminal function (DCL unit IC3)

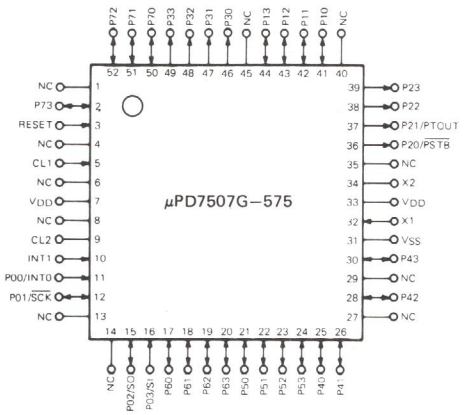


Fig. 15 μPD7507G-575-00 (DCL unit IC3)

CIRCUIT DESCRIPTION

Terminal No.	Terminal name	In-put	Out-put	Function	Terminal No.	Terminal name	In-put	Out-put	Function
1	P41		O	TX STOP output H : Active	50	CL2			Clock OSC C,R connection terminal
2	P40		O	Output CD ON/OFF	51	P73			CTM, EN from Main μ-processor
3	X2			Open	52	P72			R/R SW Detect, H : Active
4	X1			GND	53	P71			DCL SW CHECK, H : Active
5	VLC3	O		Input terminal for LCD power supply	54	P70			MTC, EN from DCL
6	VLC2	O			55	P22		O	CHL,light signal output
7	VLC1	O			56	P21/POUT		O	ATX Auto TX, H : Active
8				Open	57	P20/$\overline{PSTB}$		O	REV
9 ≀ 11			O	LCD segment signal	58	P13	O		BUSY Detect, BUSY : L VACANT : H
					59	P12	O		TX Detect, H : Active
12 ≀ 17			O	Open	60	P11	O		UNLOCK Detect, H : Active
					61	P10	O		CHL SW Detect, H : Active
					62	P33			PLL EN
18 ≀ 22			O	LCD segment signal	63	P32			AFC audio output cut signal, H : Active
					64	VSS			GND
23				Open	65	P31			K.LOCK, CALL CHECK
24 ≀ 32			O	LCD segment signal	66	P30			Type check To P60–63 through diodes
					67	P03/SI	O		Serial data input (from DCLS)
33	VDD			+B	68	P02/SO		O	Serial data output (PLL, DCLS)
34 35			O	LCD segment signal	69	P01/SCK			PLL, CLOCK for M/A, Normally H
36				Open	70	P00			BACK UP Detect, L : Active
37 ≀ 41			O	LCD segment signal	71	P63	O		KEY SCAN input C4
					72	P62	O		KEY SCAN input C3
					73	P61	O		KEY SCAN input C2
42				Open	74	P60	O		KEY SCAN input C1
43			O	LCD segment signal	75	P53	O		KEY SCAN output R4
44				Open	76	P52		O	KEY SCAN output R3
45 46			O	LCD segment signal	77	P51		O	KEY SCAN output R2
					78	P50		O	KEY SCAN output R1
47	INT1			GND	79	P43			5KHz step O : H +5KHz : L
48	RESET			RESET SW	80	P42		O	BZ Beep sound
49	CL1			Clock OSC C,R connection terminal					

Table 13 μPD7514G-061-12 Terminal function (key board ass'y IC1)

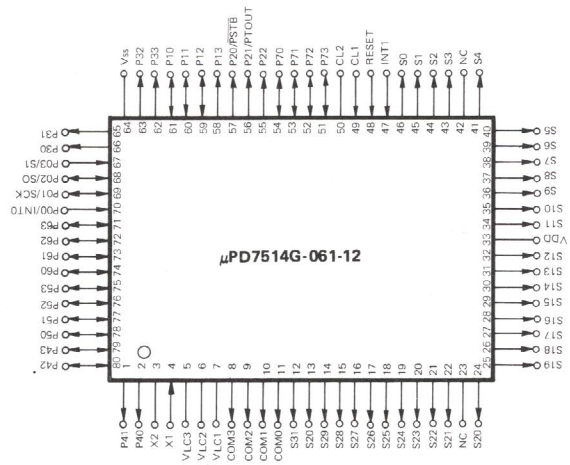


Fig. 16 μPD7514G-061-12 (Key board ass'y IC1)

CIRCUIT DESCRIPTION/DISASSEMBLY

Part No.	W09-0315-05	W09-0317-05	W09-0319-05
Rating	Primary side: AC 120V 60 Hz Secondary side: DC 10.15V DC 42.5ma	Primary side: AC220V 50/60 Hz Secondary side: DC 10.15V DC 42.5ma	Primary side: AC 240V 50 Hz Secondar- side: DC 10.15V DC42.5ma
Output voltage (resistance loaded)	At 0mA: DC 14.9V ± 5% At 42.5mA: DC 6.2V ±5%	At 0mA: DC 12.5V ±5% At 42.5mA: DC 5.5V ±5%	At 0mA: DC 12.6V ±5% At 42.5mA: DC 5.6V ±5%
Weight	About 130g	About 240g	About 220g
Consumed power	4W or less with 60 Hz at rated input and battery loaded.	4W or less with 50 Hz at rated input and battery loaded.	4W or less with 50 Hz at rated input and battery loaded.
Destination	U.S.A/GEN, M1	Europe/GEN, M3	Australia / New Zealand

Table 14 Charge specifications

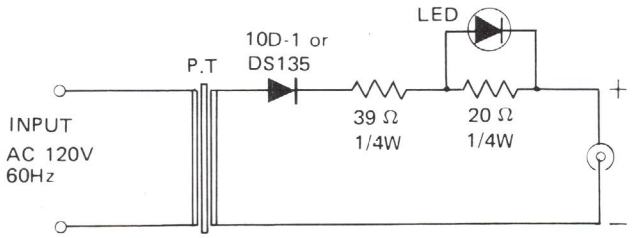


Fig. 17 W09-0315-05 (K type)

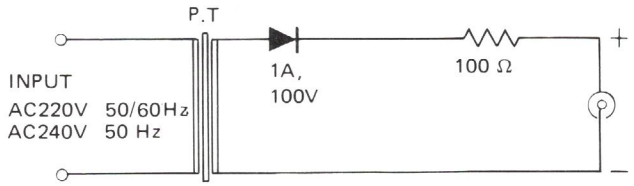
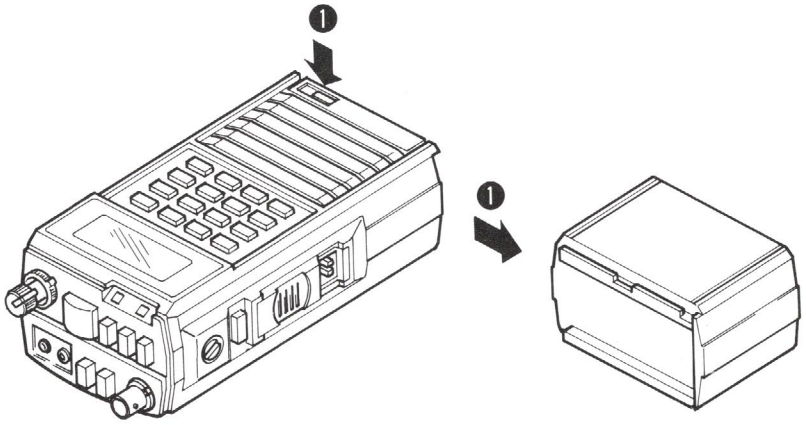
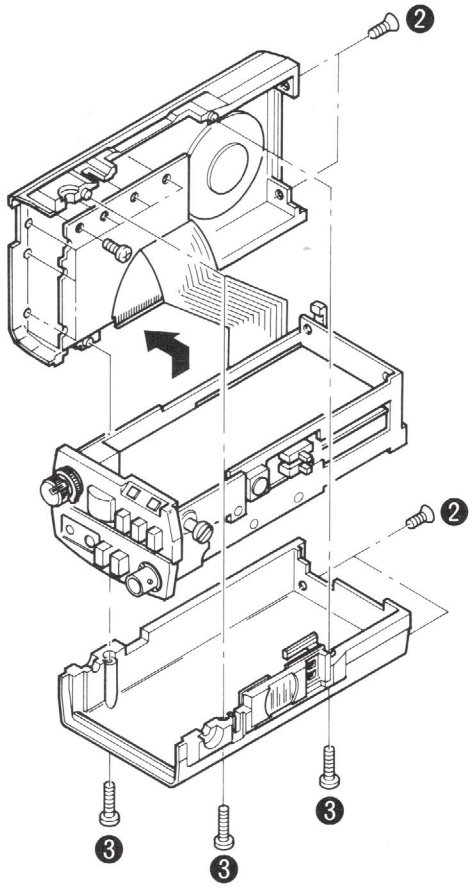


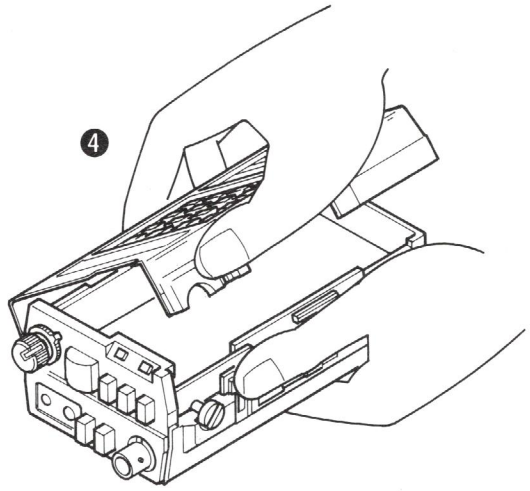
Fig. 18 W09-0317-05 (M1,M2 type)
W09-0319-05 (X type)

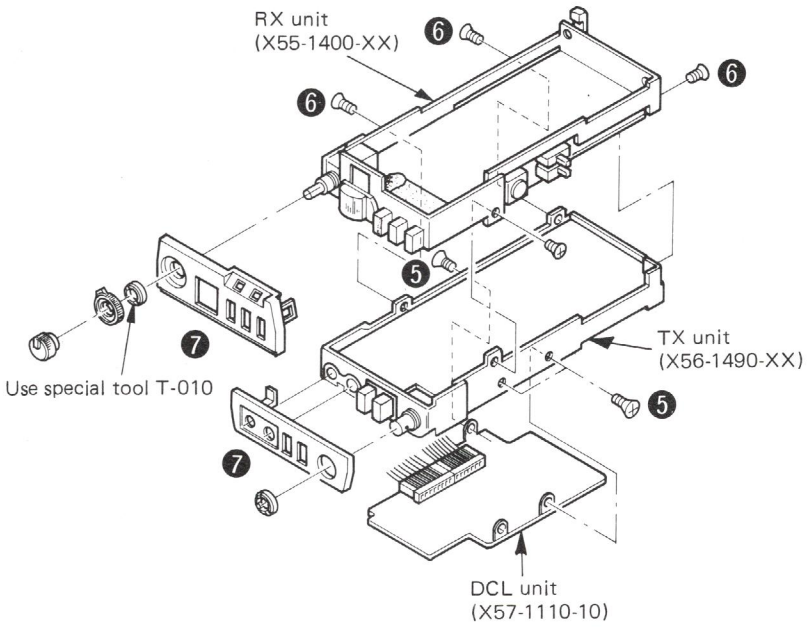
Removing cases and PC boards

1. Depress the release button, pull the battery pack off to the right.
2. Remove 4 screws from the battery pack bottom plate.
3. Remove 3 screws from the top and bottom cases.
4. Open the case to the front by holding it with both hands as shown in the illustration.
   (Indented retainers are located on the "hinge" or swing).
5. Remove 3 screws from the DCL unit mounting bracket.
6. After removing 4 screws, separate the RX and RX units.
7. Remove the escutcheons from the TX and RX units.

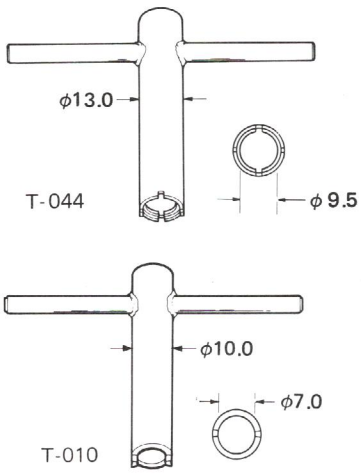


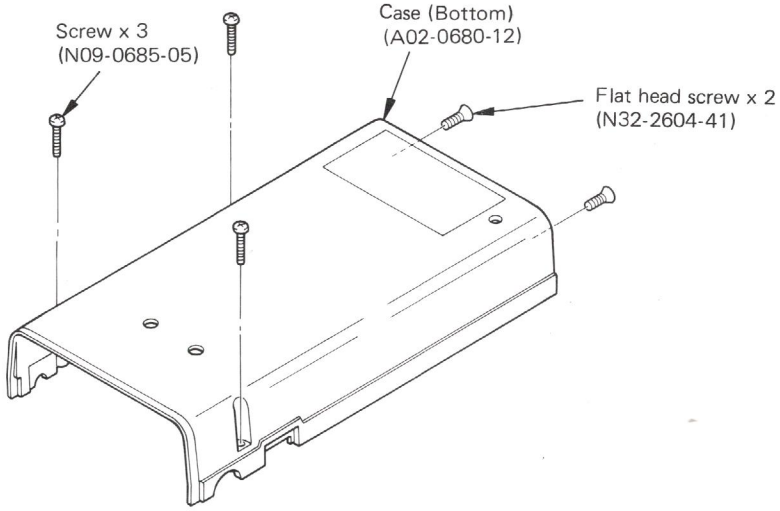


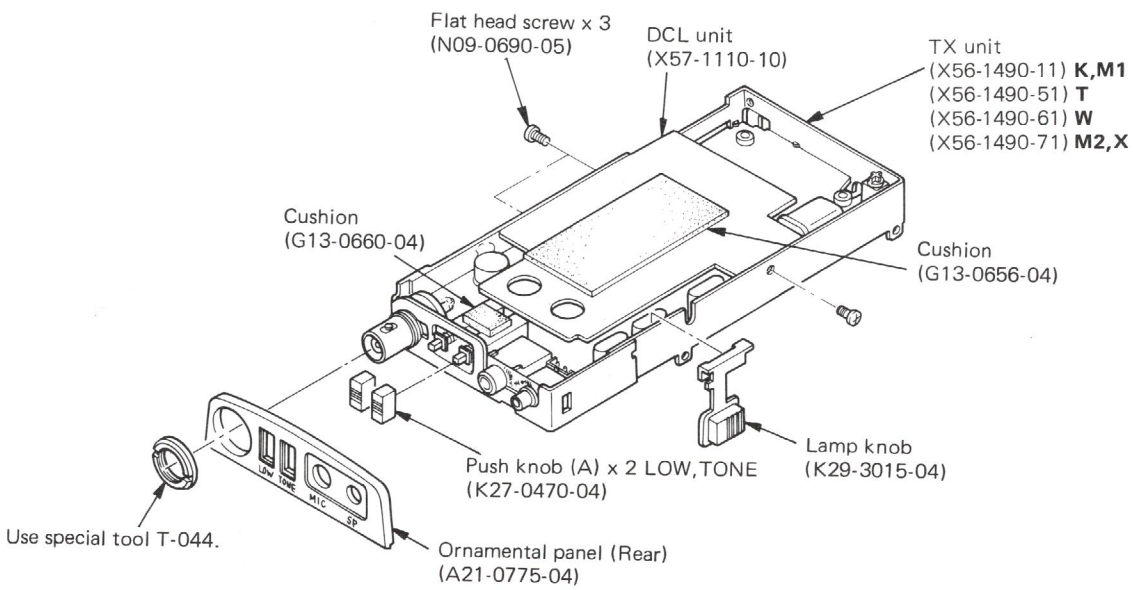




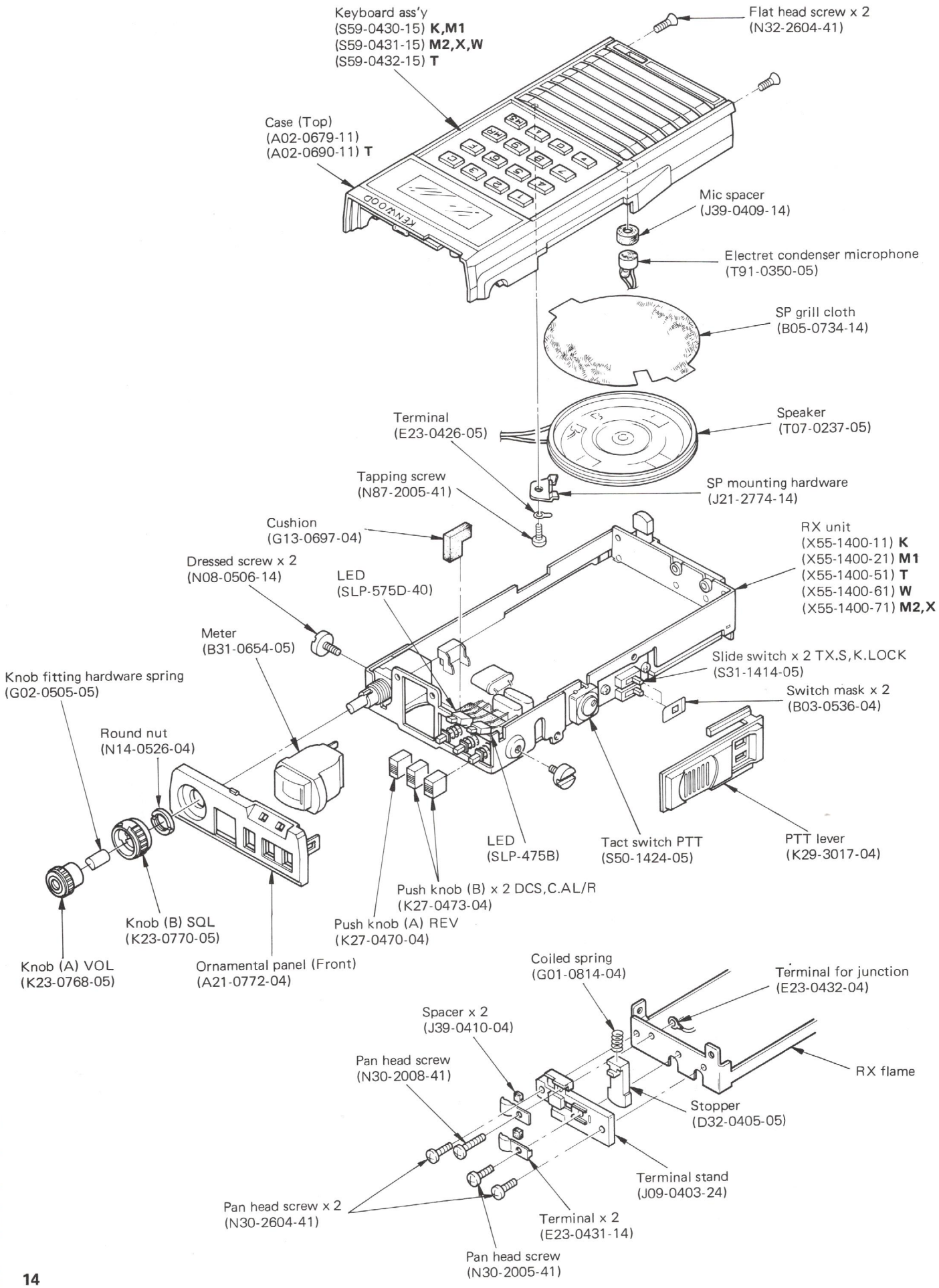
Special tool

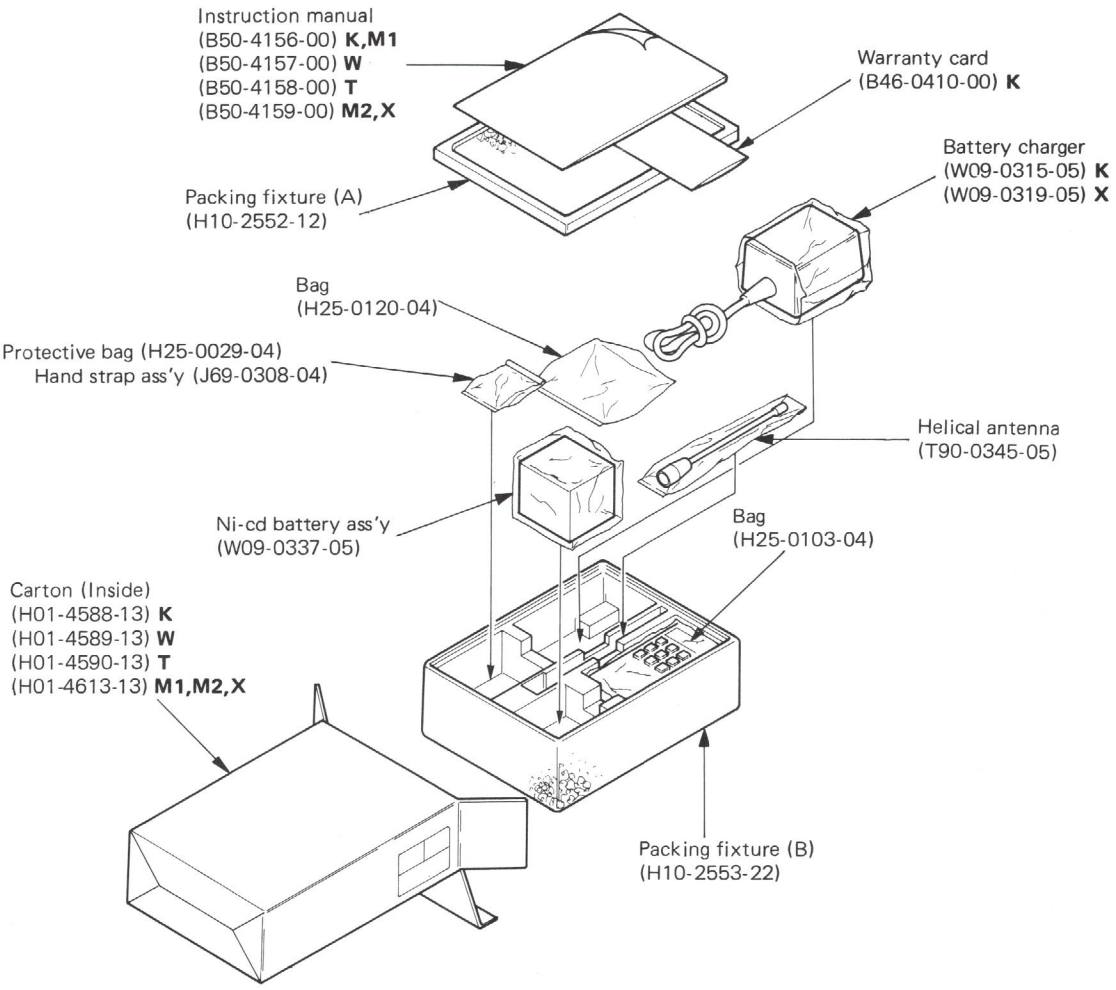




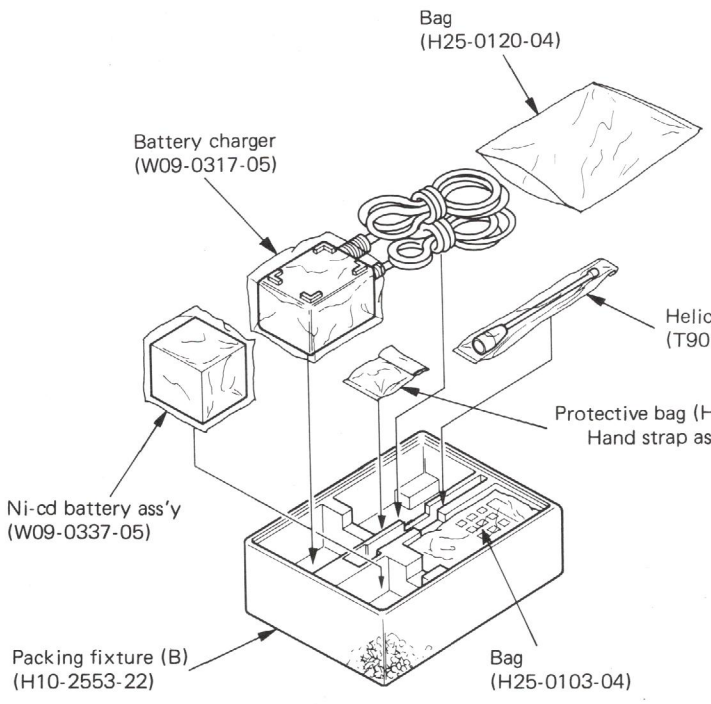


TR-3600A/E DISASSEMBLY

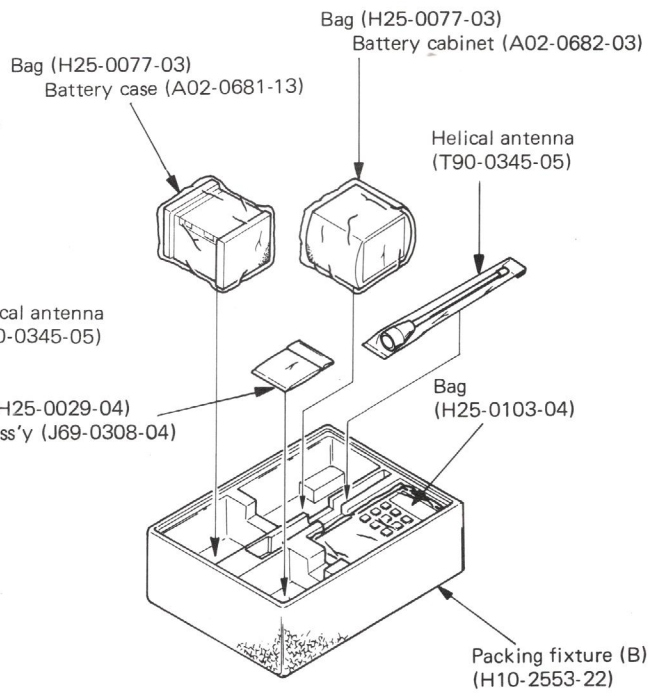




M1,M2 type



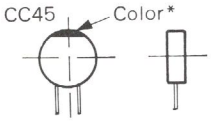
T,W type



TR-3600A/E PARTS LIST

CAPACITORS CC 45 TH 1H 220 J
1 2 3 4 5 6

1 = Type ..... ceramic, etc.
2 = Shape .....round, square, etc.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance



- **Capacitor value**

0 1 0 = 1pF
1 0 0 = 10pF
1 0 1 = 100pF
1 0 2 = 1000pF = 0.001μF
1 0 3 = 0.01μF

2 2 0 = 22pF
1st number | Multiplier
2nd number

- **Temperature Coefficient**

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	−80	−150	−220	−330	−470	−750

2nd Word	G	H	J	K	L
ppm/°C	± 30	± 60	± 120	± 250	± 500

Example CC45TH = −470±60 ppm/°C

- **Tolerance**

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	± 0.25	± 0.5	± 2	± 5	± 10	± 20	+ 40 −20	+ 80 −20	+ 100 −0	More than 10μF−10~+50 Less than 4.7μF−10~+75

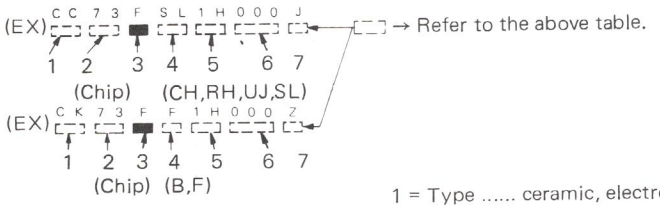
Code	B	C	D	F	G
(pF)	± 0.1	± 0.25	± 0.5	± 1	± 2

Less than 10 pF

- **Rating voltage**

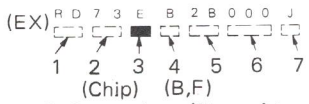
2nd word / 1st word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	–
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	–
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	–

- **Chip capacitors**

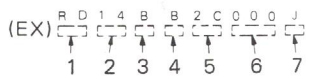


1 = Type ..... ceramic, electrolytic, etc.
2 = Shape ..... round, square, etc.
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance.

- **Chip resistor (Carbon)**



- **Carbon resistor (Normal type)**



Dimension

Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25

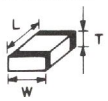
Dimension

Dimension code	L	W	T	Wattage
E	3.2 ± 0.2	1.6 ± 0.2	0.57	2B
F	2.0 ± 0.3	1.25 ± 0.2	0.45	2A

Rating wattage

Cord	Wattage	Cord	Wattage	Cord	Wattage
2A	1 10W	2E	1 4W	3A	1W
2B	1 8W	2H	1 2W	3D	2W
2C	1 6W				

Dimension



Model	Destination	RX unit	TX unit	DCL unit	Keyboard ass'y
TR-3600A	K	X55-1400-11	X56-1490-11	X57-1110-10	S59-0430-15
	X	X55-1400-71	X56-1490-71	X57-1110-10	S59-0431-15
	M1	X55-1400-21	X56-1490-11	X57-1110-10	S59-0430-15
	M2	X55-1400-71	X56-1490-71	X57-1110-10	S59-0431-15
TR-3600E	W	X55-1400-61	X56-1490-61	X57-1110-10	S59-0431-15
	T	X55-1400-51	X56-1490-51	X57-1110-10	S59-0432-15

TR-3600A/E GENERAL

PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	021	022	051	061	071	REFERENCE.NO
A02-0679-11	*	CASE(TOP)	1	1	1				
A02-0690-11	*	CASE(TOP)				1			
A02-0679-11	*	CASE(TOP)					1	1	
A02-0680-12	*	CASE(BOTTOM)	1	1	1	1	1	1	
A21-0772-04	*	ORNAMENTAL PANEL	1	1	1	1	1	1	
A21-0775-04	*	ORNAMENTAL PANEL	1	1	1	1	1	1	
B03-0536-04	*	SWITCH MASK	2	2	2	2	2	2	
B05-0734-14		SP GRILE CLOTH	1	1	1	1	1	1	
B10-0666-08	*	FRONT GLASS	1	1	1	1	1	1	
B11-0421-05	*	LCD REFRECTOR	1	1	1	1	1	1	
B31-0654-15		METER	1	1	1	1	1	1	
B40-3544-14	N*	NAME PLATE TR-3600A	1	1					
B40-3554-14	N*	NAME PLATE TR-3600A			1				
B40-3545-14	N*	NAME PLATE TR-3600E				1	1		
B40-3554-14	N*	NAME PLATE TR-3600A						1	
B42-2369-08	N*	NAME PLATE LCD	1	1					
B42-2370-08	N*	NAME PLATE LCD			1	1	1	1	
B42-2352-08	N*	NAME PLATE KEY BOARD	1	1	1	1	1	1	
B42-1745-04	*	SERIAL NO. PLATE	1	1	1	1	1	1	
B42-2367-14	N*	FCC PLATE	1	1	1			1	
B43-1035-04	N*	BADGE TR-3600A	1	1	1				
B43-1036-04	N*	BADGE TR-3600E				1	1		
B43-1035-04	N*	BADGE TR-3600A						1	
B46-0410-00		WARRANTY CARD	1						
B50-4156-00	N	OPERATING MANUA	1	1					
B50-4159-00	N	OPERATING MANUAL			1				
B50-4158-00	N	OPERATING MANUAL				1			
B50-4157-00	N	OPERATING MANUAL					1		
B50-4159-00	N	OPERATING MANUAL						1	
E23-0426-05		TERMINAL	1	1	1	1	1	1	
E23-0432-04		TERMINAL FOR JUNCTION				2	2		
E29-0427-04		CONNECTOR & TERMINAL (OTHERS)				4	4		
E29-0450-04		CONNECTOR & TERMINAL (SINGLE)				4	4		
E29-0446-08	*	LCD CONNECTOR	1	1	1	1	1	1	
E31-3035-05	N*	CONNECTOR WITH WIRE MIC,SP	1	1	1	1	1	1	
E31-3031-15	*	CONNECTOR WITH WIRE	1	1	1	1	1	1	
FTD1534		LCD	1	1	1	1	1	1	
F07-0855-04		MIC.SP COVER	1	1	1	1	1	1	
F20-0520-04		INSULATING SHEET(BATT TOP)	1	1	1	1	1	1	
F20-0521-04		INSULATING SHEET(BATT BOTTOM)	1	1	1	1	1	1	
F29-0425-04		INSULATING SHEET TX-RX	1	1	1	1	1	1	
F29-0426-14		INSULATING SHEET KEY BOARD	1	1	1	1	1	1	
G02-0505-05		KNOB FITTING SPRING	1	1	1	1	1	1	
G10-0629-14	*	SHADOW MASK (LED)	1	1	1	1	1	1	
G10-0636-04		SHADOW MASK	1	1	1	1	1	1	
G13-0626-04	*	CUSHION MIC	1	1	1	1	1	1	
G13-0635-04	*	CUSHION(LED TO SW)	1	1	1	1	1	1	
G13-0656-04	*	CUSHION(FOIL SIDE, DCS UNIT)	1	1	1	1	1	1	
G13-0660-04	*	CUSHION(LED LEAD)	1	1	1	1	1	1	
G13-0697-04	*	CUSHION(METTER TO REV SW)	1	1	1	1	1	1	
G13-0808-04	*	CUSHION(CASE,KEYBOARD)	1	1	1	1	1	1	
H01-4588-13	N*	CARTON BOX(TR-3600A KENWOOD)	1						

PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	021	022	051	061	071	REFERENCE.NO
H01-4613-13	N*	CARTON BOX(TR-3600A KENWOOD)		1	1				
H01-4590-13	N*	CARTON BOX(TR-3600E TRIO)				1			
H01-4589-13	N*	CARTON BOX(TR-3600E KENWOOD)					1		
H01-4613-13	N*	CARTON BOX(TR-3600A KENWOOD)						1	
H10-2552-12	*	PACKING FIXTURE	1	1	1	1	1	1	
H10-2553-22	*	PACKING FIXTURE	1	1	1	1	1	1	
H25-0103-04	*	BAG	1	1	1	1	1	1	
H25-0077-03	*	BAG	1	1	1			1	
H25-0077-03	*	BAG				2	2		
H25-0029-04	*	BAG	1	1	1	1	1	1	
H25-0120-04	*	BAG	1	1	1			1	
J21-2774-14	*	SP MOUNTING HARDWARE	1	1	1	1	1	1	
J25-3252-05		FLEXIBLE CABLE(A)	1	1	1	1	1	1	
J39-0409-14	*	MIC SPACER	1	1	1	1	1	1	
J69-0308-04		HAND STRAP ASS'Y	1	1	1	1	1	1	
K23-0768-05		KNOB VOLUME	1	1	1	1	1	1	
K23-0770-05		KNOB SQL	1	1	1	1	1	1	
K27-0470-04		PUSH KNOB LOW,REV,CALL	3	3	3	3	3	3	
K27-0473-04		PUSH KNOB DCS,RESET	2	2	2	2	2	2	
K29-3015-04		LAMP KNOB	1	1	1	1	1	1	
K29-3017-04		PTT KEY	1	1	1	1	1	1	
N08-0506-14		DRESSED SCREW	2	2	2	2	2	2	
N09-0690-05		FLAT SCREW DCL UNIT	3	3	3	3	3	3	
N09-0685-05		SCREW CASE(TOP,BOTTOM)	3	3	3	3	3	3	
N09-0638-05		SCREW (OTHERS)				2	2		
N14-0526-04		ROUND NUT(VOLUME)	1	1	1	1	1	1	
N32-2004-41		FLAT HD SCREW	4	4	4	4	4	4	
N32-2604-41		FLAT HD SCREW	4	4	4	4	4	4	
N87-2005-41		TAPPING SCREW	1	1	1	1	1	1	
SLP475B		LED(CHL) YELLOW	1	1	1	1	1	1	
SLP575D40		LED(TX,BUSY) RED,GREEN	1	1	1	1	1	1	
S59-0430-15	N*	KEY BOARD ASS'Y	1	1					
S59-0431-15	N*	KEY BOARD ASS'Y			1				
S59-0432-15	N*	KEY BOARD ASS'Y				1			
S59-0431-15	N*	KEY BOARD ASS'Y					1	1	
T07-0237-05		SPEAKER	1	1	1	1	1	1	
T18-0054-05		EARPHONE (ACS)	1	1	1			1	
T90-0345-05	N	RUBBER DUCT ANTENNA	1	1	1	1	1	1	
T91-0350-05	N	MIC ELEMENT	1	1	1	1	1	1	
UPD7514G-061-12	N	IC	1	1	1	1	1	1	
W09-0315-05		BATTERY CHARGER(120V)	1						
W09-0317-05		BATTERY CHARGER(220V)		1	1				
W09-0319-05		BATTERY CHARGER(240V)						1	
W09-0326-05		LITHIUM BATTERY	1	1	1	1	1	1	
W09-0337-05		NI-CD BATTERY ASS'Y	1	1	1			1	
X55-1400-11	N*	RX UNIT	1						
X55-1400-21	N*	RX UNIT		1					
X55-1400-71	N*	RX UNIT			1				
X55-1400-51	N*	RX UNIT				1			

TR-3600A/E PARTS LIST

PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	021	022	051	061	071	REFERENCE.NO
X55-1400-61	N*	RX UNIT					1		
X55-1400-71	N*	RX UNIT						1	
X56-1490-11	N*	TX UNIT	1	1					
X56-1490-71	N*	TX UNIT			1				
X56-1490-51	N*	TX UNIT				1			
X56-1490-61	N*	TX UNIT					1		
X56-1490-71	N*	TX UNIT						1	
X57-1110-10	*	DCS UNIT	1	1	1	1	1	1	

SEMICONDUCTOR

Item	Re-marks	Part No.
Diode		1N60A
		1SS106
		1SS133
		1SV123
		32D27
		MA522(Q)
		MA856
		MI301
Chip Diode	N	MA151WK
Zener Diode		MTZ4.7JC
		MTZ8.2JB
LED		SLP-475B
		SLP-575D-40
TR		2SA1115(E)
		2SB695
		2SC2347
		2SC2348
		2SC2407
		2SC2570A
		2SC2603(E)
		2SC2668(Y)
		2SC2669(Y)
		2SC2671(H)
		2SC3019
		2SC3101

Item	Re-marks	Part No.
Chip TR		2SC2712(Y)
Digital TR		DTC114ES
		DTC124ES
		DTC143TS
		DTC144ES
FET		2SK192A(Y)*J
IC		BA526
		LA6458S
		LVC517
		MC145155P*J
		MC3357P
		MC3359P
		MN6127A
		NE555P
	N	NJM4558M
		TCM5087N
		μPD7507G-575-00
	N	μPD7514G-061-12

PART.NO	NOTE	NAME & DESCRIPTION			DISTINCTION & QUANTITY 011	021	051	061	071	REFERENCE.NO
BA526		IC			1	1	1	1	1	Q , 15
CC73FCH1H090D		CHIP CAP.	9P	50V	3	3				C , 6, 8, 11
CC73FCH1H100D		CHIP CAP.	10P	50V			3	3	3	C , 6, 8, 11
CC73FCH1H270J		CHIP CAP.	27P	50V	1	1	1	1	1	C , 29
CC73FCH1H150J		CHIP CAP.	15P	50V	1	1	1	1	1	C , 9
CC73FCH1HR75C		CHIP CAP.	0.75P	50V	1	1				C , 7
CC73FCH1H220J		CHIP CAP.	22P	50V	2	2	2	2	2	C , 3, 48
CC73FCH1H010C		CHIP CAP.	1P	50V	1	1				C , 12
CC73FCH1H010C		CHIP CAP.	1P	50V			2	2	2	C , 7, 12
CC73FCH1H330J		CHIP CAP.	33P	50V	3	3				C , 14, 26, 66
CC73FCH1H330J		CHIP CAP.	33P	50V			2	2	2	C , 26, 66
CC73FCH1H030C		CHIP CAP.	3P	50V	1	1	1	1	1	C , 15
CC73FCH1H050C		CHIP CAP.	5P	50V	1	1	1	1	1	C , 1
CC73FCH1H070D		CHIP CAP.	7P	50V	2	2				C , 2, 13
CC73FSL1H101J		CHIP CAP.	100P	50V	8	8				C , 18, 30, 39, 90, 91, 97, 99 ,104
CC73FSL1H101J		CHIP CAP.	100P	50V			9	9	9	C , 14, 18, 30, 39, 90, 91, 97 , 99,104
CC73FCH1H080D		CHIP CAP.	8P	50V	1	1				C , 22
CC73FCH1H080D		CHIP CAP.	8P	50V			3	3	3	C , 2, 13, 22
CC73FSL1H151J		CHIP CAP.	150P	50V	1	1	1	1	1	C , 33
CC73FSL1H390J		CHIP CAP.	39P	50V	1	1	1	1	1	C , 89
CE04CW0J100M		ELECTRO	10	6.3V	5	5	5	5	5	C , 47, 51, 61, 62, 76
CE04CW1A101M		ELECTRO	100	10V	1	1	1	1	1	C , 63
CE04CW1H010M		ELECTRO	1	50V	8	8			8	C , 41, 42, 44, 56, 93, 94, 95 ,200
CE04CW1H010M		ELECTRO	1	50V			7	7		C , 41, 42, 44, 56, 93, 94, 95
CE04CW1C4R7M		ELECTRO	4.7	16V	2	2	2	2	2	C , 67, 96
CE04CW0J220M		ELECTRO	22	6.3V	1	1			1	C ,202
CE04CW1C220M		ELECTRO	22	16V	1	1	1	1	1	C , 75
CE04CW1C470M		ELECTRO	47	16V	1	1	1	1	1	C , 45
CE04CW0J470M		ELECTRO	47	6.3V	2	2			2	C , 71,201
CE04CW0J470M		ELECTRO	47	6.3V			1	1		C , 71
CE04CW1H0R1M		ELECTRO	0.1	50V	3	3	3	3	3	C , 21, 58, 72
CE04CW1A330M		ELECTRO	33	10V	1	1	1	1	1	C , 64
CE04CW1A470M		ELECTRO	47	10V	1	1	1	1	1	C , 59
CK45B1H102K		CERAMIC	1000P	50V	1					C ,102
CK45B1H102K		CERAMIC	1000P	50V		1	1			C ,102
CK45B1H102K		CERAMIC	1000P	50V				1		C ,102
CK45B1H102K		CERAMIC	1000P	50V					1	C ,102
CK73FB1H471K		CHIP CAP.	470P	50V	2	2	2	2	2	C , 79, 92
CK73FB1E103K		CHIP CAP.	0.01	25V	12	12	12	12	12	C , 19, 25, 27, 28, 40, 49, 52 , 53, 54, 55, 98,105
CK73FB1H222K		CHIP CAP.	2200P	50V	1	1	1	1	1	C , 35
CK73FB1H102K		CHIP CAP.	1000P	50V	21	21			21	C , 4, 5, 10, 16, 17, 23, 34 , 36, 38, 65, 68, 73, 74, 77 , 78, 80, 88,205,206,207
CK73FB1H102K		CHIP CAP.	1000P	50V			17	17		C , 4, 5, 10, 16, 17, 23, 34 , 36, 38, 65, 68, 73, 74, 77 , 78, 80, 88
CK73FB1H102K		CHIP CAP.	1000P	50V						C ,208
CK73FB1H332K		CHIP CAP.	3300P	50V	2	2			2	C ,203,204
CK73FB1H472K		CHIP CAP.	4700P	50V	1	1	1	1	1	C , 24
CK73FB1H822K		CHIP CAP.	8200P	50V	1	1	1	1	1	C , 20
CQ92M1H223K		MYLAR	0.022	50V	1	1	1	1	1	C , 37
CQ92M1H473K		MYLAR	0.047	50V	1	1	1	1	1	C , 43

PART.NO	NOTE	NAME & DESCRIPTION			DISTINCTION & QUANTITY 011	021	051	061	071	REFERENCE.NO
CS15E1E010M		TANTALUM	1	25V	1	1	1	1	1	C , 70
CS15E1A100M		TANTALUM	10	10V	1	1	1	1	1	C , 69
CS15E1C2R2M		TANTALUM	2.2	16V	1	1	1	1	1	C , 50
C05-0318-05		TRIMMER	6PF		5	5	5	5	5	TC , 1, 2, 3, 4, 5
C91-0769-05		CERAMIC	0.01	50V	1	1			1	C , 57
C91-1033-05	N	LAYER CAP.	0.056		1	1	1	1	1	C , 60
C91-1020-05		LAYER CAP.	0.1		2	2	2	2	2	C , 31, 32
DTC124ES		DIGITAL TR			8	8			8	Q , 5, 7, 8, 14, 16, 17, 30 , 36
DTC124ES		DIGITAL TR					7	7		Q , 7, 8, 14, 16, 17, 30, 36
DTC143TS		DIGITAL TR			1	1	1	1	1	Q , 13
E23-0431-14		TERMINAL (INSIDE)			2	2	2	2	2	
E23-0432-04		TERMINAL FOR JUNCTION			1	1	1	1	1	
F10-1326-04	N*	SCHIELD PLATE(FOIL SIDE)			1	1	1	1	1	
F10-1327-04	N*	SCHIELD PLATE(PARTS SIDE)			1	1	1	1	1	
F20-0546-04	N*	ISOLATION SHEET			1	1	1	1	1	
G01-0814-04	*	COILED SPRING			1	1			1	
J09-0403-34	*	TERMINAL			1	1	1	1	1	
J39-0410-04	*	SPACER FOR TERMINAL			2	2	2	2	2	
LVC517		IC			1	1	1	1	1	Q , 32
L33-0632-05		CHOKE COIL			1	1	1	1	1	L , 6
L34-1100-05		COIL			1	1	1	1	1	L , 1
L34-1101-05		COIL			4	4	4	4	4	L , 2, 3, 4, 5
L34-2228-05		IF COIL	21.6MHZ		1	1	1	1	1	T , 1
L34-2217-05		IF COIL	455KHZ		1	1	1	1	1	T , 2
L40-2211-14		FERRI-INDUCTOR	220 UH		1	1	1	1	1	L , 7
L71-0252-05	N	IF FILTER	21.6MHZ		1	1	1	1	1	F , 1
L72-0335-05		IF FILTER	CFU-455E		1	1	1	1	1	F , 2
L77-0971-05		XTAL	21.145MHZ		1	1	1	1	1	X , 1
L78-0102-05		CERAMIC OSC.	3.58MHZ		1	1			1	X , 2
MC3359P		IC			1	1	1	1	1	Q , 6
MTZ4.7JC		ZENER DIODE	4.7V		1	1	1	1	1	D , 8
MTZ8.2JB		ZENER DIODE	8.2V		1	1	1	1	1	D , 5
N30-2008-41		PAN HD SCREW			1	1	1	1	1	
N30-2604-41		PAN HD SCREW			2	2	2	2	2	
N30-2005-41		PAN HD SCREW			1	1	1	1	1	
N35-2004-41		BIND SCREW			2	2	2	2	2	
RD73FB2A561J		CHIP RES.	560 OHM	1/10W	1	1	1	1	1	R , 38
RD73FB2A2R2J		CHIP RES.	2.2 OHM	1/10W	1	1	1	1	1	R , 44
RD73FB2A821J		CHIP RES.	820 OHM	1/10W	1	1				R ,200
RD73FB2A472J		CHIP RES.	4.7KOHM	1/10W	7	7			7	R , 2, 5, 6, 32, 40, 54,206
RD73FB2A472J		CHIP RES.	4.7KOHM	1/10W			6	6		R , 2, 5, 6, 32, 40, 54
RD73FB2A223J		CHIP RES.	22K OHM	1/10W	3	3	3	3	3	R , 10, 29,100
RD73FB2A823J		CHIP RES.	82K OHM	1/10W	2	2	2	2	2	R , 46, 63
RD73FB2A270J		CHEP RES.	27 OHM	1/10W	1	1	1	1	1	R , 3
RD73FB2A330J		CHIP RES.	33 OHM	1/10W	1	1	1	1	1	R , 7
RD73FB2A102J		CHIP RES.	1K OHM	1/10W	4	4	4	4	4	R , 12, 56, 57, 58
RD73FB2A104J		CHIP RES.	100KOHM	1/10W	2	2	2	2	2	R , 39, 69

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PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	021	051	061	071	REFERENCE.NO
RD73FB2A470J		CHIP RES. 47 OHM 1/10W	1	1	1	1	1	R , 14
RD73FB2A333J		CHIP RES. 33K OHM 1/10W	8	8			8	R , 36, 61, 64,201,202,203,204 ,205
RD73FB2A333J		CHIP RES. 33K OHM 1/10W			3	3		R , 36, 61, 64
RD73FB2A122J		CHIP RES. 1.2KOHM 1/10W	3	3	3	3	3	R , 15, 27, 35
RD73FB2A682J		CHIP RES. 6.8KOHM 1/10W	1	1	1	1	1	R , 49
RD73FB2A822J		CHIP RES. 8.2KOHM 1/10W	2	2	2	2	2	R , 18, 26
RD73FB2A101J		CHIP RES. 100 OHM 1/10W	1	1	1		1	R , 43
RD73FB2A101J		CHIP RES. 100 OHM 1/10W				1		R , 0
RD73FB2A222J		CHIP RES. 2.2KOHM 1/10W	2	2	2	2	2	R , 16, 33
RD73FB2A103J		CHIP RES. 10K OHM 1/10W	8	8	8	8	8	R , 21, 22, 25, 30, 52, 59, 66 , 80
RD73FB2A473J		CHIP RES. 47K OHM 1/10W	9	9			9	R , 11, 20, 47, 50, 51,208,212 ,213,214
RD73FB2A473J		CHIP RES. 47K OHM 1/10W			5	5		R , 11, 20, 47, 50, 51
RD73FB2A184J		CHIP RES. 180KOHM 1/10W	1	1	1	1	1	R , 41
RD73FB2A151J		CHIP RES. 150 OHM 1/10W	1	1	1	1	1	R , 62
RD73FB2A272J		CHIP RES. 2.7KOHM 1/10W	4	4			4	R , 1, 4, 48,211
RD73FB2A272J		CHIP RES. 2.7KOHM 1/10W			3	3		R , 1, 4, 48
RD73FB2A334J		CHIP RES. 330KOHM 1/10W	1	1	1	1	1	R , 17
RD73FB2A181J		CHIP RES. 180 OHM 1/10W	2	2			2	R , 34,209
RD73FB2A181J		CHIP RES. 180 OHM 1/10W			1	1		R , 34
RD73FB2A123J		CHIP RES. 12K OHM 1/10W	2	2	2	2	2	R , 8, 31
RD73FB2A683J		CHIP RES. 68K OHM 1/10W	2	2			2	R , 9,207
RD73FB2A683J		CHIP RES. 68K OHM 1/10W			1	1		R , 9
RD73FB2A474J		CHIP RES. 470KOHM 1/10W	1	1	1	1	1	R , 23
RD73FB2A331J		CHIP RES. 330 OHM 1/10W	1	1	1	1	1	R , 19
RD73FB2A332J		CHIP RES. 3.3KOHM 1/10W	2	2	2	2	2	R , 13, 60
RD73FB2A471J		CHIP RES. 470 OHM 1/10W	3	3	3	3	3	R , 37, 42, 65
RD73FB2A153J		CHIP RES. 15K OHM 1/10W	2	2			2	R , 28,210
RD73FB2A153J		CHIP RES. 15K OHM 1/10W			1	1		R , 28
RD73FB2A392J		CHIP RES. 3.9KOHM 1/10W	1	1	1	1	1	R , 24
R12-1431-05		TRIM.POT. 1K	1	1			1	VR , 5
R12-3447-05		TRIM.POT. 10K	1	1	1	1	1	VR , 4
R12-4414-05		TRIM.POT. 50K	1	1	1	1	1	VR , 3
R23-3401-05		POTENTIOMETER AF,SQ	1	1	1	1	1	VR , 2
R92-0670-05		CHIP RES. 0 OHM	4	4	4	4	4	R ,300,301,302,303
R92-0150-05		JUMPER WIRE	5	5			5	JP , 1, 2, 3, 4, 5
R92-0150-05		JUMPER WIRE			4	4		JP , 1, 2, 3, 4
S31-1414-05		SLIDE SWITCH TXSTOP,KEYLOOK	2	2	2	2	2	S , 1, 2
S40-1404-15		PUSH SWITCH DCS,REV	2					S , 3, 6
S40-1404-15		PUSH SW DCS		1	1	1	1	S , 3
S40-1403-15		PUSH SWITCH CAL/R	1					S , 4
S40-1403-15		PUSH SW CAL/R,REV		2	2	2	2	S , 4, 6
S50-1415-05		TACT SW LAMP,DCL	1	1	1	1	1	S , 7
S50-1424-05		TACT SW PTT	1	1	1	1	1	S , 8
TCM5087N		IC	1	1			1	Q , 37
1N60A		DIODE	6	6			6	D , 1, 2, 29, 30, 31, 32
1N60A		DIODE			2	2		D , 1, 2
1SS133		DIODE	13	13				D , 3, 4, 9, 10, 11, 12, 13 , 14, 15, 16, 26, 27, 28
1SS133		DIODE			12			D , 3, 4, 9, 10, 11, 12, 13 , 14, 15, 16, 24, 26
1SS133		DIODE				12		D , 3, 4, 9, 10, 11, 12, 13

PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	021	051	061	071	REFERENCE.NO
1SS133		DIODE					14	, 14, 15, 16, 22, 26
								D , 3, 4, 9, 10, 11, 12, 13 , 14, 15, 16, 25, 26, 27, 28
1SS106		DIODE	2	2	2	2	2	D , 6, 7
2SA1115(E)		TR	6	6			6	Q , 21, 23, 27, 29, 31, 38
2SA1115(E)		TR			5	5		Q , 21, 23, 27, 29, 31
2SB698		TR	2	2	2	2	2	Q , 19, 20
2SC2570A		TR	1	1	1	1	1	Q , 3
2SC2603(E)		TR	12	12			12	Q , 9, 10, 11, 12, 18, 22, 24 , 25, 26, 28, 39, 40
2SC2603(E)		TR			10	10		Q , 9, 10, 11, 12, 18, 22, 24 , 25, 26, 28
2SC2668(Y)		TR	1	1	1	1	1	Q , 4
2SC2671(H)		TR	2	2	2	2	2	Q , 1, 2
32D27		THERMISTOR	1	1	1	1	1	TH , 1

PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	051	061	071	REFERENCE.NO
CC45SL1H070D		CERAMIC 7P 50V	1	1	1	1	C , 41
CC73FCH1H080D		CHIP CAP. 8P 50V	1	1	1	1	C , 39
CC73FRH1H070D		CHIP CAP. 7P 50V	3				C , 49, 67, 75
CC73FRH1H070D		CHIP CAP. 7P 50V		2	2	2	C , 67, 75
CC73FCH1H090D		CHIP CAP. 9P 50V	1	1	1	1	C ,115
CC73FRH1H080D		CHIP CAP. 8P 50V	1	1	1	1	C , 48
CC73FCH1H100D		CHIP CAP. 10P 50V	1				C , 16
CC73FCH1H100D		CHIP CAP. 10P 50V		2	2	2	C , 1, 16
CC73FCH1H120J		CHIP CAP. 12P 50V	1	1	1	1	C , 70
CC73FCH1H150J		CHIP CAP. 15P 50V	1	1	1	1	C , 40
CC73FCH1H180J		CHIP CAP. 18P 50V	2	2	2	2	C , 22, 31
CC73FRH1H180J		CHIP CAP. 18P 50V	1				C , 54
CC73FRH1H220J		CHIP CAP. 22P 50V		1	1	1	C , 54
CC73FSL1H470J		CHIP CAP. 47P 50V	1	1	1	1	C , 84
CC73FCH1H0R5C		CHIP CAP. 0.5P 50V	1	1	1	1	C , 51
CC73FCH1H220J		CHIP CAP. 22P 50V	2	2	2	2	C , 17, 80
CC73FSL1H560J		CHIP CAP. 56P 50V	1	1	1	1	C , 43
CC73FCH1H010C		CHIP CAP. 1P 50V	1				C , 3
CC73FCH1H270J		CHIP CAP. 27P 50V	1	1	1	1	C , 42
CC73FCH1H020C		CHIP CAP. 2P 50V	1				C , 63
CC73FCH1H020C		CHIP CAP. 2P 50V		2	2		C , 3
CC73FCH1H020C		CHIP CAP. 2P 50V				2	C , 3, 63
CC73FCH1H330J		CHIP CAP. 33P 50V	1	1	1	1	C , 86
CC73FCH1H030C		CHIP CAP. 3P 50V	7				C , 9, 30, 36, 37, 66, 74, 77
CC73FCH1H030C		CHIP CAP. 3P 50V		8	8	8	C , 8, 9, 30, 36, 37, 66, 74 , 77
CC73FSL1H101J		CHIP CAP. 100P 50V	5	5	5	5	C , 69, 93, 94, 98,102
CC73FCH1H040C		CHIP CAP. 4P 50V	2	2	2	2	C , 21, 38
CC73FRH1H050C		CHIP CAP. 5P 50V	1				C , 73
CC73FCH1H050C		CHIP CAP. 5P 50V	3				C , 1, 55, 71
CC73FCH1H050C		CHIP CAP. 5P 50V		2	2	2	C , 55, 71
CC73FRH1H060D		CHIP CAP. 6P 50V	1				C , 87
CC73FRH1H060D		CHIP CAP. 6P 50V		3	3	3	C , 73, 87, 49
CC73FCH1H060D		CHIP CAP. 6P 50V	2	2	2	2	C , 2, 35
CC73FUJ1H090D		CHIP CAP. 9P 50V	1	1	1	1	C , 50
CE04CW1C4R7M		ELECTRO 4.7 16V	3	3	3	3	C , 45, 46, 47
CE04CW1V2R2M		ELECTRO 2.2 35V	1	1	1	1	C , 56
CE04CW1HR47M		ELECTRO 0.47 50V	1			1	C , 99
CE04CW1HR47M		ELECTRO 0.47 50V		2	2		C , 99,104
CE04CW1H010M		ELECTRO 1 50V	1	1	1	1	C , 33
CE04CWOJ100M		ELECTRO 10 6.3V	1		1	1	C ,112
CE04CWOJ100M		ELECTRO 10 6.3V		2			C ,110,112
CE04CW1HR22M		ELECTRO 0.22 50V	1	1	1	1	C , 59
CE04CWOJ220M		ELECTRO 22 6.3V	1			1	C , 58
CE04CWOJ220M		ELECTRO 22 6.3V		2	2		C , 58,109
CE04CW1A330M		ELECTRO 33 10V	1	1	1	1	C , 90
CK73FB1H331K		CHIP CAP. 330P 50V	1			1	C , 52
CK73FB1H331K		CHIP CAP. 330P 50V		2	2		C , 52,116
CK73FB1H102K		CHIP CAP. 1000P 50V	36	36	36	36	C , 5, 7, 10, 11, 13, 14, 15 , 18, 19, 20, 24, 25, 26, 27 , 28, 29, 34, 44, 53, 57
CK73FB1H102K		CHIP CAP. 1000P 50V					C , 60, 61, 64, 65, 72, 76, 78 , 79, 96,100,101,103,111,113 ,114,117
CK73FB1H102K		CHIP CAP. 1000P 50V					C , 60, 61, 64, 65, 72, 76, 78 , 79, 96,100,101,103,111,113 ,114,117

PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	051	061	071	REFERENCE.NO
CK73FB1H472K		CHIP CAP. 4700P 50V	3	3	3	3	C , 23, 85,118
CK73FB1H471K		CHIP CAP. 470P 50V	6			6	C , 32, 68, 81, 83, 88,116
CK73FB1H471K		CHIP CAP. 470P 50V		5	5		C , 32, 68, 81, 83, 88
CK73FF1E223Z		CHIP CAP. 0.022 25V	1	1	1	1	C , 89
CK73FB1H102K		CHIP CAP. 1000P 50V	1	1	1	1	C , 82
CQ92M1H272K		MYLAR 2700P 50V	1	1	1	1	C , 97
CQ92M1H392K		MYLAR 3900P 50V		1	1		C ,108
CQ92M1H103K		MYLAR 0.01 50V		2	2		C ,105,106
CQ92M1H223K		MYLAR 0.022 50V	1	1	1	1	C , 91
CQ92M1H333K		MYLAR 0.033 50V		1	1		C ,107
CS15E1VR22M		TANTALUM 0.22 35V	1	1	1	1	C , 95
C05-0318-05		TRIMMER 6PF	3	3	3	3	TC , 1, 2, 8
C05-0319-05		TRIMMER 10PF	1	1	1	1	TC , 4
C05-0320-05		TRIMMER 30PF	1	1	1	1	TC , 10
C05-0321-05		TRIMMER 20PF	2	2	2	2	TC , 3, 9
C05-0062-05		TRIMMER 6P	1	1	1	1	TC , 5
C05-0031-15		TRIMMER 10P	1	1	1	1	TC , 6
C05-0030-15		TRIMMER 20P	1	1	1	1	TC , 7
C91-0713-05	N	CERAMIC 2.2P	1	1	1	1	C , 6
C91-0717-05	N	CERAMIC 4.7P	1	1	1	1	C , 12
C91-0757-05		CERAMIC 0.001 50V	1				C ,119
C91-0757-05		CERAMIC 0.001 50V		1	1	1	C ,119
DTA114ES		DIGITAL TR			1		Q , 23
DTC114ES		DIGITAL TR	1	1	1	1	Q , 9
DTC144ES		DIGITAL TR	2	2	2	2	Q , 7, 18
E04-0160-05		BNC RECEPTACLE	1	1	1	1	
E11-0407-05		EARPHONE JACK	1	1	1	1	
E11-0419-05		MIC JACK	1	1	1	1	
E31-3089-15	N*	CONNECTOR	1	1	1	1	
E40-3007-05	*	MINI CONNECTOR 2P	1			1	
E40-5018-05	*	MINI CONNECTOR 4P	1	1	1	1	
F10-1320-04	N*	SHIELD PLATE VCO	1	1	1	1	
F10-1328-04	N*	SHIELD PLATE TX	1	1	1	1	
F11-0869-04	*	SHIELD CASE VCO	1	1	1	1	
F11-0884-04	N*	SHIELD CASE COVER VCO	1	1	1	1	
F20-0542-04	*	INSULATING SHEET VCO	1	1	1	1	
F20-0544-04	*	INSULATING SHEET FRAME	1	1	1	1	
F20-0547-04	N*	INSULATING SHEET TX	1	1	1	1	
J31-0524-04	*	COLLAR	2			2	
J31-0527-04	*	COLLAR	1	1	1	1	
LA6458S		IC	1	1	1	1	IC , 2
L32-0674-05	N	OSCILLATING COIL	1	1	1	1	L , 20
L34-1052-05		COIL 1.5T	7	7	7	7	L , 3, 6, 8, 12, 15, 17, 18
L34-1053-05		COIL 4T	1	1	1	1	L , 16
L34-1083-05		COIL 1.25T	4	4	4	4	L , 5, 7, 9, 13
L34-1116-05		COIL	3	3	3	3	L , 1, 2, 4
L34-1118-05	N	COIL	1	1	1	1	L , 19
L34-2238-05	N	TUNING COIL	1	1	1	1	L , 24
L34-2239-05	N	TUNING COIL	1	1	1	1	L , 25
L34-2240-05	N	VXO COIL 0.94UH	1	1	1	1	L , 23
L40-2282-17		FERRI-INDUCTOR 0.22UH	2	2	2	2	L , 10, 22
L40-1092-17		FERRI-INDUCTOR 1UH	4	4	4	4	L , 14, 21, 27, 28

TR-3600A/E PARTS LIST

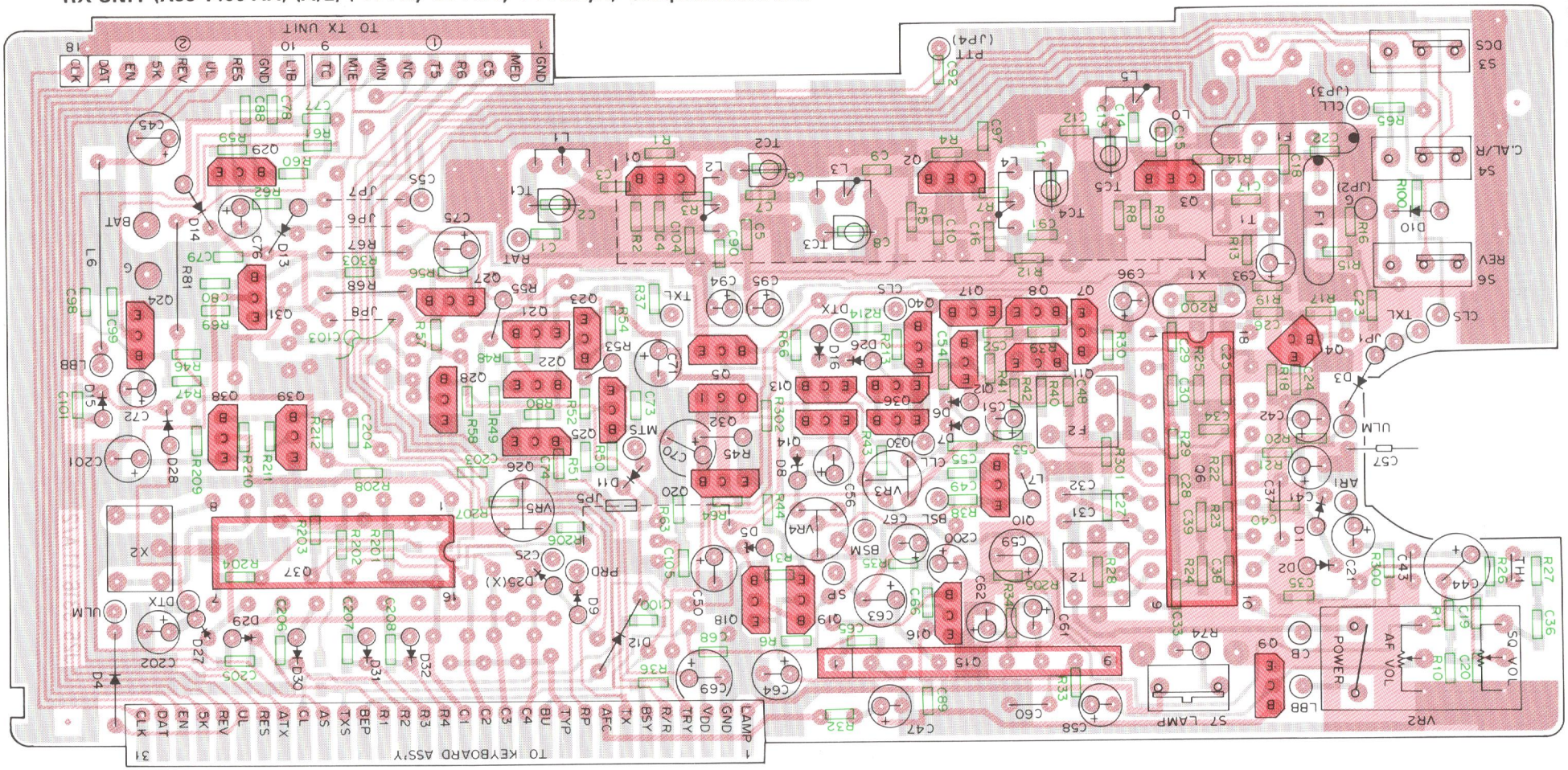
PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	051	061	071	REFERENCE.NO
L40-3391-17		FERRI-INDUCTOR 3.3UH	1	1	1	1	L , 26
L77-0977-05		XTAL 50.925MHZ	1				X , 1
L77-0972-05		XTAL 49.675MHZ		1	1	1	X , 1
L77-0973-05		XTAL 10.240MHZ	1	1	1	1	X , 2
L92-0110-05		FERRITE CORE	1	1	1	1	L , 11
MA856		DIODE	4	4	4	4	D , 4, 7, 10, 11
MC145155P*J		IC	1	1	1	1	IC , 1
MI301		DIODE	1	1	1	1	D , 3
NE555P		IC		1	1		IC , 3
RD14BB2C472J		RES. CARBON 4.7KOHM 1/6W		1			R , 84
RD14BB2C333J		RES. CARBON 33K OHM 1/6W		1			R , 86
RD73FB2A2R2K		CHIP RES. 2.2 OHM 1/10W	1	1	1	1	R , 17
RD73FB2A333J		CHIP RES. 33K OHM 1/10W	1	1	1	1	R , 25
RD73FB2A474J		CHIP RES. 470KOHM 1/10W	2	2	2	2	R , 41, 52
RD73FB2A271J		CHIP RES. 270 OHM 1/10W	2			2	R , 66, 79
RD73FB2A271J		CHIP RES. 270 OHM 1/10W		2	2		R , 66
RD73FB2A332J		CHIP RES. 3.3KOHM 1/10W	2	2	2	2	R , 40, 60
RD73FB2A564J		CHIP RES. 560KOHM 1/10W	1	1	1	1	R , 35
RD73FB2A100J		CHIP RES. 10 OHM 1/10W	2			2	R , 12, 13
RD73FB2A100J		CHIP RES. 10 OHM 1/10W		2	2		R , 12
RD73FB2A331J		CHIP RES. 330 OHM 1/10W	2			2	R , 11, 20
RD73FB2A331J		CHIP RES. 330 OHM 1/10W		2	2		R , 11
RD73FB2A392J		CHIP RES. 3.9KOHM 1/10W	1	1	1	1	R , 61
RD73FB2A473J		CHIP RES. 47K OHM 1/10W	2	2	2	2	R , 26, 57
RD73FB2A105J		CHIP RES. 1M OHM 1/10W	1	1	1	1	R , 74
RD73FB2A391J		CHIP RES. 390 OHM 1/10W	1	1	1	1	R , 6
RD73FB2A472J		CHIP RES. 4.7KOHM 1/10W	2	2	2	2	R , 53, 54
RD73FB2A563J		CHIP RES. 56K OHM 1/10W	1	1	1	1	R , 47
RD73FB2A471J		CHIP RES. 470 OHM 1/10W	3	3	3	3	R , 2, 7, 50
RD73FB2A562J		CHIP RES. 5.6KOHM 1/10W	1	1	1	1	R , 5
RD73FB2A220J		CHIP RES. 22 OHM 1/10W	3	3	3	3	R , 9, 14, 18
RD73FB2A823J		CHIP RES. 82K OHM 1/10W	5	5	5	5	R , 3, 48, 71, 72, 73
RD73FB2A822J		CHIP RES. 8.2KOHM 1/10W	1	1	1	1	R , 24
RD73FB2A470J		CHIP RES. 47 OHM 1/10W	2	2	2	2	R , 8, 15
RD73FB2A103J		CHIP RES. 10K OHM 1/10W	7	7		7	R , 21, 23, 28, 33, 44, 46, 65
RD73FB2A103J		CHIP RES. 10K OHM 1/10W			7		R , 89, 23, 28, 33, 44, 46, 65
RD73FB2A104J		CHIP RES. 100KOHM 1/10W	4	4	4	4	R , 27, 30, 34, 36
RD73FB2A124J		CHIP CAP. 120KOHM 1/10W	2			2	R , 63, 67
RD73FB2A124J		CHIP CAP. 120KOHM 1/10W		1	1		R , 63
RD73FB2A560J		CHIP RES. 56 OHM 1/10W	1	1	1	1	R , 16
RD73FB2A102J		CHIP RES. 1K OHM 1/10W	1	1	1	1	R , 32
RD73FB2A154J		CHIP RES. 150KOHM 1/10W	2			2	R , 55, 68
RD73FB2A154J		CHIP RES. 150KOHM 1/10W		3	3		R , 55, 67, 68
RD73FB2A184J		CHIP RES. 180KOHM 1/10W	2			2	R , 64, 90
RD73FB2A184J		CHIP RES. 180KOHM 1/10W		1	1		R , 64
RD73FB2A224J		CHIP RES. 220KOHM 1/10W	1	1	1	1	R , 38
RD73FB2A101J		CHIP RES. 100 OHM 1/10W	2	2	2	2	R , 1, 91
RD73FB2A274J		CHIP RES. 270KOHM 1/10W	1	1	1	1	R , 69
RD73FB2A182J		CHIP RES. 1.8KOHM 1/10W	3	3	3	3	R , 45, 49, 75
RD73FB2A123J		CHIP RES. 12K OHM 1/10W	1	1	1	1	R , 62
RD73FB2A151J		CHIP RES. 150 OHM 1/10W	1	1	1	1	R , 19
RD73FB2A222J		CHIP RES. 2.2KOHM 1/10W	1	1	1	1	R , 42
RD73FB2A183J		CHIP RES. 18K OHM 1/10W	1	1	1	1	R , 59
RD73FB2A394J		CHIP RES. 390KOHM 1/10W	1	1	1	1	R , 70

PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 011	051	061	071	REFERENCE.NO
RD73FB2A181J		CHIP RES. 180 OHM 1/10W	1	1	1	1	R , 56
RD73FB2A273J		CHIP RES. 27K OHM 1/10W	1	1	1	1	R , 78
RD73FB2A221J		CHIP RES. 220 OHM 1/10W	1	1	1	1	R , 37
RN14BK2B9102F		METAL FILM 91K 1/8W		1	1		R , 85
R12-3447-05		TRIM.POT. 10K	1	1	1	1	VR , 1
R12-3448-05		TRIM.POT 20K		1	1		VR , 3
R12-4414-05		TRIM.POT. 50K	1	1	1	1	VR , 2
R92-0670-05		CHIP RES. 0 OHM	3			3	R ,103,104,109
R92-0670-05		CHIP RES. 0 OHM		2			R ,103
R92-0670-05		CHIP RES. 0 OHM			2		R ,102
S40-1403-15		PUSH SWITCH TONE			1		S , 2
S40-1404-15		PUSH SWITCH H/L,TONE	2	2			S , 1, 2
S40-1404-15		PUSH SWITCH H/L			1		S , 1
S40-1404-15		PUSH SWITCH H/L,TONE				2	S , 1, 2
S59-1405-05		TACT SW RESET	1	1	1	1	S , 3
1SS133		DIODE	6	6		6	D , 1, 2, 5, 6, 8, 14
1SS133		DIODE			7		D , 1, 2, 5, 6, 8, 13, 14
1SV123		VOLTAGE VARIABLE	1	1	1	1	D , 9
2SA1115(E)		TR	2	2	2	2	Q , 13, 20
2SC2671(H)		TR	2	2	2	2	Q , 2, 3
2SC3019		TR	1	1	1	1	Q , 5
2SC3101		TR	1	1	1	1	Q , 6
2SC2347		TR	1	1	1	1	Q , 14
2SC2348		TR	1	1	1	1	Q , 1
2SC2407		TR	1	1	1	1	Q , 4
2SC2603(E)		TR	2	2	2	2	Q , 8, 19
2SC2668(Y)		TR	4	4	4	4	Q , 11, 12, 15, 16
2SC2669(Y)		TR	1	1	1	1	Q , 17
2SK192A(Y)*J		FET	1	1	1	1	Q , 10

DCL UNIT (X57-1110-10)

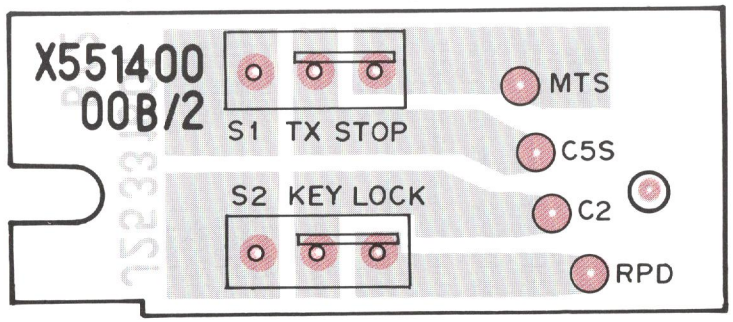
PART.NO	NOTE	NAME & DESCRIPTION	DISTINCTION & QUANTITY 010	REFERENCE.NO
CC73FSL1H820J		CHIP CAP. 82P 50V	1	C , 3
CC73FCH1H150J		CHIP CAP. 15P 50V	2	C , 9, 10
CC73FCH1H330J		CHIP CAP. 33P 50V	1	
CE04CW1H0R1M		ELECTRO 0.1 50V	2	C , 8, 11
CE04CW1H010M		ELECTRO 1 50V	3	
CE04CW0J100M		ELECTRO 10 6.3V	4	C , 4, 7, 12, 16
CE04CW0J470M		ELECTRO 47 6.3V	1	C , 13
CK45B1H102K		CERAMIC 1000P 50V	6	C , 18, 19, 20, 21, 22, 23
CK73FB1H222K		CHIP CAP. 2200P 50V	1	C , 2
CK73FB1E103K		CHIP CAP. 0.01 25V	2	
E40-3106-05		MINI CONNECTOR 6P	1	
E40-3107-05	N	MINI CONNECTOR 7P	1	
J21-4146-04	N*	HARDWARE FIXTUR	3	
L77-1206-05		XTAL 3.6864MHZ	1	X , 1
MA151WK	N	CHIP DIODE	2	D , 1, 4
MA522(Q)		DIODE	1	D , 3
MN6127A		IC	1	IC , 2
NJM4558M	N	IC	1	IC , 1
RD73FB2A563J		CHIP RES. 56K OHM 1/10W	1	
RD73FB2A823J		CHIP RES. 82K OHM 1/10W	1	
RD73FB2A104J		CHIP RES. 100KOHM 1/10W	2	R , 6, 8
RD73FB2A224J		CHIP RES. 220KOHM 1/10W	1	
RD73FB2A394J		CHIP RES. 390KOHM 1/10W	2	R , 3, 23
RD73FB2A334J		CHIP RES. 330KOHM 1/10W	1	R , 22
RD73FB2A102J		CHIP RES. 1K OHM 1/10W	1	R , 12
RD73FB2A822J		CHIP RES. 8.2KOHM 1/10W	1	R , 9
RD73FB2A472J		CHIP RES. 4.7KOHM 1/10W	2	R , 20, 21
RD73FB2A103J		CHIP RES. 10K OHM 1/10W	2	R , 7, 10
RD73FB2A273J		CHIP RES. 27K OHM 1/10W	2	
RD73FB2A333J		CHIP RES. 33K OHM 1/10W	1	R , 5
RD73FB2A473J		CHIP RES. 47K OHM 1/10W	4	
R92-0670-05		CHIP RES. 0 OHM	2	
UPD7507G-575-00		MICRO-PROCESSOR FOR DCS	1	IC , 3
2SC2712(Y)		CHIP TR.	1	Q , 1

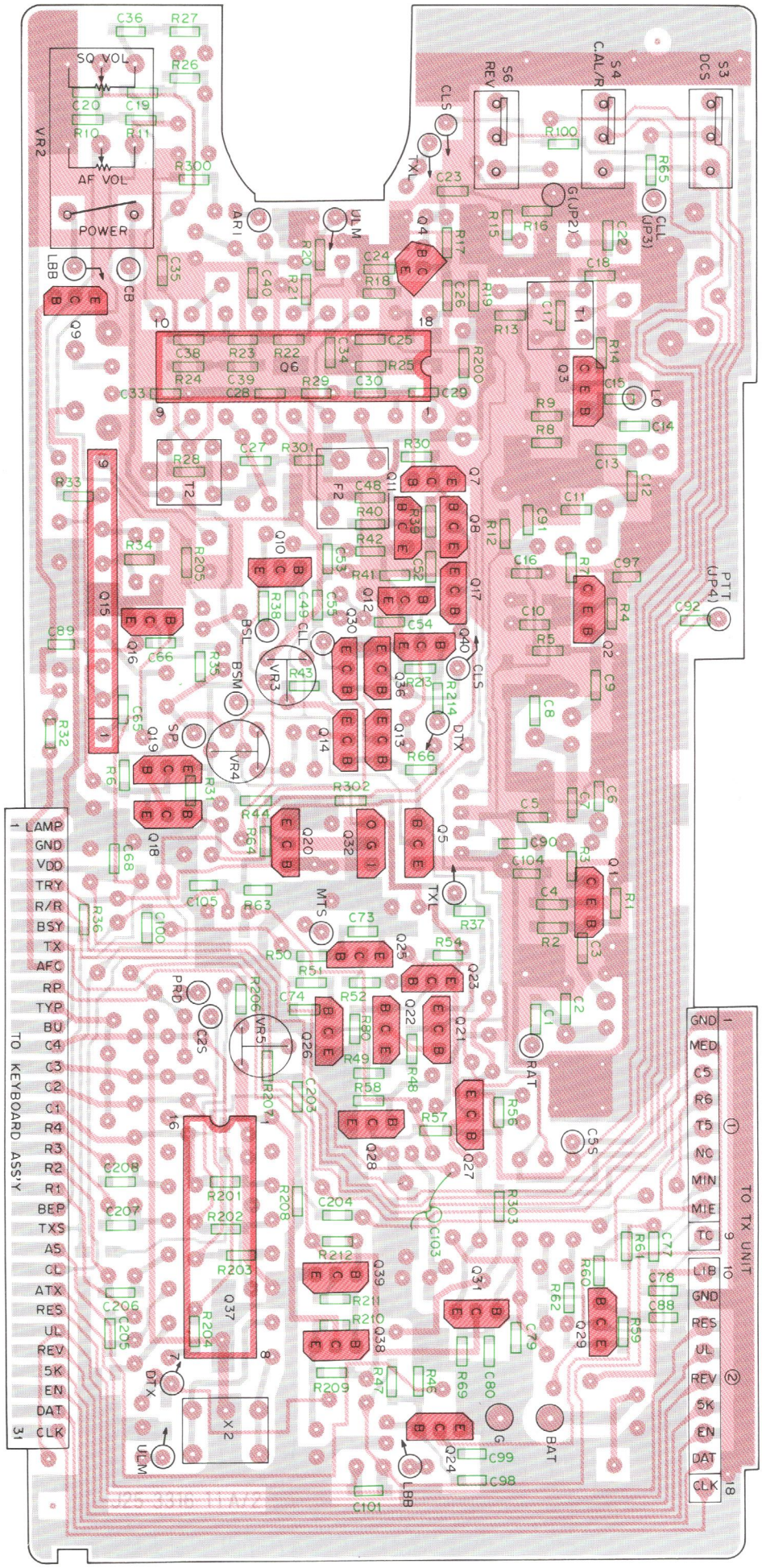
RX UNIT (X55-1400-XX) (A/2) (-11 : K, -21 : M1, -71 : M2,X) Component side view



Q1,2 : 2SC2671(H) Q3 : 2SC2570A Q4 : 2SC2668(Y) Q5,7,8,14,16,17,30,36 : DTC124ES
Q6 : MC3359P Q9,10–12,18,22,24–26,28,39,40 : 2SC2603(E) Q13 : DTC143TS Q15 : BA526
Q19,20 : 2SB698 Q21,23,27,29,31,38 : 2SA1115(E) Q32 : LVC517 Q37 : TCM5087N
D1,2,29–32 : 1N60A D3,4,9–16,26–28(**K,M1**) : 1SS133 D3,4,9–16,25–28(**M2,X**) : 1SS133
D5 : MTZ8.2JB D6,7 : 1SS106 D8 : MTZ4.7JC

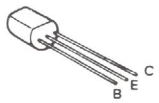
RX UNIT (X55-1400-XX) (B/2) Component side view



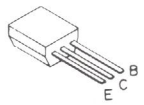


RX UNIT (X55-1400-XX) (A/2) (-11 : K, -21 : M1, -71 : M2,X) Foil side view

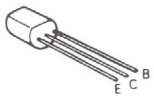
2SC2570
2SC2671



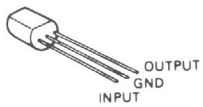
2SA1115
2SC2603
2SC2668



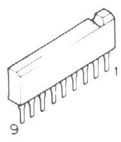
2SB698



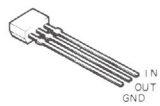
LVC517



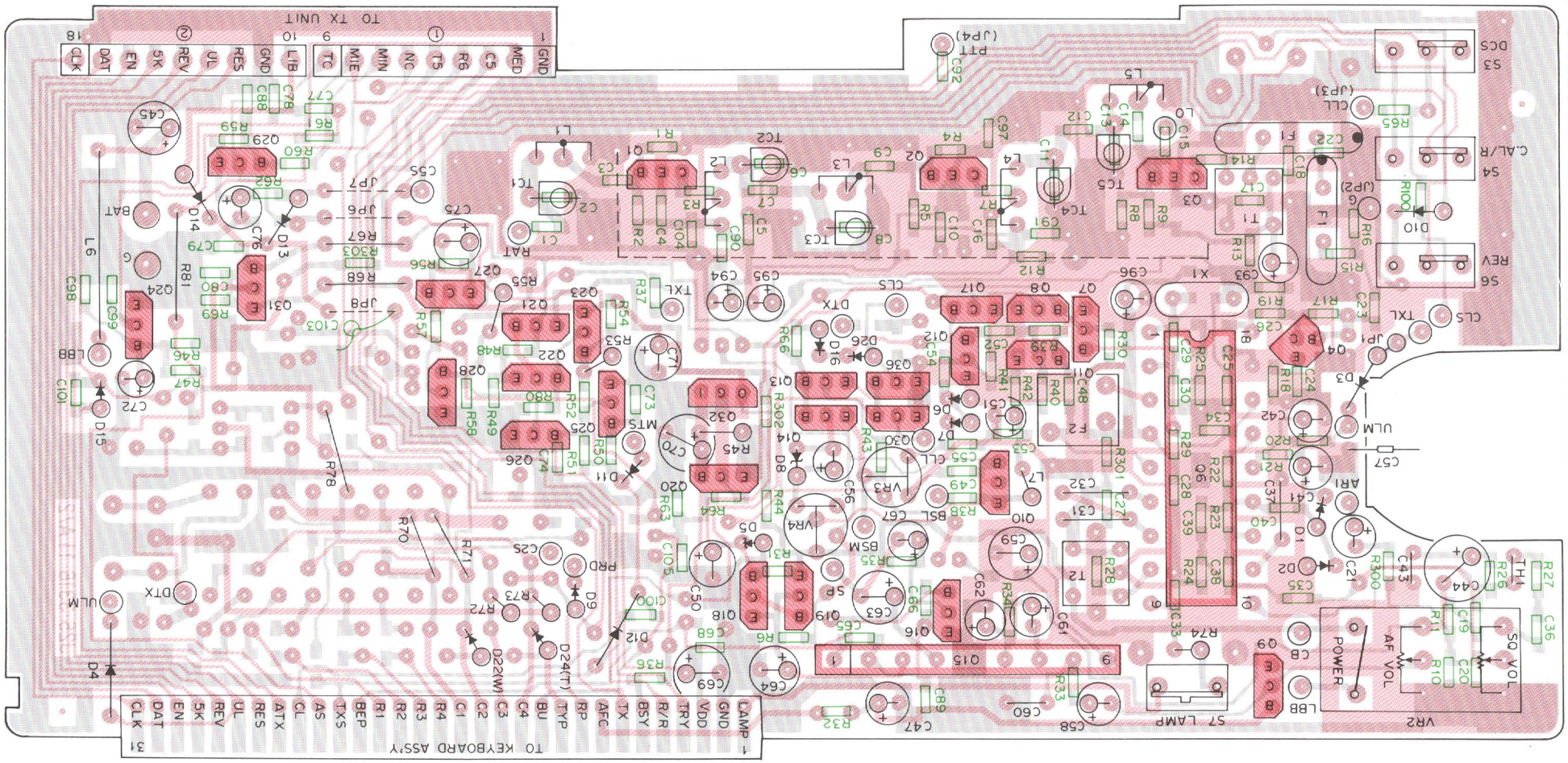
BA526



DTC124ES
DTC143TS

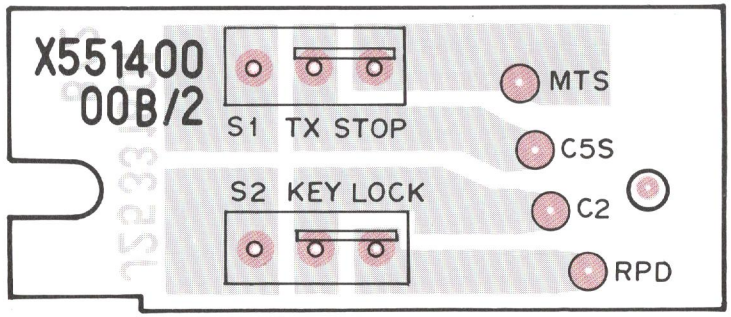


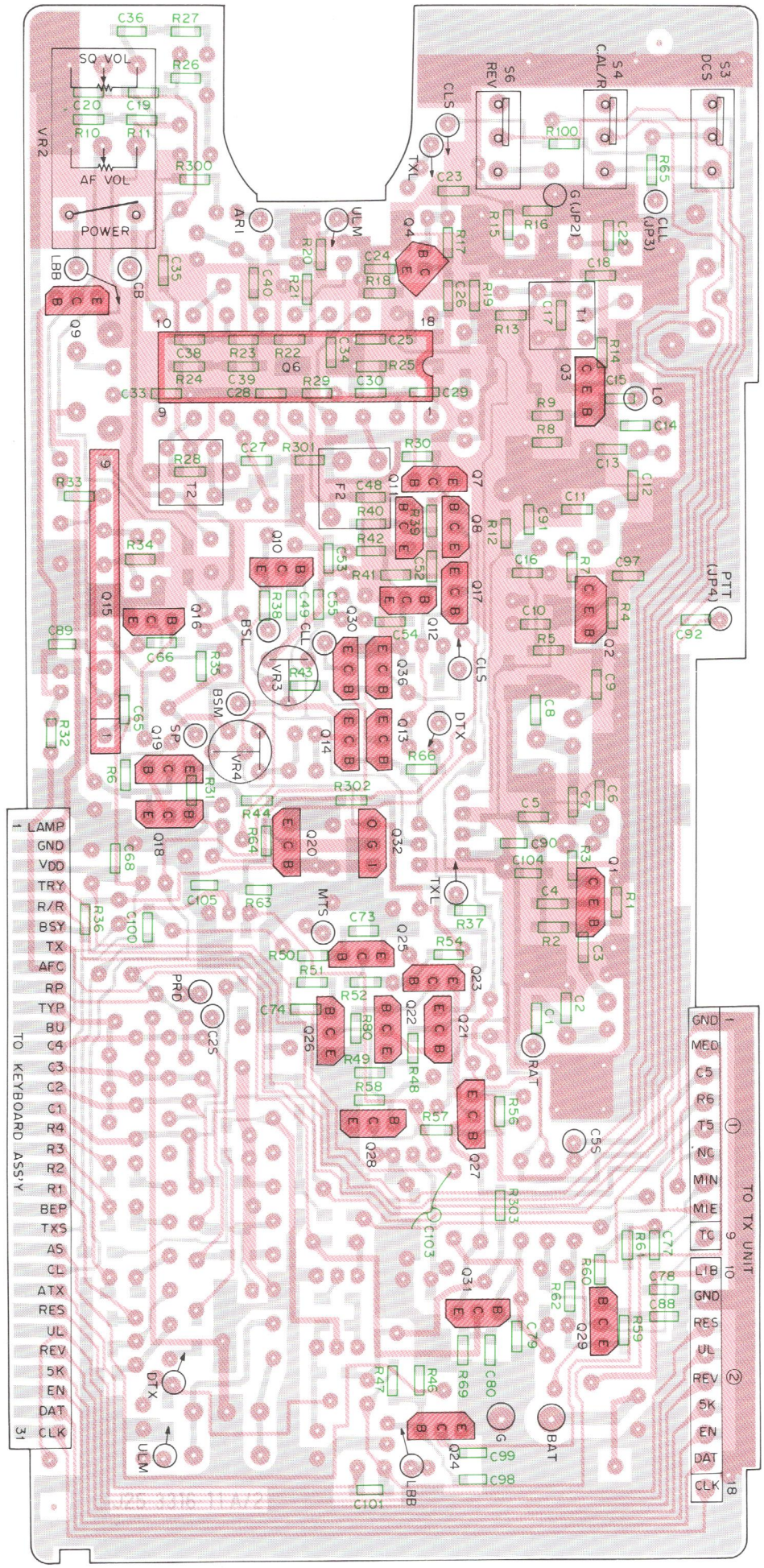
RX UNIT (X55-1400-XX) (A/2) (-51 : T, -61 : W) Component side view



Q1,2 : 2SC2671(H) Q3 : 2SC2570A Q4 : 2SC2668(Y) Q6 : MC3359P Q7,8,14,16,17,30,36 : DTC124ES
Q9–12,18,22,24–26,28 : 2SC2603(E) Q13 : DTC143TS Q15 : BA526 Q19,20 : 2SB698
Q21,23,27,29,31 : 2SA1115(E) Q32 : LVC517
D1,2 : 1N60A D3,4,9–16,24,26(**T**) : 1SS133 D3,4,9–16,22,26(**W**) : 1SS133 D5 : MTZ8.2JB
D6,7 : 1SS106 D8 : MTZ4.2JC

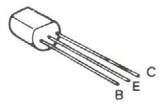
RX UNIT (X55-1400-XX) (B/2) Component side view



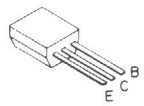


RX UNIT (X55-1400-XX) (A/2) (-51 : T, -61 : W) Foil side view

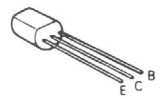
2SC2570
2SC2671



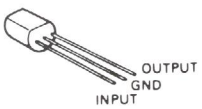
2SA1115
2SC2603
2SC2668



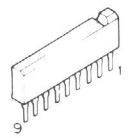
2SB698



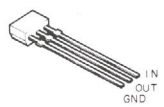
LVC517



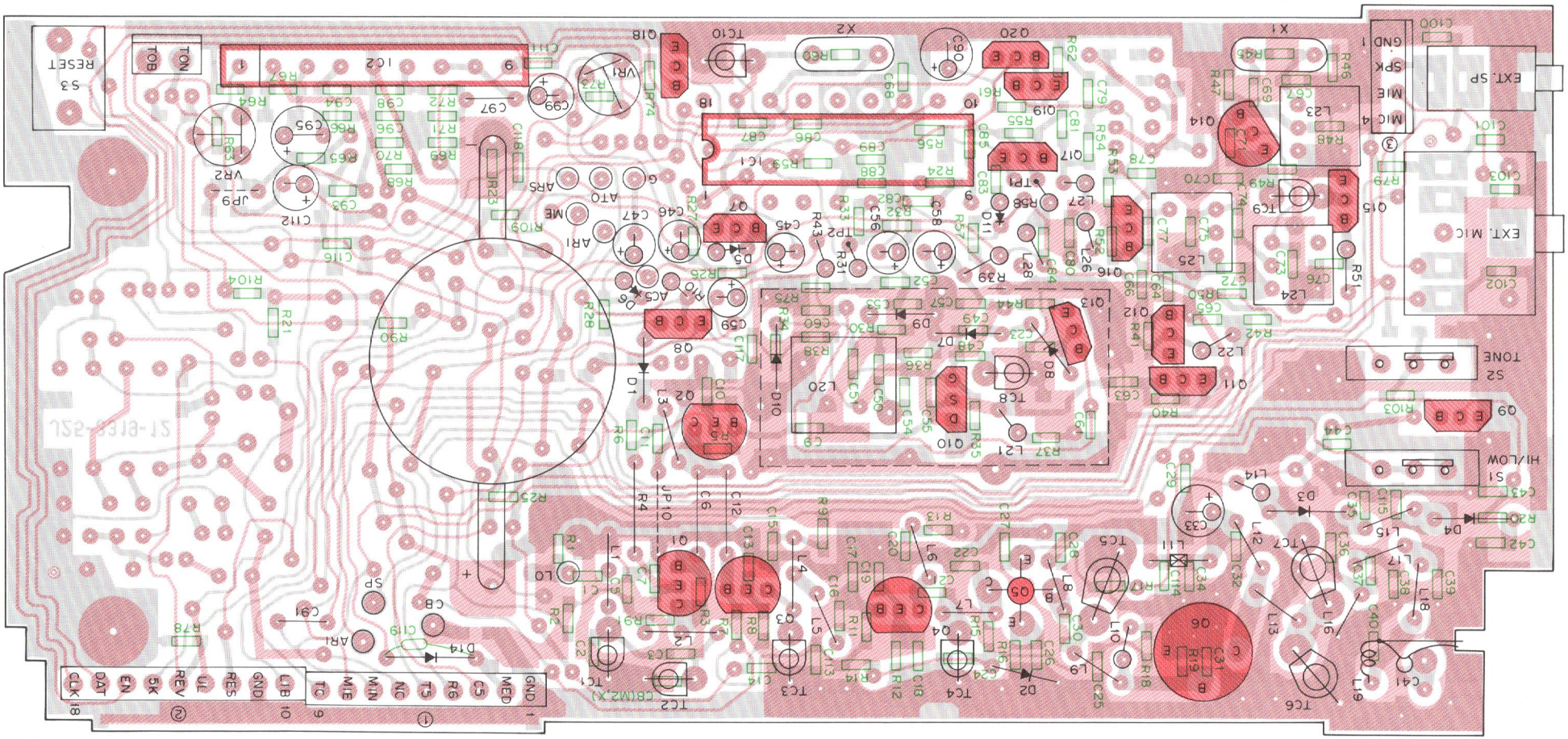
BA526



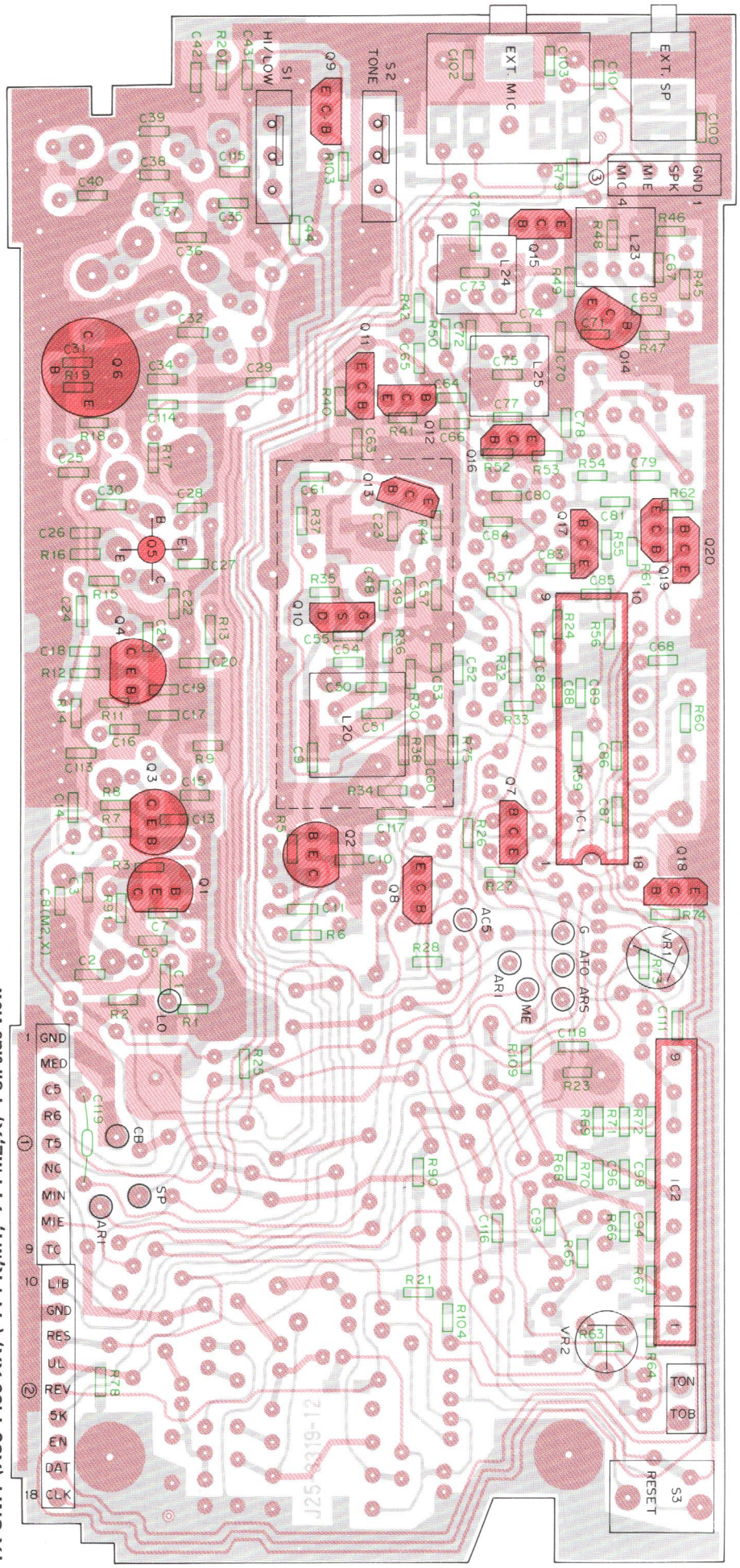
DTC124ES
DTC143TS



TX UNIT (X56-1490-XX) (-11 : K,M1, -71 : M2,X) Component side view

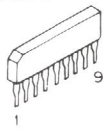


Q1 : 2SC2348 Q2,3 : 2SC2671(H) Q4 : 2SC2407 Q5 : 2SC3019 Q6 : 2SC3101 Q7,18 : DTC144ES Q8,19 : 2SC2603(E)
Q9 : DTC114ES Q10 : 2SK192A(Y)*J Q11,12,15,16 : 2SC2668(Y) Q13,20 : 2SA1115(E) Q14 : 2SC2347 Q17 : 2SC2669(Y)
IC1 : MC145155P*J IC2 : LA6458S
D1,2,5,6,8,14 : 1SS133 D3 : MI301 D4,7,10,11 : MA856 D9 : 1SV123

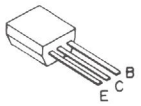


TX UNIT (X56-1490-XX) (-11 : K,M1, -71 : M2,X) Foil side view

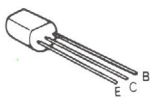
LA6458S



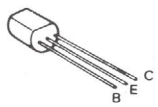
2SA1115
2SC2603
2SC2668
2SC2669



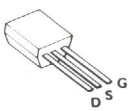
2SC2347



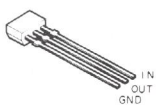
2SC2348
2SC2407
2SC2671



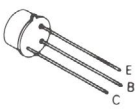
2SK192A



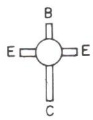
DTC114ES
DTC144ES



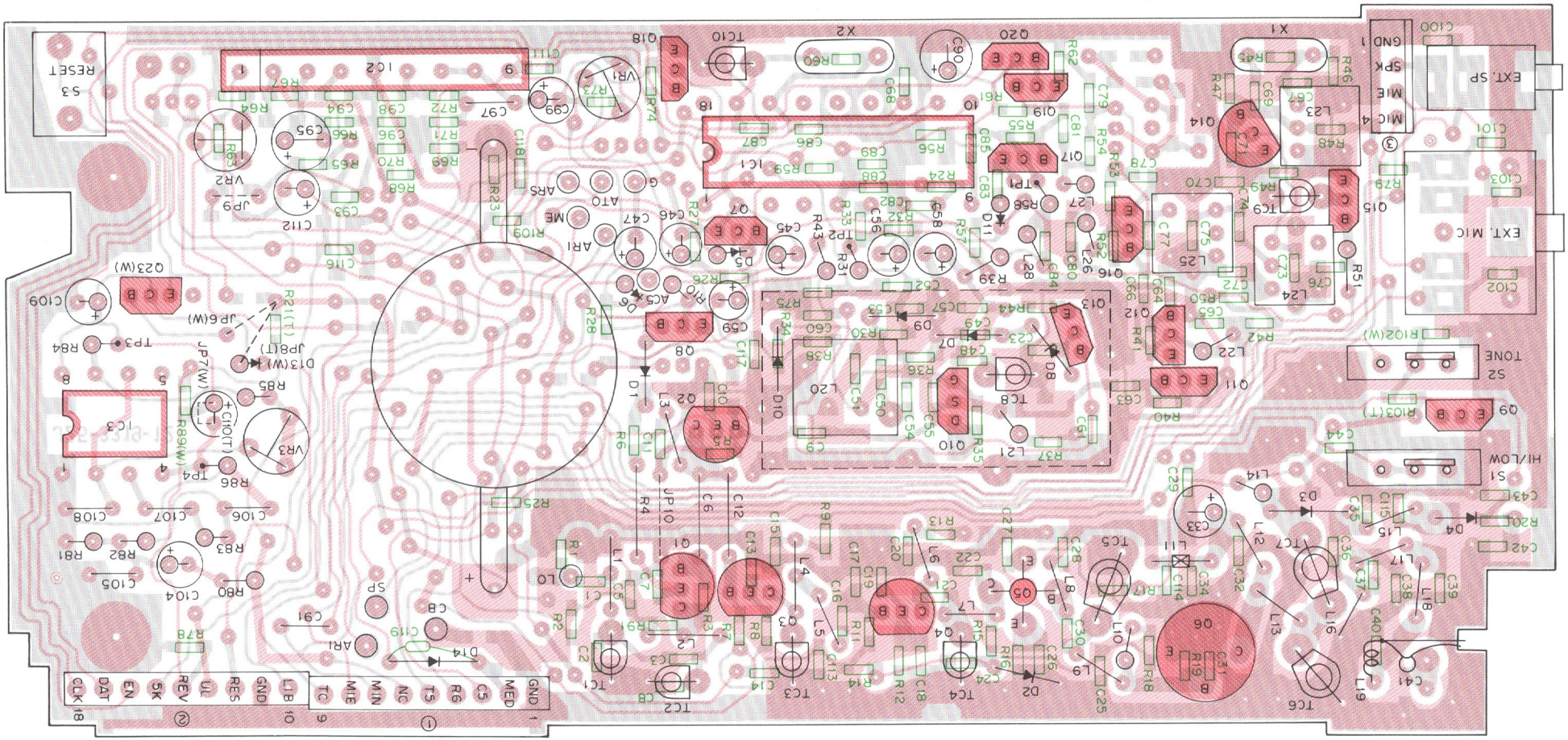
2SC3101



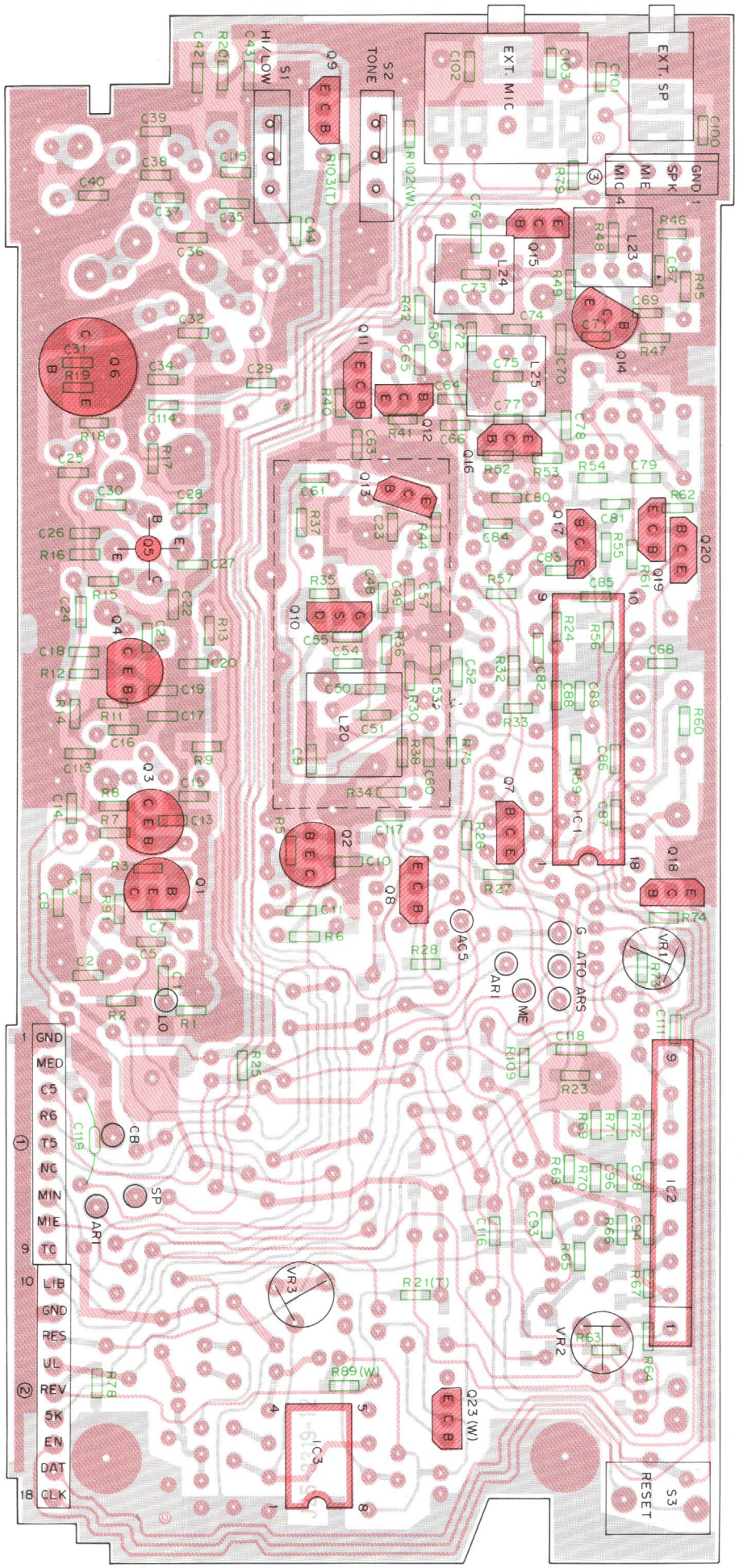
2SC3019



TX UNIT (X56-1490-XX) (-51 : T, -61 : W) Component side view

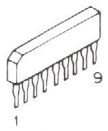


Q1 : 2SC2348 Q2,3 : 2SC2671(H) Q4 : 2SC2407 Q5 : 2SC3019 Q6 : 2SC3101 Q7,18 : DTC144ES Q8,19 : 2SC2603(E)
Q9 : DTC114ES Q10 : 2SK192A(Y)*J Q11,12,15,16 : 2SC2668(Y) Q13,20 : 2SA1115(E) Q14 : 2SC2347 Q17 : 2SC2669(Y)
Q23(**W**) : DTA114ES
IC1 : MC145155P*J IC2 : LA6458S IC3 : NE555P
D1,2,5,6,8,14(**T**) : 1SS133 D1,2,5,6,8,13,14(**W**) : 1SS133 D3 : MI301 D4,7,10,11 : MA856 D9 : 1SV123

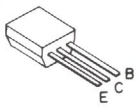


TX UNIT (X56-1490-XX) (-51 : T, -61 : W) Foil side view

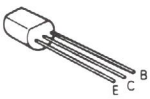
LA6458S



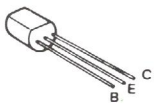
2SA1115
2SC2603
2SC2668
2SC2669



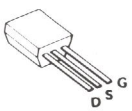
2SC2347



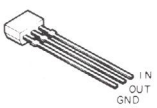
2SC2348
2SC2407
2SC2671



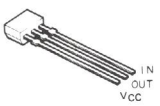
2SK192A



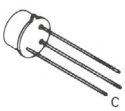
DTC114ES
DTC144ES



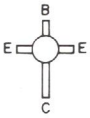
DTA114ES



2SC3101

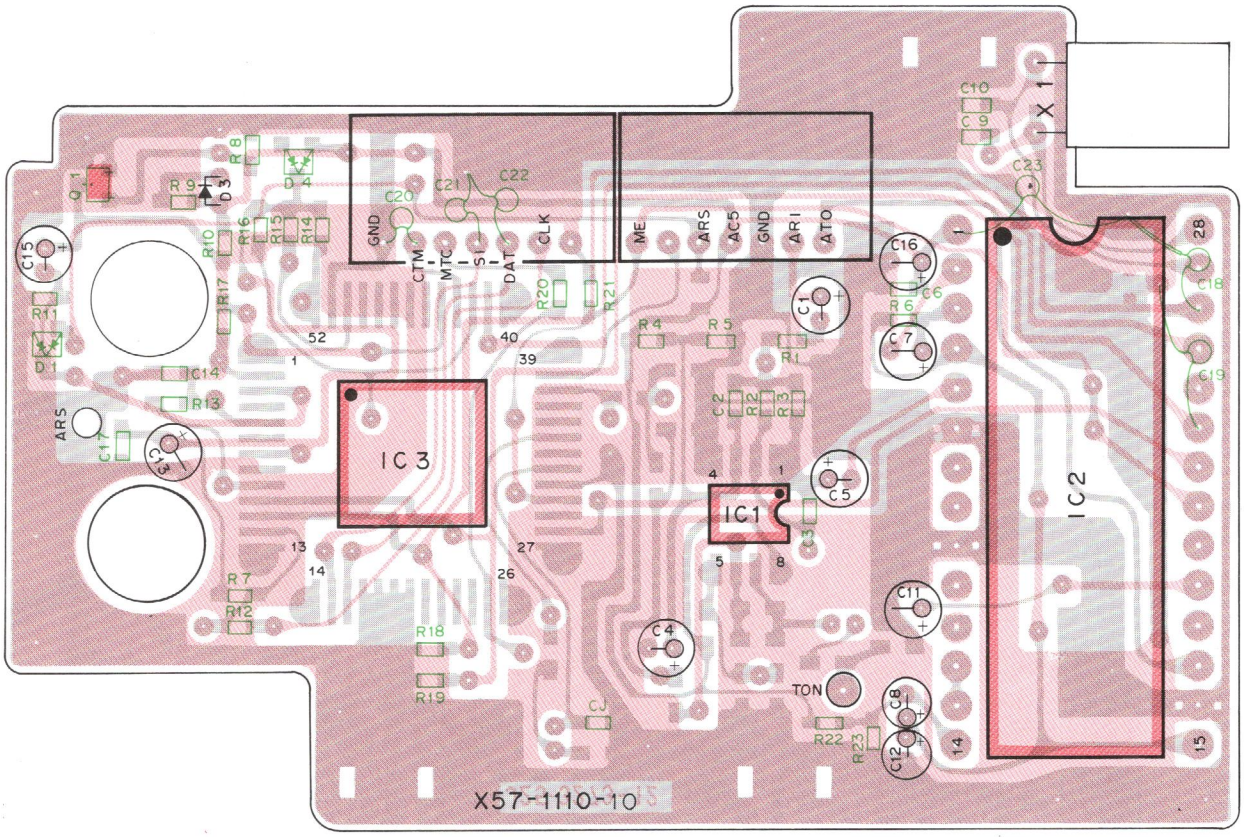


2SC3019



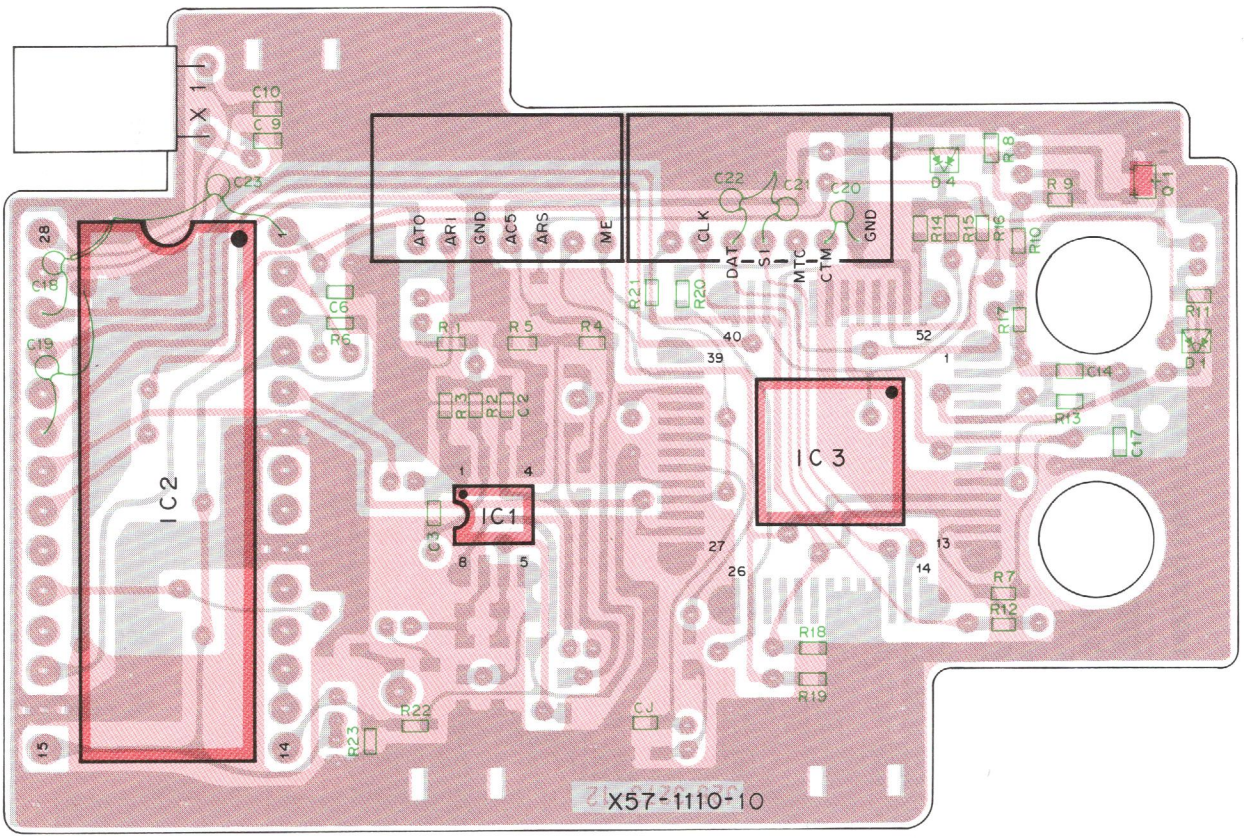
TR-3600A/E PC BOARD VIEW

DCL UNIT (X57-1110-10) Component side view

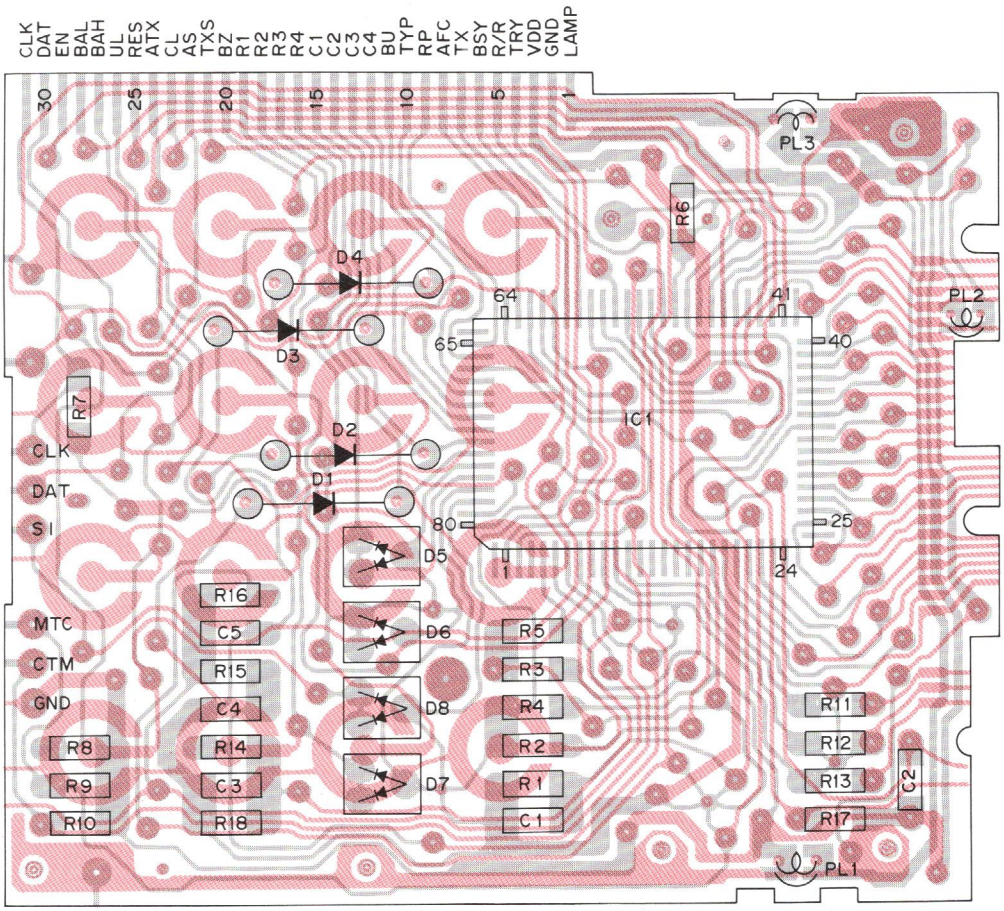


Q1 : 2SC2712(Y) IC1 : NJM4558M IC2 : MN6127A IC3 : μPD7507G-575-00 D1,4 : MA151WK D3 : MA522(Q)

DCL UNIT (X57-1110-10) Foil side view

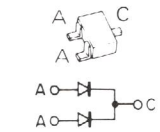


KEY BOARD ASS'Y (S59-0430-15) (K,M1)
(S59-0413-15) (M2,X,W) Component side view
(S59-0432-15) (T)



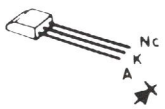
IC1 : μPD7514G-061-12 D1–4 : 1N60A D5–8 : MA151A

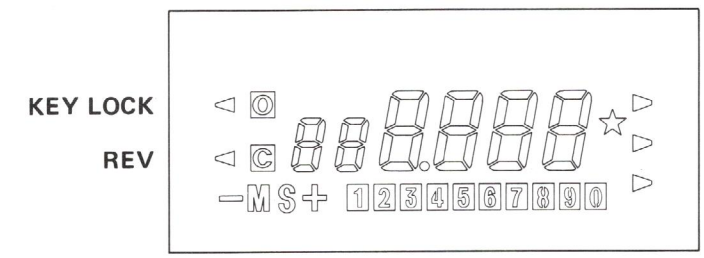
MA151WK



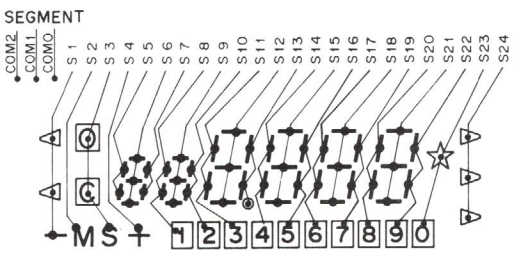
2SC2712

MA522

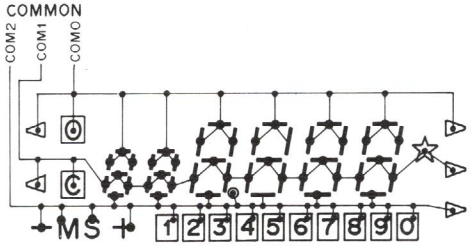




SEGMENT



COMMON

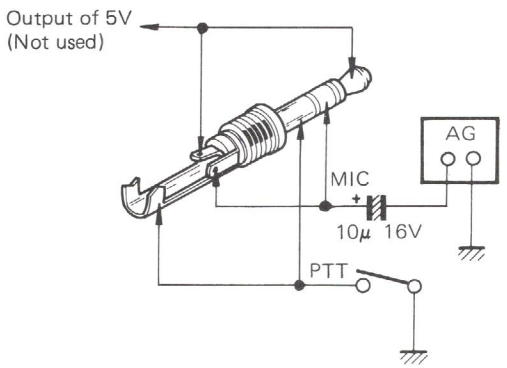


ADJUSTMENT

<Preparation>
Unless otherwise specified, set the controls as follows

POWER/VOL ..... OFF
KEY LOCK ..... OFF
TX STOP ..... OFF
DCS ..... ON
HI/LOW ..... HI
SQL VR ..... MIN

Notes:
- When adjusting the trimmers or coils, use a non-inductive tuning tool.
- When adjusting the RX section, never transmit to prevent SSG damage.
- Connect MIC connector as shown below.
- The SSG output level is indicated as open circuit.



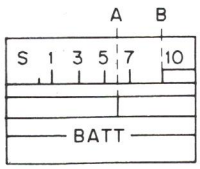
PLL ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specification/Remarks
		Test equipment	Unit	Terminal	Unit	Part	Method	
1. PLL	1)FREQ. : 430.000 **M2,T,W,X** 440.000 **K,M1**	RF VTVM	TX	TP2	TX	TC8	MAX	2.0V±0.1V
	2) Transmit							1.6V or more
	3) FREQ : 439.900 **M2,T,W,X** 449.900 **K,M1**							5.2V or less
	4) Transmit	DVM	TX	TP1	TX	L24,25	Adjust	Reference level 0.4V
	5) Receive	f.counter				TC10		10.4950MHz±100Hz

TX ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specification/Remarks
		Test equipment	Unit	Terminal	Unit	Part	Method	
1. Power	1) FREQ : 435.000 **M2,T,W,X** 445.000 **K,M1**	Power meter (5W or 10W) Ammeter		ANT	TX	TC3–7	Attach L6. If the current rises above 750mA, reduce the current to 50mA so that the capacity of TC7 increases in ANT, OPEN condition. Maximize the power with TC6.	1.5W or more 750mA or less
2. f adjustment	1) FREQ : 435.005 **M2,T,W,X** 445.005 **K,M1** Transmit/Receive			ANT	TX	L23		435.005.0MHz±100Hz **M2,T,W,X** 445.005.0MHz±100Hz **K,M1**
	2) FREQ : 435.000 **M2,T,W,X** 445.000 **K,M1** Transmit/Receive					TC9		435.000.0MHz±100Hz **M2,T,W,X** 445.000.0MHz±100Hz **K,M1**

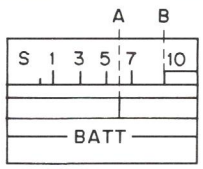
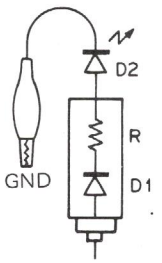
ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specification/Remarks
		Test equipment	Unit	Terminal	Unit	Part	Method	
3. Low power	1) FREQ : 435.000 **M2,T,W,X** 445.000 **K,M1** ANT : Power meter	Power meter (3W)		ANT	TX	TC3	If the current rises above 400mA, increase the capacity of TC5 to decrease the current below 400mA.	0.1—0.6W 400mA or less
4. Modulation	1) FREQ : 435.000 **M2,T,W,X** 445.000 **K,M1** AG : 1kHz, 80mV **K,M,X** 1kHz, 50mV **W,T**	Power meter Coupler Linear detector AG AF VTVM Oscilloscope DVM		ANT	TX	VR1	Linear detection P-P/2	±4.5kHz
						VR2	—P or +P	±4.5kHz±50Hz
	2) AG : 1kHz, 8mV **K,M,X** 1kHz, 5mV **W,T**							±3.0kHz—±3.8kHz
5. Tone	1) Connect to TU-35. Tone FREQ : 88.5Hz						Check	DEV±400Hz or more
	2) **T** type only				TX	VR3	Short TP3 to TP4. 1750±10Hz (1740—1760Hz)	
							P-P/2	DEV±2.5kHz or more
	3) **W** type only TONE SW : ON				TX	VR3	1750±10Hz (1740—1760Hz)	
							Check	DEV±2.5kHz or more
6. DTMF **K,M,X** type only	1) FREQ : 435.000 **M2,X** 445.000 **K,M1** Transmit				RX	VR5	Depress 1 key	DEV±3.2kHz
7. BATT meter	1) HI/LOW SW : LOW Source voltage : 6.5V Transmit	DVM		S meter	RX	VR4	Set to point A.	

RX ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specification/Remarks
		Test equipment	Unit	Terminal	Unit	Part	Method	
1. Sensitivity	1) FREQ : 435.100 **M2,T,W,X** FREQ : 445.100 **K,M1** SSG : 0dB TX.S SW : ON	SSG AF VTVM SP Oscilloscope Volt meter		SP	RX	TC1—5	Repeat 2 or 3 times on TC1—5.	NQ Maximum
	2) SSG : 30dB			S meter	TX	TC1,2		S meter Maximum
					RX	T1		
	3) SSG : 40dB (DEV : 5kHz, f : 1kHz)			SP	RX	T2		AF Maximum
	4) SSG : —6dB (DEV : 3.5kHz, f : 1kHz)	Deviation meter					FREQ : 430.100 439.900 **M2,T,W,X** FREQ : 440.100 449.900 **K,M1**	S/N 12dB or more

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specification/Remarks
		Test equipment	Unit	Terminal	Unit	Part	Method	
2. S meter	1) FREQ : 435.100 **M2,T,W,X** 445.100 **K,M1** SSG : 26dB (MOD : OFF)			S meter	RX	VR3	Set to point B.	
3. Back up check	1) POWER/VOL : OFF Disconnect battery connector.  to RX unit D14	Use jig as illust-rated	RX	D14				LED goes off slowly. D1 : 1S1555 D2 : LED R : 100Ω

OPERATION CHECK

Caution : **K,M1** type shift adjustment frequency to 440 MHz order.

Item	Condition	Operaton check
1. Call sign input	1) Connect to EXT. SP POWER/VOL : ON RESET SW : ON	Display [S]
	2) Depress 1 key	S 1 . 1
	3) Depress 1 key	S 1 . 1 1 Tone sounds.
	4) Depress 2 key two times.	S 2 . 2 2 Tone sounds.
	5) Depress 3 key two times.	S 3 . 3 3 Tone sounds.
	6) Depress 4 key two times.	S 4 . 4 4 Tone sounds.
	7) Depress 5 key two times.	S 5 . 5 5 Tone sounds.
	8) Depress 6 key two times.	S 6 . 6 6 Tone sounds. ↓ S433.000
2. Digital code input	1) Depress MS key	00000
	2) Depress 1 key	1 Tone sounds.
	3) Depress 1 key	11 Tone sounds.
	4) Depress 1 key	111 Tone sounds.
	5) Depress 1 key	1111 Tone sounds.
	6) Depress 1 key	11111 Tone sounds.
	7) Depress MS key	00000 Tone sounds.
	8) Depress 1 → 2 → 3 → 4 → 5 keys.	12345 Tone sounds when key depressed.
	9) Depress MS key	00000 Tone sounds.
	10) Depress 6 → 7 → 8 → 9 → 0 keys.	67890 Tone sounds when key depressed.

Item	Condition	Operation check
3. Call sign, Digital code recall	1) Depress C key.	S433.000
	2) Depress F → 8 keys	S .
	3) Depress ▲ → ▲ keys Repeat above method 5 times.	S 1 . 1 1 Tone sounds. S 2 . 2 2 Tone sounds. S 3 . 3 3 Tone sounds. S 4 . 4 4 Tone sounds. S 5 . 5 5 Tone sounds. S 6 . 6 6 Tone sounds. ↓ S433.000 Tone sounds.
	4) Depress MS key	67890 Tone sounds.
	5) Depress MS key	11111 Tone sounds.
	6) Depress MS key	12345 Tone sounds.
	7) Depress C key	S433.000 Tone sounds.
	8) DCL SW : OFF	Tone sounds.
4. Verify scan	1) SQ Pot. : Threshold (Reference 8—10 o'clock Depress ▼ key.	S432.995 Tone sounds.
	2) Depress ▼ key several times.	When depressed, tone sounds and frequency is decreased 5kHz.
	3) Depress ▼ key contin-uously.	Down scan speed becomes faster.
	4) Release ▼ key.	Down scan speed becomes slow.

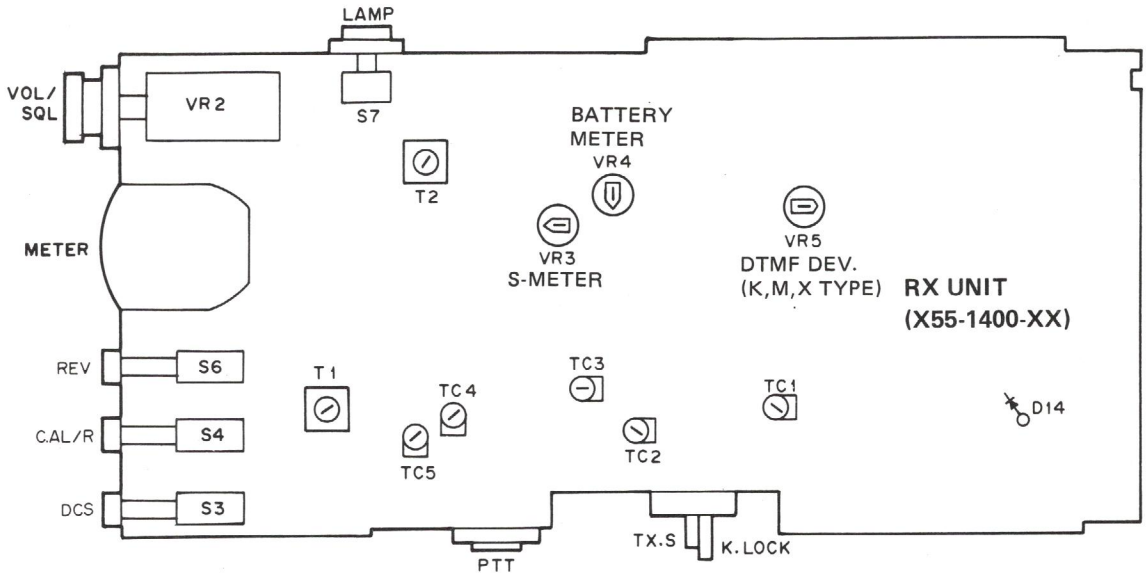
ADJUSTMENT

Item	Condition	Operation check
4. Verify scan	5) SQ Pot. : MIN (Counterclockwise)	Scan stops.
	6) SQ Pot. : Threshold	Scan restarts.
	7) Depress C key.	Scan stops. Tone sounds.
	8) Depress C key.	S433.000 Tone sounds.
	9) Depress ▲ key.	S433.005 Tone sounds.
	10) Depress ▲ key several times.	When depressed, tone sounds and frequency increases 5kHz.
	11) Depress ▲ key continuously.	Display frequency increases faster.
	12) Release ▲ key	Display frequency increases slowly.
	13) Depress F → 7 keys.	[0] is displayed. Display increases every 5 seconds.
	14) Depress F → 9 keys	[C] is displayed. Scan stops.
	15) SQ Pot. : MIN (Counterclockwise)	Scan starts.
	16) Depress F → 7 keys.	[0] goes off. Scan stops.
	17) Depress F → 9 keys	[C] goes off. Display increases every 5 seconds.
	18) SQ Pot. : Threshold	Scan starts.
	19) Depress C key	Scan stops.
5. Program scan	1) Depress 9 → 9 → 9 → F → MR → 9 keys.	S439.990 9 Tone sounds.
	2) Depress 9 → 0 → 0 → F → MR → 8 keys.	S439.000
	3) Depress ▲ → ▲ → ▲	S439.030
	4) Depress F → ▲ keys.	Tone sounds.
	5) Depress F → ▼ keys.	PROG.S ▶ is displayed. Display scan from 439.000 in 30kHz steps.
	6) Depress C key.	Scan stops.

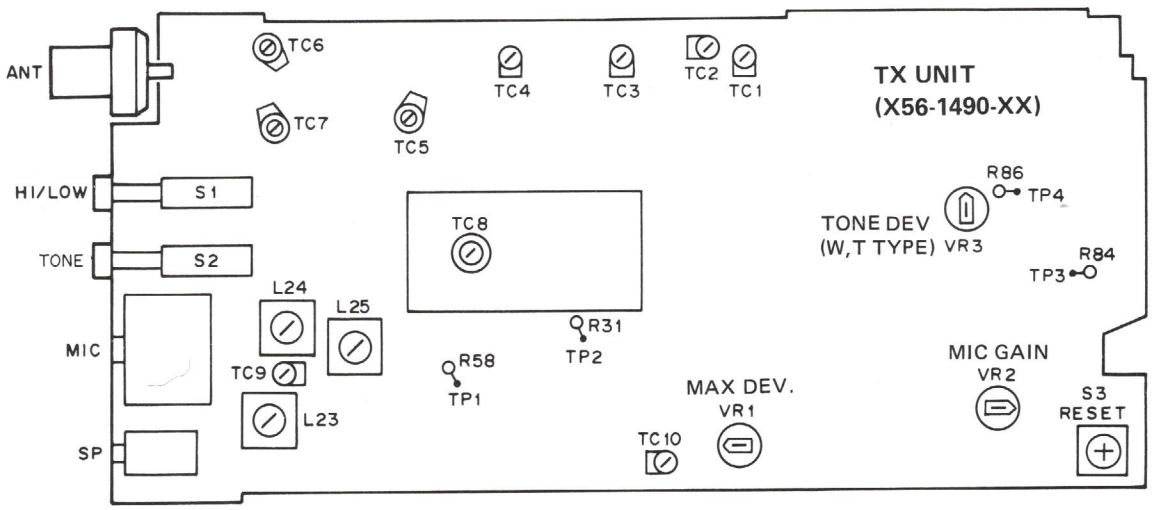
Item	Condition	Operation check
6. ALERT	1) Depress F → 0 keys.	ALERT ▶ is displayed.
	2) SQ Pot. : MIN (Counterclockwise)	The tone sounds every 6 seconds.
	3) Depress F → 0 keys	ALERT ▶ goes off.
	4) Depress C key.	
7. Repeater	1) Depress 9 → 0 → 0 → F → MR → 0 keys.	S439.000 0
	2) Depress C → C keys	S433.000
	3) REV SW : Push	S433.000
	4) Depress F → 3 keys	+433.000
	5) REV SW : Push	+438.000
	6) Depress F → 2 keys	M433.000
	7) REV SW : Push	M439.000
	8) Depress F → 1 key.	−433.000
	9) REV SW : Push	−433.000
	10) Depress F → MS key.	−433.000
	11) REV SW : Push	−430.000
	12) Depress F → 5 keys.	S433.000
8. Memory input	1) Depress 0 → 0 → 0 → F → MR → 1 keys.	430.000 1
	2) Depress 5 → 0 → 0 → F → MR → 2 keys.	435.000 2
	3) Depress 5 → 1 → 0 → F → MR → 6 keys.	435.100 6
	4) Depress 0 → 1 → 0 → F → MR → 7 keys.	430.100 7
9. Verify MS	1) Depress the MS key.	MS ▶ is displayed.
	2) SQ Pot. : Threshold	Scan channel 1 to 0 in order.
	3) Depress MS and 2 key at the same time.	Channel 2 is skipped.
	4) Depress C key.	MS ▶ goes off Scan stops.
	5) Depress MR key	1 2 6 7 8 9 0 is displayed.
	6) Depress 2 key	435.000★is displayed. 2
	7) Depress MR and 2 keys at the same time. Depress C key. Depress MR → 2 keys.	★ should not be lit.

ADJUSTMENT

TOP VIEW



BOTTOM VIEW



BC-2 (BATTERY CHARGER) T,W TYPE ONLY/ BT-3 (AA MANGANESE/ALKALINE BATTERY CASE)/SC-9 (SOFT CASE)

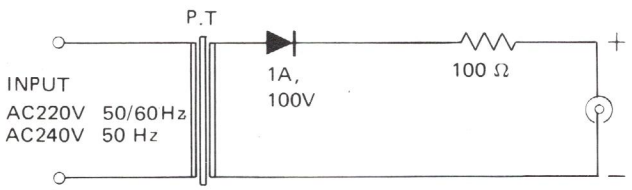
BC-2 OUTSIDE VIEW

BT-3 OUTSIDE VIEW

BC-2 SPECIFICATIONS

Part No.	W09-0317-05	W09-0318-05
Rating	Primary side: AC220V 50/60 Hz Secondary side: DC 10.15V DC 42.5ma	Primary side: AC 240V 50 Hz Secondar- side: DC 10.15V DC42.5ma
Output voltage (resistance loaded)	At 0mA: DC 12.5V ±5% At 42.5mA: DC 5.5V ±5%	At 0mA: DC 12.6V ±5% At 42.5mA: DC 5.6V ±5%
Weight	About 240g	About 220g
Consumed power	4W or less with 50 Hz at rated input and battery loaded.	4W or less with 50 Hz at rated input and battery loaded.
Destination	Europe	England

BC-2 SCHEMATIC DIAGRAM



BT-3 SPECIFICATIONS

Rating

Battery . . . . . AA Manganese/Alkaline battery x 6 pcs

Voltage . . . . . 9V (1.5V x 6)

Dimensions . . . . . 66 (W) x 52 (H) x 40 (D) mm

BT-3 PARTS LIST

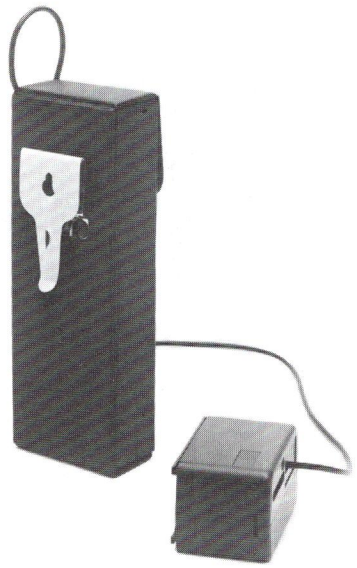
Part No.	Remarks	Description	Ref. No.
A02-0681-13		Case (inside)	
A02-0682-13		Case (outside)	
E23-0432-04		Lug plate x 2	
E29-0427-04		Connector and terminal x 4	
E29-0450-04		Connector and terminal x 4	
N09-0638-05		Round screw x 2	

SC-9 PARTS LIST

Part No.	Remarks	Description	Ref. No.
J19-1365-04		Belt hook ass'y	
N08-0512-04	N	Dressed screw x 2	

EB-3 (EXTERNAL C MANGANESE/ALKALINE BATTERY CASE)/ PB-26 (Ni-Cd BATTERY)

EB-3 OUTSIDE VIEW



PB-26 OUTSIDE VIEW

EB-3 SPECIFICATIONS

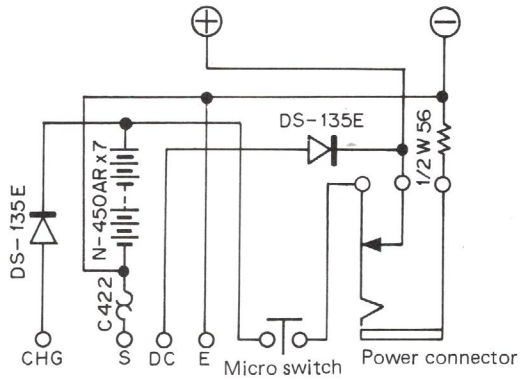
Rating
- Battery . . . . . C Manganese/Alkaline battery x 6 pcs
- Voltage . . . . . 9V (1.5V x 6)

Dimensions . . . . . 63 (W) x 175 (H) x 34 (D) mm

PB-26 SPECIFICATIONS

Nominal voltage 8.4V, 450mAh
Recharge time . . . . . When fully discharged approx. 15 hours (with TR-2600 series/TR-3600 series supplied charger or MS-1) Approx. 1.5hours (with ST-2)
Working time . . . . . Depends on transceiver, operating habits,
Charge/discharge cycle . . Approx. 300cycles

PB-26 SCHEMATIC DIAGRAM



EB-3 PARTS LIST

Part No.	Re-marks	Description	Ref. No.
A02-0683-03	△	Case (upper)	
A02-0684-03	△	Case (lower)	
E23-0432-04	△	Lug plate x 2	
E30-1793-05	N	Cord ass'y	
F19-0623-04	△	Rubber cap (A)	
J21-4154-04	N△	Fitting plate (cord bushing)	
N09-0638-05	△	Round screw x 2	

PB-26 PARTS LIST

Part No.	Re-marks	Description	Ref. No.
A02-0683-03	△	Case (upper)	
A02-0684-03	△	Case (lower)	
E08-0271-05		Power connector	
E23-0432-04		Lug plate	
E29-0428-04		Terminal	
N09-0637-05		Round flat screw x 4	
N09-0638-05		Round screw x 2	

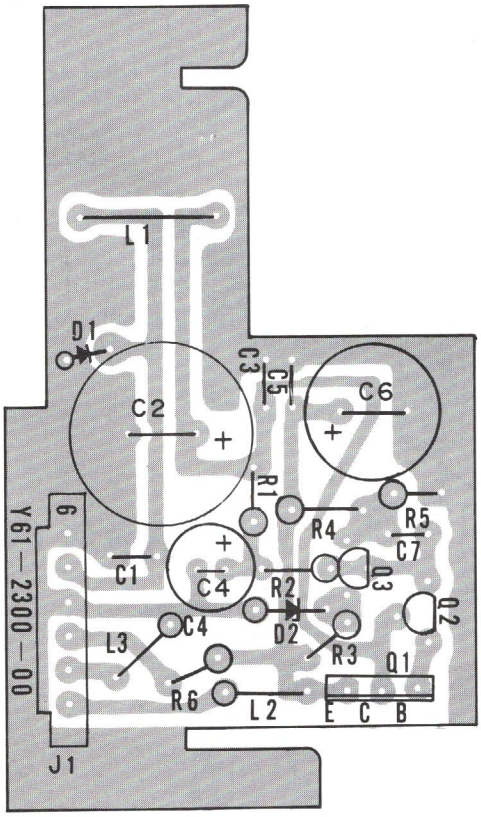
DC-26 (DC-DC CONVERTER)

DC-26 OUTSIDE VIEW

DC-26 SPECIFICATIONS

Input vlotage . . . . . 13.8V DC ± 15%
Output voltage . . . . 8.4V DC ± 5%
Output current . . . . 800mA (at input voltage of 13.8V DC, with max. lead)
Weight . . . . . Approx. 110g
Accessories . . . . . Instruction manual, 1
Spare fuse (2A), 1

DC-26 PC BOARD VIEW

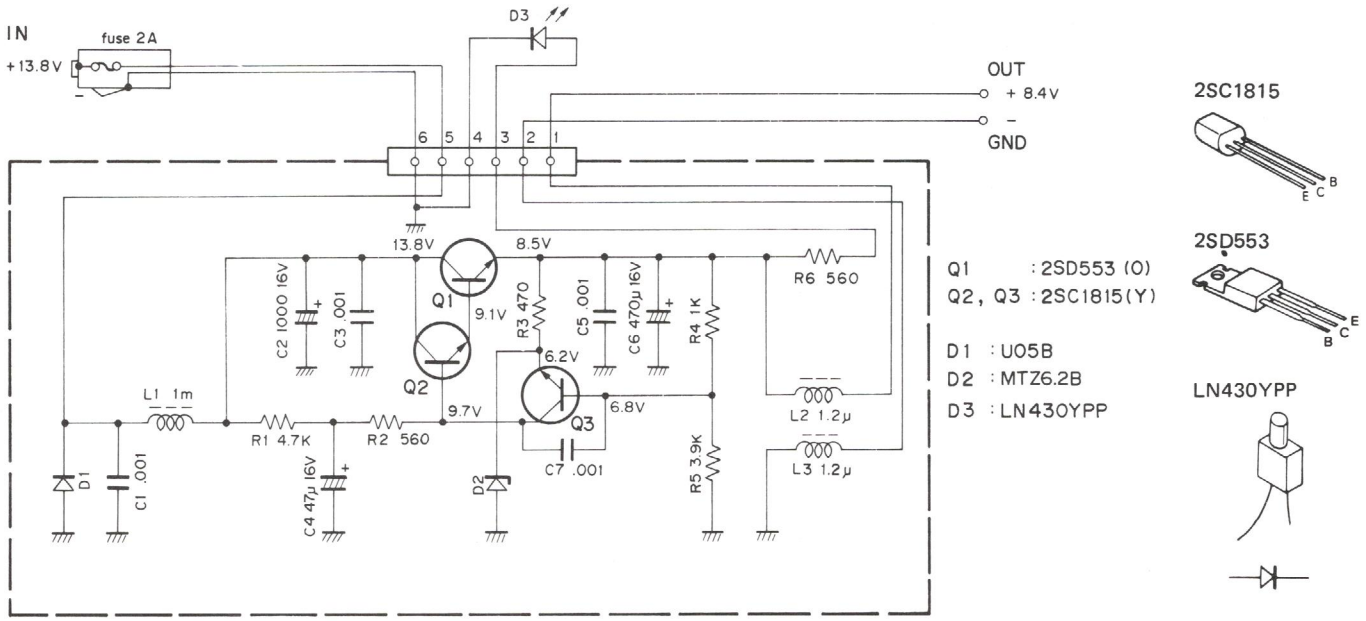


DC-26 PARTS LIST

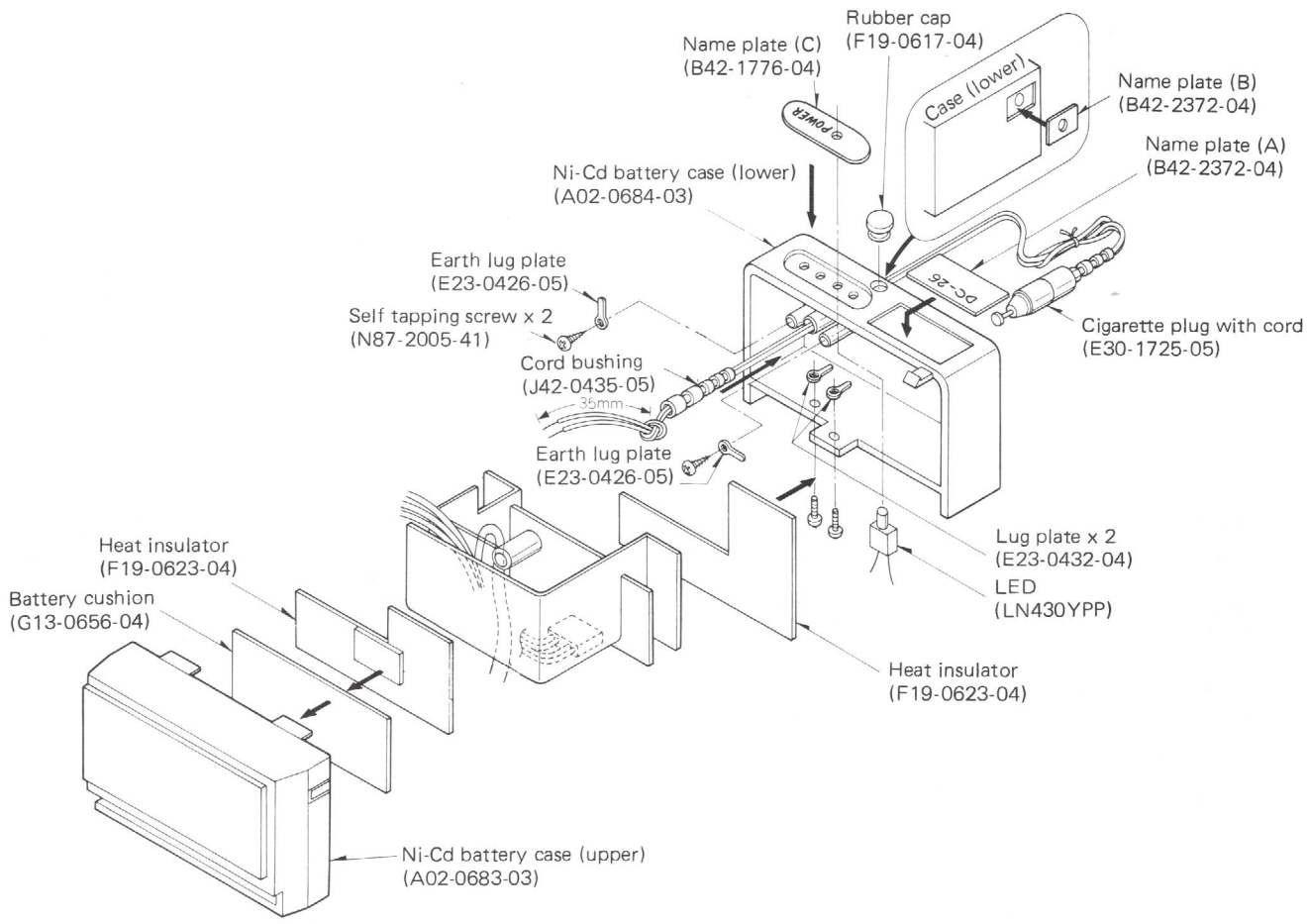
Part No.	Re-marks	Description	Ref. No.
A02-0683-03		Ni-Cd battery case (upper)	
A02-0684-03		Ni-Cd battery case (lower)	
B42-1776-04	△	Name plate (C) bottom (LED)	
B42-2372-04	N△	Name plate (A) bottom	
B42-2373-04	N△	Name plate (B) rear	
B50-4171-00	N	Instruction manual	
CE04W1C470M		E 47 16V	C4
CK45B1H102K		C 0.001×4	C1,3,5,7
C90-0820-05		E 470 16V	C6
C90-0850-05		E 1000 16V	C2
E23-0426-05		Earth lug plate x 2	
E23-0432-04		Lug plate x 2	
E30-1725-05		Cigarette plug with cord	
F06-2027-05		Fuse accessory	
F19-0617-04		Rubber cap	
F19-0623-04	△	Heat insulator	
F20-0516-05		Insulating plate	
F29-0014-05		Insulating washer	
G13-0656-04	△	Battery cushion	
H01-4606-04	N△	Carton case (inside)	
H25-0029-04		Protective bag (Fuse)	
H25-0077-03		Protective bag x 2	
J42-0435-05	△	Cord bushing	
J61-0019-05		Vinyle tie	
L15-0302-05		Troidal coil 1mH	L1
L34-0438-05		Choke coil x 2 1.2μH	L2,3
N09-0638-05		Round screw (M2×4) x 2	
N10-2030-41		Hex. nut (TR)	
N30-3008-41		Pan head screw (TR)	
N87-2005-41		Self tapping screw x 2 (INPUT lug)	
2SC1815(Y)		TR×2	Q2,3
2SD553(O)		TR	Q1
U05B		Diode	D1
MTZ6.2B		Zener diode	D2
LN430YPP		LED	D3

DC-26 (DC-DC CONVERTER)

DC-26 SCHEMATIC DIAGRAM



DC-26 DISASSEMBLY



HMC-1 (HEADSET WITH VOX)

HMC-1 OUTSIDE VIEW

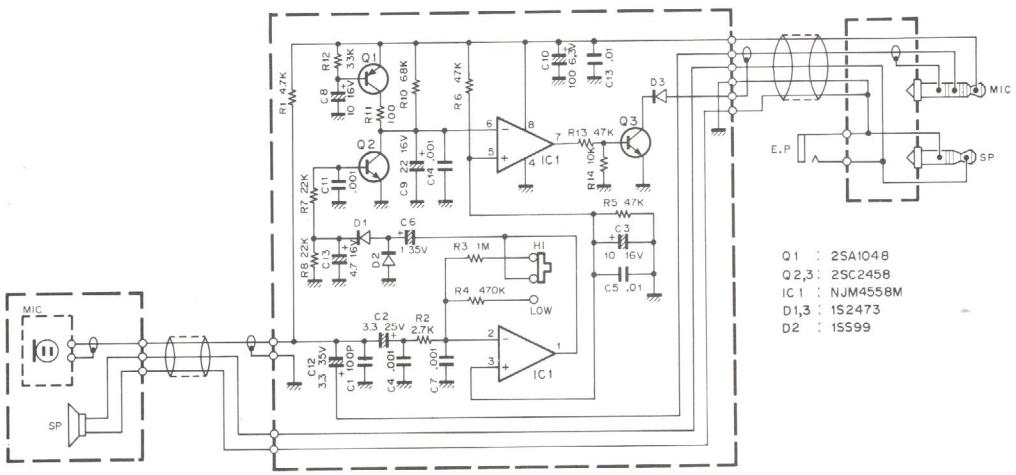
HMC-1 SPECIFICATIONS

Mic input sensitivity 1.5mV (1kHz)
Delay time . . . . . Approx. 1.2 sec.
DC current 3.5mA

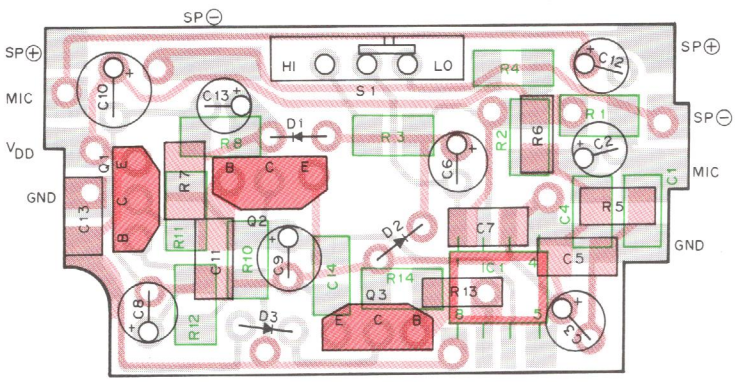
HMC-1 PARTS LIST

Part No.		Description	Ref. No.
NJM4558M			IC1
2SA1048			Q1
2SC2458			Q2,3
1S2473			D1,3
1SS99			D2
E30-1790-08		Cord with plug	
RD73FB2A472J		Chip resistor, 4.7kΩ	R1
RD73FB2A272J		Chip resistor, 2.7kΩ	R2
RD73FB2A105J		Chip resistor, 1MΩ	R3
RD73FB2A474J		Chip resistor, 470kΩ	R4
RD73FB2A473J		Chip resistor, 47kΩ	R5,6,13
RD73FB2A223J		Chip resistor, 22kΩ	R7,8
RD73FB2A101J		Chip resistor, 100Ω	R11
RD73FB2A333J		Chip resistor, 33kΩ	R12
RD73FB2A683J		Chip resistor, 68kΩ	R10
RD73FB2A103J		Chip resistor, 10kΩ	R14
CK73FB1E103K		Chip cap. 0.01	C5,13
CK73FB1H102K		Chip cap. 0.001	C4,7,11,14
CK73FB1H101K		Chip cap. 100P	C1

HMC-1 SCHEMATIC DIAGRAM



HMC-1 PC BOARD VIEW



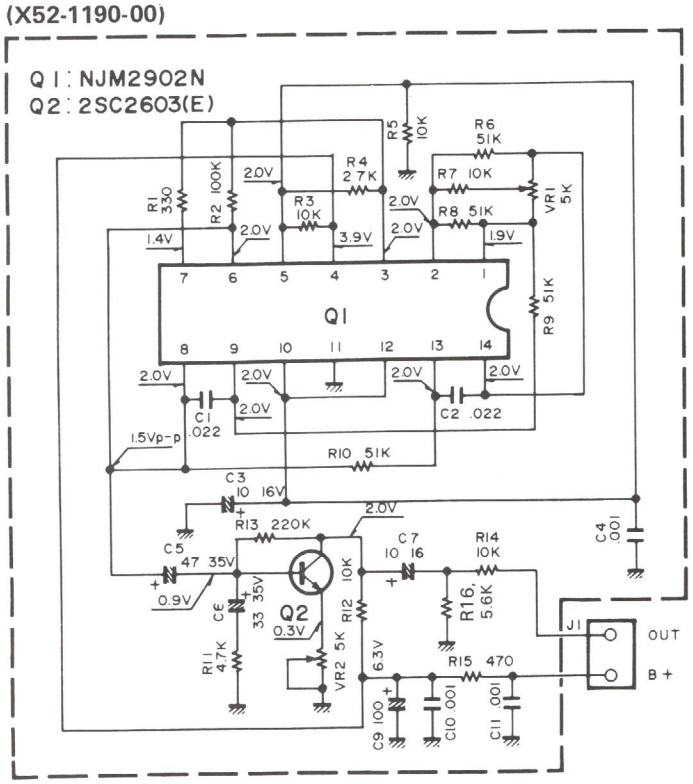
TU-35A (REPEATER TONE UNIT)

TU-35A SPECIFICATIONS

Oscillator frequency..... 88.5 Hz (±0.2 Hz) at normal temperature
Frequency adjustment range... 60 ~ 260 Hz
Weight ..... 8 grams

TU-35A SCHEMATIC DIAGRAM

(X52-1190-00)

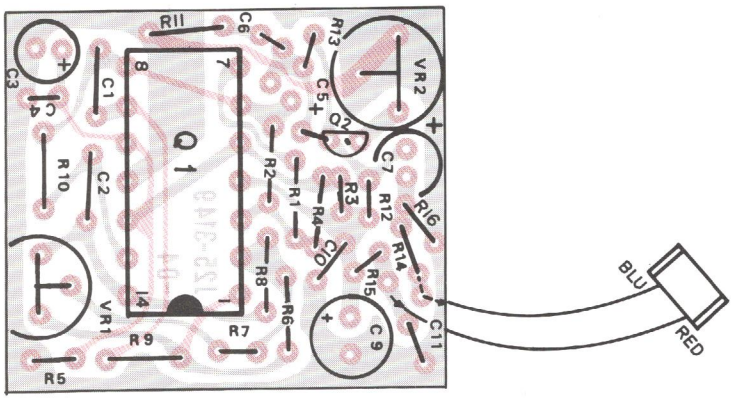


TU-35A PARTS LIST

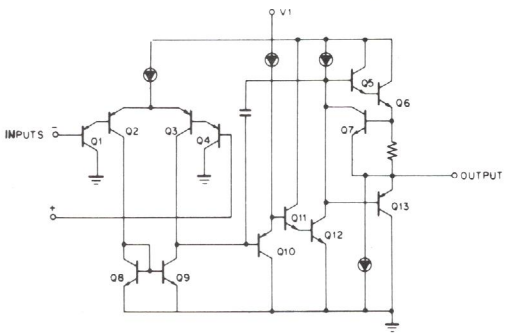
Part No.	Re-marks	Description			Q'ty
TU-35A					
B40-2637-04	N	Name plate			1
B50-4019-00	N	Instruction manual			1
F19-0617-04		Rubber cap			1
J39-0417-04	N	Spacer			1
N35-2004-41		Bind screw			2
X52-1190-00	N	Tone unit			1
Tone Unit (X52-1190-00)					
CK45B1H102K		C	0.001 μF	C4, 10, 11	3
CS15E1VR33M		T	0.33μF 35V	C6	1
CS15E1VR47M		T	0.47μF 35V	C5	1
C90-0840-05		E	10 μF 16V	C3, 7	2
C90-0842-05		E	100 μF 6.3V	C9	1
C91-1001-05		Cap	0.022 μF	C1, 2	2
R12-2405-05		Trim. Pot.	5 kΩ (B)	VR2	1
R12-2412-05		Pot.	5 kΩ	VR1	1
2SC2603 (E)		Tr		Q2	1
NJM2902N		IC		Q1	

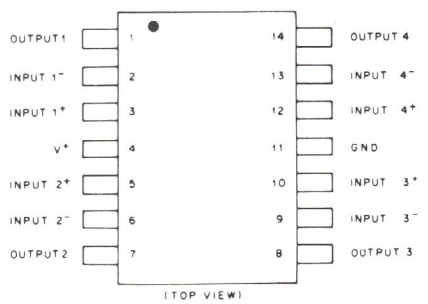
TU-35A PC BOARD VIEW

(X52-1190-00)



NJM2902N (TU-35A)



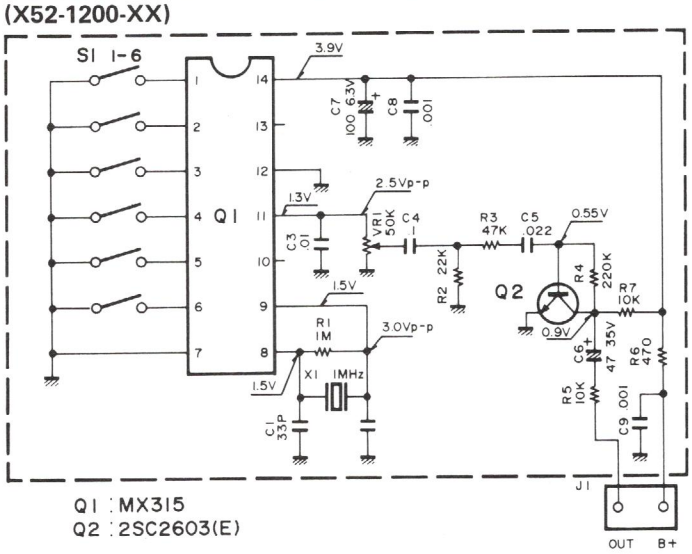


TU-35B (REPEATER TONE UNIT)

TU-35B SPECIFICATIONS

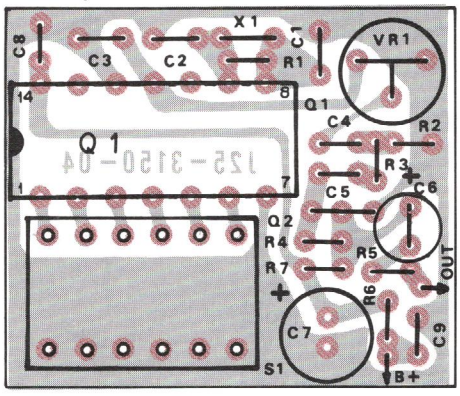
Oscillator frequency..... 1 MHz ±0.1%
Usable frequency range..... 37 EIA Specification Group Frequencies (67.0 ~ 250.3 Hz)
Weight ..... 8 grams

TU-35B SCHEMATIC DIAGRAM
(X52-1200-XX)



Q1 : MX315
Q2 : 2SC2603(E)

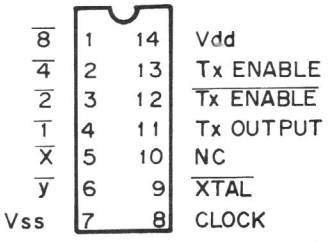
TU-35B PC BOARD VIEW
(X52-1200-XX)



TU-35B PARTS LIST

Part No.	Re-marks	Description		Q'ty
TU-35B				
B40-2638-04	N	Name plate		1
B42-1771-04	N	Frequency name plate		1
B50-4019-00	N	Instruction manual		1
J39-0417-04		Spacer		1
N35-2004-41		Bind screw		2
X52-1200-00	N	Tone unit	M	1
X52-1200-11	N	Tone unit	K	1
Tone Unit (X52-1200-XX)				
CC45CH1H330J		C 33PF	C1,2	2
CK45B1H102K		C 0.001 μF	C8, 9	2
CS15E1VR47M		T 0.47μF 35V	C6	1
C90-0842-05		E 100 μF 6.3V	C7	1
C91-0422-05		Cap 0.01 μF	C3	1
C91-0426-05		Cap 0.022 μF	C5	1
C91-0431-05		Cap 0.1 μF	C4	1
L77-0982-05	N	Crystal 1MHz	X1	1
R12-4505-05		Trim. Pot. 50 KΩ(B)	VR1	1
S31-6401-05	N	Dip switch	S1	1
2SC2603 (E)		Tr	Q2	1
MX315	N	IC	Q1	1

MX315 (TU-35B)



TU-35B TONE FREQUENCY DATA

#	EIA Specification Groop	Hz	Program Lines (ON···1, OFF···0) 1	2	3	4	5	6
1	C	67.0	1	1	1	1	1	1
2	B	71.9	1	1	1	1	1	0
3	C	74.4	1	1	1	0	1	1
4	A	77.0	1	1	1	1	0	0
5	C	79.7	1	1	0	1	1	1
6	B	82.5	1	1	1	0	1	0
7	C	85.4	1	1	0	0	1	1
8	A	88.5	1	1	1	0	0	0
9	C	91.5	1	0	1	1	1	1
10	B	94.8	1	1	0	1	1	0
11	A	100.0	1	1	0	1	0	0
12	B	103.5	1	1	0	0	1	0
13	A	107.2	1	1	0	0	0	0
14	B	110.9	1	0	1	1	1	0
15	A	114.8	1	0	1	1	0	0
16	B	118.8	1	0	1	0	1	0
17	A	123.0	1	0	1	0	0	0
18	B	127.3	1	0	0	1	1	0
19	A	131.8	1	0	0	1	0	0
20	B	136.5	1	0	0	0	1	0
21	A	141.3	1	0	0	0	0	0
22	B	146.2	0	1	1	1	1	0
23	A	151.4	0	1	1	1	0	0
24	B	156.7	0	1	1	0	1	0
25	A	162.2	0	1	1	0	0	0
26	B	167.9	0	1	0	1	1	0
27	A	173.8	0	1	0	1	0	0
28	B	179.9	0	1	0	0	1	0
29	A	186.2	0	1	0	0	0	0
30	B	192.8	0	0	1	1	1	0
31	A	203.5	0	0	1	1	0	0
32	B	210.7	0	0	1	0	1	0
33	A	218.1	0	0	1	0	0	0
34	B	225.7	0	0	0	1	1	0
35	A	233.6	0	0	0	1	0	0
36	B	241.8	0	0	0	0	1	0
37	A	250.3	0	0	0	0	0	0

MS-1 (MOBILE STAND CHARGER)

MS-1 SPECIFICATIONS

General

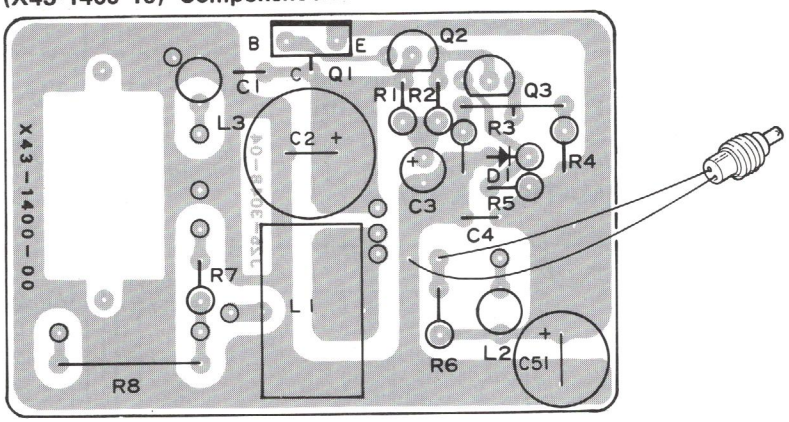
Dimensions 79(W) x 180(H) x 53(D) mm.
Weight 350g

Rating

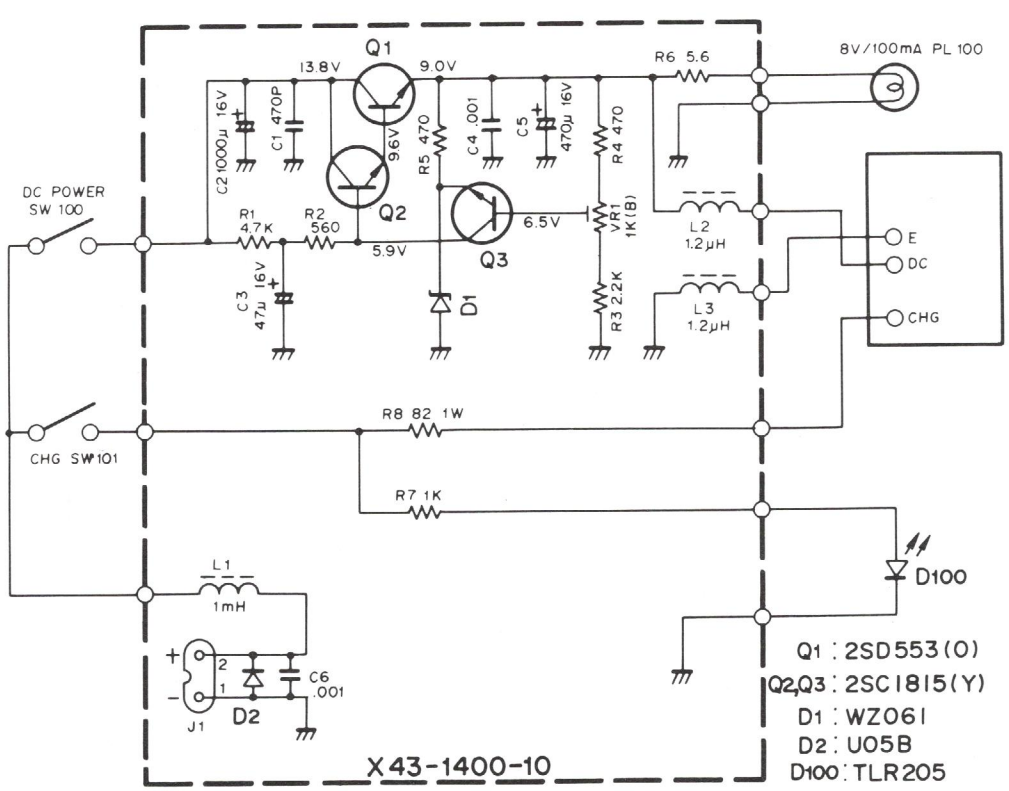
Input source voltage .....DC13.8V±15%
Output voltage DC9.0V
Charging current About 45mA (DC 13.8V)
Charging time ..... About 15 hrs.

MS-1 PC BOARD VIEW

(X43-1400-10) Component side view

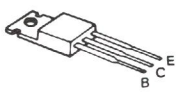


MS-1 SCHEMATIC DIAGRAM

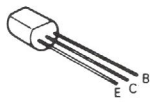


Q1 : 2SD553(O)
Q2,Q3 : 2SC1815(Y)
D1 : WZ061
D2 : U05B
D100 : TLR205

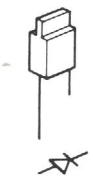
2SD553



2SC1815



TLR205



MS-1

MS-1 (MOBILE STAND CHARGER)

MS-1 PARTS LIST

Part No.	Re-marks	Description	Q'ty
MS-1, (KMT) GENERAL			
A02-0624-12		Mobile case (front)	
A02-0626-02	N	Mobile case (rear)	
A40-0607-04		Bottom case	
B10-0649-04	N	Front glass	
B11-0412-04	* N	Reflector	
B40-2590-04	N	Name plate	
B46-0007-00		Warranty card	
B50-3936-10	N	Operating manual	
E23-0426-05		Earth lug, LED	
E29-0429-04		Pin connector	3
E30-1696-05	N	Cigarette plug with cord	
G01-0815-04	N	Spring, switch	
G01-0816-04	N	Spring, connector	3
G10-0618-04	N	Protective cloth (A)	
G10-0619-14	N	Protective cloth (B)	2
G13-0626-04	*N	Neo sponge	
G13-0659-04	*N	Cushion (A)	
G13-0660-04	*N	Cushion (B)	
H01-2787-13	N	Carton case M	
H12-0489-13	N	Packing fixture	
H25-0029-04		Protective bag (Screw, tape)	
H25-0103-04		Protective bag (MS-1)	
J11-0406-14		Fixed stopper	
J12-0404-04		Pin (switch)	2
J19-1317-04		Diode holder	
J19-1359-04	N	Metal hook	
J61-0401-05		Nylon band	
J69-0304-04	N	Viscous tape	
N24-3015-45		E-ring	4
N30-2010-45		Panhead screw, Case	4
N35-3005-45		Bind screw, Hook metal fitting	4
N87-2005-46		Tap tight screw, Switch, LED	5
N89-3010-41		Tap tight screw, Fixed stopper	2
S36-1405-05		See saw switch, S100, S101	2
V11-3162-96		LED, TLR205, D100	
X43-1400-00		Power unit	

Part No.	Re-marks	Description	Ref. No.	Q'ty
POWER UNIT, X43-1400-00				
B30-0825-05	N	Lamp		
CE04W1C470M		E, 47μF, 16V	C3	
CK45B1H102K		C, 0.001μF	C4,6	2
C90-0820-05		E470μF, 16V	C5	
C90-0850-05	N	E, 1000μF, 16V	C2	
E08-0203-25		2P connector		
F20-0078-05		Insulating plate		
F29-0014-05		Insulating washer		
L15-0302-05	N	Troidal coil, 1mH	L1	
L34-0438-05		Choke coil, 1.2μH	L2,3	2
N10-2026-46		Hexagon nut		2
N10-2030-46		Hexagon nut		
N30-2604-46		Panhead screw		
N30-2610-41		Panhead screw		2
N30-3008-46		Panhead screw		
R12-1020-05		Trim. Pot, 1kΩ	VR1	
RS14AB3A820J		MF, 82Ω, ±5%, 1W	R8	
2SC1815 (Y)		TR	Q2,3	2
2SD553 (O)		TR	Q1	
WZ-061		Zener diode	D1	
U05B		Diode	D2	

SMC-30 (SPEAKER MICROPHONE)/ST-2 (BASE STAND)

SMC-30 OUTSIDE VIEW

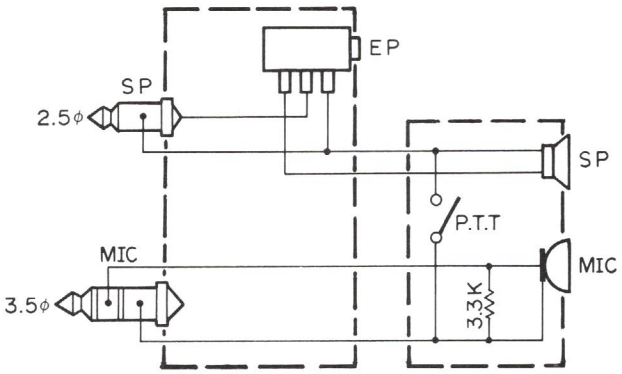
SMC-30 PARTS LIST

Part No.	Re-mraks	Description	Ref. No.	Q'ty
E30-1789-05	N	Curled cord ass'y		1
J19-1360-08		Clip metal fitting		1
J42-0429-08		Cord bushing		1
K29-3035-08	N	PTT knob		1
S50-1408-08		Micro switch		1
T07-0219-08		Speaker		1
T97-1024-08		Electret microphone		1

SMC-30 SPECIFICATIONS

- **SPEAKER**
  - **Speaker** 40mmϕ
  - **Max. Input** 0.5W
  - **Input impedance** 8Ω
- **MICROPHONE**
  - **Type** . . . . . Electret condensor
  - **Sensitivity** . . . . . –67dB
  - **Output impedance** 2kΩ
  - **Frequency response** . . . 200Hz~5kHz
  - **Operating temperature** . . –20°C~+60°C
  - **Dimensions** . . . . . 51W x 73H x 33D (mm) (Projections excluded)
  - **Weight** . . . . . 130g (Cord included)

SMC-30 SCHEMATIC DIAGRAM



ST-2 SPECIFICATIONS

Power Source Voltage

K TYPE	120V	60Hz
W TYPE	220V	50/60Hz
T TYPE	240V	50/60Hz
X TYPE	240V	50/60Hz
M TYPE	120/220V	50/60Hz

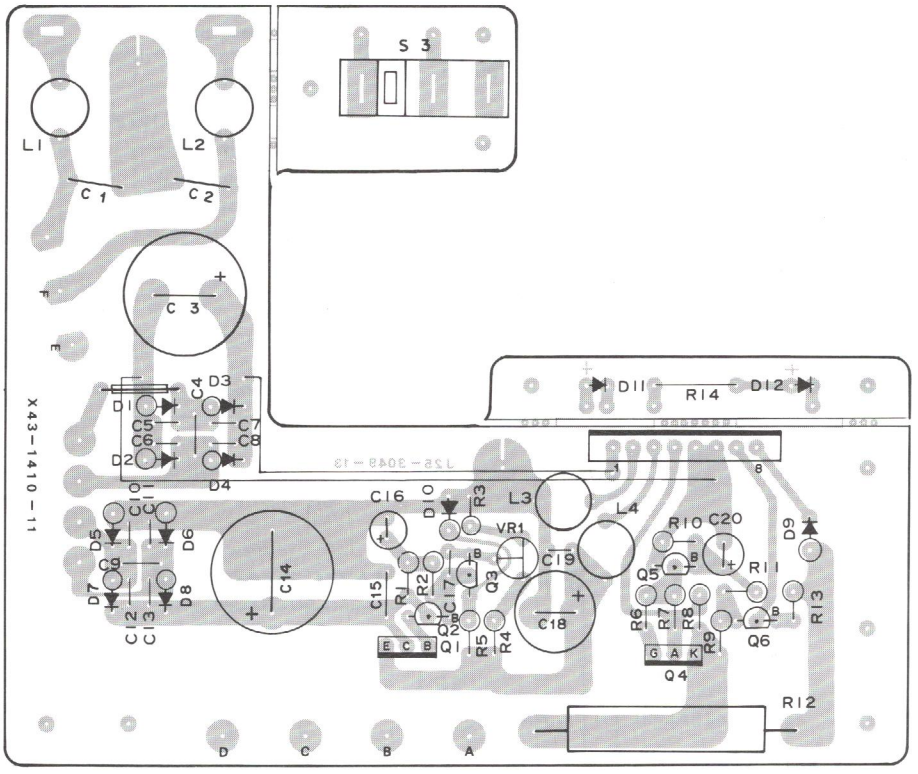
Dimensions ..... 185 (W) × 72 (H) × 115 (D) mm
Weight ..... 1.5 kg

DC Power Source Unit
- **Output Voltage** 9.0V
- **Output current** 0.8A

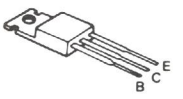
Charging Power Source Unit
- **Type** ..... Boosting charge type
- **Charging current** ..... Boosting charge approximately 600mA
  Trickle charge approximately 20mA
- **Charging time** ..... Boosting charge approximately 1 hr
  Trickle charge approximately 20 hrs

ST-2 (BASE STAND)

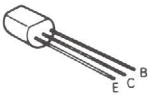
ST-2 PC BOARD VIEW



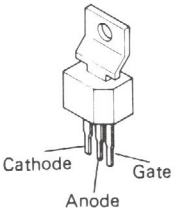
2SD553



2SC1815
2SA1015(Y)



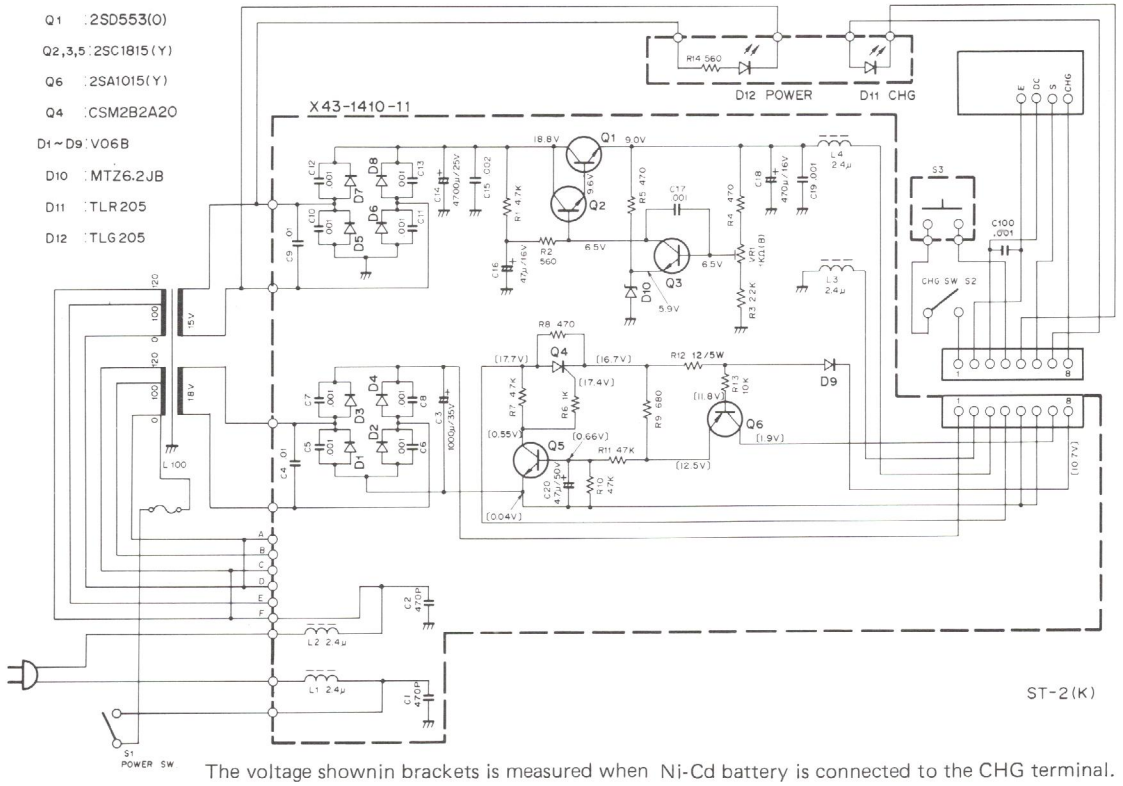
CSM2A1A20



TLR205

ST-2 SCHEMATIC DIAGRAM

Q1 : 2SD553(O)
Q2,3,5 : 2SC1815(Y)
Q6 : 2SA1015(Y)
Q4 : CSM2B2A20
D1~D9 : V06B
D10 : MTZ6.2JB
D11 : TLR205
D12 : TLG205



The voltage shownin brackets is measured when Ni-Cd battery is connected to the CHG terminal.
Above schematic diagram shows K type.

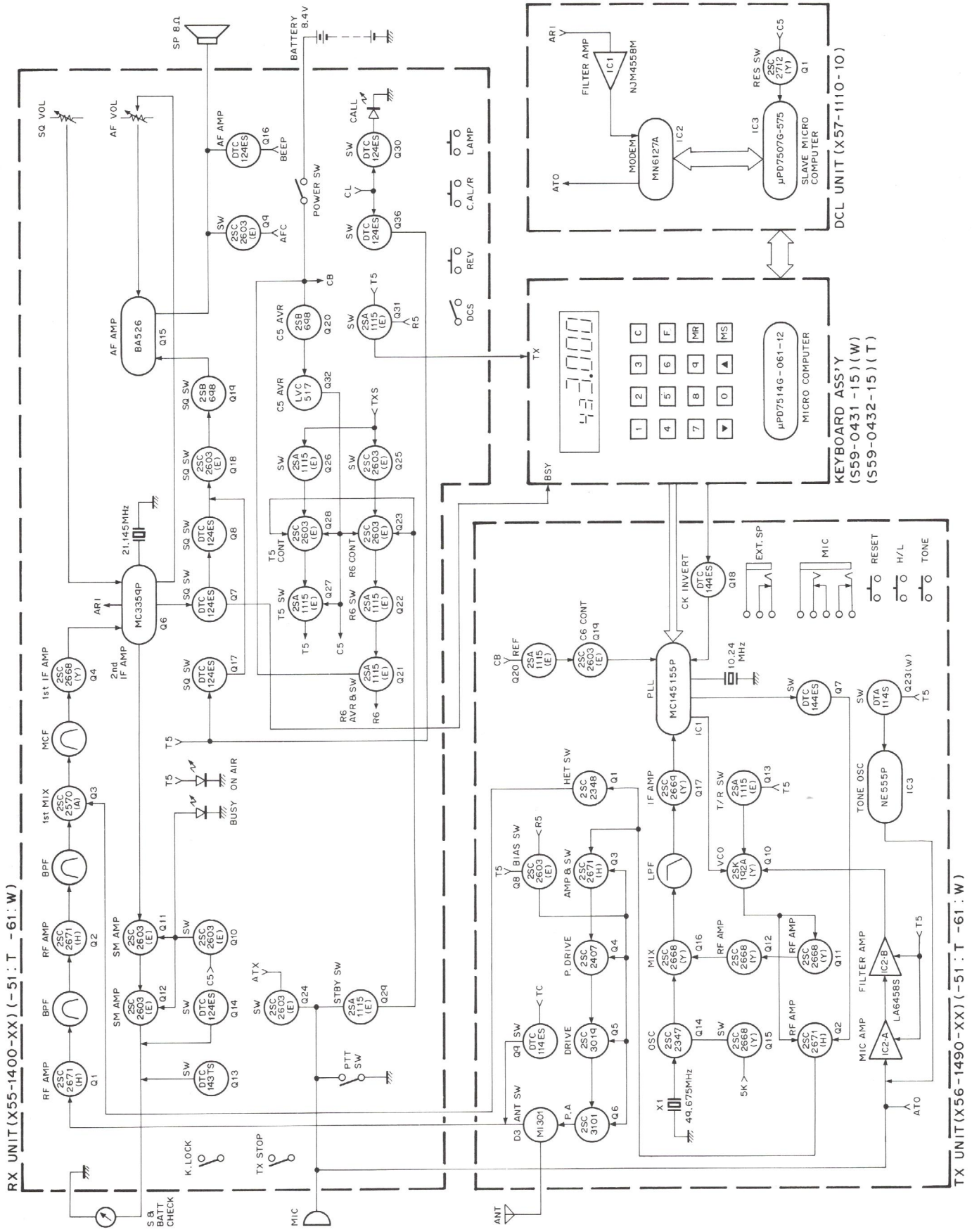
ST-2 (BASE STAND)

ST-2 PARTS LIST

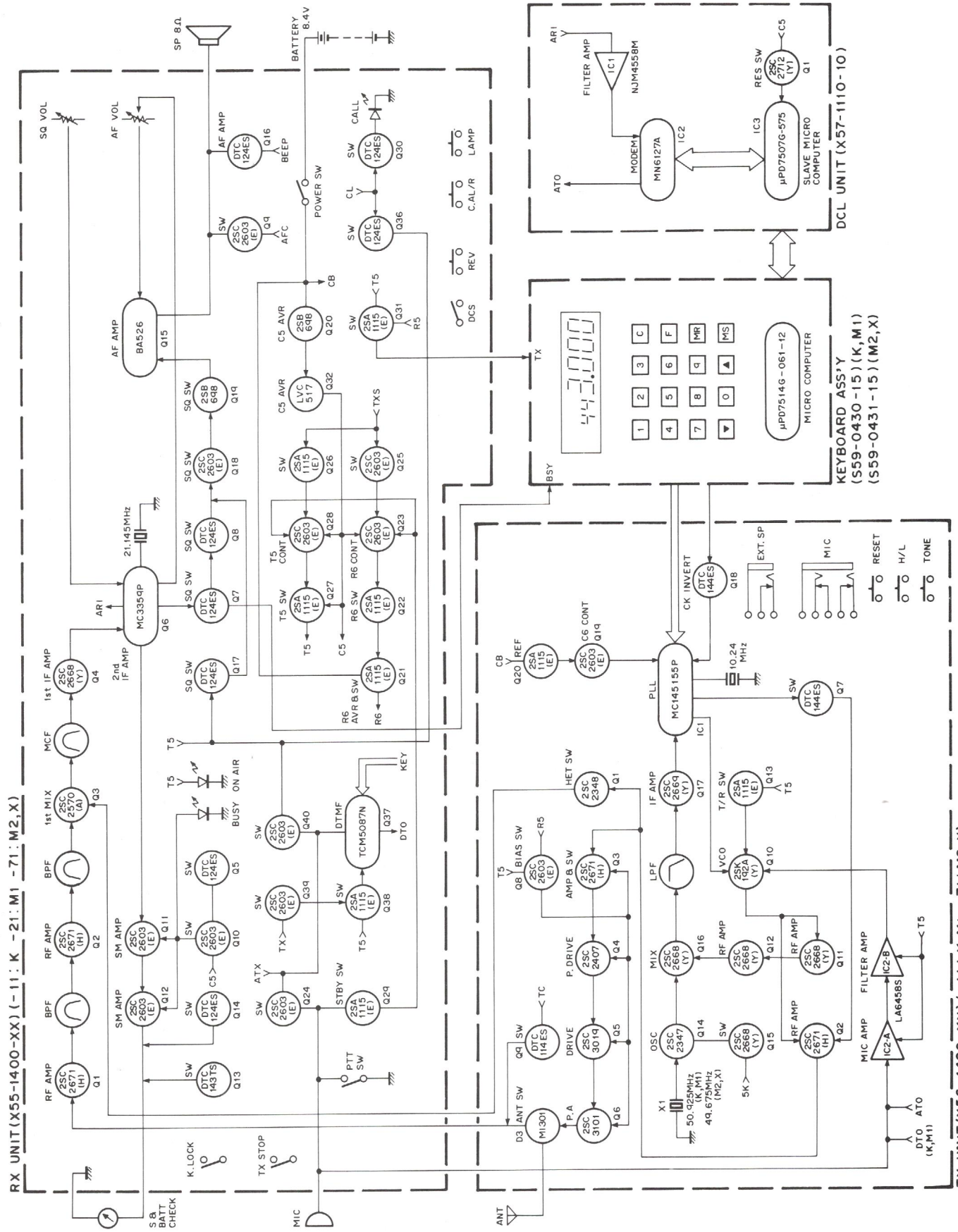
Part No.	Re-marks	Description		Q'Ty
A02-0628-21	N	Case	K,M,W,X	
A02-0629-21	N	Case	T	
B40-2592-04	N	Name plate	K	
B40-2593-04	N	Name plate	W	
B40-2594-04	N	Name plate	T,X	
B40-2596-04	N	Name plate	M	
B42-1697-04		Voltage selector	M	
B46-0411-00		Warranty card	K	
B50-3938-20	N	Operating manual	K,T,W,X	
B50-3947-20	N	Operating manual	M	
D32-0075-04		Switch stopper, Slide switch	M	
E29-0429-04	N	Pin, connector		
E30-0181-05		AC cord with plug	K,M	
E30-0185-05		AC cord	X	
E30-0585-05		AC cord with plug	W	
E30-0602-05		AC cord with plug	T	
G01-0815-04	N	Switch spring		
G01-0816-04	N	Spring connector terminal		4
G02-0533-04		Spring plate		2
G10-0620-14	N	Cushion cloth (A), Case		2
H01-2791-03	N	Carton	K,M,W,X	
H01-2792-03	N	Carton	T	
H12-0489-03	N	Packing fixture		
H25-0106-04		Protective bag		
J02-0070-05		Foot		4
J11-0406-14	N	Fixed stopper		2
J12-0404-04	N	Pin, switch		
J19-1317-04		Diode holder		2
J41-0024-15		Cord bushing	T,W,X	
J42-0430-05	N	Cord bushing	K,M	
J61-0401-05		Nylon belt		3
L01-8146-05	N	Power transformer		
N09-0256-05		Earth screw	T,W,X	
N16-0040-41		Spring washer, Transformer		2
N24-3015-45		E-ring		5
N30-3004-41		Panhead screw, Slide switch	M	2
N30-3006-41		Panhead screw, Power unit		5
N30-4006-41		Panhead screw, Transformer		2
N35-3006-45		Bind screw, Case		4
N87-2006-46		Tap tite screw LED, Micro Sw PC board		5
N87-3008-41		Tap tite screw Foot		4
N89-3010-41		Tap tite screw stopper		2
S31-2027-05		Slide switch, voltage selector	M	
S36-1407-05	N	See saw switch, Power, charge	S_1,S_2	2
X43-1410-11	N	Power unit		

Part No.	Re-marks	Description	Ref. No.	Q'ty
Power Unit (X43-1410-11)				
CE04W1C470M		E, 47μF, 16V	C16	
CE04W1H4R7M		E, 4.7μF, 50V	C20	
CK45B1H102K		C, 0.001μF	C5,6,7,8,10,11, 12,13,17,19	10
CK45B2H471K		C, 470pF	C1,2	2
CK45F1H103Z		C, 0.01μF	C4,9	2
CK45F1H223Z		C, 0.022μF	C15	
C90-0814-05		E, 4700μF, 25V	C14	
C90-0820-05		E, 470μF, 16V	C18	
C90-0851-05	N	E, 1000μF, 35V	C3	
E23-0046-04		Square terminal		11
F20-0078-05		Insulating plate		2
F29-0014-05		Insulating washer		2
J13-0039-05		Fuse holder		2
L33-0624-05		Choke coil, 2.4μH	L1,2,3,4	4
N09-0641-05		Screw		2
N10-2030-46		Hexagon Nut		
N30-3008-46		Panhead screw		2
R12-1414-05		Trim, pot., 1kΩ	VR1	
R92-0661-05	N	Cement resistor, 12Ω, 5W	R12	
R92-0150-05		Jumper resistor		
S50-1410-05	N	Micro switch	S3	
2SA1015 (Y)	N	TR	Q6	
2SC1815 (Y)		TR	Q2,3,5	3
2SD553 (O)	N	TR	Q1	
V06B		Diode	D1 ~ 9	9
MTZ6.2JB		Zener diode	D10	
CSM2A1A20	N	Thryistor	Q4	
TLG205		LED	D12	
TLR205		LED	D11	

BLOCK DIAGRAM (T,W TYPE)

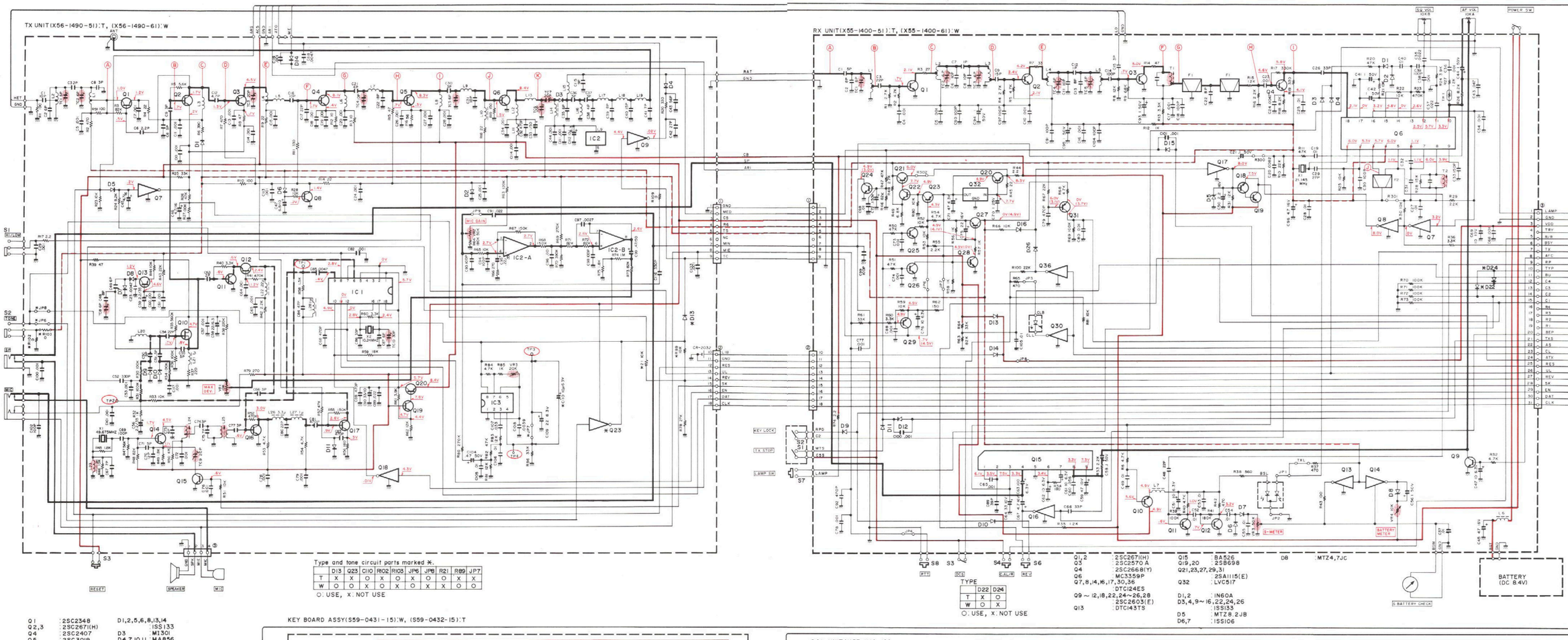


BLOCK DIAGRAM (K,M,X TYPE)



TR-3600A/E SCHEMATIC DIAGRAM (T,W TYPE)

Signal Line — Control Line — Common DC Line — T5,R5 Line



Type and tone circuit parts marked ✳.

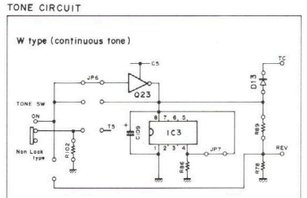
	D13	Q23	C110	RO2	RI03	JP6	JP8	R21	R89	JP7
T	X	X	O	X	O	X	O	O	X	X
W	O	O	X	O	X	O	X	X	O	O

O: USE, X: NOT USE

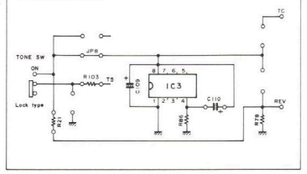
Q1	: 2SC2348	D1,2,5,6,8,13,14	: 1SS133
Q2,3	: 2SC2671(H)	D3	: MI30I
Q4	: 2SC2407	D4,7,10,11	: MA856
Q5	: 2SC3019	D9	: 1SV123
Q6	: 2SC3101		
Q7,18	: DTC114ES		
Q8,19	: 2SC2603(E)		
Q9	: DTC114ES		
Q10	: 2SK192A(Y)-XJ	IC1	: MC145155P-XJ
Q11,12,15,16	: 2SC2668(Y)	IC2	: LA6458S
Q13,20	: 2SA1115(E)	IC3	: NE555P
Q14,	: 2SC2347		
Q17	: 2SC2669(Y)		
Q23	: DTA114ES		

TONE CIRCUIT

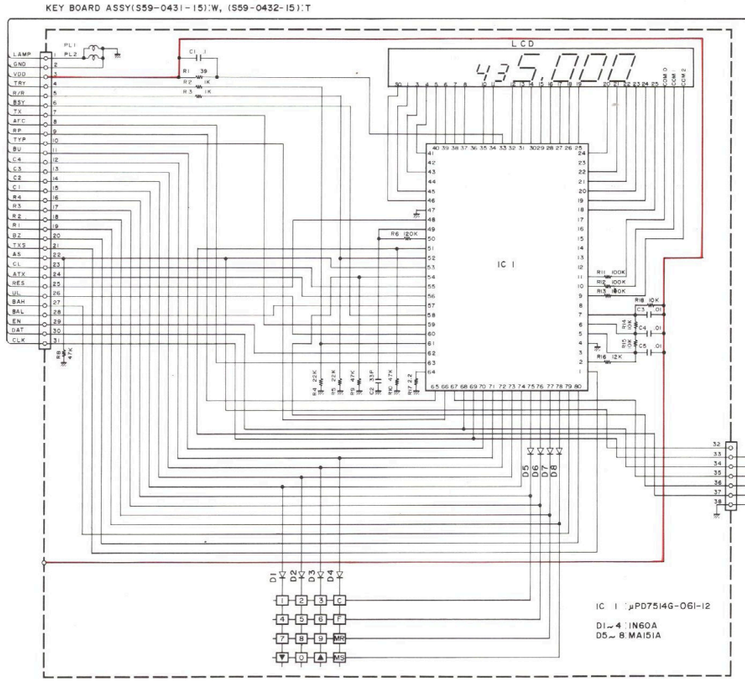
W type (continuous tone)



T type (burst tone)

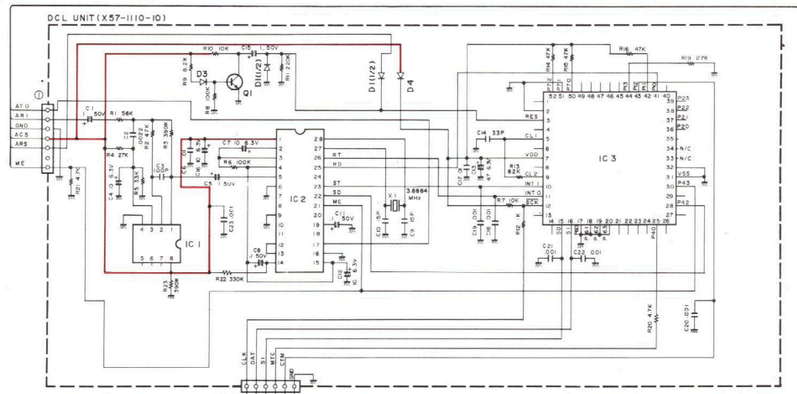


KEY BOARD ASSY(S59-0431-15):W, (S59-0432-15):T



IC 1 : μPD75I4G-06I-12

DCL UNIT(X57-1110-10)



IC1 : NJM4558M
IC2 : MN6127A
IC3 : μPD7507G-575-00

Q1 : 2SC2712(Y)

D1,4 : MA151WK
D3 : MA522(Q)

TR-3600E

Q1,2	: 2SC2671(H)	Q15	: BA526
Q3	: 2SC2570A	Q19,20	: 2SB698
Q4	: 2SC2668(Y)	Q21,23,27,29,31	: 2SA1115(E)
Q6	: MC3359P	Q32	: LVC5117
Q7,8,14,16,17,30,36	: DTC124ES		
Q9~12,18,22,24~26,28	: 2SC2603(E)	D1,2	: 1N60A
Q13	: DTC143TS	D3,4,9~16,22,24,26	: 1SS133
		D5	: MTZ8.2JB
D8	MTZ4.7JC	D6,7	: 1SS106

TYPE

	D22	D24
T	X	O
W	O	X

O: USE, X: NOT USE

REFERENCE LEVEL

TRANSMITTER SECTION

f = 435.000MHz

A : 0.18V
B : 0.30V
C : 0.40V
D : 0.21V
E : 0.60V
F : 0.41V
G : 2.40V
H : 1.50V
I : 13.0V
J : 3.7V
K : 13.0V

RECEIVER SECTION

f = 435.000MHz
MOD = 1kHz, DEV = 5kHz
OUTPUT = 50mW/8.2Ω

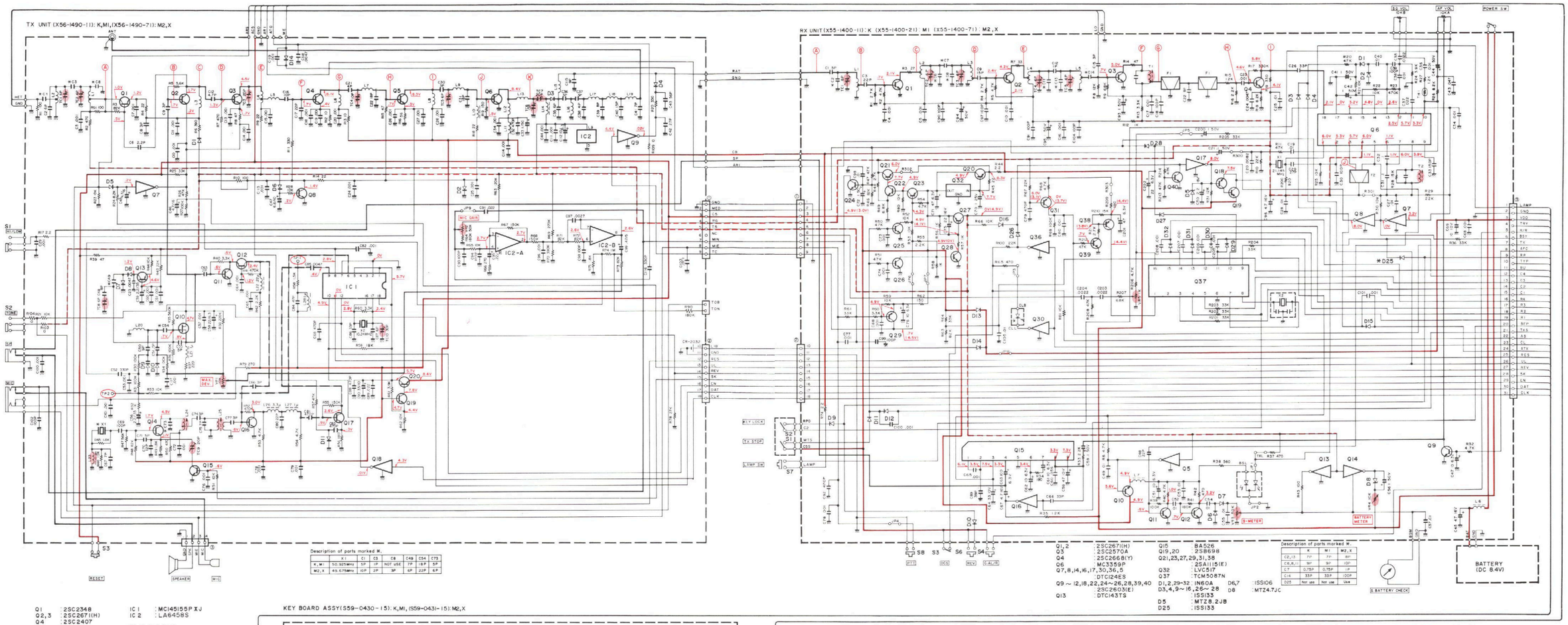
C 0.01μF

A : 0.5dB
B : 4.5dB
C : −1.5dB
D : −0.5dB
E : 4.0dB
F : 27.0dB
G : 12.0dB
H : 2.0dB
I : 18.5dB
J : 35.0dB

Voltage measurement conditions f=435.000MHz, RX no signal, ( ) : TX

Signal Line — Control Line — Common DC Line — T5,R5 Line

SCHEMATIC DIAGRAM (K,M,X TYPE) TR-3600A/E



Description of parts marked ※.

	X1	C1	C3	C8	C49	C54	C73
K,MI	50.925MHz	5P	1P	NOT USE	7P	18P	5P
M2,X	45.675MHz	0P	2P	3P	6P	22P	6P

	K	MI	M2,X
C2,15	7P	7P	8P
C6,8,11	9P	9P	10P
C7	0.75P	0.75P	1P
C14	33P	33P	100P
D25	Not use	Not use	Use

Q1 : 2SC2348
Q2,3 : 2SC2671(H)
Q4 : 2SC2407
Q5 : 2SC3019
Q6 : 2SC3101
Q7,18 : DTC144ES
Q8,19 : 2SC2603(E)
Q9 : DTC114ES
Q10 : 2SK192A(Y)※J
Q11,12,15,16 : 2SC2668(Y)
Q13,20 : 2SA1115(E)
Q14 : 2SC2347
Q17 : 2SC2669(Y)

IC1 : MC145155P※J
IC2 : LA6458S

D1,2,5,6,8,14 : 1SS133
D3 : MI301
D4,7,10,11 : MA856
D9 : 1SV123

Q1,2 : 2SC2671(H)
Q3 : 2SC2570A
Q4 : 2SC2668(Y)
Q6 : MC3359P
Q7,8,14,16,17,30,36,5 : DTC124ES
Q9 ~ 12,18,22,24~26,28,39,40 : 2SC2603(E)
Q13 : DTC143TS

Q15 : BA526
Q19,20 : 2SB698
Q21,23,27,29,31,38 : 2SA1115(E)
Q32 : LVC517
Q37 : TCM5087N
D1,2,29~32 : 1N60A
D3,4,9~16,26~28 : 1SS133
D5 : MTZ8.2JB
D25 : 1SS133
D6,7 : 1SS106
D8 : MTZ4.7JC

IC1 : μPD75146-061-12

D1~4 : 1N60A
D5~8 : MA151A

IC1 : NJM4558M
IC2 : MN6127A
IC3 : μPD75076-575-00
Q1 : 2SC2712(Y)
D1,4 : MA151WK
D3 : MA522(Q)

REFERENCE LEVEL

TRANSMITTER SECTION

f = 435.000MHz

A : 0.18V
B : 0.30V
C : 0.40V
D : 0.21V
E : 0.60V
F : 0.41V
G : 2.40V
H : 1.50V
I : 13.0V
J : 3.7V
K : 13.0V

RECEIVER SECTION

f = 435.000MHz
MOD = 1kHz, DEV = 5kHz
OUTPUT = 50mW/8.2Ω
C 0.01μF

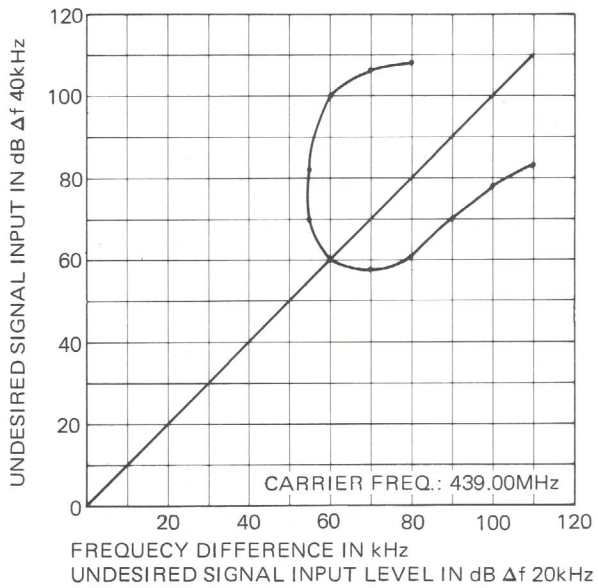
A : 0.5dB
B : 4.5dB
C : −1.5dB
D : −0.5dB
E : 4.0dB
F : 27.0dB
G : 12.0dB
H : 2.0dB
I : 18.5dB
J : 35.0dB

TR-3600A

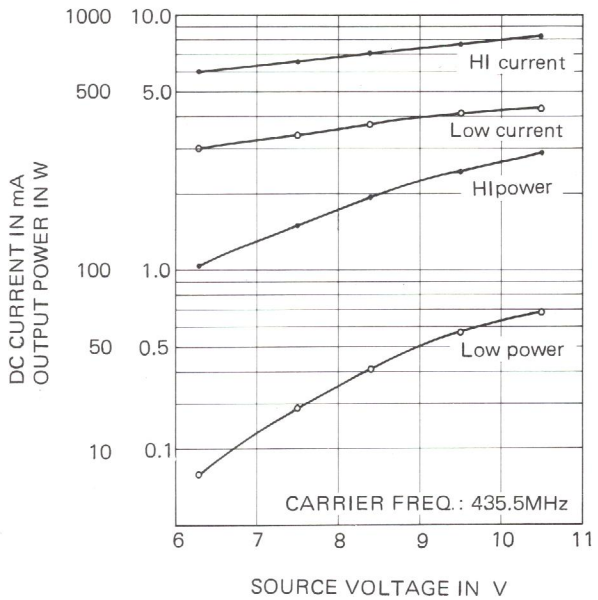
Voltage measurement conditions f=435.000MHz, RX no signal, ( ) : TX

REFERENCE DATA

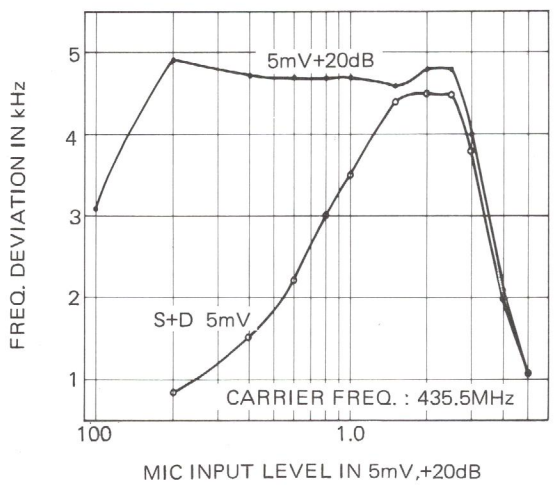
INTER MODULATION



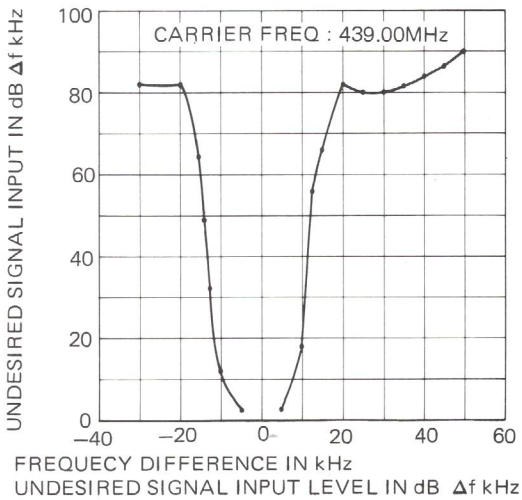
OUTPUT POWER



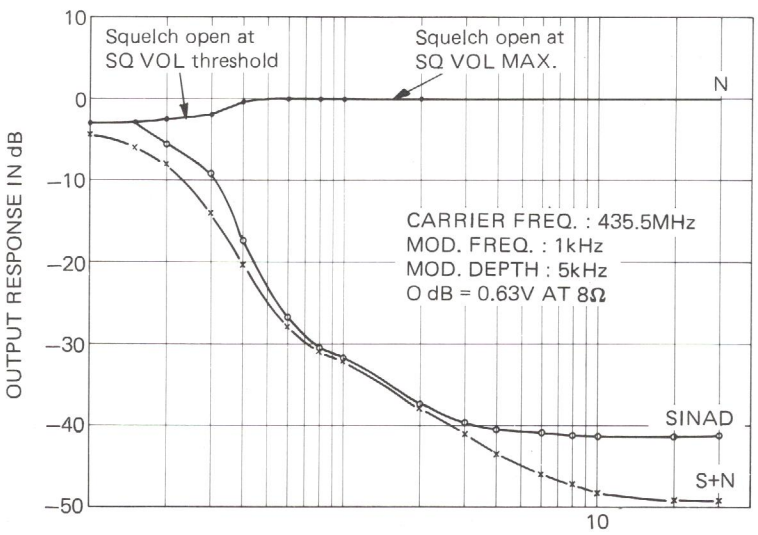
DEVIATION



BLOCKING



RX SENSITIVITY



SPECIFICATIONS

[General]

Frequency Range	440.000–449.995MHz **(K,M1)** 430.000–439.995MHz **(M2,T,W,X)**
Memory Channels	10CH
Mode	FM (F3), (F2 in DCS mode)
Operating Voltage	8.4V DC ±25%
Power Requirement	8.4V, 450mAH (Ni-Cd battery pack) 9V manganese or alkaline (not Ni-Cd) 6"C" CELL battery case (option)
Back-up Power Requirement	CR-2032 Lithium battery
Current Drain	Approx. 35mA in receive mode with no input signal Less than 750mA in HI transmit mode (at 8.4V) Less than 400mA in Low transmit mode (at 8.4V) Less than 1μA for memory back-up
Grounding	Negative
Operating Temperature	−20°C to + 50°C
Antenna Impedance	50Ω
Dimensions	With Ni-Cd battery: 66(2.6)W x 168(6.7)H x 40(1.6)D mm (inch) With manganese battery: 66(2.6)W x 176(7.0)H x 40(1.6)D mm (inch)
Weight	With Ni-Cd battery: 540g (1.2lbs.) With manganese battery: 530g (1.2lbs.)

[Transmitter]

RF Output Power	HI = 1.5W LOW = 0.3W approx.
Modulation	Variable reactance direct shift
Frequency Tolerance	Less than ±20 x 10^{-6} (−10°C–+ 50°C)
Maximum Frequency Deviation	±5kHz
Spurious Radiation	Less than −60dB

[Receiver]

Circuitry	Double conversion superheterodyne
Intermediate Frequency	1st IF = 21.6MHz 2nd IF = 455kHz
Sensitivity	Better than 1μV for S/N 30dB Less than 0.25μV for 12dB SINAD
Pass-Band Width	More than 12kHz (−6dB)
Selectivity	Less than 24kHz (−40dB)
Spurious Response	Better than 50dB
Squelch Sensitivity	Less than 0.25μV (threshold)
Audio Output Power	More than 400mW (at 10% distorsion and 8Ω load)

NOTE: Circuit and ratings may change without notice due to advances in technology.

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