SEMICONDUCTOR PARTS LIST

○ TK-981 TX/RX UNIT (X57-5710-11)

SYMBOL	PARTS NUMBER	PARTS NAME	DISCRIPTION
D1	HSB123	DIODE	SURGE ABSORPTION
D2	HSB123	DIODE	SURGE ABSORPTION
D3	HSB123	DIODE	SURGE ABSORPTION
D4	HSB123	DIODE	SURGE ABSORPTION
D5	HSB123	DIODE	SURGE ABSORPTION
D6	HSB123	DIODE	SURGE ABSORPTION
D7	02DZ20(Y,Z)	ZENER DIODE	VOLTAGE REFERRENCE
D11	DAN202U	DIODE	DC SWITCH
D15	DAN235E	DIODE	RF SWITCH (TX/RX)
D16	1SS355	DIODE	REVERCE CURRENT PREVENTION
D17	HSB123	DIODE	SURGE ABSORPTION
D20	1SS355	DIODE	REVERCE CURRENT PREVENTION
D21	02DZ5.6(X,Y)	ZENER DIODE	VOLTAGE REFERRENCE
D24	MINISMDC075-02	POLY SW	CURRENT PROTECTION
D26	1SS355	DIODE	REVERCE CURRENT PREVENTION
D28	02DZ15(X,Y)	ZENER DIODE	VOLTAGE REFERRENCE
D31	1SS355	DIODE	REVERCE CURRENT PREVENTION
D32	22ZR-10D	SURGE ABSORBER	SURGE ABSORPTION
D33	DSM3MA1	DIODE	REVERCE CURRENT PREVENTION
D34	02DZ18(X,Y)	ZENER DIODE	VOLTAGE REFERRENCE
D35	MA742	DIODE	LIMITTER
D200	HSM88AS	DIODE	PROTECT
D208	MA4PH633	DIODE	RF SWITCH (TX/RX)
D219	MI809	DIODE	RF SWITCH (TX/RX)
D210	MI809	DIODE	RF SWITCH (TX/RX)
IC1	TA75W01FU	IC	AMPLIFIER
IC2	TC75W51FU	IC	AMPLIFIER
IC3	TA75W558FU	IC	AMPLIFIER
IC4	TC4S66F	IC	SWITCH
IC5	M62363FP	IC	D/A CONVERT
IC6	TA75W558FU	IC	AMPLIFIER
IC7	BU4094BCFV	IC	SHIFT/STORE RESISTER
IC8	BU4094BCFV	IC	SHIFT/STORE RESISTER
IC9	TA78L05F	IC	5V AVR
IC10	LA4422	IC	AF AMP
IC11	TA31136FN	IC	FM DEMODULATION
IC12	TA78L05F	IC	5V AVR
IC13	NJM2904E	IC	DC AMP
IC14	TA7808S	IC	8V AVR
IC15	TC4013BF(N)	IC	POWER SUPPLY LOGIC CIRCUIT CONTROL
IC300	SA7025DK	IC	PLL SYNTHESIZER
IC400	M67760HC	IC	POWER MODULE
Q1	2SK1824	TRANSISTOR	AF SWITCH
Q2	2SC2412K(S)	TRANSISTOR	LIPPLE FILTER
Q4	DTD114EK	TRANSISTOR	DC SWITCH (HOR)
Q5	DTC114EE	TRANSISTOR	DC SWITCH (IGN)
Q6	DTC114EE	TRANSISTOR	DC SWITCH (HOR CONT.)

SYMBOL	PARTS NUMBER	PARTS NAME	DISCRIPTION
Q7	2SC4226(R24)	TRANSISTOR	BUFFER AMP.
Q8	DTC363EU	TRANSISTOR	AF MUTE SWITCH
Q9	DTA114YUA	TRANSISTOR	AF MUTE SWITCH
Q10	DTC114EE	TRANSISTOR	DC SWITCH (8R)
Q11	2SA1362(Y)	TRANSISTOR	DC SWITCH (8R)
Q12	2SB1132(Q,R)	TRANSISTOR	DC SWITCH (8T)
Q13	DTC114EE	TRANSISTOR	DC SWITCH (8T)
Q15	2SC2059K(P)	TRANSISTOR	IF AMP
Q17	2SC4116(GR)	TRANSISTOR	APC PRE DRIVE
Q18	2SK1824	TRANSISTOR	RX MUTE
Q19	2SB1370(E,F)	TRANSISTOR	APC DRIVE
Q20	DTA144EUA	TRANSISTOR	DC SWITCH
Q21	DTC144EUA	TRANSISTOR	DC SWITCH
Q22	DTC114EE	TRANSISTOR	DC SWITCH (TOF)
Q25	DTA114EE	TRANSISTOR	DC SWITCH (TOF)
Q26	DTA114EE	TRANSISTOR	DC SWITCH (PSW)
Q27	2SA1641(S,T)	TRANSISTOR	SB SWITCH
Q28	DTC114EE	TRANSISTOR	DC SWITCH (SB)
Q30	DTA114EE	TRANSISTOR	DC SWITCH (SB)
Q31	DTC114EE	TRANSISTOR	DC SWITCH (SB)
Q32	2SK1824	TRANSISTOR	AF SWITCH
Q201	2SC4094(R37)	TRANSISTOR	RF AMP(FRONT AMP)
Q202	2SC3356(R24)	TRANSISTOR	RF AMP(PRE DRIVE)
Q203	SGAM2014AM	TRANSISTOR	MIX
Q204	2SK2596	TRANSISTOR	RF AMP(DRIVE)
Q300	2SC4226(R24)	TRANSISTOR	RF AMP(PLL INPUT)
Q301	2SC3722K(S)	TRANSISTOR	CP
Q302	2SC3722K(S)	TRANSISTOR	CP

SEMICONDUCTOR PARTS LIST

○ TK-981 CONTROL UNIT (X57-5710-11)

SYMBOL	PARTS NUMBER	PARTS NAME	DISCRIPTION
D501	HSB123	DIODE	SURGE ABSORPTION
D502	MINISMDC075-02	POLY SW	CURRENT PROTECTION
D503	HSB123	DIODE	SURGE ABSORPTION
D504	HSB123	DIODE	SURGE ABSORPTION
D505	HSB123	DIODE	SURGE ABSORPTION
D507	DAN202U	DIODE	OR GATE (MIC MUTE)
D508	MA742	DIODE	LIMITTER
D509	MA742	DIODE	LIMITTET
D510	HSC119	DIODE	REVERCE CURRENT PREVENTION
D511	B30-2151-05	LED	LIGHT EMISSION
D512	B30-2171-05	LED	LIGHT EMISSION
D513	B30-2171-05	LED	LIGHT EMISSION
D514	B30-2171-05	LED	LIGHT EMISSION
D515	B30-2171-05	LED	LIGHT EMISSION
D516	B30-2171-05	LED	LIGHT EMISSION
D517	B30-2171-05	LED	LIGHT EMISSION
D518	HSB123	DIODE	CURRENT STABILITY
IC501	TA75W558FU	IC	AMPLIFIER
IC502	TC75W51FU	IC	AMPLIFIER
IC503	TA75W558FU	IC	AMPLIFIER
IC504	TC35453F	IC	AUDIO PROCESSER
IC506	BU4066BCFV	IC	ANALOG SWITCH
IC507	LC73872M	IC	DTMF DECODE
IC508	BU4094BCFV	IC	SHIFT/STORE RESISTER
IC509	RH5VL42C	IC	RESET IC
IC510	AT29C020-90TI	IC	FLASH ROM
IC511	30612M4A-407GP	IC	CPU
IC512	AT2408N10SI2.5	IC	EEPROM
IC513	TA78L05F	IC	5V AVR
IC711	TA75S01F	IC	AMPLIFIER
Q501	DTC314TU	TRANSISTOR	MIC MUTE
Q502	DTC144EE	TRANSISTOR	AF MUTE
Q503	2SC4617(S)	TRANSISTOR	AMPLIFIER (NOISE)
Q507	DTC144EE	TRANSISTOR	DC SWITCH (PA)
Q508	2SC4617(S)	TRANSISTOR	DC SWITCH (LED)
Q509	2SC4617(S)	TRANSISTOR	DC SWITCH (LED)
Q510	2SC4619	TRANSISTOR	CLOCK SHIFT
Q511	DTA144WE	TRANSISTOR	DC SWITCH (FSW)
Q512	DTC114EE	TRANSISTOR	DC SWITCH (BLC)
Q513	2SB1132(Q,R)	TRANSISTOR	DC SWITCH (LED)

SEMICONDUCTOR PARTS LIST

○ TK-981 VCO UNIT (X57-5710-11)

SYMBOL	PARTS NUMBER	PARTS NAME	DISCRIPTION
D100	1SV283	DIODE	VCO CONTROL
D101	1SV283	DIODE	VCO CONTROL
D102	1SV214	DIODE	VCO MODULATION
Q100	2SC4226(R24)	TRANSISTOR	BUFFER AMP
Q101	2SK508NV(K52)	TRANSISTOR	VCO
Q102	2SC4226(R24)	TRANSISTOR	DOUBLER

TK-981
Tuning procedure

Before attempting to tune the transceiver, connect the unit to a suitable power supply. Whenever the transmitter tuned, unit must be connected to a suitable dummy load, unless the instruction specify otherwise. The speaker output connector must be terminated with a 4 Ohm dummy load at any time during the tuning and connected to an AC voltmeter and an audio distortion meter or a SINAD measurement at all the time during the tuning.

1.1Enter into tuning mode

Press "A" key while turn on the transceiver. After about 1 second and Press "SCN" Key the tuning mode starts.

1.2 Frequency version selection

The following operation frequency band can be chosen for the set under tuning.

Panel Display	Frequency
900MHz	896 to 902MHz/935 to 941MHz(TX)
	935 to 941MHz(RX)

Following keys on the panel can be used for frequency selection:

▲ key Next (Up) frequency selection
▼ key Next (Down) frequency selection
Channel down key Enter (or confirm)

Once, the channel down key is pressed the set tuning items will be started.

1.3Transmitter tuning

Use "MON", "A" key to choose tuning item and "SCN", "B", "C" key to adjust tuning requirement.

1.3.1 Connect a voltmeter to TP1
1.3.2 Be sure the voltage should be below 7.0V at the test channel 1 and more than 1.5V at the test channel 7 in the Transmission and Reception mode.
1.3.3 Select the test channel 4 and adjust the transmission frequency to 899.025MHz ±100Hz.
1.3.4 Select Tuning Item 2, RF power adjustment.
Adjust RF output power to 15W ±1W.
1.3.5 Select Tuning Item 4, DQT balance adjustment.
Adjust the DQT pulse shape to obtain neat demodulation wave-form.
1.3.6 Select Tuning Item 5, Max. deviation adjustment.
Apply a 1000Hz tone with a 50mV RMS level to the Microphone input.
Adjust the maximum deviation to 1.75kHz ±0.1kHz.
1.3.7 Reduce a 1000Hz tone voltage to 5mV.
Be sure the deviation should be in ±2.5kHz to ±3.5kHz.
1.3.8 Select Tuning Item 6, QT deviation adjustment.
Adjust the QT deviation to 0.35kHz ±50Hz.
1.3.9 Select Tuning Item 7, DQT deviation adjustment.
Adjust the DQT deviation to 0.35kHz ±50Hz.
1.3.10 Be sure the DTMF deviation should be in ±1.4KHz to ±1.6KHz.
1.3.11 Be sure the LTR deviation should be in ±0.65kHz to ±0.80kHz.

1.4 Receiver tuning

1.4.1 Select Tuning Item 9, squelch adjustment.
Apply a 938.050MHz with 2dB subtracted from the sensitivity value of 12dB SINAD to the transceiver.
1.4.2 Be sure to make the squelch closed once then opened.
1.4.3 Set the RF signal level to 12dB SINAD. Confirm the squelch should be opened.
1.4.4 Turn off the RF signal. Then confirm the squelch should be closed.