

***** SEMICONDUCTOR PARTS LIST *****

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FOR MODEL : TK-390

(TX-RX UNIT

,X57-5400-10)

SELECT: 1997-12-12 10:50:43

CURCUIT SYMBOL	PARTS NUMBER	DESCRIPTION
D4	MA2S111	DIODE,NOISE REJECTION
D6	MA2S111	DIODE,CURRENT STEERING
D7	DAN235E	DIODE,TX/RX SWITCH
D8	DA221	DIODE,TEMPERATURE COMPENSATION
D9	MA8062	ZENER DIODE,VOLTAGE PROTECTION
D10	MI809	DIODE,ANT SWITCH
D11	1SS312	DIODE,ANT SWITCH
D200	HSM88AS	DIODE,OVERLOAD PROTECTION
D201	1SV273	VARIABLE CAPACITANCE DIODE,VARACTOR TUNI
D202	1SV273	VARIABLE CAPACITANCE DIODE,VARACTOR TUNI
D203	1SV273	VARIABLE CAPACITANCE DIODE,VARACTOR TUNI
D204	1SV273	VARIABLE CAPACITANCE DIODE,VARACTOR TUNI
D300	DAN235E	DIODE,RF SWITCH
D301	DAN235E	DIODE,RF SWITCH
D302	DAN235E	DIODE,RF SWITCH
D303	DAN235E	DIODE,RF SWITCH
D400	1SR154-400	DIODE,REVERSE PROTECTION
D401	MA2S111	DIODE,OVERLOAD PROTECTION
D402	NNCD6.8G	ZENER DIODE,SURGE ABSORPTION
D403	NNCD6.8G	ZENER DIODE,SURGE ABSORPTION
D409	MA2S111	DIODE,VOLTAGE REFERENCE
D601	MA742	DIODE,VOLTAGE CLAMP
IC2	LMC7101BIM5	IC,LEVEL SHIFT
IC3	M62354GP	IC,D/A CONVERTER(ADJUSTMENT)
IC4	MAX865	IC,DC-DC CONVERTER
IC5	SA7025DK	IC,PHASE LOCKED LOOP SYSTEM

IC6	LMC7101BIM5	IC,LEVEL SHIFT
IC7	NJM2904V	IC,APC COMPARATOR
IC10	KCH34	HIC,VCO SYSTEM
IC200	GN2011	IC,ACTIVE DBM
IC300	TA31136FN	IC,FM IF SYSTEM
IC301	TC7S66FU	IC,AUDIO MUTE SWITCH
IC400	BU4094BCFV	IC,SHIFT REGISTER
IC401	TK11250BM	IC,VOLTAGE REGULATOR
IC402	TK11250BM	IC,VOLTAGE REGULATOR
IC403	BU4094BCFV	IC,SHIFT REGISTER
IC404	BU4094BCFV	IC,SHIFT REGISTER
IC405	BU4094BCFV	IC,SHIFT REGISTER
IC406	MC-8800-802	IC,MICROPROCESSOR
IC407	RN5VL45C	IC,VOLTAGE DETECTOR
IC408	TC7S08FU	IC,ADDRESS DECODER
IC409	PST9140NR	IC,VOLTAGE DETECTOR
IC410	TC7S32FU	IC,ADDRESS DECODER
IC411	TC7S02FU	IC,ADDRESS DECODER
IC412	AT2408N10SI2.5	IC,EEPROM
IC413	TA75S01F	IC,ACTIVE FILTER
IC600	LC73872M	IC,DTMF DECODER
IC601	TC75W51FU	IC,BUFFER AMP.
IC602	TC75W51FU	IC,ACTIVE FILTER
IC603	M62364FP	IC,D/A CONVERTER(ADJUSTMENT)
IC604	TC75W51FU	IC,SUMMING AMP./BUFFER AMP.
IC605	TC75W51FU	IC,ACTIVE FILTER/SUMMING AMP.
IC606	TC75W51FU	IC,ACTIVE FILTER
IC607	TC35453F	IC,AUDIO PROCESSOR
Q2	2SJ144(GR)	FET,DC CONVERT SWITCH

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FOR MODEL : TK-390

(TX-RX UNIT

,X57-5400-10)

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CURCUIT SYMBOL	PARTS NUMBER	DESCRIPTION
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Q3	2SC5066(O)	TRANSISTOR,RF AMP.
Q4	2SC4617(S)	TRANSISTOR,RIPPLE FILTER
Q5	2SC5108(Y)	TRANSISTOR,BUFFER AMP.
Q6	2SC5110(O)	TRANSISTOR,RF AMP.
Q7	DTC114EE	TRANSISTOR,DC SWITCH
Q8	2SC4988	TRANSISTOR,RF AMP.
Q9	DTA144EE	TRANSISTOR,DC SWITCH
Q10	DTC144EE	TRANSISTOR,DC SWITCH
Q13	2SK1824	FET,DC SWITCH
Q200	3SK274	FET,RF AMP.
Q201	3SK274	FET,RF AMP.
Q300	DTA144EE	TRANSISTOR,DC SWITCH
Q301	DTC144EE	TRANSISTOR,DC SWITCH
Q302	2SK1215(E)	FET,IF AMP.
Q303	DTA144EE	TRANSISTOR,DC SWITCH
Q304	DTC144EE	TRANSISTOR,DC SWITCH
Q305	UMC4	TRANSISTOR,DC SWITCH
Q307	UMH6	TRANSISTOR,DC SWITCH
Q400	UMG3N	TRANSISTOR,DC SWITCH
Q401	UPA572T	FET,DC SWITCH
Q402	MP5A02	TRANSISTOR,DC SWITCH
Q403	2SJ243	FET,DC SWITCH
Q404	DTC144EE	TRANSISTOR,DC SWITCH
Q405	UMG3N	TRANSISTOR,DC SWITCH
Q406	DTA123JE	TRANSISTOR,DC SWITCH
Q407	2SC4215(Y)	TRANSISTOR,CLOCK FREQUENCY SHIFT
Q408	2SC4617(S)	TRANSISTOR,DC SWITCH

Q409	2SC4617(S)	TRANSISTOR,DC SWITCH
Q410	2SC4617(S)	TRANSISTOR,DC SWITCH
Q411	2SB1132(Q,R)	TRANSISTOR,CURRENT DRIVER
Q600	DTC144EE	TRANSISTOR,DC SWITCH
Q601	2SK1824	FET,MUTE SWITCH
Q602	2SK1824	FET,DC SWITCH
Q603	2SK1824	FET,DC SWITCH
D11	1SS312	DIODE,ANT SWITCH

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FOR MODEL : TK-390

(CONTROL UNIT ,X53-3780-1*)

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CURCUIT SYMBOL	PARTS NUMBER	DESCRIPTION
D2	DTZ3.9(B)	ZENER DIODE,VOLTAGE REFERENCE
D4	1SS373	DIODE,SPEED UP
D5	1SS373	DIODE,SPEED UP
D6	B30-2171-05	LED,KEY PAD BACKLIGHT
D7	B30-2171-05	LED,KEY PAD BACKLIGHT
D8	B30-2171-05	LED,KEY PAD BACKLIGHT
D9	B30-2171-05	LED,KEY PAD BACKLIGHT
D11	IMN10	DIODE,ERROR PROTECTION FOR 10 KEY
D12	MA2S111	DIODE,EROOR PROTECTION FOR PF KEY
D13	MA2S111	DIODE,EROOR PROTECTION FOR PF KEY
D14	IMN10	DIODE,ERROR PROTECTION FOR 10 KEY
D15	MA2S111	DIODE,EROOR PROTECTION FOR PF KEY
D16	IMN10	DIODE,EROOR PROTECTION FOR PF KEY
D17	IMN10	DIODE,ERROR PROTECTION FOR 10 KEY
D18	IMN10	DIODE,ERROR PROTECTION FOR 10 KEY
D19	MA2S111	DIODE,EROOR PROTECTION FOR PF KEY
D20	MA2S111	DIODE,EROOR PROTECTION FOR PF KEY
D101	1SS373	DIODE,SPEED UP
D102	B30-2190-05	LED,LCD BACK LIGHT
D103	B30-2190-05	LED,LCD BACK LIGHT
D104	B30-2019-05	LED,RED,GREEN
IC1	TDA7053AT	IC,AUDIO POWER AMP.
IC2	MC74HC4017F	IC,DECIMAL COUNTER
IC3	NJM2904V	IC,MIC NOISE/CANCEL
IC4	TC7SH08FU	IC,AND GATE
IC5	TC7SH08FU	IC,AND GATE

IC6	TC7SH08FU	IC, AND GATE
IC101	LC75824W	IC, LCD DRIVER
IC501	MHW2727-1	IC, RF POWER AMP.
	or XHW2727-1	
	or PHW2727-1	
	or M68732L	

Q5	2SC4617(S)	TRANSISTOR, AF AMP. SWITCH
Q6	2SB798(DL, DK)	TRANSISTOR, AVR
Q7	2SK1824	FET, INT. AUDIO MUTE SWITCH
Q8	2SK1824	FET, AUDIO MUTE SWITCH
Q14	UMC4	TRANSISTOR, N/C SWITCH
Q15	2SK1824	FET, EXT. AUDIO MUTE SWITCH

1 : 一般部品
2 : 標準加工
3 : インサート加工
4 : 代替部品

1 : 自給
2 : 有償支給
3 : 無償支給

1 : 製造品	1 : 材料証明	4 : モールダプログラム	1 : 個
2 ~ 9 : 代替部品	2 : CC	5 : メッキ及びUL材料証明	2 : cm
1 : 設備加工	3 : 1及び2	0 : 1 - 5 の他	4 : 9
2 : 設備加工			
1 : 自給			
2 : 有償支給			
3 : 無償支給			

1: U/L 材料証明 4: モールダプログラム 1: 図
2: CC 5: メッキ及びU/L 材料証明 2: cm
3: 1及び2 0: 1-5の他 4: g

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TK-390

ADJUSTMENT

Transmitter section

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
1. Frequency adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select FRQ *** in tuning mode PTT:ON	F. counter	ANT		Top1/Top2	TK-290 :155.100MHz TK-390 K, K4 :470.100MHz K2 :491.100MHz K3, K6:418.100MHz ±50Hz
2. Maximum power check	1) Set test mode CH No. : 3 Signaling No. : 1 Set BATT terminal voltage to 7.5V. Select POW 255 in tuning mode. PTT:ON	Power meter Ammeter	Universal ANT		Check	TK-290:5.0W or more TK-390:4.0W or more
3. TX High power adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select POW *** in tuning mode. Push orange to 3 point adjustment mode. Select POW *** L PTT:ON				PF1/PF2	TK-290: 4.70w = 0.1W TK-390: 4.0W = 0.1W 2.3A or less
	2) Push side2 to select POW *** M PTT:ON					
	3) Push side2 to select POW *** H PTT:ON					
4. TX High power check	1) Set test mode CH No. : 1 Signaling No. : 1 PTT:ON				Check	3.7W ~ 5.2W 2.3A or less
	2) CH No. : 3 Signaling No. : 1 PTT:ON					
	3) CH No. : 5 Signaling No. : 1 PTT:ON					

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
5. TX Low power adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select POW *** LO in tuning mode. Push orange to 3 point adjustment mode. Select POW *** L LO PTT:ON	Power meter Ammeter	Universal ANT		Top1/Top2	1.0w $\pm$ 0.1W 1.2A or less
	2) Push side2 to select POW *** M LO PTT:ON					
	3) Push side2 to select POW *** H LO PTT:ON					
6. TX Low power check	1) Set test mode CH No. : 1 Signaling No. : 1 Set Top2 power (PF2 key:on) PTT:ON	Power meter Ammeter			Check	0.5W $\sim$ 1.5W 1.2A or less
	2) CH No. : 3 Signaling No. : 1 Set Top2 power (PF2 key:on) PTT:ON					
	3) CH No. : 5 Signaling No. : 1 Set Top2 power (PF2 key:on) PTT:ON					
7. DQT BAL adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select BLNC *** in tuning mode. Deviation meter filter setting; LPF:3kHz, HPF:OFF PTT:ON	Power meter Deviation meter Oscillo -scope AG AF VTVM			Top1/Top2	Make the de- modulation waves into square waves.

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
8. MAX DEV (W) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select MDV *** in tuning mode. Push orange to 3 point adjustment mode. Select MDV *** L AG: 1kHz/150mV Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON	Power meter Deviation meter Oscillo -scope AG AF VTVM	Universal ANT		Top1/Top2	3.95kHz ± 50 Hz (According to the larger -, -)
	2) Push side2 to select POW *** M PTT:ON					
	3) Push side2 to select POW *** H PTT:ON					
9. MAX DEV (N) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select MDV *** in tuning mode. Turn the toggle SW to the right. (Narrow) Push orange to 3 point adjustment mode. Select MDV *** N L AG: 1kHz/150mV Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON					1.90kHz ± 50 Hz (According to the larger -, -)
	2) Push side2 to select POW *** N M PTT:ON					
	3) Push side2 to select POW *** N H PTT:ON					

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
10. MIC sensitivity check	1) Set test mode. CH No. : 3 Signaling No. : 1 AG: 1kHz/15mV Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON	Deviation meter Oscillo -scope AG AF VTVM	Universal ANT		Check	1. 8kHz~3. 6kHz
	2) Set test mode. CH No. : 3 Signaling No. : 1 Turn the toggle SW to the right. (Narrow) AG: 1kHz/15mV Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON					0. 9kHz~1. 8kHz
11. QT DEV (W) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 MIC input: OFF Select QTDV *** in tuning mode. Deviation meter filter setting; LPF:3kHz, HPF: 50Hz De-emphasis:750us PTT:ON				Top1/Top2	0. 75kHz±0. 05kHz
12. QT DEV (N) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 MIC input: OFF Select QTDV *** in tuning mode. Turn the toggle SW to the right. (Narrow) Deviation meter filter setting; LPF:3kHz, HPF: 50Hz De-emphasis:750us PTT:ON					0. 375kHz±0. 05kHz
13. DQT DEV (W) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select DQDV *** in tuning mode. Deviation meter filter setting; LPF:3kHz, HPF:OFF PTT:ON					0. 75kHz±0. 05kHz

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
14. DQT DEV (N) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select DQDV *** in tuning mode. Turn the toggle SW to the right. (Narrow) Deviation meter filter setting; LPF:3kHz, HPF:OFF PTT:ON	Deviation meter Oscillo -scope	Universal ANT		Top1/Top2	0.375kHz $\pm$ 0.05kHz
15. DTMF DEV (W) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select DTDV *** in tuning mode. Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON				Top1/Top2	3.0kHz $\pm$ 50Hz
16. DTMF DEV (N) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select DTDV *** in tuning mode. Turn the toggle SW to the right. (Narrow) Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON				Top1/Top2	1.5kHz $\pm$ 50Hz
17. MSK DEV (W) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select MSDV *** in tuning mode. Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON				Top1/Top2	3.00kHz $\pm$ 50Hz
18. MSK DEV (N) adjustment	1) Set test mode CH No. : 3 Signaling No. : 1 Select MSDV *** in tuning mode. Turn the toggle SW to the right. (Narrow) Deviation meter filter setting; LPF:15kHz, HPF:OFF PTT:ON				Top1/Top2	1.50kHz $\pm$ 50Hz

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
19. Transmission S/N (W) check	1) Set test mode CH No. : 3 Signaling No. : 1 Deviation meter filter setting; LPF:300Hz, HPF:3kHz De-emphasis:750us PTT:ON	Deviation meter Oscillo -scope	Universal ANT		Check	42dB or more
20. Transmission S/N (N) check	1) Set test mode CH No. : 3 Signaling No. : 1 Turn the toggle SW to the right. (Narrow) Deviation meter filter setting; LPF:300Hz, HPF:3kHz De-emphasis:750us PTT:ON				Check	37dB or more
21. BATT detection writing	1) Set test mode CH No. : 3 Signaling No. : 1 Select BATT *** in tuning mode. PTT:ON		Universal ANT BATT terminal		Push orange to write the voltage level.	BATT terminal voltage: 6.2V
22. BATT detection check	1) Set test mode CH No. : 3 Signaling No. : 1 Set BATT terminal voltage to 5.7V PTT:ON				Check	can't transmit LED(TX) blinks
	2) Set BATT terminal voltage to 6.5V PTT:ON					transmit

Receiver section

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
1. AF LEVEL check	1) Set test mode CH No. : 3 Signaling No. : 1 SSG freq. :each freq. Output:-53dBm MOD. :1kHz DEV. :3kHz	SSG AF VTVM Oscillo- scope Distortion meter	universal ANT		Check	0.63V $\pm$ 0.3V 3% or less
	2) Turn the toggle SW to the right. (Narrow) SSG freq. :each freq. Output:-53dBm MOD. :1kHz DEV. : 1.5kHz					0.63V $\pm$ 0.3V 5% or less

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
2. Hum and noise ratio check	1) Set test mode CH No. : 3 Signaling No. : 1 SSG Output: -53dBm	SSG AF VTVM Oscilloscope	universal ANT		Check	42dB or more
	2) Turn the toggle SW to the right. (Narrow) SSG Output: -53dBm	Distortion-meter or Audio analyzer				37dB or more
3. Sensitivity adjustment and check (W)	1) Set test mode CH No. : 3 Signaling No. : 1 Select SNS *** in tuning mode. Push orange to 3 point adjustment mode. Select SNS *** L SSG freq. : L (see freq. Table) output: -116dBm				Top1/Top2 Adjust for maximum SINAD.	12dB SINAD or more
	2) Push side2 to select SNS *** M SSG freq. : M (see freq. Table) output: -116dBm					
	2) Push side2 to select SNS *** H SSG freq. : H (see freq. Table) output: -116dBm					
Sensitivity check (N)	1) Set test mode CH No. : 1 Signaling No. : 1 Turn the toggle SW to the right. (Narrow)				Check. SSG output: -116dBm MOD: 1kHz DEV: 1.5kHz	SINAD 12dB or more
	2) Set test mode CH No. : 3 Signaling No. : 1 Turn the toggle SW to the right. (Narrow)					
	3) Set test mode CH No. : 5 Signaling No. : 1 Turn the toggle SW to the right. (Narrow)					

ADJUSTMENT

Item	Condition	Measurement		Adjustment		Specifications/ Remarks
		Test equipment	Terminal	Parts	Method	
5. Tight Squelch adjustment (W)	1) Set test mode CH No. : 3 Signaling No. : 1 Select SQ T*** in tuning mode.	SSG	universal ANT		Top 1/Top 2	Normally set to 255.
6. Tight Squelch adjustment (N)	1) Set test mode CH No. : 3 Signaling No. : 1 Select SQ T*** in tuning mode. Turn the toggle SW to the right. (Narrow)					
7. Squelch adjustment (W)	1) Set test mode CH No. : 3 Signaling No. : 1 Select SQ O*** in tuning mode. SSG Output: 3dB below to 12dB SINAD level					Adjust to point of opening squelch.
8. Squelch adjustment (N)	1) Set test mode CH No. : 3 Signaling No. : 1 Select SQ O*** in tuning mode. Turn the toggle SW to the right. (Narrow) SSG Output: 3dB below to 12dB SINAD level					
Squelch check (W)	1) Set test mode CH No. : 3 Signaling No. : 1 SSG Output:-118dBm 2) SSG Output:-127dBm				Check	Squelch must be opened.
Squelch check (N)	1) Set test mode CH No. : 3 Signaling No. : 1 Turn the toggle SW to the right. (Narrow) SSG Output:-118dBm 2) SSG Output:-127dBm					Squelch must be closed.
						Squelch must be opened.
						Squelch must be closed.