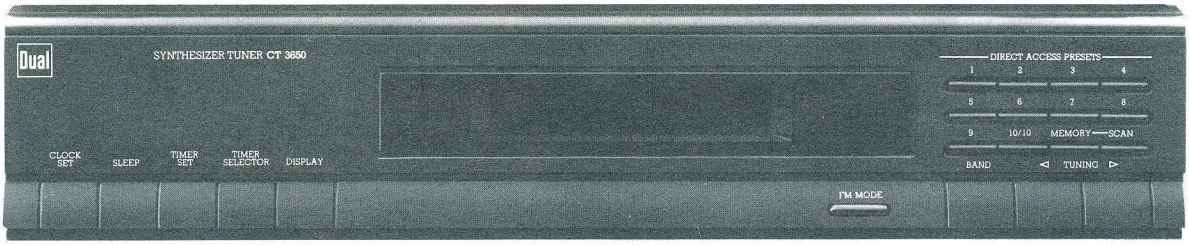
Service-Anleitung
Service Manual
Instructions de Service

CT 3650



Technische Daten (typische Werte)	**Technical data (typical value)**	**Caractéristiques techniques (valeur caractéristique)**	**CT 3650**
Empfangsbereiche FM (UKW) MW LW	**Wave bands** FM (VHF) MW LW	**Gammes d'ondes** FM (O.U.C.) P.O. GO	 87,5– 108 MHz 531 –1602 kHz 146 – 281 kHz
Empfindlichkeit FM-Mono (75 Ohm, 26 dB Rauschabstand) FM-Stereo (75 Ohm, 46 dB Rauschabstand)	**Sensitivity** FM-Mono (75 Ohm, signal-to-noise ratio 26 dB) FM-Stereo (75 Ohm, signal-to-noise ratio 46 dB)	**Sensibilité** FM-mono (75 ohms, rapport signal/bruit de 26 dB) FM-stéréo (75 ohms, rapport signal/bruit de 46 dB)	 1,5 μV 35 μV
Geräuschspannungsabstand (IHF) Stereo (1 kHz/46 kHz Hub)	**Signal-to-noise ratio, weighted (IHF)** Stereo (1 kHz/46 kHz)	**Rapport signal/bruit (IHF)** Stéréo (1 kHz/46 kHz)	 65 dB
Klirrfaktor	**Harmonic distortion**	**Taux de distorsion**	0,25 %
Übersprechdämpfung bei 1 kHz	**Channel separation** at 1,000 Hz	**Diaphonie stéréo** (à 1 kHz)	40 dB
NF-Frequenzgang für Preemphasis 50 μs–3 dB	**AF frequency response** for 50 μs pre-emphasis – 3 dB	**Bande passante BF** pour pré-emphasis 50 μs à 3 dB	 20 Hz–15 kHz
Trennschärfe (stat./dyn.)	**Selectivity (stat./dyn.)**	**Séléctivité (stat./dyn.)**	80/70 dB
NF-Ausgangsspannung	**AF output level**	**Tension de sortie BF**	ca. 400 mV
Betriebsspannung	**Operating voltage**	**Tension de service**	17 V ~
Stromaufnahme	**Current input**	**Consommation**	400 mA

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921 649 0292

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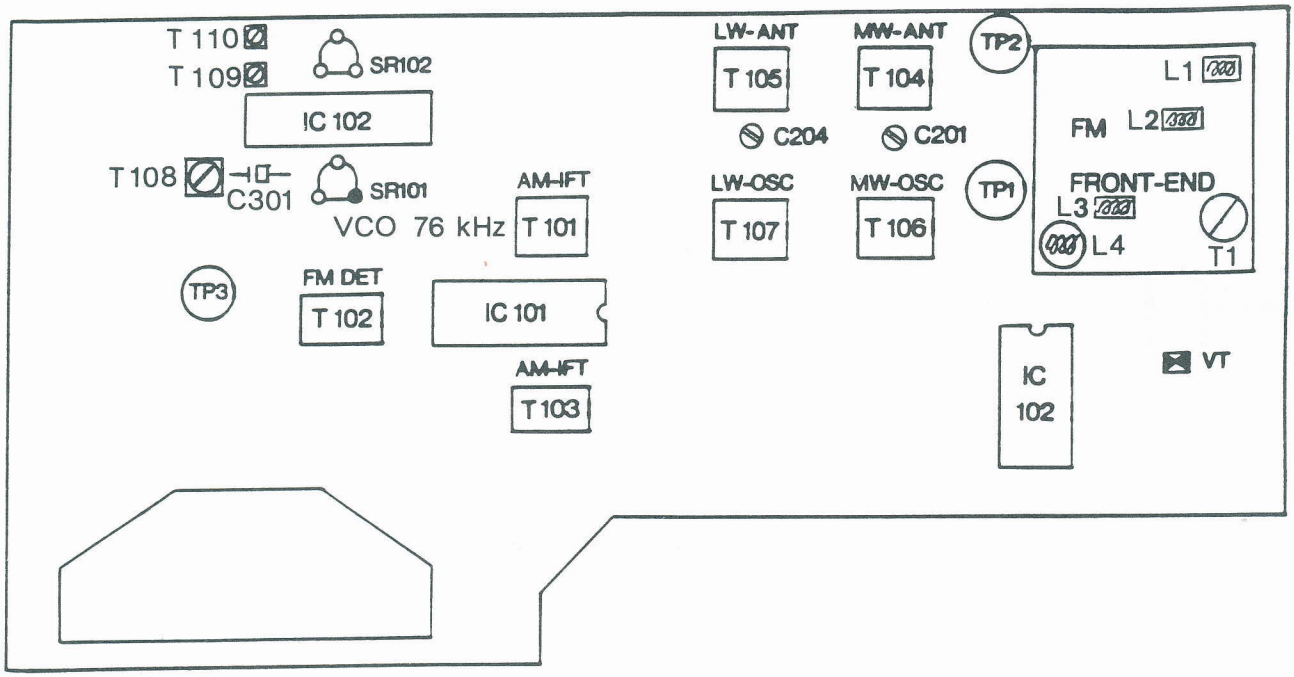
Abgleichanleitung CT 3650

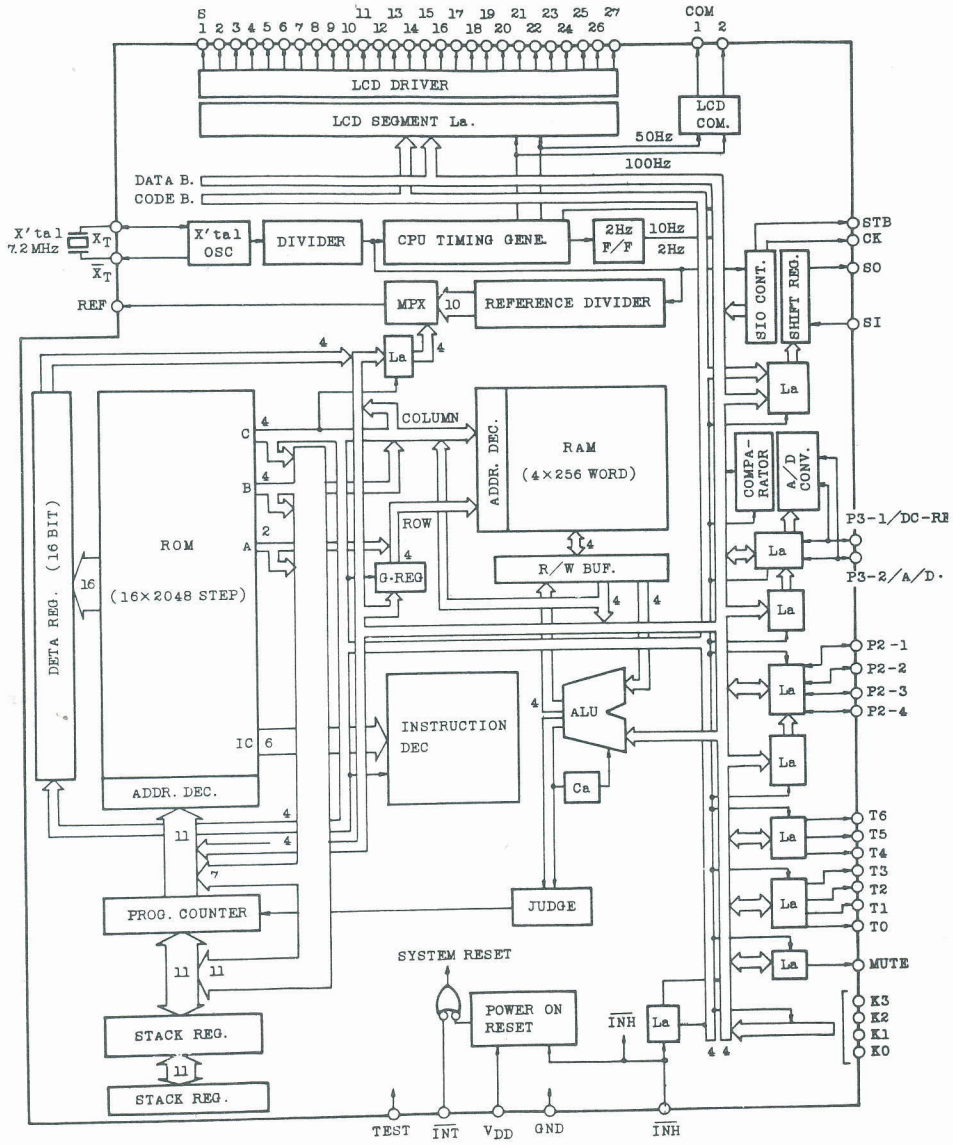
Signalquelle	Einstellung Gerät	Einstellung Signalquelle	Meßgerät Anschluß	Abgleichposition	Abgleich, Bemerkung
FM Oszillator					
	108 MHz		DC-Voltmeter an TP. VT	Luftspule L 4	7,5 DC ± 0,1 V
	87,5 MHz			Kontrolle	2,2 V DC
FM-ZF					
Wobbelgenerator an TP 1	Senderfreie Frequenz	10,7 MHz 100 µV – 100 mV	Oszilloskop an TP 3	T 102	10,7 MHz
FM-ZF, Vorkreis					
FM-Meßsender an 75 Ohm Antenneneingang	Senderfreie Frequenz ca. 98 MHz	0-1 mV, Hub ± 40 kHz Mod. 1 kHz ca. 98 MHz auf Deckung	NF-Voltmeter Oszilloskop an NF-Ausgang	T 1	Maximum
	ca. 88 MHz	ca. 88 MHz auf Deckung		Luftspulen L1, L2, L3	
Pilotfrequenz 76 kHz, Kanaltrennung					
FM-Meßsender an 75 Ohm Antenneneingang	Senderfreie Frequenz ca. 98 MHz, Taste FM-Mode: Ein (Am Display: FM Auto)	ca. 98 MHz auf Deckung Hub ± 40 kHz, Mod. 1 kHz 1-2 mV, ohne Pilotton	Frequenzzähler an SR 101	SR 101	76 kHz ± 50 Hz
		mit 19 kHz Pilot	NF-Voltmeter Oszilloskop an NF-Ausgang	SR 102	Maximale Kanaltrennung
Unterdrückung Pilotton (19 kHz)					
FM-Meßsender an 75 Ohm Antenneneingang	Senderfreie Frequenz ca. 98 MHz	ca. 98 MHz auf Deckung 1-2 mV 19 kHz Pilot ein	NF-Voltmeter, Oszilloskop an NF-Ausgang	T 109 (L. K.)	Minimum
				T 110 (R. K.)	
LPF (114 kHz)					
NF-Generator an TP 3	Aus	114 kHz, 1-2 Vss	Oszilloskop an C 301	T 108	Minimum
AM-Oszillator					
	MW – 531 kHz		DC Voltmeter an TP. VT	T 106	0,9 V ± 0,1 V
	MW – 1602 kHz			Kontrolle	6,5 V
	LW – 146 kHz			T 107	1,0 V ± 0,1 V
	LW – 281 kHz			Kontrolle	5,6 V
AM-Zf, Vorkreis					
AM-Meßsender an AM Antenneneingang	MW – 999 kHz	10 µV – 1 mV, 1 kHz Mod. 30% 999 kHz	NF-Voltmeter, Oszilloskop an NF-Ausgang	T 101, T 103	Maximum
	MW – 603 kHz	603 kHz		T 104	
	MW – 1404 kHz	1404 kHz		C 201	
	LW – 160 kHz	160 kHz		T 105	
	LW – 260 kHz	260 kHz		C 204	
					AM-Vorkreisabgleich wiederholen

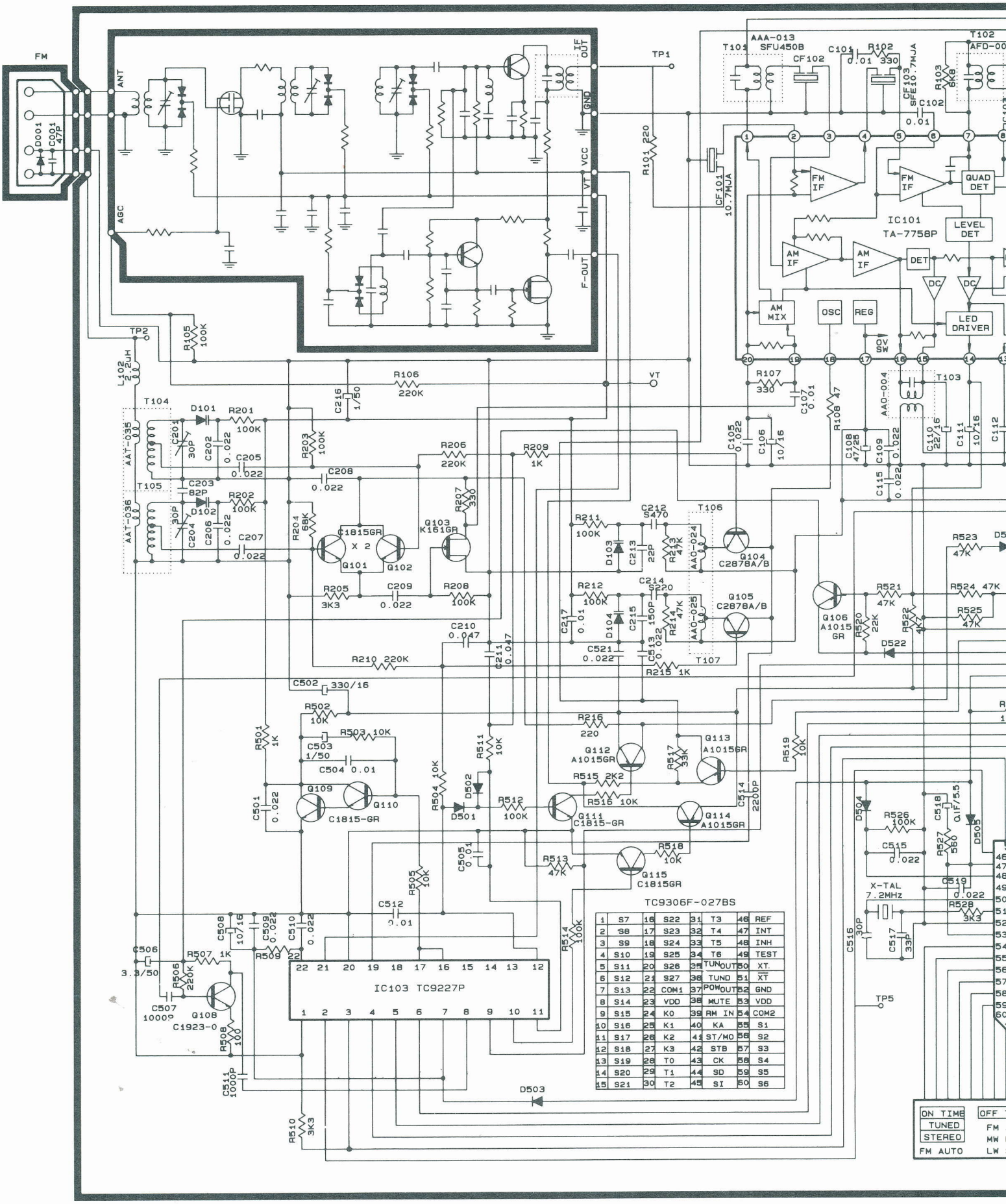
Tuning instruction for CT 3650

Signal source	Equipment setting	Signal source setting	Measuring device	Item to be tuned	Tuning remarks
FM oscillator					
	108 MHz		DC voltmeter to TP. VT	aircoil L 4	7,5 DC ± 0,1 V
	87,5 MHz			control	2,2 V DC
FM IF					
	Frequency without transmitters	10,7 MHz 100 µV – 100 mV	oscilloscope to TP 3	T 102	10,7 MHz ~
FM IF, input circuit					
FM signal generator to 75 ohm antenna input	Frequency without transmitters approx. 98 MHz	0-1mV, shift ± 40 kHz mod. 1 kHz Tune to approx. 98 MHz	AF voltmeter, oscilloscope on, AF output	T 1	maximum
	approx. 88 MHz	Tune to approx. 88 MHz		Aircoils L1, L2, L3	
Pilot frequency, channel separation					
FM signal generator to 75 ohm antenna input	Frequency without transmitters approx. 98 MHz Button FM-mode: ON (on Display: FM Auto)	Tune to approx. 98 MHz Shift ± 40 kHz, mod. 1 kHz 1-2 mV without pilottone	Frequency counter to SR 101	SR 101	76 kHz ± 50 Hz
		19 kHz pilot ON	AF voltmeter oscilloscope on AF output	SR 102	maximum channel separation
Suppression of residual pilot frequencies (19 kHz)					
FM signal generator to 75 ohm antenna input	Frequency without transmitters approx. 98 MHz	Tune to approx. 98 MHz, 1-2 mV 19 kHz pilot ON	AF voltmeter, oscilloscope on AF output	T 109 (L. C.)	minimum
				T 110 (R. C.)	
LPF (114 kHz)					
AF generator to TP 3	OFF	114 kHz, 1-2 Vss	oscilloscope to C 301	T 108	minimum
AM oscillator					
	AM – 531 kHz		DC voltmeter to TP. VT	T 106	0,9 V ± 0,1 V
	AM – 1602 kHz			control	6,5 V
	LW – 146 kHz			T 107	1,0 V ± 0,1 V
	LW – 281 kHz			control	5,6 V
AM IF, input circuit					
AM signal generator to AM antenna input	AM – 999 kHz	10 µV – 1 mV, 1 kHz mod. 30% 999 kHz	AF voltmeter, oscilloscope on AF output	T 101, T 103	maximum
	AM – 603 kHz	603 kHz		T 104	
	AM – 1404 kHz	1404 kHz		C 201	
	LW – 160 kHz	160 kHz		T 105	
	LW – 260 kHz	260 kHz		C 204	
					Repeat AM-input circuit tuning

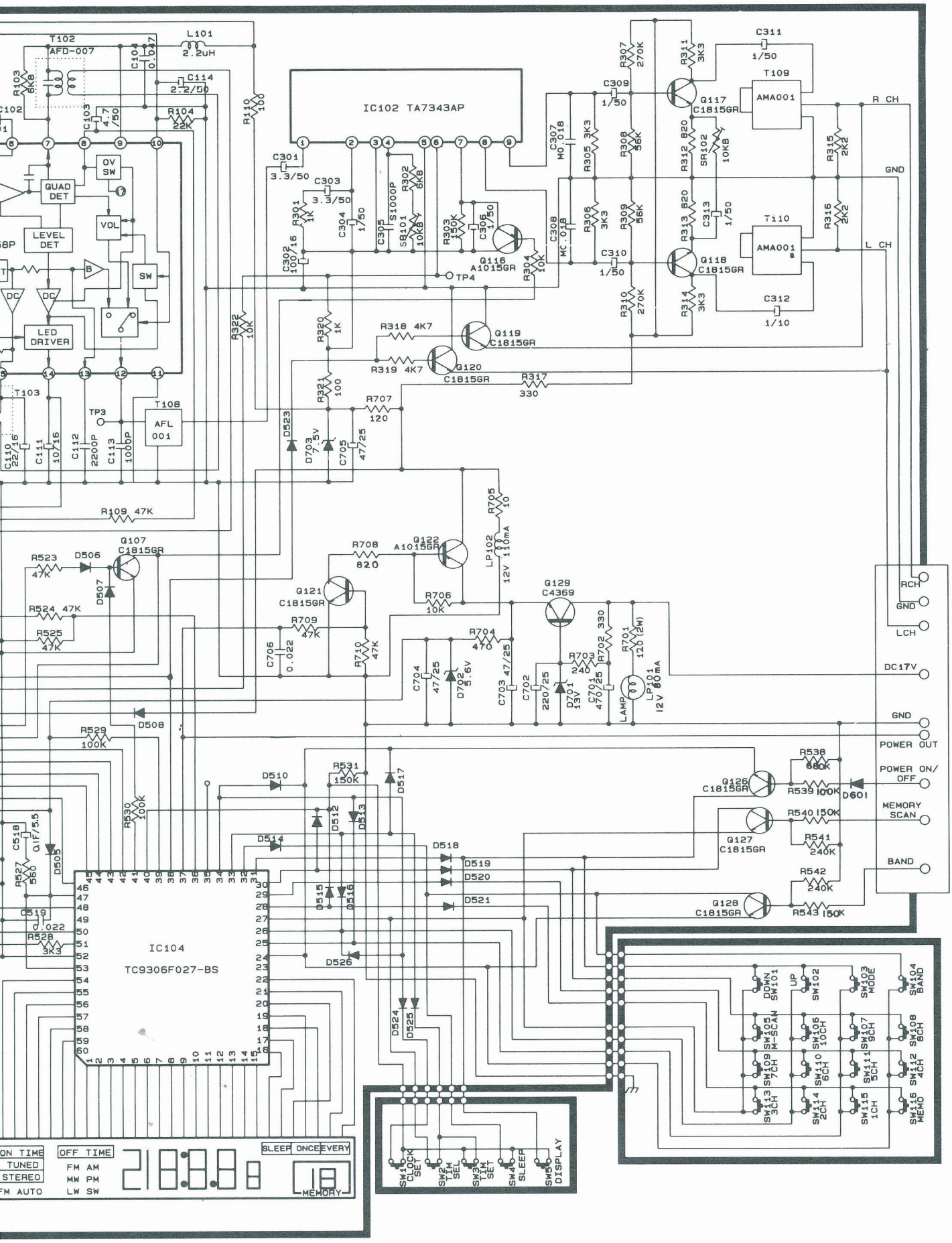


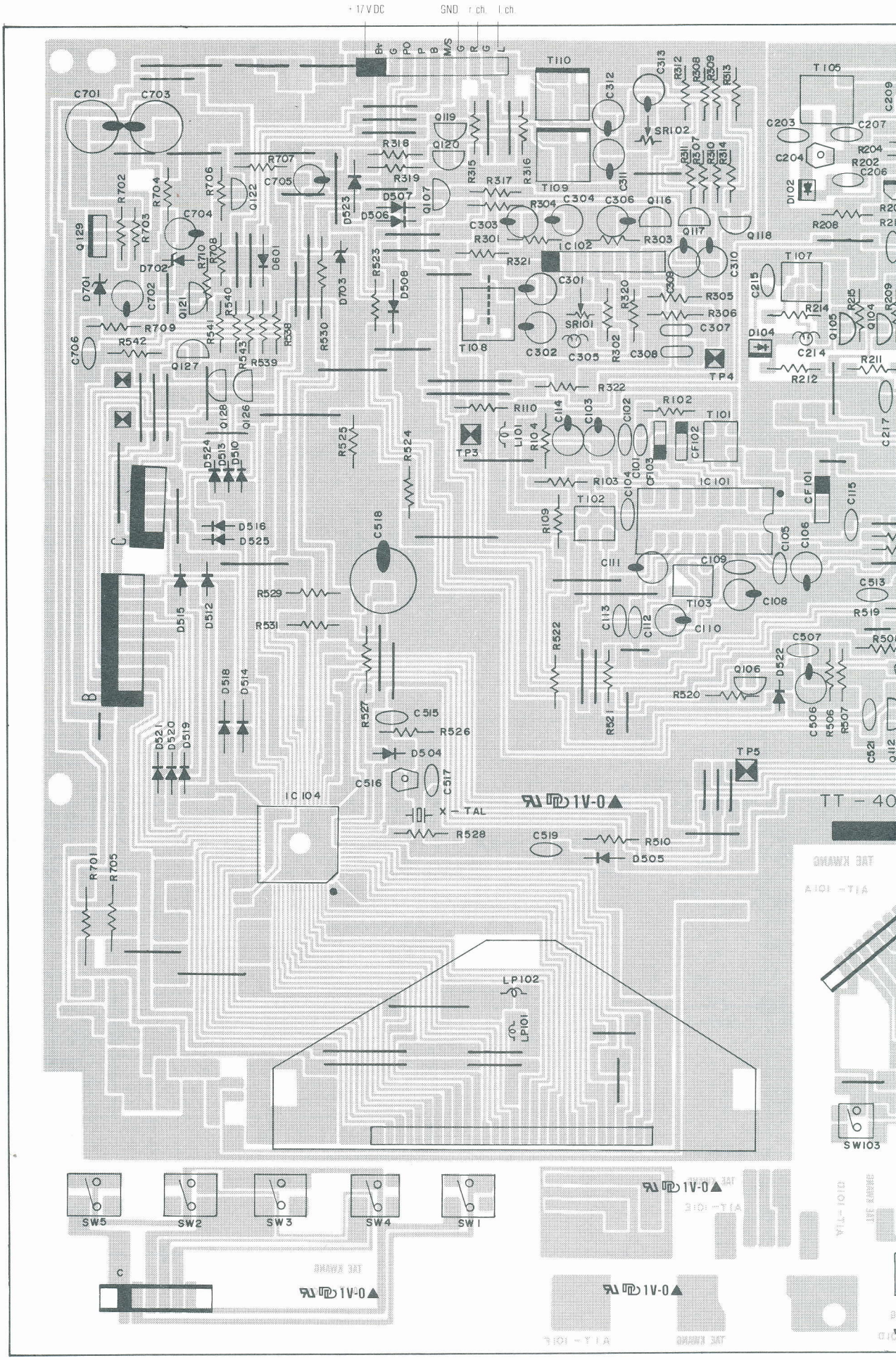
IC104 TC9306F-027BS

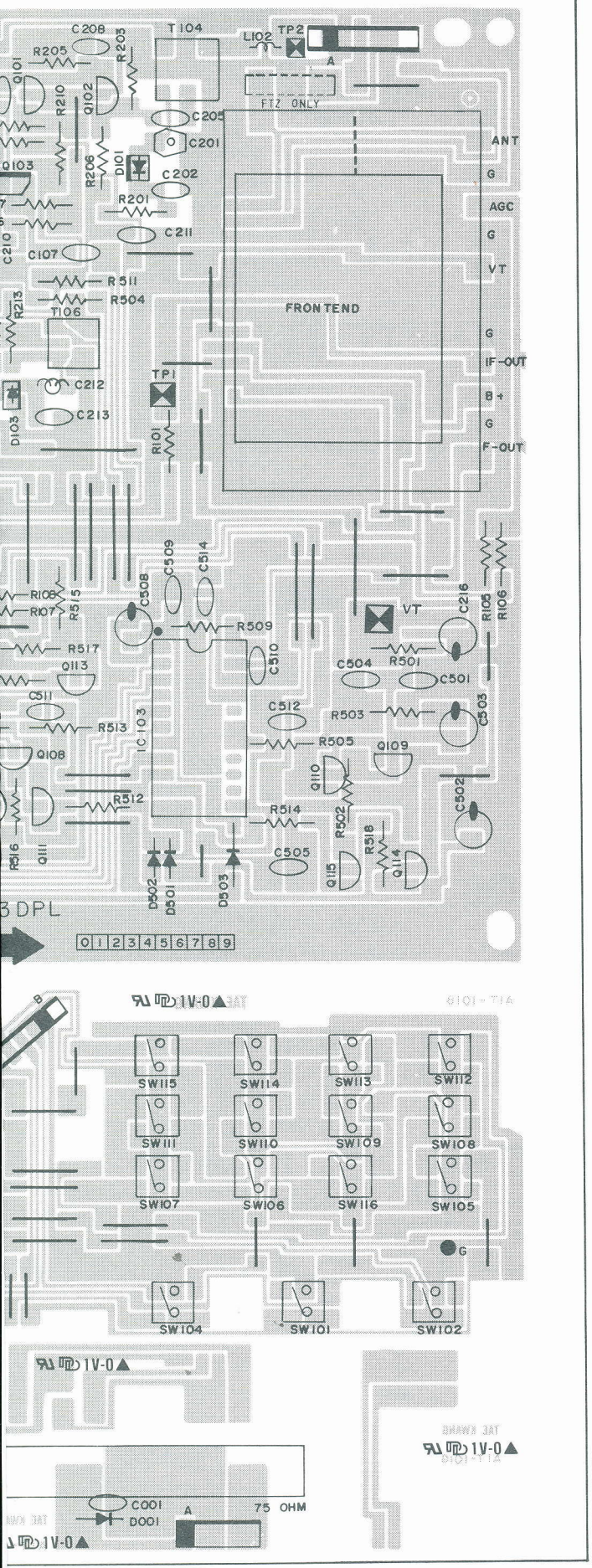




1	S7	16	S22	31	T3	46	REF
2	S8	17	S23	32	T4	47	INT
3	S9	18	S24	33	T5	48	INH
4	S10	19	S25	34	T6	49	TEST
5	S11	20	S26	35	TUNOUT	50	XT.
6	S12	21	S27	36	TUND	51	$\overline{XT}$
7	S13	22	COM1	37	POWOUT	52	GND
8	S14	23	VDD	38	MUTE	53	VDD
9	S15	24	KO	39	AM IN	54	COM2
10	S16	25	K1	40	KA	55	S1
11	S17	26	K2	41	ST/MO	56	S2
12	S18	27	K3	42	STB	57	S3
13	S19	28	T0	43	CK	58	S4
14	S20	29	T1	44	SD	59	S5
15	S21	30	T2	45	SI	60	S6

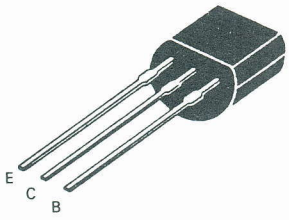

IC102 TA7343AP
IC104
TC9306F027-BS
T102
AFD-007
L101
2.2uH
C114
2.2/50
R104
22K
R110
100
QUAD DET
LEVEL DET
OV SW
VOL
SW
LED DRIVER
T103
T108
AFL 001
TP3
TP4
C301
3.3/50
C303
3.3/50
R301
1K
C304
1/50
C305
S1000P
R302
6K8
SR101
10K8
R303
150K
C306
1/50
Q116
A1015GR
R304
10K
C302
100/16
R322
10K
R320
1K
R318 4K7
Q119
C1815GR
R319 4K7
Q120
C1815GR
R317
330
R321
100
R707
120
D523
D703
7.5V
C705
47/25
R109 47K
R705
10
LP102
12V 110mA
R708
820
Q122
A1015GR
Q121
C1815GR
R706
10K
Q129
C4369
R523
47K
D506
Q107
C1815GR
D507
R524 47K
R525
47K
R709
47K
C706
0.022
R710
47K
R704
470
C704
47/25
D702
5.6V
C703
47/25
C702
220/25
D701
13V
C701
470/25
R703
240
R702
330
R701
120 (2W)
LAMP
LP101
12V 80mA
D508
R529
100K
R530
100K
D510
R531
150K
D517
D512
D513
D514
D518
D519
D520
D521
D515
D516
D526
D524
D525
C518
0.1F/5.5
D505
R527
560
C519
0.022
R528
3K3
C307
MC.018
C308
MC.018
R305 3K3
R306
3K3
C309
1/50
C310
1/50
R307
270K
R308
56K
R309
56K
R310
270K
R311
3K3
R312 820
SR102
10K8
R313 820
C313
1/50
R314
3K3
C311
1/50
T109
AMA001
Q117
C1815GR
Q118
C1815GR
T110
AMA001
C312
1/10
R315
2K2
R316
2K2
R CH
GND
L CH
RCH
GND
LCH
DC17V
GND
POWER OUT
POWER ON/ OFF
MEMORY SCAN
BAND
R538
680K
Q126
C1815GR
R539 100K
D601
R540 150K
Q127
C1815GR
R541
240K
R542
240K
Q128
C1815GR
R543 150K
DOWN SW101
UP SW102
SW103 MODE
SW104 BAND
SW105 M-SCAN
SW106 10CH
SW107 9CH
SW108 8CH
SW109 7CH
SW110 6CH
SW111 5CH
SW112 4CH
SW113 3CH
SW114 2CH
SW115 1CH
SW116 MEMO
SW1 CLOCK SET
SW2 TIM SEL
SW3 TIM SET
SW4 SLEEP
SW5 DISPLAY
ON TIME
TUNED
STEREO
FM AUTO
OFF TIME
FM AM
MW PM
LW SW
SLEEP
ONCE
EVERY
MEMORY


+17VDC
GND
r.ch.
l.ch.
B+
G
PO
P
B
M/S
G
R
G
L
C701
C703
T110
T105
T109
T108
T107
T101
T102
T103
IC101
IC102
IC104
TP3
TP4
TP5
SR101
SR102
CF101
CF102
CF103
LP101
LP102
X-TAL
SW1
SW2
SW3
SW4
SW5
SW103
TT-40
1V-0
TAE KWANG

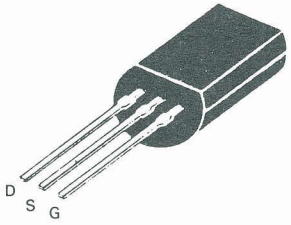

C208
R205
T104
L102
TP2
A
FTZ ONLY
Q101
R210
Q102
C205
C201
ANT
Q103
R206
D101
C202
G
R201
AGC
C211
G
C107
VT
R511
R504
FRONTEND
T106
G
IF-OUT
C212
B+
TP1
C213
G
F-OUT
R101
C509
C514
C508
R108
R107
R515
R509
VT
C216
R105
R106
R517
C510
C504
R501
Q113
C501
C511
C512
R503
C503
R513
IC103
R505
Q109
Q108
Q110
R512
C502
R514
R502
R516
Q111
C505
R518
Q114
Q115
D502
D501
D503
3DPL
0 1 2 3 4 5 6 7 8 9

SW115
SW114
SW113
SW112
SW111
SW110
SW109
SW108
SW107
SW106
SW116
SW105
G
SW104
SW101
SW102

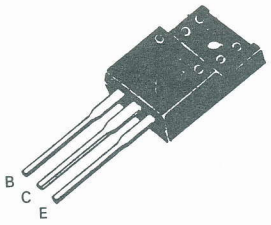
C001
D001
A
75 OHM



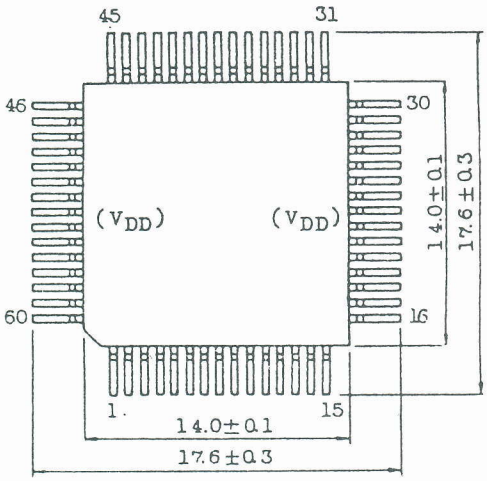
KTC-1815GR
KTC-1923Y
KTC-2878A/B
KTA-1015GR



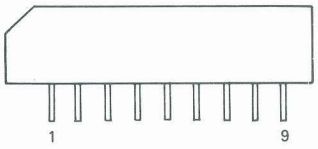
KTK-161GR



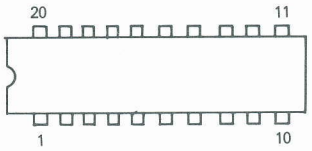
2SC-4369Y



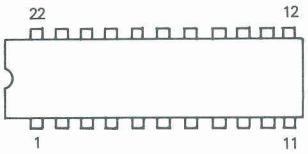
IC104
TC9306F-027BS



IC102 TA7343P or
KIA7343P

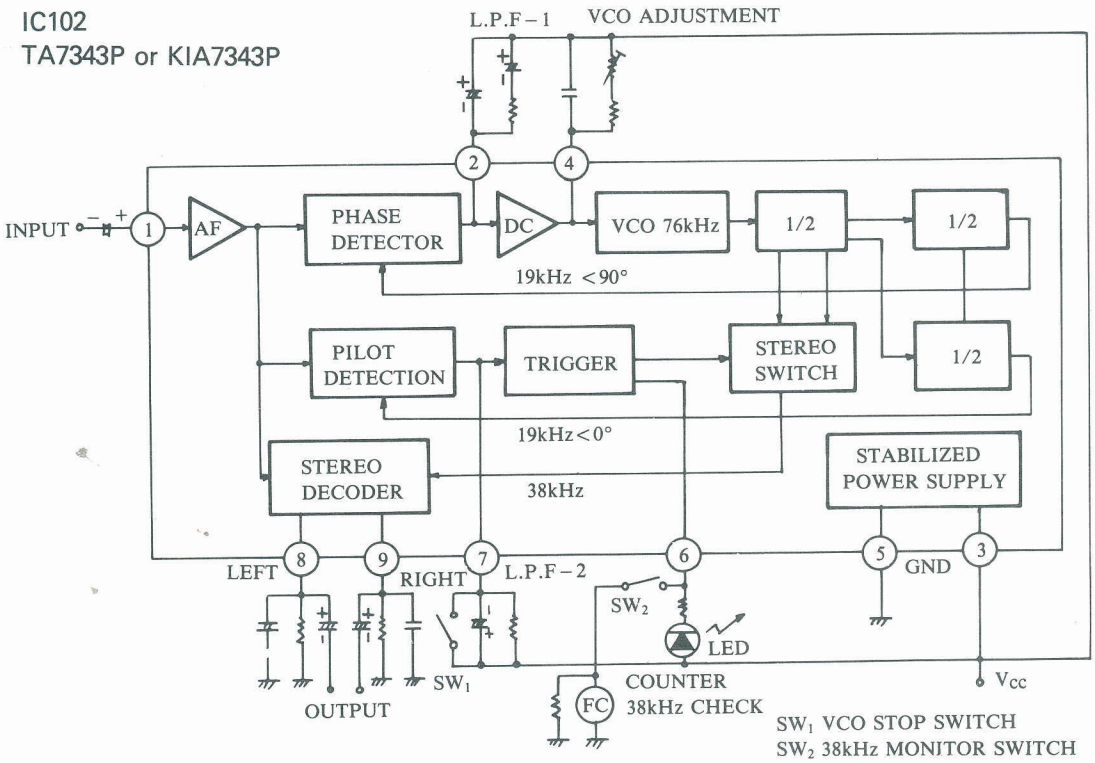


IC101 TA7758

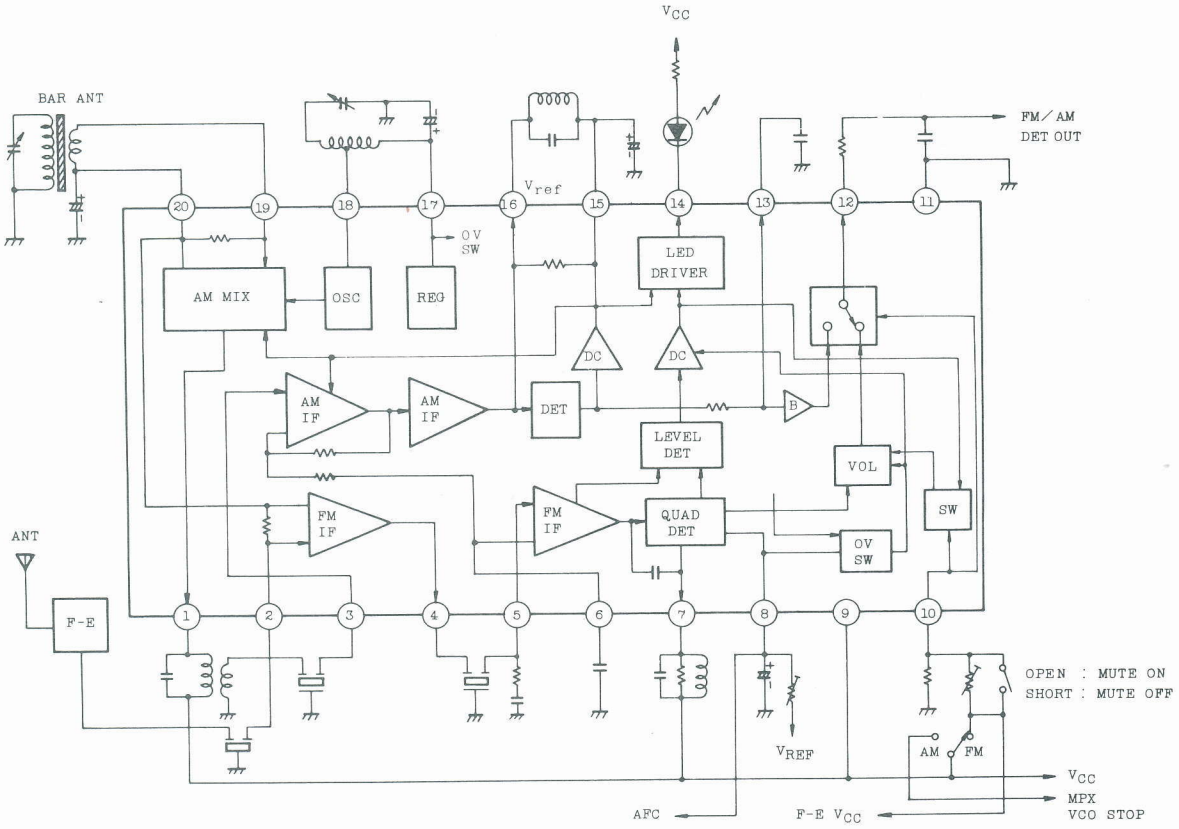


IC103 TC9227

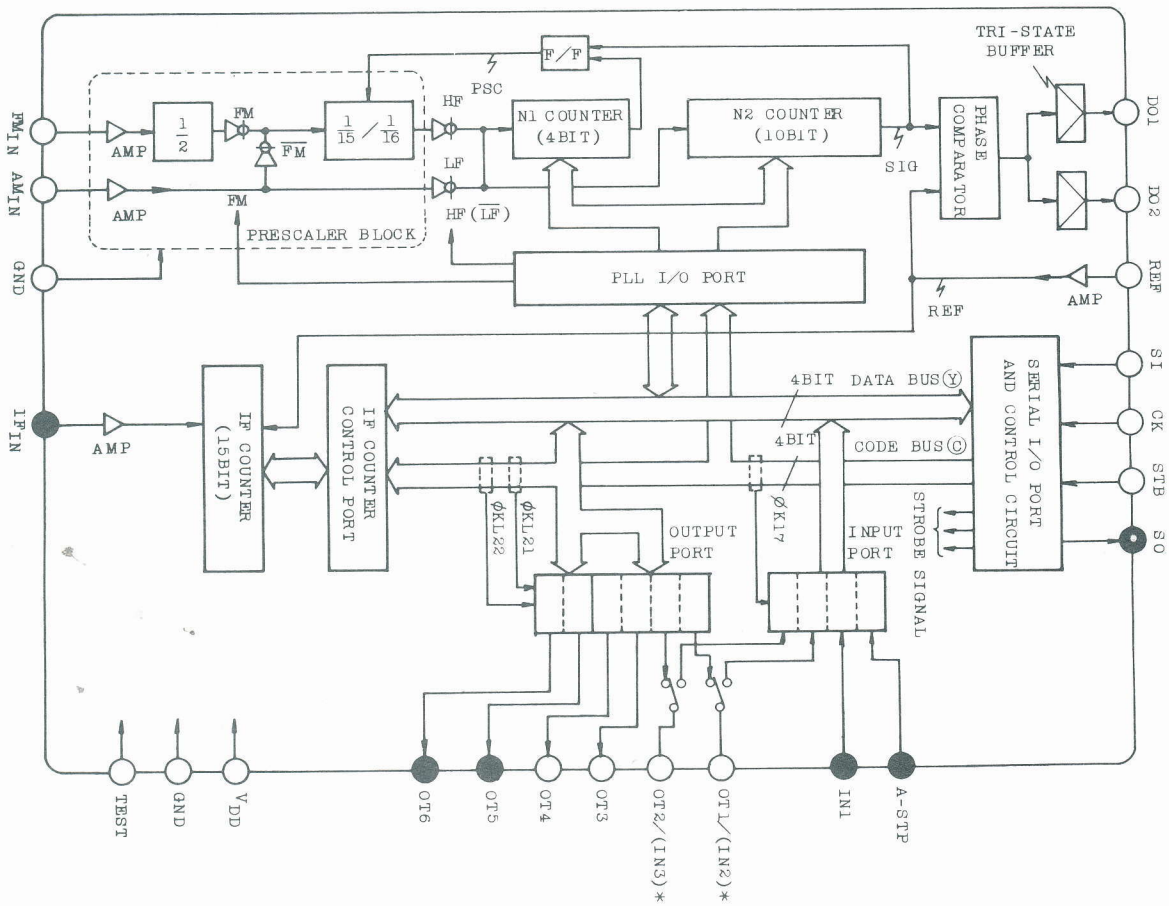
IC102
TA7343P or KIA7343P

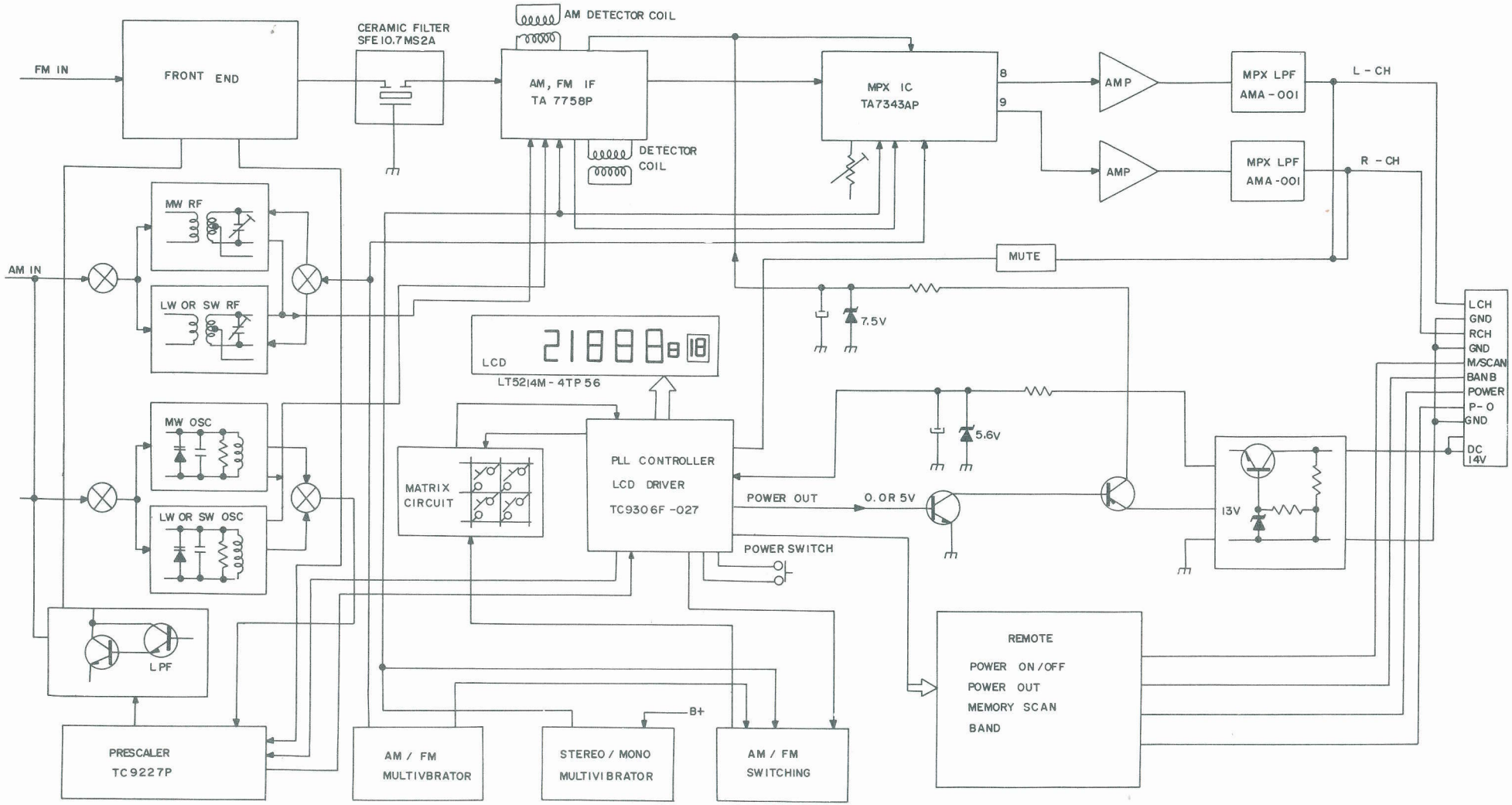


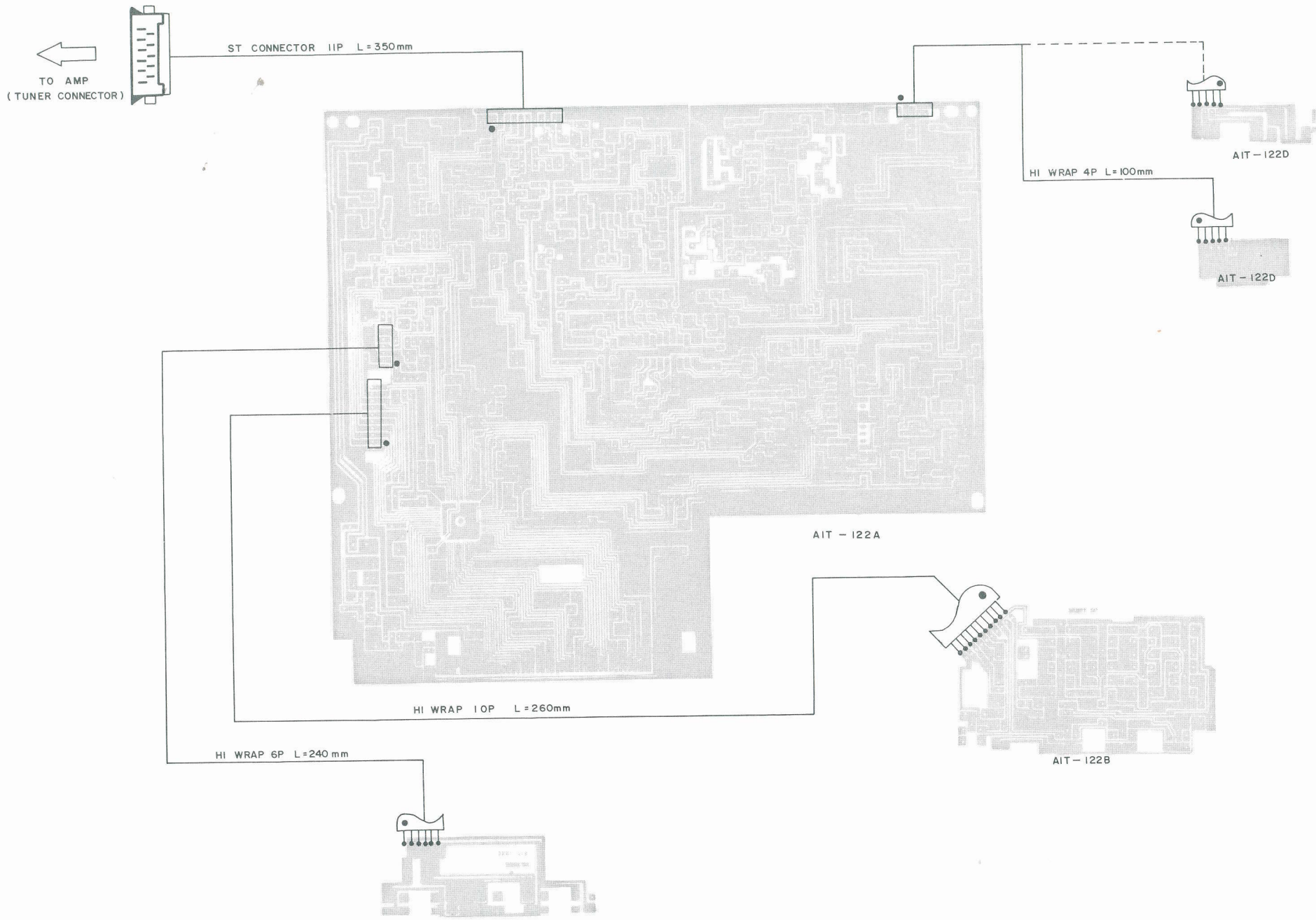
IC101 TA7758

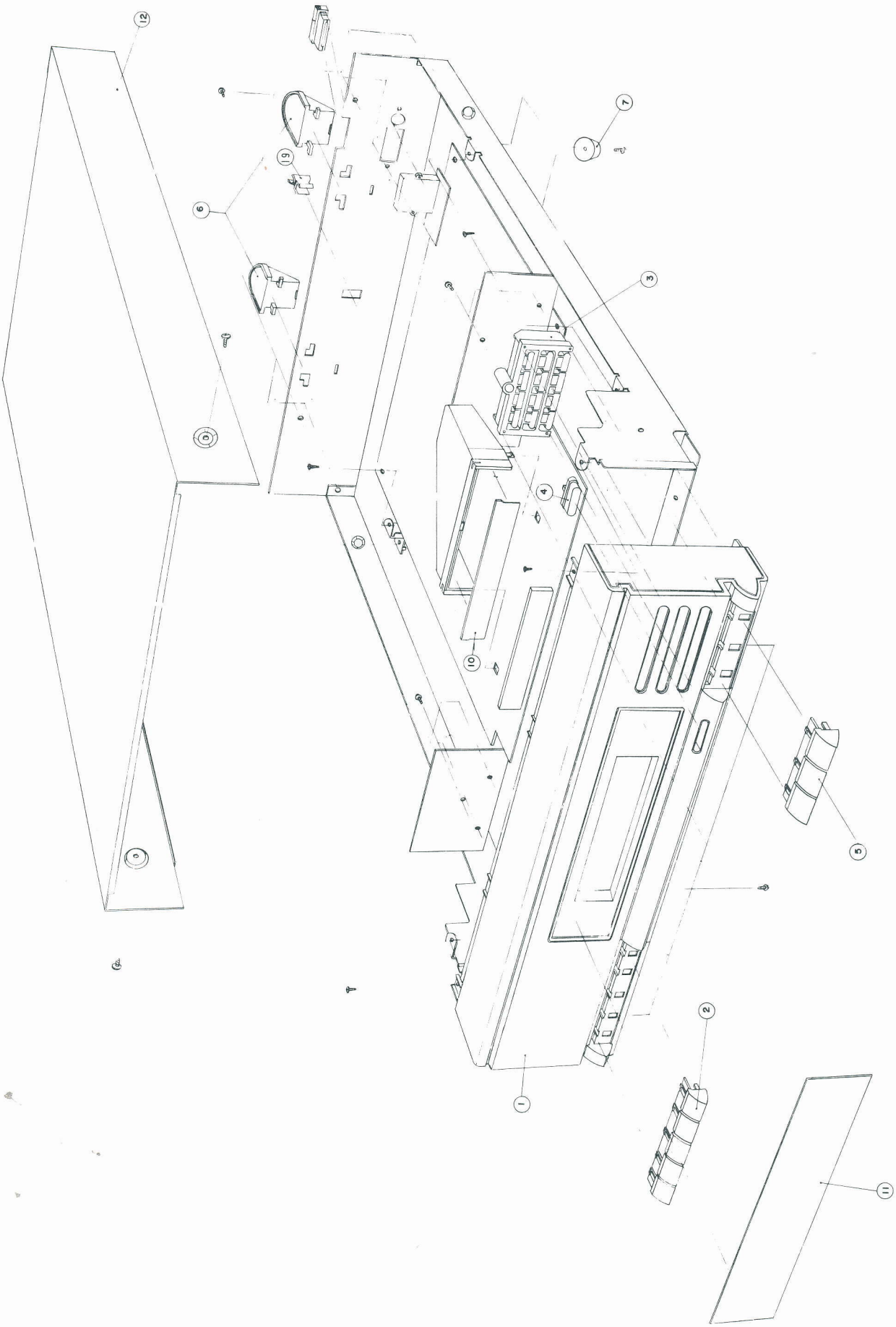


IC103 TC9227P




FM IN
FRONT END
CERAMIC FILTER
SFE10.7MS2A
AM DETECTOR COIL
AM, FM IF
TA 7758P
DETECTOR
COIL
MPX IC
TA7343AP
8
9
AMP
AMP
MPX LPF
AMA-001
MPX LPF
AMA-001
L - CH
R - CH
MUTE
AM IN
MW RF
LW OR SW RF
MW OSC
LW OR SW OSC
LPF
LCD
LT5214M-4TP56
7.5V
5.6V
MATRIX
CIRCUIT
PLL CONTROLLER
LCD DRIVER
TC9306F-027
POWER OUT
0. OR 5V
POWER SWITCH
13V
LCH
GND
RCH
GND
M/SCAN
BANB
POWER
P-O
GND
DC
14V
REMOTE
POWER ON/OFF
POWER OUT
MEMORY SCAN
BAND
PRESCALER
TC9227P
AM / FM
MULTIVBRATOR
STEREO / MONO
MULTIVIBRATOR
AM / FM
SWITCHING
B+


TO AMP
(TUNER CONNECTOR)
ST CONNECTOR 11P L = 350mm
AIT – 122D
HI WRAP 4P L = 100mm
AIT – 122D
AIT – 122A
AIT – 122B
HI WRAP 10P L = 260mm
HI WRAP 6P L = 240 mm


12
7
9
6
3
4
10
5
8
1
2
11

Ersatzteile · Replacement parts · Pièces détachées · CT 3650

Pos.	Art.-Nr.	Bezeichnung
1	287 726	Frontblende CT 3650
2	287 727	Taste 5-fach
3	287 728	Taste Preset
4	287 729	Taste Mode
5	287 730	Taste 3-fach
6	287 731	Stütze
7	287 923	Fuß
8	287 732	Kabelführung
10	287 733	Lampenblende
11	287 734	Fenster
12	287 735	Gehäuseblech
19	287 736	Halter
		Grundplatte
L 101	287 737	Spule 2,2 UH
L 102	287 737	Spule 2,2 UH
T 101	287 738	Spule AM
T 102	287 739	Spule FM
T 103	287 740	Spule AM
T 104	287 741	Spule MW
T 105	287 742	Spule LW
T 106	287 743	Spule MW
T 107	287 744	Spule LW
T 108	287 745	Spule Band Paß
T 109	287 746	Spule Low Paß
T 110	287 746	Spule Low Paß
D 101	287 747	Diode ISV 149
D 102	287 747	Diode ISV 149
D 103	287 747	Diode ISV 149
D 104	287 747	Diode ISV 149
D 501	263 034	Diode 1S 2473
bis		
D 525	263 034	Diode 1S 2473
D 601	263 034	Diode 1S 2473
D 701	282 447	Diode DZ 13 BM
D 702	283 552	Diode DZ 5,6
D 703	283 553	Diode DZ 7,5
CF 101	287 748	Filter SFE 10,7 MJ
CF 102	287 749	Filter SFU 450 B
CF 103	287 748	Filter SFE 10,7 MJ
IC 101	287 750	IC TA 7758 P
IC 102	287 751	IC TA 7343 P
IC 103	287 752	IC TC 9227 P
IC 104	287 753	IC TC 9306 F 027
SR 101	287 754	Steller 10 K
SR 102	287 754	Steller 10 K
C 201	287 755	Trimmer 30 Pf
C 204	287 755	Trimmer 30 Pf

Pos.	Art.-Nr.	Bezeichnung
C 516	287 755	Trimmer 30 Pf
Q 101	273 293	Transistor 2 SC 1815 BL
Q 102	273 293	Transistor 2 SC 1815 BL
Q 103	282 169	Transistor KTK 161 Y
Q 104	271 072	Transistor 2 SC 2878 B
Q 105	271 072	Transistor 2 SC 2878 B
Q 106	283 330	Transistor KTA 1015 GR
Q 107	273 293	Transistor 2 SC 1815 BL
Q 108	287 756	Transistor KTC 1923 Y
Q 109	273 293	Transistor 2 SC 1815 BL
Q 110	273 293	Transistor 2 SC 1815 BL
Q 111	273 293	Transistor 2 SC 1815 BL
Q 112	283 330	Transistor KTA 1015 GR
Q 113	283 330	Transistor KTA 1015 GR
Q 114	283 330	Transistor KTA 1015 GR
Q 115	273 293	Transistor 2 SC 1815 BL
Q 116	283 330	Transistor KTA 1015 GR
Q 117	273 293	Transistor 2 SC 1815 BL
Q 118	273 293	Transistor 2 SC 1815 BL
Q 119	273 293	Transistor 2 SC 1815 BL
Q 120	273 293	Transistor 2 SC 1815 BL
Q 121	273 293	Transistor 2 SC 1815 BL
Q 122	283 330	Transistor KTA 1015 GR
Q 126	273 293	Transistor 2 SC 1815 BL
Q 127	273 293	Transistor 2 SC 1815 BL
Q 128	273 293	Transistor 2 SC 1815 BL
Q 129	287 935	Transistor KTC 4369
LP 101	287 757	Lampe 12 V/80 MA
LP 102	287 758	Lampe 12 V/110 MA
X–L	284 503	Quarz 7,2 MHz
	287 759	Display
	287 760	FM-Teil
		Antennenplatte
D 001	263 034	Diode 1S 2473
	287 761	Antennenbuchse
		Schalterplatte
SW 001	287 762	Schalter
bis		
SW 005	287 762	Schalter
		Bedienteilplatte
SW 101	287 763	Schalter
bis		
SW 116	287 763	Schalter
	287 764	Antenne
	287 765	Hilfsantenne

Änderungen vorbehalten! Subject to change! Sous réserve de modification!