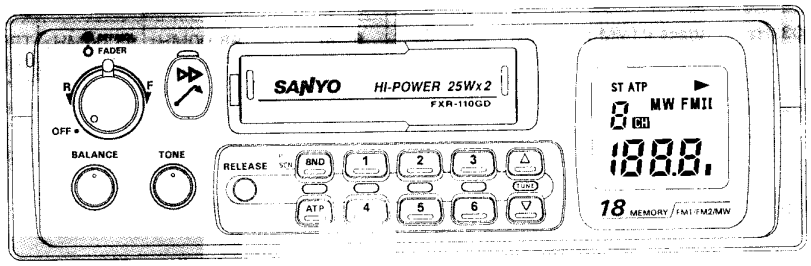
SANYO

FILE NO.

SERVICE MANUAL

COMPACT PANEL DETACHABLE DIN-SIZE FM-STEREO/MW ETR CASSETTE RECEIVER WITH AUTO-TRAVEL/PRESET TUNING

FXR-110GD
FXR-110GD/A
(GENERAL)



PRODUCT CODE No.

FXR-110GD	147 589 22
FXR-110GD/A	147 589 23

Specifications

FM TUNER SECTION

Frequency Range	87.5 MHz ~ 108 MHz
Usable Sensitivity	10dBf / 75ohms
Frequency Response (± 3 dB)	40Hz ~ 12.5 kHz
Signal to Noise ratio	55 dB
Selectivity (± 400 kHz)	65 dB
Stereo Separation (1 kHz)	30 dB

MW TUNER SECTION

Frequency Range	522 kHz ~ 1620 kHz
Usable Sensitivity (S/N 20 dB)	35 dB

CASSETTE DECK SECTION

Wow & Flutter (DIN)	0.15%
Fast Winding (C-60)	90 sec
Frequency Response (120μs)	50 Hz ~ 14 kHz
Cross Talk (1000 Hz)	45 dB

Maximum Output Power	25W x 2 or 7.5W x 4
Load Impedance	4Ω (4Ω ~ 8Ω allowable)

GENERAL

Operating Voltage	14.4V (11 ~ 16V allowable)
Current Consumption	6.0A
Size (W X H X D)	178 X 50 X 158 mm

Specification are subject to change without notice.

REFERENCE NO. SM750253

ALIGNMENT PROCEDURES

- Power Supply DC 14.4V
- Signal generator output :
  Modulation frequency : 400Hz (MW) : 1kHz (FM)
  Modulation percentage 30% : 22.5kHz (FM)
- Reference output 500mW
- Signal Generator output level is in EMF.
- Signal application :
  Antenna receptable through the dummy antenna
- Output meter connection : Across speaker or dummy load (4 ohms)
- Location of the components for alignment are shown in main part identification illustration.

MW RF ALIGNMENT

Step	Signal	Frequency	Dial Set	Test Equipment	Adjustment
1	MW		522kHz	Connect a DC voltmeter to TP1 & common GND	Adjust T8 for voltage to be 1.2V
2	Through Dummy ANT (Fig.1)	603kHz	603kHz	Connect VTVM to output terminal	Tune T1,T3 RF coil for maximum output
3		999kHz	999kHz	Connect VTVM to output terminal	Tune T5, IF coil for maximum output
4		999kHz 30dBμ	999kHz	TP5 through 10K resistor to 5V. Connect a voltage meter to TP2 and ground	Adjust SVR2 between 2.5V to 4.5V

Rsg : Internal resistance of a signal generator

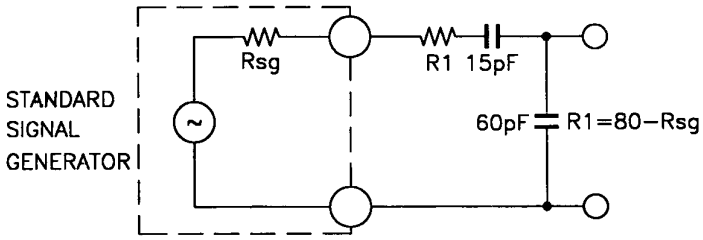


Fig. 1 Dummy Antenna for MW Alignment

Rsg : Internal resistance of a signal generator (50Ω)

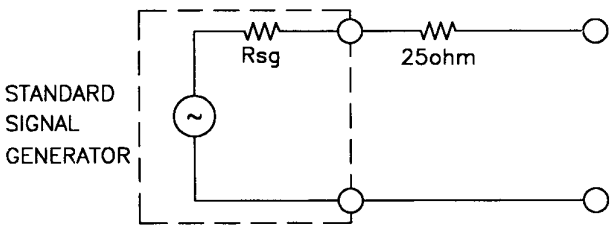


Fig. 2 Dummy Antenna for FM Alignment

FM ALIGNMENT

Step	Signal Input	Frequency of signal Generator	Dial Setting of Radio	Test Equipment Connection	Adjustment
1	Through Dummy ANT (Fig. 2)		108.0MHz	Connect DC voltmeter to TP1 & GND	Adjust L705 to 7.8V
2		90.00MHz	90.00MHz	Connect VTVM to speaker output	Adjust T701 for maximum output (I.F.)
3		90.00MHz	90.00MHz		Adjust L701,703 & 704 for maximum output
4		Repeat the step 2 until maximum output			
5		98.00MHz 60dBμ	98.00MHz	Connect a DC Voltmeter between TP3 and TP4	Adjust T6 to OV ± 20mV
6		98.00MHz 21dBμ	98.00MHz	TP5 through 10K resistor to 5V.Connect a voltage meter to TP2 and ground	Adjust SVR1 to HIGH (5V)

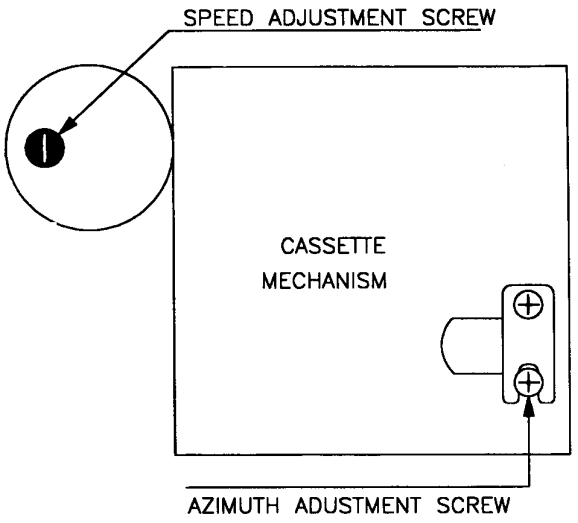
Note :
Open the L703 first, adjust T701, then adjust L701, L703 and L704.

ALIGNMENT OF TAPE SPEED

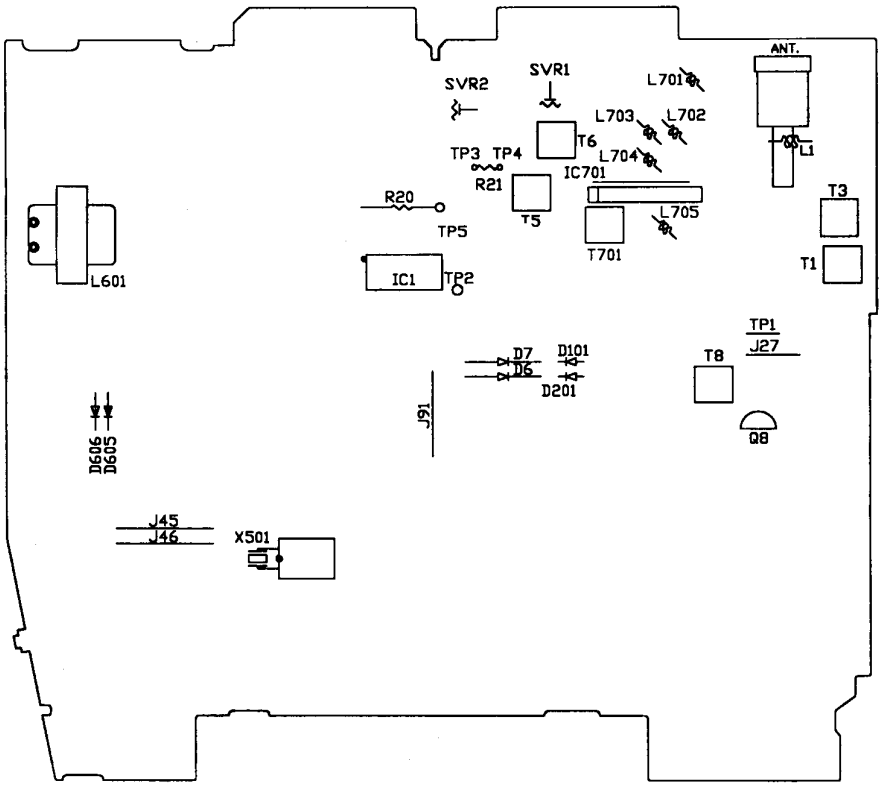
1. Insert 3kHz (MTT-111) standard test tape and set the unit at play mode.
2. Connect the Wow and Flutter Meter to speaker output.
3. Turn the speed adjustment screw to get 3000 ± 30Hz.

ALIGNMENT OF HEAD AZIMUTH

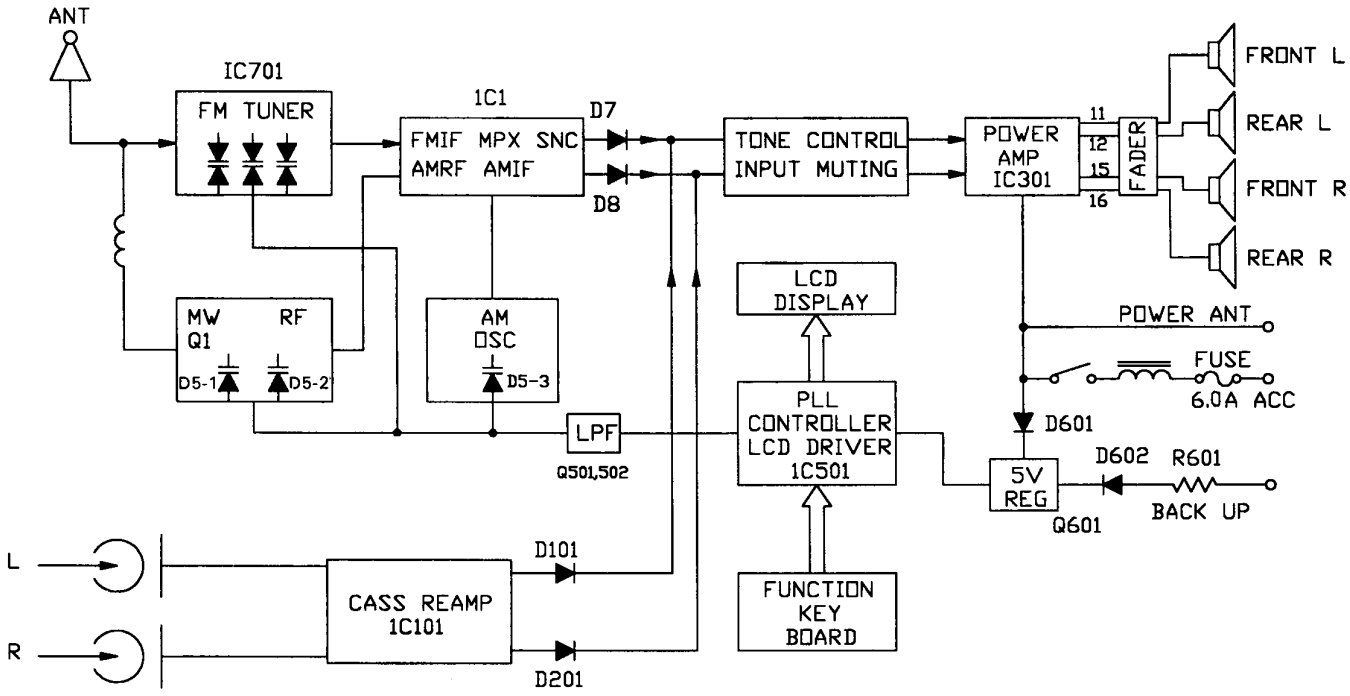
1. Insert a 10kHz (MTT255J) standard test and set the unit in play mode.
2. Tune the azimuth adjusting screw until you obtain maximum reading for both channel on the VTVM.



MAIN PARTS IDENTIFICATION ILLUSTRATION



BLOCK DIAGRAM



PARTS LIST

Ref. No.	PART No.	DESCRIPTION	Q'ty
		PACKING MATERIAL	
	641 006 5226	INNER CARTON	1
	641 006 5233	INSTRUCTION MANUAL	1
	641 000 0791	POLY COVER, 275 X 340	1
	632 535 5320	POLY COVER, 85 X 240	1
		ACCESSORY	
CS601	641 002 6531	ASSY, CORD, 12P	1
	641 001 8109	BRACKET-M, MOUNTING STRAP	1
	641 001 7850	BASE	1
	412 043 2406	SPECIAL SCREW	1
	423 021 6200	FUSE 250V, 6A	1
	632 298 4318	POLY COVER	1
	412 016 0903	SPECIAL SCREW	1
	412 037 5307	SPECIAL SCREW	1
		CABINET & CHASSIS	
1	641 006 5011	LID, CASSETTE	1
2	641 006 5028	PANEL, FRONT, MAIN	1
3	641 006 3035	BUTTON, EJECT	1
4	641 002 1642	ASSY, CASE, DRAWER	1
5	641 003 8466	BRACKET-E, MECHA (F)	1
6	641 006 5042	ILLUMINATOR, KNOB	1
7	641 006 5059	KNOB, ROTARY	2
8	641 003 8473	BRACKET-E, MECHA (R)	1
9	641 006 5066	SLIDE, RELEASER	1
10	641 006 5073	KNOB, ROTARY, VOLUME	1
11	641 006 5080	BRACKET-E, IC	1
12	641 006 5097	SPRING, COMP, RELEASER	1
13	641 006 5103	KNOB, FADER	1
14	641 006 5110	BRACKET-E, VR	1
15	641 006 5127	SPRING, TORS	1
16	641 004 5310	CHASSIS, TOP	1
17	641 005 4695	SHIELD CASE (TUNER)	1
18	641 006 5134	CHASSIS, FRAME	1
19	641 006 5141	PLATE, GROUNDING	1
20	641 006 5158	BRACKET-E	1
21	641 006 5165	HOLDER, LCD	1
22	641 006 5172	HEAT SINK	1
23	641 006 5189	SHEET, LCD	1
24	641 001 8093	LEVER, DRAWER	1
26	411 001 8504	SCR BIN 3 X 4	2
27	411 027 1305	SCR S-TPG BIN 2.6 X4	2
28	411 028 5609	SCR S-TPG PAN 2.6 X 4	3
29	411 001 1901	SCR S-TPG BIN 3 X 6	3
30	641 000 8230	CORD, PRESSURE WELDING	1
31	641 002 2878	CORD, PRESSURE WELDING	1
32	411 027 1503	SCR S-TPG BIN 2.6 X 5	4
33	411 028 4909	SCR S-TPG PAN 2.6 X 10	2
34	411 025 9204	SCR S-TPG PAN 2 X 6	3
35	641 006 5196	LCD	1
36	412 044 8704	SPECIAL SCREW	1
38	641 001 8086	SPRING, TORS	1
57	641 006 5240	LABEL, CAUTION	1
		ASSY, DETACH PANEL	
58	641 006 4793	ASSY, DETACH PANEL	1
25	641 006 5219	SHEET, DETACH	1
37	641 006 5202	SHEET, ILLUMINATOR	1
39	641 006 4847	SPRING, COMP. HOOK	1
40	641 006 4854	PANEL, FRONT, DETACH	1
41	641 006 4861	PANEL, REAR, DETACH	1
42	641 006 4878	BUTTON PRESET BND	1
43	641 006 4885	BUTTON PRESET ATP	1
44	641 006 4892	BUTTON PRESET 1	1
45	641 006 4908	BUTTON PRESET 2	1
46	641 006 4915	BUTTON PRESET 3	1
47	641 006 4922	BUTTON PRESET 4	1
48	641 006 4939	BUTTON PRESET 5	1
49	641 006 4946	BUTTON PRESET 6	1
50	641 006 4953	BUTTON PRESET UP	1
51	641 006 4960	BUTTON PRESET DOWN	1
52	641 006 4977	BUTTON RELEASE	1
53	641 006 4984	HOOK	1
54	641 006 4991	ILLUMINATOR, PRESET	1
55	641 006 5004	SPRING, COMP. BUTTON	1
56	411 025 8702	SCR S-TPG PAN 2 X 10	5
59	641 006 4762	ASSY, PCB-W, SWITCH	1

Ref. No.	PART No.	DESCRIPTION	Q'ty
		ASSY, PCB-W, MAIN	
PCB1	641 006 4755	ASSY, PCB-W, MAIN	1
	641 005 9409	SOCKET, ANTENNA	1
BPF1	641 006 4809	FILTER, LC, LP	1
C601	641 005 4619	FILTER, LC, EMI	1
CP101	632 253 9983	PLUG, 3P	1
CP102	641 001 0585	PLUG, 4P	1
CP601	640 001 2015	CONNECTOR-P, 12P	1
CS501	641 005 4626	CONNECTOR-S	1
D1,2,3,4,6,7,101, 102,201,501,502, 511,512,513,514, 515,516,517,518, 519,520,521,522, 523,524,541,542, 543,544,605,606	407 012 4406	DIODE 1SS133	31
D1,2,3,4,6,7,101, 102,201,501,502, 511,512,513,514, 515,516,517,518, 519,520,521,522, 523,524,541,542, 543,544,605,606	407 112 4603	DIODE 1SS119-41 }OR	31
D5	407 146 7403	VARACTOR DI SVC354S-TR	1
D503	407 099 6003	ZENER DIODE MTZJ9.1B	1
D532	408 035 3209	LED SLP-481C-51-ABY-T1	1
D601,602,603	407 158 8306	DIODE 1N4002S }OR	3
D601,602,603	407 143 3606	DIODE RL1N4002	3
D604	407 099 5501	ZENER DIODE MTZJ6.2C	1
D701,702,703,704	407 200 4508	VARACTORDI SVC220-TB	4
F11	641 000 7035	RESONATOR,CERAM	1
F12	641 002 2694	CERAMIC FILTER,450kHz }OR	1
F12	641 000 7028	CERAMIC FILTER, AM	1
F13	641 005 4602	FILTER, CERAM, 10.700MHz	1
F14,701	641 005 4596	FILTER, CERAM, 10.700MHz	2
FOR D532	641 005 0925	HOLDER, LED	1
IC1	409 229 9304	IC LA1875M	1
IC101	409 016 7902	IC LA3161	1
IC301	409 195 4808	IC TA8210AH	1
IC501	409 271 6504	IC LC7232-8424	1
IC701	409 001 6002	IC AN7254	1
L1	641 002 5411	INDUCTOR, 100UH K	1
L601	641 000 4102	INDUCTOR, FERRITE, 2MH	1
L701,704	641 000 7530	COIL, AIR, VHF	2
L702	632 528 5078	COIL, AIR	1
L703	641 000 7547	COIL, AIR	1
L705	641 000 7561	COIL, AIR	1
Q1	406 015 7001	TR FC18G-PM-TL }OR	1
Q1	405 143 4302	TR FC18G-TL	1
Q301,401	405 035 6506	TR 2SD1306N-E-TR	2
Q503,504,505	405 001 0705	TR RN1404 }OR	3
Q503,504,505	405 029 3504	TR DTC144EK-T97	3
Q506,507,508,515	405 035 9408	TR RN2407 }OR	4
Q506,507,508,515	405 029 3009	TR DTA114YK-T97	4
Q509	405 013 1301	TR 2SC2120Y-T	1
Q510	405 105 4609	TR RN2405	1
Q701	405 096 4503	TR 3SK226-TE85R	1
Q702	405 015 9701	TR 2SC2814F4-TB	1
Q8	405 029 5003	TR 2SK105-H	1
Q9,501,502,516, 601	405 015 4201	TR 2SC2712-GR	5
Q9,501,502,516, 601	405 015 8704	TR 2S2812-L6-TA }OR	5
Q9,501,502,516, 601	405 134 0009	TR 2SC3928-R	5
SVR1	641 004 3354	SVR, 50K OHM	1
SVR2	641 004 5211	SVR, 20K OHM	1
T1,T3	641 002 6555	TRANS, RF, MW ANT	2
T5	641 002 6579	TRANS, IF, AM	1
T6	641 002 5558	TRANS, IF, FM	1
T701	641 002 7903	TRANS, IF, FM	1
T8	641 002 5565	OSC COIL, MW	1
VR301	641 002 2731	VR, ROTARY, 100KB	1
VR302,402	641 002 2724	VR, ROTARY,50KAX2	2
X501	641 005 0581	RESONATOR, XTAL	1

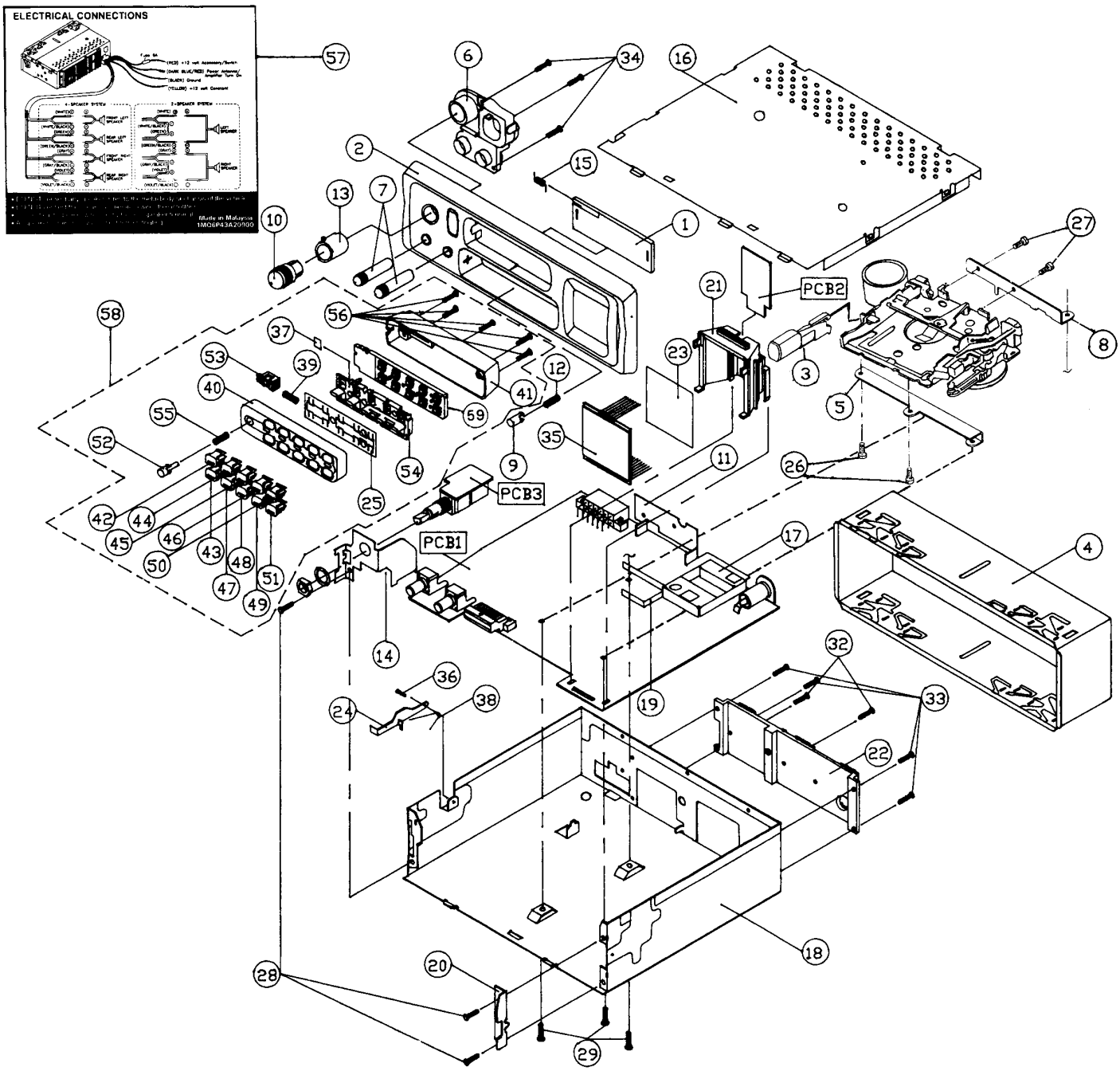
PARTS LIST

Ref. No.	PART No.	DESCRIPTION	Q'ty
ASSY, PCB-W, LCD			
PCB2	641 006 4779	ASSY, PCB-W, LCD	1
D607,608	408 035 3209	LED SLP-481C-51-ABY-T1	2
ASSY, PCB-W, VR			
PCB3	641 006 4786	ASSY, PCB-W, VR	1
FC301 TO FS301	641 006 4823	PC, JOINER, 10P-60MM	1

Ref. No.	PART No.	DESCRIPTION	Q'ty
ASSY, PCB-W, SWITCH			
FC302 TO FS302	641 006 4830	PC, JOINER, 3P-70MM	1
S601,VR303,	641 006 4816	VR, ROTARY	1
304,305			

NOTES:
1. Part orders must contain Model Number, Part Number and Description.
2. Order quantity of screws and resistors must be multiple of 10 pcs.
3. Regular type resistor and capacitor are omitted. Check the schematic diagram for these values.

EXPLODED VIEW



IC AND TRANSISTOR VOLTAGE CHART

IC	PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
IC1	FM	5.3	0.3	0	5.2	0.1	8.3	1.2	4.2	0	4.2	4.2	0	4.2	8.3	0.1	8.2	4.4	2.4	4.2
	MW	5.3	0.2	0	0	1.8	8.2	1.1	3.7	0	3.7	3.7	0	3.7	8.2	0	8.2	3.7	2.5	0.7
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
	FM	4.1	4.7	3.2	3.3	3.3	3.3	0	0	3.3	3.2	3.6	3.4	0.7	0.1	0	4.1	0		
	MW	3.7	4.7	2.8	2.9	3.3	3.3	0	0	3.3	3.3	3.3	3.0	0.6	3.7	2.2	3.5	2.9		

IC \ PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
IC101	1.3	0.8	2.3	13.9	0	2.3	0.8	1.3									
IC301	13.9	5.1	5.2	4.9	0	5.1	5.2	5.2	13.9	13.9	6.2	6.2	0	0	6.2	6.2	13.9
IC701	8.0	3.9	8.0	0.7	0	2.2	1.6	6.6	5.2								

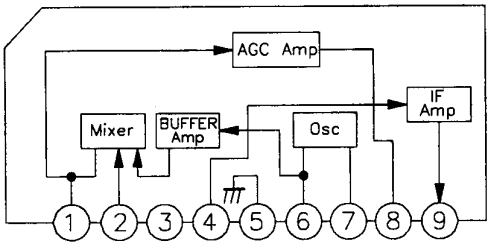
PIN \ TR		Q9	Q301	Q401	Q501	Q502	Q503	Q504	Q505	Q506	Q507	Q508	Q509	Q510	Q515	Q516	Q601	Q702
B	ON	3.8	0.6	0.6	1.2	0.7	4.8	5.4	4.9	0	0	0	8.9	0.9	0	0.6	6.2	0.7
	OFF	0.7	0	0	—	—	0	0	0	2.3	0.1	0.1	—	8.2	5.0	0	—	—
C	ON	8.2	0	0	*	*	0	0	0	0	0	0.1	13.5	8.1	4.9	0	13.2	6.9
	OFF	8.2	0	0	—	—	0.1	0.1	2.8	0	0	0	—	0	0	5.1	—	—
E	ON	3.2	0	0	0.7	0	0	0	0	0	0	0	8.2	8.2	4.9	0	5.6	0
	OFF	0.2	0	0	—	—	0	0	0	0.6	0	0	—	8.3	5.1	0	—	—

PIN \ TR	Q1	Q8
D	0.2	0
G	0	0
S	0.1	1.5
B	0.8	
C	8.2	

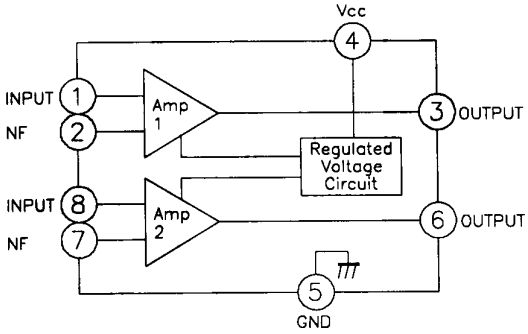
* : FM 1.2~7.8
: MW 1.2~7.2

IC BLOCK DIAGRAM

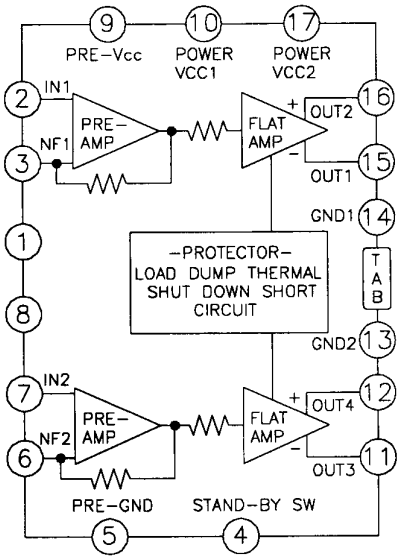
LA 3161



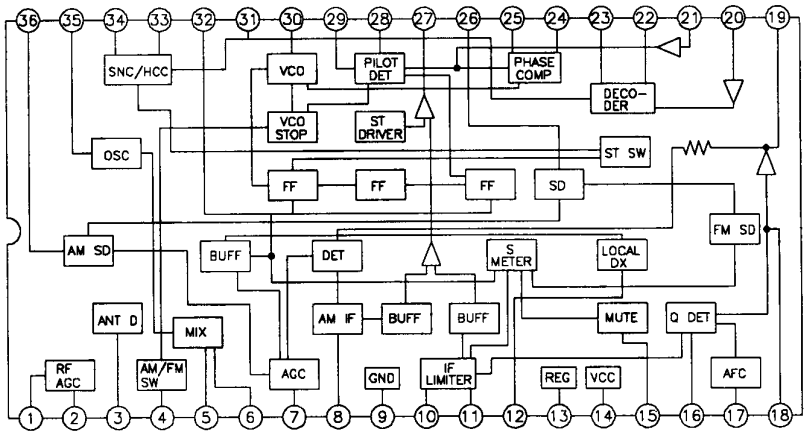
AN7254



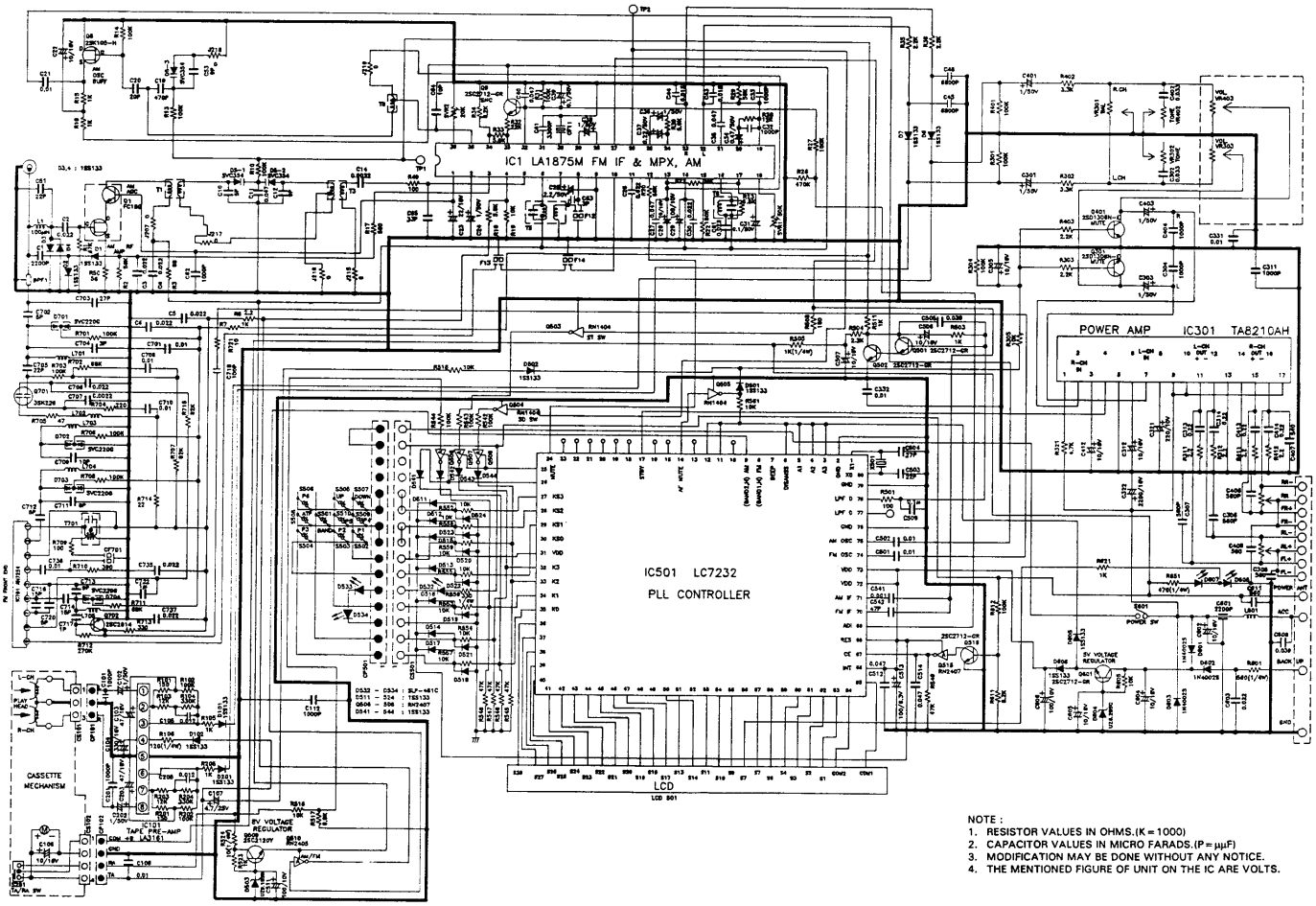
TA 8210AH



LA 1875M

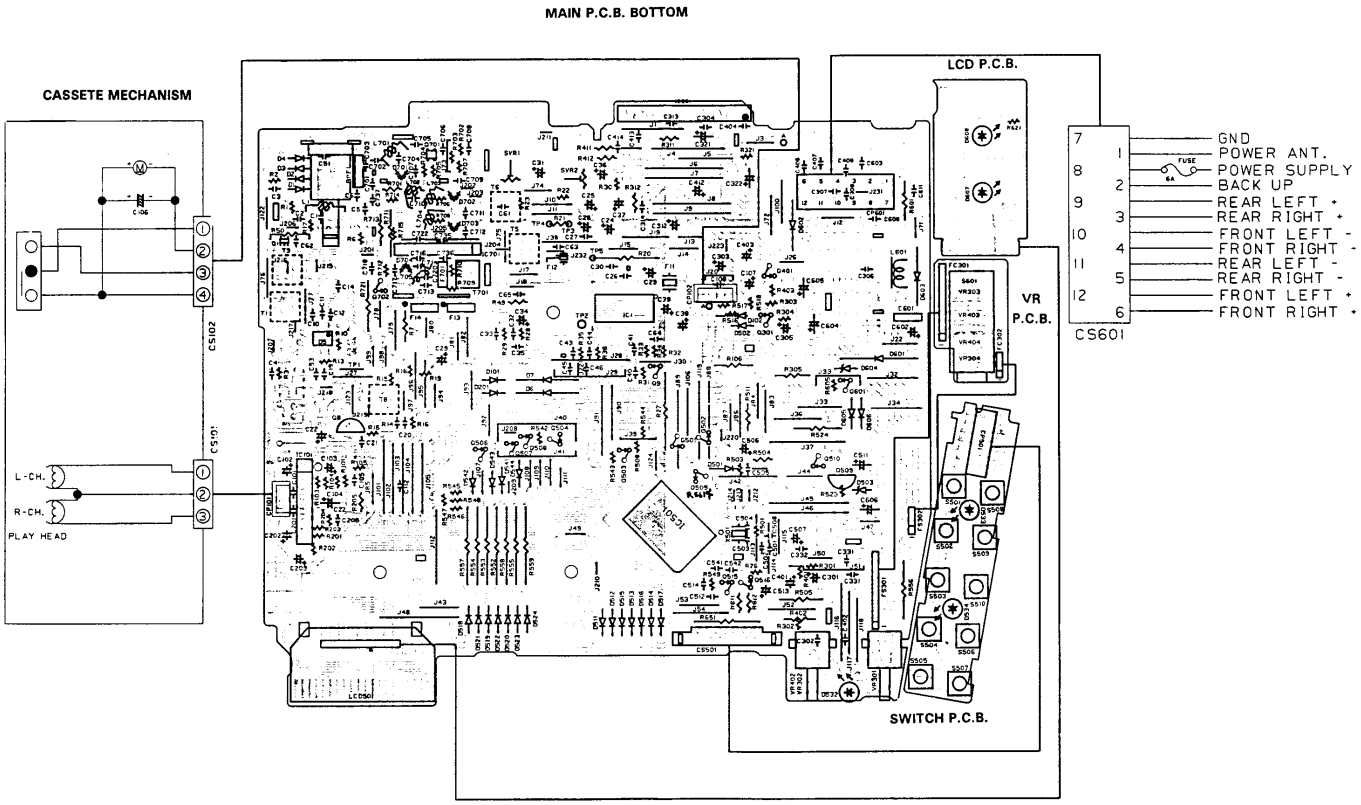


SCHEMATIC DIAGRAM



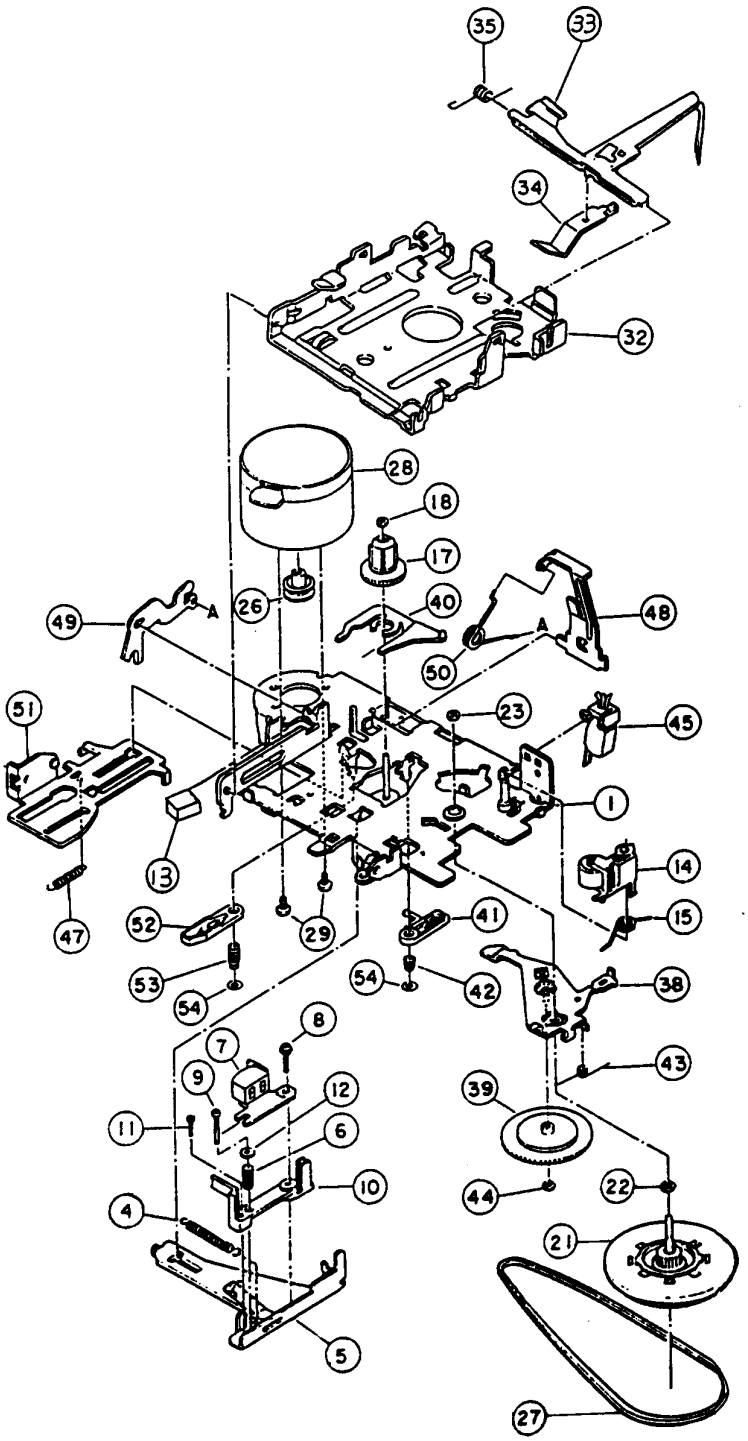
NOTE :
1. RESISTOR VALUES IN OHMS.(K = 1000)
2. CAPACITOR VALUES IN MICRO FARADS.(P = μμF)
3. MODIFICATION MAY BE DONE WITHOUT ANY NOTICE.
4. THE MENTIONED FIGURE OF UNIT ON THE IC ARE VOLTS.

WIRING DIAGRAM



PARTS LIST (CASSETTE MECHANISM) ——— EXPLODED VIEW

Ref. No.	PART No.	DESCRIPTION	Q'ty
CASSETTE MECHANISM (641 005 4909)			
	641 005 4909	ASSY, MECHA TN-301NX-258	1
1	641 002 5169	CHASSIS ASSY	1
4	641 001 9045	HEAD PANEL SP	1
5	641 001 9021	HEAD PANEL	1
6	641 001 9014	AZIMUTH SPRING	1
7	641 005 4916	HD.P-7442BS-3453	1
8	641 001 9281	TAMS SCREW 2X9	1
9	641 001 9298	AZIMUTH SC M2X10	1
10	641 001 9038	HEAD BASE	1
11	641 000 6076	CAMERA SCR 2X5.5	1
12	641 000 6793	WAS. 2.1X5X0.2	1
13	641 001 9007	ANTI-VIB MAT	1
14	641 001 8963	PINCH ROLLER ASSY	1
15	641 001 9069	PINCH ROLLER SP	1
17	641 001 8970	REEL GEAR ASSY	1
18	641 001 9274	HW(10.3X14.2X.4)	1
21	641 001 8987	FLYWHEEL ASSY	1
22	641 002 5190	P.WAS 2.1X3.5X.3	1
23	641 001 9328	H.W. (C1.5X3.2X.5)	1
26	641 004 1794	MOTOR PULLEY	1
27	641 001 9076	MAIN BELT	1
28	641 005 4923	MOTOR, EG530AD2FS	1
29	632 547 2966	M2.6X3 PAN M/C SC	2
32	641 001 9120	CASS CASE	1
33	641 002 4933	KICK PLATE	1
34	641 001 9106	PACK HOLDER SP	1
35	632 227 7694	KICK PLATE SP	1
38	641 001 8994	GEAR PLATE ASSY	1
39	641 001 9137	CAM GEAR	1
40	641 001 9144	SENSOR	1
41	641 001 9175	G. LOCK LEVER	1
42	641 001 9151	G. LOCK LEV SP	1
43	641 001 9168	GEAR PLATE SP	1
44	641 001 9267	P.W (C1.2X3.8X.3)	1
45	641 001 9250	LEAF SW	1
47	641 001 9205	FUNC. LEVER SP	1
49	641 001 9212	LIFT UP LEVER	1
48	641 001 9229	PUSH PLATE	1
50	641 001 9243	REVERSE SPRING	1
51	641 001 9236	FUNCTION LEVER	1
52	641 001 9182	FF LOCK LEVER	1
53	641 001 9199	LOCK LEVER SP	1
54	641 001 9304	H.WASH 2.1X5X0.3	2

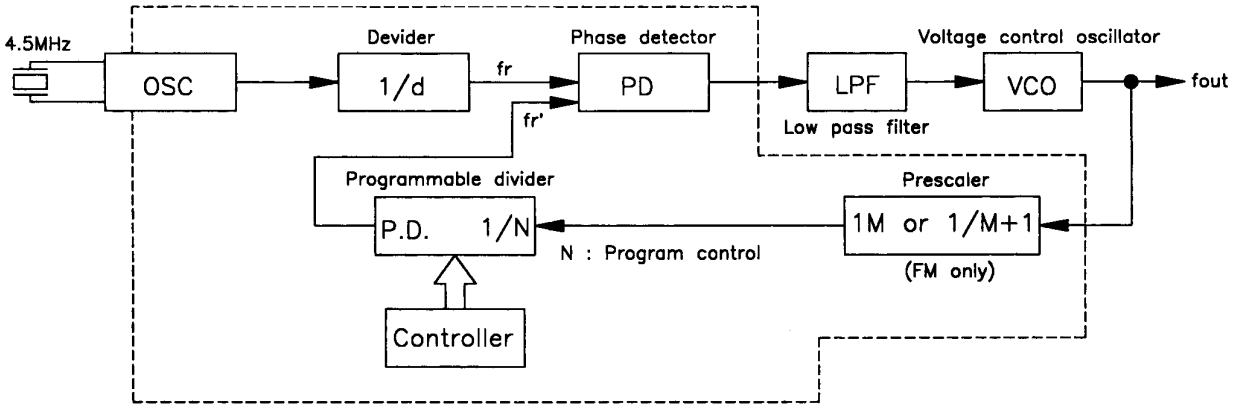


NOTES: 1. Part orders must contain Model Number, Part Number and Description.

2. Order quantity of screws and resistors must be multiple of10 pcs.

CIRCUIT OPERATION DESCRIPTION

1. BASIC OPERATION OF PLL FREQUENCY SYNTHESIZER



The illustration above is a block diagram which is a fundamental PLL frequency synthesizer.
In order to obtain reference frequency fr, the frequency of 4.5MHz generated from a crystal oscillator (OSC) is passed into a divider circuit of 1/d.
This fr is compared with fr', and runs through phase detector (PD) and low pass filter (LPF) to be inverted to direct-current signal, which is then applied as varicap voltage of voltage control oscillator (VCO), thereby controlling the oscillation frequency.
This oscillation frequency fout is divided down to 1/N by programmable divider (PD), so that one closed loop is fixed in the relation of

fout = frxN

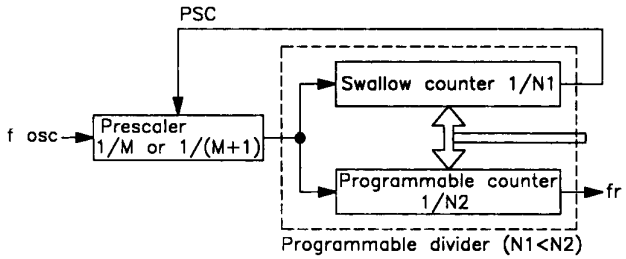
therefore, the operation of PLL is stabilized.
In case of automatic channel selection, the dividing ratio N is altered by the PD by a command from controller, and fout is changed accordingly.

Programmable divider
Since the oscillation frequency of VCO is very high as compared with fr, it is divided down to 1/N (in the case of MW) to decrease the difference from fr in this circuit.

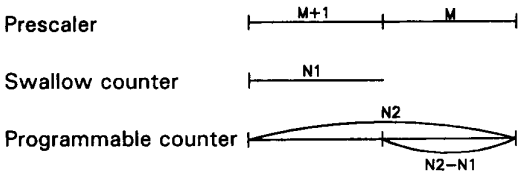
Phase detector
This is a circuit to detect the difference in frequency and phase between reference frequency fr and comparison frequency fr' in terms of pulses.

Low pass filter
This circuit is intended to vary and fix the output voltage in order to deliver a varicap voltage necessary for desired VCO frequency, on the basis of the output of the phase detector.

Prescaler
The local oscillation frequency in FM is higher than the operating speed of the programmable divider of PLL, thereby opposing to accurate operation. To avoid this, the local oscillation frequency is preliminarily divided down in this circuit to a proper frequency permitting reliable operation of the programmable divider.
Pulse swallow count system is employed. A couple of programmable divider (swallow counter and programmable counter) can be selected.



$f\ osc = \{(M+1)N1 + M(N2-N1)\}\ fr'$
$= (MN2 + N1)\ fr'$



The prescaler at first starts the frequency division with the ratio M + 1. Then the swallow counter and the programmable counter starts counting simultaneously. When N1 inputs are applied, the swallow counter stops counting. Then the frequency division ratio of the prescaler is switched to M. Programmable counter continues to count and stops when the input reaches N2. The frequency division ratio of the prescaler switches back to M + 1 and swallow counter and the programmable counter start to count again.
FM reception employs the pulse swallow count system. MW reception does not employ the pulse swallow count system but employs the direct frequency division system and so only programmable counter is operated.

2. GENERAL DESCRIPTION OF LOGIC IC (IC501)

a) IC801 LC7232-8424
This IC includes PLL and controller is a C-MOS LSI for digital tuning of FM/MW PLL frequency synthesizer system and controls such functions as FM/MW automatic channel selections, preset memory and frequency digital display driver. It is packed in a 80-pin flat package.

3. AUTOSTOP

If counter start, when high level signal is applied to SD terminal (Q504 base). Then IF frequency became 10.7MHz ±30kHz at FM or 450kHz±3kHz at MW. When SD and IF is agreed radio auto search tuning stops.

CIRCUIT OPERATING DESCRIPTION

DESCRIPTION (LC7232-8424)

PIN NO	SYMBOL IN	SYMBOL OUT	FUNCTIONAL EXPLANATION
1	XIN		Input side of inverter for OSC
2	GND		
3	AREA3		Key return signal input
4	AREA2		Key return signal input
5	AREA1		Key return signal input
6	DIS AMSS		Key return signal input
7		BEEP	BEEP Signal output
8		BAND 1	
9		BAND 2	
10		VF	
11	DIS DOLBY		Key return signal input
12	DIS MTL		Key return signal input
13	SDK	—	SDK signal output
14		MUTE	MUTE signal output
15		MODE 1	
16		MODE 2	
17		STBY	AMP STBY output
18		TA MUTE	TAPE MUTE output
19		LOUD.	LOUDNESS signal output
20		LO	LO signal output
21		DOLBY	DOLBY signal output
22		AMSS	AMSS signal output
23		MO/MTL	MO/MTL signal output
24		RA MUTE	RA MUTE signal output
25		KS5	Key matrix return signal output 5
26		KS4	Key matrix return signal output 4
27		KS3	Key matrix return signal output 3
28		KS2	Key matrix return signal output 2
29		KS1	Key matrix return signal output 1
30		KS0	Key matrix return signal output 0
31	VDD		VDD 5V
32	K3		Key matrix return signal output 3
33	K2		Key matrix return signal output 2
34	K1		Key matrix return signal output 1
35	K0		Key matrix return signal output 0
36		S28	LCD19 output for LCD
37		S27	LCD18 output for LCD
38		S26	LCD17 output for LCD
39		S25	LCD16 output for LCD
40		S24	LCD15 output for LCD
41		S23	LCD14 output for LCD
42		S22	LCD13 output for LCD
43		S21	LCD12 output for LCD
44		S20	LCD11 output for LCD
45		S19	LCD10 output for LCD
46		S18	LCD9 output for LCD
47		S17	LCD20 output for LCD
48		S16	NC
49		S15	NC
50		S14	LCD24 output for LCD
51		S13	LCD21 output for LCD
52		S12	NC
53		S11	LCD22 output for LCD

PIN	FM	MW	LW	FM* SDK
BAND 1	1	0	0	1
BAND 2	0	1	0	1
VF	1	1	1	0

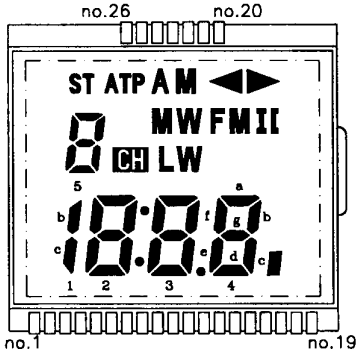
	TAPE	FM	AM
MODE 1	0	1	1
MODE 2	1	0	1

AM:MW LW

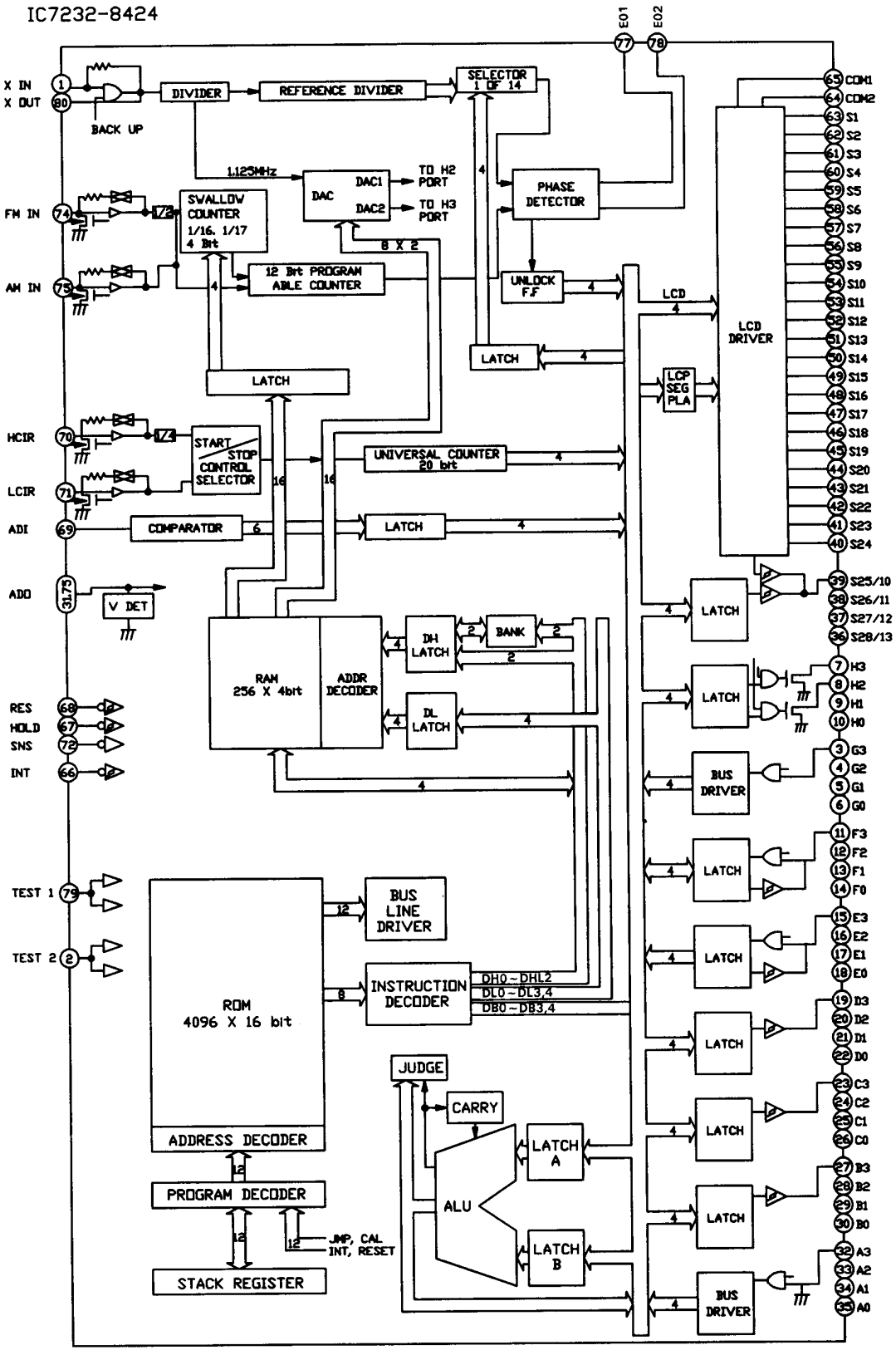
PIN NO	SYMBOL IN	SYMBOL OUT	FUNCTIONAL EXPLANATION
54		S10	LCD23 output for LCD
55		S9	LCD25 output for LCD
56		S8	NC
57		S7	LCD8 or 26 output for LCD
58		S6	LCD7 output for LCD
59		S5	NC
60		S4	LCD6 output for LCD
61		S3	LCD5 output for LCD
62		S2	LCD4 output for LCD
63		S1	LCD1 output for LCD
64		COM2	COMMON signal 2 output for LCD
65		COM1	COMMON signal 1 output for LCD
66	INT		VDD 5V
67	CE	—	ChipEnable (+5V)
68	RES		RESET
69	ADI		Signal meter level input
70	FM IF		FM IF input
71	AM IF	—	AM IF input
72	SNS		VDD 5V
73	VDD		VDD 5V
74	FM in		FM OSC input
75	AM in		AM OSC input
76	GND		GND
77		E01	Phase detector output 1
78		E02	Phase detector output 2
79	GND		
80		Xout	Output side of inverter for OSC

LCD SEGMENT & COMMON LINE

Pin	COM1	COM2	Pin	COM1	COM2
1	COM1		14	3 d	3 c
2		COM2	15	3 a	dot
3	5 f	5 b	16	4 f	4 b
4	5 e	5 g	17	4 e	4 g
5	5 d	5 c	18	4 d	4 c
6	5 a	CH	19	4 a	
7	LW		20	2 f	2 b
8	MW	FM	21		1 bc
9	2 e	2 g	22	◀	
10	2 d	2 c	23	▶	
11	2 a	:	24		ATP
12	3 f	3 b	25		ST
13	3 e	3 g	26	AM	



IC BLOCK DIAGRAM



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