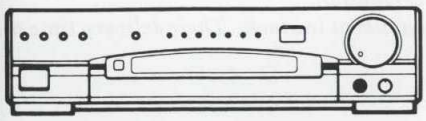
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2402

TUNER CONTROL AMPLIFIER

CX-J500

CX—J500 HAS THE FOLLOWING :

Type	Power Requirement	Remarks
HE	AC 220 V—230 V, 240 V(switchable)*	
HEWZI	AC 220 V—230 V, 240 V(switchable)*	
HB	AC 220 V—230 V, 240 V(switchable)*	
SD	AC 110 V, 120 V—127 V, 220 V, 240 V(switchable)	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to HE, HB and SD types.**
- **As to HB and SD types, refer to page 35.**
- **As to the other type(s), refer to applicable service manual(s).**
- **These products are systems components. Each of these products does not function properly when independent ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**
- **These products' instructions are contained within the operating instructions manual of the related system component(s).**
- **The manual is packed with those component(s). These products' accessories etc. are packed with their related component(s).**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

FS JAN. 1992 Printed in Japan

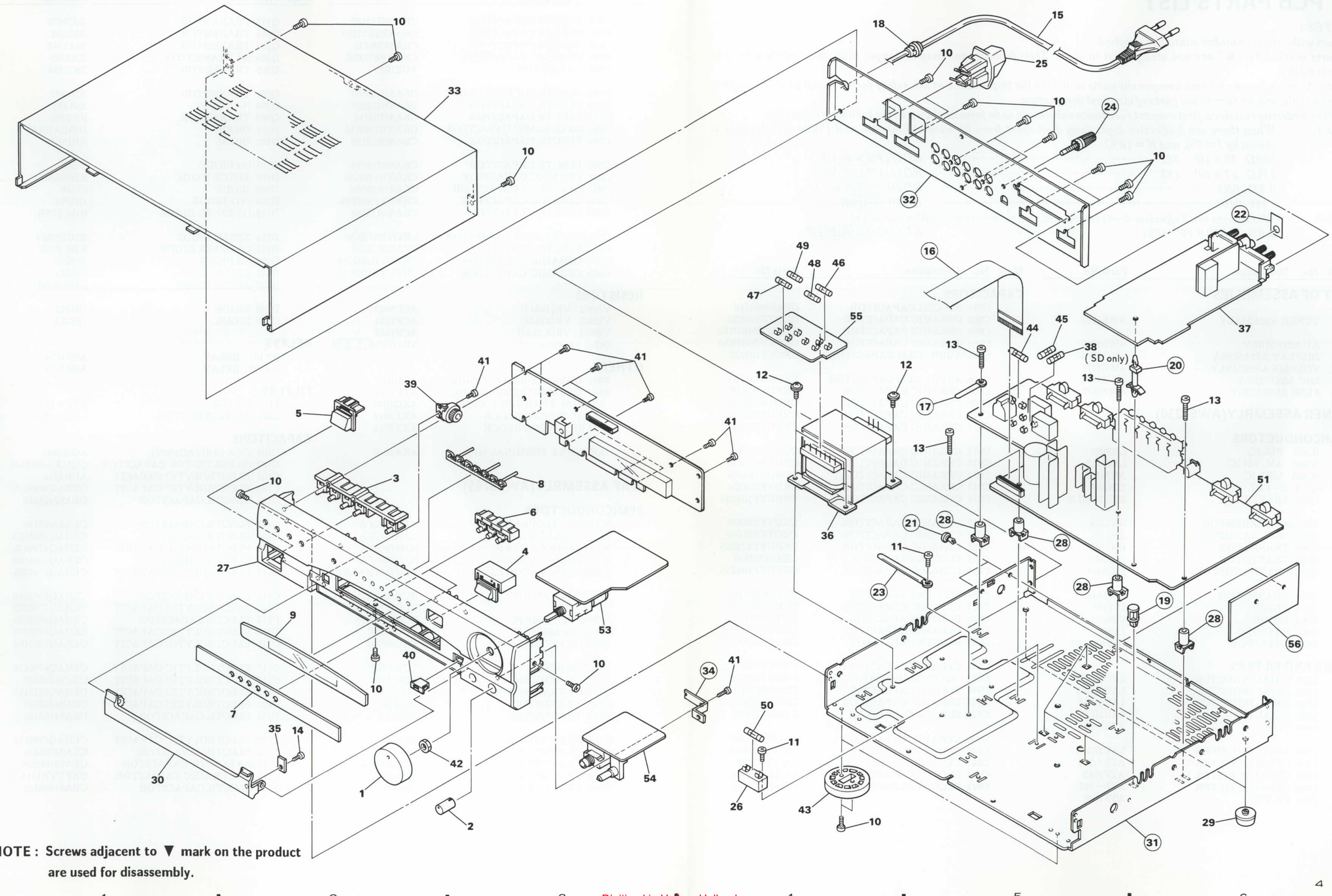
1. EXPLODED VIEWS AND PARTS LIST

NOTES :

- *The parts with an encircled number are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Mark	No.	Description	Parts No.
	1	VOL KNOB	AAB1259
	2	KNOB (SMALL)	AAB1270
	3	BAND BUTTON	AAD2100
	4	FUNCTION BUTTON	AAD2102
	5	POWER BUTTON	AAD2104
	6	TIMER BUTTON	AAD2105
	7	INTERNAL PANEL	AAK2221
	8	INDICATOR LENS	AAK2222
	9	PANEL	AAK2223
	10	SCREW	ABA−298
	11	SCREW (STEEL)	ABA1009
	12	SCREW (STEEL)	ABA1011
	13	SCREW	ABA1018
	14	SCREW (STEEL)	ABA1143
⚠	15	AC POWER CORD	ADG1019
	16	FFC	ADD1102
	17	BINDER	AEC−826
⚠	18	STRAIN RELIEF	AEC−882
	19	PCB SUPPORT	AEC1010
	20	PCB SPACER	AEC1100
	21	NYLON RIVET	AEC1160
	22	SPACER	AEC1236
	23	BINDER	AEP−215
	24	TERMINAL SCREW	AKE−031
⚠	25	AC SOCKET 1−P	AKP−508
⚠	26	FUSE HOLDER	AKR−038
	27	FRONT PANEL	AMB1915
	28	PCB MOLD	AMR1525
	29	LEG ASSY(S)	AMR1937
	30	SEALING DOOR ASSY	AMR2338
⚠	31	CHASSIS	ANA1160
	32	REAR PANEL	ANC1809
	33	METAL BONNET	ANE1323
	34	BRACKET(JACK)	ANG1488
	35	MAGNET PLATE	ANG1558
⚠	36	POWER TRANSFORMER (T1)	ATT1178
	37	TUNER ASSEMBLY	AWE1230
⚠	38	FUSE (FU3 T1A/250V)(SD only)	AEK−508
	39	DUMPER ASSY	AXA1013
	40	MAGNET	AXX1016
	41	SCREW	BBZ26P080FMC
	42	NUT	NK90FUC
	43	FOOT ASSY(ABS)	RXA1448
⚠	44	FUSE(FU1 T2.5A)	AEK−512
⚠	45	FUSE(FU2 T1A)	AEK−508
⚠	46	FUSE(FU4 T5A)	AEK−515
⚠	47	FUSE(FU5 T5A)	AEK−515
⚠	48	FUSE(FU6 T1.6A)	AEK−510
⚠	49	FUSE(FU7 T1.6A)	AEK−510
⚠	50	FUSE(FU8 T2A)	AEK−511
◉	51	AF ASSEMBLY	AWZ3765
◉	52	DISPLAY ASSEMBLY	AWZ3769
◉	53	VR ASSEMBLY	AWZ3771
◉	54	MIC ASSEMBLY	AWZ3774
◉	55	FUSE ASSEMBLY	AWZ3975
	56	SHIELD ASSY	AWZ4117

EXPLODED VIEW



NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.

2. PCB PARTS LIST

NOTES :

- *Part without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 *When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

560Ω	56×10¹ 561	RD1/4PS561J
47kΩ	47×10³ 473	RD1/4PS473J
0.5Ω	0R5	RD2H0R5K
1Ω	010	RD1P010K

Ex.2 *When there are 3 effective digits (such as in high precision metal film resistors).*

5.62kΩ	562×10¹ 5621	RD1/4SR5621F

Mark	No.	Description	Parts No.
LIST OF ASSEMBLIES			
		TUNER ASSEMBLY	AWE1230
◉		AF ASSEMBLY	AWZ3765
◉		DISPLAY ASSEMBLY	AWZ3769
◉		VOLUME ASSEMBLY	AWZ3771
◉		MIC ASSEMBLY	AWZ3774
◉		FUSE ASSEMBLY	AWZ3975
TUNER ASSEMBLY(AWE1230)			
SEMICONDUCTORS			
	IC901	PLL IC	LM7001
	IC902	AM/FM IC	LA1265S
	IC903	MPX IC	AN7470P
	Q901	N−FET	2SK246
	Q902	TRANSISTOR	2SC1740SLN
	Q903,904	TRANSISTOR	RN1203
	Q905−907	TRANSISTOR	RN2201
	Q908	TRANSISTOR	RN1203
	Q909	TRANSISTOR	2SC2668
	Q910−913	TRANSISTOR	2SC2458
	Q914	TRANSISTOR	2SA1048
	D901	DIODE	1SV156
	D902	DIODE	HSS104−02
	D903,904	DIODE	1SS85
	D905−912	DIODE	HSS104−02
COILS AND FILTERS			
	L901	AXIAL INDUCTOR	LAU2R2M
	L903	AXIAL INDUCTOR	LAU2R2M
	L904	AXIAL INDUCTOR	LAU010M
	L905	AXIAL INDUCTOR	LAU2R2M
	L907	COIL	ATE−079
	L908	AXIAL INDUCTOR	LAU2R2M
	F903	CERAMIC FILTER	ATF−119
	F904	CERAMIC FILTER	ATF1042
	F905	CERAMIC FILTER	ATF−107
	F906	FILTER	ATF1088
CAPACITORS			
	C901	ELECTR.CAPACITOR	CEAS330M16
	C902	CERAMIC CAPACITOR	CKDYF102Z50
	C903	CERAMIC CAPACITOR	CKPUYB101K50
	C904	CERAMIC CAPACITOR	CKPUYB102K50
	C905	AUDIO FILM CAPACITOR	CFTXA103J50
	C906	AUDIO FILM CAPACITOR	CFTXA224J50
	C907	CERAMIC CAPACITOR	CKPUYB102K50
	C909	CERAMIC CAPACITOR	CKDYF103Z50
	C910	CERAMIC CAPACITOR	CKPUYB101K50
	C911	CERAMIC CAPACITOR	CKPUYF103Z25
	C912	CERAMIC CAPACITOR	CCDCH150J50
	C913	CERAMIC CAPACITOR	CKDYF223Z50
	C914	CERAMIC CAPACITOR	CCDCH150J50
	C915	CERAMIC CAPACITOR	CKDYF223Z50
	C916	CERAMIC CAPACITOR	CKPUYF103Z25
	C919	CERAMIC CAPACITOR	CKDYF223Z50
	C922	CERAMIC CAPACITOR	CKDYF223Z50
	C923	CERAMIC CAPACITOR	CKPUYF223Z25
	C924	ELECTR.CAPACITOR	CEAS470M10
	C925	CERAMIC CAPACITOR	CKPUYF103Z25
	C926	ELECTR.CAPACITOR	CEAS330M16
	C927	CERAMIC CAPACITOR	CCDSL470J50
	C928	ELECTR.CAPACITOR	CEAS470M10
	C929	CERAMIC CAPACITOR	CKPUYF103Z25
	C930	ELECTR.CAPACITOR	CEAS330M16
	C931	CERAMIC CAPACITOR	CKPUYF223Z25
	C932−935	CERAMIC CAPACITOR	CKDYF223Z50
	C936	ELECTR.CAPACITOR	CEAS4R7M50
	C937	CERAMIC CAPACITOR	CKDYF223Z50
	C938	ELECTR.CAPACITOR	CEAS010M50
	C939	CERAMIC CAPACITOR	CCDSL271J50
	C940	CERAMIC CAPACITOR	CKDYB222K50
	C941	CERAMIC CAPACITOR	CKDYF473Z50
	C942	ELECTR.CAPACITOR	CEAS2R2M50
	C943	ELECTR.CAPACITOR	CEAS470M10
	C944	ELECTR.CAPACITOR	CEAS0R1M50
	C945	ELECTR.CAPACITOR	CEANP2R2M50
	C946	ELECTR.CAPACITOR	CEAS470M25
	C947	CERAMIC CAPACITOR	CKDYF473Z50
	C948	CAPACITOR	ACE1039
	C949	ELECTROLYTIC CAPACIT	CEAS1R5M50
	C950	ELECTR.CAPACITOR	CEAS3R3M50
	C951	ELECTR.CAPACITOR	CEAS470M10
	C952,953	CERAMIC CAPACITOR	CKDYB122K50
	C954	ELECTR.CAPACITOR	CEAS0R1M50
	C955	ELECTR.CAPACITOR	CEASR22M50
	C956	CERAMIC CAPACITOR	CKDYB122K50
	C957,958	ELECTR.CAPACITOR	CEAS2R2M50
	C959	CERAMIC CAPACITOR	CKPUYF223Z25
	C960	ELECTR.CAPACITOR	CEAS0R1M50
	C961,962	CERAMIC CAPACITOR	CKDYB272K50
	C963	ELECTR.CAPACITOR	CEAS2R2M50
	C964	CERAMIC CAPACITOR	CKPUYB101K50
	C965	CERAMIC CAPACITOR	CKPUYB102K50
RESISTORS			
	VR901	VR(10kΩ)	ACP1043
	VR902	VR(22kΩ)	ACP1044
	VR903	VR(4.7kΩ)	ACP1042
		Other Resistors	RD1/8PM□□□J
OTHERS			
	X901	CRYSTAL RESO. (7.2MHz)	ASS1042
	X902	CERAMIC RESO. (450kHz)	ATF1027
		2 SERIAL FE MODULE ASSY	AXQ1002
		AM RF TUNING BLOCK	AXX1012
		AM RF TUNING BLOCK	AXX1013
		ANTENNA TERMINAL (4P)	AKA1010
◉AF ASSEMBLY(AWZ3765)			
SEMICONDUCTORS			
	IC101,102	REGULATOR IC	NJM7812FA
	IC103	REGULATOR IC	NJM7912FA
	IC104	REGULATOR IC	NJM7805FA
	IC105	REGULATOR IC	NJM7905FA
	IC106	REGULATOR IC	NJM78M56FAS
	IC201	OP−AMP IC	RC4558DXP
	IC202	IC	UPC4570C
	IC203	OP−AMP IC	RC4558DXP
	IC204,205	LOGIC IC	TC4052BP
	IC206	LOGIC IC	XRU4066B
	IC207	LOGIC IC	TC4053BP
	IC301	SYSTEM MCU	PD5170B
	Q101,102	TRANSISTOR	2SA1306
	Q103	TRANSISTOR	2SD438
	Q104	TRANSISTOR	2SA1515
	Q105	TRANSISTOR	2SC3377
	Q107	TRANSISTOR	2SA1048
	Q108	TRANSISTOR	2SC2458
	Q109	TRANSISTOR	2SB560
	Q112	TRANSISTOR	2SD438
	Q113	TRANSISTOR	2SC2458
	Q201	TRANSISTOR	RN2203
	Q202	TRANSISTOR	2SA1048
	Q203,204	TRANSISTOR	RN2203
	Q205	TRANSISTOR	2SC2458
	Q301	TRANSISTOR	RN1203
	Q398	N−FET	2SK373
	Q399	TRANSISTOR	RN2203
	D101	DIODE	D3SBA20(A)
	D102	DIODE	RB152
	D103,104	DIODE	S5566
	D105	ZENER DIODE	RD33ESB
	D106	DIODE	S5566
	D109−111	DIODE	1SS252
	D112,113	ZENER DIODE	RD6.2ESB
	D114	ZENER DIODE	RD10ESB3
	D115,116	ZENER DIODE	RD6.2ESB
	D202,203	DIODE	1SS252
	D301	DIODE	1SS252
	D307	ZENER DIODE	RD6.2ESB
	D308	DIODE	1SS252
	D399	DIODE	1SS252
RELAYS			
	RY101	RELAY	ASR1036
	RY102	RELAY	ASR1032
FILTERS			
	L101	FILTER	ATF−163
	L301	AXIAL INDUCTOR	LAU220K
CAPACITORS			
	C101	CKA (0.01/AC400V)	ACG1003
	C102,103	POLYESTER CAPACITOR	CQMXA103J100
	C104	ELECTROLYTIC CAPACIT	ACH1211
	C105	ELECTROLYTIC CAPACIT	CEHAQ102M35
	C106	ELECTR.CAPACITOR	CEAS222M16
	C107	ELECTR.CAPACITOR	CEAS102M16
	C108	ELECTR.CAPACITOR	CEHAQ100M50
	C109	ELECTROLYTIC CAPACIT	CEHAQ470M25
	C110	ELECTR.CAPACITOR	CEHAQ100M50
	C111	ELECTROLYTIC CAPACIT	CEHAQ470M25
	C112	ELECTR.CAPACITOR	CEHAQ100M50
	C113	ELECTROLYTIC CAPACIT	CEHAQ470M25
	C114	ELECTR.CAPACITOR	CEHAQ100M50
	C115	ELECTROLYTIC CAPACIT	CEHAQ470M16
	C116	ELECTROLYTIC CAPACIT	CEHAQ100M50
	C117	ELECTROLYTIC CAPACIT	CEHAQ470M16
	C118	ELECTROLYTIC CAPACIT	CEAS102M50
	C119	ELECTROLYTIC CAPACIT	CEHAQ331M50
	C120	ELECTROLYTIC CAPACIT	CEAS470M50
	C121	ELECTR.CAPACITOR	CEAS470M50
	C122	ELECTROLYTIC CAPACIT	CEHAQ470M10
	C123	ELECTR.CAPACITOR	CEAS470M50
	C217,218	ELECTR.CAPACITOR	CEAS2R2M50
	C219,220	CERAMIC CAPACITOR	CKPUYB101K50
	C224	ELECTR.CAPACITOR	CEAS100M25

Mark	No.	Description	Parts No.
	C225,226	ELECTR.CAPACITOR	CEAS470M10
	C231,232	CERAMIC CAPACITOR	CKPUYB101K50
	C235,236	CERAMIC CAPACITOR	CKDYB562K50
	C237,238	CERAMIC CAPACITOR	CKCYB152K50
	C239	ELECTR.CAPACITOR	CEAS3R3M50
	C240	ELECTROLYTIC CAPACIT	CEAS3R3M50
	C241,242	ELECTR.CAPACITOR	CEAS470M10
	C243,244	ELECTR.CAPACITOR	CEAS100M25
	C249,250	ELECTR.CAPACITOR	CEAS100M25
	C257	CERAMIC CAPACITOR	CKCYX103M25
	C301	CERAMIC CAPACITOR	CKCYX473M25
	C302	CERAMIC CAPACITOR	CKCYF473Z50
	C303	ELECTR.CAPACITOR	CEAS470M16
	C304	CERAMIC CAPACITOR	CKCYX473M25
	C305	ELECTR.CAPACITOR	CEAS010M50
	C306, 307	CERAMIC CAPACITOR	CKCYB102K50
RESISTORS			
	R102	METAL OXIDE RESISTOR	RS1LMF102J
	R104	METAL OXIDE RESISTOR	RS1LMF102J
	R106	METAL OXIDE RESISTOR	RS1LMF562J
	R107	FUSLIBLE RESISTOR	RFA1/4PL4R7J
	R116	METAL OXIDE RESISTOR	RS3LMF151J
	R117	METAL OXIDE RESISTOR	RS3LMF181J
	R119,120	CARBON FILM RESISTOR	RD1/4PMF470J
	R121−124	CARBON FILM RESISTOR	RD1/4PM100J
	R127	METAL OXIDE RESISTOR	RS1LMF180J
	R245,246	CARBON FILM RESISTOR	RD1/4PM820J
	R305	RESISTOR ARRAY (56kΩ)	RA5T563J
	R312	RESISTOR ARRAY (56kΩ)	RA5T563J
	R345	RESISTOR ARRAY (56kΩ)	RA5T563J
	Other Resistors		RD1/8PM□□□J
OTHERS			
	X301	CERAMIC RESO. (4MHz)	ASS1025
	CN2	CONNECTOR(15P)	KPE15
	CN3	CONNECTOR(13P)	KPE13
	CN5	SOCKET(27P)	AKP1099
	CN6	SOCKET(10P)	AKP1073
	CN7	SOCKET(9P)	AKP1072
	CN21	CONNECTOR(4P)	KPE4
	JACK		AKN−203
	PIN JACK(6P)		AKB1121
	PIN JACK(6P)		AKB1129
	SCREW		BBZ30P080FZK
	SOCKET(15P)		AKP1049

◉DISPLAY ASSEMBLY(AWZ3769)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC701	LOGIC IC	SN74LS42N
	IC702	CONTROL MCU	PDG075A
	Q701	TRANSISTOR	XDC143ES
	Q702	TRANSISTOR	2SC2458
	D701	DIODE	1SS252
	D702−708	LED(RED)	AEL1108
	D709−711	DIODE	1SS252
	D712	ZENER DIODE	RD6.2ESB
	D713−721	DIODE	1SS252
SWITCHES			
	S701−716	SWITCH	ASG1034
		SURROUND MODE, FUNC, STATION MEMORY, LOCAL/DX, SET, WAKE UP, REC, CLOCK ADJ, AUDITION, CENTER MODE, DELAY TIME, POWER, BAND, FREQ/ST, DOWN, UP	
FILTER			
	L701	AXIAL INDUCTOR	LAU220K
CAPACITORS			
	C702	ELECTROLYTIC CAPACIT	CEJA4R7M35
	C703	CERAMIC CAPACITOR	CKCYF223Z50
	C704	CERAMIC CAPACITOR	CKPUYF473Z16
	C705	ELECTR.CAPACITOR	CEJA010M50
	C706	ELECTR.CAPACITOR	CEAS2R2M50
	C707	CERAMIC CAPACITOR	CKCYB102K50
	C708	ELECTR.CAPACITOR	CEJA470M10
	C709	CERAMIC CAPACITOR	CKCYX473M25
	C710	CEA (47000/5.5V)	ACH1037
	C711	ELECTR.CAPACITOR	CEJA470M10
	C712	ELECTR.CAPACITOR	CEAS4R7M50
	C713	CERAMIC CAPACITOR	CKPUYF473Z16
	C715	ELECTR.CAPACITOR	CEAS471M10
	C716	CERAMIC CAPACITOR	CKDYB472K50
RESISTORS			
	R734	RESISTOR ARRAY (47kΩ)	RA8S473J
	R745	RESISTOR ARRAY (47kΩ)	RA8S473J
	R746	RESISTOR ARRAY (47kΩ)	RA11S473J
	Other Resistors		RD1/8PM□□□J
OTHERS			
	V701	FL TUBE	AAV1138
	X702	CRYSTAL RESO. (8.00MHz)	ASS1015
	CN4	SOCKET(27P)	AKP1099
	REMOTE RECEIVER UNIT		AXX1010

◉VOLUME ASSEMBLY(AWZ3771)

Mark	No.	Description	Parts No.
SEMICONDUCTORS			
	IC1601	MECHANISM DRIVER IC	TA7291S
	IC1602	IC	UPC4570C
	Q1601,1602	TRANSISTOR	2SC2878
	Q1605	TRANSISTOR	RN2203
FILTER			
	L1601	AXIAL INDUCTOR	LAU221K
CAPACITORS			
	C1601−1604	ELECTR.CAPACITOR	CEAS2R2M50
	C1605,1606	ELECTR.CAPACITOR	CEAS100M25
	C1607,1608	ELECTR.CAPACITOR	CEAS101M16
	C1609,1610	CERAMIC CAPACITOR	CKCYX104M25
	C1627	CERAMIC CAPACITOR	CKCYX473M25
	C1629,1630	CERAMIC CAPACITOR	CKCYB331K50
	C1631	ELECTR.CAPACITOR	CEAS101M16

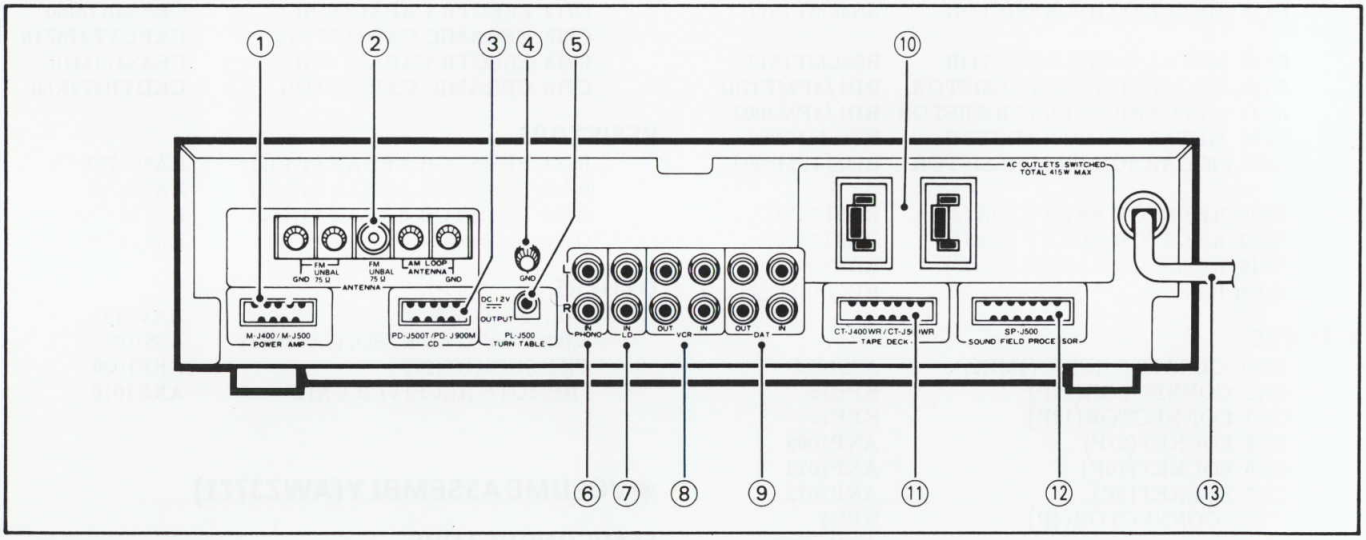
Mark	No.	Description	Parts No.
RESISTORS			
	VR1601	VARIABLE RESISTOR	ACX1064
	R1613	CARBON FILM RESISTOR	RD1/4PM121J
	R1614	CARBON FILM RESISTOR	RD1/4PM121J
		Other Resistors	RD1/8PM□□□J
◉MIC ASSEMBLY(AWZ3774)			
SEMICONDUCTOR			
	IC401	OP−AMP IC	RC4558DXP
CAPACITORS			
	C401	CERAMIC CAPACITOR	CKCYB332K50
	C402	ELECTROLYTIC CAPACIT	CEJA100M25
	C403	CERAMIC CAPACITOR	CKCYB331K50
	C404,405	ELECTR.CAPACITOR	CEAS010M50
	C406	ELECTROLYTIC CAPACIT	CEJA100M25
	C407,408	ELECTR.CAPACITOR	CEAS470M25
RESISTORS			
	VR401	VARIABLE(10K−X1)	ACS1025
		Other Resistors	RD1/8PM□□□J
OTHERS			
		JACK	AKN1017

◉FUSE ASSEMBLY(AWZ3975)

FUSE assembly has no service part.

3. PANEL FACILITIES

REAR PANEL FACILITIES



① POWER AMP jack

Connect the power amplifier (M-J400/M-J500) cable here.

② FM/AM ANTENNA terminals

Antennas must be connected to these terminals: otherwise you will not be able to receive stations. See page 11 for details on ANTENNA CONNECTIONS.

③ CD jack

Connect the compact disc player (PD-J500T/PD-J900M) cable here.

④ Ground terminal (GND)

Connect the ground lead of the turntable here (except for PL-J500).

⑤ TURNTABLE (DC 12 V OUTPUT) jack

This jack supplies power to the turntable PL-J500.

⑥ PHONO input jacks

Connect the output cord of the turntable to these jacks.

⑦ LD input jacks

Connect to the output jacks of the LD player.

⑧ VCR jacks

IN : Connect to the output jacks of VCR.
OUT : Connect to the input jacks of VCR.

⑨ DAT jacks

IN : Connect to the analog audio output jacks of the digital audio tape deck.
OUT : Connect to the analog audio input jacks of the digital audio tape deck.

⑩ AC OUTLETS (SWITCHED TOTAL 415 W MAX)

Power supplied through this outlet is turned on and off by the tuner control amplifier's POWER switch. Total electrical power consumption of connected equipment should not exceed 415 W.
PD-J500T or PD-J900M CD player power cords, and the M-J400/M-J500 power amplifier cords can be connected.

NOTE:
Do not connect appliances with high power consumption such as heaters, irons, or television sets to the AC OUTLET in order to avoid overheating or fire risk.
This can cause the amplifier to malfunction.

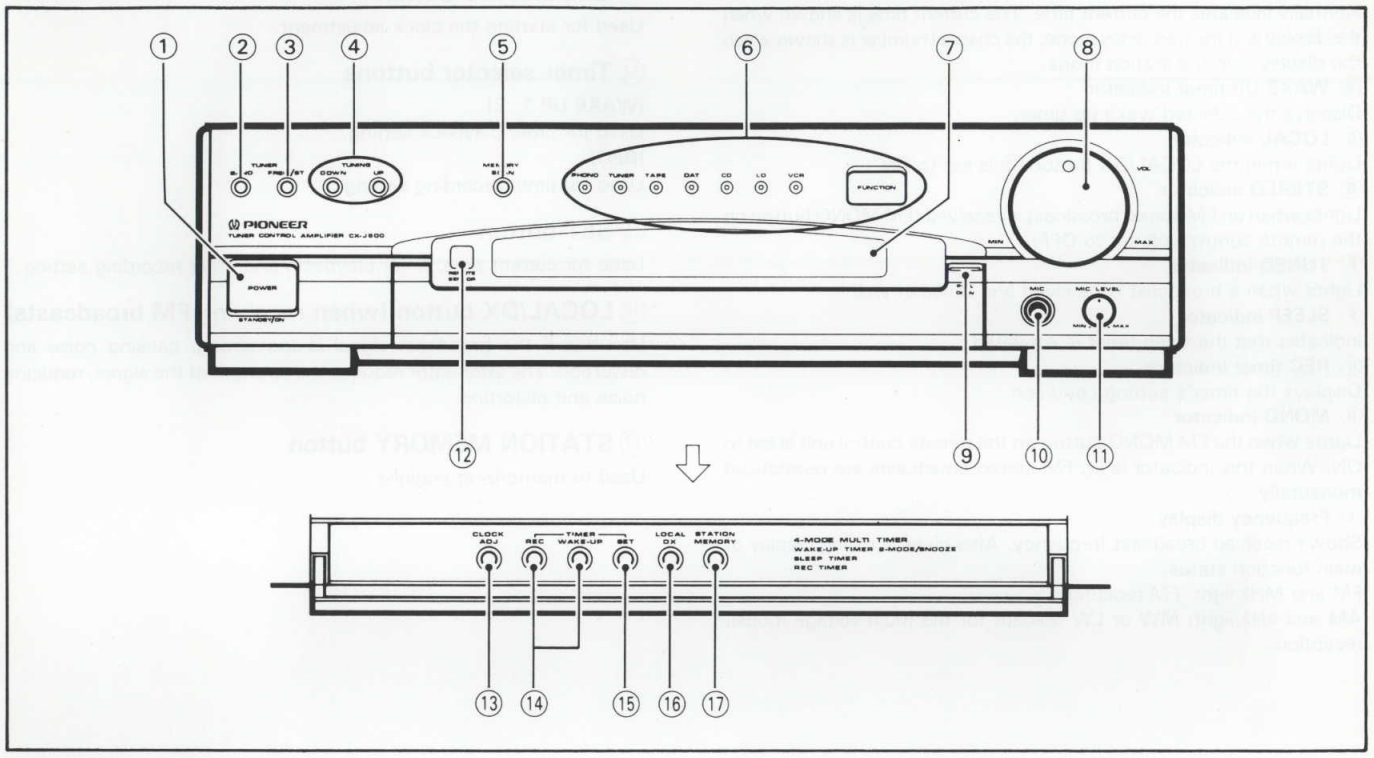
CAUTION:
DO NOT CONNECT TV SET OR MONITOR.

⑪ TAPE DECK jack
Connect the cassette deck (CT-J400WR/CT-J500WR) cable here.

⑫ SOUND FIELD PROCESSOR jack
Connect the sound field processor (SP-J500) cable here.

⑬ Power cord
Connect this to the AC wall socket.

FRONT PANEL FACILITIES



① POWER STANDBY/ON switch
This is the switch for electric power.

ON ..... When set to the ON position, power is supplied and the unit becomes operational.

STANDBY .. When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.
When only the time is indicated in the display section, the unit is in STANDBY.

② BAND selector button
Each time this button is pressed, FM, MW or LW (except for the multi-voltage model) reception is selected in order.

③ FREQ/ST (Frequency/Station) button
Use to switch between the Frequency mode and the Station Call mode.

④ TUNING (UP, DOWN) buttons
[During tuning]
- When in the Frequency mode, use to raise and lower the reception frequency.
- When in the Station mode, use to raise and lower the station number.

[During time and timer setting]
Used for adjusting the clock, timer settings and its relayted adjustments.

⑤ MEMORY SCAN button
Press this button to scan programs on the preset stations automatically for 7 seconds each. If you wish to continue listening to the station currently being scanned, press this button again to lock the tuning to the station. This will cancel the preset scan function and return you to normal reception.

⑥ FUNCTION button/indicators
Each time you press the FUNCTION button, the amplifier function changes. The selected function's indicator lights.

[PHONO]
Select to play records on a turntable connected to the PHONO input jacks.

[TUNER]
Select to listen to radio broadcast.

[TAPE]
Select to listen to cassette tape.

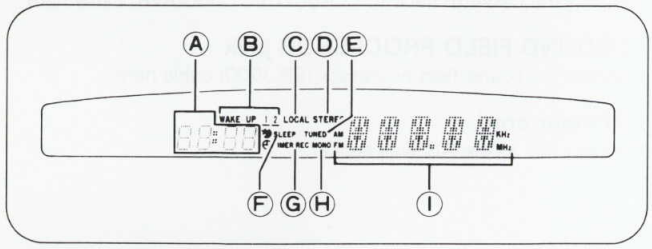
[DAT]
Select to listen a DAT playing on a digital audio tape deck connected to the DAT jacks.

[CD]
Select to listen to compact disc.

[LD]
Select to play an LD on a video disc player connected to the LD input jacks.

[VCR]
Select to play a tape on a video cassette recorder connected to the VCR jacks.

⑦ Display section



Ⓐ Time/channel indicator
Normally indicates the current time. The current time is shown when the display is in the frequency mode; the channel number is shown when the display is in the station mode.

Ⓑ WAKE UP timer indicator
Displays the selected wake up timer.

Ⓒ LOCAL indicator
Lights when the LOCAL/DX button ⑯ is set to ON.

Ⓓ STEREO indicator
Lights when an FM stereo broadcast is received (FM MONO button on the remote control unit set to OFF).

Ⓔ TUNED indicator
Lights when a broadcast is received and tuned in well.

Ⓕ SLEEP indicator
Indicates that the sleep timer is activated.

Ⓖ REC timer indicator
Displays the timer's setting condition.

Ⓗ MONO indicator
Lights when the FM MONO button on the remote control unit is set to ON. When this indicator is lit, FM stereo broadcasts are reproduced monaurally.

Ⓘ Frequency display
Shows received broadcast frequency. Also gives scrolling display of main function status.
FM and MHz light: FM reception.
AM and kHz light: MW or LW (except for the multi-voltage model) reception.

⑧ VOL (VOLUME) control

⑨ Open the hinged panel door with your finger.

⑩ MIC (microphone) jack
This is a standard jack for connecting a microphone.

⑪ MIC LEVEL control
Used for adjusting the volume of microphone.

⑫ REMOTE SENSOR

⑬ CLOCK ADJ button
Used for starting the clock adjustment.

⑭ Timer selector buttons
[WAKE-UP 1, 2]
Used for timer playback setting.
[REC]
Used for timer recording setting.

⑮ SET button
Used for current time, timer playback, and timer recording setting.

⑯ LOCAL/DX button (when receiving FM broadcasts)
Use this if the broadcast signal is too strong, causing noise and distortion. The attenuator reduces the strength of the signal, reducing noise and distortion.

⑰ STATION MEMORY button
Used to memorizing stations.

4. SPECIFICATIONS

FM Tuner Section

Frequency range	87.5 MHz to 108 MHz
Usable Sensitivity	Mono: 12.8 dBf, IHF (1.2 μV/75 Ω)
Sensitivity (DIN)	Mono S/N 26 dB: 1 μV/75 Ω
	Stereo S/N 46 dB: 50 μV/75 Ω
Signal-to-Noise Ratio (IHF, 85 dBf Input)	Mono: 77 dB
Signal-to-Noise Ratio (DIN)	Mono: 66 dB
	Stereo: 60 dB
Distortion	Stereo: 0.5% (1 kHz)
Antenna Input	75 Ω unbalanced

MW (AM) Tuner Section

Frequency range	
9 kHz step	531 kHz to 1,602 kHz
10 kHz step	530 kHz to 1,700 kHz
Sensitivity (IHF, Loop antenna)	350 μV/m

LW (AM) Tuner Section
(For LW-equipped models only)

Frequency range	153 kHz to 281 kHz
Sensitivity (IHF, Loop antenna)	1,500 μV/m

Furnished Parts

FM T-type Antenna	1
AM Loop Antenna	1

Power Supply/Miscellaneous

Power requirements	
U.K. model	a.c. 240 Volts~, 50/60 Hz
European model	a.c. 220 – 230 Volts~, 50/60 Hz
Multi-voltage model	AC 110 V/120 – 127 V/220 V/240 V (switchable), 50/60 Hz
Power consumption	
U.K. and European models	40 W
Multi-voltage model	50 W
AC outlets switched (x 2)	415 W
Dimensions	360 (W) x 345 (D) x 90.5 (H) mm
Weight	4.5 kg

5. SCHEMATIC DIAGRAMS AND PCB CONNECTIONS DIAGRAMS

OVERALL WIRING DIAGRAM

1.RESISTORS :
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ± 10%, (M) ; ±20% tolerance.

2.CAPACITORS :
Indicated in capacity (μF)/voltage(V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

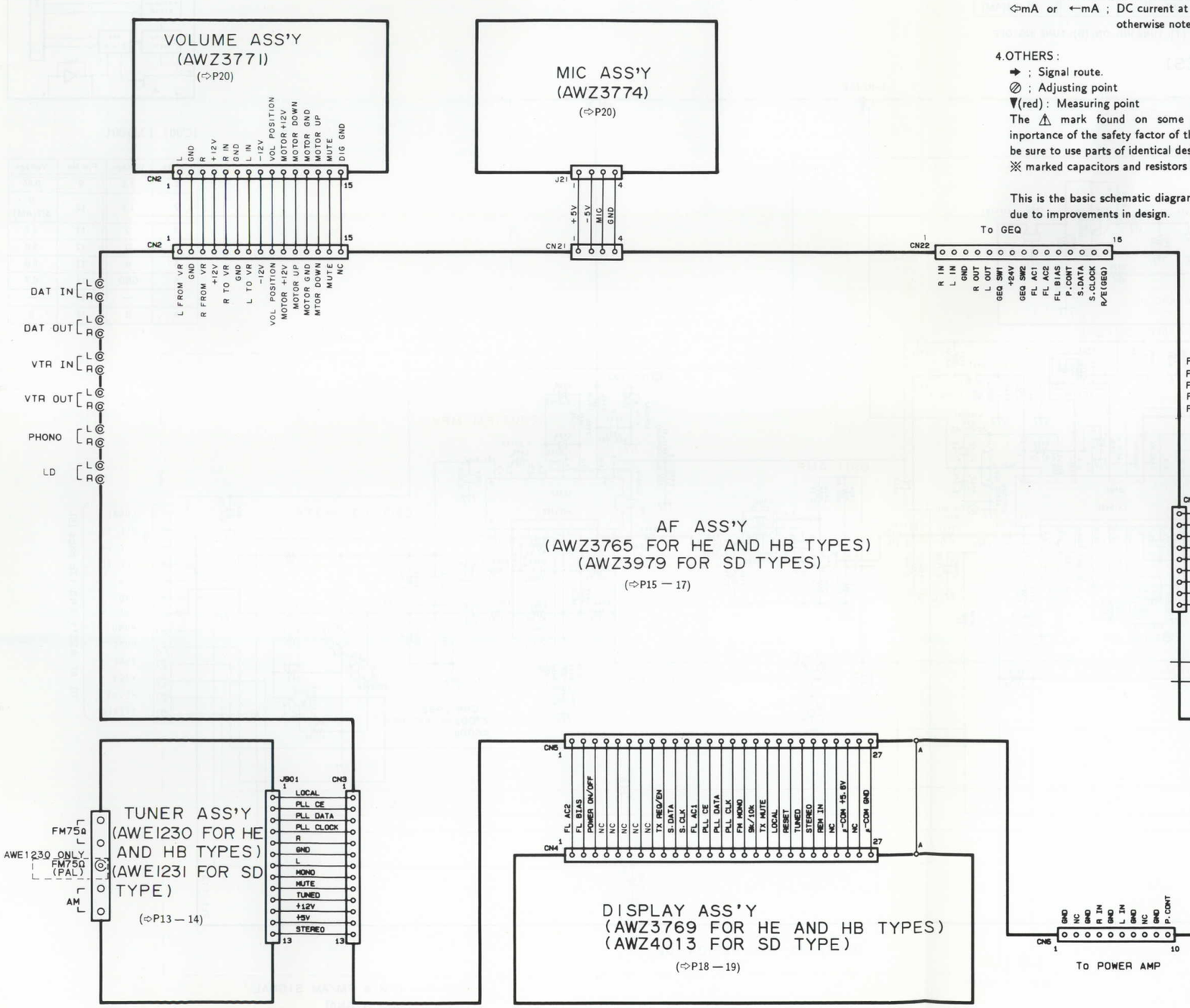
3.VOLTAGE, CURRENT :
; DC voltage (V) at no input signal unless otherwise noted. Value in ( ) is DC voltage at rated power.
⇨mA or ←mA ; DC current at no input signal unless otherwise noted.

4.OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point
▼(red) : Measuring point
The ⚠ mark found on some component parts indicates the inportance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

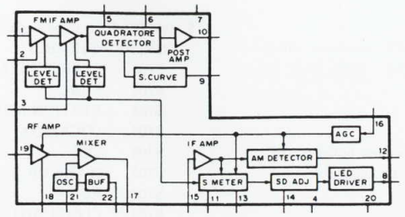
5. SWITCHES : (The underlined indicates the switch position)
DISPLAY ASSEMBLY

S701	SURROUND MODE
S702	FUNC
S703	STATION MEMORY
S704	LOCAL/DX
S705	SET
S706	WAKE UP
S707	REC
S708	CLOCK ADJ.
S709	AUDITION
S710	CENTER MODE
S711	DELAY TIME
S712	POWER
S713	BAND
S714	FREQ/ST
S715	DOWN
S716	UP



TUNER ASSY

IC902 LA1265S

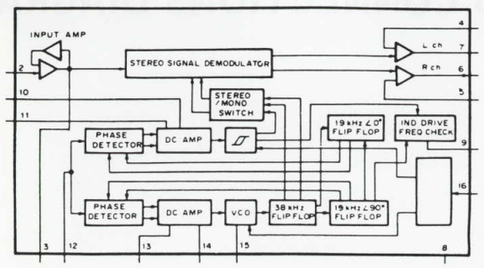


IC902 LA1265S

Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage
1	2.3	10	2.8	17	0
2	2.3	11	1.5		12.0(AM)
3	2.3	12	1.5	18	0
4	0	13	1.4(MAX)		2.0(AM)
5	12.0	14	1.4(MAX)	19	0
6	12.0		0(AM)		2.0(AM)
7	12.0	15	2.3	20	3.8
8	0(T)		1.1(AM)	21	3.8
	5.1(D)	16	1.4	22	2.8
9	3.8				1.5(AM)

NOTE: (T): TUNE IND. ON; (D): TUNE IND. OFF.

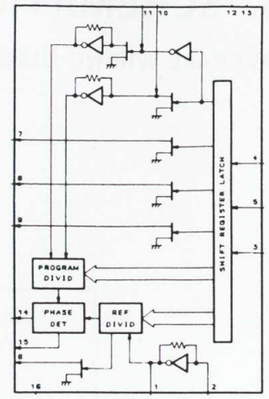
IC903 AN7470P



IC903 AN7470P

Pin No.	Voltage	Pin No.	Voltage	Pin No.	Voltage
1	11.2	9	4.9	15	3.2
2	2.6		0.6	16	0
3	6.1		(STEREO)		11.4
4	8.9	10	2.6		(AM)
5	8.9	11	2.6		4.0
6	3.9	12	2.6		(MONO)
7	3.9	13	2.6		
8	0	14	2.6		

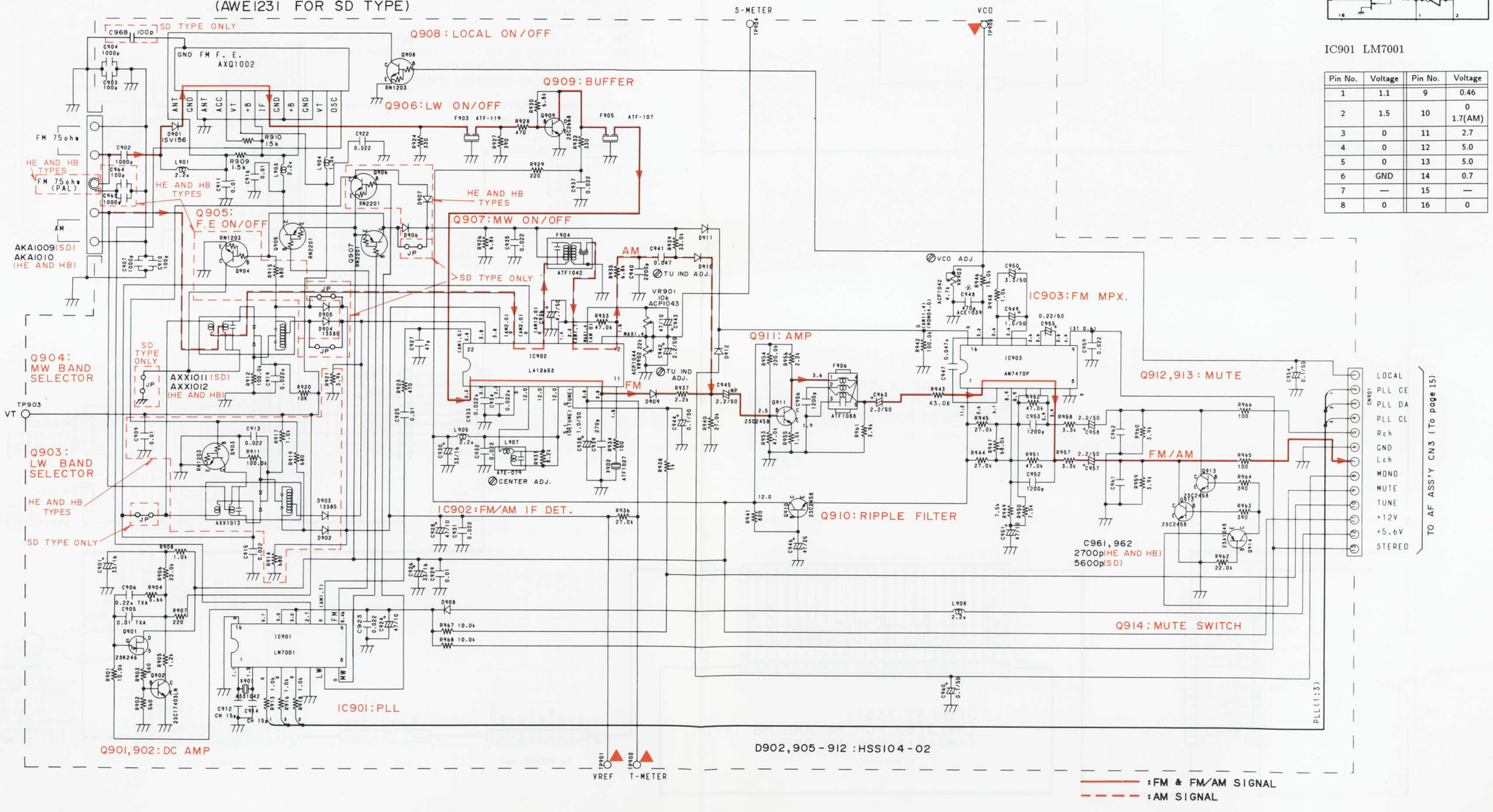
IC901 LM7001



IC901 LM7001

Pin No.	Voltage	Pin No.	Voltage
1	1.1	9	0.46
2	1.5	10	0 1.7(AM)
3	0	11	2.7
4	0	12	5.0
5	0	13	5.0
6	GND	14	0.7
7	—	15	—
8	0	16	0

TUNER ASS'Y (AWE1230 FOR HE AND HB TYPES)
(AWE1231 FOR SD TYPE)



AF AND FUSE ASSY

AF ASS'Y
(AWZ3765 FOR HE AND HB TYPES)
(AWZ3979 FOR SD TYPE)

TO TUNER ASS'Y CN901 (To page 14)
TO CLD
TO DECK
TO GEQ
TO VOLUME ASS'Y CN2 (To page 20)
TO POWER AMP
TO DISPLAY ASSY (To page 18)
FROM MIC ASS'Y J21 (To page 20)
FROM DISPLAY ASS'Y CN4 (To page 18)

PHONO(RIAA) AMP
IC202 UPC4570C
IC204,IC205: INPUT MODE SELECTOR
IC201: AMP
IC203:MIXER
IC207: AUDITION/PRO-LOGIC SELECTOR
IC301: MPU
MIC MIX
0dB
-6dB

FUNCTION SELECTION

	INH	A	B
PHONO	L	L	L
CLD	L	H	L
TUNER	L	L	H
TAPE	L	H	H
LD	H	L	H
VTR	H	H	H
DAT	H	L	L

A: Pin6 of IC301
B: Pin7 of IC301
INH: Pin8 of IC301

PHONO 150mV
LD 300mV
VTR IN 150mV
DAT IN 300mV
VTR REC OUT
DAT

Q201: INPUT MODE SELECTOR CONTROL
IC206: REC OUT MUTE
Q202-Q205: REC OUT MUTE CONTROL
Q398,399: SERIAL DATA ON/OFF
Q398 2SK373
Q399 RN2203

D103,106,109-111,202,203,301,308,399:1SS252

IC106,Q109: REGULATOR
IC101-IC105: REGULATOR
Q101-Q105,Q107,Q108: REGULATOR CONTROL
Q101 2SA1306
Q102 2SA1306
Q103 2SD438
Q104 2SA1515
Q105 2SC3377
Q107 2SA1048
Q108 2SC2458
Q109 2SB560 1/4W
FL BIAS -31V
DIG +5.6
SIG +12V
SIG -12V
SIG -5V
(POWER RELAY) H:ON L:OFF
FL AC:5.6V

Q113: POWER ON MUTE
Q112: POWER ON/OFF RELAY CONTROL
D112,113,115,116 :RD6.2ESB
9k/10k
SD TYPE ONLY
HE AND HB TYPES
PLAYER +12V

FUSE ASS'Y (AWZ3975)
FU2,3 : AEK-508 (T1A)
FU6,7 : AEK-510 (T1.6A)
FU8 : AEK-511 (T2A)
FU1 : AEK-512 (T2.5A)
FU4,5 : AEK-515 (T5A)

POWER TRANSFORMER T1 ATT178
HE TYPE
HB TYPE
SD TYPE ONLY

AC POWER CORD
ADG1019 (HE TYPE) AC230V 50/60Hz
ADG1084 (HB TYPE) AC240V 50/60Hz
ADG1016 (SD TYPE) AC110/120-127/230/240V 50/60Hz

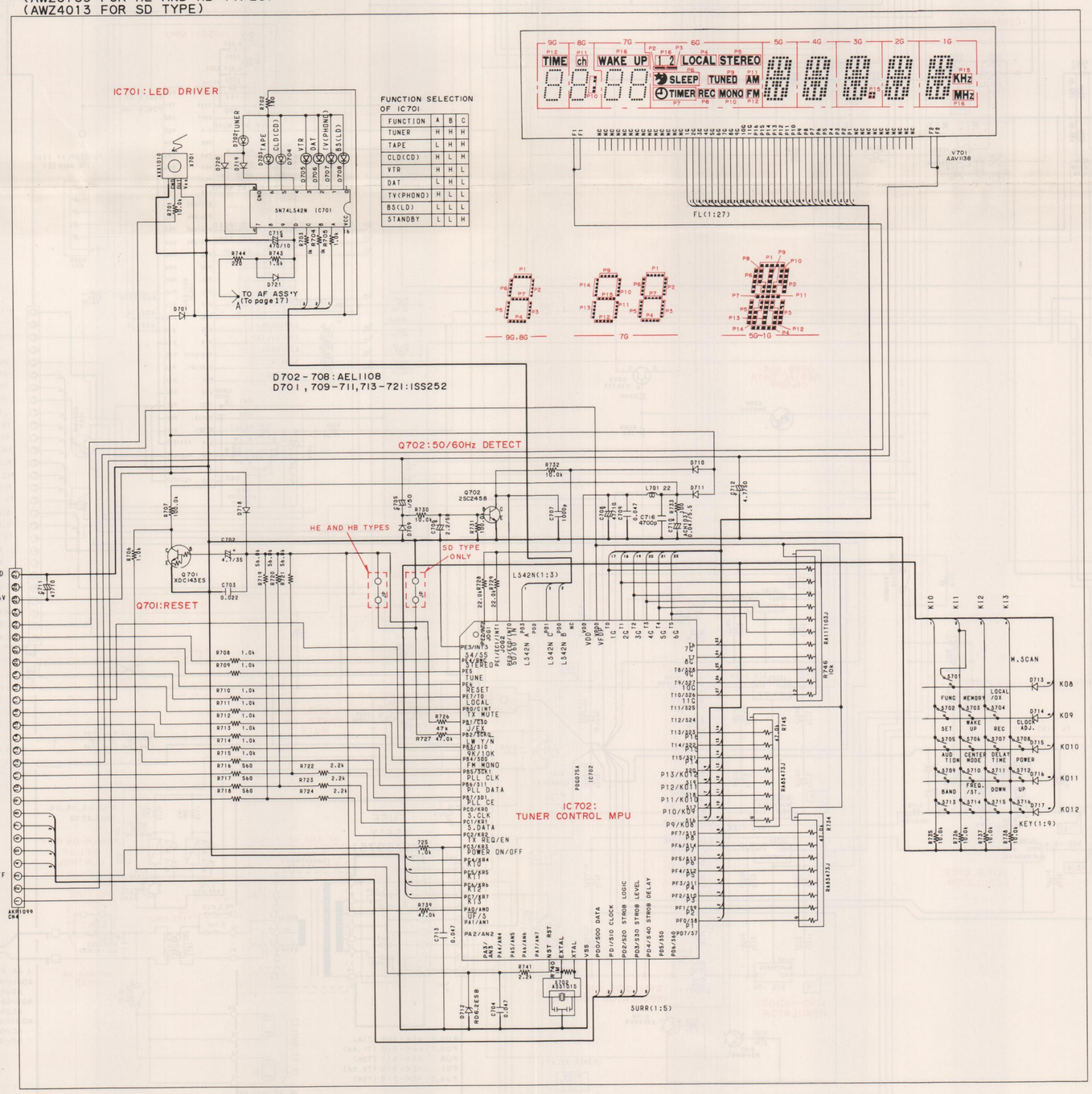
IP AC OUTLET
AKP-508 (HE TYPE)
AKP-509 (HB TYPE)
AKP-507 (SD TYPE)

TO AC OUTLET

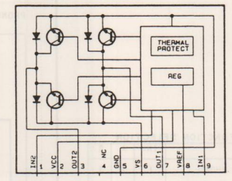
SD TYPE ONLY
POWER TRANSFORMER T1 ATT179
VOLTAGE SELECTOR S1 AKX-507
FUSE ASS'Y
AF ASS'Y

DISPLAY, VOLUME AND MIC ASSY

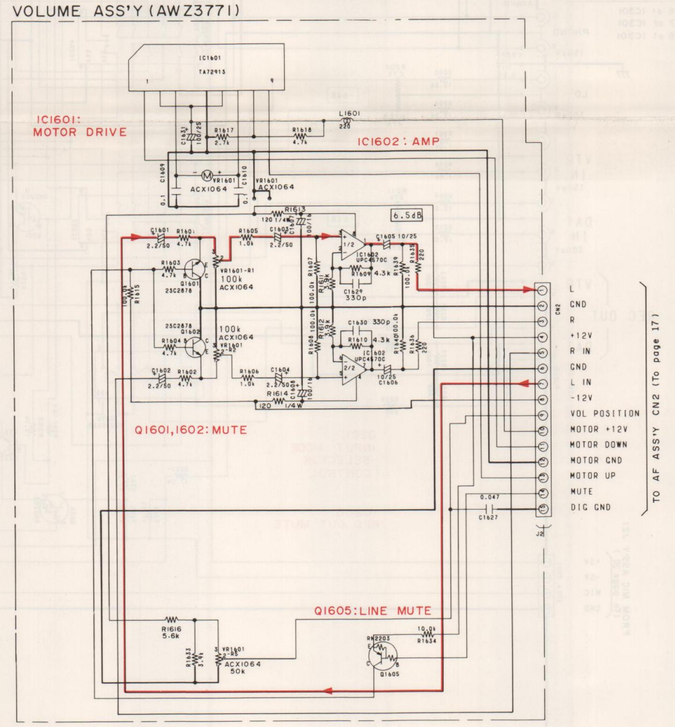
DISPLAY ASS'Y
(AWZ3769 FOR HE AND HB TYPES)
(AWZ4013 FOR SD TYPE)



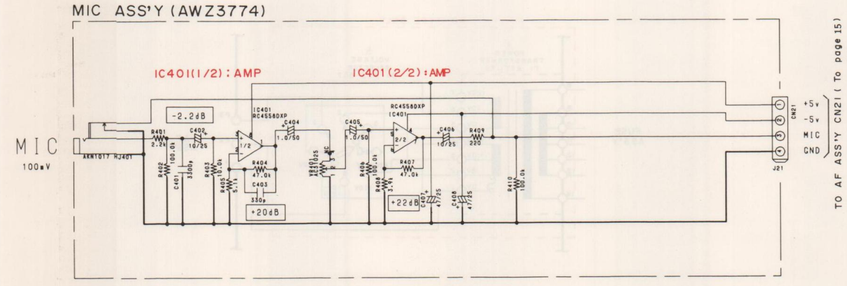
IC1601 TA7291S



VOLUME ASS'Y (AWZ3771)



MIC ASS'Y (AWZ3774)



AF ASSY
(AWZ3765 FOR HE AND HB TYPES)
(AWZ3979 FOR SD TYPE)

SHIELD ASSY

FUSE ASSY
(AWZ3975)

VOLUME ASSY (AWZ3771)

MIC ASSY (AWZ3774)

TUNER ASSY (AWE1230 FOR HE AND HB TYPES)
(AWE1231 FOR SD TYPE)

FE MODULE ASSY
(AXQ1002)

DISPLAY ASSY (AWZ3769 FOR HE AND HB TYPES)
(AWZ4013 FOR SD TYPE)

Line Voltage Selection (HE and HB TYPES)

Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

Part No.	Description	
AXX-193	220V label	----- 220V-230V
AXX-192	240V label	—— 240V

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504	Q	Transistor
D215	Q	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C613	C	Capacitor (Polarity)
C518	C	Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⊖ (double circles) shows negative terminal.
4. The diode terminal marked with ◯ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

This P.C.B. connection diagram is viewed from the foil side.

TUNER ASSY (AWE1230 FOR HE AND HB TYPES)
(AWE1231 FOR SD TYPES)

VOLUME ASSY (AW23771)

MIC ASSY (AW23774)

AF ASSY
(AW23765 FOR HE AND HB TYPES)
(AW23979 FOR SD TYPES)

SHIELD ASSY

FE MODULE ASSY
(AX01005)

DISPLAY ASSY (AW23765 FOR HE AND HB TYPES)
(AW24013 FOR SD TYPES)

FUSE ASSY
(AW23975)

6. ADJUSTMENTS

● As to connections and points to be adjusted, refer to Fig. 6-1, Fig. 6-2 and Fig. 6-3.

6.1 AM TUNER ADJUSTMENT

● Set the BAND selector to "AM".

Step No.	Adjustment Title	AM SG(400Hz, 30% modulation)		Reception Frequency Display	Adjustment	
		Frequency(kHz)	Level(dBμV/m)		Adjustment Location	Specifications
1	TUNED indicator sensitivity adjustment	999	55±5	999kHz	VR901	Adjust so that the indicator lights up.

6.2 FM TUNER ADJUSTMENT

● Set the BAND selector to "FM".

● Perform VCO adjustment two minutes or more after turning the power ON.

Note : Stereo modulation : Main 1 kHz L + R ± 68.25 Hz dev.
Pilot 19 kHz ± 6.75 kHz dev .

Step No.	Adjustment Title	FM SG(1kHz±75kHz dev.)		Reception Frequency Display	Adjustment	
		Frequency(MHz)	Level(dBμV)		Adjustment Location	Specifications
1	Detector coil T-meter adjustment	98.0	80	98.0MHz	L907	Adjust so that the DC voltage between TP901 and TP902 is ± 50mV.
2	VCO adjustment	98.0 (No modulation)	80	98.0MHz	VR903	Adjust so that the frequency between TP905 and GND is 76 ± 0.5kHz
3	TUNED indicator sensitivity adjustment	98.0	18 ± 3	98.0MHz	VR902	Adjust so that the indicator lights up.

6. REGLAGE

● Les raccordements et les points de réglages sont représentés à la Fig. 6-1, Fig. 6-2 et Fig. 6-3.

6.1 REGLAGE DU SYNTONISEUR AM

● Placer le sélecteur BAND sur la position "AM".

Etape No	Items de réglage	AM SG(400Hz, 30% modulation)		Affichage de fréquence de réception	Réglage	
		Fréquence(kHz)	Niveau(dBμV/m)		Lieu de réglage	Caractéristiques
1	Indicateurs de TUNED niveau d'éclairement	999	55±5	999kHz	VR901	Le régler de manière que les indicateurs de TUNED commencent à s'allumer.

6.2 REGLAGE DU SYNTONISEUR AM

● Placer le sélecteur BAND sur la position "FM".

● Réglar le VCO après deux minutes (ou plus) de mise sous tension.

Note : Modulation stéréo : Principal 1 kHz L + R ± 68,25 Hz dév.
Pilote 19 kHz ± 6,75 kHz dév.

Etape No	Items de réglage	FM SG(1kHz±75kHz dev.)		Affichage de fréquence de réception	Réglage	
		Fréquence(MHz)	Niveau(dBμV)		Lieu de réglage	Specifications
1	Réglage de la bobine de détection	98,0	80	98,0MHz	L907	Régler de manière que la tension continue entre TP901 et TP902 soit égale à ± 50mV.
2	Réglage du VCO	98,0 (sans modulation)	80	98,0MHz	VR903	Régler de manière que la fréquence entre TP905 et GND soit égale à 76 ± 0,5 kHz.
3	Indicateurs de TUNED niveau d'éclairement	98,0	18 ± 3	98,0MHz	VR902	Le régler de manière que les indicateurs de TUNED commencent à s'allumer.

6. AJUSTE

● Pala las conexiones y puntos de ajuste, refiérase a la Fig. 6-1, Fig. 6-2 y Fig. 6-3.

6.1 AJUSTE DE LA SECCION DEL SINTONIZADOR DE AM

● Ajuste el selector BAND a la posición "AM".

N°. de paso	Items de ajuste	AM SG(400Hz, 30% modulation)		Frecuencimetro de reseptión	Ajuste	
		Frequencia(kHz)	Nivel(dBμV/m)		Lugar de ajuste	Especificaciones
1	Nivel de iluminación de TUNED	999	55±5	999kHz	VR901	Ajústelo de forma que los indicadores de TUNED comiencen a encenderase.

6.2 AJUSTE DE LA SECCION DEL SINTONIZADOR DE FM

● Ajuste el selector BAND a la posición "FM".

● Realice el ajuste VCO dos minutos o mas despues de conectar la alimentacion.

Nota : Modulacion estereo : Principal : 1 kHz L + R ± 68,25 Hz dev.
Pilote 19 kHz ± 6,75 kHz dev.

N°. de paso	Items de ajuste	FM SG(1kHz±75kHz dev.)		Frecuencimetro de recepticón	Ajuste	
		Frequencia(MHz)	Nivel(dBμV)		Luger de ajuste	Especificaciones
1	Ajuste del medidor T de la bobina detectora	98,0	80	98,0MHz	L907	Ajuste de manera que la tensión de CC entre TP901 y TP902 sea de ± 50mV.
2	Ajuste VCO	98,0 (Sin modulación)	80	98,0MHz	VR903	Ajuste de manera que la frequencia entre TP905 y GND sea de 76 ± 0,5kHz
3	Nivel de iluminación de TUNED	98,0	18 ± 3	98,0MHz	VR902	Ajústelo de forma que los indicadores de TUNED comiencen a encenderase.

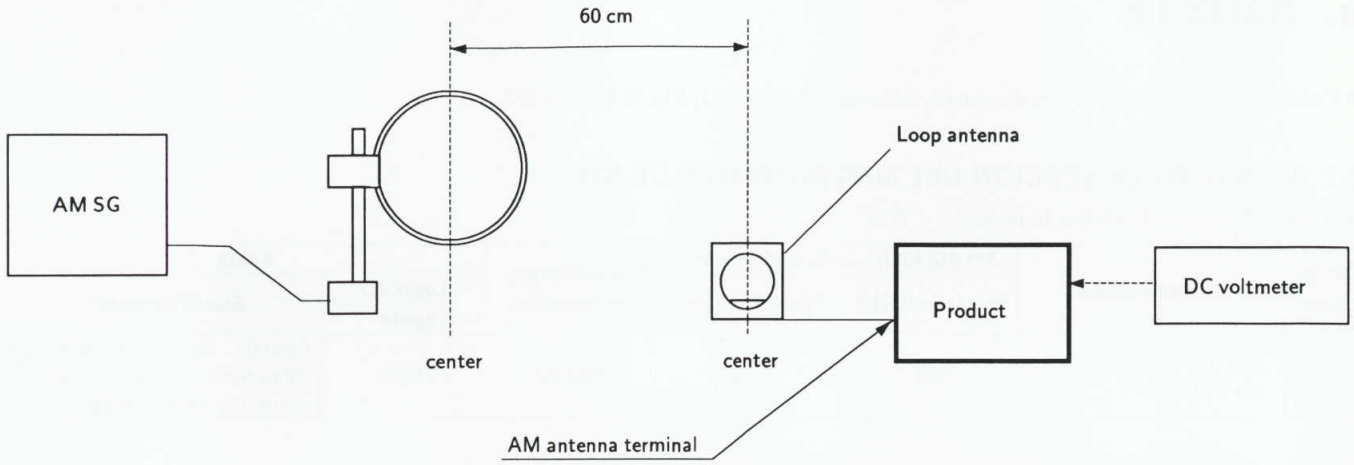


Fig. 6-1 AM Adjustment Connection Diagram

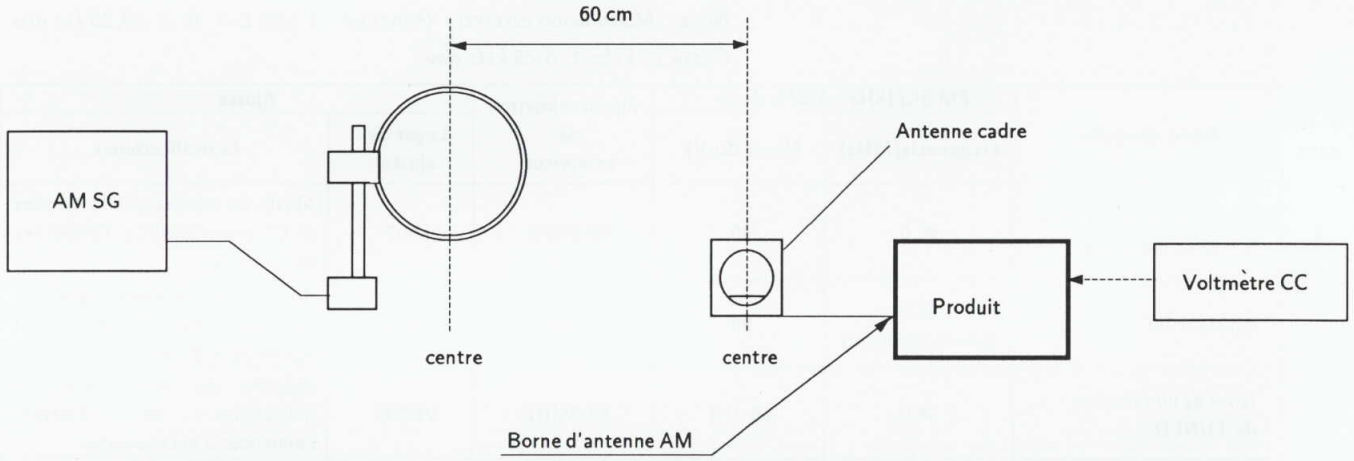


Fig. 6-1 Schéma de raccordement de réglage AM

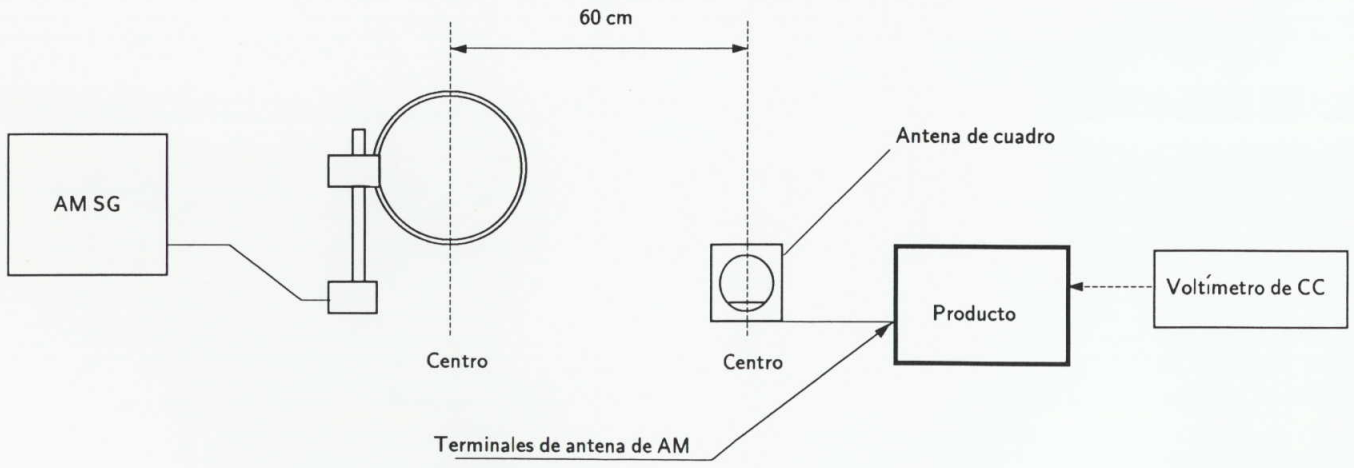


Fig. 6-1 Diagrama de conexiones para el ajuste de AM

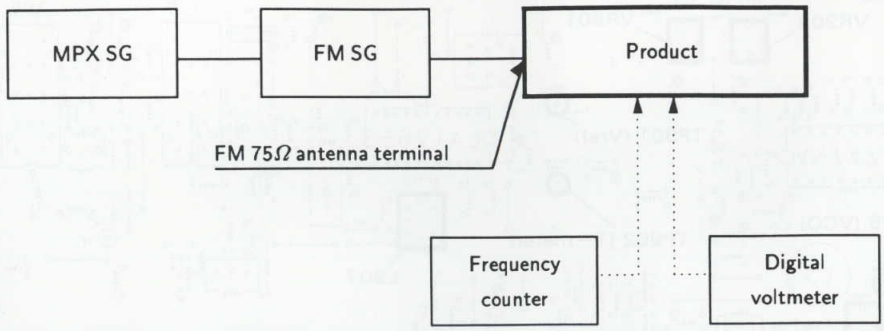


Fig. 6-2 FM Adjustment Connection Diagram

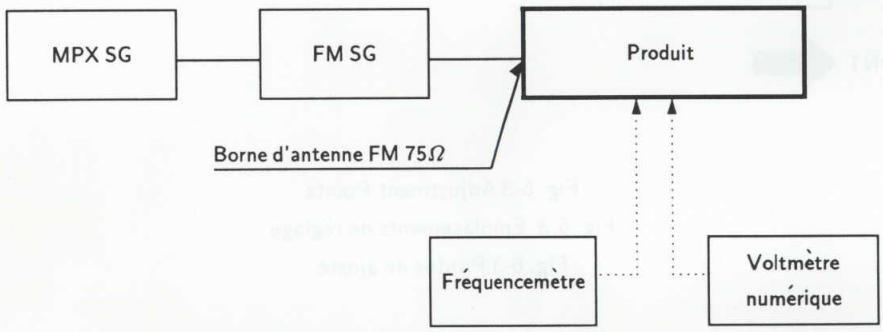


Fig. 6-2 Schéma de connexion de réglage FM

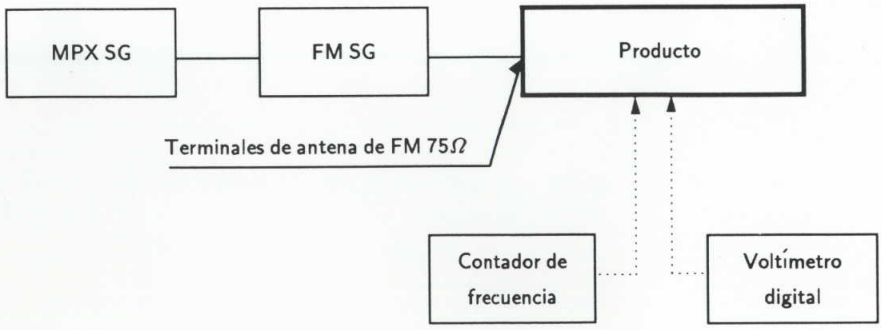


Fig. 6-2 Diagrama de conexiones para el ajuste de FM

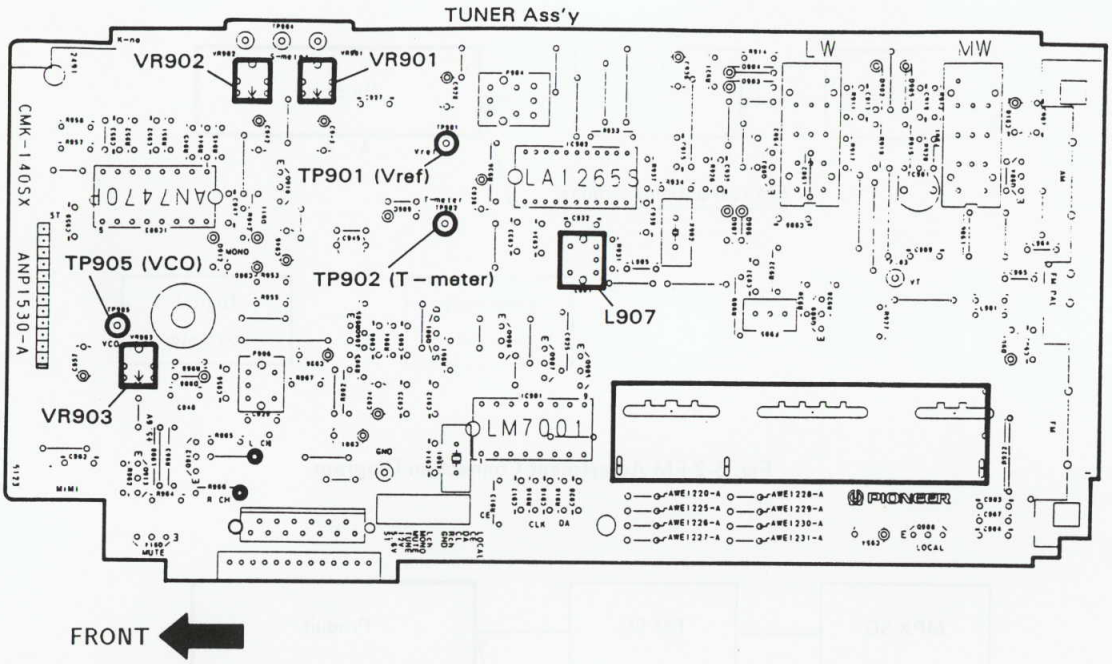


Fig. 6-3 Adjustment Points
Fig. 6-3 Emplacements de réglage
Fig. 6-3 Puntos de ajuste

7. FOR HB AND SD TYPES

NOTES :

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

CONTRAST OF MISCELLANEOUS PARTS

CX−J500/HB, SD and CX−J500/HE have the same construction except for the following :

Mark	Symbol & Description	Part No.			Remarks
		CX-J500/ HE type	CX-J500/ HB type	CX-J500/ SD type	
◉	AF assembly	AWZ3765	AWZ3765	AWZ3979	
◉	DISPLAY assembly	AWZ3769	AWZ3769	AWZ4013	
	TUNER assembly	AWE1230	AWE1230	AWE1231	
⚠	AC power cord	ADG1019	ADG1084	ADG1016	
⚠	FUSE (FU3 T1A/250V)	.....	.....	AEK−508	No. 38 (*)
⚠	FUSE (FU1 T2.5A/250V)	AEK−512	AEK−512	.....	No. 44 (*)
⚠	AC outlet 1P	AKP−508	AKP−509	AKP−507	
⚠	Line Voltage Selector (S1) (AC110/120−127/220/240V)	.....	.....	AKX−507	
⚠	Power transformer (T1)	ATT1178	ATT1178	ATT1179	

* : Refer to page 2.

AF ASSEMBLIES

AWZ3979 and AWZ3765 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWZ3765	AWZ3979	
	S301	.....	ASH1027	
	R324	.....	RD1/8PM473J	

DISPLAY ASSEMBLIES

AWZ4013 and AWZ3769 are different in part number, but they have the same service parts.

TUNER ASSEMBLIES

AWE1231 and AWE1230 have the same construction except for the following :

Mark	Symbol & Description	Part No.		Remarks
		AWE1230	AWE1231	
	Q903, 904	RN1203	.....	
	Q906	RN2201	.....	
	D902, 905−907	HSS104−02	.....	
	D903, 904	1SS85	.....	
	C909	CKDYF103Z50	.....	
	C913	CKDYF223Z50	.....	
	C961, 962	CKDYB272K50	CKDYB562K50	
	C964	CKPUYB101K50	.....	
	C965	CKPUYB102K50	.....	
	C968	.....	CCDSL101J50	
	R911	RD1/8PM104J	.....	
	R914, 915, 919	RD1/8PM681J	.....	
	R917	RD1/8PM102J	.....	
	R921	RD1/8PM392J	.....	
	ANTENNA TERMINAL (4P)	.....	AKA1009	
	ANTENNA TERMINAL (PAL 4P)	AKA1010	.....	
	AM RF TUNING BLOCK (MW)	AXX1012	AXX1011	
	AM RF TUNING BLOCK (LW)	AXX1013	.....	