

SP-014

service manual

SP-014 Principle and Servicing

1. SP-014 working principle

External input signals are inputted to input board by SC1, and its left channel signal outputs to pin 3 of socket XS through R127, to power amplifier board through flat cable XP2; after reaching power amplifier board, it is divided into 2 paths, one path reaches potentiometer RP100A for bass adjustment through R100 (RP100 is duplicate potentiometer, which can adjust left and right channels at the same time); the other paths reaches potentiometer RP101A for treble adjustment through capacitor C100 (RP101 is duplicate potentiometer, which can adjust left and right channels at the same times); and the two paths combine one path after treble/bass adjustment through resistor R108, R107 to send to potentiometer RP102A for volume adjustment (RP102 is duplicate potentiometer, which can adjust left and right channels); volume adjustment signals, through R101 damping and C101 coupling, are sent to pin 11 of N100 TDA7265 for power amplifying (TDA7265 is a dual-channel power IC), then output signals through pin 2 after amplification to loudspeaker directly. Signal flow direction of right channel is similar with that of left channel.

This player is with power-on mute function, and its principle is: when power on, +VS charges capacitor C110 through R110, triode V100 cuts off, MUTE pin of TDA7265 inputs high level, mute of TDA7265 is effective, the whole set has no output; when capacitor C110 is in charging, positive voltage increases to 6V, V100 is on, MUTE turns into low level, mute is off, output is normal and the concussion sound is removed when power on .

2. Troubleshooting flow

(1) Troubleshooting flow for "Left channel has no output" as shown as the following figure 2.1:

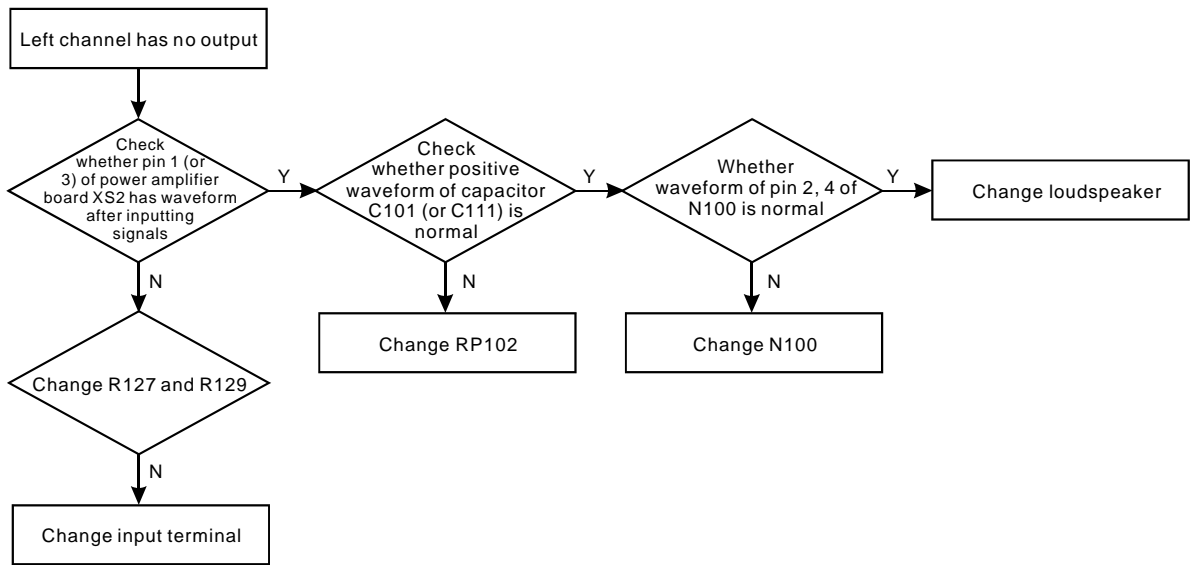


Figure 2.1 troubleshooting flow chart for "Left channel has no output"

(2) Troubleshooting process for "Power no on" is shown as the following figure 2.2:

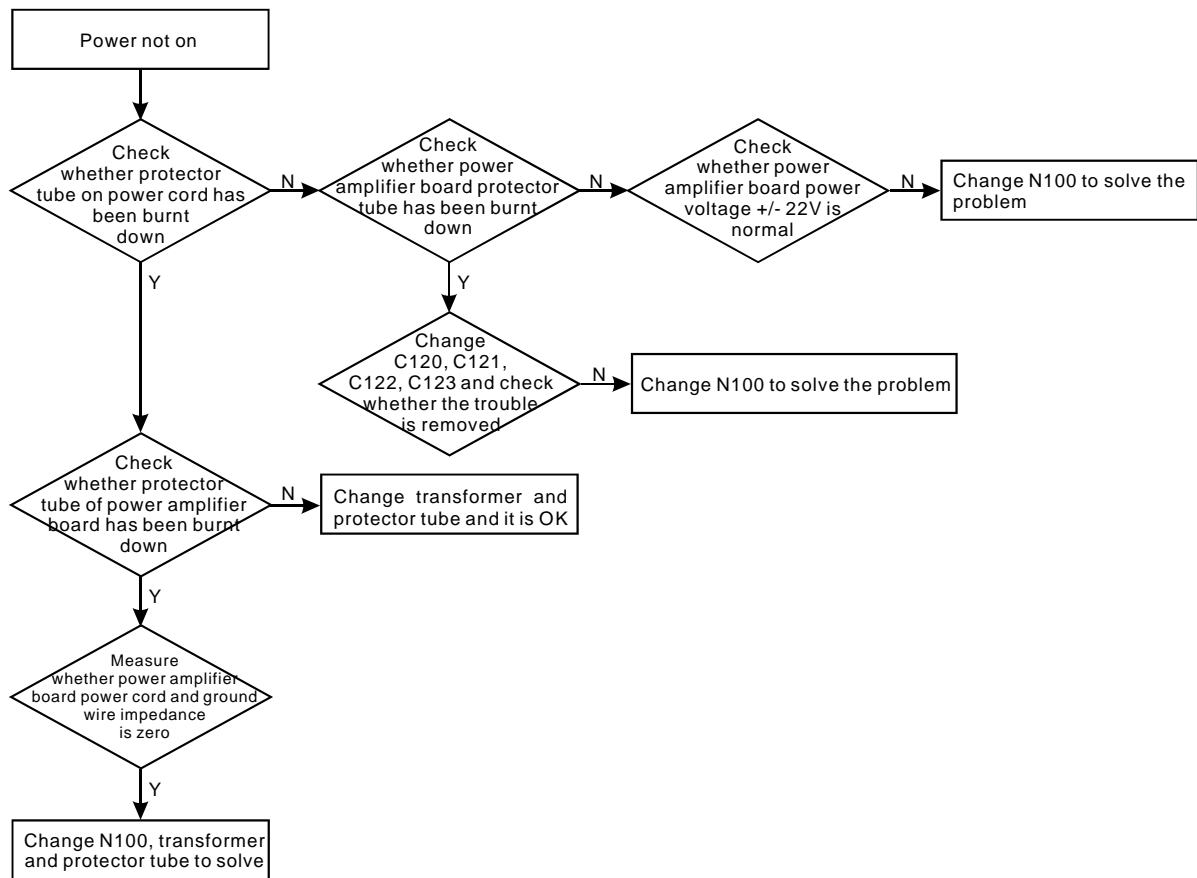
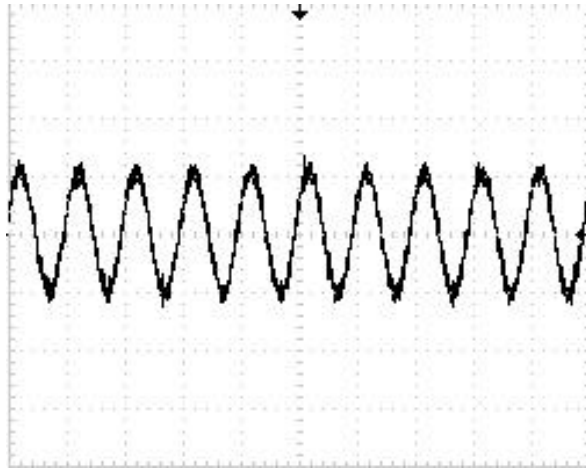


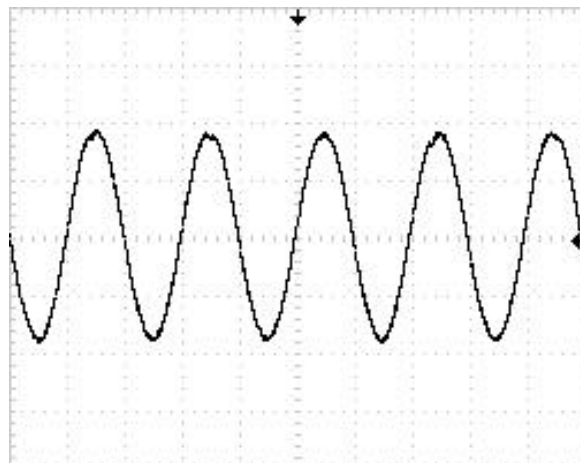
Figure 2.2 Troubleshooting flow chart for "Power not on"

3. Signal waveform diagram

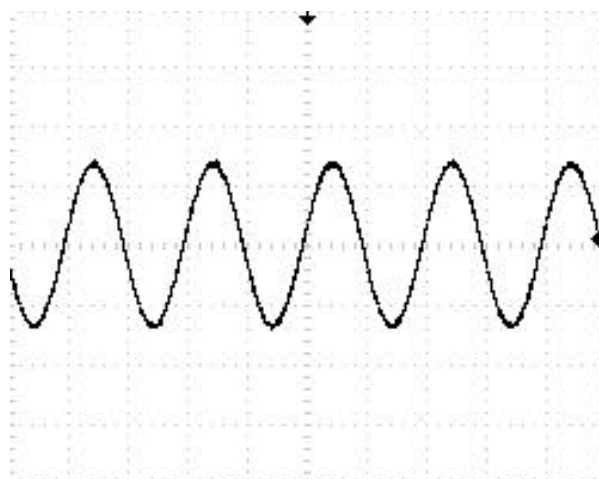
(1) Input waveform diagram of pin 11 of N100



(2) XS4 output signal waveform diagram



(3) External input signal waveform diagram



4. Function introduction to TDA7265

(1) Description

The TDA7265 is class AB dual Audio power amplifier assembled in the Multiwatt package, specially designed for high quality sound application as Hi-Fi music centres and stereo TV sets.

(2) Features

WIDE SUPPLY VOLTAGE RANGE (UP TO $\pm 25V$ ABS MAX.)

SPLIT SUPPLY

HIGH OUTPUT POWER $25 + 25W$ @ THD = 10%, $R_L = 8\Omega$, $V_S = +20V$

NO POP AT TURN-ON/OFF

MUTE (POP FREE)

STAND-BY FEATURE (LOW I_q)

SHORT CIRCUIT PROTECTION

THERMAL OVERLOAD PROTECTION

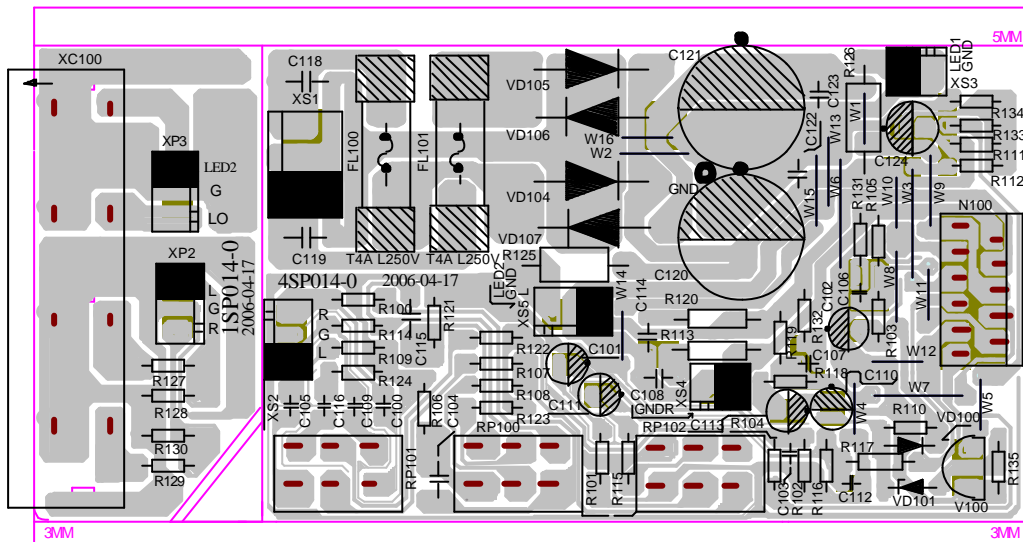
(3) PIN description

PIN No	Symbol	I/O	Description
1	-Vs	I	Negative Power Supply
2	OUT1	O	Signal out SL
3	+Vs	I	Positive Power Supply
4	OUT2	O	Signal out SR
5	MUTE	I	Mute control
6	-Vs	I	Negative Power Supply
7	IN2+	I	Non-Inverting Input Pin SR
8	IN2-	I	Inverting Input Pin SR
9	GND	I	GND
10	IN1+	I	Non-Inverting Input Pin SL
11	IN1-	I	Inverting Input Pin SL

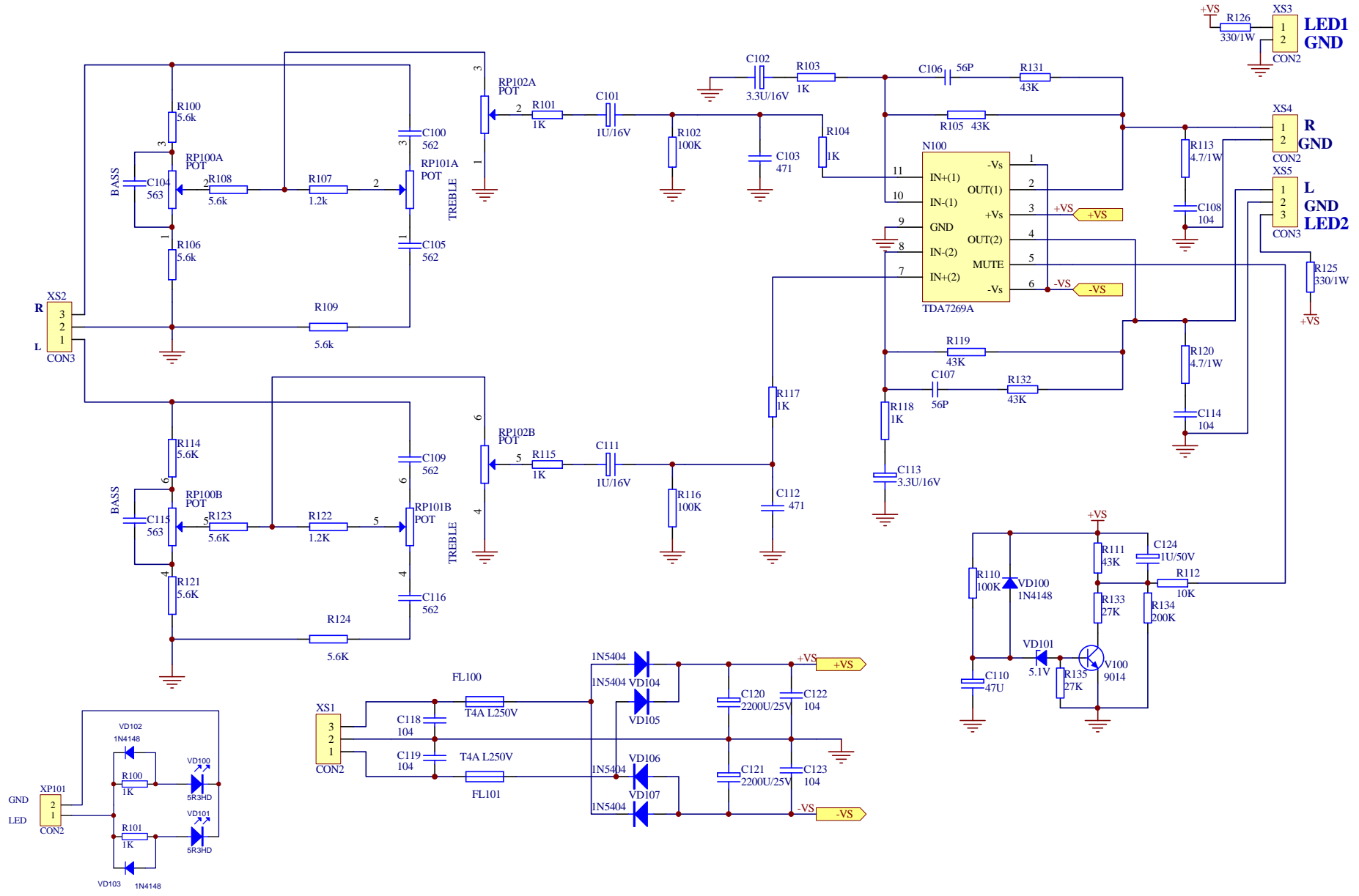
5. MUTE Function

Function	Stand-by	Mute	Play
Vmute	$+V_S - 1.5 \sim +V_S - 3.5$	$+V_S - 5 \sim +V_S - 7$	Others

6. audio power amplifying Board



7. CIRCUIT DIAGRAM



8. BOM List

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
6.1 AMPLIFIER BOARD			
SP-014(RU) SILVER WHITE		5448382	
2100003	CONNECTED CORDS	F 0.6 SHAPED 7.5mm	W1,W4,W5,W10~W12,W14,W16
2100004	CONNECTED CORDS	F 0.6 SHAPED 10mm	W2,W8,W9,W13,W15
2100007	CONNECTION CORDS	F 0.6 SHAPEN 15mm	W3,W6
2100006	CONNECTION CORDS	F 0.6 SHAPED 12.5mm	W7
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	R101,R104,R115
0000124	CARBON FILM RESISTOR	1/6W470O±5% SHAPED 7.5	R103,R118
0000130	CARBON FILM RESISTOR	1/6W1.2K±5% SHAPED 7.5	R107,R122
0000135	CARBON FILM RESISTOR	1/6W5.6K±5% SHAPED 7.5	R106,R114,R100,R108,R121,R123,R109,R124
0000137	CARBON FILM RESISTOR	1/6W10K±5% SHAPED 7.5	R112
0000146	CARBON FILM RESISTOR	1/6W100K±5% SHAPED 7.5	R110,R102,R116
0000141	CARBON FILM RESISTOR	1/6W27K±5% SHAPED 7.5	R133,R135
0000148	CARBON FILM RESISTOR	1/6W200K±5% SHAPED 7.5	R134
0000283	CARBON FILM RESISTOR	1/4W1K±5% SHAPED 10	R117
0000618	CARBON FILM RESISTOR	1/6W43K±5% SHAPED 7.5	R105,R119,R131,R132,R111
0000639	CARBON FILM RESISTOR	1/2W3.3O±5% SHAPED 12.5	R120,R113
0010095	METAL FILM RESISTOR	1W330O±5% SHAPED R 15×8	R125,R126
0200053	PORCELAINCAPACITOR	50V 47P±10% 2.5mm	C106,C107
0200066	PORCELAINCAPACITOR	50V 221±10% 2.5mm	C103,C112
0210031	TERYLENECAPACITOR	100V 224±10% 8mm	C118,C119
0210060	TERYLENECAPACITOR	100V 563±10% 6mm	C115,C104
0210078	TERYLENECAPACITOR	100V 562±10% 3.5mm	C100,C105,C109,C116
0210109	METAL POLYESTER FILMCAPACITOR	CL21X 100V 104±10% 5	C108,C114,C122,C123
0260025	CD	CD11 16V47U±20%5×11 2	C110
0260063	CD	CD11 50V1U±20%5×11 2	C101,C111 , C124
0260019	CD	CD11 16V10U±20%5×11 2	C102,C113
0260134	CD	CD11 25V4700U±20%16×35 7.5	C120,C121
0260135	CD	CD11 25V4700U±20%16×40 7.5	C120,C121
0570006	DIODE	1N4148	VD100

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
0570020	DIODE	1N5404	VD104,VD106,VD107,VD108
0580006	VOLTAGE REGULATOR DIODE	5.1V 1/2W	VD101
0780032	TRIODE	9014C	V100
2110336	LEAD	20# 150mm BLACK,WITH WELD PIECE	接地线
1940002	SOCKET	3P 2.5mm	XS2 , XS5
1940001	SOCKET	2P 2.5mm	XS4,XS3
1940040	SOCKET	3P 3.96mm	XS1
2300006	FUSE	T4AL 250V	FL100,FL101
3870057	FUSE HOLDER		FL100,FL101
0160035	ROTATED POTENTIOMETER	D161GOAX-V1B503-016	RP100,RP101
0160036	ROTATED POTENTIOMETER	D161GOAX-V1B503-017	RP102
1564300	PCB	@4SP014-0 UL	
6.2 INPUT OUTPUT BOARD			
SP-014(RU)SILVER WHITE		5448383	
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	R129,R127
0000144	CARBON FILM RESISTOR	1/6W47K±5% SHAPED 7.5	R130,R128
1564299	PCB	1SP014-0	
2122009	FLAT CABLE	3P140 2.5 2 PIN,WITH NEEDLE, REVERSE	XP3
2150106	FLAT CABLE	3P90 2.5 2 PIN,2P SHIELD,WITH NEEDLE	XP2
1910257	TERMINAL SOCKET	AV4-8.4-14-68	XC100
6.3 INDICATOR LIGHT BOARD			
SP-014(RU)SILVER WHITE		5448384	
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	R100,R101
0570006	DIODE	1N4148	VD102,VD103
0620040	RADIATION DIODE	3B 4SC WHITE ISSUE BLUE	VD100,VD101
1940001	SOCKET	2P 2.5mm	XP101
2121489	FLAT CABLE	2P230 2.5 2 PIN, WITH L NEEDLE, REVERSE	XP101
2122174	FLAT CABLE	2P300 2.5 1 PIN,RED BLACK 20# CORD	XP101
1564301	PCB	ASP014-0	

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS
6.4 AMPLIFIER UNIT		
SP-014(RU)SILVER WHITE 5462340		
0881102	IC	TDA7265 Multiwatt11
0200219	CERAMICCAPACITOR	CT7 400V 103±20% 10mm
1350029	POWER SUPPLY SWITCH	PS8-11 2#
0460599	SQUARENESS TRANSFORMER	@SP-014 CQC
2140347	POWER SUPPLY CORD EUROPE SPECS	@2P 1.9m 2.5A MA-800S VDE
2300002	FUSE	T1AL 250V
5231803	CLASP	THC-5
3871936	REAR BOARD	SP-014(RU)
4660010	INVERTED TUBE	F 31×F 34×65 2#
3022122	ADJUST BUTTON	BSD02 BLACK
3580228	RADIATOR	90×90×16 SP-014
4000048	SELF-TAPPING SCREW	PB 3×8 COLOR ZINC
4000151	SELF-TAPPING SCREW	PB 3×12H COLOR ZINC
4000450	SELF-TAPPING SCREW	BT 3×6H COLOR ZINC
4000453	SELF-TAPPING SCREW	BT 3×8H WHITE NICKEL
4000387	SELF-TAPPING SCREW	PA3×12H COLOR ZINC
4210019	MACHINE-TAPPING SCREW	PWM 4×12×9 COLOR ZINC
4210048	MACHINE-TAPPING SCREW	PM 3×8 COLOR ZINC
4400002	NUT	M4
4400001	NUT	M3
4400028	NUT OF POTENTIOMETER	M7
3870634	IC PRESSING PIECE	AV220
3540074	SCREEN-SHIELDED PIECE	SP-13
4450032	ROUND PAD	F 7×12×0.5
4450014	BOLT PAD	F 4×10×0.8
4450033	BOLT PAD	f 8×15×2.5
4490002	SPRING PAD	F 4
5231418	MICA PAD	22×22×0.1
5232281	INSULATED SPACER SET	F 3×6×3.2
5233838	PYROCONDENSATION SLEEVE	@F 22 UL

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS
5234967	PYROCONDENSATION SET DIPE	@F 3 UL
5234966	PYROCONDENSATION SET DIPE	@F 4 UL
5230010	NYLON BANDAGE	100mm
5180399	NOT DMETAL OXIDE FILM RESISTOR GLUE LABELL	FUSE T1AL250V
5235157	AIRPROOF STRIP	111.4x11x1 SPONGE
5235158	AIRPROOF STRIP	236.4x11x1 SPONGE
5231797	SOFT SPONGE SPACER	45x20x1.5 SINGLE-FACED,HARD
5235222	SOFT SPONGE SPACER	101.4x10x1 SINGLE-FACED SOFT
5231799	HEAT-INSULATION SPONGE SPACER	96x21.4x3 SINGLE-FACED,HARD
5448382	PCB SEMI-FINISHED PRODUCT	4SP014-0 SP-014(RU)
5448383	PCB SEMI-FINISHED PRODUCT	1SP014-0 SP-014(RU)
6.5 SPEAKER BODY WITH FOAM		
MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS
3080518	SPEAKER BODY	SP-014(RU) MAIN SILVER WHITE
3080519	SPEAKER BODY	SP-014(RU) ASSISTANT SILVER WHITE
5041089	FOAM	FM-010142
5041090	FOAM	FM-020142
4660007	INVERTED TUBE	F 31x F 34x65
5232147	PVC PEEL	M-815A-28
6.6 SN LABEL		
SP-014(RU)SILVER WHITE		5142076
MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS
5142067	SN LABEL	RUSSIA WITHOUT BAR CODE NUMBER
6.7 SUPPLEMENT MODULE		
MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS
5110002	ELECTRO WELDING WIRE	F 1.0
5110018	ELECTRO WELDING WIRE	f 2.0
5110004	ADHESIVE TAPE	
5110003	ELECTRO WELDING WIRE	
5120096	PEANUT OIL	
5120001	THINNER	
5120004	SOLDERING FLUX	

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS
5120011	WIPING WATER	
5120012	RED GLUEWATER	
5120332	SILICONE GREASE HEAT CONDUCT OIL	GB-304
5120067	GLUEWATER	502
5230021	SCOTCH TAPE	12mm
5230022	SEALING PAPER	COLORLESS
5231514	HIGH TEMPERATURE MASKING PAPER	LENGTH:15 YARD WIDTH:20mm
5231454	HIGH TEMPERATURE MASKING PAPER	LENGTH:15 YARD WIDTH:6mm
5231455	HIGH TEMPERATURE MASKING PAPER	LENGTH:15 YARD WIDTH:12mm
5231456	HIGH TEMPERATURE MASKING PAPER	LENGTH:15 YARD WIDTH:24mm
5120009	WHITE PRESSURE OIL	
5230020	MASKING PAPER	24mm
5280353	SILVER LACQUER PEN	SILVER WHITE
2100002	CONNECTION CORDS	F 0.6