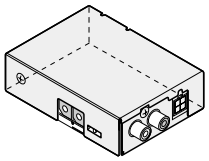
Pioneer *sound.vision.soul*

Service Manual



CD-V61FM/E

ORDER NO.
CRT2873

FM MODULATOR

CD-V61FM E

CONTENTS

For details, refer to "Important symbols for good services".

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PIONEER EUROPE NV Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
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K-ZZA. JULY 2002 Printed in Japan

[Important symbols for good services]
In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely.
When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety

You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments

To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning

For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws

To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts

Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount.For replacement parts or tools, the prescribed ones should be used.

SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

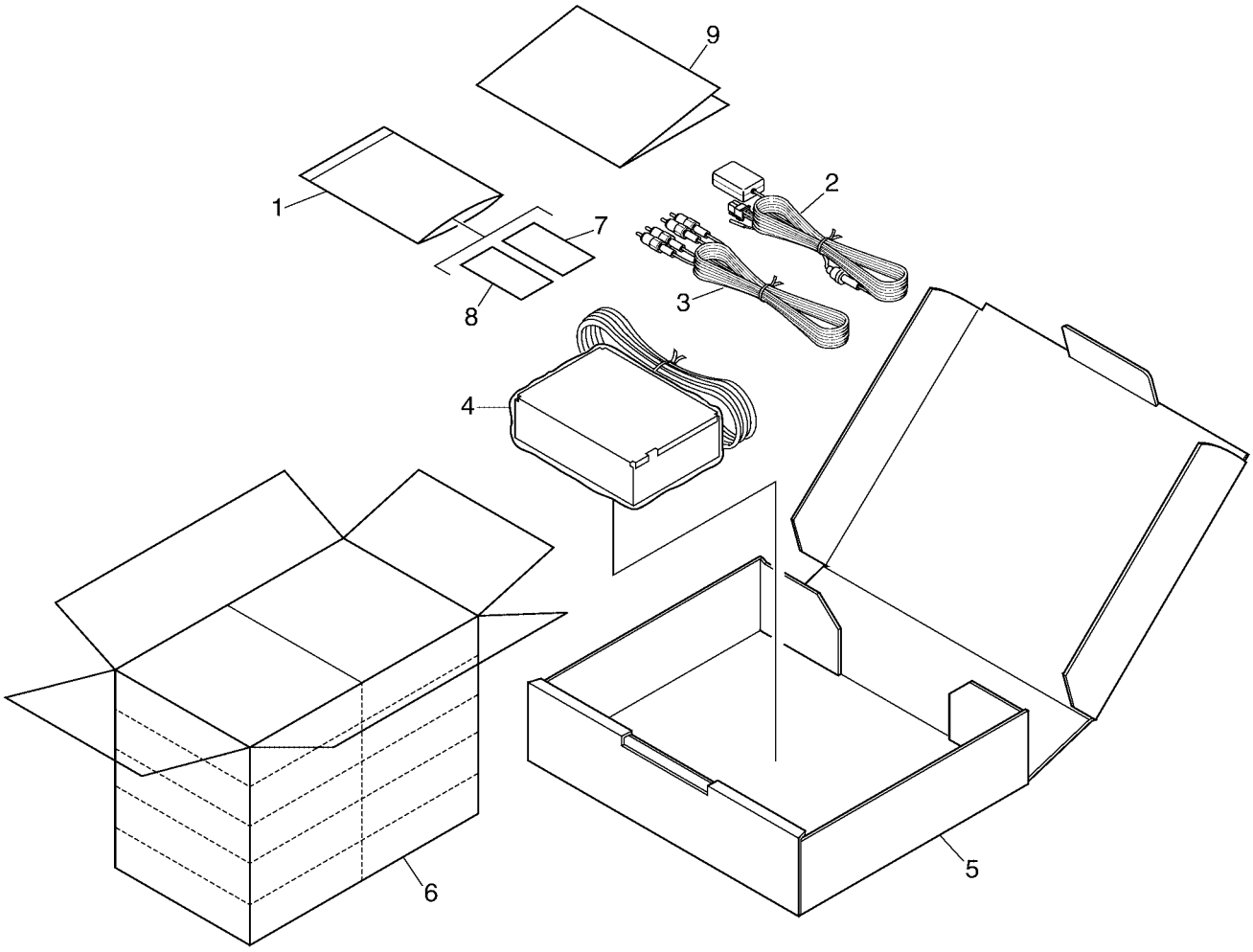
1. SPECIFICATIONS

Power source ..... 14.4 V DC (10.8 – 15.1 V allowable)
Max. current consumption ..... 200 mA
Backup current ..... 0 mA
Weight ..... 220 g
Dimensions ..... 89 (W) × 25 (H) × 64 (D) mm
FM modulator usable frequency .... 88.1/88.3/88.5/88.7/88.9/89.1 /89.3/89.5/89.7/89.9 MHz

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



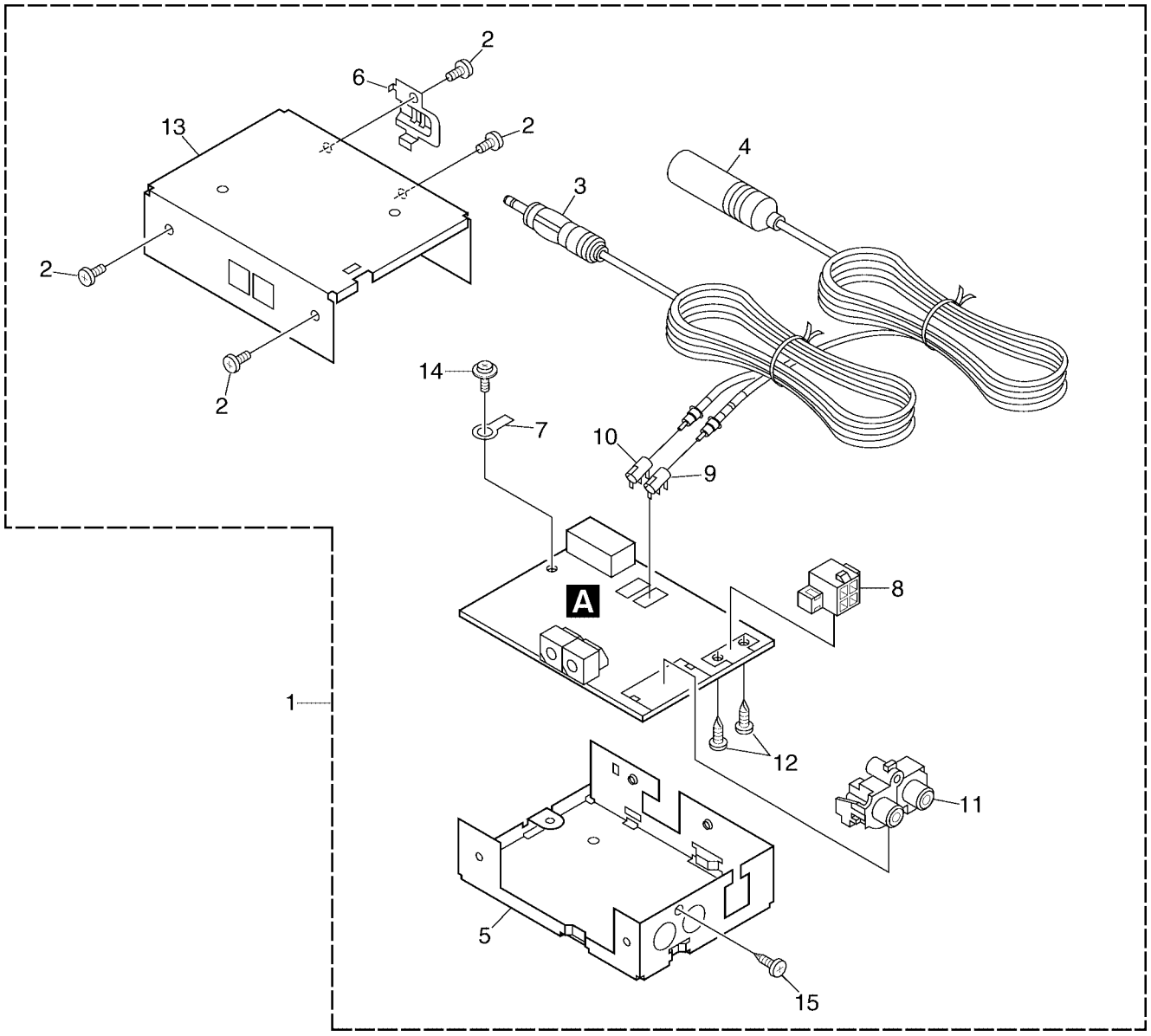
NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.
  (In the case of no amount instructions, apply as you think it appropriate.)

● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
*	1	Polyethylene Bag	CEG1023
	2	Cord Assy	CZD5356
	3	Cord	CZD5357
	4	Air Cushioned Bag	CZE3074
	5	Carton	CZH5160
	6	Contain Box	CZH5161
	7	Magic Tape(Rough)	CZN5443
	8	Magic Tape(Soft)	CZN5444
	9	Owner's Manual (English, Spanish, German, French, Italian, Dutch, Traditional chinese)	CZR3094

2.2 EXTERIOR



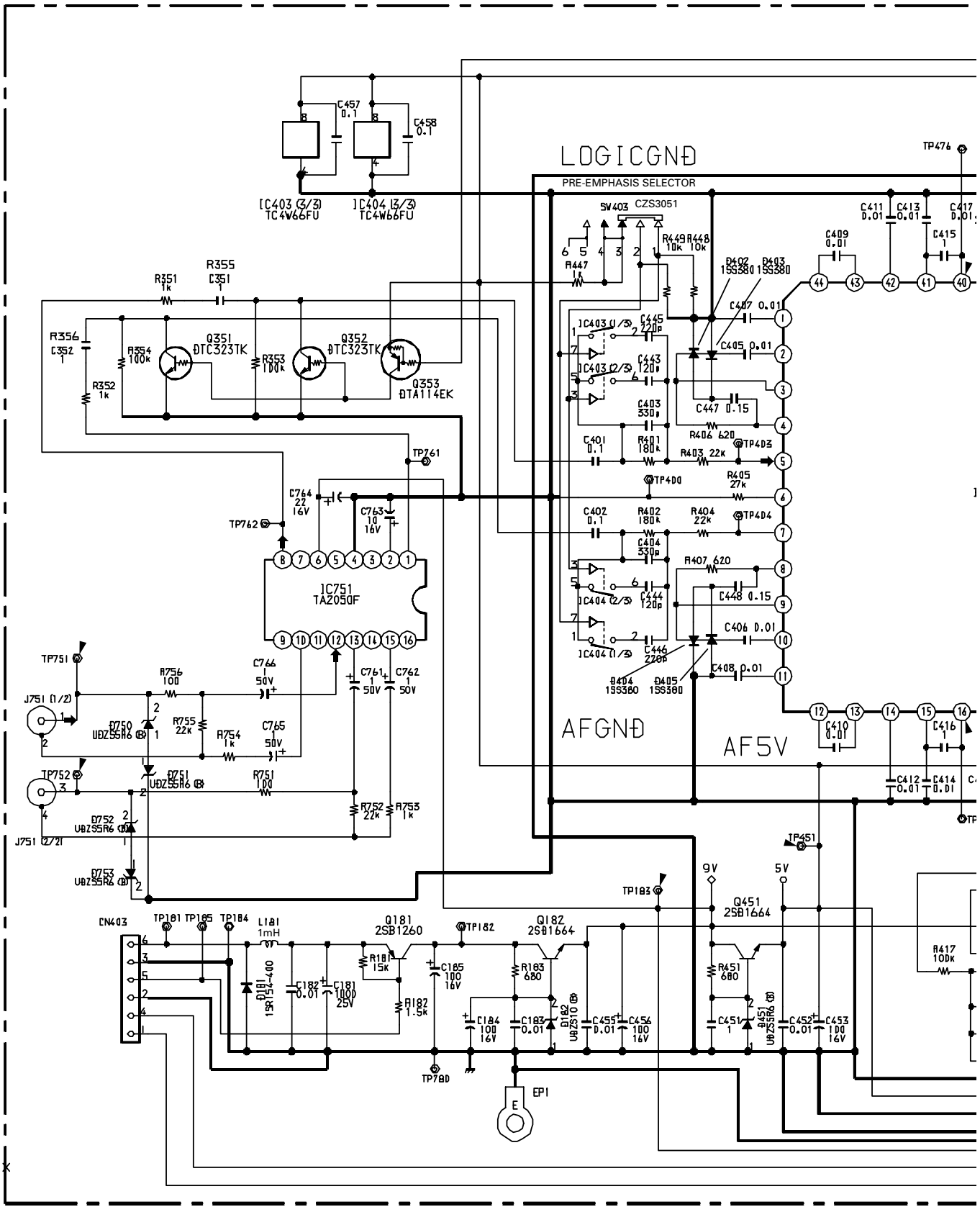
● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.
1	Modulator	CZX5028
2	Screw	BSZ30P050FMC
3	Antenna Cord	CZD5358
4	Antenna Cord	CZD5359
5	Chassis	CZN5448
6	Holder	CZN5449
7	Terminal(EP1)	CKF1064
8	Connector(CN403)	CKM1077
9	Antenna Jack(CN491)	CKX1010
10	Antenna Jack(CN492)	CKX1010
11	Pin Jack(J751)	CZK3065
12	Screw	PPZ26P080S-
13	Top Case Assy	CZX5039
14	Screw	ISS30P060FMC
15	Screw	PMZ30P080FNN

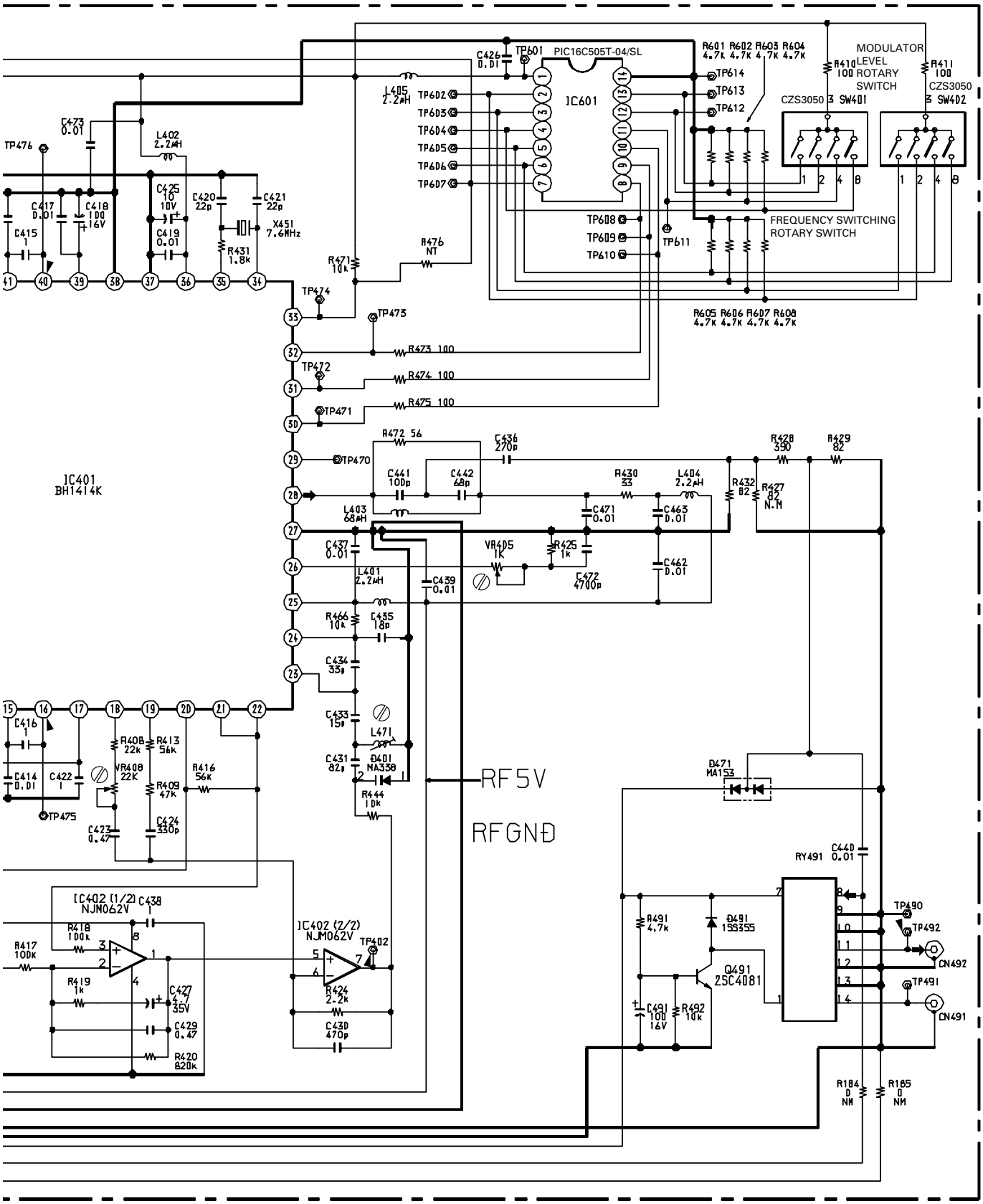
3. SCHEMATIC DIAGRAM

3.1 PCB UNIT

Note: When ordering service parts, be sure to refer to “EXPLODED VIEWS AND PARTS LIST” or “ELECTRICAL PARTS LIST”.



A PCB UNIT


IC601
PIC16C505T-04/SL
MODULATOR LEVEL ROTARY SWITCH
FREQUENCY SWITCHING ROTARY SWITCH
CZS3050
SW401
SW402
IC401
BH1414K
IC402 (1/2)
NJM062V
IC402 (2/2)
NJM062V
RF5V
RFGND
Q491
2SC4081
RY491

4. PCB CONNECTION DIAGRAM

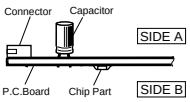
4.1 PCB UNIT

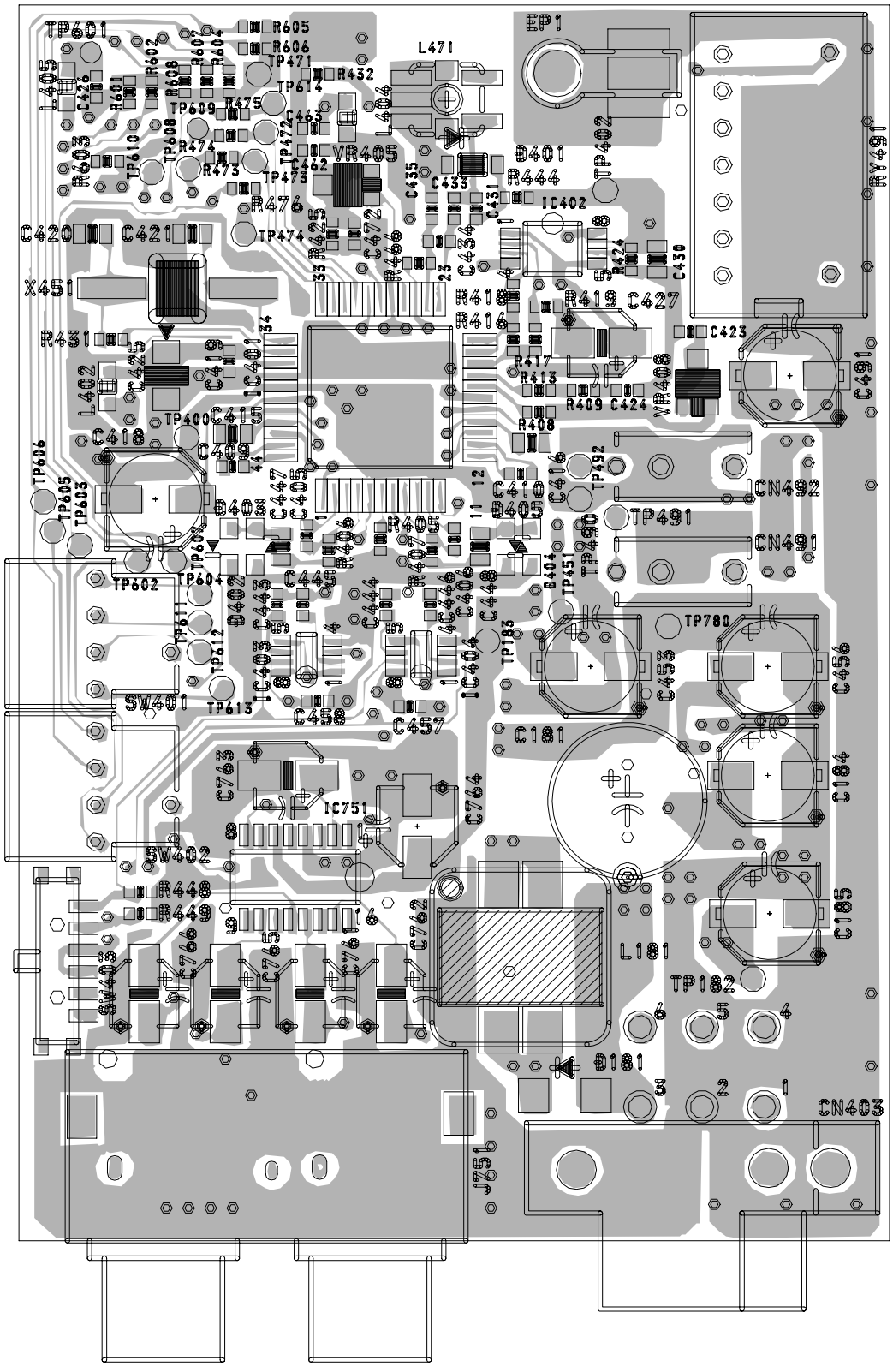
A PCB UNIT

SIDE A

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination. For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

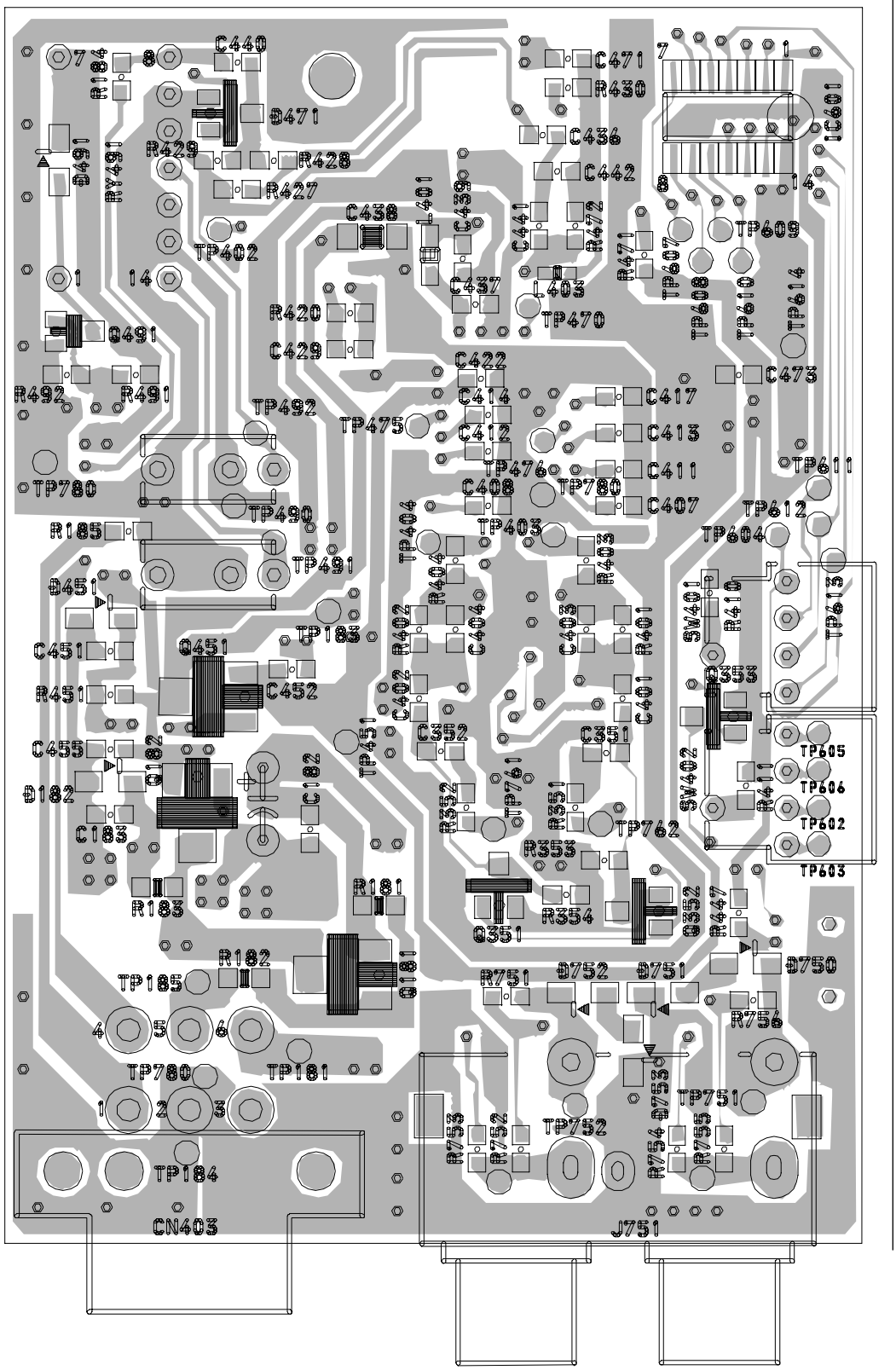




A

A PCB UNIT

SIDE B



IC, Q
IC601
Q491
Q451
Q353
Q182
Q351
Q352
Q181

5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CZX5029
Unit Name : PCB Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	401	IC	BH1414K
IC	402	IC	NJM062V
IC	403	IC	TC4W66FU
IC	404	IC	TC4W66FU
IC	601	IC	PIC16C505T-04/SL
IC	751	IC	TA2050F
Q	181	Transistor	2SB1260
Q	182	Transistor	2SD1664
Q	351	Transistor	DTC323TK
Q	352	Transistor	DTC323TK
Q	353	Transistor	DTA114EK
Q	451	Transistor	2SD1664
Q	491	Transistor	2SC4081
D	181	Diode	1SR154-400
D	182	Diode	UDZS10(B)
D	401	Diode	MA338
D	402	Diode	1SS380
D	403	Diode	1SS380
D	404	Diode	1SS380
D	405	Diode	1SS380
D	451	Diode	UDZS5R6(B)
D	471	Diode	MA153
D	491	Diode	1SS355
D	750	Diode	UDZS5R6(B)
D	751	Diode	UDZS5R6(B)
D	752	Diode	UDZS5R6(B)
D	753	Diode	UDZS5R6(B)
L	181	Choke Coil 1mH	CZT3095
L	401	Coil	CZT3096
L	402	Coil	CZT3096
L	403	Coil	CZT3097
L	404	Coil	CZT3096
L	405	Coil	CZT3096
L	471	Variable Coil	CZT3098
RY	491	Relay	CZS3049
X	451	Crystal Resonator 7.6MHz	CZS3052
SW	401	Switch(FREQUENCY SWITCHING)	CZS3050
SW	402	Switch(MODULATOR LEVEL)	CZS3050
SW	403	Slide Switch(PRE-EMPHASIS SELECTOR)	CZS3051
VR	405	Semi-fixed 1kΩ(B)	CCP1442
VR	408	Semi-fixed 22kΩ(B)	CCP1450

RESISTORS

R	181		RS1/10S153J
R	182		RS1/10S152J
R	183		RS1/10S681J
R	351		RS1/16S102J
R	352		RS1/16S102J
R	353		RS1/16S104J
R	354		RS1/16S104J
R	401		RS1/16S184J
R	402		RS1/16S184J
R	403		RS1/16S223J
R	404		RS1/16S223J
R	405		RS1/16S273J
R	406		RS1/16S621J
R	407		RS1/16S621J
R	408		RS1/16S223J
R	409		RS1/16S473J
R	410		RS1/16S101J
R	411		RS1/16S101J
R	413		RS1/16S563J
R	416		RS1/16S563J
R	417		RS1/16S104J
R	418		RS1/16S104J
R	419		RS1/16S102J
R	420		RS1/16S824J
R	424		RS1/16S222J
R	425		RS1/16S102J
R	428		RS1/16S391J
R	429		RS1/16S820J
R	430		RS1/16S330J
R	431		RS1/16S182J
R	432		RS1/16S820J
R	444		RS1/16S103J
R	447		RS1/16S102J
R	448		RS1/16S103J
R	449		RS1/16S103J
R	451		RS1/16S681J
R	466		RS1/16S103J
R	471		RS1/16S103J
R	472		RS1/16S560J
R	473		RS1/16S101J
R	474		RS1/16S101J
R	475		RS1/16S101J
R	491		RS1/16S472J
R	492		RS1/16S103J
R	601		RS1/16S472J
R	602		RS1/16S472J
R	603		RS1/16S472J
R	604		RS1/16S472J
R	605		RS1/16S472J
R	606		RS1/16S472J
R	607		RS1/16S472J
R	608		RS1/16S472J
R	751		RS1/16S101J
R	752		RS1/16S223J
R	753		RS1/16S102J
R	754		RS1/16S102J
R	755		RS1/16S223J
R	756		RS1/16S101J

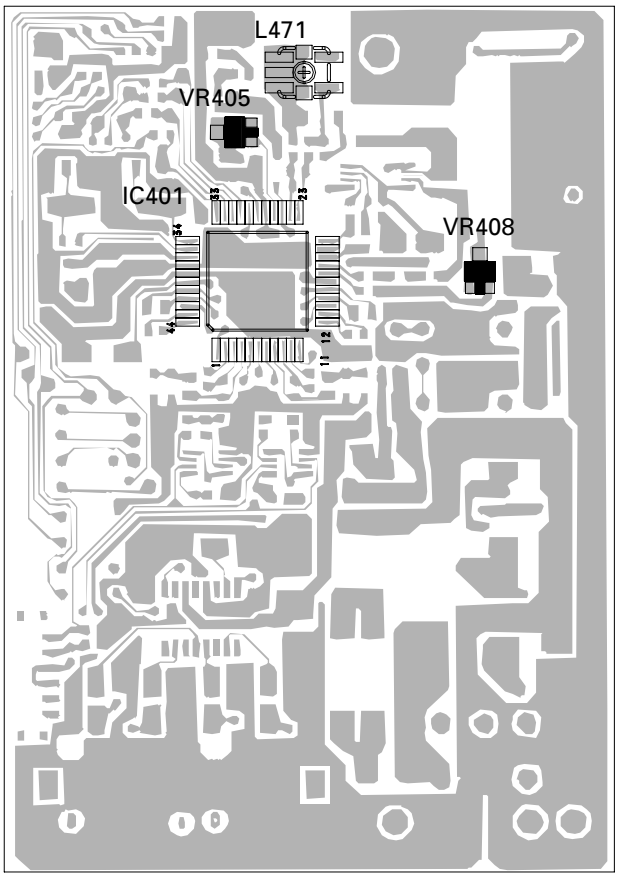
CAPACITORS

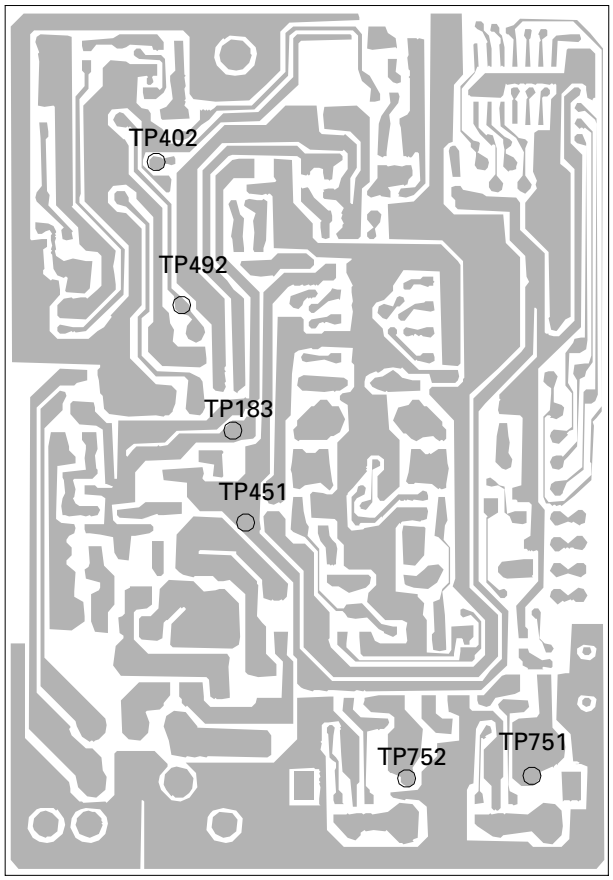
=====Circuit Symbol and No.		===Part Name	Part No.
C	181	1000µF/25V	CZC5168
C	182		CKSRYB103K50
C	183		CKSRYB103K50
C	184		CEV101M16
C	185		CEV101M16
C	351		CKSRYB105K10
C	352		CKSRYB105K10
C	401		CKSRYB104K16
C	402		CKSRYB104K16
C	403		CCSRCH331J50
C	404		CCSRCH331J50
C	405		CKSRYB103K50
C	406		CKSRYB103K50
C	407		CKSRYB103K50
C	408		CKSRYB103K50
C	409		CKSRYB103K50
C	410		CKSRYB103K50
C	411		CKSRYB103K50
C	412		CKSRYB103K50
C	413		CKSRYB103K50
C	414		CKSRYB103K50
C	415		CKSRYB105K10
C	416		CKSRYB105K10
C	417		CKSRYB103K50
C	418		CEV101M16
C	419		CKSRYB103K50
C	420		CCSRCH220J50
C	421		CCSRCH220J50
C	422		CKSRYB105K10
C	423		CKSRYB474K10
C	424		CCSRCH331J50
C	425		CSZS100M10
C	426		CKSRYB103K50
C	427		CEV4R7M35
C	429		CKSRYB474K10
C	430		CCSRCH471J50
C	431		CCSRCH820J50
C	433		CCSRCH150J50
C	434		CCSRCH330J50
C	435		CCSRCH180J50
C	436		CCSRCH271J50
C	437		CKSRYB103K50
C	438		CKSQYB105K16
C	439		CKSRYB103K50
C	440		CKSRYB103K50
C	441		CCSRCH101J50
C	442		CCSRCH680J50
C	443		CCSRCH121J50
C	444		CCSRCH121J50
C	445		CCSRCH221J50
C	446		CCSRCH221J50
C	447		CKSQYB154K25
C	448		CKSQYB154K25
C	451		CKSRYB105K10
C	452		CKSRYB103K50
C	453		CEV101M16
C	455		CKSRYB103K50
C	456		CEV101M16
C	457		CKSRYB104K16
C	458		CKSRYB104K16
C	462		CKSRYB103K50
C	463		CKSRYB103K50
C	471		CKSRYB103K50
C	472		CKSRYB472K50
C	473		CKSRYB103K50

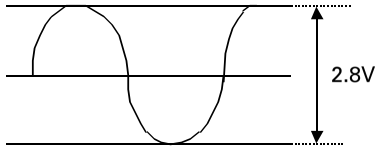
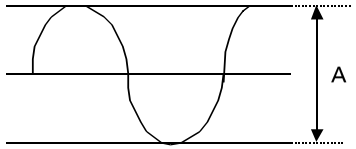
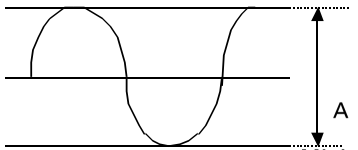
=====Circuit Symbol and No.		===Part Name	Part No.
C	491		CEV101M16
C	761		CEV1R0M50
C	762		CEV1R0M50
C	763		CEV100M16
C	764		CEV220M16
C	765		CEV1R0M50
C	766		CEV1R0M50

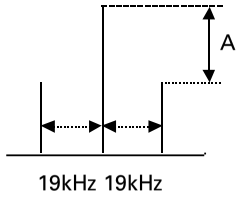
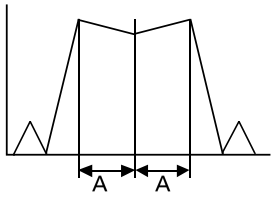
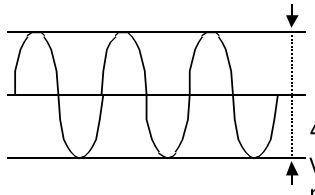
6. ADJUSTMENT

● ADJUSTMENT POINT, TEST POINT





No.	Item	Mode	Input signals (input test pin, standard, or other measuring conditions)	Output signals (measuring test pin, waveforms)	Measuring devices	Standard (or other notes)	Parts to adjust
	Modulator adjustment and inspection						
1	Preparation for adjustment and inspection		400Hz, 1Vrms, SIN audio input to J751, TP751, TP752 Modulator PWSW ON Frequency 89.1MHz(Rotary switch : 5) Modulator level +6(Rotary switch : 9) The following adjustments and inspections are performed in the above mode unless something is specified. Also, 1Vrms = 0dB.				
2	Check of power supply voltage			TP183 DC TP451 DC	Digital multimeter	9.0 ± 1.0V 5.0 ± 0.3V	
3	Check of input signals			TP751 SIN TP752 SIN 	Oscilloscope	A : 2.8V ± 70mV	
4	19kHz filter check		Audio input L/R, 19kHz, SIN	IC401 40PIN IC401 16PIN 	Oscilloscope	A : 100mVp-p or less	
5	PLL lock adjustment		Audio input OFF	TP402 DC	Digital multimeter	4.0 ± 0.2VDC Frequency 89.1MHz ± 10kHz	L471

No.	Item	Mode	Input signals (input test pin, standard, or other measuring conditions)	Output signals (measuring test pin, waveforms)	Measuring devices	Standard (or other notes)	Parts to adjust
6	Stereo pilot check		Audio input OFF	TP492 	Stereo receiver or demodulator Spectrum analyzer	7.5 ± 1.5kHz (A ; 14.0 ± 1.5dB) value for reference	
7	Adjustment of modulation level		Audio input 1Vrms, 400Hz	TP492 	Stereo receiver or demodulator Spectrum analyzer	135 ± 10kHz (A ; 135 ± 10kHz) value for reference	VR408
8	Adjustment of RF output level		Audio input OFF	TP492 	Spectrum analyzer or high-frequency electronic voltmeter + counter Oscilloscope	60 ± 3dBμV 75-ohm terminal Frequency 89.1MHz ± 10kHz	VR405

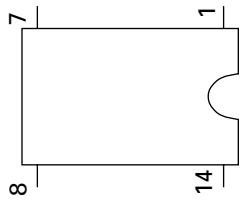
7. GENERAL INFORMATION

7.1 IC

● **Pin Function (PIC16C505T-04/SL)**

Pin No.	Pin Name	I/O	Function and Operation
1	VDD		Positive supply for logic and I/O pins
2	RB5/OSC1/CLKIN	I/O	Bi-directional I/O port/oscillator crystal input/external clock source input
3	RB4/OSC2/CLKOUT	I/O	Bi-directional I/O port/oscillator crystal output
4	RB3/$\overline{\text{MCLR}}$/VPP	I	Input port/master clear (reset) input/programming voltage input
5	RC5/T0CKI	I/O	Bi-directional I/O port
6-10	RC4-0	I/O	Bi-directional I/O port
11	RB2	I/O	Bi-directional I/O port
12	RB1	I/O	Bi-directional I/O port/ serial programming clock
13	RB0	I/O	Bi-directional I/O port/ serial programming data
14	VSS		Ground reference for logic and I/O pins

*PIC16C505T-04/SL



IC's marked by * are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

8. OPERATIONS

① This product
② Left (White)
③ Right (Red)
④ Power switch (cable: 2 m)
⑤ Red(ACC)
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Do not connect this lead to power source terminals to which power is continuously supplied. If the lead is connected to such terminals, the battery may be drained.
⑥ Fuse holder
⑦ Black (ground)
To vehicle (metal) body.
⑧ Antenna output (1.5 m)
⑨ Antenna input (1.5 m)
⑩ RCA cable (supplied, 6 m)
⑪ To audio outputs
⑫ Car antenna plug
⑬ Car stereo with FM tuner
⑭ Pioneer overhead monitor
⑮ Pioneer source DVD player (stand-alone mode)
⑯ Pioneer TV tuner
⑰ Pioneer DVD player (stand-alone mode)
⑱ Velcro tape
⑲ Floor mat
⑳ Frequency switching rotary switch
• You can switch the FM band frequency received by your car radio. Set it to a frequency that is not used by an FM radio broadcast station in your area. If there is interference, use a standard tip screwdriver or other instrument to turn the switch clockwise or counterclockwise to select another frequency.
㉑ Modulator level rotary switch
• You can adjust volume level. At the time of purchase, the switch is set to 4. If you think the volume level is too low to listen to FM broadcasts on your car radio, use a standard tip screwdriver or other instrument to turn the switch clockwise. If you think the volume level is too high or there is distortion, turn the switch counterclockwise. The higher the setting number, the higher the volume level.
㉒ Pre-emphasis selector
• Normally, set the pre-emphasis selector to “2”. (The initial setting is “2”.)
• If you feel the treble is insufficient, switch the selector to “3” with the tip of a pen or other pointed instrument to boost the treble slightly.
• If you feel the treble is too strong and the sound becomes distorted, either return the selector to “2” or switch it to “1”.

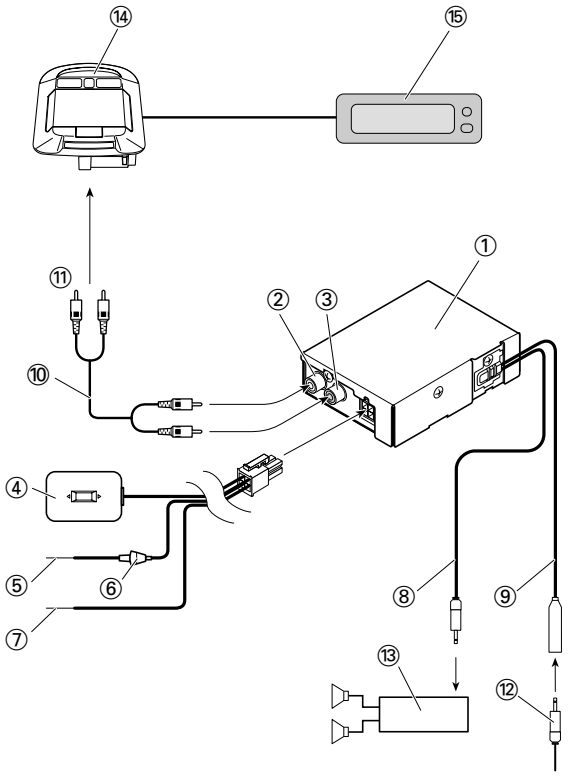


Fig. 1

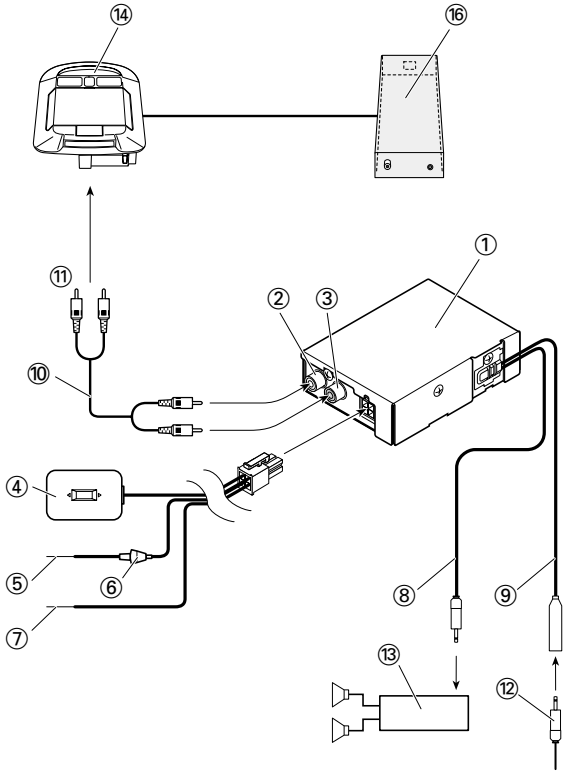


Fig. 2

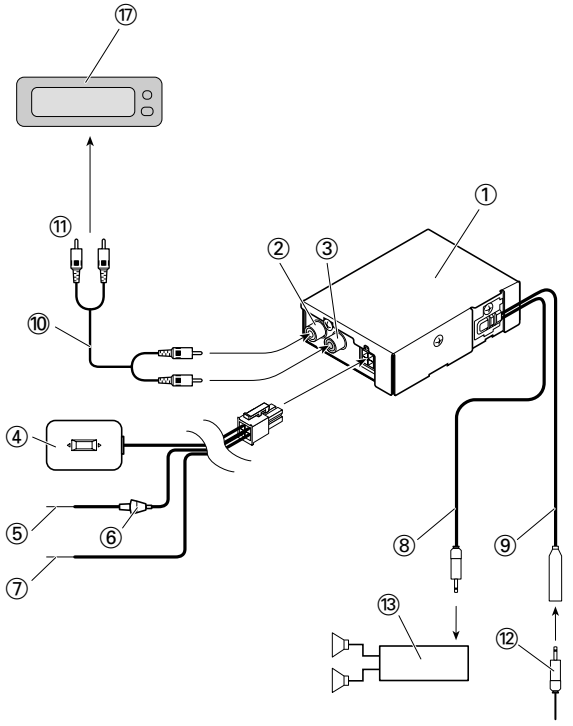


Fig. 3

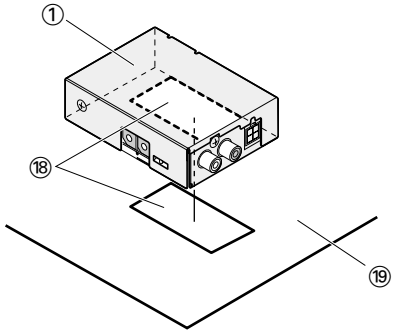


Fig. 4

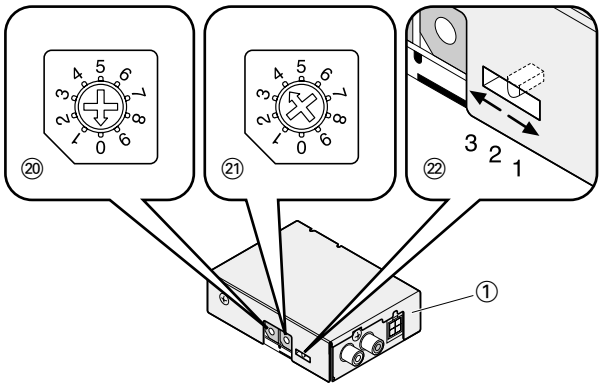


Fig. 5