SERVICE MANUAL
MODEL PMA-700V
SOLID STATE
INTEGRATED AMPLIFIER

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NIPPON COLUMBIA CO., LTD.
SPECIFICATIONS

POWER AMPLIFIER SECTION
Rated Output Power:
Both channel drives (TUNER → SP OUT)
100 Watts minimum rms per channel
(8 ohm Load) with less than 0.02% total harmonic distortion from 20 Hz to 20 kHz.
1 kHz (4 ohm Load) 150 W + 150 W
(DIN, T.H.D 1%)
1 kHz (6 ohm Load) 120 W + 120 W
(IEC, Subject to change by temperature test)

Total Harmonic Distortion:
0.004% (20 Hz - 20 kHz at -3 dB rated output 8 ohm Load)
0.0025% (1 kHz at rated output 8 ohm Load)

Input Sensitivity:
150 mV

Input Impedance:
30 k ohm

EQUALIZER AMPLIFIER SECTION

Equalizer Amplifier Output:
Rated Output: 150 mV

Input Sensitivity/Input Impedance:

PHONO MM 2.5 mV 47 k ohm
MC 200 μV 100 ohm
CD, VIDEO-1, VIDEO-2, TUNER/AUX, TAPE

RIAA Deviation:

PHONO MM within ±0.2 dB
(20 Hz - 20 kHz)
MC within ±0.3 dB
(20 Hz - 100 kHz)

Maximum Input Voltage:

PHONO MM 160 mV/1 kHz
MC 12 mV/1 kHz

OVERALL CHARACTERISTICS

SN Ratio (IHFA Network):
PHONO MM 94 dB (input terminals short-circuited for 5 mV input)
MC 75 dB (input terminals short-circuited for 500 μV input)
TUNER/AUX, CD, TAPE, VIDEO-1, VIDEO-2

Tone Control Adjustable Range:
BASS 100 Hz ± 10 dB
TREBLE 10 kHz ± 10 dB

Filtering Characteristics:
SUBSONIC 16 Hz, 12 dB/oct

Loudness Characteristics:
Low frequency 100 Hz ± 7 dB
High frequency 10 kHz ± 6 dB

AC OUTLET:
(For U.S.A., Canada and Asia)

SWITCHED x 2, 100 W (Total)
UNSWITCHED x 1, 1200 W

POWER SOURCE:
Germany and France AC 220 V,
50 Hz; U.K. and Australia AC 240 V,
50 Hz; U.S.A. and Canada AC 120 V,
60 Hz; Asia 110/120/220/240 V,
50/60 Hz (Multiple)

POWER CONSUMPTION:
3.8 A (U.S.A. & Canada); 220 W (IEC), 190W (Multiple)

DIMENSIONS:
434 mm (17.5/64")W x 157 mm (6-3/16")H x 397 mm (15-5/8")D
(including rubber feet, control knobs, and terminals.)

WEIGHT:
10.5 kg (23 lbs 2 oz)

Design and specifications are subject to change without prior notice.

NOTE: The following codes correspond to the appropriate models.
E3 for U.S.A., EA for Australia, EC for Canada
This Service Manual is prepared based on E2 or Black Version.

For United Kingdom model only.

WARNING:
as the colour of the wires in the mains lead of this appliance may not
 correspond with the coloured markings identifying the terminals in
 your plug proceed as follows:
The wire which is coloured blue must be connected to the
 terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the
 terminal which is marked with the letter L or coloured red.
The wire which is coloured BROWN must be connected to the
 terminal which is marked with the letter L or coloured RED.

For Australia model only.

FOR YOUR SAFETY
To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.

Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point consult a qualified electrician.

For U.S.A. and Canada models.

CAUTION
TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPACCLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.
NAMES AND FUNCTIONS OF PARTS

1. POWER and LED indicator
   (Power supply button and LED indicator)
2. INPUT SELECTOR (Input signal selection button)
   - CD, PHONO, TUNER/AUX., VIDEO-1, VIDEO-2
3. MODE (Mode button)
   - Stereo, Mono
4. LOUDNESS (Loudness button)
5. VOLUME (Adjustment of the volume)
6. SPEAKERS (Speaker selection switch)
   - system-A, system-B, A+B, off
7. PHONES (Headphone Jack)
8. MONITOR COPY (Tape monitor/Copy switch)
9. PHONO SELECTOR (Cartridge selection/Subsonic filter switch)
10. TONE (Tone switch)
11. BASS (Regulation of low notes)
12. TREBLE (Regulation of high notes)
13. BALANCE (Balance adjustment)
14. PROCESSOR LOOP (Processor loop switch)
15. FRONT VIDEO-2 (Extra front panel input terminal)

Video Input Function

The PMA-700V provides a video input function. The image selection circuitry gives preference to VIDEO-1 for all settings of the INPUT SELECTOR button, unless VIDEO-2 has been specified. This function might be used, for example, to watch a TV monitor while playing a compact disc. In this case it would connect the image input circuitry of the VIDEO-1 terminal to the image output of a video recorder, tape recorder, or video disc recorder. The resultant monitor out signal would be sent to the TV monitor, for “background video” audio-visual entertainment combining sound and images.

Note:
Please note the following differences in the markings on the front and back panels on the European models:

VIDEO-1 → AUX/VIDEO 1
VIDEO-2 → AUX/VIDEO 2
TUNER/AUX → TUNER

In addition, there is no AV mark on the front panel.
REMOVAL OF EACH SECTION
(When assembling, do reversely as to disassembling.)

1. Removal of Top Cover
   - Remove 8 screws and detach the top cover as per arrow in Fig. 2.

2. Removal of Back Panel
   - Remove 3 screws A and 7 screws B as per Fig. 3. Also remove screw C and detach back panel from the unit.

3. Removal of Front Panel Ass’y
   - Remove 4 screws D and remove 2 screws E. And draw out front panel ass’y.
CONNECTIONS

(For MC and MM) Record Player

TV (must have an image input terminal)

Ground lead

CD player

Tuner

VCR or Video Disc

VCR or Video Disc

Tape deck 1

Tape deck 2

Speaker system (A)

Speaker system (B)

■ Connection to the speaker system
Connect the speaker system for the left channel (the left side as viewed facing the front) to the L speaker terminals on the back panel, and the speaker system for the right channel (the right side as viewed facing the front) to the R speaker terminals. There are two sets of SPEAKER terminals. If only one speaker system is to be used, connect it to the SYSTEM terminals.

■ AC OUTLETS... For U.S.A., Canada and Asia
AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.

■ SWITCHED (Capacity: 100 W)
This outlet is turned on/off when main power switch is turned on/off.

■ UNSWITCHED (Total capacity: 250 W)
These outlets are always ON when the power switch is ON or OFF.

■ LINE VOLTAGE (Voltage select switch)... For Asia model only
The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screwdriver.

Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.

If the voltage select switch does not turn smoothly, see a qualified serviceman.

■ Notes on Connection
Do not plug the power supply cord into the wall socket, until all the connections are complete.

Verify which channel is the left and which is the right, and then plug L into L and R into R.

Plug the pin in securely. An incomplete connection will cause noise generation.

Do not use the AC OUTLETS terminals to provide power for a hair dryer or other electric appliance after the power supply cords of the audio components have been plugged in.

Binding the pin plug to the power supply cord, or setting the pin cord close to the power supply transformer will cause humming or noise, and should be avoided.

The PHONO input terminal is extremely sensitive. Avoid using the amp when the pin cord is not plugged into the terminal. If the pin cord is not used, a low humming may be emitted from the speaker when the amp is on.

Fig. 5
- Connecting a video device
   Connect the output terminals of the video device (OUTPUT) to the VIDEO terminals of the amp, using a pin plug cord.

< Video Disc Player >

CONNECTING A VIDEO DISC PLAYER
(Ex.) Connect the video disc player to the VIDEO-1 terminal.
Video disc player terminals → PMA-700V terminals
VIDEO OUT (image) → VIDEO-1, VIDEO INPUT
AUDIO OUT (sound) → VIDEO-1, AUDIO INPUT

< VCR >

CONNECTING VCR
VCR terminals → PMA-700V terminals
VIDEO OUT (image) → VIDEO-2, VIDEO INPUT
AUDIO OUT (sound) → VIDEO-2, AUDIO INPUT
(Ex.) Connect the VCR to the VIDEO-2 terminal

TV TERMINALS → PMA-700V TERMINALS
Video image output terminal → MONITOR OUT

< TV (must have image input terminal)>

VIDEO INPUT
The PMA-700V has a VIDEO selection function.
VIDEO-1 is automatically used for all playback functions, unless the input selection switch is set to VIDEO-2.
Connect the image output of a video device such as a VCR to VIDEO-1 for simultaneous playback with another medium, such as a compact disc.

Note:
The VIDEO-2 terminal is connected in parallel with a terminal on the front side of the panel.
Either this terminal or the one on the front panel can be used to make the connection. Improper operation will result if both are connected and used at the same time.

Fig. 6
IDLING CURRENT

• Setup
  1. Lay the unit at an ordinary position away from a direct current from a cooler or fan. Do the adjustment at a temperature between 19°C and 30°C.
  2. Set controls as follows:
     POWER SWITCH -> off (●)
     VOLUME CONTROL -> fully counterclockwise (○)
     SPEAKER Terminals -> open; do not connect the speakers, dummy load etc.

• Adjustment
  1. Remove Top cover. And then connect DC Voltmeter to Test points of ETC-9052-1 (INPUT & POWER Unit).
  2. Connect Power cord to AC outlet, and turn Power Switch "on" (●). Within 10 seconds turn VR5 (Lch) and VR6 (Roh) clockwise so that the DC voltmeter reads.
     0.4 ± 0.1 mVDC
  3. Then after 5 minutes warmup adjust VR5 and VR6 so that the DC Voltmeter reads.
     5 ± 0.5 mV
  4. And after 15 minutes warmup adjust VR5 and VR6 so that the DC Voltmeter reads.
     8 ± 3 mV
### FUNCTION OF EACH TERMINAL

<table>
<thead>
<tr>
<th>TERMINAL NO.</th>
<th>SYMBOL</th>
<th>FUNCTION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>INH</td>
<td>Inhibit input terminal. Normal operation at &quot;H&quot; level, inhibit operation at &quot;L&quot; level.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>OSC</td>
<td>C.R connecting terminal for oscillator. With this oscillation frequency, muting time and switching time of analog will be set.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>ALL-OFF</td>
<td>Specified OFF input terminal of all analog switches. Applying &quot;H&quot; level to turn off all analog switches.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>MUTE</td>
<td>Output terminal of muting signal. By receiving of &quot;H&quot; level at select input terminals (SEL-1 ~ SEL-5), this terminal becomes &quot;H&quot; level for settled time and within this time analog switch will shift.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>SEL-1</td>
<td>Select input terminals for respective analog switches.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>SEL-2</td>
<td>Turn SEL-1 ~ SEL-5 terminals to &quot;H&quot; level to turn on respective analog switches.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>SEL-3</td>
<td>SEL-1 ~ SEL-5 are all reciprocal reset.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>SEL-4</td>
<td>These terminals are in conjunction with driver output I/O terminals.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>SEL-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6/18</td>
<td>SIG-A₁</td>
<td>Signal input terminal 1. Select SEL-1 to turn on analog switch 1 and this terminal will conduct to COM terminal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIG-B₁</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7/17</td>
<td>SIG-A₂</td>
<td>Signal input terminal 2. Select SEL-2 to turn on analog switch 2 and this terminal will conduct to COM terminal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIG-B₂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8/16</td>
<td>SIG-A₃</td>
<td>Signal input terminal 3. Select SEL-3 to turn on analog switch 3 and this terminal will conduct to COM terminal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIG-B₃</td>
<td></td>
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<tr>
<td>9/15</td>
<td>SIG-A₄</td>
<td>Signal input terminal 4. Select SEL-4 to turn on analog switch 4 and this terminal will conduct to COM terminal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIG-B₄</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10/14</td>
<td>SIG-A₅</td>
<td>Signal input terminal 5. Select SEL-5 to turn on analog switch 5 and this terminal will conduct to COM terminal.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIG-B₅</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/13</td>
<td>COM-A</td>
<td>Common terminal for analog switches.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COM-B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>VDD</td>
<td>Power supply voltage applying terminal. For control system VDD-VSS1.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>VSS₁</td>
<td>For analog switch system VDD-VSS2.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>VSS₂</td>
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</tbody>
</table>

### TRANSISTORS (including FET)

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### EK for U.K. and EA for Australia ETC9053F
(Same as ETC9053B for (E2) except the followings.)

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Part Name &amp; Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>R001_002</td>
<td>2412100004</td>
<td>2.2k ohm ±5% 1/4W CARBON DELETED</td>
</tr>
<tr>
<td>R007_008</td>
<td>2412120002</td>
<td>33k ohm ±5% 1/4W CARBON ADD.</td>
</tr>
</tbody>
</table>

**CAPACITORS**

| C02_02 | 2544140009 | 10μF 3V ELECTROLYTIC ADD. |
| C111_11 | 2383000007 | 0.01μF 100-4.5kV (AC) CERAMIC DELETED |
| CS1_1 | 2531000003 | 470μF ±10% 50V CERAMIC DELETED |

**SWITCH & COILS**

| L001_002 | 2359003002 | FTZ CHOKE COIL (2) DELETED |

**OTHER PARTS**

| AFO1_1 | 2001001007 | FUSE 4A DELETED |
| AFO2_2 | 2003002008 | FUSE HOLDER (2) DELETED |

### EC for Canada ETC9053L
(Same as ETC9053B for (E2) except the followings.)

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Part Name &amp; Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>R001_002</td>
<td>2412100004</td>
<td>2.2k ohm ±5% 1/4W CARBON DELETED</td>
</tr>
</tbody>
</table>

**CAPACITORS**

| C001_002 | 2554121006 | 10μF ±5% 50V PLASTIC FILM ADD. |
| C33_33 | 2536310009 | 10µF ±5% 50V CERAMIC DELETED |
| C111_11 | 2538000007 | 0.01μF 100-4.5kV (AC) CERAMIC DELETED |
| CS9_9 | 2531000003 | 470μF ±10% 50V CERAMIC DELETED |

**SWITCH & COILS**

| A5501_1 | 2359002008 | POWER SWITCH CHOKE (1) FTZ DELETED |
| A5501_1 | 2359003002 | FTZ CHOKE COIL (1) DELETED |

**OTHER PARTS**

| AFO1_1 | 2001001007 | FUSE 4A DELETED |
| AFO2_2 | 2003002008 | FUSE HOLDER (2) DELETED |

### EU for U.S.A. ETC9053E
(Same as ETC9053B for (E3) except the followings.)

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Part Name &amp; Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>R001_002</td>
<td>2412100004</td>
<td>2.2k ohm ±5% 1/4W CARBON DELETED</td>
</tr>
</tbody>
</table>

**CAPACITORS**

| C001_002 | 2554121006 | 10μF ±5% 50V PLASTIC FILM ADD. |
| C33_33 | 2536310009 | 10µF ±5% 50V CERAMIC DELETED |

**SWITCH & COILS**

| A3501_1 | 2359002008 | POWER SWITCH CHOKE (1) FTZ DELETED |
| A5501_1 | 2359003002 | FTZ CHOKE COIL (1) DELETED |

**OTHER PARTS**

<p>| AFO1_1 | 2001001007 | FUSE 4A DELETED |
| AFO2_2 | 2003002008 | FUSE HOLDER (2) DELETED |</p>
<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Part Name &amp; Descriptions</th>
<th>Q'ty</th>
</tr>
</thead>
<tbody>
<tr>
<td>C419,</td>
<td>2534273000</td>
<td>15pF ±5% 500V CERAMIC</td>
<td></td>
</tr>
<tr>
<td>420</td>
<td>2534271002</td>
<td>12pF ±0.5pF 500V CERAMIC</td>
<td></td>
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<tr>
<td>C421,</td>
<td>2534416604</td>
<td>1µF 50V ELECTROLYTIC</td>
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<tr>
<td>422</td>
<td>2544416604</td>
<td>1µF 50V ELECTROLYTIC</td>
<td></td>
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<tr>
<td>C425,</td>
<td>2544060038</td>
<td>0.47µF 100V ELECTROLYTIC</td>
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<tr>
<td>426</td>
<td>2544180101</td>
<td>1µF ±20% 100V ELECTROLYTIC</td>
<td></td>
</tr>
<tr>
<td>C427,</td>
<td>2544161021</td>
<td>100µF ±20% 6.3V ELECTROLYTIC</td>
<td></td>
</tr>
<tr>
<td>430</td>
<td>2551121041</td>
<td>0.015µF ±5% 50V PLASTIC FILM</td>
<td></td>
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<tr>
<td>C451,</td>
<td>2551140064</td>
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**SWITCHES & RELAY**

- SW007: 2124254002 SLIDE SW (REMOTE) T. MONI
- SW008: 2129520003 1P PUSH SW PROCESSOR LOOP
- SW10: 2129523000 2P PUSH SW MODE & LOUD
- 011: 2129520003 1P PUSH SW TONE
- SW12: 214007000 RELAY SP 48V

**OTHER PARTS**

- 2229053302 P.W. BOARD: 1
- 2090000146 JUMPER WIRE P=5mm: 15
- 2090000120 JUMPER WIRE P=10mm: 219
- 2090000104 JUMPER WIRE P=15mm: 4
- J01: 2090008159 TERMINAL PIN L=21mm: 12
- 4170043100 TERMINAL PIN L=21mm: 2
- 4730354019 TAPPING SCREW (2) 3x8: 2
- 235901004 INDUCTOR (1µH): 2
- 4140240001 EARTH PLATE (GND): 1
EXPLODED VIEW OF PARTS LIST for E2 BLACK VERSION

Note 1. See addendum list right for the parts with asterisk (*) on the Ref. No. and the other parts not included in the list.
2. + marked not included EXPLODED VIEW OF CHASSIS AND CABINET.
3. This list is prepared based on E2 BLACK VERSION.
WARNING:
1. Component parts
Parts marked with ☐ and/or shading in this:
the specified parts for replacement.
2. Leakage current
Before returning the appliance to customer, tes
an error of not more than 5% leakage current
ground. Reverse the power plug polarity and t:
Any current measured MUST NOT EXCEED 0.

CAUTION:
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WARNING: TO PREVEI
DON'T EX

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ADDENDUM LIST

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GOLD VERSION PARTS LIST
(Same as BLACK VERSION except the followings.)

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NIPPON COLUMBIA CO., LTD.  TEL: 03-51
NO. 14-14, 4 CHOME AKASAKA,  TLX JAP.
MINATO-KU, TOKYO 107 JAPAN  CAB: N
WARNING:

1. Component parts
   Parts marked with △ and/or shading in this service manual have special characteristics important to safety. Be sure to use the specified parts for replacement.

2. Leakage current
   Before returning the appliance to customer, test the leakage current when the power plug is connected. Use a calibrated (with an error of not more than 5%) leakage current tester and measure the leakage current from any exposed metal to the earth ground. Reverse the power plug polarity and test the above again.
   Any current measured MUST NOT EXCEED 0.5 milliams. Corrective measure must be taken if it exceeds the limit.

---

**ADDENDUM LIST**

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<th>No.</th>
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NIPPON COLUMBIA CO., LTD.

TEL: 03-394-2111

14-14 4-chome Akasaka

CABLE: NIPPONCOLUMBIA

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