

Nakamichi PA-300II

Mobile Power Amplifier

Owner's Manual

Congratulations!

You have chosen one of the most advanced components for true mobile high fidelity. The PA-300II is an amplifier which can deliver a full 75 W + 75 W of output power, while keeping distortion to the negligible level of 0.003%! The power supply section employs a DC-DC converter to step up the voltage supplied by the car to ± 29 V. Extremely stable operation is achieved by the digital switching power supply and high-performance ICs. Thanks to these features, the amplifier provides superbly clean and distortion-free sound even when driven to full power.

In order to take full advantage of this unit's superior performance, please read this manual in its entirety and retain it for future reference.

Thank you.

Nakamichi Corporation.

WARNING

TO PREVENT FIRE OR SHOCK
HAZARD, DO NOT EXPOSE
THIS APPLIANCE TO RAIN OR
MOISTURE.

Please record the Model Number and Serial Number in the space provided below and retain these numbers.

Model Number and Serial Number are located on the rear panel of the unit.

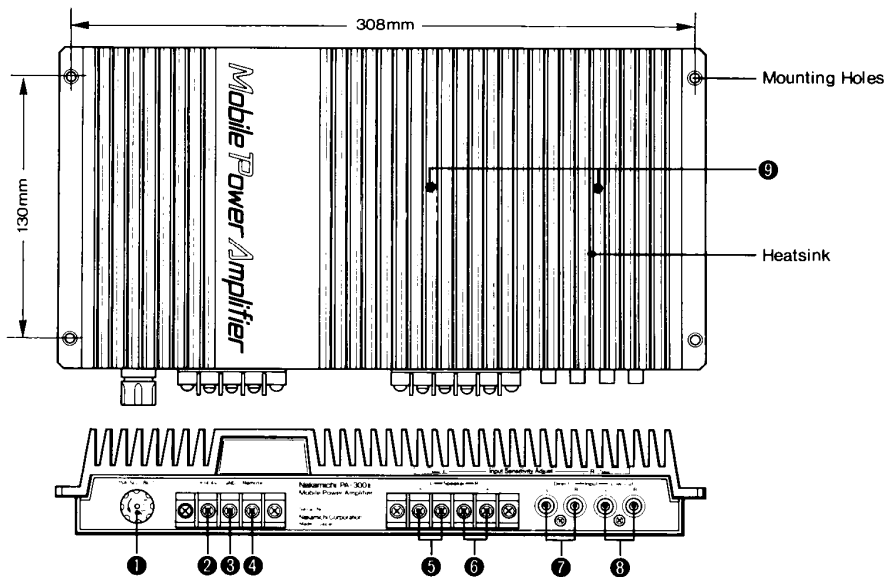
Model Number: PA-300II

Serial Number: _____

Precautions

1. This unit is designed for use in cars with negative ground systems only.
2. As this unit can deliver substantial amounts of power, it is essential that all connections be established properly to prevent damage. Please refer to the paragraph "Connections".
3. This unit can become quite warm during operation. It should therefore only be installed in a location that provides adequate ventilation. It should also be protected from direct sunlight, splashes of water and excessive humidity. Especially when the impedance of the connected speakers is less than 4 ohms or when the amplifier was driven to high levels for an extended period, the heatsink will become hot and should not be touched accidentally.
4. Do not use this unit while the car's engine is turned off to prevent excessive drain of the car battery.
5. If the fuse is blown, check all connections and then replace it with a new fuse of the identical type. If the fuse blows again, contact your dealer for servicing.
6. When a closed car is parked in the sun, the temperature inside the car will reach very high levels. In such a case, use the unit only after the temperature has returned to normal.
7. For reasons of traffic safety, you should keep the listening volume while driving to a level which will not mask outside noises.

Controls and Features



(1) Fuse Holder

Contains a 15 Ampere "SLOW-BLOW" type fuse. If blown, replace only with a fuse of *identical type and rating*. (Using a different fuse may result in severe overheating and loss of output power.)

(2) + 14.4 V Terminal

This terminal should be connected to the car battery's positive (+) terminal. For danger prevention in case of a short-circuit, install a 30 A fuse in this line close to the battery.

(3) Ground Terminal

This terminal should be connected directly to the car's chassis.

(4) Remote Control Terminal

When this terminal is connected to the remote power amplifier on/off control output of the

jointly used tuner/cassette deck, the amplifier will be switched on together with the tuner/cassette deck.

(5) Left Speaker Output Terminals (+) (-)

(6) Right Speaker Output Terminals (+) (-)

(7) "Direct" Line Input Terminals Left/Right
(8) "Low Cut" Line Input Terminals Left/Right
 Connect the line output from the tuner/cassette deck to either set of these terminals. In ordinary operation, use the "Direct" input. (→p. 3)

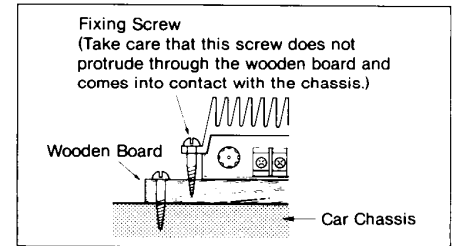
(9) Input Sensitivity Controls Left/Right

These screwdriver controls serve to adjust the amplifier's input sensitivity to match the output level of the tuner/cassette deck unit. (→p. 4)

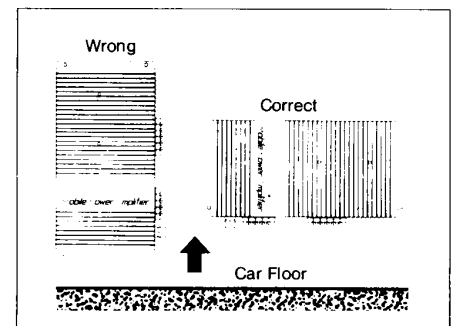
Installation

Plan the installation carefully and take the following points into account when choosing a location.

- (1) If the unit has direct contact to a metal section of the car chassis or is grounded via a fixing screw etc., **noise pickup may result**. The unit should therefore be mounted on a wooden board or the like so that it is **completely isolated from the car chassis**.

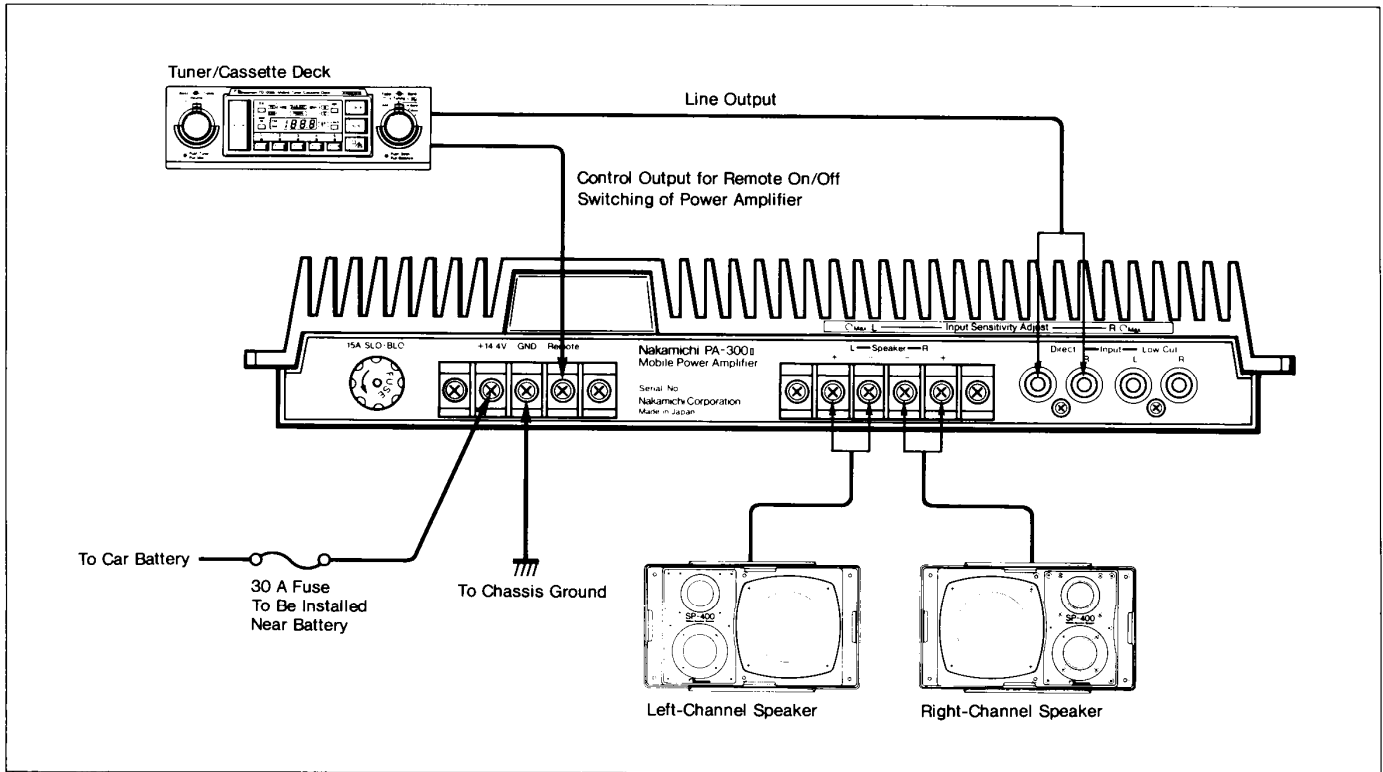


- (2) When placed in close proximity to an AM tuner or AM antenna, the DC-DC converter of this amplifier can cause interference during AM reception.
- (3) Install the unit in a location which will permit short leads to the car battery and the rest of the system, to avoid power loss and extraneous noise pickup.
- (4) Install the unit with the heatsink pointing upwards (right-side up). Do not cover the heatsink with floor mats, carpeting, etc.
- (5) If the unit has to be mounted upright, the heatsink fins must be oriented vertically. (See chart below)



Take the above five points into consideration and determine the location most suited to your requirements. Then install the unit securely, using the four mounting holes. Pay special attention if the amplifier is to be mounted below the driver's seat. If the unit is improperly fixed, it can become a dangerous projectile in the event of a sudden stop, jamming itself under the brake, etc. Use the illustration of "Controls and Features" as a guide to the position of the mounting holes.

Connections



- The explanation of how to establish connections is based on the assumption that the jointly used tuner/cassette deck has a control output for remote switching of the power amplifier.
- Be sure to remove the negative (-) terminal from your car battery before making any connections, as an accidental short-circuit could have catastrophic results.
- Take special care when routing the power supply cable between the +14.4 V terminal and the car battery. Make sure that it cannot get caught in the car seat sliding rails or rub against sharp edges, etc., as a short-circuit could have very dangerous consequences.

1. Line Output Connections

Connect the line output (RCA-type phono plugs) from the tuner/cassette deck to this unit. When a Nakamichi Mobile Tuner/Cassette Deck is used, connect its output to the "Direct" line input jacks. When using a different brand tuner/cassette deck, its output should also be connected to the "Direct" line input jacks in ordinary operation. However, with some tuner/cassette deck units, a certain amount of DC current can leak into the output, which will cause the protection circuit of the PA-300II to operate frequently. (When the protection is activated, the amplifier's output is muted for several seconds.) When this occurs, check whether connections are established correctly and whether the amplifier is not overheating. If

these checks reveal proper conditions, turn the tuner/cassette deck off, remove the negative (-) terminal from the car battery, and then connect the tuner/cassette deck output to the "Low Cut" line input jacks of the PA-300II. (These terminals insert an AC coupling capacitor into the signal path, to block DC leak current.)

- As this unit cannot be used as a booster amplifier (an add-on amplifier which accepts speaker-level inputs), do *not* connect any appliances which have only speaker outputs.

2. Speaker Connections

Connect the left and right loudspeakers to the left-channel and right-channel speaker output terminals of the PA-300II, taking care to observe correct (+) and (-) polarity for both speakers.

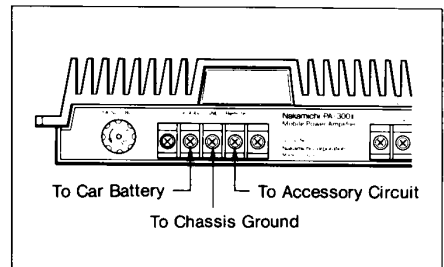
3. Power Connections

Since this unit can draw very high levels of current (max. 30 A) during operation, use only A.W.G. - 10 (profile surface 5.3 mm²) or heavier wire for the power connection to the car battery's positive (+) terminal. The total resistance should be below 20 mΩ (up to 6 m when using A.W.G. - 10 wire). In order to prevent short-circuiting and overheating, use crimp-on terminals or solder lugs for these connections. The amplifier's +14.4 V terminal should be connected directly to the car battery's positive (+) terminal, with a 30 A

fuse installed in the line close to the battery. Do not install any switches etc. in this line. The amplifier's Ground terminal (GND) should be connected directly to a metal ground point on the car's chassis, using heavy-gauge wire. To turn the amplifier on and off, the control output of the tuner/cassette deck unit intended for remote power amplifier switching must be connected to the amplifier's Remote Switching terminal.

[Use of a Tuner/Cassette Deck Without Remote Power Amplifier On/Off Control Output]

If a tuner/cassette deck without a remote on/off control output facility is used, the amplifier cannot be switched on and off in conjunction with the tuner/cassette deck. In such a case, connect a circuit which is switched on and off by the car's ignition key (accessory circuit) to the remote control terminal on the PA-300II. The maximum current consumption of this terminal is less than 2 mA.

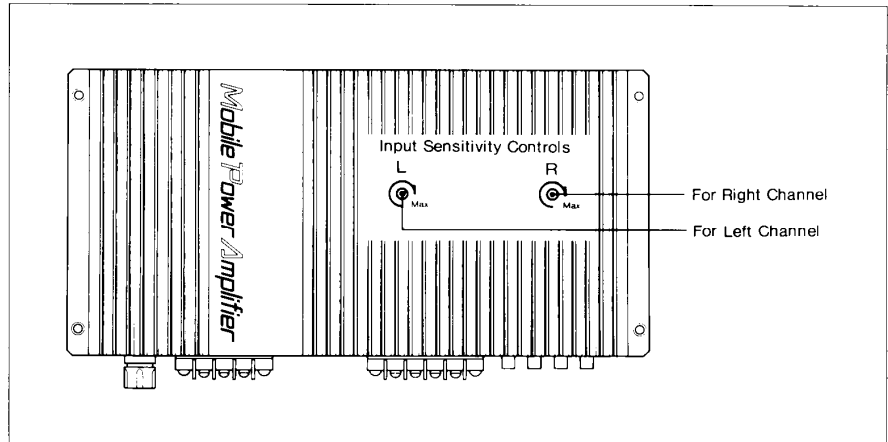


Input Sensitivity Adjustment

The two screwdriver controls on this unit permit adjustment of input sensitivity for left and right channels to match the amplifier to differing output levels of various tuner/cassette deck models. The sensitivity adjustment range is 0.2—0.8 V. **Be sure to use only the supplied screwdriver** and perform the adjustment as follows.

- (1) The sensitivity controls are adjusted before shipping to the minimum position (0.8V — controls turned fully counterclockwise). Establish connections in this position and then switch on the amplifier and the tuner/cassette deck unit.
- (2) Set the volume control of the tuner/cassette deck to an appropriate position and play some music.
- (3) If the listening volume level at this time is sufficient, adjustment of the sensitivity controls is not required. If the volume is too low, slowly turn the respective control clockwise to obtain the optimum aural impression of volume and balance. When the control is turned fully clockwise, the input sensitivity is 0.2 V.

- After this adjustment was performed, do not disturb the position of the controls unnecessarily. Be careful not to exert excessive pressure on the control while making the adjustment.
- Do not use an ordinary screwdriver for this adjustment, as this could lead to short-circuiting and damage to the unit.



Before Requesting Service

In case of overheating or a short-circuit in the speaker wiring, the protection circuit of this unit will shut the amplifier off. Check whether all connections are established properly as described in this manual and whether the fuse is not blown, etc. Sometimes an apparent 'malfunction' may be remedied by a simple check. If the trouble persists, contact an authorized service station.

Specifications

Continuous Power Output	75 W + 75 W RMS (both channels driven, 4 ohms, 1 kHz, 0.003% THD)
Power Bandwidth	5—50,000 Hz (both channels driven, 4 ohms, 0.1% THD)
Total Harmonic Distortion	0.003% (4 ohms, 1 kHz, 75 W)
Frequency Response	5—50,000 Hz ± 1 dB (with "Direct" input, input sensitivity controls at minimum) 50—50,000 Hz ± 1 dB (with "Low Cut" input, input sensitivity controls at minimum)
S/N Ratio	Better than 115 dB (IHF A-WTD, at rated power, input sensitivity controls at minimum)
Damping Factor	Greater than 1,000 (4 ohms, 1 kHz)
Input Sensitivity/Impedance	0.2 — 0.8 V variable/50 kohms
Stereo Separation	85 dB (4 ohms, 1 kHz)
Power Source	14.4 V DC negative ground (10.8—15.6 V allowable)
Power Consumption (Max.)	27 A (both channels driven, 4 ohms, 75 W × 2) (Music)..... Approx. 10 A (4 ohms)
Load Impedance	Above 4 ohms
Dimensions	320 (W) × 52 (H) × 160 (D) mm 12-5/8 (W) × 2-1/16 (H) × 6-5/16 (D) inches
Approximate Weight	3 kg 6 lb 10 oz

• Specifications and design are subject to change for further improvement without notice.

Nakamichi Corporation

Tokyo Office
Shinjuku Daiichi Seimei Bldg.
2-7-1 Nishishinjuku, Shinjuku-ku, Tokyo
Phone (03) 342-4461
Telex : 2324721 (NAKAM J)

Nakamichi U.S.A. Corporation

19701 South Vermont Avenue
Torrance, California 90502
Phone : (213) 538-8150

Nakamichi GmbH

Stephanienstrasse 6, 4000 Düsseldorf 1
Phone : (0211) 359036