

Nakamichi TD-560

Mobile Tuner/Cassette Deck

Owner's Manual/Mode d'emploi

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Congratulations!

You have chosen an exceptional product for true mobile high fidelity. The TD-560 is a tuner/cassette deck which fully reflects Nakamichi's advanced technological expertise. It is designed to offer optimum sound quality as well as a full array of useful features. The cassette deck section employs a high-performance magnetic head and sophisticated full-logic tape motion control. The tuner section provides presets for 12 FM and 6 AM stations. The TD-560 also permits connection and operation of the Nakamichi CDC-101 Mobile Compact Disc Changer, which lets you expand the system to enjoy high-grade CD reproduction in the car. 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

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems"

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Nakamichi Corporation Certifies That This Equipment Conforms to DHHS Regulations No. 21 CFR, Chapter 1, Subchapter J.

This digital apparatus does not exceed the CLASS B Limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

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: TD-560

Serial Number: _____

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Installation

Be sure to remove the negative (–) terminal from your car battery before making any system connections, as an accidental short-

circuit could have very dangerous consequences.

Before Installation — Release of Transport Mechanism Lock Screw

For protection of the tape transport mechanism during shipping, the mechanism is secured by a lock screw located on the unit's top cover. Before installing the unit, be sure to remove this screw.

Store the screw in a safe place and fasten it again in its original location when the unit is removed from the car for renewed transport. After all connections have been established and the power supply is switched on for the first time, press the reset switch with a pointed object.

Ground Selector

The Ground selector on the left side of the unit lets you select the ground point of the signal line, which may be helpful to reduce noise in certain installations. Before shipping, the selector is set to the "GROUNDED" position.

If nothing is connected to the CD/Aux input, leave the selector in the "GROUNDED" position.

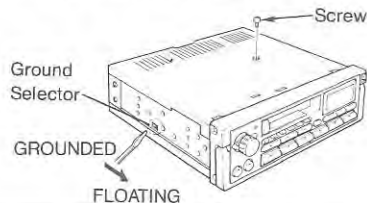
If a Nakamichi CD player or CD changer is connected to the CD/Aux input, set the selector to the "FLOATING" position. In this position, the signal ground circuits of the connected

equipment and the TD-560 are isolated from each other (balanced configuration).

If another piece of equipment is connected to the CD/Aux input, set the selector to the position which results in minimum noise.

Before starting the installation, check whether the supplied auxiliary part are complete.

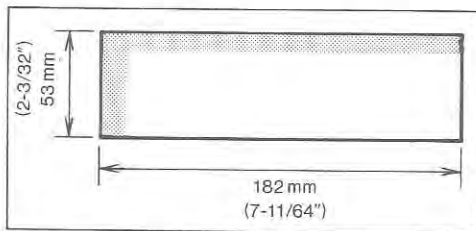
	Qty
Mounting Sleeve	1
Spacer (thick, thin, 1 each)	2
Metal Stay	1
Sheet Metal Screw	1
Spring Washer	2
Washer	2
Nut	1
Spare Fuses (2-A fuse: 1, 1-A fuse: 1)	2
Remote Control Unit	1
IEC R03 (size AAA) Battery (for remote control)	2
Velcro Tape (for remote control)	2



Dashboard Installation

Installation of this unit is a two-step process: First a mounting sleeve is permanently installed in the dashboard. The main unit then slides into this sleeve, and a connector pad establishes connections. This makes it easy to remove the TD-560 for safekeeping.

The dimensions of this unit correspond to the DIN standard. If the dashboard of the car provides a DIN-sized mounting slot, installation can be carried out very easily, using the supplied mounting sleeve. If the mounting slot of the car is smaller than DIN size, it must be enlarged to the dimensions shown below.



- (1) Raise the handle so that it is at a right angle to the front panel. This releases the lock between the mounting sleeve and the main unit. Pull out the main unit from the sleeve. (Fig. A)
- (2) Insert the mounting sleeve into the mounting slot on the dashboard. A rubber bushing is fastened to the rear of the sleeve. If the mounting location provides a suitable support, insert the bushing into the support cutout. (Fig. B)

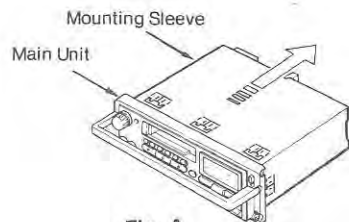


Fig. A

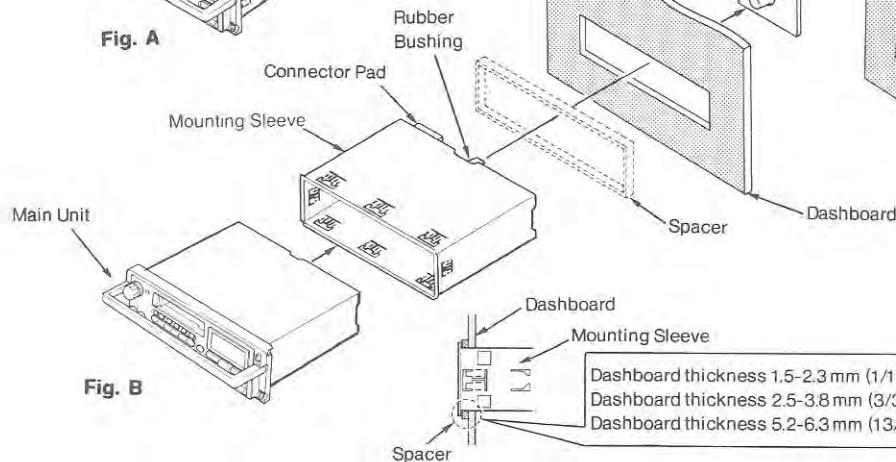


Fig. B

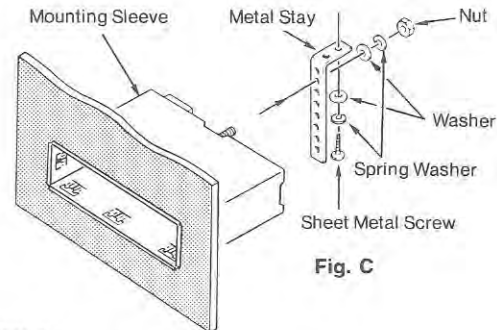


Fig. C

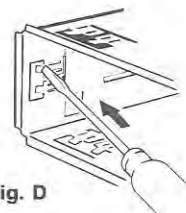


Fig. D

Dashboard thickness 1.5-2.3 mm (1/16-3/32"): Use thick spacer.
 Dashboard thickness 2.5-3.8 mm (3/32-5/32"): Use thin spacer.
 Dashboard thickness 5.2-6.3 mm (13/64-1/4"): No spacer required.

- (3) If there is no bushing support, remove the rubber bushing, attach the supplied metal stay to the sleeve and fasten the stay to the car chassis, using a sheet metal screw. (Fig. C)
- (4) Bend the flanges of the mounting sleeve with a screwdriver to securely fasten the sleeve. (Fig. D)

- (5) Insert the main unit into the sleeve and push it in until the connector pad on the rear makes firm contact. Then return the handle to the original position to lock the unit to the sleeve.

Removing the Main Unit

When wishing to remove the unit from the car for safekeeping, proceed as follows.

- Always eject a tape before removing the main unit, and either pull the ignition key or set it to "Off."
- (1) Press the Pop-Up button on the upper right of the front panel frame. The handle is released and pops up slightly.
 - (2) Raise the handle fully so that it is at a right angle to the front panel. This releases the lock between the sleeve and main unit. Then pull out the main unit.
 - (3) To reinstall the unit, slide it fully into the sleeve with the handle in the upright position. Then return the handle to the original position to lock the unit.

Installation of Wireless Remote Control

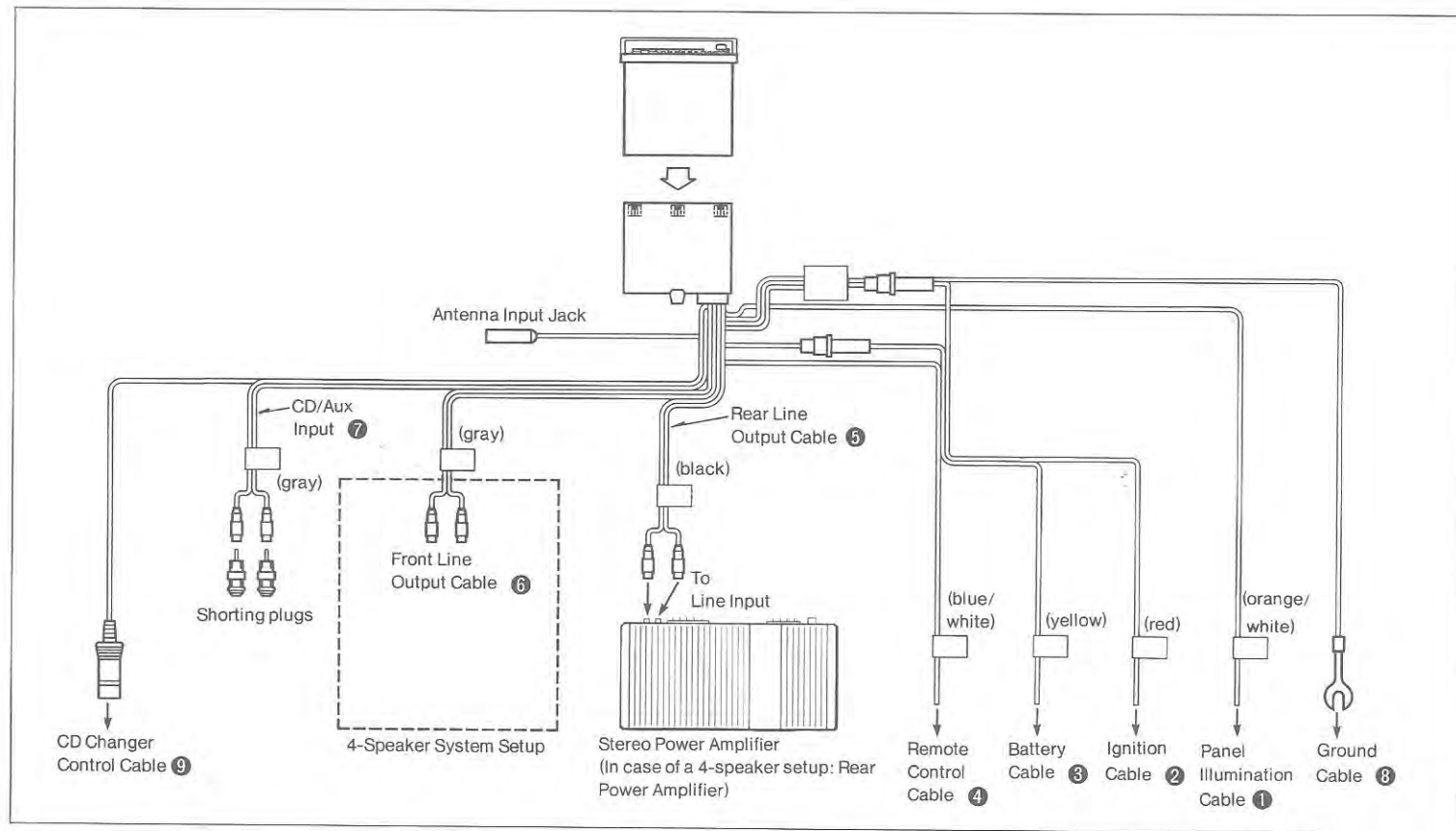
The TD-560 comes with a wireless remote control unit which lets you operate the basic functions from a convenient point in the car. Install the unit as follows.

- (1) Choose a location which does not pose a hazard to driving safety. Make sure that the mounting surface is clean.
- (2) Stick the supplied Velcro tape to the remote control unit and to the mounting surface.
- (3) Attach the remote control unit.

Precautions

1. This unit is designed for use in cars with 12 V negative ground systems only.
2. Do not use C-120 cassettes (playing time one hour per side) with this unit. These cassettes contain very thin tape which breaks or snarls easily. **The use of cassettes with heavy die-cast shells (such as TDK MA-XG etc.) should also be avoided, as it may sometimes not be possible to eject them properly.**
3. Inserting a cassette with large tape slack may result in damage to the unit or the tape. Take up any slack in the tape before inserting a cassette.
4. If a cassette label or sticker peels off when a cassette is inserted, the cassette may not be positioned properly and the tape head may be damaged. Make sure that all stickers etc. are firmly glued on before using a cassette.
5. Do not store cassettes in locations subject to high temperature or humidity. Always put the cassettes back into their cases, to prevent dust accumulation, tape slackening, etc.
6. Always eject the cassette before removing the unit from the car.
7. When a closed car is parked in the sun, the temperature inside the car will reach very high levels. If a car is parked outdoors in winter, it may cool down considerably. In such cases, use the unit only after the interior temperature of the car has returned to normal.
8. If the fuse has blown, check all connections, then replace it with a new fuse of the identical type. If the fuse blows again, contact your dealer for servicing.
9. For reasons of traffic safety, you should keep the listening volume while driving to a level which will not mask outside noises.

Connections



① Panel Illumination Cable (orange/white)
[Illumination Control (+)]

This cable supplies power to the unit's front panel lights. In normal use, the cable should be connected to the ignition circuit (switched on and off by the car's ignition key). If the car has provisions for meter brightness control, the cable may be connected to the control circuit, to adjust brightness in conjunction with meter lights.

② Ignition Cable (red)
[ACC (+) IGNITION (+)] (Fuse 1 A)

To be connected to the ignition circuit on the car's fuse block (which is switched on and off by the car's ignition key).

③ Battery Cable (yellow)
[BATTERY (+)] (Fuse 2 A)

To be wired to a circuit on the car's fuse block which is constantly connected to the car battery's positive (+) terminal.

Connect the ignition cable only after having completed the battery cable connection.

④ Remote Control Cable (blue/white)
[Remote (+) (MAX 500 mA)]

This cable supplies a control signal to switch other components on and off in conjunction with the TD-560. Use this cable to operate the power amplifier, a power antenna, etc.

- Connect only power antennas with a control voltage of 12 V and maximum rated consumption of 500 mA to this cable.
- If antenna movement is opposite to the unit's on/off condition, the operation must be reversed with a relay.

⑤ Rear Line Output Cable (black)
[REAR White: Left, Red: Right]

⑥ Front Line Output Cable (gray)
[FRONT White: Left, Red: Right]

Connect these line outputs to the line input jacks of the power amplifier. In a four-speaker setup, connect the FRONT output cable to the power amplifier for the front speakers and the REAR output cable to the power amplifier for the rear speakers.

⑦ CD/Aux Input (gray)
[CD/Aux Input]

This input accepts line-level output signals, for example from a portable CD player. When no equipment is connected, always leave the supplied shorting plugs inserted.

⑧ Ground Cable (black)
[GND(-)]

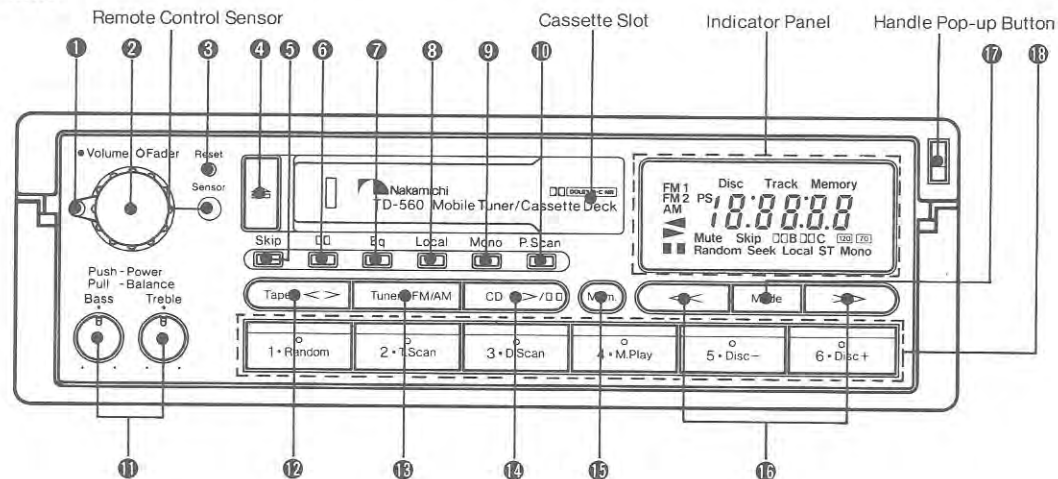
Connect this cable to a metal point on the car's chassis and securely fix it with a screw. The ground connection should be as short as possible, as a long ground cable can lead to noise pickup.

⑨ CD Changer Control Cable (black)
[CD Changer Control]

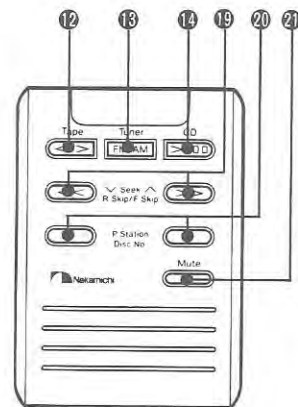
When the Nakamichi Mobile CD Changer is used, connect this cable to the control cable of the changer. The operation of the changer can then be controlled from the TD-560.

Controls and Functions

Main Unit



Remote Control Unit



1 Fader

This control serves to adjust the front/rear speaker balance. Turning the knob clockwise attenuates the front line output. Turning the knob counterclockwise attenuates the rear line output.

2 Power Switch, Volume Control/Balance Control

- Push this knob to switch the unit on and off (standby condition). To set the unit to the standby condition, press the knob slightly longer (about 0.5 seconds).
- Turning this knob clockwise raises the listening level.
- By pulling the knob out until it locks and turning it, the left/right balance can be adjusted.

3 Reset Switch

When using the unit for the first time after installing it, or after the car battery was changed or disconnected, press this switch with a pointed object. The Reset switch may also be pressed if the operation buttons seem not to function normally. Note that in such a case all stored memory information will be lost and station programming has to be carried out again.

4 Eject Button (▲)

Push this button to eject a cassette.

5 Skip Button (Skip)

This button serves to skip blank (unrecorded) sections of a tape during playback (→ p. 12).

6 Dolby NR Button (□□)

Serves for playback of tapes recorded with Dolby noise reduction. Each push of the button cycles the unit through the following conditions: Dolby B-Type NR → Dolby C-Type NR → Off → Dolby B-Type NR ...

When Dolby B-Type NR was selected, the indication "□□B" appears on the indicator panel. When Dolby C-Type NR was selected, the indication "□□C" appears.

7 Equalizer Button (Eq)

Serves to select the correct playback equalization for the tape in use. With each push of the button, the setting changes between 70 μ s and 120 μ s. To play normal-position (Type I) tapes, select the "120 μ s" setting. To play chrome-position (Type II) or metal (Type IV) tapes, select the "70 μ s" setting. The selected position (120, 70) is shown on the indicator panel.

8 Local Button (Local)

During broadcast reception, tuner sensitivity can be reduced with this button. When activated, the "Local" indicator appears on the indicator panel (→ p. 13).

9 Mono Button (Mono)

When receiving FM broadcasts, reception can be switched to mono with this button. The "Mono" indicator appears on the indicator panel (→ p. 13).

10 Preset Scan Button (P. Scan)

Press this button to play all stored broadcast stations in the selected frequency band for 5 seconds (→ p. 13).

11 Tone Control Knobs (Bass, Treble)

Serve to adjust the tonal balance. By turning a knob clockwise, the respective band is emphasized, and by turning a knob counterclockwise, it is attenuated. To make an adjustment, give the knob a slight push to release it. After adjustment is completed, push the knob back in again.

12 Tape Button (Tape <>)

Pressing this button sets the unit to cassette deck operation. During tape playback, the button functions as Reverse button.

13 Tuner Button (Tuner FM/AM)

Pressing this button sets the unit to tuner operation. During broadcast reception, the button functions as band selector (FM1 → FM2 → AM → FM1 ...).

14 CD Button (CD >/□□)

Pressing this button activates the CD/Aux input of the unit.

15 Memory Button (Mem.)

During tuner operation, this button functions as auto memory preset button (→ p. 13).

16 Fast-Forward/Rewind Button (<<, >>)

During tape playback, these buttons serve as

Fast-Forward/Rewind buttons. By pressing a button once more while the tape is being fast-wound, Program Seek can be carried out ("PS" appears on the indicator panel).

During tuner operation, these buttons are used for the auto tuning function or for manual tuning. Pressing the << button changes to lower frequencies and pressing the >> button to higher frequencies. (During tuner operation, the Mode button is used to select the tuning mode.)

17 Mode Button (Mode)

During tape playback, this button serves as Reset button for the elapsed playback time indication and also to turn the elapsed playback time indication on and off. (To turn the indication off, keep the button depressed for about 2 seconds.)

During tuner operation, the button serves to select the tuning mode. When automatic tuning is selected, "Seek" appears on the indicator panel. When manual tuning is elected, the "Seek" indication is out.

18 Preset Station Buttons

These buttons are used to store broadcast stations in the memory for instant recall. Six stations each can be stored in the FM1, FM2, and AM bands, resulting in a total capacity for 18 stations (→ p. 13).

[On supplied remote control only]

19 Fast-Forward/Rewind Buttons (<<, >>)

During tape playback, these buttons serve as Fast-Forward/Rewind buttons. By pressing a

button once more while the tape is being fast-wound, Program Seek can be carried out.

During tuner operation, these buttons are always used for auto tuning, regardless of the setting chosen with the Mode button on the main unit.

20 Up/Down Buttons (+, -)

During tuner operation, these buttons serve to switch the preset stations up or down.

21 Mute Button (Mute)

Pressing this button lets you lower the volume level without having to adjust the Volume control on the main unit ("Mute" appears on the indicator panel.). Pressing the button once more restores the original listening level.

■ CD Changer Control Functions

When the Nakamichi Mobile CD Changer is used, the buttons 14 - 20 have the following additional functions.

14 CD Button (CD >/□□)

Activates CD Changer playback. During CD playback, this button acts as a Pause button which toggles between the playback and pause modes.

15 Memory Button (Mem.)

Serves to program the disc memory (→ p. 14).

16 Fast-Forward/Rewind Buttons (<<, >>)

Serve as skip or cueing buttons. Pressing the << button moves the pickup in the reverse direction and pressing the >> button in the for-

ward direction. (The Mode button is used to select the function.)

17 Mode button (Mode)

Selects the function of the Fast-Forward/Rewind buttons (skip or cueing), and simultaneously switches the display mode of the indicator panel (→ p.11).

18 Preset Station Buttons

1: Random Play Button (Random)

Activates playback of tracks on the discs in random order (→ p. 15).

2: Track Scan Button (T. Scan)

Plays the first 10 seconds of every track on all inserted CDs (→ p. 15).

3: Disc Scan Button (D. Scan)

Plays the first 10 seconds of the first track on every inserted CD (→ p. 15).

4: Memory Play Button (M. Play)

Starts the memory play function (→ p.14)

5, 6: Disc Selection Buttons (Disc -, Disc +)

These buttons serve to switch to another disc. The "Disc -" button switches to lower disc numbers and the "Disc +" button to higher disc numbers.

[On supplied remote control only]

19 Fast-Forward/Rewind Buttons (<<, >>) (on remote control)

Serve as skip buttons regardless of the setting selected with the Mode button on the main unit.

20 Up/Down Buttons (+, -)

Serve to switch to lower or higher disc numbers.

■ Use of the Mode Button

When the unit is used to control the operation of a connected Nakamichi Mobile CD Changer, the Mode button toggles the function of the Fast-

Forward/Rewind buttons and the display contents of the indicator panel as follows.

	Indicator function	Function of Fast-Forward/Rewind buttons	
		<<	>>
CD button set to "On"	● Disc number ● Track number	Reverse skip	Forward skip
↓ Mode button pressed	● Disc number ● Elapsed playing time of track	Reverse cueing	Forward cueing
↓ Mode button pressed	● Disc number ● Track number	Reverse skip	Forward skip

Operation

Tape Playback

- (1) Insert the cassette into the cassette slot. Playback will start automatically.

The unit switches to tape playback also if it is currently in the standby, tuner or CD input mode. When the cassette was inserted with side A pointing up, the "►" indicator lights up during playback of side A and the "◄" indicator during playback of side B.

- (2) Select equalization and Dolby noise reduction as required for the tape in use.
- (3) Adjust the desired listening level and tonal balance.
- (4) To carry out fast-forward, press the << or >> button which points in the same direction as the current tape travel direction (shown by the ◄, ► indicators).

The indication "—" appears on the indicator panel, and the tape is wound at high speed. For rewind, press the opposite-direction winding button.

- (5) To switch back to playback from the fast-forward/rewind condition, press the Tape button.
- (6) To reverse tape travel direction during playback, press the Tape button.
When the tape end is reached during playback or fast-forward, the tape travel direction is automatically reversed and playback resumes.
- (7) When the Tuner button or CD button is pressed during tape playback, the cassette deck sec-

tion enters the pause mode and the respective function is activated. Pressing the Tape button returns the unit to tape playback.

- When the tape end is reached in rewind, the unit automatically switches to playback (Auto Play).
- If the ignition circuit is switched off during operation of the cassette deck, power to the unit is interrupted and the unit goes into the pause mode (Key-off Pause).

■ Blank Skip

During tape playback, unrecorded sections can be automatically bypassed. This function is activated by setting the Skip button to "On" ("Skip" appears on the indicator panel). If a blank section (signal level below -30 dB) of more than 20 seconds is encountered during playback, the unit switches to fast-forward and automatically locates the start of the next recorded section. When the tape end is reached during fast-forward, the tape travel direction is reversed and playback resumes.

The skip function can be cancelled by pressing the Skip button once more ("Skip" indication goes out).

■ Program Seek

This feature is useful to quickly locate the beginning of the current or the start of the next selection on a tape. To use Program Seek, press the Fast-Forward or Rewind button once more while fast-forward or rewind is being carried out ("PS" appears on the indicator panel, and a "—" indication runs in the same direction as tape travel).

When a blank space (recording level below -30 dB) of more than 4 seconds is detected, the unit switches to playback. Pressing the Fast-Forward or Rewind button once more while program seek is being carried out cancels the function and sets the unit to normal playback ("PS" indication goes out).

- If the interval between selections contains noise, such as scratch noise from records, or is less than 4 seconds long, the start of a selection may not be located correctly.

FM/AM Broadcast Reception

- (1) Press the Tuner button to activate the tuner mode. The frequency band and the received frequency are shown on the indicator panel.
- (2) Press the Tuner button again to choose the desired frequency band.
- (3) Tuning

Seek Tuning

Use the Mode button to activate the seek tuning mode ("Seek" appears on the indicator panel). Press one of the Fast-Forward/Rewind buttons (<<, >>) to start seek tuning in the respective direction.

Manual Tuning

Manual tuning can be used for example to receive weak stations where the automatic seek tuning function does not stop. Use the Mode button to deactivate the seek tuning mode ("Seek" indicator out). Then press one of the Fast-Forward/Rewind buttons (<<, >>) on the main unit to tune to the desired frequency. If reception of an FM stereo broadcast is very

noisy, pressing the Mono button to select monaural reception may help to reduce noise and make the broadcast listenable.

- (4) When an FM stereo broadcast is received, the "ST" indicator on the indicator panel lights up.
- (5) Adjust the desired listening level and tonal balance.
- If very strong stations cause input overload (distortion) or when wishing to listen only to stations with high field strength, set the Local button to "On" ("Local" indicator on indicator panel lit). The setting of this button can be selected separately for FM and AM reception. In ordinary operation, the button should be set to "Off" ("Local" indicator out).
- If the Tuner button is pushed while playback with the cassette deck or a connected Nakamichi CD Changer is being carried out, these sections are switched to pause and the tuner mode is activated.

■ Memory Tuning

This unit has a capacity for presetting 12 FM stations (6 each for FM1 and FM2) and 6 AM stations. Program the stations into memory as follows.

Auto Memory Preset

This function automatically assigns six stations out of the currently selected frequency band to the Preset Station buttons.

- (1) Select the frequency band.
- (2) Press the Memory button ("Memory" appears on the indicator panel).
- (3) Stations within the frequency band which are

received with sufficient field strength are automatically stored in the station buttons one after another. The preset station number (with "PS") and the frequency are shown on the indicator panel.

- (4) When all six buttons have been programmed, the station stored in button 1 is received. ("Memory" goes out.)

Manual Memory Preset

With this function, stations can be manually stored in the Preset Station buttons.

- (1) Select the frequency band and tune to the desired broadcast station.
- (2) Keep the Preset Station button into which you want to store the station depressed for about 2 seconds, until the muting becomes active and the sound is temporarily interrupted.
- (3) The station number indicator on the indicator panel first flashes and then remains lit, to indicate that the station has been stored.
- (4) To change the content of a Preset Station button, simply perform the above steps (1) — (3) for the new station.

To receive a memorized station, select the frequency band and tap the respective Preset Station button.

The Up/Down buttons (+, -) on the remote control unit can also be used to select memorized stations.

■ Preset Scan

This function is handy for a quick check of current broadcast programs or when you have forgotten into which Preset Station button you programmed a station.

- (1) Select the frequency band and press the Preset Scan button.
- (2) All stored broadcast stations in the selected frequency band (FM or AM) are tuned in consecutively for 5 seconds each. (The respective memory number and frequency indication are flashing.)
- (3) When wishing to continuously receive a station, press the Preset Scan button once more or press the Preset Station button whose number corresponds to the presently flashing memory number indicator. The station stays tuned and the memory number and frequency indication remain constantly lit.
- As FM1 and FM2 cover the same FM band, Preset Scan is carried out successively for both groups of preset stations.

This unit possesses a built-in battery for memory backup. The contents of the preset station memory will be preserved while the unit is removed from the car.

For replacement of the battery, contact your dealer. Never perform the replacement yourself as this may lead to damage of the unit.

CD Playback

The TD-560 permits connection of a CD player.

1. Using a CD player

- (1) Press the CD button (CD > / ) on the TD-560 switch the unit to CD input ("CD" appears on the indicator panel).
- (2) Insert the CD into the CD player and start playback.
- (3) Adjust the desired listening level and tonal balance. This adjustment can be carried out either at the CD player or at the TD-560.
 - The operation of the CD player cannot be carried out with the controls of the TD-560.
 - When the CD button is pressed during tape playback, the cassette deck section of the TD-560 is set to the pause mode.

2. Using a Nakamichi CD Changer

- (1) Press the CD button (CD > / ) on the TD-560. The CD Changer is activated and if one or more CDs are loaded in the changer, playback starts.
- (2) Adjust the desired listening level and tonal balance.
- (3) Operate the CD Changer with the controls of the TD-560.
 - During the CD changing or loading process, the disc number and track number indication on the indicator panel are flashing.

■ Disc Memory Play

By entering disc numbers into memory, CDs inserted in the magazine of the changer can be played in any desired sequence.

- (1) Select the CD number with the Disc Selection buttons (Disc -, Disc +). The Up/Down buttons (+, -) of the remote control unit can also be used.
- (2) Press the Memory button (Mem.) and release it within two seconds. The selected CD number is now stored in the memory. The indication "Memory" flashes on the indicator panel, and the memory number is displayed for three seconds.
- (3) Repeat steps (1) and (2) to program further disc numbers up to a maximum of 10.
- (4) Press the Memory Play button (M. Play) to start CD playback in the programmed order ("Memory" is now lit on the indicator panel).
- (5) To revert to normal playback, press the Memory Play button once more ("Memory" indication goes out). The contents of the memory are preserved and can be used repeatedly by pressing the Memory Play button again.

- (6) To erase the contents of the memory, keep the Memory button depressed for more than two seconds. The indication "E!" flashes for three seconds on the indicator panel and then goes out, along with the "Memory" indication. The contents of the memory are now erased.
 - If an attempt is made to enter more than 10 disc numbers in the memory, the indication "F!" (for "Full") appears on the indicator panel, and further input is not accepted.
 - When the Disc Selection buttons or the Up/Down buttons of the remote control are used to change discs during memory playback, the change is carried out in the programmed sequence.
 - If the number of an empty slot in the disc magazine (where no CD is inserted) is entered, the next programmed CD is played back.

■ Random Play

This function lets you play all tracks on the currently playing CD or a CD selected with the Disc Selection buttons once in random order.

- (1) Press the Random Play button. The indication "Random" appears on the indicator panel.
 - (2) All tracks on the currently playing CD or the CD selected with the Disc Selection buttons are played once in random order.
 - (3) After all tracks have been played, the next CD is loaded, and the tracks on that CD are also played in random order.
 - (4) After all CDs in the magazine have been played, random play resumes from the first disc.
 - (5) To cancel the random play function, press the Random Play button once more. The "Random" indication goes out and normal playback resumes.
- When the Disc Selection buttons or the Up/Down buttons of the remote control are used to change discs during random playback, random play is then carried out on the new disc.
 - If skip is selected and the >> button is pressed during random playback, another track is located at random, regardless of the original track order on the disc. If the << button is pressed, the pickup returns to the start of the currently playing track.
 - Random play can be combined with disc memory play. When random play is activated during disc memory playback, discs are changed in the memorized sequence, and the tracks on the discs are played in random order.

■ Track Scan

This function plays the first 10 seconds of every track on the current disc.

- (1) Press the Track Scan button (T. Scan). The indication "Track" flashes on the indicator panel.
 - (2) Starting with the next track after the one that is currently playing, the start of each track is played for 10 seconds.
 - (3) When the last track on the CD has been reached, the next CD is loaded, and track scan continues on that disc. (After disc number 10, the player starts over from disc 1.)
 - (4) Track scan continues also after all CDs in the magazine have been scanned.
 - (5) To cancel the track scan function, press the Track Scan button once more. Normal playback resumes.
- When the Disc Selection buttons or the Up/Down buttons of the remote control are used to change discs during track scan, track scan is canceled and the new disc is played back normally.
 - If forward or reverse skip or cueing is carried out during track scan, track scan is canceled and normal playback resumes.
 - Track scan can be combined with disc memory play. When track scan is activated during disc memory playback, discs are changed in the memorized sequence, and track scan is carried out on these discs.

■ Disc Scan

This function plays the first 10 seconds of the first track on every inserted disc.

- (1) Press the Disc Scan button (D. Scan). The indication "Disc" flashes on the indicator panel.
 - (2) The next CD after the one that is currently playing is loaded, and the first track on it is played for 10 seconds.
 - (3) Disc scan continues with further discs in the magazine.
 - (4) Disc scan continues also after all CDs in the magazine have been scanned.
 - (5) To cancel the disc scan function, press the Disc Scan button once more. Normal playback resumes.
- When the Disc Selection buttons or the Up/Down buttons of the remote control are used to change discs during disc scan, disc scan is canceled and the new disc is played back normally.
 - If forward or reverse skip or cueing is carried out during disc scan, disc scan is canceled and normal playback resumes.
 - Disc scan can be combined with disc memory play. When disc scan is activated during disc memory playback, discs are changed in the memorized sequence, and disc scan is carried out on these discs.

■ CD Changer Error Messages

When a Nakamichi CD Changer is connected and a problem occurs or a wrong operation was attempted, an error message is displayed for three

seconds on the indicator panel. Refer to the table below for information on the meaning of error messages.

Error message	Meaning	Remedy
E-01	No disc magazine inserted.	The unit remains in the standby mode. Insert a disc magazine in the changer and then press the CD button.
E-02	No CDs inserted in disc magazine.	The unit remains in the standby mode. Insert CDs in the disc magazine, load the magazine and then press the CD button.
E-03	CD is inserted with wrong orientation.	The unit remains in the standby mode. Insert the CD correctly in the disc magazine, load the magazine and then press the CD button.
E-99	Microprocessor of the TD-560 does not operate.	The unit remains in the standby mode. Press the Reset button on the TD-560.
- - - -	Mechanism functions are temporarily disabled.	Press the Eject button or set the ignition key to "Off" and then to "On" again.
Memory 00	Memory Play button was pressed although no disc numbers are programmed in the memory.	Enter the desired numbers in the memory.
H	Heat protection circuit of CD Changer was activated.	The unit remains in the standby mode. Do not use the CD Changer for a while. Tape playback or tuner reception can be carried out.

Maintenance

It is very important to regularly clean the head surface as well as the capstan, pressure roller and all other parts which come in contact with the tape. Tiny particles shed from the tape onto these parts, as well as dust accumulations etc. become the cause of dropouts and severely degrade frequency response and wow-and-flutter characteristics. About once every 10 hours of use, cleaning should be performed with a commercially available cleaning cassette. Follow the instruction supplied with the cleaning cassette closely, as improper use may have a reverse effect and result in impaired sound quality.

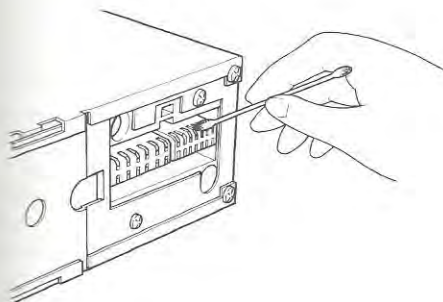
With some low-quality tapes, head contamination is especially severe. Avoid the use of such tapes whenever possible.

Cleaning the Faceplate

The unit should be cleaned only by wiping it with a soft, dry cloth. Never use solvents or alcohol-based cleaners.

Cleaning the Connector Pad

If the main unit is frequently removed and kept separate from the mounting sleeve, the connector pad on the rear of the main unit may collect dust or become dirty. To ensure proper contact, keep the connector pad clean by occasionally wiping it with a cloth or cotton swab moistened with pure alcohol or a suitable contact cleaner.



Lubrication

All important moving parts of this unit are fitted with long-life, oil-less bearings. Periodic lubrication is therefore not necessary.

Troubleshooting

In case of an apparent malfunction, please check the following points before requesting service.

Condition	Remedy
① Tape does not run or playback is not at normal speed.	Remove the cassette, take up any tape slack, and reinsert the cassette.
② Uneven sound levels, dropouts during tape playback.	- Perform tape transport cleaning. - Use a high-quality cassette.
③ Tape playback sounds distorted.	- Perform tape transport cleaning. - Select correct equalization and Dolby noise reduction for tape in use.
④ Cannot playback.	- Check all connections. - Perform tape transport cleaning.
⑤ Dull high frequencies.	- Perform tape transport cleaning. - Select correct equalization and Dolby noise reduction for tape in use.
⑥ No radio reception possible.	- Connect antenna properly to antenna jack. - If window antenna is used, make sure that antenna booster is powered.
⑦ High noise level during AM reception.	Change the mounting location of the power amplifier.
⑧ Ignition noise heard during broadcast reception.	- Tighten the ground cable screw. - Choose a different ground point.
⑨ Controls cannot be operated at all or malfunction occurs.	- Press the Reset switch. - Set the car's ignition to "Off" and charge the car battery.

Specifications

• Cassette Deck Section

Tape Speed	1-7/8 ips (4.8 cm/sec.)
Wow and Flutter	Less than 0.08% WTD RMS
Frequency Response	20—20,000 Hz ± 3 dB (Nakamichi Test Tape)
Signal-to-Noise Ratio	Dolby C-Type NR On < 70 μ S, ZX (Type IV) Tape > Better than 70 dB (400 Hz, 3% THD, IHF A-WTD RMS) Dolby B-Type NR On < 70 μ S, ZX (Type IV) Tape > Better than 64 dB (400 Hz, 3% THD, IHF A-WTD RMS)
Channel Separation	Better than 35 dB (1 kHz, 0 dB)
Crosstalk	Better than 60 dB (1 kHz, 0 dB)
Fast-Winding Time	Approx. 75 sec. (with C-60 cassette)

• Tuner Section

—FM—

Frequency Range	87.5—107.9 MHz (in 200 kHz steps)
Sensitivity	17 dBf (IHF)
50 dB Quieting Sensitivity	22 dBf (Mono)
Total Harmonic Distortion	0.3% (Mono 1 kHz) Input 65 dBf
Signal-to-Noise Ratio	65 dB (Mono)
Frequency Response	30—15,000 Hz
Alternate Channel Selectivity	65 dB (± 400 kHz)
Image Rejection at 98 MHz	40 dB
IF Rejection at 98 MHz	80 dB
Stereo Separation	35 dB (1 kHz) at 65 dBf
Antenna Terminals	75 ohms (unbalanced)

—AM—

Frequency Range	530—1,620 kHz (in 10 kHz steps)
Sensitivity	30 dB μ

• Preamplifier Section

Frequency Response	10—50,000 Hz ± 1 dB
Output Level/Impedance	0.7 V/1 kohm
CD (Aux) Input/Impedance	0.5 V/10 kohms
Total Harmonic Distortion	Less than 0.005%
Tone Control	
Bass	20 Hz + 10, -5 dB
Treble	20 kHz + 10, -5 dB

• General

Power Source	14.4 V DC negative ground (10.8—15.6 V allowable)
Current Consumption	2.0 A Maximum
Dimensions*	190(W) $\times$ 59(H) $\times$ 178(D) mm 7-1/2(W) $\times$ 2-5/16(H) $\times$ 7(D) inches
Approximate Weight	2.0 kg/4 lbs. 7 oz.

• Remote Control Unit

Principle	Infrared pulse system
Power Supply	3 V DC (1.5 V $\times$ 2)
Dimensions*	57(W) $\times$ 14(H) $\times$ 80(D) mm 2-1/4(W) $\times$ 9/16(H) $\times$ 3-1/8(D) inches
Approximate Weight	55 g/2 oz. (including batteries)

*: Dimensions do not include protruding parts. Height is the panel height.

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