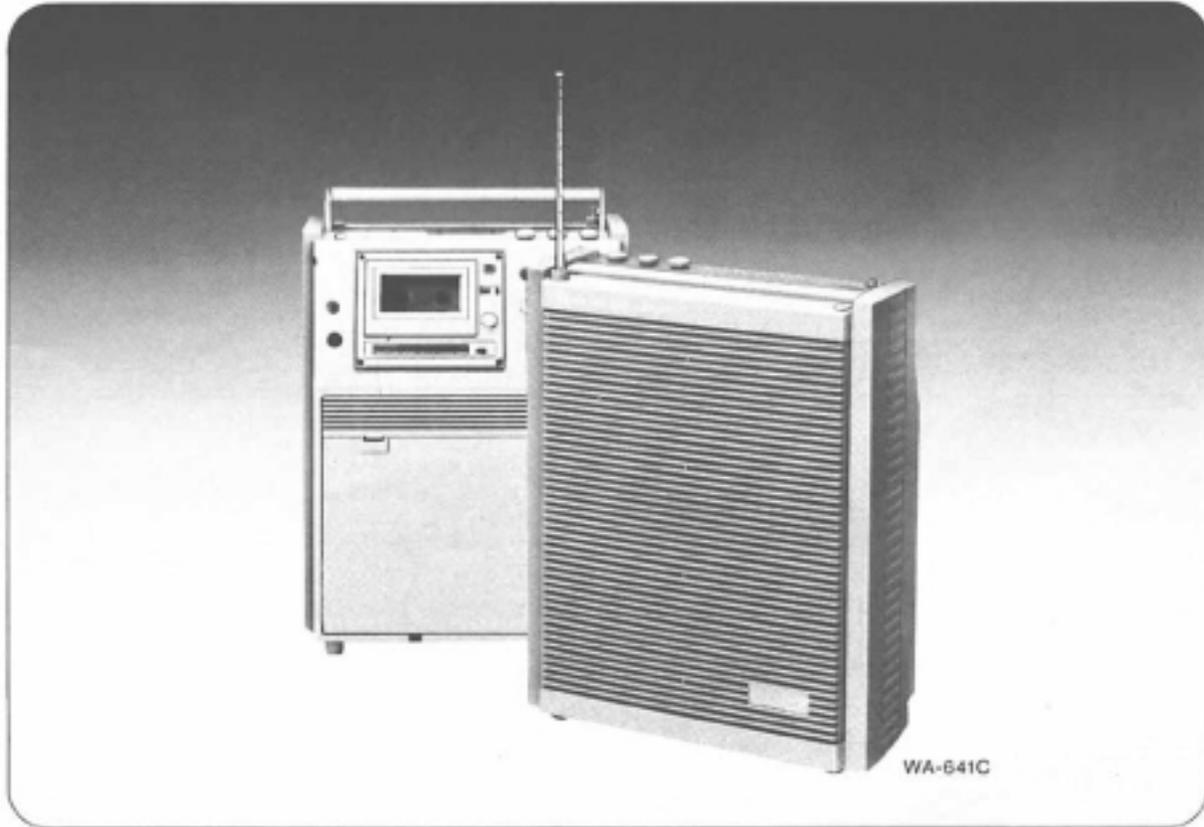




MEETING AMPLIFIER

WA-641
WA-641C



For wireless applications, use the WTU-770 tuner module.

● Contents

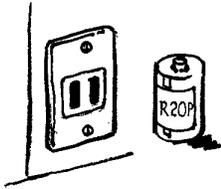
Features	1	Using The Cassette Deck	
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● Features

- A maximum of two wireless microphones can be used by mounting the optional wireless tuner module in unit.
- Powerful sound thanks to a 20cm 2-way speaker.
- Rated power output of 15 watts and maximum power output of 20 watts.
- Three-power-source operation; AC mains, R20P dry cells (8 pieces) and external power supply.
- Compartment wide enough to store a wired microphone (with 5-meter cable) and two wireless microphones.
- Tone control that always provides clear speech or music.
- AUX input control.
- It is possible to use the wired microphone jack and AUX jack for both balanced and unbalanced type plugs.
- A digitally controlled auto-reverse cassette deck enables long, continuous play without turning the tape. (WA-641C only.)
- The cassette deck employs a recording circuit with AGC function for easy recording of the broadcast. (WA-641C only.)

● Important

- Power source should be AC mains, R20P dry cells (8 pieces) or external power supply (12V DC).



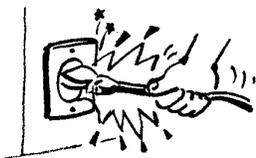
- Do not install unit in a car parking under the scorching summer sun or in locations where unit is exposed directly to the sunlight. Also avoid installing unit close to heaters.



- Take care that unit is not exposed to rain or that raindrops should not enter unit as it will cause electric shocks and breakdowns of unit.

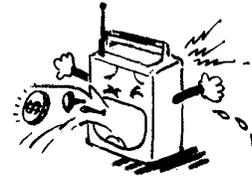


- Be sure to take hold of a plug to unplug the power cable from an AC outlet, otherwise the cable is disconnected.



- When unit is unused, turn off power switch and remove the power cable from an AC outlet. Only setting the power switch to OFF keeps unit consuming power of about 4 watts.

- If hairpins, coins, etc. enter unit, this can involve dangers of electric shocks or breakdowns. When metallic stuff enters unit, be sure to set the power switch to OFF immediately, remove power cable and contact your nearest Toa dealer.



- When carrying unit from one place to another, do not give strong shocks to unit nor handle it roughly.



- Use a dry cloth to wipe down the exterior of the case. When the case is extremely dirty, clean with a soft cloth slightly dampened in a neutral cleanser. Never use benzene or thinner as its use can deform or discolour the case.



● Each Part Names And Functions

Carrying handle
Use this handle to carry unit from one place to another.

Note
This handle is only designed for carrying unit. Never use the handle for the purposes of permanent suspension of unit.

Power indicator
When the power switch is set to ON, this lamp comes on.

Power switch
Press this switch to switch power on. To switch power off, press the switch again.

Cassette deck (WA-641C)
Refer to page 9 for operation.

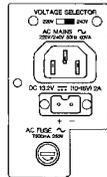
Line out jack (600 ohms, 0 dBV)
Use this jack when recording or connecting the external amplifier.

External speaker connector
This connector connects to the external speaker using an attached plug.

Dry cell case
Eight of R20P (Size "D") is loaded. Observe polarities when loading dry cells.

External DC power input terminal

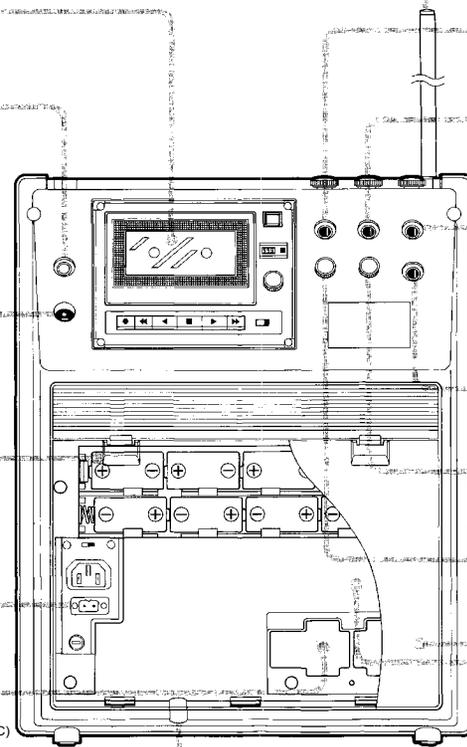
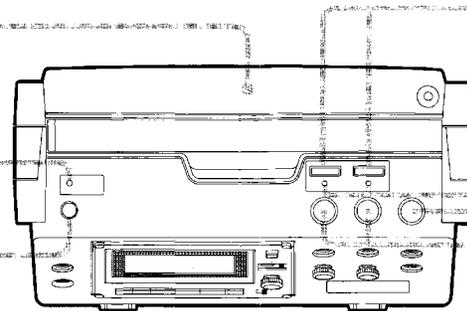
(220V/240V AC version)



* Set the voltage selector switch to 240V when unit is operated on 240V AC.

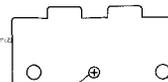
Wireless tuner module receptacle
A maximum of 2 wireless tuner modules (optional) can be mounted in this receptacle.

Tuner cover
Be sure to fix this cover in place after mounting the tuner module.



(WA-641C)

Notch for power cable passage



Tuner cover fixing screw

Frequency marker
Attach the frequency markers supplied with the tuner module.

Radio signal reception indicator
This lamp comes on when unit receives a signal from the wireless microphone.

Wired microphone volume control.

Mic 1/Mic 2 volume control
This is a volume control for both the wireless and wired microphones.

Aerial
Fully extend this aerial when using the wireless microphone.

Mic 1 (wired mic) jack (600 ohms, -54dBV)
This jack can be used for both balanced and unbalanced type plugs.

Mic 2 (wired mic) jack (600 ohms, -54dBV)
This jack can be used for both balanced and unbalanced type plugs.

Wired microphone jack (600 ohms, -54dBV)
This jack only connects to the wired microphone, and can be used for both balanced and unbalanced plugs.

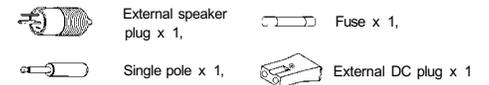
Note
No wireless microphone can be used when wired microphones are plugged into Mic 1 and Mic 2 jacks. The volume control corresponding to each microphone is located immediately over the jack.

AUX input jack (500kohms, -20dBV)
This jack can be used for both balanced and unbalanced type plugs.

AUX input volume control

Bass/treble control
Rotation of this knob in the counterclockwise direction reduces the bass response and turning it clockwise reduces the high frequency response.

Compartment cover
Accessories are provided on the reverse side of this cover.



Compartment
Power cables, wired microphone, wireless microphones, etc. are stored in this compartment.

● Power Source

● AC MAINS OPERATION

Plug the supplied power cable in an AC inlet, and then plug it in an AC outlet,

Note

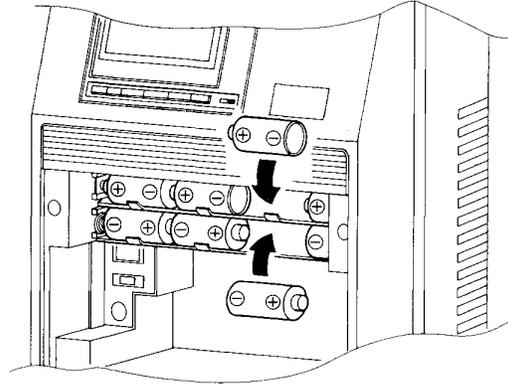
Unplug unit when not in use.

● DRY CELL OPERATION

Use eight of R20P dry cells. Observe polarities when loading them into the dry cell case. Removal of the power cable from an AC outlet after loading the dry cell automatically switches over the power source to the dry cell power supply.

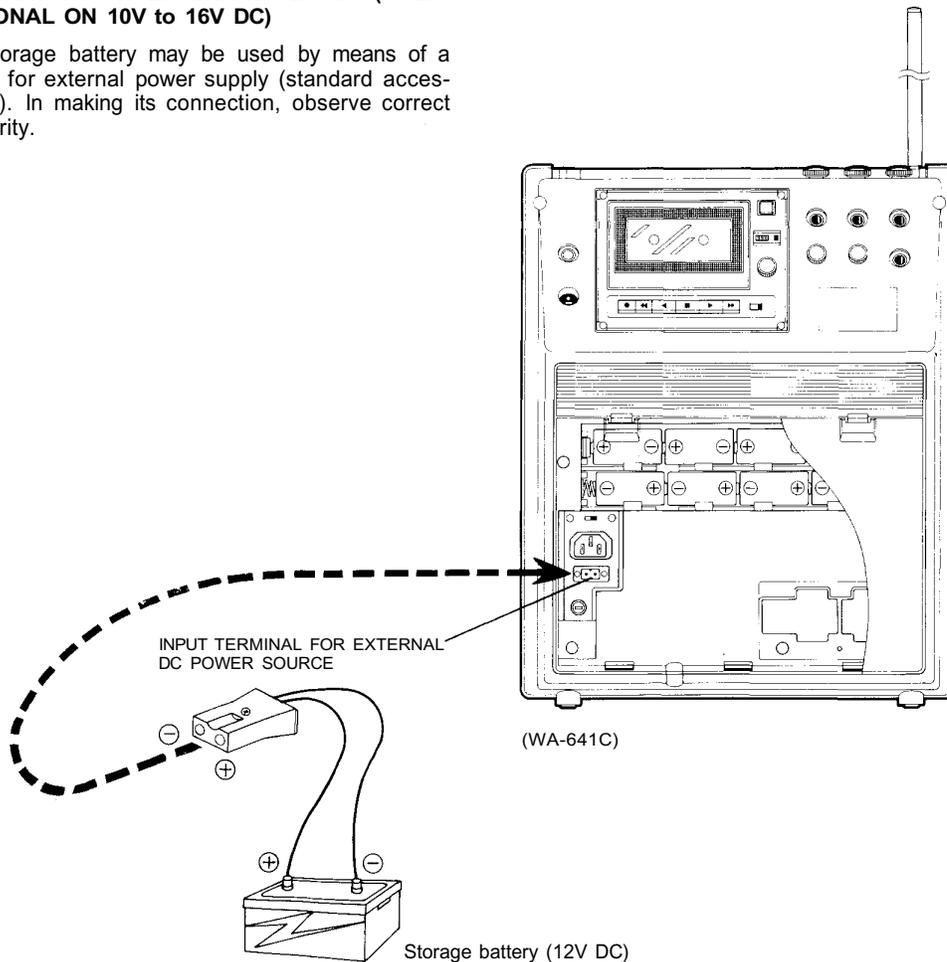
Note

If unit is not in use for two weeks or longer, take the dry cells out of unit to prevent breakdowns the dry cell leakage causes.



● OPERATION ON EXTERNAL 12V DC (OPERATIONAL ON 10V to 16V DC)

A storage battery may be used by means of a plug for external power supply (standard accessory). In making its connection, observe correct polarity.



● Mounting The Wireless Tuner Module

For tuner module, use the TOA model WTU-770

1. Remove the compartment cover.
2. Remove the tuner cover of the tuner receptacle.
3. Insert the tuner module into the lengthwise receptacle as shown in Fig. 1, taking care so that the module's top and bottom sides may not be reversed. (See Fig. 1.)

Both the left and the right hand side receptacles correspond to Mic 1 and Mic 2, respectively.

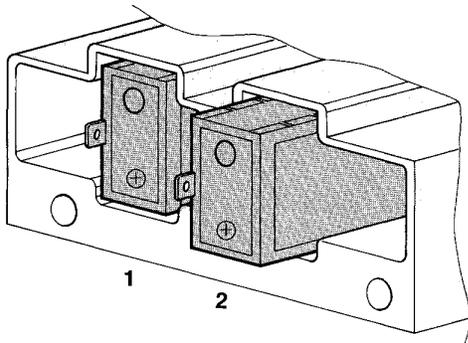


Fig. 1. The WTU-770 module inserted into the receptacle lengthwise.

4. Attach the frequency marker supplied with the module to the corresponding volume control. (See Fig. 2.)

Note

Special cares are required so as not to insert the tuner module into the wrong receptacle nor attach the frequency marker to the wrong volume control.

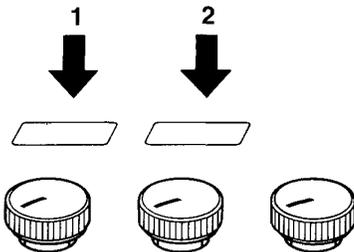


Fig. 2. Volume control on top panel

5. Fit the tuner cover in place after mounting the tuner module. (See Fig. 3.)

* Be sure to fit the tuner cover in place to prevent electric shocks or breakdowns of unit, caused when metallic stuff enters unit.

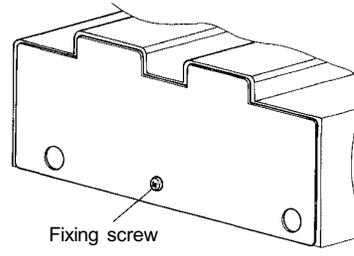
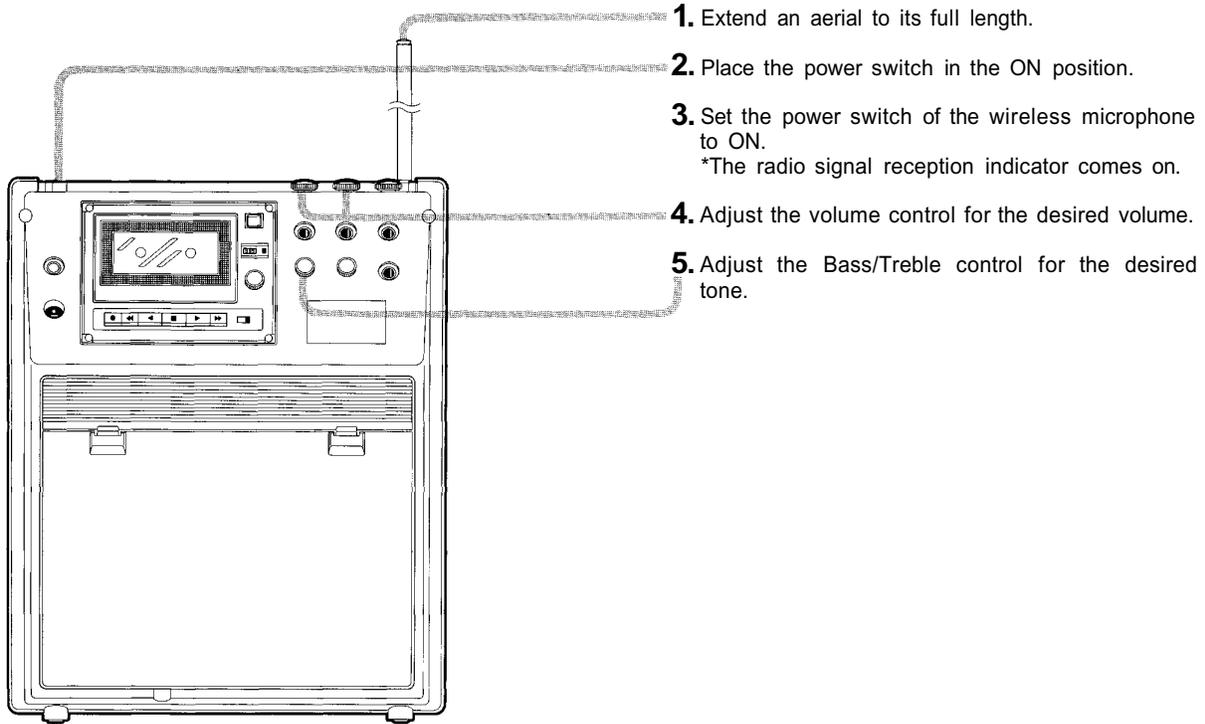


Fig. 3. Fitting the tuner cover

● Operating The Wireless Microphone

Use the wireless microphone of which frequency is the same as that of the tuner.

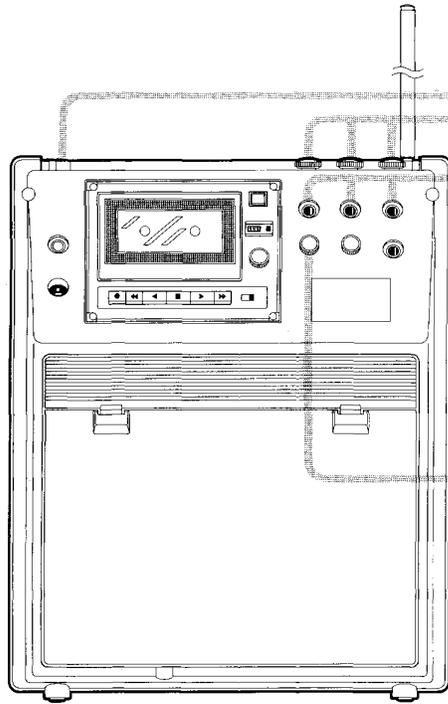


(WA-641C)

Notes

1. The Mic 1 and Mic 2 volume controls are for both the wireless and wired microphones. Connection of the wired microphone to the microphone input jack makes it impossible to use the wireless microphone on that input.
2. Take care about disturbing radio waves. When the meeting amplifier is installed very close to equipment that produce electric noise such as industrial-use sewing machines and fluorescent lamps, sound transmission from the wireless microphone can be interrupted. In such a case, put the wireless microphone closer to the amplifier or change the location of the amplifier.
3. Take care about a "null" spot. Signal dropouts (momentary losses of reception) are caused by interference and/or reflection of the transmitted radio waves, a condition that constantly changes as the wireless microphone is moved indoors. The place producing the signal dropouts is called a "null" or "dead" spot. To solve this problem, position the amplifier further away from steel desks or lockers or move it one to two meters.

● Operating The Wired Microphone

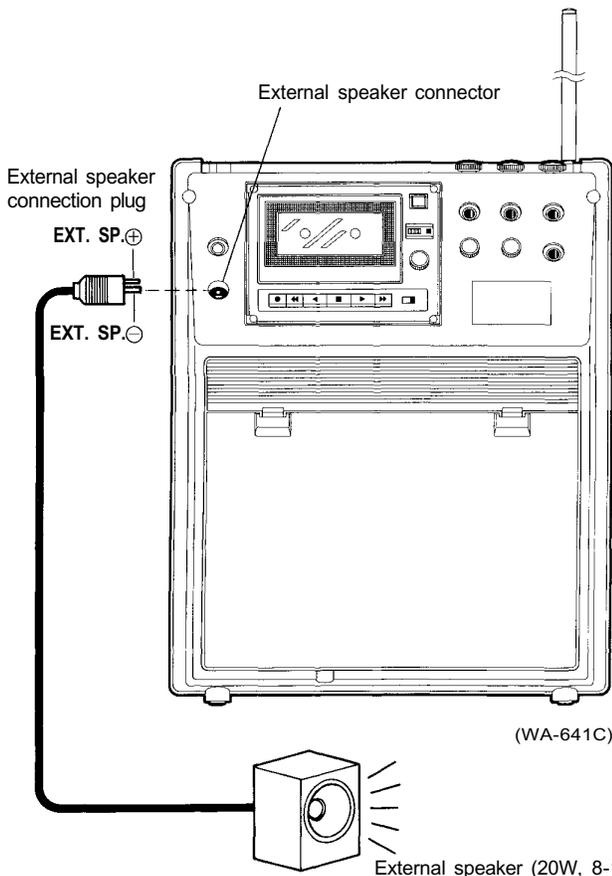


(WA-641C)

1. Set the power switch to ON.
2. Connect the wired microphone to the desired input jack out of Mic 1, Mic 2 and wired mic jacks.
* The input sensitivity is 600 ohms and -54dBV. Both of the balanced and unbalanced type microphones can be connected to any of these jacks.
3. Adjust the volume control for the desired volume.
* The volume control corresponding to each microphone is located immediately over the jack.
4. Adjust the bass/treble control for the desired tone.

● Using External Equipment

● OPERATING THE EXTERNAL SPEAKER



(WA-641C)

1. Connect an attached external speaker connection plug to the speaker cable.

Note

Use the speaker with rated power input of 20 watts or more and impedance of 8 to 16 ohms.

2. Insert the plug into the external speaker connector.

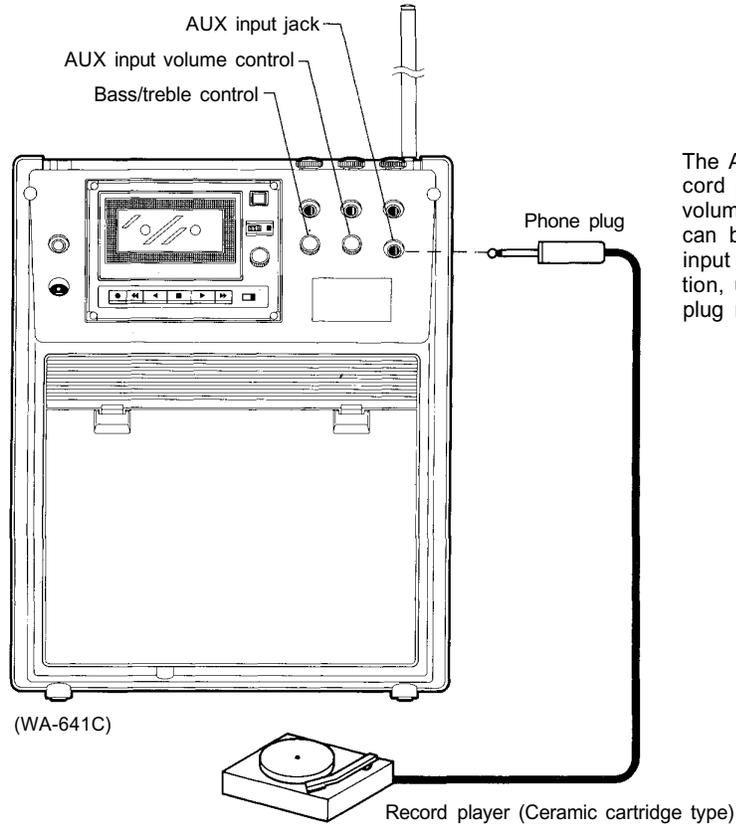
- This plug connection disconnects the speaker circuit in the meeting amplifier and only operates the external speaker.



- This plug connection operates both the built-in speaker and external speaker at a time.

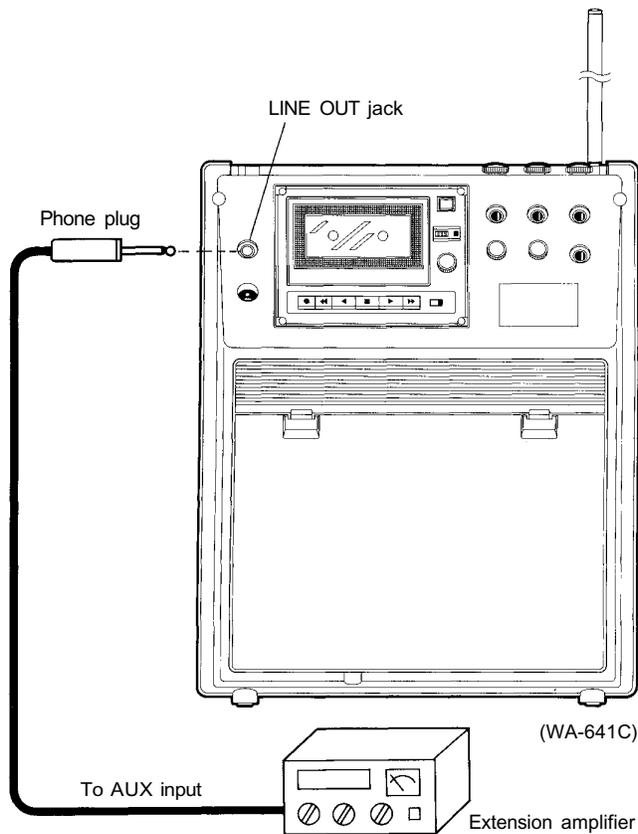


● USING THE AUX INPUT



The AUX input jack is used for connection of a record player or cassette deck. Adjust the AUX input volume control for the desired volume. Tone control can be performed with the bass/treble control. The input sensitivity is $500k\Omega$ and $-20dBV$. For connection, use a phone plug supplied. The balanced type plug may also be used.

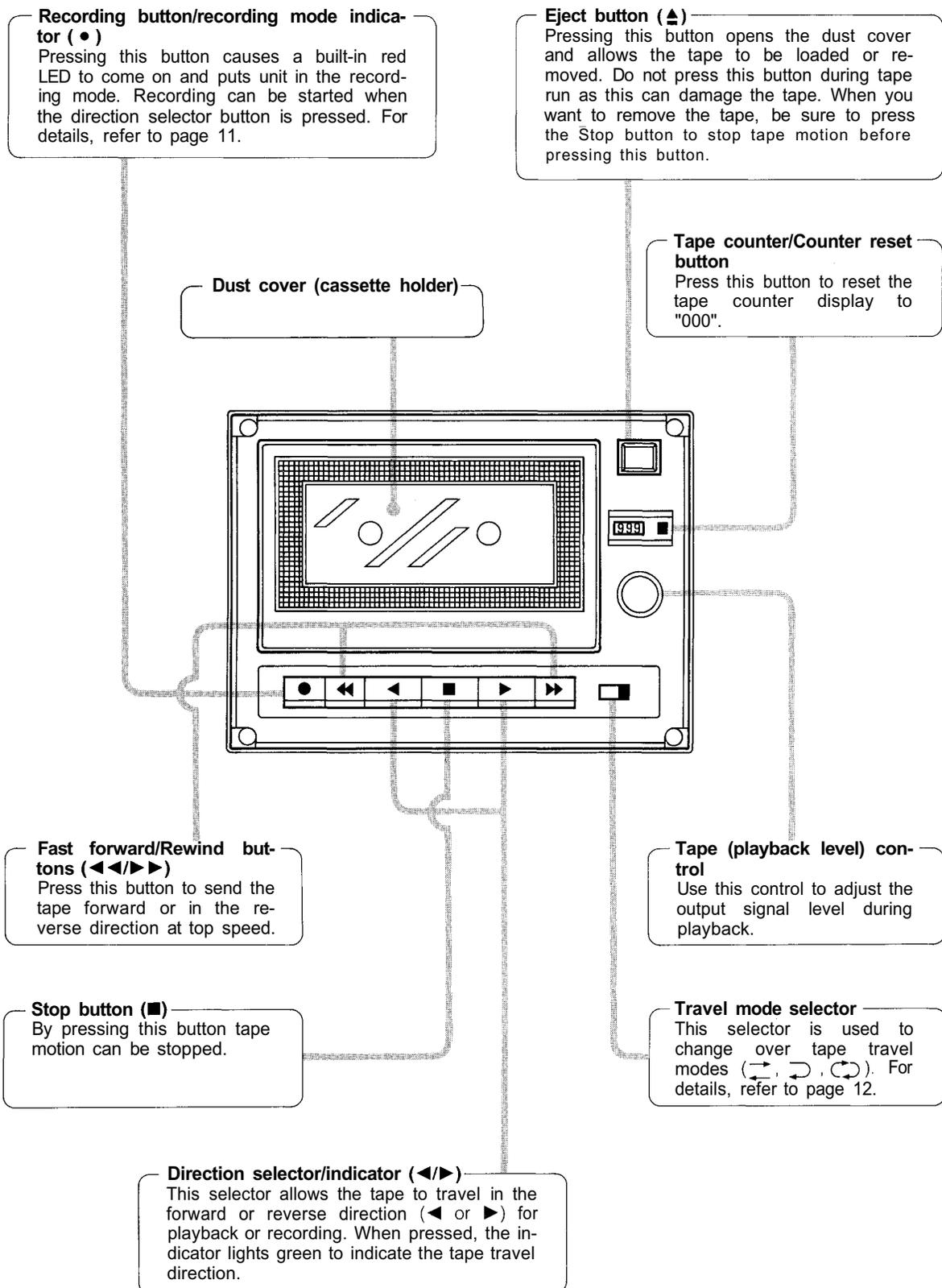
● USING THE LINE OUT JACK



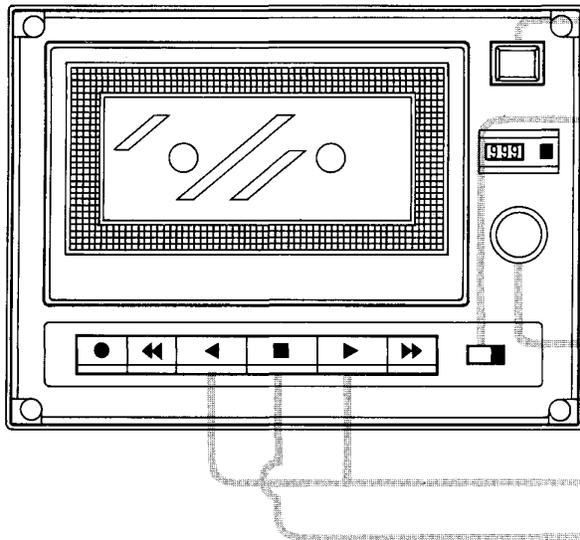
The LINE OUT jack connects to an extension amplifier or cassette deck used for recording. For connection of these equipment, use a phone plug supplied. The output sensitivity is 60011 and 0 dBV .

● Using The Cassette deck WA-641C

● EACH PART NAME AND FUNCTION

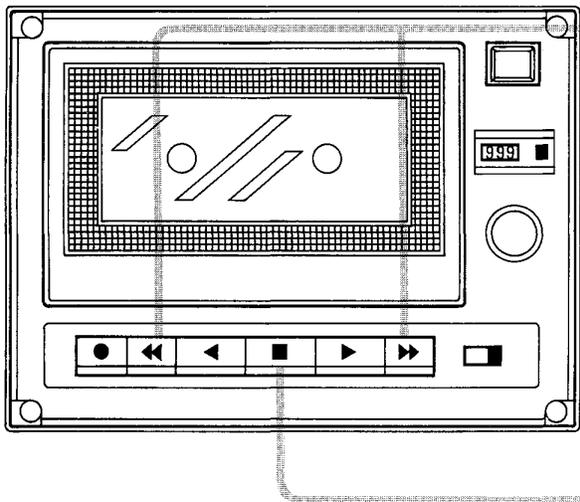


● **PLAYBACK**



1. Switch power on with the tape control rotated fully counterclockwise.
2. After opening the dust cover by pressing the Eject button (▲), load the cassette tape with the exposed tape face down.
3. Select the desired tape travel mode with the Travel mode selector. (For the tape travel mode, refer to page 12.)
4. Press the preferred Direction selector (◀ or ▶), and the tape starts to travel and at the same time, the Direction indicator comes on to indicate the tape travel direction.
5. Adjust the Tape control for desired playback level, turning the control clockwise.
6. To stop playback, press the Stop button (■).

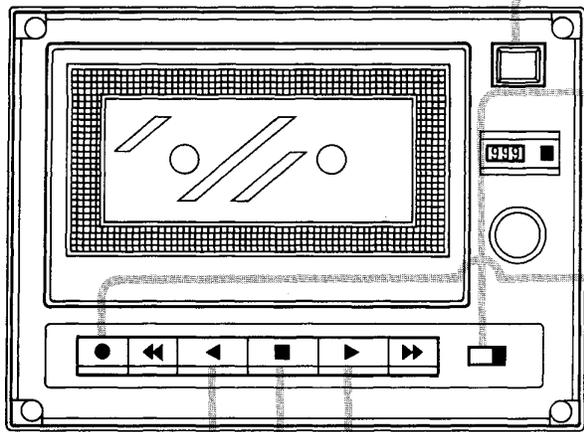
● **FAST FORWARD AND REWIND**



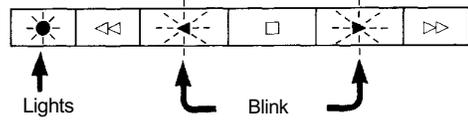
1. Press the preferred Fast forward button (◀◀ or ▶▶).
2. To stop the fast forward operation, press the Stop button (■). Tape motion stops.
 - Even when the tape is not travelling, pressing the Fast forward button sends the tape running at top speed.
 - If the Fast forward button is pressed during recording, the recording is stopped and the tape is put in the fast forward mode.
 - The tape travel is automatically stopped when the tape is fully rewound on the reel.

● RECORDING

Recording can be easily achieved without setting a recording level with an AGC (Automatic Gain Control) being employed in the recording circuit.



1. Switch power on.
2. Open the dust cover by pressing the Eject button (▲) and load the cassette tape with the exposed tape face down.
3. Select the desired tape travel mode with the Travel mode selector. (For the tape travel mode, refer to next page.)
4. Press the Recording button (●). The recording mode indicator comes on and at the same time, the two direction indicators both blink.



Notes

When you use the tape of which erasure prevention tabs have been removed, the Recording mode indicator or the Direction indicator can fail to come on.

- If one tab has been removed.
Recording mode indicator... Lights.
Direction indicator... Only either or the two blinks.
- If two tabs have both been removed.
Recording mode indicator... Does not light.
Direction indicator... Neither indicator blinks.

Recording is only possible in the direction indicated by the blinking direction indicator if only either of the two indicators is blinking.

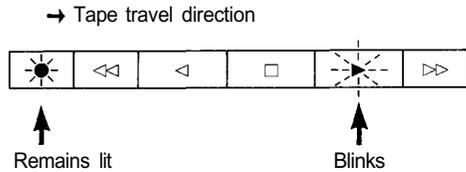
5. Press the preferred Direction button, and that pressed Direction indicator changes indication from blinking to lighting (the other Direction indicator goes out). At this point, you can begin recording. (If you reset the tape counter display to "000" or make a note of the number on the counter before recording, you can come back easily to the point from which recording got started after it is finished.)
6. When you wish to temporarily stop recording, press the Stop button. (■).

Note

When in the recording mode, all input signals are recorded being mixed.

● **If you want to repeat recordings in the same tape travel direction as that used in the preceding recording.**

1. Pressing the Recording button (●) during recording puts unit in the standby mode. In this event, the Recording mode indicator remains lit, with the Direction indicator in use switched from lighting to blinking.



2. To restart recording, press the Direction indicator (button) that is blinking. The indicator changes indication from blinking to lighting, allowing you to begin recording.

By repeating the above steps 1 and 2 different programme sources can be recorded one after another in the same tape travel direction.

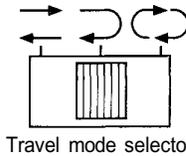
- When you wish to reverse the tape travel during recording mode in the (▶) direction, depress the recording button to place the deck on standby and then depress the (◀) travel button. It is impossible to reverse the tape motion from (◀ to ▶) during recording (for protection of a recording mode in the (▶) track).

● **TAPE TRAVEL MODES**

There are three tape travel modes.

1. One-way recording or playback.
2. Two-way recording or playback.
3. Continuous repeat playback. The selection of this mode during recording results in two-way recording.

Set the Travel mode selector to required position.



The table below shows actions resulting from operation of both the Travel button and Travel mode selector.

● **Playback**

Mode	Travel button	Actions
		1. 2. Tape run ▶ Stops at tape end.
		1. 2. Tape run ◀ Stops at tape end.
		1. 2. 3. 4. Tape run ▶ Automatically reversed at tape end. ◀ Tape run
		1. 2. Tape run ◀ Stops at tape end.
		1. 2. 3. 4. Tape run ▶ Automatically reversed at tape end. ◀ Tape run
		1. 2. 3. 4. Tape run ◀ Automatically reversed at tape end. ▶ Tape run

● **Recording**

Mode	Travel button	Actions
		1. 2. Tape run ▶ Stops at tape end.
		1. 2. Tape run ▶ Stop at tape end.
		1. 2. 3. 4. Tape run ▶ Automatically reversed at tape end. ◀ Tape run
		1. 2. Tape run ▶ Stops at tape end.
		1. 2. Tape run ▶ Stops at tape end.
		1. 2. Tape run ▶ Stop at tape end.
		1. 2. Tape run ▶ Stop at tape end.
		1. 2. Tape run ▶ Stop at tape end.

● Cassette Tapes

- Our deck is designed for use with the normal tape only. Do not use chrome tapes or metal tapes. If you use other tapes than the normal tape, the sound quality will deteriorate or preceding recording cannot be completely erased when recorded again.



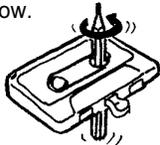
- Sounds can be harsh when playing back a tape recording with the Dolby or similar noise reduction process. Use tapes recorded without the noise reduction process.



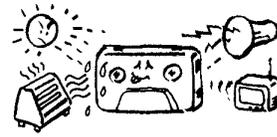
- Since the base of the C-120 tapes is thin and easily damaged, they are not recommended for use with our deck. Use the C-46, C-60 or C-90 tapes.



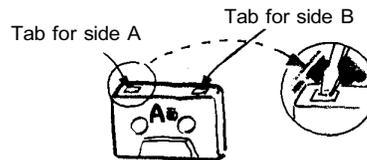
- Before using a tape, check to confirm if tape slack exists. As tape slack causes the tape twist or tangle around the pinch wheel and capstan, take up slap, if necessary, by inserting a pencil through the reel hub and turning it as indicated in the figure below.



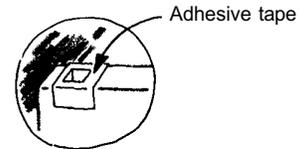
- Do not store tapes in a hot moist place or close to a television or speaker. To prevent deterioration of tape quality, loss of recording, and noise generation, always store tapes in a cool, dry place.



- Cassette tapes are provided with erasure prevention tabs to avoid the accidental erasure of a recording. If you want to keep the recording, remove the tabs with a screwdriver.



To re-record, cover the tab opening with a double layer of adhesive tape.



● Maintenance

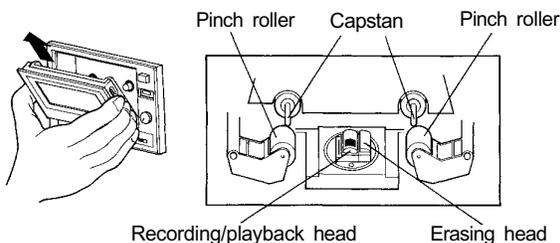
• CLEANING THE HEAD SECTION

The head section is composed of the heads, capstans and pinch rollers, and with extended use these parts accumulate dust, dirt and grease easily as the tape runs. If this assembly gets dirty, this downgrades the sound quality and also leads to unstable operation. To prevent this, clean the head section regularly with a cleaning tape commercially sold in the market or cleaning swabs slightly damped in alcohol.

CAUTION

Never use a screwdriver or metallic bar.

When cleaning with the swab, switch power off and remove the dust cover (cassette holder) by lifting it up.



• DEMAGNETIZING THE HEAD

The recording head becomes magnetized when you use the tape deck for prolonged periods of time. This results in noise being generated and loss or recording which you want to keep. The recording head should therefore be demagnetized regularly with the head eraser commercially sold in the market.

CAUTION

Do not put any metallic stuff other than the eraser or magnets closer to the head.

Do not grease any section as this causes breakdown of the deck.



● Troubleshooting

Symptom		Confirmation	Remedy
Even when power switch is set to ON, power indicator does not come on. (No power is supplied.)		[AC Mains operation] Is power cable plug inserted into wall AC outlet?	Plug power cable into AC outlet.
		[Dry cell operation] Is polarity proper?	Re-load dry cells in proper polarity. (See page 4.)
No output sound.		Volume control is placed in minimum position?	Turn control clockwise.
If wireless mic is used.	The radio signal reception does not come on. (Radio signal is not received.)	Is aerial fully extended?	Fully extended aerial.
		Is tuner module mounted?	Mount tuner module.
		Is wireless mic power switch set to ON?	Place mic power switch in ON position.
		Has wireless mic dry cell not been exhausted?	Change dry cell with new one.
No output sound.		Is wired mic not connected?	Remove wired mic.
If cassette tape is used.	No playback sound.	Is playback level control set to minimum?	Rotate control clockwise?
	Recording button defies attempts to depress it.	Have erasure prevention tabs been removed?	Cover tab openings with adhesive tape.
	<ul style="list-style-type: none"> • Playback sound is distorted. • Recording cannot be erased completely. • High frequencies are weak. 	Is head section not dirty?	Clean head section.
		Has tape not been worn out?	Use other tape for playback. If that tape produces no problem, replace original tape with new one.
	<ul style="list-style-type: none"> • Unstable tape travel. • Fast forward/rewind speed is slow. 	Is there not tape slack?	Take up tape slack using pencil.

● Specifications

Model		WA-641	WA-641C
Power Requirement		220V/240V AC (Selectable), 50 Hz Dry Cells-8pcs. (R20P or D size), External DC 10 to 16V	
Rated Output		15W at AC (Max 20W), 6W at DC	
Power Consumption	AC	44W (Rated output)	
	DC	1300mA	
Frequency Response		70 to 10k Hz 3dB deviation	
Total Harmonic Distortion		Less than 3% (at rated output)	
Inputs	Wired Mic	Mic 1, 2: -54dBV 600 ohms (Switchable with wireless microphone)	
	Auxiliary	-20dBV 500k ohms	
Outputs	External Speaker	8 to 16 ohms, more than 20W of rated input	
	Line out	0dBV 600 ohms	
Signal to Noise Ratio		More than 70dB (at rated output)	
Tuner Section (WTU-770)			
Aerial system		Rod aerial	
Receiving Sensitivity	More than 80dB (20dB μ V input, 1kHz Mod. 40kHz Dev.)		
	More than 75dB (20dB μ V input, 1kHz Mod. 15kHz Dev.)		
Squelch Sensitivity		14dBuV (0dB = 1 μ V)	
Receiving System		Superheterodyne System	
Signal to Noise Ratio	More than 95dB (102dB: Aweight) (60dB μ V input, 40kHz Dev.)		
	More than 90dB (102dB: Aweight) (60dB μ V input, 15kHz Dev.)		
Cassette Section			
Track Format		2 track-1 channel (Mono)	
Recording System		AC bias	
Tape Speed		4.8cm/sec.	
Wow & Flutter		0.3% WRMS	
FF/REW Time		Within 100 sec. (C60 tape)	
Ambient Temperature	-10 to 40 °C (14 to 104 °F) at AC		
	0 to 40 °C (32 to 104 °F) at DC		
Dimensions (W×H×D)		366×456×200 mm (14.4" × 18.0" × 7.9")	
Weight		7.3 kg (16.1 lbs)	8.3 kg (18.3 lbs)
Finish		Light green (ABS resin)	

* Specifications are subject to change without notice

Accessories

Dust cover.....	1
Single pole plug.....	1
Plug for connection to external power supply.....	1
Plug for connection to external speaker.....	1
Fuse (T500mA).....	1
Operating instruction manual.....	1



TOA Corporation

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