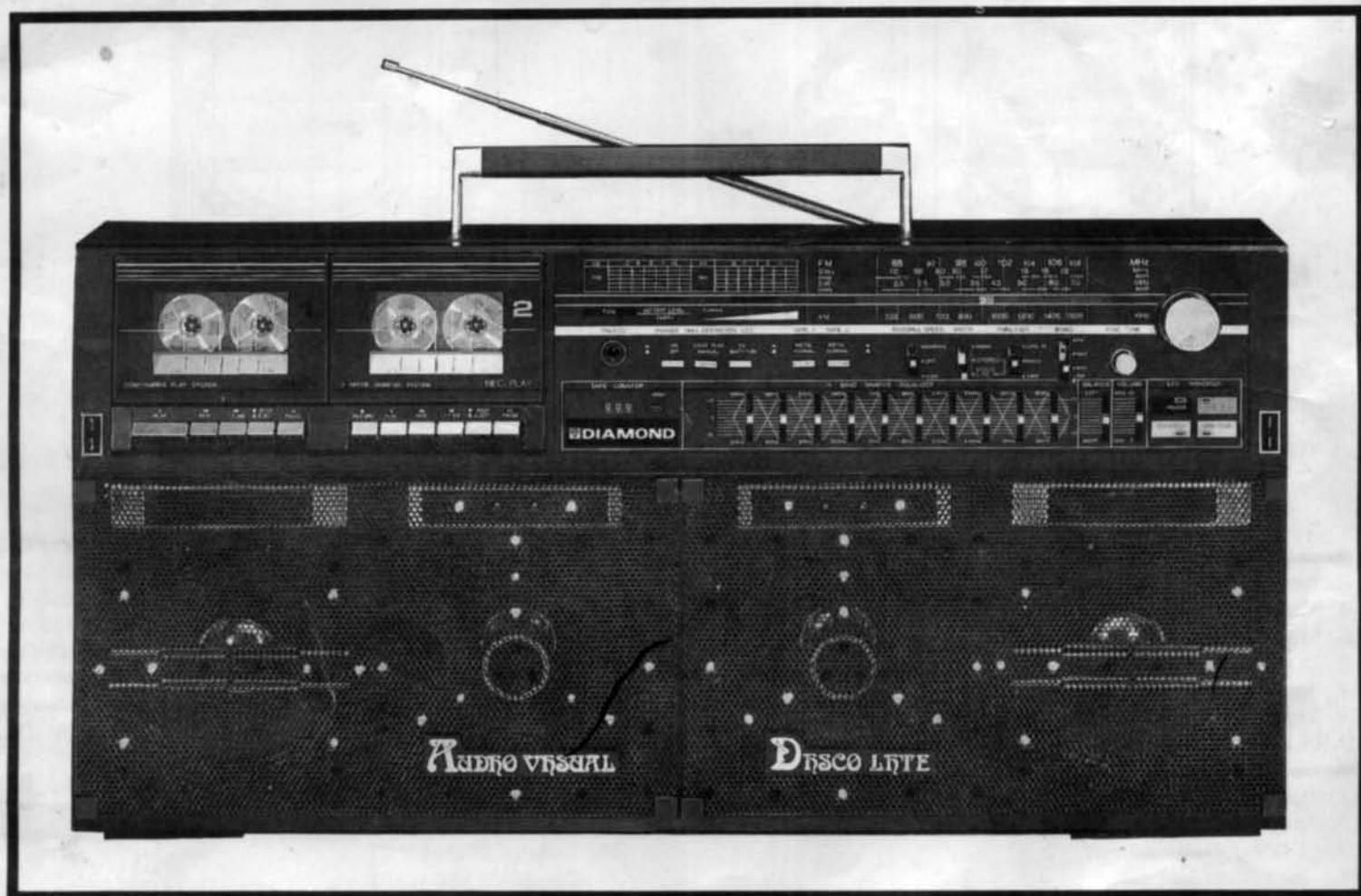


DIAMOND

**4 BAND STEREO RADIO
DOUBLE CASSETTE MUSICAL COMPOSER
WITH RUNNING LEDS DISPLAY**

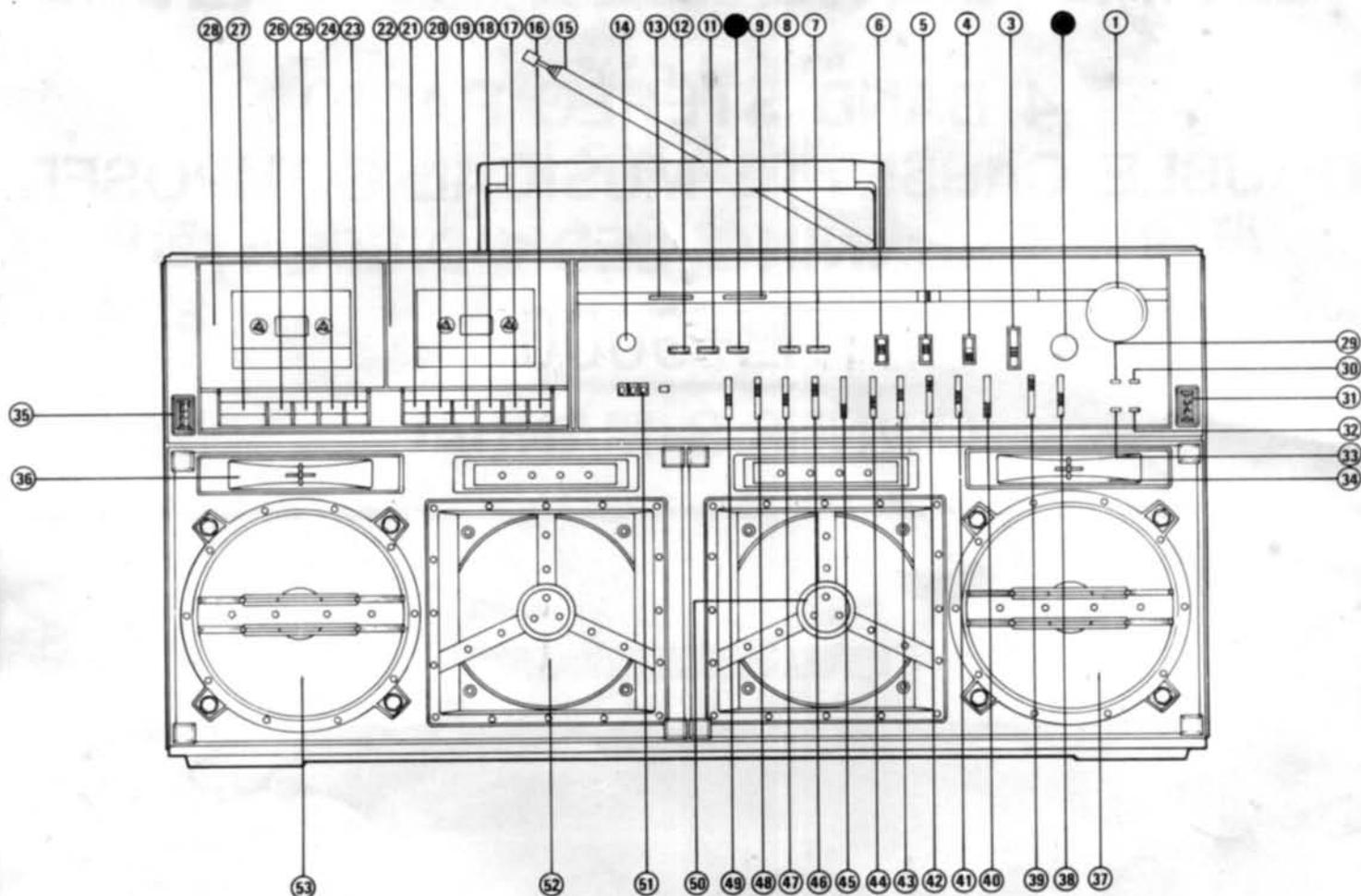
FL-990

OWNER'S MANUAL

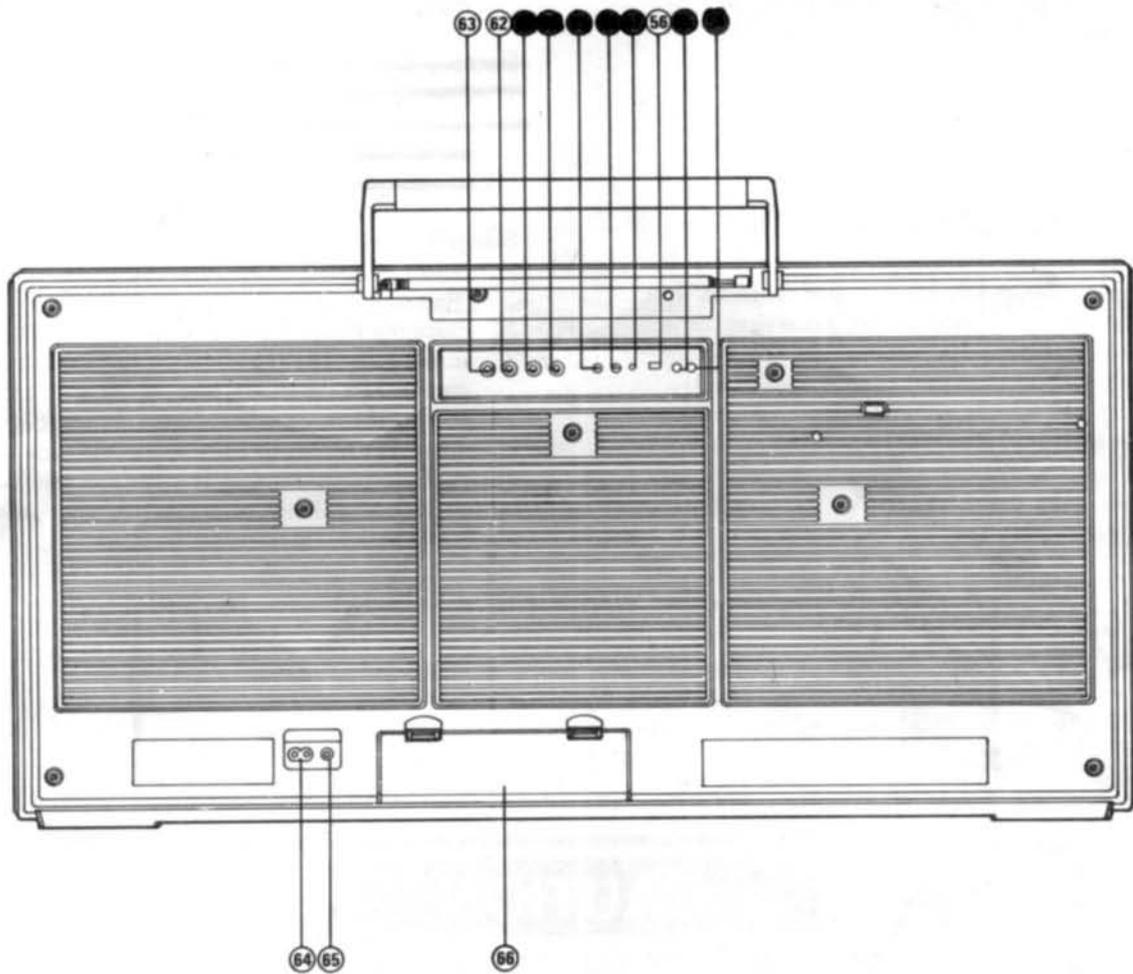


Read this booklet so you will be able to enjoy all the features in your stereo cassette player/recorder.

CONTROLS



- | | |
|--|-------------------------------------|
| 1. Tuning Knob | 22. Deck No. 2 |
| 2. Fine Tuning | 23. Pause Button (PAUSE) |
| 3. Band Selector (FM/SW2/SW1/MW) | 24. Stop/Eject Button (STOP/EJECT) |
| 4. Function Selector (LINE IN/RADIO/TAPE) | 25. Fast Forward Button (F.F.) |
| 5. Mode Selector (Mono/Stereo/Stereo & Disco lite) | 26. Fast Rewind Button (REW) |
| 6. Dubbing Selector (Normal/Off/High Speed) | 27. Play Button (PLAY) |
| 7. Tape Selector For Deck 2 (Normal/Metal) | 28. Deck No. 1 |
| 8. Tape Selector For Deck 1 (Normal/Metal) | 29. Power Indicator |
| 9. LED VU/ Tuning Indicator | 30. Recording Indicator |
| 10. LED Function Selector | 31. Condenser Mic (Right) |
| 11. Continuous Play Switch (ON/OFF) | 32. Continuous Play Indicator |
| 12. Power On/Off Switch | 33. FM Stereo Indicator |
| 13. LED VU/ Battery Level | 34. Tweeter (Right) |
| 14. Headphone Jack | 35. Condenser Mic (Left) |
| 15. Antenna | 36. Tweeter (Left) |
| 16. Pause Button (PAUSE) | 37. Main Speaker (Right) |
| 17. Stop/Eject Button (STOP/EJECT) | 38. Volume Control |
| 18. Fast Forward Button (F.F.) | 39. Balance Control |
| 19. Fast Rewind Button (REW) | 40. 100 Hz Equalizer Control |
| 20. Play Button (PLAY) | 41. 310 Hz Equalizer Control |
| 21. Record Button (RECORD) | 42. 550 Hz Equalizer Control |



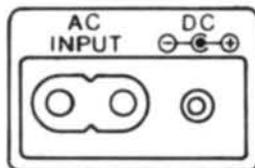
- 43. 1 K Hz Equalizer Control
- 44. 5.5 KHz Equalizer Control
- 45. 10 K Hz Equalizer Control
- 46. 16 K Hz Equalizer Control
- ~~47. 5.5 KHz Equalizer Control~~
- ~~48. 10 KHz Equalizer Control~~
- ~~49. 16 KHz Equalizer Control~~
- 50. Woofer (Right)
- 51. Tape Counter
- 52. Woofer (Left)
- 53. Main Speaker (Left)
- ~~54. External Speaker Jack (Right)~~

- ~~55. External Speaker Jack (Left)~~
- 56. Beat Cut Switch
- ~~57. Remote Control Jack~~
- ~~58. External Mic Jack (Right)~~
- ~~59. External Mic Jack (Left)~~
- ~~60. Line Out (Right)~~
- ~~61. Line Out (Left)~~
- 62. Line In (Right)
- 63. Line In (Left)
- 64. AC Inlet Jack
- 65. External DC Jack
- 66. Battery Compartment

POWER SOURCE

AC Power Operation

Plug the power cord into the AC INLET JACK (64) on the back cabinet of the set, and the other end into an AC 110-127V or 220-240V AC outlet.



Battery Power Operation

1. Open the battery cover, insert 10 "D" size batteries (not supplied) in the battery compartment, observing correct polarity (+, -) indication.
2. Close the battery compartment lid.

External DC (Car Battery) Power Operation

1. Connect the plug of a 15V car adaptor (optional) or 15V external battery into the EXTERNAL DC JACK (65) of the unit.

2. When a plug is connected into the EXTERNAL DC JACK (65), the internal batteries are automatically disconnected.

Battery Check Function

1. Press the POWER SWITCH (12) to the "ON" position.
2. Press the LED FUNCTION SELECTOR (10) to the battery check position; the LED VU/BATTERY LEVEL (13) on the left will indicate the battery level.

Sleep Timer

1. Select the desired radio broadcast as described earlier in 'Radio Operation' paragraph.
2. Place the POWER switch (12) in 'SLEEP' position.
3. Insert a cassette tape into cassette compartment lid guides and depress the PLAY button (20 or 27).

The sound of the radio broadcast can now be heard. The radio broadcast can be heard only while the tape is moving. When the tape comes to its end, it stops automatically. The PLAY button (20 or 27) will return to its original position and the power to the radio is turned off.

WARNING

Some-Sound material may consist of copyrighted works which must not be recorded without the authority of the owner of the copyright. Please refer to relevant law in your country.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

OPERATIONS

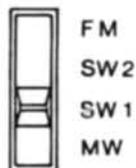
A. RADIO RECEPTION

1. Press the POWER SWITCH (12) to the "ON" position.



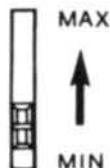
2. Set the BAND SELECTOR (3) to the desired radio band position.

BAND



3. Increase the VOLUME CONTROL (38) slightly from MIN position.

VOLUME



4. Press the MODE SELECTOR (5) to the appropriate position:

- (a) Mono — when receiving weak FM Stereo or Mono broadcast
- (b) Stereo — When receiving FM Stereo broadcast
- (c) Stereo/ Disco Lite — When enjoying music/receiving radio station. You could enjoy your music together with the sparkling Disco-lite.

MODE



- ~~5. Set the LED FUNCTION SELECTOR (10) to the Tune/Battery position.~~

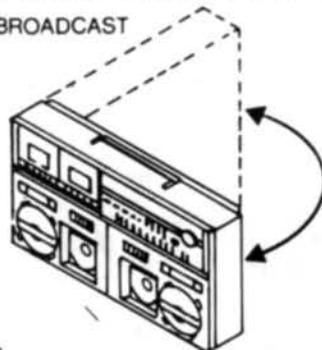


6. Adjusting the ANTENNA (15).

- (a) AM reception

rotate the unit around the vertical axis in order to orientate the internal directional antenna for peak gain.

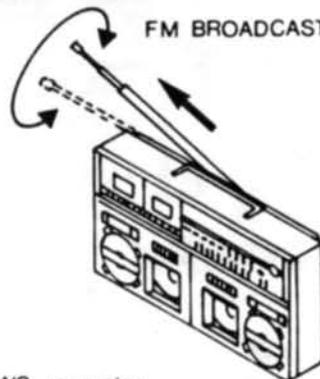
AM BROADCAST



- (b) FM reception

adjust the length and axis of the telescopic antenna until the maximum level received on the LED VU/TUNING INDICATOR (9).

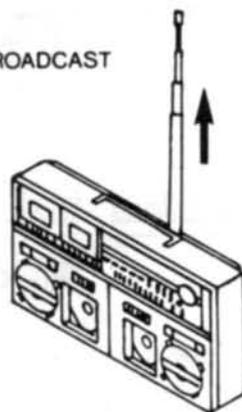
FM BROADCAST



- (c) SW1/SW2 reception

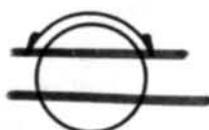
raise and extend telescopic antenna to a vertical position. ~~For further tuning rotate the FINE TUNING (2) until the maximum deflection of the pointer on the LED VU/TUNING INDICATOR (9).~~

SW1, SW2 BROADCAST

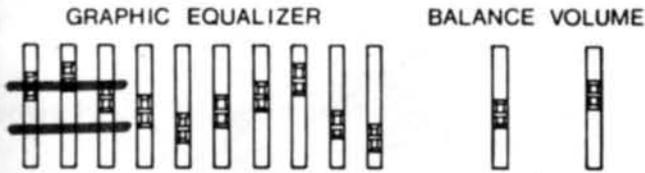


- ~~7. Turning the TUNING KNOB (1) to tune in the desired radio station.~~

TUNING

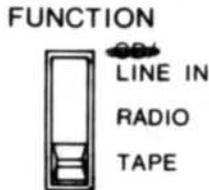


- Continue tuning in the broadcast ~~until the maximum level~~
~~until the maximum level received~~ INDICATOR (9).
- Adjust the VOLUME CONTROL (38), BALANCE CONTROL (39) and EQUALIZER CONTROL (40) – 46 controls for your desired sound volume, stereo effect and tonal balance.

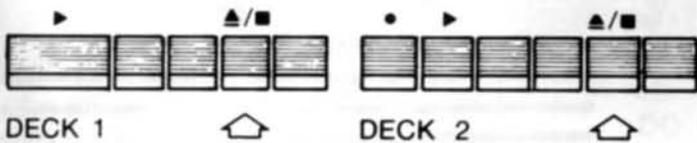


B. TO PLAYBACK A PRERECORDED TAPE

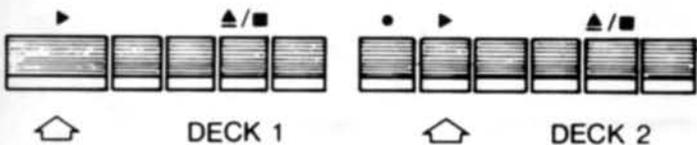
- Set the FUNCTION SELECTION (4) into the tape position.



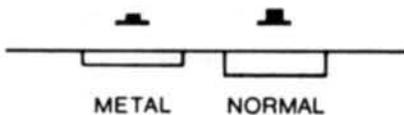
- Press the STOP/EJECT BUTTON (17) or (24) to open the cassette compartment lid and insert the prerecorded tape into deck 2 or deck 1.



- Press the PLAY BUTTON (20) or (27) of the deck 2 or deck 1 to start the tape.



- If the type of tape is metal, set the TAPE SELECTOR (7) or (8) to the "METAL" position.



- Observe same step 9 as "RADIO OPERATION"

C. TO PLAY TWO TAPES CONTINUOUSLY (DECK 1 TO DECK 2)

- Set the FUNCTION SELECTION (4) into tape position.



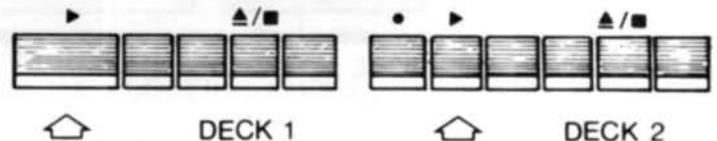
- Press the CONTINUOUS PLAY/MANUAL SWITCH (11) into the C. Play position.



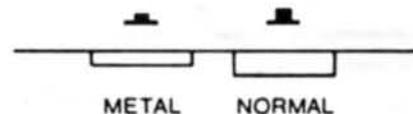
- Press the STOP/EJECT BUTTON (17) and (24) to open the cassette compartment lid and insert the prerecorded tape into deck 2 and deck 1.



- Firstly press the PLAY BUTTON (27) of deck 1, secondly, press the PLAY BUTTON (20) of deck 2. In this case, the tape which was pressed later did not work until firstly pressed tape finished.



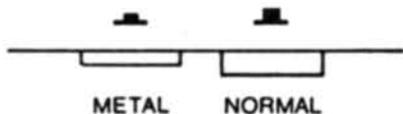
- If the type of tape is metal, set the TAPE SELECTOR (7) and (8) to the "METAL" position.



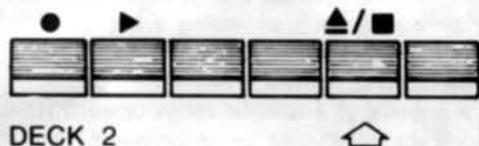
- Observe same step 9 as "RADIO OPERATION"

D. RECORDING FROM RADIO

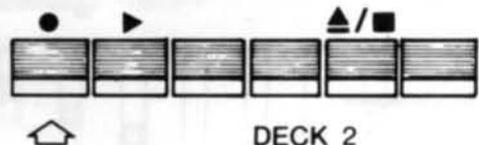
1. Observe same steps 1 to 8 as "RADIO OPERATION"
2. If the type of tape is metal, set the TAPE SELECTOR (7) and (8) to the "METAL" position.



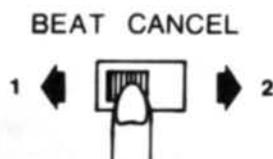
3. Press the STOP/EJECT BUTTON (17) to open the cassette compartment and insert a blank tape.



4. Press the RECORD BUTTON (21) to start recording.



5. When MW, SW1 or SW2 radio reception is hampered by interference, set the BEAT CUT SWITCH (56) on the back of the unit to one of the following positions: 1 or 2 by which the interference will be reduced apparently.



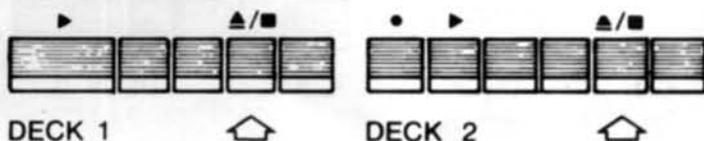
CAUTION: This unit has an ALC circuit and no further adjustment is necessary.

E. SYNCHRONOUS DUBBING (DECK 1 TO DECK 2)

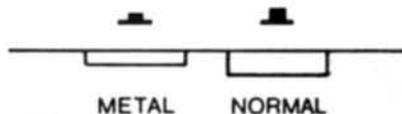
1. Set the FUNCTION SELECTOR (4) into the tape position.



2. Press the STOP/EJECT BUTTON (27) and (24), and insert a blank tape in deck 2 and a prerecorded tape in deck 1.

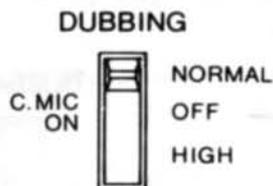


3. If the type of tape is metal, set the TAPE SELECTOR (7) and (8) to the "METAL" position.



4. **NORMAL SPEED**

Press the DUBBING SELECTOR (6) into the "NORMAL" position.



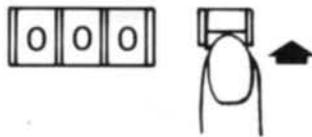
4. **HIGH SPEED**

Set the DUBBING SELECTOR (6) to the "HIGH" position. A

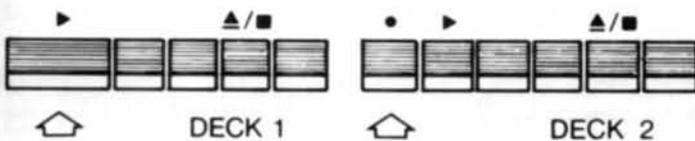


- Press the RESET button at the side of the TAPE COUNTER (51) to reset it to "000". The counter will advance while recording or playback, and it provides a useful reference during these operations.

TAPE COUNTER

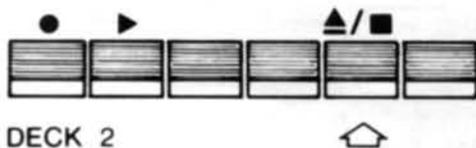


- Press the RECORD BUTTON (21) of deck 2 to start recording and press the PLAY BUTTON (27) of deck 1 to start playing the tape.



F. RECORDING WITH THE BUILT-IN MICS

- Press the STOP/EJECT BUTTON (17) of deck 2 and insert a blank tape.



- Set the FUNCTION SELECTOR (4) into the tape position and set the DUBBING BUTTON (6) to the "OFF" position.

FUNCTION

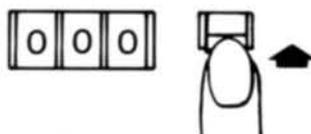


DUBBING

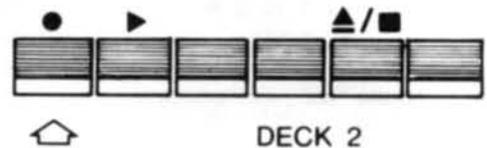


- Press the RESET button at the side of the TAPE COUNTER (51) to reset it to "000". The counter will advance while recording or playback, and it provides a useful reference during these operations.

TAPE COUNTER

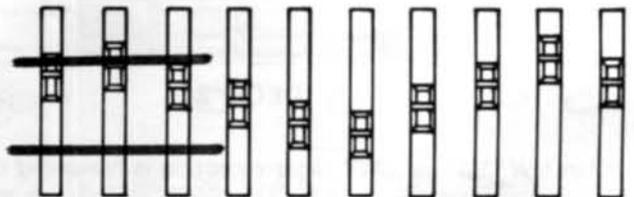


- Press the RECORD BUTTON (21) to start recording.



G. 7-BAND GRAPHIC EQUALIZER CONTROLS

- This graphic equalizer ensures just the "right" degree of tonal adjustment to suit music source, room acoustics and your listening preference. This set incorporates ~~seven~~ ^{seven} sliding adjustors. If you operate it up or down, each providing a big 10dB of boost or cut at 100Hz, ~~100Hz~~, 310Hz, 550Hz, 1KHz, ~~10KHz~~, ~~2.1KHz~~, 5.5KHz, 10KHz, 16KHz.
- Slide a control of a specific range upward (towards + 10 position) to emphasise or downwards (towards - 10 position) to deemphasise the sounds in that particular range. By setting all GRAPHIC EQUALIZER controls to the centre position (0), the frequency responses will become flat.

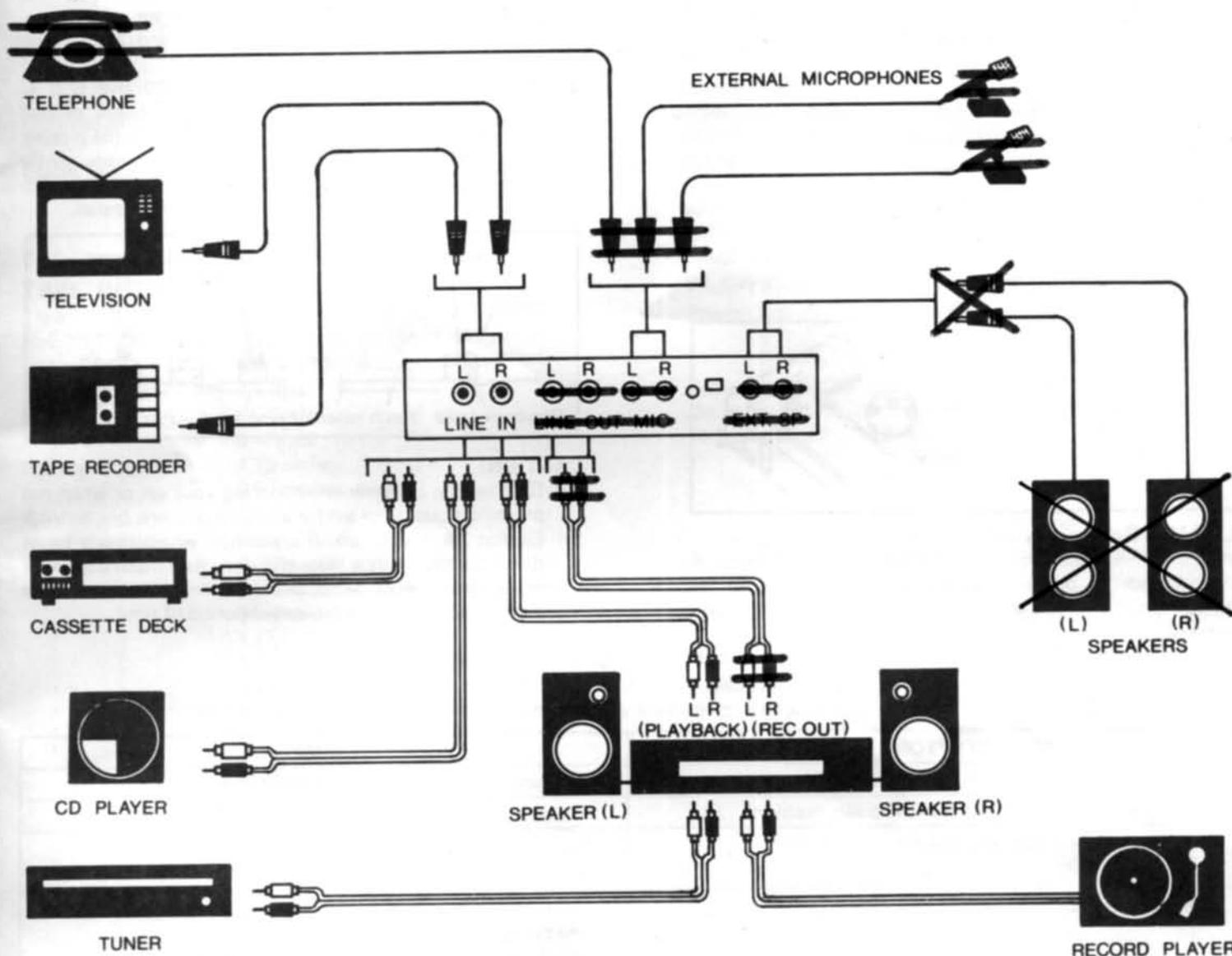


Note: Don't turn up volume fully because of sound distortion, in case of all slide adjustors are in maximum position.

H. DISCO-LITE SYSTEM

- This system to give you more fun to enjoy. You just have to simply set the mode switch to disco-lite position and you could enjoy your favoured music into the sparkling Disco-lite.
- You could set the mode switch to stereo position, In case you just want to enjoy music without Disco-lite.

I. EXTERNAL CONNECTIONS



MONITORING SYSTEM

1. While you are recording from the radio, you can monitor the program at your enjoyable, listening sound level by adjusting volume control.
2. While you are making recording from ~~the external or~~ built-in microphones, internal speaker and headphones are disconnected in order to prevent microphonic feedback sound.

TAPE ERASE

To erase recordings, merely record over the old recording. The old recording will automatically be erased and the new one will be recorded.

STEREO HEADPHONES

You can use a pair of stereo headphones for private listening. Plug them into the HEADPHONE JACK (14) stereo headphone listening provides a unique realism and dimension to stereo sound.

FAST FORWARD AND FAST REWIND SYSTEM

To rapidly advance the tape, press the FAST FORWARD BUTTON (18) or (25). To rewind the tape, press the FAST REWIND BUTTON (19) or (26). Press the STOP/EJECT BUTTON (17) or (24) when desired location or the end of the tape has been reached.

PAUSE BUTTON

If you want to stop the tape temporarily during recording or playback, press the PAUSE BUTTON (16) or (23) again.

AUTO STOP SYSTEM

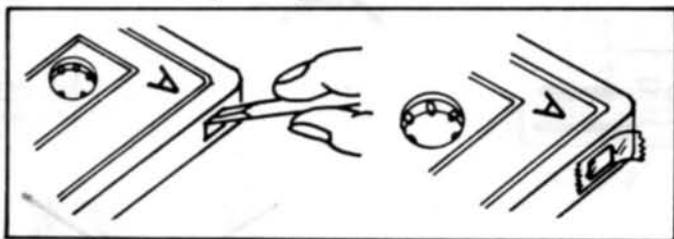
At the end of the tape, during playback or record operations, the auto stop system will function and disengage the mechanism.

MAINTENANCE

ACCIDENTAL ERASURE PREVENTION

The cassettes have a built-in device to prevent accidental of a previous recording. It is a small plastic tab at the back of the cassette. To activate the erase-protect feature, break off the plastic tab with a screwdriver. There is a tab for each side and be sure you break off the correct one. If you want to record again on that cassette, just put a piece of adhesive tape over the opening where you broke off the tap. See the picture.

CAUTION: If you have loaded a cassette with the tabs broken off, don't try to force the RECORD BUTTON (21) and PLAY BUTTON (20) down, you can damage a part of the mechanism by forcing the key.

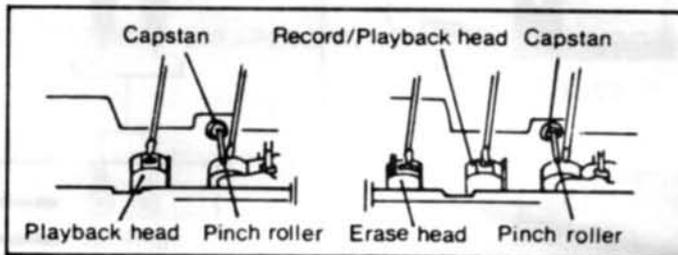


CLEANING

Since the most common cause of tape recorder operation failure is lack of proper cleaning, observance of these few simple rules will guarantee longer playing life for your recorder.

CAUTION:

- Unplug the recorder from AC outlet before cleaning:
1. Press the STOP/EJECT BUTTONS (17) and (24) to open the cassette compartment lid.
 2. Press down the PLAY BUTTONS (20) and (27) so that the record/playback and erasing heads project outward, making it easier to clean them. See the picture.
 3. Wipe the record/playback and erasing heads gently with a soft cloth moistened with rubbing alcohol. Do not forget to also wipe the pinch roller and capstan.



CAUTION:

- Remove the batteries when storing your set or when not planning to use your set for a month or more.
- Do not place your set in a position where it will be in direct contact with a magnetic iron, steel materials, water or source or heat. Also, avoid leaving your set in the direct sunlight cover a prolonged period of time.

IF UNIT FAILS TO OPERATE PROPERLY

Carefully re-read the instructions to be sure the recorder is being operated properly.
Check the following before you take your cassette recorder to a service centre.

SYMPTOMS	CAUSE
The cassette tape does not sit in its place.	The tape is being inserted in reversed direction.
The play button does not lock in the down position.	The tape is at its end. (The auto-stop is functioning)
The record key cannot be pressed down.	No tape is inserted in the compartment. A tape with the safety tabs removed is inserted.
The tape does not run.	The batteries are not installed properly. The batteries are weak. The AC power cord is not inserted correctly. The pause key is pressed down.
The tape does not run on battery.	The AC power cord is inserted in the AC input jack on the unit.
The sound is weak or distorted.	Dirty record/play and erase heads. The batteries are weak.
Tape previous recording cannot be erased.	The erase head is dusty.
The tape runs but no sound.	The volume control is at its minimum position. The headphones are connected to the headphone jack.
The radio will not play.	The function switch is in radio off position.
The recorder does not record from mics.	The function switch is not in the tape/extended play position.
The unit does not dubbing tape to tape.	The function switch is not in the synchro dubbing position.

If you find your set is not working properly after checking the above items, please take it to your nearest service centre.
Do not attempt to repair it by yourself.

SPECIFICATIONS

RADIO

Frequency Range	MW : 525 - 1605 KHz
	SW1 : 2.3 - 7 MHz
	SW2 : 7 - 24 MHz
	FM : 88 - 108 MHz
I.F. Frequency	MW : 455 KHz
	FM : 10.7 MHz
Usable Sensitivity	MW : 800 μ V/m (20 DB S/N)
	SW1 : 40 μ V/m (20 DB S/N)
	SW2 : 40 μ V (20 DB S/N)
	FM : 20 μ V (30 DB S/N)

TAPE RECORDER

Tape	Compact Cassette Tape
Frequency Response	100 - 8000 Hz (normal tape) 80 - 12000 Hz (metal tape)
Recording System	AC Bias
Erasing System	AC Erase
Player System	4 - track stereo
Rec and Player Speed	4.75 cm/sec. (normal) 9.5 cm/sec. (high)
Rewind and Fast Forward Time	2 min. (C-60)
Wow and Flutter	0.35% (JIS) normal speed
Display System	2 x 5 LED for VU Level , Timing 1 LED for FM Stereo 1 LED for Power 1 LED for Cont. Play 1 LED for Recording

Input Terminals

Mic Sensitivity 1 mv/applicable,
microphone

Impedance 600 ohms

Line In Sensitivity 250 mv

Line In Impedance 39K ohms

~~Output Terminals~~

~~Line Out 300 mv/5K ohms~~

~~Ext. Spk 4 - 8 ohms~~

Headphone

Headphone 8 - 32 ohms.

Power Source

AC 110-127V (50/60Hz)

220-240V (50/60Hz)

DC 15V (UM/SUM-1 x 10 or

External 15V DC)

Power Consumption

35W

Power Output

Peak Music Power Output 100W

Music Power 30W

Maximum Power 22W

Dimensions

720 (W) X 370 (H) X 130 (D) MM

Weight

8.7 Kg (without batteries)

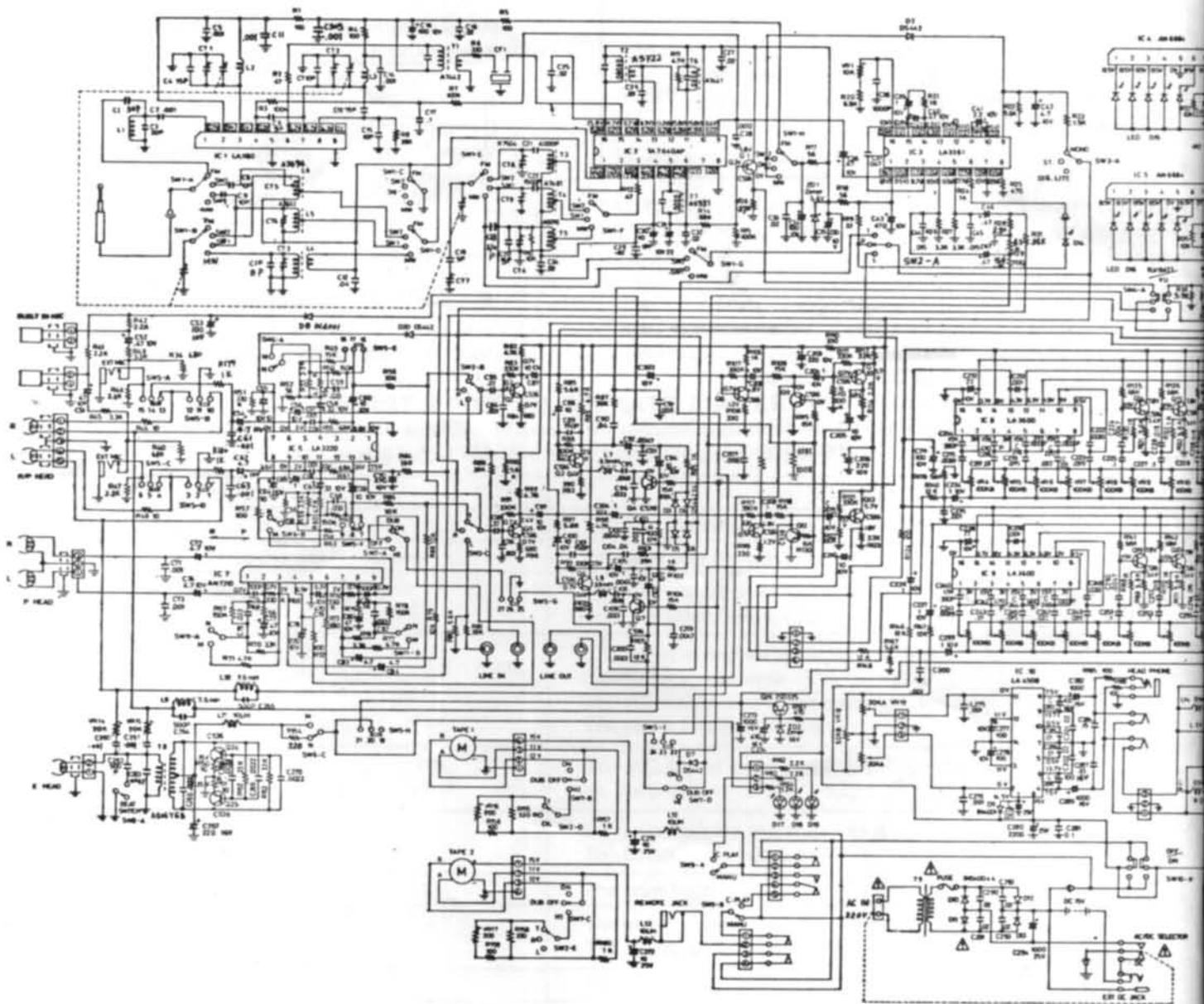
Accessories

AC-Cord

Owners Manual

- Specifications subject to change without notice.

SCHEMATIC DIAGRAM



NOTES:

1. ALL RESISTANCE VALUES ARE INDICATED IN OHM.
2. ALL CAPACITANCE VALUES ARE INDICATED IN UF.
3. DC VOLTAGE MEASUREMENTS ARE TAKEN WITH ELECTRONICS VOLTMETER BASED ON NEGATIVE TERMINAL OF BATTERY. □ FM POSITION, () AM POSITION
4. CIRCUIT DIAGRAM OF THIS MODEL IS SUBJECT TO CHANGE FOR THE IMPROVEMENT WITHOUT PRIOR NOTICE

